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PATENT OFFICE NOTICES

PREFACE TO THE TRADEMARK O.G. NOTICES

In September 1970, a Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce. The Purpose of this Committee was to advise the Patent Office on ways to increase the efficiency and effectiveness of the administration of the Trademark Act. A report of this Advisory Committee has been received by the Commissioner of Patents. After reviewing the recommendations, although the review is not complete, it has been decided to make certain changes in trademark practice and procedure, and to propose changes in the rules of practice. Beginning with this issue of the OFFICIAL GAZETTE and in subsequent issues as needed, announcements will be published concerning changes in procedures and proposed amendments to the Trademark Rules of Practice.

Identification of Goods and Services in Trademark Applications

Effective immediately, the Alphabetical List of Goods and Services which appears in the volume entitled "International Classification of Goods and Services to Which Trade Marks Are Applied" (published by the World Intellectual Property Organization (WIPO)) is adopted as a general guideline for determining the degree of particularity of identification of goods and services required in trademark applications.

Terms which appear in the International Classification listing will generally be accepted as proper identifications of goods and services. The use in the listing of more specific identifications indented below the heading term does not necessarily preclude acceptability of that heading. For example, the International Classification lists, as Item A407, *Ammunition*, followed by specific types of ammunition, as Items A408 and A409 and A410. "Ammunition" will be accepted as an identification in accordance with *In re Dynamit Nobel AG*, 169 USPQ 499 (TTAB, 1971). However, if the more specific term is used whenever appropriate, prosecution of the application may be shortened since the possibility of a requirement of greater particularity (see below) is reduced. Greater particularity than is set forth by the terms in the International Classification listing may not be required by the Examiner in the absence of a clear need therefor. Typical illustrations of clear need can be found in the following situations:

- (1) The broad term includes items which are classified in more than one class. (For example, "artists' materials.")
- (2) The broad term is too indefinite for proper examination. (For example, "metallic parts.")
- (3) (a) The identification is inconsistent with the goods or services disclosed by the specimens.
(b) The ordinary meaning of the identification is at variance with the goods or services disclosed by the specimens or the record. (For example, "decalcomanias" are not adequately identified by the term "publications." See also *Es parte Consulting Publishing Co.*, 115 USPQ 240.)
- (4) Wording included in the mark requires limitation of the identification. (For example, "beer" may not be included in the identification where the mark is "Newark 'Olde Town' Ale" (*Es parte Consumers Brewing Co.*, 55 USPQ 426).)

On the other hand, some situations do not constitute clear need, as illustrated by the following:

- (1) The existence of a decision holding that a likelihood of confusion exists in relation to items which are narrowly identified does not in itself constitute a clear need to require amendment of a broad identification to the more specific items mentioned in the decision.
- (2) If the identification is understood when read in association with the title of the class in which it is placed and is otherwise satisfactory, further qualifying amendment should not be required. (For example, "mufflers" in the clothing class would not require further modification to indicate that articles of clothing are intended; similarly the term "house organ" in

the class for printed publications would not need further qualification.)

In a few instances, the terminology in the International Classification of Goods and Services is not in common usage in the United States. Where this occurs, the term more commonly used in this country should be selected.

The English edition of the "International Classification of Goods and Services to Which Trade Marks Are Applied" can be ordered from:

Sales Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

Certain modifications and additions to the Classification have been published as supplements and are also available from the British Office.

We have been advised by the British Patent Office that the best methods of payment are:

- (a) By International Money Order or by Banker's draft payable in Sterling and drawn on a British bank or,
- (b) By ordinary check drawn on an American bank in dollars and payable to the Comptroller-General, Patent Office. Orders for the International Classification and for the Supplements can be made by method (a) or (b) and should be accompanied by remittance in the following amount(s):
(a) If paid by International Money Order or by Banker's draft:

International Classification	10 shillings	(\$1.20 per copy)
Nov. 15, 1967 supplement	1 shilling	(12¢ per copy)
Mar. 18, 1970 supplement	(free)	
Mar. 3, 1971 supplement	2 shillings	(24¢ per copy)

Total Cost (including postage by surface mail) -- 13 shillings (\$1.56)

- (b) If paid by ordinary check:

International Classification	\$1.45
Nov. 15, 1967 supplement	.15
Mar. 18, 1970 supplement	(free)
Mar. 3, 1971 supplement	.30

Total Cost (including postage by surface mail) -- \$1.90

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.
June 16, 1971.
Published in 36 F.R. 13232; July 16, 1971

Recording of Documents Affecting Title

The Patent Office is liberalizing its policy concerning the recording of documents, other than assignments, which affect title to trademark registrations and applications. Under Rule 2.185 of the Trademark Rules of Practice, instruments affecting title to a trademark registration or application, and licenses of trademarks which are the subject of trademark registrations or applications, will be recorded even though the recording thereof may not serve as constructive notice under Section 10 of the Trademark Act of 1946, as amended (15 U.S.C. 1060).

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.
June 16, 1971.
Published in 36 F.R. 13231; July 16, 1971

Termination of Advancement of Trademark Applications for Examination

The practice of expediting the prosecution of certain new trademark applications as set forth in the notice of March 23, 1966 (825 O.G. TM 54, 104 and 148) entitled "Advancement of Trademark Applications for Examination," is rescinded effective August 1, 1971.

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Pending applications in which a request for accelerated prosecution is filed prior to August 1, 1971, will continue to be expedited in accordance with the notice of March 23, 1966.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.
June 16, 1971.
Published in 36 F.R. 13231; July 16, 1971

Request for Extension of Time in Which to Oppose

The Patent Office is adopting a new procedure to be used when filing a request for an extension of time in which to oppose under Section 13 of the Trademark Act and Rule 2.102, Trademark Rules of Practice. All requests for extension of time should be submitted in triplicate. The Patent Office will stamp each copy of the request with the action taken and send a copy to the requester and the applicant. The third copy will be entered in the file.

The purpose of this new procedure is to expedite the handling of extensions of time by eliminating the preparation of a formal notice of the disposition of the request. Further, this procedure will provide the applicant with additional information concerning the potential opposition.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.
June 16, 1971.
Published in 36 F.R. 13232; July 16, 1971

TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

Chapter I—Patent Office, Department of Commerce

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Division-Continuation Program

The current Rule 147 divisional practice and the "streamlined continuation" program set forth in the notices of February 11, 1966 (824 O.G. 1); May 13, 1966 (827 O.G. 2); May 31, 1966 (828 O.G. 1085) and October 14, 1969 (869 O.G. 1) are superseded by this change in the rules.

The practice under § 1.60 permits persons having authority to prosecute the prior application to file a continuation or divisional application without an oath or declaration, if the continuation or divisional application is a copy of the prior application as filed. However, some of the claims in the prior application as filed may be canceled by amendment in order to reduce the filing fee. An amendment presenting additional claims may accompany the request for filing an application under § 1.60 but such amendment will not be entered until after the filing date has been granted.

Form 3.54 is designed as an aid for use by both applicant and the Patent Office and should simplify filing and processing of applications under § 1.60.

Application copies may be prepared and submitted by the applicant, his attorney or agent, provided they are verified as true copies. No charges will be made for preparation of copies that are retained by the Office.

Notice of proposed rule making regarding a revision of §§ 1.41 and 1.75, an addition of §§ 1.60 and 3.54 and revocation of § 1.147 of Title 37, Code of Federal Regulations, Relating to a division-continuation program, was published in the Federal Register of January 28, 1971 (36 F.R. 1357).

Interested persons were given an opportunity to participate in the rule making process through submission of comments in writing and at an oral hearing held on March 23, 1971.

Full consideration has been given to the comments received and changes in the text of the original proposal have been made in view thereof.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 3 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. In § 1.41, paragraph (a) is revised to read as follows:
§ 1.41 Applicant for patent.

(a) A patent must be applied for and the application papers must be signed and the necessary oath or declaration

executed by the actual inventor in all cases, except as provided by §§ 1.42, 1.43, and 1.47. (See § 1.60.)

2. A new § 1.60 is added to read as follows:

§ 1.60 Continuing application for invention disclosed and claimed in a prior application.

A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment of or termination of proceedings on the prior application. If the application papers comprise a copy of the prior application as filed, signing and execution by the applicant may be omitted provided the copy either is prepared and certified by the Patent Office or is prepared by the applicant and verified by an affidavit or declaration by the applicant, his attorney or agent, stating that it is a true copy of the prior application as filed. Certification may be omitted if the copy is prepared by and does not leave the custody of the Patent Office. Only amendments reducing the number of claims or adding a reference to the prior application (§ 1.78(a)) will be entered before calculating the filing fee and granting of the filing date.

3. In § 1.75, paragraph (d) (2) is revised to read as follows:

§ 1.75 Claim(s).

(d) * * *
(2) See §§ 1.141 to 1.146 as to claiming different inventions in one application.

§ 1.47 [Revoked]

4. Section 1.147 is revoked.

5. Section 3.54 is added to read as follows:

§ 3.54 Division-continuation program application transmittal form.

IN THE UNITED STATES PATENT OFFICE

Docket No. _____

THE COMMISSIONER OF PATENTS,
Washington, D.C. 20231.

Sir: This is a request for filing a

☐ Continuation application under 37 CFR 1.60,

☐ Divisional of pending prior application Serial No. _____ filed on _____ of _____ (inventor) (date)

for _____ (title of invention)

1. ☐ Enclosed is a copy of the prior application as originally filed and an affidavit or declaration verifying it as a true copy.
2. ☐ Prepare a copy of the prior application.
3. ☐ The filing fee is calculated below:

CLAIMS AS FILED, LESS ANY CLAIMS CANCELED BY AMENDMENT

For	Number filed	Number extra	Rate	Basic fee \$65
Total claims	-10=	X	\$2	=
Independent claims	-1=	X	10	=
Total filing fee				

4. ☐ The Commissioner is hereby authorized to charge any fees which may be required, or to credit any overpayment to Account No. _____ A duplicate copy of this sheet is enclosed.
5. ☐ A check in the amount of \$_____ is enclosed.
6. ☐ Cancel claims _____
7. ☐ Amend the specification by inserting before the first line the sentence: "This is a ☐ continuation, ☐ division, of application Serial No. _____ filed _____
8. ☐ Transfer the drawings from the prior application to this application and abandon said prior application as of the filing date accorded this application. A duplicate copy of this sheet is enclosed for filing in the prior application file.

9. ☐ The prior application is assigned to -----
 10. ☐ The power of attorney in the prior application is to -----
 (name, reg. No., and address)
 a. ☐ The power appears in the original papers of the prior application.
 b. ☐ Since the power does not appear in the original papers, a copy of the power in the prior application is enclosed.
 c. ☐ Recognize as associate attorney and address all future communications to -----
 (name, reg. No., and address)

 (Signature)
☐ Inventor(s)
☐ Assignee of Complete Interest
☐ Attorney or agent of record in prior application

Effective date. These amendments shall become effective on September 1, 1971, and will apply to applications filed after that date.

WILLIAM E. SCHUYLER, Jr.,
 Commissioner of Patents.

Approved: June 29, 1971.

JAMES H. WAKELIN, JR.,
 Assistant Secretary for
 Science and Technology.

[FR Doc. 71-9484 Filed 7-2-71; 8:51 am]

Published in 36 F.R. 12689; July 3, 1971

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,581,275, F. C. Mock, FUEL FEED RESPONSIVE TO AIR PRESSURE AND TEMPERATURE, FUEL FLOW, AND SPEED FOR GAS TURBINES; 2,720,751, W. J. Kunz, Jr., FUEL SCHEDULING CONTROL SYSTEM FOR GAS TURBINE ENGINES, filed Mar. 5, 1971, U.S. Ct. of Cl. (District of Columbia), Doc. 78-71, *The Bendix Corporation v. The United States of America*.

2,584,051, M. Rose, BUTTONHOLE FORMING DEVICE, filed Mar. 15, 1968, D.C., S.D. Tex. (Houston), Doc. 68-H-233, *Marie Rose v. F. W. Woolworth Company, and Mite Corporation*. Joint motion for non-suit and to dismiss, with prejudice, Apr. 6, 1971.

2,596,063, J. W. Anderson, WINDSHIELD WIPER BLADE LINKAGE ASSEMBLY, filed Mar. 26, 1953, D.C., W.D.N.Y. (Buffalo), Doc. C-5677, *Anderson Co. and Productive Inventions, Inc. v. Trico Products Corp.* Order withdrawing decision of Dec. 31, 1964, dismissing complaints and counterclaims. Previous report submitted on Dec. 31, 1964 pertained to first cause of action re antitrust. This report relates to patent infringement, Apr. 12, 1971.

2,690,518, Fyler and Rowe, COLOR PICTURE TUBE, filed Mar. 1, 1971, D.C. Mass. (Boston), Doc. 71-510-C, *Columbia Broadcasting System, Inc. v. Philco-Ford Corporation and Philco Distributors, Inc.* Same, filed Mar. 15, 1971, D.C. Mass. (Boston), Doc. 71-621-C, *Columbia Broadcasting System, Inc. v. General Electric Company*. Same, filed Mar. 15, 1971, D.C., N.D.N.Y. (Utica), Doc. 71-CV-118, *General Electric Company v. Columbia Broadcasting System, Inc.* Same, filed Mar. 15, 1971, D.C., N.D.N.Y. (Utica), Doc. 71-CV-119, *General Electric Company v. Columbia Broadcasting System, Inc.* Same, filed Mar. 18, 1971, D.C. Mass. (Boston), Doc. CA-71-650, *Columbia Broadcasting System, Inc. v. Westinghouse Electric Corporation*. Same, filed Mar. 19, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c687, *Columbia Broadcasting System, Inc. v. Zenith Radio Corp. and Rauland Corporation*.

2,691,972, Stump and Helm, LIQUID COOLER FOR INTERNAL COMBUSTION ENGINE, filed Feb. 26, 1971, D.C., S.D. Ind. (Indianapolis), Doc. IP71-C-111, *Daimler-Benz Aktiengesellschaft v. Cummins Engine Company, Inc.*

2,720,751. (See 2,581,275.)

2,736,880, J. W. Forrester, MULTI-COORDINATE DIGITAL INFORMATION STORAGE DEVICE, filed Dec. 30, 1970,

D.C. Mass. (Boston), Doc. 70-2001-F, *Massachusetts Institute of Technology v. Electronic Memories & Magnetics Corporation*. Same, filed Jan. 5, 1971, D.C. Mass. (Boston), Doc. 71-30-F, *Massachusetts Institute of Technology v. Ampex Corporation*.

2,761,177, B. Walters, MANUFACTURE OF ORNAMENTAL AND DISPLAY PLASTIC SHEETS, filed Aug. 21, 1968, D.C.N.J. (Newark), Doc. 839-68, *Ben Walters v. Innoplast Corporation, Hy Fuchs, John Doe 1-5, and Richard Roe 1-5, doing business as Things Beautiful*. Consent judgment for permanent injunction as to Innoplast Corp. and Hy Fuchs; dismissing complaint as to remaining defendants, Feb. 22, 1971.

2,773,119, L. W. Parker, TUNING SYSTEM FOR RADIO AND TELEVISION RECEIVERS, filed Mar. 4, 1971, D.C., S.D. Fla. (Miami), Doc. 71-338-C-CA, *Louis W. Parker v. Westinghouse Electric Corp.*

2,804,935, A. J. L. Hutchinson, VAPOR-LIQUID CONTACTING APPARATUS; 2,804,940, same, PROCESS FOR DEHYDRATING GAS; 2,804,941, same, VAPOR-LIQUID CONTACTING METHOD, filed Apr. 10, 1968, N.D. Okla., No. 68-C-88, transferred to Kansas (Wichita), Doc. W-4137, *Maloney-Crawford Tank Corp. and The Fish Investment Corp. v. Sauder Tank Company, Inc.* Judgment, claims 1, 2, 3, 5, and 6 of 2,804,940 are invalid and not infringed by defendant. Claims 1 and 3 of 2,804,935 and claims 1 and 15 of 2,804,941 are valid and infringed by defendant, Feb. 16, 1971.

2,804,940. (See 2,804,935.)

2,804,941. (See 2,804,935.)

2,828,449, I. L. Kerper, SAFETY FEATURE FOR ELECTRIC WATER-TIGHT DOOR SYSTEMS, filed Mar. 4, 1971, D.C., S.D.N.Y., Doc. 71-957, *Irving L. Kerper v. Grace Line et al.*

2,845,847, Blatt and Jatcko, HOLDDOWN CLAMP, filed Feb. 19, 1971, D.C., E.D. Mich. (Detroit), Doc. 36076, *ISI Mfg., Inc., Leland F. Blatt and Jos. M. Jatcko v. De-Sta-Co Division, Dover Corp.*

2,944,639, W. T. Blake, SHOCK ABSORBER WITH VACUUM COMPENSATOR; 2,944,681, same, RAILWAY DRAFT APPLIANCE, filed Dec. 16, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c3153, *Halliburton Company and William T. Blake v. Keystone Industries, Inc., formerly known as Keystone Railway Equipment Company, Inc.*

2,944,681. (See 2,944,639.)

2,962,709, L. Michels, SELECTIVELY OPERABLE STROBE MARKING CIRCUIT; 2,975,413, Landee, Deen, Fling, Shaw, Davis, Johnston and Bennett, SIMPLIFIED GROUND CONTROLLED APPROACH SYSTEM INCLUDING ADAPTATIONS FOR SURVEILLANCE, PRECISION APPROACH, TAXI AND HEIGHT FINDING; 2,976,521, T. J. Johnson, PERIODIC REFERENCE SIGNAL MODULATION METHOD AND APPARATUS FOR REPRESENTING THE POSITION OF A DEVICE; 3,026,517, Nameth and Stein, RADAR SCANNING SYSTEM, filed Jan. 27, 1969, U.S. Ct. of Cl. (District of Columbia), Doc. 46-69, *ITT Gilfillan, Inc. v. The United States*. Petition dismissed pursuant to Rule 102(a) (1) (III), Mar. 1, 1971.

2,971,259, Hahnau and O'Toole, METHOD AND APPARATUS FOR DETERMINING THE POSITION OF SEWER LEAKS; 3,168,909, Zurbrigen and Steinsberger, METHOD FOR LOCATING AND SEALING PIPE LEAKS, filed May 20, 1970, D.C., S.D. Fla. (Miami), Doc. 70-710-C-CF, *The Penetryn System v. Westwood Lake, Inc. and Fitzgerald Engineering Co., Inc.* Order of dismissal previously entered Sept. 9, 1970 is hereby vacated and this action reinstated. Motion of the third-party defendant for leave to file an amended answer and to file a counterclaim is hereby granted, Dec. 2, 1970.

2,975,413. (See 2,962,709.)

2,976,521. (See 2,962,709.)

3,026,517. (See 2,962,709.)

3,036,642, O. D. Twist, FAN; D. 187,272, same, filed Dec. 22, 1970, D.C., W.D. Wash. (Tacoma), Doc. 4220, *Flex-A-Lite Corporation v. Hurricane Automotive Products*. Decree that defendants are guilty of infringement; enjoined from further infringement, Feb. 3, 1971.

3,119,991, Ludington, Schara and Mohlle, NOVEL FARNACEOUS ANIMAL FOOD, filed Apr. 2, 1968, D.C., N.D. Ill. (Chicago), Doc. 68c593, *General Foods Corp. v. Carnation Company*. Order dated Sept. 23, 1968 is vacated and that the cause hereby is dismissed without prejudice, Sept. 1, 1970.

3,168,909. (See 2,971,259.)

3,404,334, C. L. Marshall, COLOR TELEVISION TEST APPARATUS; 3,539,720, same, PORTABLE TEST APPARATUS FOR COLOR TELEVISION; D. 209,140, same, PORTABLE KINESCOPE JIG FOR TESTING TELEVISION TUBES,

filed Mar. 15, 1971, D.C., E.D.N.Y. (Brooklyn), Doc. 71-C-283, *Cecil L. Marshall v. Telematic-U.X.L. Corp.*

3,539,720, C. L. Marshall, PORTABLE TEST APPARATUS FOR COLOR TELEVISION, filed Jan. 11, 1971, D.C., S.D. Ind. (Indianapolis), Doc. IP71-C-22, *Cecil L. Marshall v. Radio Corporation of America*.

3,539,720. (See 3,404,334.)

D. 187,272. (See 3,036,642.)

D. 209,140. (See 3,404,334.)

Certificates of Correction for the week of Aug. 3, 1971

3,284,529	3,546,130	3,561,079	3,573,798
3,327,207	3,548,299	3,562,230	3,574,129
3,411,916	3,550,496	3,562,289	3,574,203
3,453,212	3,551,413	3,562,722	3,574,234
3,497,770	3,552,903	3,563,850	3,574,421
3,498,966	3,553,930	3,563,957	3,574,611
3,499,839	3,554,132	3,564,563	3,574,773
3,501,318	3,554,941	3,565,002	3,575,478
3,503,615	3,555,050	3,565,175	3,576,266
3,505,514	3,555,343	3,565,644	3,576,421
3,508,942	3,556,221	3,565,834	3,576,498
3,510,477	3,556,310	3,566,302	3,576,752
3,511,546	3,557,352	3,566,326	3,576,753
3,512,482	3,558,087	3,566,699	3,576,966
3,513,236	3,558,233	3,567,424	3,577,171
3,515,491	3,558,487	3,568,053	3,577,216
3,527,584	3,558,543	3,568,316	3,577,233
3,534,580	3,558,575	3,569,810	3,577,402
3,536,852	3,558,677	3,569,916	3,577,470
3,537,757	3,558,735	3,572,638	3,577,471
3,538,443	3,559,775	3,572,807	3,578,185
3,542,129	3,560,051	3,572,971	3,578,546
3,542,861	3,560,433	3,573,268	3,578,651
3,542,875	3,560,879	3,573,546	3,579,423
3,544,633	3,561,016	3,573,593	

Disclaimer

3,535,038.—*Emile Frans Stievenart*, Antwerp, and *Hugo Frans Deconinck*, Deurne-Zuid, Belgium, APPARATUS FOR EXPOSING LIGHT-SENSITIVE COPYING MATERIAL. Patent dated Oct. 20, 1970. Disclaimer filed May 24, 1971, by the assignee, *Gevaert-Agfa, N.V.*

Hereby enters this disclaimer to claims 1 to 11 of said patent.

Erratum

All references to Patent Number 3,578,244 to Lennart G. Erickson, Intermittent Sprinkler Irrigation System, appearing in the OFFICIAL GAZETTE of May 11, 1971, should be deleted inasmuch as such patent was not in fact issued.

Patents Available for Licensing or Sale

Eastman Kodak Company announces that non-exclusive licenses are available to responsible applicants under the following 26 patents. Applications for licenses may be addressed to: The Director, Patent Department, Eastman Kodak Company, 343 State St., Rochester, N.Y., 14650.

3,300,156.	FILM SCROLL INCLUDING AN END FASTENER.
3,315,911.	TAKE-UP REEL FOR MOTION PICTURE PROJECTOR.
3,325,889.	FILM PACKAGING APPARATUS AND METHOD.
3,369,896.	FINAL RINSE BATH FOR COLOR PROCESS.
3,406,620.	AUTOMATIC CONTROL FOR DAYLIGHT OR FLASH OPERATION OF A CAMERA.
3,408,132.	PROJECTION SCREEN.
3,451,732.	MOLDED ROLLER POST.
3,451,817.	COMBINED FORMALDEHYDE AND BIS-BISULFITE ALDEHYDES AS HARDENERS.
3,463,409.	CARTRIDGE.
3,463,411.	REEL AND WEB RETAINING MEANS THEREFOR.
3,465,980.	REEL AND FILM RETAINING MEANS.
3,486,710.	REEL FOR CARTRIDGE LOADING MOTION PICTURE PROJECTORS.
3,491,965.	CARTRIDGE AND REEL ALIGNMENT MEANS.
3,508,718.	SPINDLE FOR CARTRIDGE LOADING.
3,536,276.	CARTRIDGE FOR REEL OF STRIP MATERIAL.
3,537,367.	PHOTOGRAPHIC APPARATUS FOR ARMING PERCUSSION-IGNITABLE FLASH UNITS.

3,544,248.	SOCKET FOR MULTILAMP FLASH UNIT.
3,547,373.	CARTRIDGE AND MEANS FOR LOCATING A CARTRIDGE ON A PROJECTOR OR THE LIKE.
3,550,514.	ADAPTER FOR IGNITING ELECTRICALLY IGNITABLE FLASH LAMPS.
3,550,879.	CINEMATOGRAPHIC CARTRIDGE PROJECTOR APPARATUS.
3,550,880.	FILM STRIPPING MECHANISM.
3,552,286.	FLASH CAMERA.
3,552,683.	CINEMATOGRAPHIC PROJECTORS OR THE LIKE AND CARTRIDGES FOR USE THEREWITH.
3,558,028.	CONTROL DEVICE FOR SELF-THREADING MOTION PICTURE PROJECTOR.
3,576,155.	PHOTOGRAPHIC APPARATUS FOR USE WITH FLASH UNITS HAVING INDIVIDUAL STRIKER ELEMENTS.
3,576,156.	MECHANISM FOR ACTUATING IGNITION OF PERCUSSION-IGNITABLE FLASH LAMPS.

RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 226 patents. Inquiries respecting licenses under RCA patents should be addressed to: RCA Corporation, Staff Vice President, Domestic Licensing, 1133 Avenue of Americas, New York, N.Y., 10036.

3,515,953.	ADAPTIVE DIODE HAVING MOBILE DOPING IMPURITIES.
3,516,004.	SIGNAL TRANSLATING CIRCUIT COMPRISING A PLURALITY OF IGFET AMPLIFIERS CASCADED IN DIRECT COUPLED FASHION.
3,516,066.	REARBACK CIRCUIT FOR INFORMATION STORAGE SYSTEMS.
3,517,114.	COLOR KILLER AND AUTOMATIC CHROMA CONTROL CIRCUITS.
3,517,115.	AUTOMATIC CHROMA CONTROL CIRCUIT.
3,517,119.	DEVICE FOR PRODUCING LINE HALFTONE IMAGES SIMILAR TO THE IMAGES PRODUCED BY THE WOODCUT TYPE METHOD OF PRINTING.
3,517,165.	ARRANGEMENT FOR HANDLING PRINTABLE CHARACTER BIT CODES.
3,517,253.	VOLTAGE REGULATOR.
3,517,272.	MICROWAVE CIRCUIT WITH COAXIAL PACKAGE SEMICONDUCTOR DEVICE.
3,517,596.	SCREENING UNIT FOR HALF-TONE COLOR REPRODUCTION.
3,517,792.	MULTIPLE FONT KEYBOARD.
3,517,994.	ELECTROPHOTOGRAPHIC APPARATUS.
3,518,360.	PORTABLE COLOR TELEVISION CAMERA SYSTEM.
3,518,370.	MODULATION ERROR CANCELLING APPARATUS.
3,518,371.	PRESET SENSITIVITY AND AMPLIFICATION CONTROL SYSTEM.
3,518,457.	PUSH-PULL CURRENT SOURCE.
3,518,482.	TELEVISION RECEIVER HORIZONTAL DEFLECTION OUTPUT STAGE PROTECTION CIRCUIT AND DIRECT VOLTAGE SUPPLY.
3,518,590.	DEFLECTION YOKE AND APPARATUS FOR ITS FABRICATION UTILIZING A MAGNETIC RAMMING TECHNIQUE.
3,518,625.	DEAD TRACK HANDLING.
3,518,627.	COUPLING SYSTEM FOR ELEMENTAL PANEL ARRAY.
3,518,633.	WEIGHTED TIME ACCOUNTING IN TIME SHARED COMPUTER.
3,518,640.	MAGNETIC MEMORY WITH NOISE-CANCELLATION SENSE WIRING.
3,518,749.	METHOD OF MAKING GUNN-EFFECT DEVICES.
3,519,324.	HOLOGRAMS FOR RECONSTRUCTION OF OBJECTS OF EQUAL INTENSITY.
3,519,330.	TURN-OFF METHOD AND CIRCUIT FOR LIQUID CRYSTAL DISPLAY ELEMENT.
3,519,348.	PHOTOMASKS FOR FABRICATION OF SEMICONDUCTOR DEVICES.
3,519,736.	APPARATUS FOR PREVENTING RECEIVER RECORDING OF PARTIAL MULTIPLEXED MESSAGE TRANSMISSIONS.

3,519,737.	RESONANT BANDPASS FILTER HAVING TWO UNDESIRED FREQUENCY CANCELLATION TRAPS.	3,532,944.	SEMICONDUCTOR DEVICES HAVING SOLDERED JOINTS.
3,519,741.	REGULATED HIGH VOLTAGE POWER SUPPLY.	3,532,983.	HIGH INPUT IMPEDANCE SOLID STATE D.C. AMPLIFIER SUITABLE FOR USE IN ELECTRICAL MEASUREMENT.
3,519,766.	PUSHBUTTON MECHANISM.	3,532,897.	THRESHOLD GATE CIRCUITS.
3,519,866.	PHOTOCONDUCTIVE PICKUP TUBE HAVING OPAQUE GOLD PATTERN ENCAPSULATED IN TIN OXIDE LAYER.	3,533,087.	MEMORY EMPLOYING TRANSISTOR STORAGE CELLS.
3,519,941.	THRESHOLD GATE COUNTERS.	3,532,810.	DIGITAL LOGIC CIRCUIT FOR DERIVING SYNCHRONIZING SIGNALS FROM A COMPOSITE SIGNAL.
3,519,944.	ANGLE MODULATION DISCRIMINATOR DETECTOR CIRCUIT.	3,532,817.	MAGNETIC "PEN" FOR A GRAPHIC TABLET.
3,519,996.	RADIATION-SENSING MATRIX CIRCUIT.	3,532,813.	DISPLAY CIRCUIT INCLUDING CHARGING CIRCUIT AND FAST RESET CIRCUIT.
3,520,051.	STABILIZATION OF THIN FILM TRANSISTORS.	3,533,088.	CONTROL CIRCUIT FOR MEMORY.
3,520,722.	FABRICATION OF SEMICONDUCTIVE DEVICES WITH SILICON NITRIDE COATINGS.	3,532,991.	SHIFT CIRCUITS INCLUDING THRESHOLD OR OTHER LOGIC GATES AND HAVING MULTIPLE-PHASE SHIFT PULSES APPLIED TO EACH STAGE.
3,520,998.	SYNCHRONIZING SERVOSYSTEM WITH MEMORY MEANS.	3,532,293.	MAGNETIC TAPE CASSETTE PLAYER APPARATUS.
3,521,119.	RF EXCITATION PUMPING OF GAS LASERS BY MEANS OF A WAVE GUIDE AND COUPLING COILS.	3,534,308.	SUPERCONDUCTIVE MAGNET CONSTRUCTION.
3,521,128.	MICROMINIATURE ELECTRICAL COMPONENT HAVING INTEGRAL INDEXING MEANS.	3,534,245.	ELECTRICAL CIRCUIT FOR PROVIDING SUBSTANTIALLY CONSTANT CURRENT.
3,521,198.	ELECTRONICALLY CONTROLLED DELAY LINE.	3,534,399.	AREA NAVIGATION METHOD AND APPARATUS FOR AIRCRAFT WITH VHF OMNI-RANGE (VOR) AND DISTANCE MEASURING EQUIPMENT (DME).
3,521,242.	COMPLEMENTARY TRANSISTOR WRITE AND READ FOR MEMORY CELL.	3,534,279.	HIGH CURRENT TRANSISTOR AMPLIFIER STAGE OPERABLE WITH LOW CURRENT BIASING.
3,521,244.	ELECTRICAL CIRCUIT FOR PROCESSING PERIODIC SIGNAL PULSES.	3,535,436.	D.C. RESTORATION CIRCUIT WITH ARC-OVER PROTECTION.
3,521,268.	DATA CONVERSION AND DISPLAY APPARATUS.	3,534,893.	DEVICE FOR GENERATION OF A SELF-ACTING FLUID BEARING.
3,522,443.	LIMITING NETWORK.	3,535,011.	METHOD OF MAKING PHOTOEMISSIVE ELECTRON TUBES.
3,522,463.	ELECTRON TUBE MULTICOLOR DUAL PERSISTENCE SCREEN COMPRISING PHOSPHOR-COATED PARTICLES.	3,535,021.	POLARIZATION CONTROLLED PHOTOCHROMIC "WRITE-IN" SYSTEM.
3,522,548.	TEMPERATURE TRACKING OF EMITTER COUPLED DIFFERENTIAL AMPLIFIER STAGE.	3,535,466.	HIGH EFFICIENCY SINGLE-TURN MAGNETIC HEAD.
3,524,976.	BINARY CODED DECIMAL TO BINARY CONVERSION.	3,535,437.	COLOR TELEVISION RECEIVER.
3,524,977.	BINARY MULTIPLIER EMPLOYING MULTIPLE INPUT THRESHOLD GATE ADDERS.	3,534,862.	SEMICONDUCTOR WAFER TRANSPORTING JIG.
3,520,016.	APPARATUS FOR REGULATING THE LIGHT OUTPUT OF A FLASH LAMP.	3,534,595.	CENTRIFUGAL TESTING APPARATUS.
3,525,051.	CASCADE CONNECTED REGENERATIVE AMPLIFIERS.	3,535,444.	NOISE IMMUNE VIDEO CIRCUITS.
3,525,055.	TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR.	3,537,028.	CONFOCAL SEMICONDUCTOR DIODE INJECTION LASER.
3,525,086.	STORAGE SYSTEM EMPLOYING MAGNETIC TAPE CARTRIDGES.	3,537,082.	DECODER FOR SELF CLOCKING DIGITAL MAGNETIC RECORDING.
3,525,801.	SERVICE AID FOR COLOR TELEVISION RECEIVER.	3,537,071.	COUPLING SYSTEM FOR PANEL TYPE AR-RAY.
3,525,952.	DUPLEXER HAVING TWO NON-RECIPROCAL PHASE SHIFTING MEANS.	3,536,039.	MARKING DEVICE.
3,526,836.	STATISTICAL METHOD, UNDER COMPUTER CONTROL, FOR THE MANUFACTURE AND TEST OF MASS PRODUCED ARTICLES.	3,536,462.	METHOD OF EVACUATING AND SEALING A GLASS ENVELOPE CONTAINING A PHOTOCONDUCTIVE DEVICE.
3,526,851.	FILAMENTARY STRUCTURE INJECTION LASER HAVING A VERY NARROW ACTIVE JUNCTION.	3,536,958.	AMPLIFIER PROTECTION CIRCUIT.
3,527,879.	COLOR IMAGE PROJECTION SYSTEM.	3,536,526.	METHOD FOR PREPARING CATHODES.
3,527,886.	COMPOSITE TELEVISION VIDEO SWITCHING CIRCUIT.	3,535,757.	METHOD FOR MAKING CATHODE ASSEMBLY FOR ELECTRON TUBE.
3,528,018.	BILEVEL VIDEO SIGNAL RECONSTRUCTION CIRCUIT.	3,536,858.	RANDOM ACCESS OPTICAL SOUND TRACK REPRODUCER WITH AUTOMATIC GAIN CONTROLLED AMPLIFIERS RESPONSIVE TO A REFERENCE ZONE ON EACH TRACK.
3,528,020.	VOLTAGE REGULATED SIGNAL TRANSLATING CIRCUIT.	3,537,029.	SEMICONDUCTOR LASER PRODUCING LIGHT AT TWO WAVELENGTHS SIMULTANEOUSLY.
3,529,294.	INFORMATION SWITCHING AND STORAGE CIRCUITRY.	3,535,774.	METHOD OF FABRICATING SEMICONDUCTOR DEVICES.
3,530,468.	TRIANGULATION RADAR SYSTEM.	3,537,332.	CAPSTAN AND FLYWHEEL ARRANGEMENT FOR MAGNETIC TAPE TRANSPORT.
3,530,439.	COMPUTER MEMORY ADDRESS GENERATOR.	3,537,890.	CONDUCTIVE COATINGS OF TIN OXIDES.
3,530,445.	RANDOM ACCESS MEMORY WITH QUIET DIGIT-SENSE SYSTEM.	3,538,244.	IDENTIFICATION CIRCUIT FOR PHASE ALTERNATING LINE SYSTEM OPERATION OF COLOR VIDEO TAPE RECORDERS.
3,531,657.	INTEGRATED CIRCUIT AMPLIFIER BIASING ARRANGEMENT.	3,537,971.	APPARATUS FOR ELECTROPLATING A RIBBON.
3,531,730.	SIGNAL TRANSLATING STAGE.	3,538,448.	GAIN CONTROLLED AMPLIFIER.
3,530,780.	PHOTOCOMPOSING APPARATUS.	3,538,466.	TELEVISION TUNER CAST HOUSING WITH INTEGRALLY CAST TRANSMISSION LINES.
3,531,779.	METHOD FOR POLING BISMUTH TITANATE.	3,537,710.	CARTRIDGE DEBRIS TRAP.

- 3,537,661. PRESSURE ROLLER CONSTRUCTION.
 3,538,994. APPARATUS FOR CONVEYING TONER PARTICLES.
 3,539,823. LOGIC CIRCUIT.
 3,540,923. ION BOMBARDMENT OF INSULATED GATE SEMICONDUCTOR DEVICES.
 3,541,235. KEYING CIRCUIT.
 3,540,361. OPTICAL FIELD CORRECTION DEVICES FOR AN ELECTRONIC PHOTOCOMPOSITION SYSTEM.
 3,541,440. USE IN AN AUTOMATIC TESTING SYSTEM OF A SIMULATOR AN ARTICLE BEING TESTED FOR TESTING THE TESTING SYSTEM.
 3,541,462. APPARATUS FOR MEASURING LOW VOLTAGES AND CURRENTS WITH AMPLIFIERS PROTECTIVE MEANS.
 3,541,247. ELECTRO-OPTICAL SCANNER.
 3,540,796. ELECTRO-OPTICAL COMPOSITIONS AND DEVICES.
 3,541,234. VIDEO CIRCUITS EMPLOYING CASCODED COMBINATIONS OF FIELD EFFECT TRANSISTORS WITH HIGH VOLTAGE, LOW BANDWIDTH BIPOLAR TRANSISTORS.
 3,541,475. LINE TERMINATING CIRCUITS.
 3,541,240. AUTOMATIC BEAM CURRENT LIMITING USING REFERENCE CURRENT SOURCES.
 3,540,812. SPUTTER ION PUMP.
 3,541,525. MEMORY SYSTEM WITH DEFECTIVE STORAGE LOCATIONS.
 3,541,241. CIRCUIT FOR ELIMINATING SPURIOUS MODULATION OF THE SUBCARRIER FREQUENCY OSCILLATOR IN A COLOR TELEVISION RECEIVER.
 3,541,242. COLOR TEMPERATURE CORRECTION CONTROLLED BY THE COLOR KILLER AND COLOR OSCILLATOR.
 3,541,553. SATELLITE COMMUNICATIONS SYSTEMS.
 3,541,515. SINGLE WIRE CROSSPOINT SWITCHING CIRCUIT WITH EXTERNAL SIGNALING.
 3,541,466. GATED DIFFERENTIAL AMPLIFIER.
 3,542,946. VIDEO RECORDING AND REPRODUCING APPARATUS UTILIZING A SINGLE TRACK ON A MAGNETIC TAPE FOR THE LUMINANCE AND COLOR INFORMATION COMPONENTS OF A COLOR TELEVISION SIGNAL.
 3,543,106. MICROMINIATURE ELECTRICAL COMPONENT HAVING INDEXABLE RELIEF PATTERN.
 3,542,950. SERVOMOTOR SYSTEM.
 3,542,452. TRANSITORY HOLOGRAM APPARATUS.
 3,542,286. TIMING SYSTEM FOR READOUT OF STORED DATA.
 3,543,240. LIGHT PEN OPERATING WITH REMOTE GRAPHIC DISPLAY.
 3,542,284. ELECTROMECHANICAL COUPLING.
 3,544,811. LOCK-IN PREVENTION IN TRANSISTOR DEFLECTION CIRCUITS.
 3,544,810. SPURIOUS OSCILLATION SUPPRESSION IN TRANSISTOR DEFLECTION CIRCUITS.
 3,543,841. HEAT EXCHANGER FOR HIGH VOLTAGE ELECTRONIC DEVICES.
 3,544,831. GRID SUPPORT FOR ELECTRON TUBES.
 3,544,902. RECEIVER GAIN CONTROL SYSTEM PROVIDING NEGATIVE RESISTANCE STABILIZATION.
 3,544,832. TRAVELING WAVE TUBE WITH EVAPORATED NICKEL ATTENUATOR COATING AND METHOD OF MANUFACTURE THEREOF.
 3,544,860. INTEGRATED POWER OUTPUT CIRCUIT.
 3,544,738. MOMENTARY RETAINING TRANSLATION MEANS FOR MULTIPLE SWITCHES.
 3,544,316. SUPERCONDUCTORS.
 3,544,982. MULTI-HEAD MAGNETIC TRANSDUCER.
 3,546,528. CAPACITOR DISCHARGE IGNITION CIRCUIT.
 3,546,611. HIGH VOLTAGE WIDE BAND AMPLIFIER.
 3,546,618. LOW POWER, HIGH STABILITY DIGITAL FREQUENCY SYNTHESIZER.
 3,546,487. DRIVE CIRCUIT FOR DIGIT LINES.
 3,546,495. SEMICONDUCTOR LASER LOGIC APPARATUS.
 3,546,681. PROGRAMMER METHOD FOR MANIPULATING ELECTRONIC FONTS IN ELECTRONIC PHOTOCOMPOSING SYSTEMS.
 3,546,627. TRANSISTOR HIGH CURRENT SWITCHING AND INVERTER CIRCUITS.
 3,546,075. EXPANDABLE METAL STRUCTURE MAKING BY ETCHING.
 3,545,834. SEQUENTIAL INFORMATION HOLOGRAM RECORD.
 3,546,637. TUNABLE MICROSTRIP BAND PASS FILTER UTILIZING GIROMAGNETIC MATERIAL AT THE JUNCTION OF TWO CONDUCTIVE LOOPS.
 3,546,373. COLOR TELEVISION CAMERA OVERLOAD COMPENSATING SYSTEM.
 3,546,372. VERTICAL AND HORIZONTAL APERTURE EQUALIZATION.
 3,545,767. AUTOMATIC RECORD CHANGER.
 3,546,602. BURST FLAG GENERATOR.
 3,546,617. DIGITAL FREQUENCY SYNTHESIZER.
 3,547,628. PROCESS OF THERMOPLASTIC DEFORMATION IMAGING.
 3,548,233. CHARGE STORAGE DEVICE WITH PN JUNCTION DIODE ARRAY TARGET HAVING SEMICONDUCTOR CONTACT PADS.
 3,548,236. DARK TRACE CATHODE RAY TUBE WITH PHOTOCHROMIC IMAGE SCREEN.
 3,548,315. COMPENSATED VHF-UHF AUTOMATIC GAIN CONTROL DELAY SYSTEM.
 3,549,251. ELECTROPHOTOGRAPHIC METHOD AND APPARATUS.
 3,549,899. INPUT AND OUTPUT EMITTER-FOLLOWER CML CIRCUITRY.
 3,549,900. CURRENT MODE SWITCHING CIRCUIT.
 3,549,904. NON-DESTRUCTIVE READ-OUT MEMORY CELL.
 3,549,911. VARIABLE THRESHOLD LEVEL FIELD EFFECT MEMORY DEVICE.
 3,550,089. COMPLEMENTARY SEMICONDUCTOR MATRIX ARRAYS FOR LOW POWER DISSIPATION LOGIC APPLICATION.
 3,550,096. PHOTOCHROMIC MEMORY IN WHICH MEMORY LOCATION IS SELECTIVELY HEATED DURING WRITE CYCLE.
 3,550,828. TAPE LEVEL SENSOR.
 3,551,026. CONTROL OF OPTICAL PROPERTIES OF MATERIALS WITH LIQUID CRYSTALS.
 3,551,689. ALTERNATING CURRENT DRIVEN LOAD CIRCUIT.
 3,551,693. CLOCK LOGIC CIRCUITS.
 3,551,696. OSCILLATING VOLTAGE RANGE INDICATOR.
 3,551,787. THYRISTOR CONTROL CIRCUIT USING D.C. CONTROLLABLE TRIGGERING MEANS.
 3,551,819. UHF-VHF TUNER WITH U-SHAPED STRIP BALANCED TRANSMISSION LINE.
 3,551,842. SEMICONDUCTOR LASER HAVING HIGH POWER OUTPUT AND REDUCED THRESHOLD.
 3,551,898. COMPUTER MEMORY ADDRESSING.
 3,551,900. INFORMATION STORAGE DECODER SYSTEM.
 3,551,997. METHODS FOR ELECTROLESS PLATING AND FOR BRAZING.
 3,552,824. PHOTOCHROMIC LIGHT VALVE.
 3,553,485. RFI-PROTECTED FLIP-FLOP.
 3,553,500. MICROSENSING NETWORK.
 3,553,536. SEMICONDUCTOR RECTIFIERS HAVING CONTROLLED AND RECOVERY CHARACTERISTICS.
 3,553,676. ELECTRO-OPTICAL COMPOSITION SYSTEM.
 3,553,731. ANTENNA COMPRISING RESTRAINING MEANS FOR RESILIENT SUPPORT MEMBERS.
 3,553,357. SWITCHING MODE CONTROL CIRCUITS.
 3,553,828. LEAD ASSEMBLY STRUCTURE FOR SEMICONDUCTOR DEVICES.
 3,554,637. PICTURE PROJECTION WITH SOUND.
 3,554,796. METALLIZATION OF TITANATE WAFERS.
 3,554,821. PROCESS FOR MANUFACTURING MICRO-MINIATURE ELECTRICAL COMPONENT MOUNTING ASSEMBLIES.

- 3,554,832. PROCESS FOR HANDLING AND MOUNTING SEMICONDUCTOR DICE.
 3,555,175. KINESCOPE BIAS TRACKING CIRCUITS.
 3,555,182. PLURAL OPERATING MODE AUTOMATIC GAIN CONTROL SYSTEM.
 3,555,195. MULTIPLEX SYNCHRONIZING CIRCUIT.
 3,555,249. SELF-CORRECTING SHIFT COUNTER.
 3,555,309. ELECTRICAL CIRCUITS.
 3,555,343. AUTOMATIC DEGAUSSING CIRCUIT FOR TV HAVING HALF-WAVE VOLTAGE DOUBLER POWER SUPPLY.
 3,555,433. BI-DIRECTIONAL SHIFT REGISTER.
 3,555,460. ELIMINATION OF MODE SPIKES IN MICRO-WAVE FERRITE PHASE SHIFTERS.
 3,555,518. RECORDING TRANSDUCER SELECTION LIMITER.
 3,555,520. MULTIPLE CHANNEL DISPLAY SYSTEM.
 3,555,640. METHOD OF MOUNTING A HEATER IN A TUBULAR CATHODE.
 3,556,035. SAILING VESSEL.
 3,556,244. VEHICLE ROAD GUIDANCE SYSTEM.
 3,556,879. METHOD OF TREATING SEMICONDUCTOR DEVICES.
 3,556,880. METHOD OF TREATING SEMICONDUCTOR DEVICES TO IMPROVE LIFETIME.
 3,556,966. PLASMA ANODIZING ALUMINIUM COATINGS ON A SEMICONDUCTOR.
 3,557,430. DE-SOLDERING APPARATUS.
 3,558,208. OPTICAL COMPENSATING FILTER WITH SELECTIVE RADIAL ABSORPTION DISTRIBUTION.
 3,558,310. METHOD FOR PRODUCING A GRAPHIC IMAGE.
 3,558,806. MATRIXING APPARATUS.
 3,558,815. VIDEO SIGNAL SWITCHING-STEP SUPPRESSOR.
 3,558,889. BULK SEMICONDUCTOR LIGHT RADIATING DEVICE.
 3,558,953. BEAM LANDING ERROR CONTROL APPARATUS FOR MAGNETICALLY FOCUSED CATHODE RAY TUBES.
 3,558,954. COLOR TUBE HAVING GROUND PLANE BETWEEN FOCUS ELECTRODES AND SCREEN GRIDS.
 3,558,992. INTEGRATED CIRCUIT HAVING BONDING PADS OVER UNUSED ACTIVE AREA COMPONENTS.
 3,559,030. PULSE WIDTH MODULATED SOLID STATE REGULATED POWER SUPPLY.
 3,559,097. HIGH POWER, HIGH EFFICIENCY SILICON AVALANCHE DIODE UHF AND L BAND OSCILLATOR.
 3,559,127. SUPERCONDUCTIVE MAGNET CONSTRUCTION.
 3,559,130. SUPERCONDUCTIVE MAGNET AND METHOD OF CONSTRUCTING SAME.
 3,559,203. AGITATION SENSITIVE ALARM CIRCUIT.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 13, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-01-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	3-02-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions-(Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	7-01-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-03-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-12-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	10-12-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordinance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	2-09-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-30-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	7-06-70
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2-27-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	6-23-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	7-01-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	5-01-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	6-01-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	8-10-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	7-01-70

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 70th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1964 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

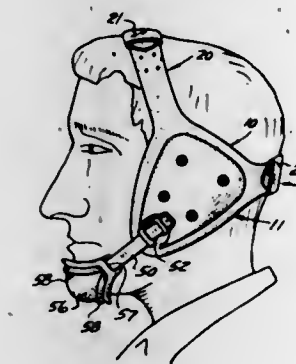
Patents..... Numbers 2,682,658 to 2,685,084, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

PATENTS

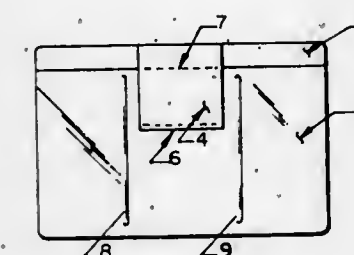
GRANTED AUGUST 3, 1971

GENERAL AND MECHANICAL

3,596,288
WRESTLING HELMET
John L. Marchello, 56405 Grand River, New Hudson, Mich.
Filed Apr. 9, 1970, Ser. No. 26,955
Int. Cl. A63b 71/10
U.S. Cl. 2—3

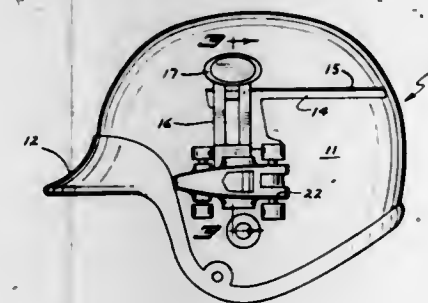


3,596,290
SIDE GLARE SPECTACLE VISOR, assignor to Francis B. Kennedy, 3000 N. Romero Road, A-6, Tucson, Ariz.
Filed Sept. 5, 1968, Ser. No. 757,602
Int. Cl. A61f 9/08
9 Claims U.S. Cl. 2—13
2 Claims



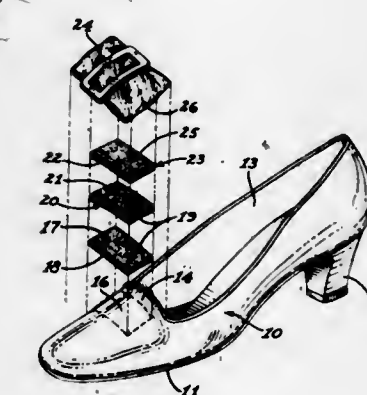
A thin sheet of moderately transparent material is provided with a spring clip for fastening the sheet to one temple of a pair of spectacles.

3,596,289
COMBINATION HELMET AND HANGER MEANS FOR CARRYING TOY VEHICLES
Cecil F. Adickes, Playa Del Rey, Calif., assignor to Tonka Corporation, Mound, Minn.
Filed May 1, 1970, Ser. No. 33,730
Int. Cl. A42b 3/00, 1/24
U.S. Cl. 2—3
2 Claims



A helmet of rigid material adapted to be worn on the head of a child, the helmet having a plurality of horizontal slots formed in the head encircling side portions thereof, and a plurality of hanger members each having a clip adapted to be engaged in one of said slots and a means for detachably carrying a miniature toy vehicle enabling the child to carry a plurality of such vehicles on the helmet for selective detachment and use in play.

3,596,291
SHOE-BUCKLE MOUNTING
Cecilia E. Thill, 7534 E. Osborn Road, Scottsdale, Ariz.
Filed Sept. 15, 1969, Ser. No. 857,807
Int. Cl. A41d 27/08
U.S. Cl. 2—245
2 Claims

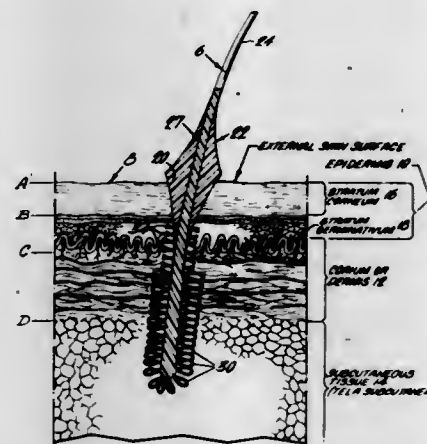


A mounting arrangement for securing a buckle to a shoe confined to the outer surface of the shoe so as not to in any way interfere with the original smooth and comfortable inside surface of the shoe, the buckle being demountably secured to the shoe.

3,596,292
HAIR IMPLANT STRUCTURE
Robert A. Erb, Schuylkill Township; William B. Tarpley, Jr., West Chester, and Peter Schuyler Francis, Rose Valley, all of, Pa., assignors to The Franklin Institute, Philadelphia, Pa.
Filed Feb. 20, 1969, Ser. No. 800,847
Int. Cl. A61f 1/00; A61b 17/00; A41g 5/00
U.S. Cl. 3—1
22 Claims

A hair implant suitable for placement in the human scalp to overcome the appearance of baldness. The implant may be small to provide only one or a few hairs per implant, or may be larger to cover a substantial area and to provide a larger number of hairs. The implant has a percutaneous portion with elastic properties similar to those of the living skin in

which it is implanted, and has a cross section diverging outwardly from the skin so that an acute angle is formed between the lateral surfaces of the percutaneous portion of the implant and the surface of the adjacent skin in which it is implanted. This construction enhances the seal between implant and surrounding skin surface so as to minimize chances



of infection. To prevent rejection of the implant, the implant is made of body-compatible materials and is provided with an anchoring portion comprising a tissue-permeable structure, such as velour loops, situated below the stratum germinativum, in the corium and/or subcutaneous tissue, and permeated by the living and growing tissue.

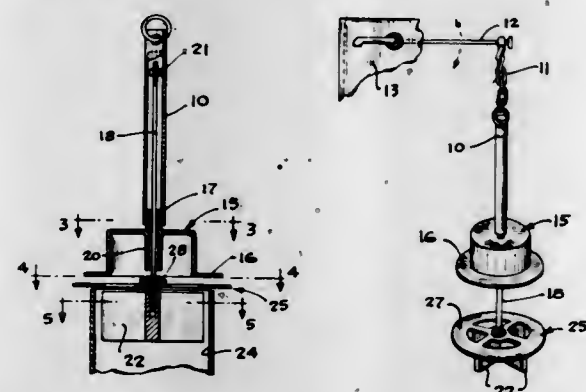
3,596,293

FLUSH TANK VALVE

Thomas Thomas, 1110 Breezy Meadow Lane, Spencer, Iowa
Division of Ser. No. 796,264, Jan. 6, 1969, Pat. No. 3,555,572
Filed July 30, 1970, Ser. No. 59,457
Int. Cl. E03d 1/34

U.S. Cl. 4—58

3 Claims



A flush valve for toilet water tanks which comes as a unit and can be installed by setting it over the drainpipe and connecting it to the lift lever. The valve contains weights to hold the device in place and a buoyant sealing cup associated with a stem which operates in a sleeve.

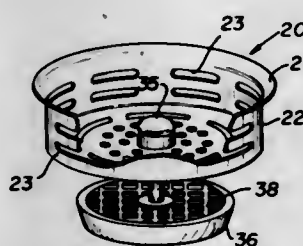
3,596,294

SINK-DRAIN DEVICE

Frank P. Hoffman, 1270 E. 19th St., Brooklyn, N.Y.
Filed May 11, 1970, Ser. No. 36,291
Int. Cl. A47k 1/14; E03c 1/26

U.S. Cl. 4—287

3 Claims



This invention comprises an improved basket strainer or sink-drain device and includes an improved stop valve therefor. The improved strainer consists of the provision of a plurality of elongated apertures having integral baffle plates adapted to deflect the flow of waste water from the perimeter of the strainer toward the center thereof and an improved

stop valve having a cuplike catch basin having a disk screen retainer thereon for entrapping all solid waste articles of an elongated configuration.

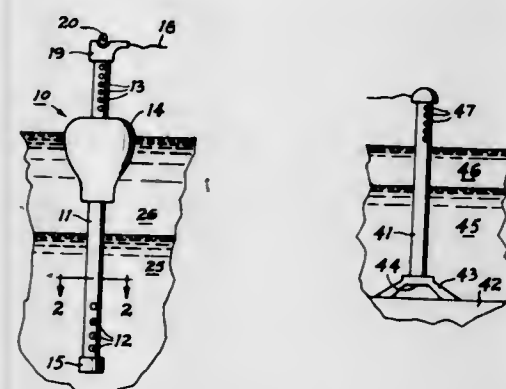
3,596,295

ICE PROTECTION SYSTEM FOR SWIMMING POOLS

John C. Wilson, Rochester, N.Y., assignor to Quarius Corp., Ontario Center, N.Y.
Filed Sept. 25, 1969, Ser. No. 861,050
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4—172.15

8 Claims



A swimming pool is protected from ice damage by an internally heated tube placed to form a water passageway extending above and below the expected ice level so water can be forced up through the tube from below the ice and discharged above the ice to relieve the pool of under-ice pressure.

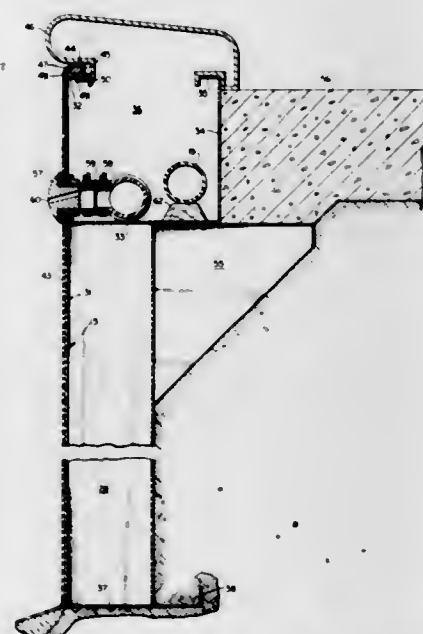
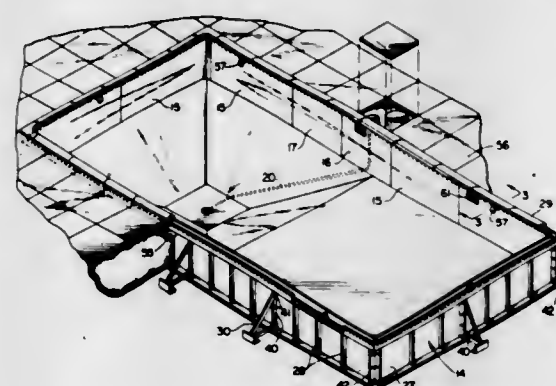
3,596,296

PREFABRICATED SWIMMING POOL

Raymond A. Gertz, 71 Chatham Road, and Junius Gertz, 11 Lenox Road, both of Cranston, R.I.
Filed Mar. 20, 1970, Ser. No. 21,402
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4—172.17

6 Claims



A lined pool which has standardized vertical wall sections with upper troughs and flexible supply piping and flexible

skimmer piping housed in said troughs to eliminate the need for a watertight trough and the problem of ground support or ground engagement with the piping.

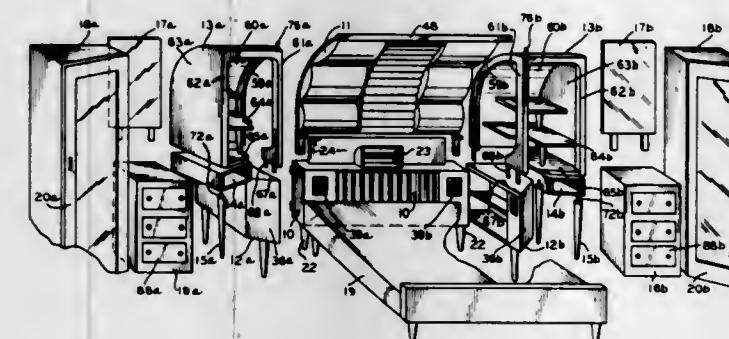
3,596,297

MODULAR FURNITURE

Herbert James, 331 W. 17th St., Lorain, Ohio
Filed Dec. 29, 1969, Ser. No. 888,790
Int. Cl. A47b 47/00; A47c 13/18

U.S. Cl. 5—2

15 Claims



A central base unit has hinged cabinets at the ends adapted to be pivoted forwardly at right angles to the base unit to form a cubicle. A main canopy is provided on the base unit and supplementary canopies are supported on the hinged cabinets and either by dresser units or detachable legs. Wardrobes are provided for disposition outwardly of the dressers. Various subcombinations can be formed from the various parts.

3,596,298

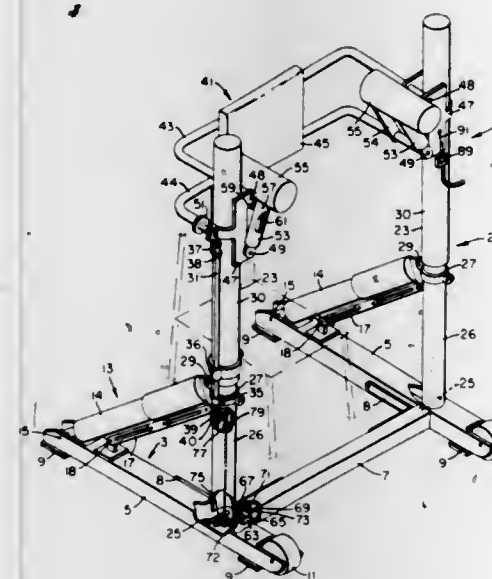
LIFTING DEVICE

John A. Durst, Jr., 1050 Graham Hill Road, Santa Cruz, Calif.

Filed May 14, 1969, Ser. No. 824,630
Int. Cl. A61g 7/10; A47c 7/54

U.S. Cl. 5—81

7 Claims



Lifting apparatus adaptable for aiding an ambulatory handicapped person. The apparatus may accommodate a person between a sitting position and a standing position. The apparatus aids in raising or lowering the individual between the two positions. The apparatus includes a pair of arm rests for engaging an individual beneath the junction of the arm and shoulder. The apparatus provides lateral and vertical movement of the rests. The vertical motion of the rests responds to a first piston means and the lateral motion to a second piston means with the start and stop operation controlled directly by the individual.

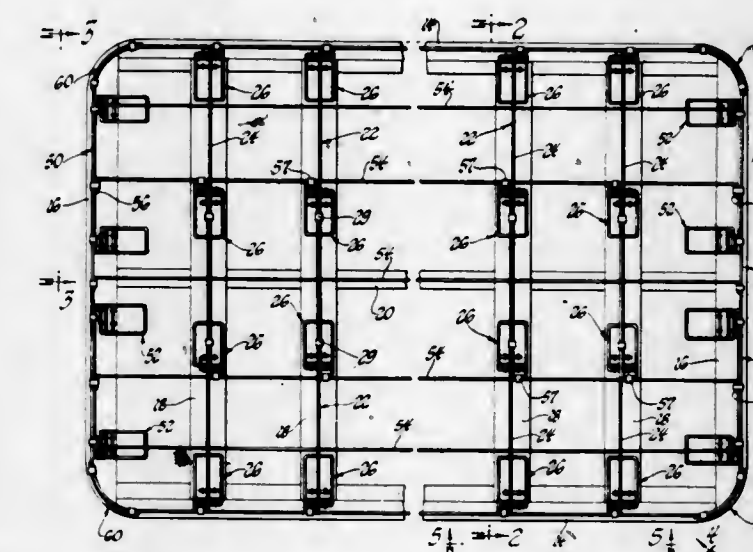
3,596,299

SPRING ASSEMBLY

Chester E. Klicki, Warren, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.
Filed June 30, 1969, Ser. No. 837,685
Int. Cl. A47c 23/02

U.S. Cl. 5—247

11 Claims



A box spring assembly including a generally rectangular frame with a first plurality of spring members extending transversely between the sides of the frame and spaced from one another longitudinally of the frame. Each spring member is defined by an integral wire having a straight load section and a fishmouth section at each end thereof. The spring members are disposed in pairs overlapping one another transversely of the assembly. A border wire is disposed about transversely of the assembly and is spaced from the frame and attached to the fishmouth sections of the spring members. A second plurality of spring members are included which comprise at least one similar fishmouth section and disposed at the ends of the assembly between the frame and the border wire. There is also included a plurality of transversely spaced integral straight wires extending longitudinally of the assembly and terminating in bent end portions which are connected to the border wire.

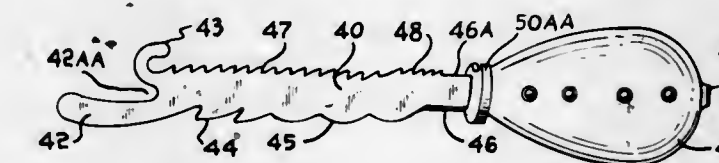
3,596,300

DEVICES AND ACCESSORIES FOR AND WITH LINE HOLDER-CUTTER HANDTOOL COMBINATION

Paul M. D'Amico, 2709 S. 12th St., Philadelphia, Pa.
Filed May 1, 1969, Ser. No. 828,072
Int. Cl. B25f 1/00; B26b 1/00

U.S. Cl. 7—14.1

4 Claims



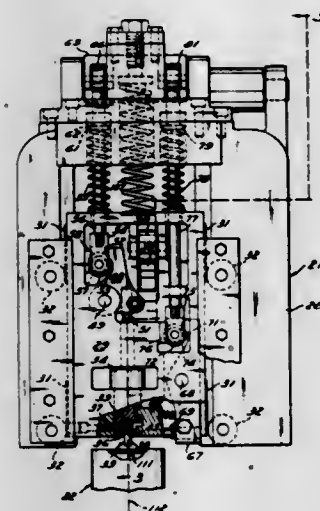
My invention relates to devices and accessories for and with Line Holder-Cutter Handtool Combination Means; in the order of:

- An improvement in a multipurpose safety sport or fisherman's knife, purposed for shell-shucking clams, oysters and shellfish, including the dressing of fish generally.
- An extensional means, having a safety proviso means for engaging said safety-knife means in a slot hole tie hook elevated operational utility, for the large assortment of sizes of said shelled bivalves.

3,596,301 POINTER

Allan D. Haines, Tiffin, Ohio, assignor to The National Machinery Company, Tiffin, Ohio
Filed Dec. 4, 1968, Ser. No. 781,092
Int. Cl. B23g 9/00; B21k 1/44
U.S. Cl. 10-9

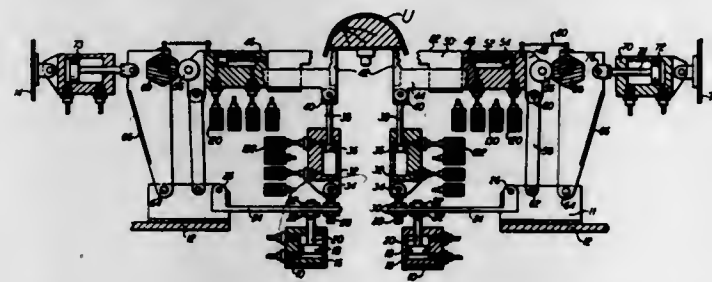
15 Claims



A high-speed pointer for bolts, screws, and the like is disclosed which includes a gripper chuck operable to carry blanks into cutting engagement with a rotating cutter. The chuck includes power-operated gripper means to grip the blank and power means provided to reciprocate the chuck toward and away from the cutter. The chuck is urged toward the cutter by a drive spring sized to feed the blank into cutters without "chatter." The gripper means are provided with springs which actuate the grippers and also function to urge the chuck toward the cutter when the grippers are released. Therefore, the gripper-actuating springs also function to assist in both accelerating starting down movement and decelerating arriving up movement of the chuck.

3,596,302
MACHINE FOR SHAPING AND WIPING UPPERS OVER A LAST
Henry von den Benken, 2212 Centre St., West Roxbury, Mass.
Filed May 8, 1969, Ser. No. 823,080
Int. Cl. A43d 21/00, 29/00
U.S. Cl. 12-8.5

21 Claims

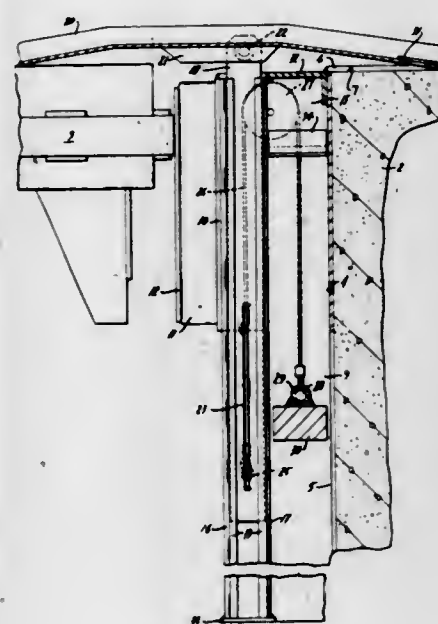


There is disclosed herein a lasting machine for shaping the upper over a last and wiping the lasting margin over the insole. The machine is equipped with a plurality of novel piners which are arranged in two rows along the sides of the shoe in the machine, and the piners are alternately operable to grip and pull the upper taut over the last and then wipe the upper over the insole. A set of rotary profile cams provides for quick positioning of the piners as is needed to last right or left shoes, or shoes of various sizes. Furthermore, all piners can be adjusted essentially perpendicular to the shoe, thus bringing about a position in accordance with the bottom contour of the last.

3,596,303 DOCKBOARD

Garrett P. Kelley, Fox Pint, and William C. Steinberg, Shorewood, both of, Wis., assignors to Kelley Company, Inc., Milwaukee, Wis.
Filed Sept. 19, 1966, Ser. No. 580,347
Int. Cl. B65g 11/00
U.S. Cl. 14-71

10 Claims



A dockboard pivotally connected intermediate its ends to guides which is movable in fixed guides on the face of the dock whereby the dockboard may be lifted from a substantially vertical stored position below dock level to a raised position, rotated into substantially horizontal cross traffic position, and then lowered to span the gap between the dock and the bed of a carrier.

3,596,304
ROLLER TYPE PAINT APPLICATOR
David I. Welt, 7480 S.W. 128th, Miami, Fla.
Filed May 8, 1969, Ser. No. 822,957
Int. Cl. B05c 1/08; B25g 1/04
U.S. Cl. 15-230.11

8 Claims

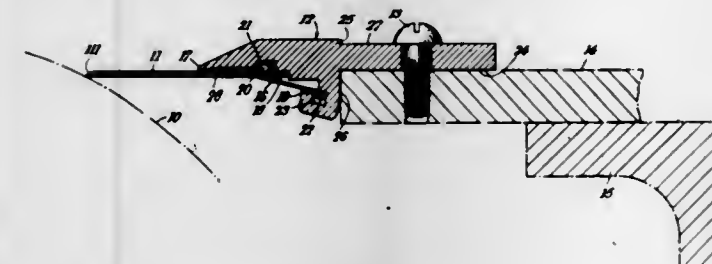


A paint-roller assembly comprising a cantilevered roller balanced relative to a support shaft which has a tubular handle integrally molded thereon; said handle having transverse grooves opening toward the roller for hanging the roller on a paint bucket, including undulations conforming to the user's hand, and including an axial socket in which an auxiliary extension handle is removably engaged and which permits two-handed paint application.

3,596,305
DOCTORS FOR PAPER MAKING AND LIKE MACHINES
Albert Henry John Boyland, London, England, assignor to Vickers Limited, London, England
Filed May 13, 1968, Ser. No. 728,727
Claims priority, application Great Britain, May 25, 1967, Feb. 1, 1968, 24451/67, 5176/68
Int. Cl. D21g 3/00

U.S. Cl. 15-256.51

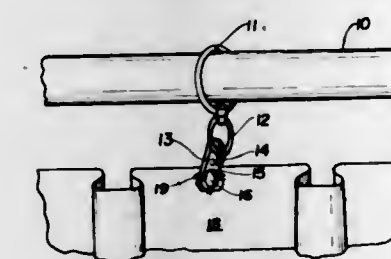
3 Claims



A doctor for the roll of a papermaking machine having a pressure plate which bears against the face of the doctor blade which contacts the roll and at a location behind a nose on the holder of the doctor which bears against the other face of the blade.

3,596,306
CAFE AND LIKE CURTAIN HANGERS
Andre Y. Wachenheimer, c/o Gateway Towers, Gateway Center, Pittsburgh, Pa.
Filed Aug. 27, 1968, Ser. No. 755,551
Int. Cl. A44b 17/00; E05d 13/02
U.S. Cl. 16-87.2

5 Claims



A curtain ring having annulus means adapted to slide on a curtain rod and removable depending attaching means on said annulus, said attaching means including a separable member fixed to a curtain and being formed of an organic solid resin.

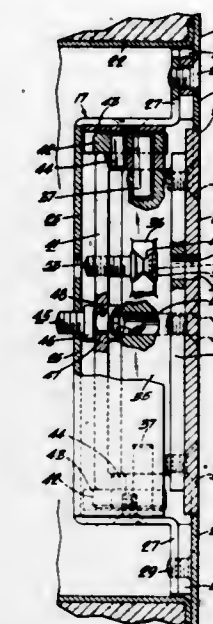
3,596,307
ADJUSTABLE MOUNTING FOR DOORS
Samuel Kolmetsky, 156 Chestnut St., Woodlynne, N.J.
Filed July 9, 1969, Ser. No. 840,360
Int. Cl. E05d 7/04

U.S. Cl. 16-129

7 Claims

A device adapted to be mounted in a metal buck or wooden jamb of a door so that conventional hinges may be used to hang the door while the device permits connecting the position by the hinge so that the door may be adjusted and aligned, not only during the initial hanging of the door, but at a later point of time to compensate for settling of the building or other problems. The device includes a mounting

bracket which is adapted to mate with a hinge leaf and which is adjustable about a vertical pivotal axis as well as being ad-

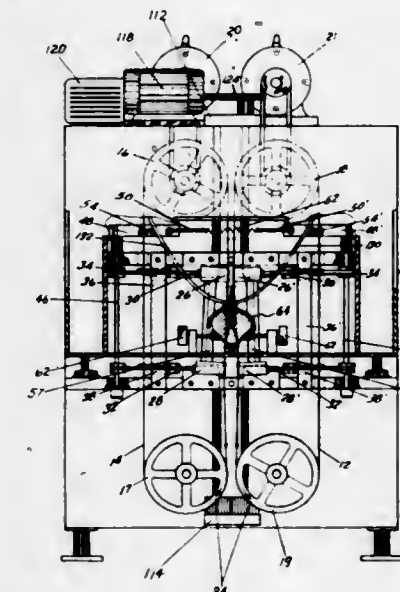


justable within the plane of the door opening parallel to said vertical pivotal axis.

3,596,308
FISH-FILLETING APPARATUS
Leon S. Kenney, 465 22nd Ave. S.E., St. Petersburg, Fla.; Charles Bevis, 2902 Terry Road, Tallahassee, Fla.; and Wiley J. Daniels, Rte. 9, Box 634, Tallahassee, Fla.
Filed May 12, 1969, Ser. No. 823,721
Int. Cl. A22c 25/16

U.S. Cl. 17-56

10 Claims



A fish-filleting apparatus comprising two oppositely rotating bandsaw blades that are adjustable to conform to the bony skeleton of a fish whereby fish fillets are cut with minimum flesh loss as the fish passes between the blades. The fish is uniquely aligned to be centered to the blades and is held rigidly while being filleted to prevent it from twisting.

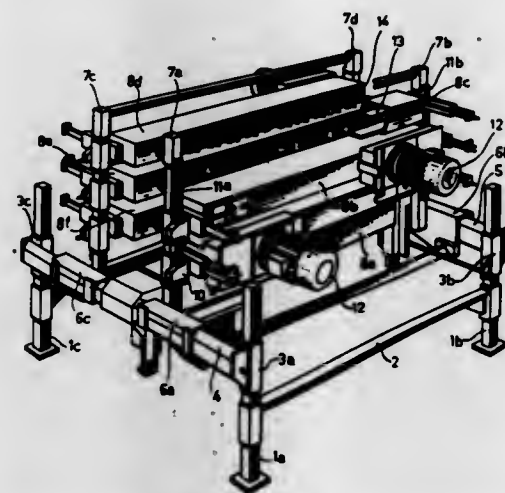
3,596,309
POULTRY-PLUCKING MACHINE
Jacobus Gerardus Vertegaal, Boxmeer, Netherlands, assignor to Stork Amsterdam N.V., Amsterdam, Netherlands
Filed Dec. 11, 1968, Ser. No. 782,903
Claims priority, application Netherlands, Oct. 24, 1968, 6815188
Int. Cl. A22c 21/02

U.S. Cl. 17-11.1

1 Claim

A poultry-plucking machine is provided with a number of rotating plucking discs each with axially protruding elastic plucking fingers. The discs are supported by substantially identical, oblong, prismatic carriers which each support a number of plucking discs lying in the longitudinal direction

of the carrier, while each carrier is provided with a driving motor for driving the plucking discs. The carriers are accom-



modated in a frame such that they are easily detachable and that both the level of the respective carriers, their mutual distance and their angular position can be adjusted at will.

3,596,310

CRAB-PROCESSING MACHINE

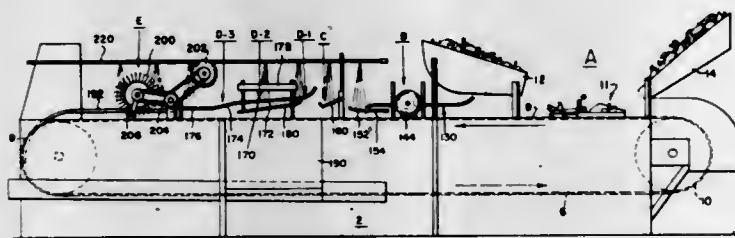
Calvert B. Tolley, Wingate, Md.

Filed Aug. 6, 1969, Ser. No. 847,952

Int. Cl. A22c 29/00

U.S. Cl. 17-71

20 Claims



A machine for transporting cooked hard crabs to a plurality of successive stations at which the carapace is removed, the pincers are removed, the walking legs, swimming legs and viscera are removed, and the remaining body is scrubbed and washed. An important feature is the provision of means for supporting each crab, and cutting parts from it as it is transported through the machine, which supporting and cutting means are automatically adjustable to the size of each individual crab which is processed.

3,596,311

APPARATUS FOR ISOTROPICALLY STRETCHING A PLASTICS SHEET

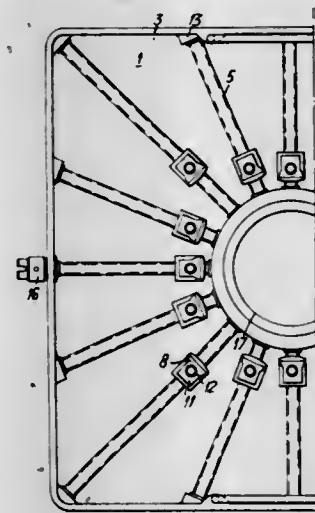
Michel Salmon, Lyon, France, assignor to Rhone-Poulenc S. A., Paris, France

Filed Mar. 22, 1968, Ser. No. 715,388

Int. Cl. B29c 17/00

U.S. Cl. 18-1 FS

6 Claims



The invention provides an apparatus for isotropically stretching a plastics sheet in which the sheet is gripped by a

plurality of grippers, which are disposed in an array of a particular configuration, e.g. a circle or a square. In order to stretch the sheet the grippers are moved outwardly on screw-threaded rods which are geared together, e.g. by bevel gears, at a rate to maintain the same configuration.

3,596,312

APPARATUS FOR PRODUCING SYNTHETIC RESIN FIBERS UTILIZING CENTRIFUGAL FORCE

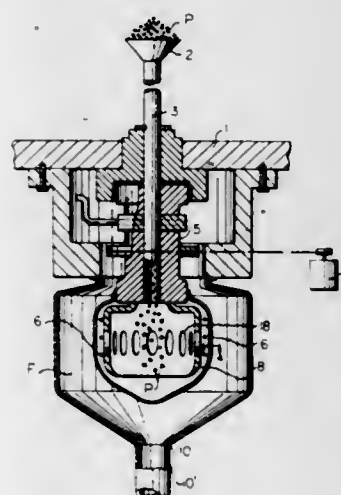
Koel Ohmatsu, 1137, Sei, Gifu, Japan

Continuation of application Ser. No. 682,046, Nov. 13, 1967, now abandoned. This application Feb. 10, 1970, Ser. No. 10,207

Int. Cl. B29c 23/00; D01d 5/08

U.S. Cl. 18-2.6

6 Claims



Apparatus for producing a synthetic resin fiber, in which a synthetic resin material is charged into a hollow rotary body and made molten therein, or said synthetic resin material is charged into the hollow rotary body in the molten state, heat is applied within the hollow rotary body by the presence of internal heaters, and the hollow rotary body is rotated at high speed, whereby the molten resin material is ejected through nozzles or slits formed in the peripheral wall of the hollow rotary body by the centrifugal force developed therein and thereby a twisted fibrous yarn of said resin material is produced continuously by continuous removal in the axial direction.

3,596,313

APPARATUS FOR THE PRODUCTION OF FOAMED SLABS OF RECTANGULAR CROSS SECTION

Heinz Darmochwal, Memmingen; Emil Hasford, Lochham near Munich; Gerhard Muller, Memmingen, and Karl-Heinz Stelzer, Memmingen, all of, Germany, assignors to Metzler AG, Munich, Germany

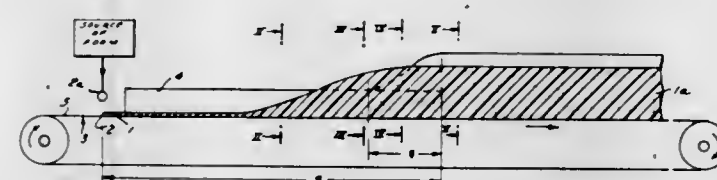
Filed July 16, 1968, Ser. No. 745,267

Claims priority, application Germany, July 18, 1967, P 17 04 837.2

Int. Cl. B29c 5/02, 5/10

U.S. Cl. 18-4 B

12 Claims



Foam is fed into and forms a loaf in a trough-shaped conveyor whose bottom wall travels lengthwise and entrains a release liner which flanks the loaf from below and at both sides during travel through an elongated foaming station and thereupon through a curing station. The cross-sectional area

of an intermediate portion of the conveyor varies gradually and assumes a rectangular outline at least in the downstream part of the foaming station. Such variation in the cross-sectional area is due to changing configuration of the sidewalls and/or to inclination of the bottom wall.

3,596,314

APPARATUS FOR FORMING A DENSIFIED FIBROUS ARTICLE

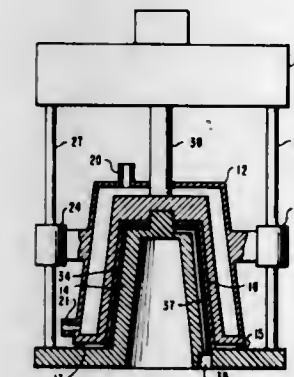
Arthur Krugler, Whittier, Calif., assignor to Hitco

Filed Nov. 26, 1968, Ser. No. 779,154

Int. Cl. B29c 11/00

U.S. Cl. 18-5

6 Claims



A shaped article is formed from a preformed fibrous felt by densifying the felt between male and female die members, the outer surface of one of the die members being provided with a plurality of restraining edges which prevent the felt from slippage during the densification. As the article is subjected to substantial compression and densification, its ignition characteristics, dimensional stability, water absorption and strength characteristics are significantly improved while structural integrity during the densifying step is maintained.

3,596,315

APPARATUS FOR THE CONTINUOUS MANUFACTURE OF THERMOPLASTIC RESINOUS CONTAINERS

Shinsuke Yoshikawa, and Yuji Sawa, both of Fukushima-Ken, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

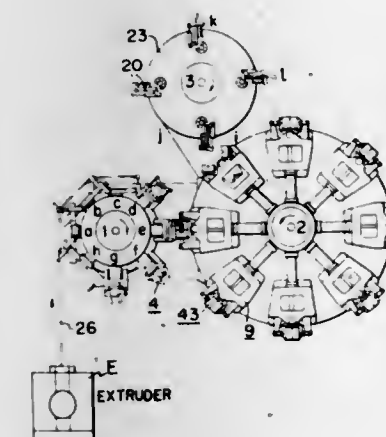
Filed Aug. 19, 1969, Ser. No. 851,289

Claims priority, application Japan, Aug. 21, 1968, Aug. 22, 1968, Aug. 22, 1968, 43/59193; 43/59516; 43/59515

Int. Cl. B29d 23/03

U.S. Cl. 18-5 BT

2 Claims



Apparatus for the continuous manufacture of containers from a thermoplastic resin, comprising three rotaries; a parison-transferring rotary, a blow-molding rotary and a rotary for removal of the product and for pinhole test. The first rotary is arranged as a rotary-type transferring device between the molding machine and the extruder, in which the

continuously extruded tubular parison is continuously stretched and cut to a desired length, and this cut parison, after rotation thereof by 90°, is inserted into one of the metal molds in the point of contact with the second rotary being a blow molding rotary, whereby the waste of material as in the conventional rotary blow molding machines can be eliminated. The second rotary is equipped with several or dozens of sets of metal molds and their tightening means. These metal molds are synthetic resin blow-molding ones in which sealing of the product and utilization of the material can be performed efficiently. In this case, two sets of split molds are combined with their container bottom-forming portions opposed to each other and a blow pin is arranged between said bottom forming portions so as to form two containers at a time, and a pressing mechanism for closing the top of the container and adapted to be movable at right-angles to the split face of the mold is provided, thus improving the operational efficiency and reducing remarkably scraps in the ranges of the top and bottom of the container. Normally, in the case of resins from which narrow-necked containers cannot be made by blow molding and biting off as in the case with vinylidene chloride, only large necks than the diameter of the parison can be formed. Of course, it is possible to make the diameter of the neck substantially equal to or smaller than that of the parison by arranging any guide at the position of the neck, but this leads to reduction of the yield by an amount corresponding to the width of the guide. According to the present invention, the parison is pressed in a direction perpendicular to the split mold, thereby to realize the same effect as that of the guide and moreover to enable the container to be sealed tight enough to prevent penetration of bacteria. In order to facilitate sealing of the container at the bottom immediately after blow molding, high frequency electrodes may be provided at the bottom-forming portion of the metal mold. The so produced container is taken out from the mold by grasping it at the portion grasped for transfer from the first to the second rotary, as soon as the mold is opened at the point of contact with the third rotary. Then, the unnecessary portion between the bottoms of two containers is removed by a bottom cutter while air-cooling them and at the same time the body of the sealed container is compressed with a certain pressure to check it for freedom from pinholes. Finally, the finished containers are sorted as acceptable or not an are made to fall down.

3,596,316

BLOW-MOLDING APPARATUS

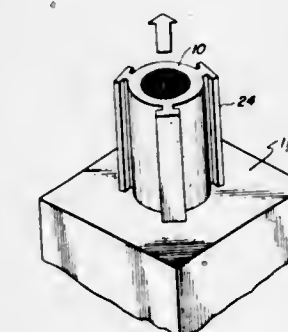
Richard C. Palermo, West Webster, and Charles Dolcimascolo, Fairport, both of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Sept. 4, 1968, Ser. No. 757,249

Int. Cl. B29c 5/06

U.S. Cl. 18-5 BM

3 Claims

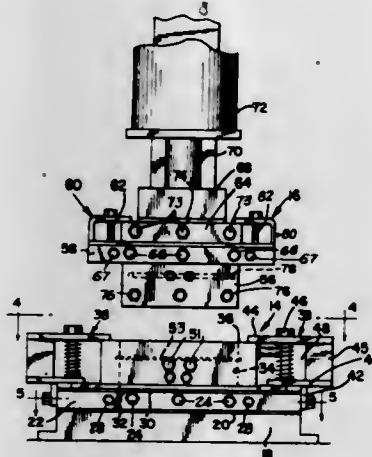


A flexible one-piece liner of elastomer material insertable in a blow-molding cavity, the internal surface of the liner conforming to the shape and texture of the article to be blow molded. After molding, the liner is deformed sufficiently to permit the molded article to be separated therefrom.

3,596,317
APPARATUS FOR MAKING PLASTIC-EMBEDDED SPECIMENS
 Donald C. Nicholson, 811 11th St., Rock Island, Ill.
 Filed Aug. 15, 1969, Ser. No. 850,476
 Int. Cl. B29c 6/00, 5/00

U.S. Cl. 18-5 R

8 Claims

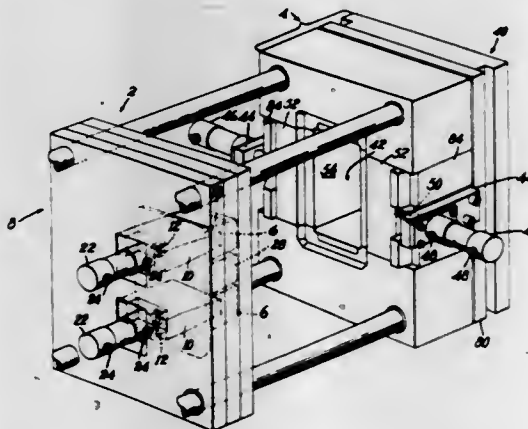


A method and an apparatus for embedding entomological specimens or the like in a clear transparent plastic material, wherein the method comprises positioning the specimen between layers of thermoplastic resin material in granular or powder form and confining the same in a suitable die cavity, with provision for preheating the die cavity, applying heat sufficient to melt the resin without appreciable pressure, placing the melted material under predetermined pressure and heating to a temperature sufficient for polymerization, vacuumizing to remove excess gases, cooling the liquified material to set the same and removing the resultant solid plate from the cavity. The apparatus comprises a female molding member in the form of a rectangular frame adapted to be positioned on a Pyrex glass plate, with electrical means for heating the same, means for circulating a cooling liquid through the walls of the frame, and means for vacuumizing the cavity, and a cooperating male molding member which comprises a punch with heating means and a conduit therein for circulating a cooling fluid which molding member is arranged on a piston for operation by an air cylinder mounted above the female molding member so as to telescope the punch within the die cavity. Provision is made for replacing the mold forming members with other members of different size.

3,596,318
MOLD ASSEMBLY FOR MOLDING OF FOAMED PLASTIC ARTICLES
 William T. Kyritsis, Beverly Farms, and Marvin C. Picard, Leominster, both of, Mass., assignors to USM Corporation, Flemington, N.J.
 Filed Jan. 7, 1969, Ser. No. 789,497
 Int. Cl. B29d 29/04

U.S. Cl. 18-5 P

12 Claims



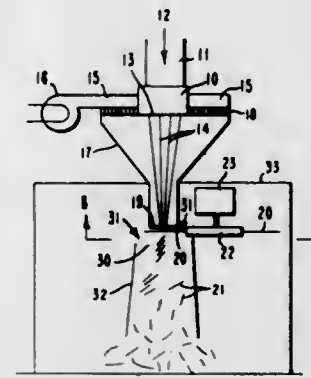
Mold assembly for the injection foam molding of a boxlike container having interior partitions dividing the container

into a plurality of cells, the mold assembly being characterized by means for moving inside and outside wall-forming portions of the mold cavity whereby to permit expansion of all of the walls of the molded container, including the inside partitions.

3,596,319
FOAM FILAMENT CUTTER
 Winfield L. McKenica, Wilmington; Marvin Scher, Wilmington, and James Gerald Smith, Newark, all of, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 Filed July 22, 1968, Ser. No. 746,353
 Int. Cl. D01d 7/00

U.S. Cl. 18-8 B

7 Claims

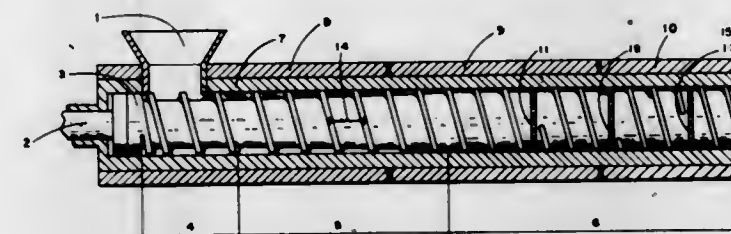


Gas-inflated foamed filaments are cut to staple length immediately after spinning by a whirling knife cutter located well below the spinneret. A duct surrounds the filaments from spinneret to cutter and confines a sheath of gas flowing concurrently with the filaments. Velocity of gas is low in upper part of duct, but greater than rate of filament extrusion in lower part. A second duct below the cutter prevents rapid deceleration and expansion of the gas so that fibers are conveyed away from the cutter. Cross sections of ducts are much larger than total cross section of filaments so contact of filaments with walls is avoided.

3,596,320
APPARATUS FOR MELTING AND DISPERSION OF THERMOPLASTIC POLYMERS
 Donald P. Manning, Colonial Heights; Lloyd D. Caison, Hopewell, and Frank R. Jones, Chester, all of, Va., assignors to Allied Chemical Corporation, New York, N.Y.
 Filed Nov. 15, 1968, Ser. No. 776,092
 Int. Cl. B29f 3/02

U.S. Cl. 18-12

6 Claims

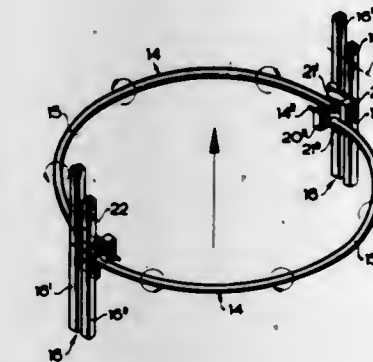


An improved apparatus for uniformly mixing polymer materials and additives wherein one constituent may be a low viscosity component and the other a viscous polymer mixed by passage through an extruder having the overall length comprised of a feed zone 10-20 percent; a transition zone 27-40 percent and a metering zone of 45-60 percent. Within said metering zone there are two to six flight interruptions, said method of mixing polymers producing an extrudate with a coefficient of particle variation of less than 30 percent and said polyblends and low viscosity materials incorporated in polymers being both suitable for piece dyeing when converted into textile articles.

3,596,321
GAUGING OR CALIBRATING DEVICE FOR TUBULAR FILMS
 Hartmut Upmeyer, Tecklenburg, Germany, assignor to Windmoller & Holcher, Munsterstr., Lengerich, Germany
 Filed Oct. 2, 1969, Ser. No. 864,291
 Claims priority, application Germany, Oct. 10, 1968, P 18 02 288.3
 Int. Cl. B29d 23/00

U.S. Cl. 18-14 A

10 Claims

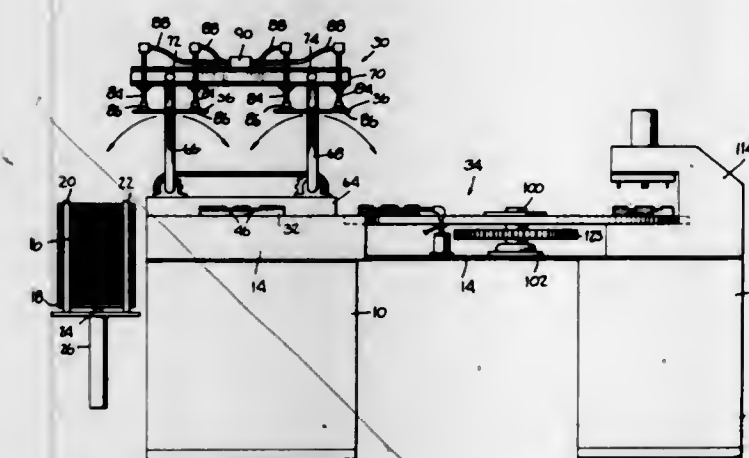


A gauging or calibrating device for tubular films formed by a blowing process comprises a plurality of support rings surrounding the tubular film in a zone where the film is still plastic. Each support ring, which may be divided in one or two places is formed from a curved spindle and a heat-resistant and nonadhesive covering which can rotate on the spindle. The covering can be formed either from a flexible tube mounted on support rollers, or it can be formed by a number of closely spaced individual rollers. The ends of the curved spindle are held in adjustable mounts which permit the diameter of the support ring to be adjusted.

3,596,322
INDEX MECHANISM FOR A PACKAGING MACHINE
 Edwin W. Swezey, Hackensack, N.J., assignor to Union Camp Corporation, Wayne, N.J.
 Division of Ser. No. 738,972, June 21, 1968, Pat. No. 3,534,524
 Filed Mar. 24, 1970, Ser. No. 22,186
 Int. Cl. B29c 3/04; B23q 17/00

U.S. Cl. 18-20 C

3 Claims

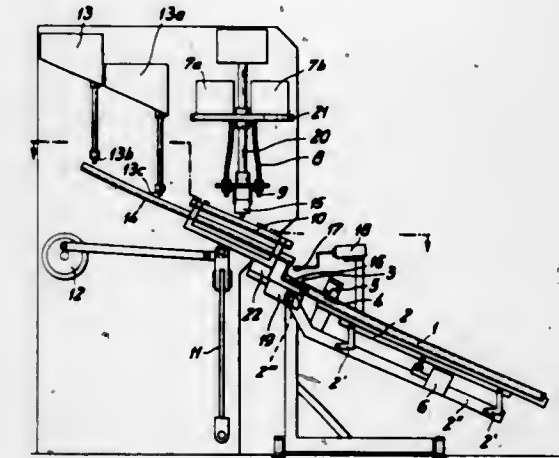


An index mechanism for a packaging machine having a transport mechanism for picking up individual package cards from a stack of cards and transporting the cards to a heating plate. The transport mechanism picks up another individual card from the heating plate and transports it to a forming die on an indexing mechanism. The indexing mechanism of this invention has four stations, the first of which causes synthetic plastic material on the package cards to be deformed into the shape of the cavities in the forming die. In the second station an item is placed in the package and the card folded. In the third station the card is sealed and in the fourth station the package card is removed from the indexing mechanism. The indexing mechanism has a plurality of hydraulic valves which are actuated sequentially to operate the indexing mechanism.

3,596,323
APPARATUS FOR CASTING SYNTHETIC RODS
 Walter Patzak, 34 Stifterweg; Alfred Witulski, 19 Priessnitz str., and Wilhelm Muhleisen, 3 Munchner Platz, all of D-8264 Waldkraiburg Bavaria, Germany
 Filed Oct. 8, 1968, Ser. No. 765,917
 Int. Cl. B29c 5/08

U.S. Cl. 18-26 R

11 Claims

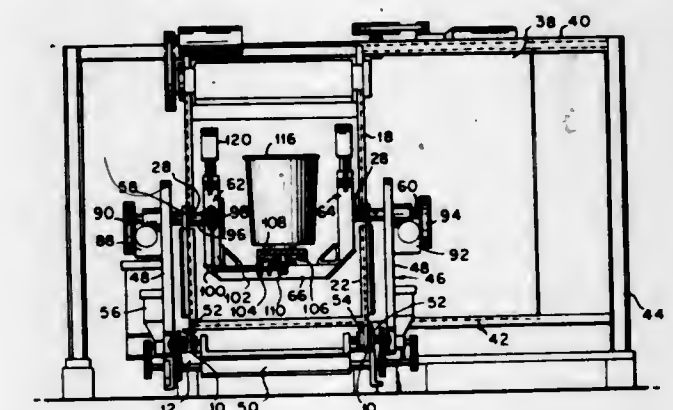


An apparatus for casting synthetic rods having a particular design therein, including providing containers for different plastics, a mixing plate and means for pouring the plastic into casting pipes in a desired pattern.

3,596,324
EXTERIORLY MOVED MOLD SUPPORT FOR CYCLE-OVERLAP ROTATIONAL MOLDING APPARATUS FOR THERMOPLASTIC ARTICLES
 Elliott Bavers, New York, N.Y., assignor to Rotodyne Manufacturing Corporation, Brooklyn, N.Y.
 Filed Nov. 3, 1969, Ser. No. 873,300
 Int. Cl. B29c 5/04

U.S. Cl. 18-26 RR

9 Claims

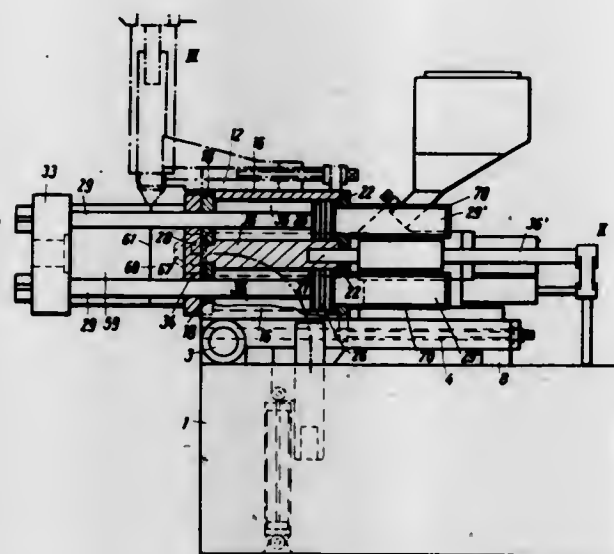


Exteriorly movable mold-supporting means for cycle overlap rotational molding apparatus, consisting of a carriage having spaced movable upright sides, one on the exterior of each side of the apparatus, connected at their lower ends below the apparatus, each having a shaft journaled at its upper end extending into the interior of the apparatus through a continuous gap in the adjacent apparatus wall, and a motor mounted thereon for rotating said shaft, and a U-shaped structure within the apparatus whose two sides are each engaged by one of said shafts, the web of the structure having a platform rotatably mounted thereon for rotation in a plane parallel to said shafts, one of said shafts operatively connected with said platform for rotating the same when said one shaft is rotated, and counterbalancing weights longitudinally adjustably mounted on the sides of the U-shaped structure.

3,596,325
MOLD-CLAMPING UNIT FOR SYNTHETIC MATERIAL PROCESSING APPARATUS
 Karl Hehl, 183 Siedlung, 7291 Lössburg, Württemberg, Germany

Filed Jan. 21, 1969, Ser. No. 792,571
 Claims priority, application Germany, Apr. 26, 1968, P 17 78 414.4

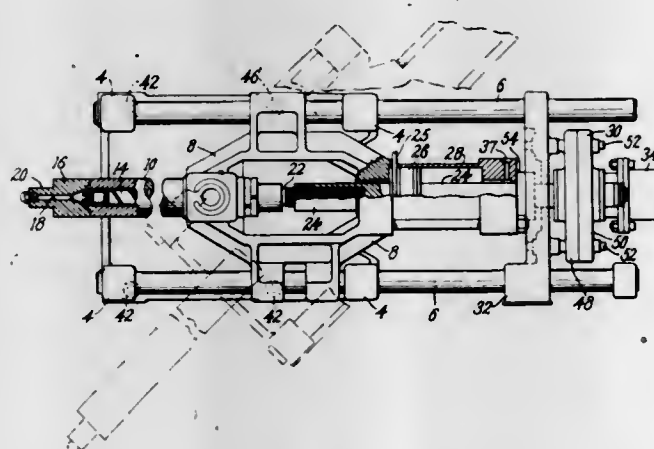
Int. Cl. B29f 1/00
 U.S. Cl. 18—30 LF 12 Claims



Injection molding apparatus including an injection mold, a synthetic material injecting means and means for clamping two cooperating parts of such mold together. The clamping means is in the form of a formed cylinder block on which a part of the mold is disposed and which encloses the injecting means on at least three sides. The cylinder block has bores which form the cylinders for at least two hydraulic pressing means. Such pressing means serve to move the parts of the mold relative to each other, during a mold-pressing period, by being operably connected to at least one of the mold parts.

3,596,326
INJECTION MACHINES
 Rupert E. Annis, Jr., Salem; Robert A. Melloni, Peabody, and Henry L. Wright, Ipswich, all of, Mass., assignors to USM Corporation, Boston, Mass.

Filed Feb. 14, 1969, Ser. No. 799,281
 Int. Cl. B29f 1/00
 U.S. Cl. 18—30 SS 2 Claims

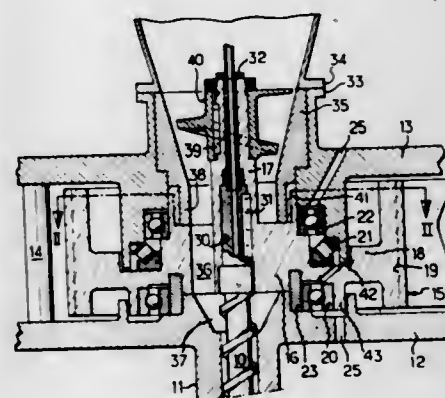


An injection machine including a frame, tie bars mounted on the frame, bracket means slidably mounted on the tie bars, a plasticator mounted on the bracket means, first motive means mounted on the frame for moving the plasticator into position for injecting into a mold assembly, second motive means supported by the bracket means for selectively

moving a plasticator screw axially within the plasticator, and third motive means supported by the bracket means for moving the plasticator screw rotatively, drive gear means comprising a portion of the third motive means being so disposed and arranged as to be readily replaceable, and means for readily replacing the plasticator screw, whereby to provide a compact machine having all necessary motive means thereon and suitable for handling several materials under varying conditions.

3,596,327
EXTRUSION MACHINES COMPRISING A VERTICAL BARREL OR CASE
 Jacques Andre Germain Dubard, Colombes, France, assignor to Societe Des Etablissements Andouart, Bezons, France
 Filed Jan. 21, 1969, Ser. No. 792,687
 Claims priority, application France, Jan. 26, 1968, 137,544

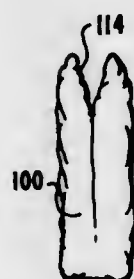
Int. Cl. B29f 3/02
 U.S. Cl. 18—12 SV 8 Claims



An extruding machine having a vertical extrusion screw is provided with a driving pulley keyed to the extrusion screw and housed between two stationary plates, the upper plate having a base for the feed hopper or chute and the lower plate being joined to the upper end part of the case for the extrusion screw. The driving pulley carries, on the hopper side, a feed screw for promoting the feed of material to the extrusion screw below.

3,596,328
METHOD OF MAKING CATAMENIAL DEVICES
 Joseph A. Voss, 1223 Race St., Apt. 902, Denver, Colo.
 Division of Ser. No. 744,248, June 24, 1968, continuation-in-part of Ser. No. 477,851, Aug. 6, 1965
 Filed Oct. 9, 1969, Ser. No. 871,074
 Int. Cl. A61f 15/00

U.S. Cl. 19—144.5 2 Claims



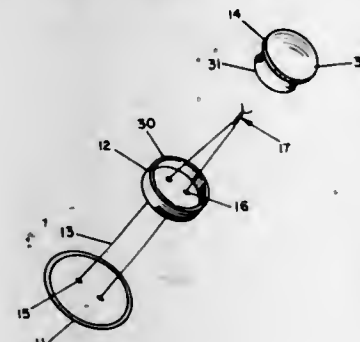
A catamenial tampon is disclosed having rapid initial and high total moisture absorptivities. The tampon is generally cylindrical and has a blunt forward end provided with a forwardly facing, diverging cavity for physically trapping and pooling menstrual fluid. The cavity, which may be in the form of a V-shaped notch, has a width across the forward extremity at least about one quarter of the overall diameter of the tampon. The portions of the tampon defining the cavity are flexible and resilient so that they may be pressed toward one another to facilitate insertion and removal of the tam-

pon. Further, these portions expand forwardly and outwardly during menstrual fluid absorption thereby exposing more internal surface area of the tampon to enhance further absorption of fluid and block egress of the trapped fluid.

Methods for making the foregoing catamenial tampon are also disclosed. Generally, the tampon is made by providing a strip of cellulosic cotton with a forwardly diverging cavity in the forward end. This may be accomplished by moving a continuous web of cotton material past a cutter device which separates the web into strips having an initial shape and size. Each individual strip is then compressed both radially and longitudinally into a generally cylindrical configuration having the desired final shape and size.

3,596,329
BUTTON ATTACHMENT
 Ernestine A. Hoban, 91 Holliston St., Medway, Mass.
 Filed Oct. 22, 1968, Ser. No. 769,607
 Int. Cl. A44b 1/18

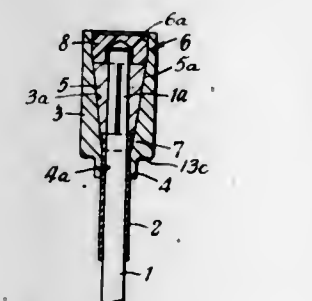
U.S. Cl. 24—90 3 Claims



A kit which eliminate the need for thread in affixing buttons to garments wherein the button is affixed by means of fairly stiff wire and a special receptacle for same, to prevent unwinding and injury to a user. The special receptacle includes a disc with two holes and a peripheral flange on its wall. The wire is passed through holes in the button, fabric, and the holes in the disc and then the wire end are twisted together inside of the receptacle and a cap placed therein.

3,596,330
ANCHORS FOR STRUCTURAL TENSILE MEMBERS
 Robert Arthur Scott, Richmond; Richard Henry Bryan Winder, Gerrards Cross, and Roy Bruce Miller, Amersham, all of, England, assignors to The Cementation Company Limited, London, England
 Filed Oct. 8, 1965, Ser. No. 494,202
 Claims priority, application Great Britain, Oct. 13, 1964, 41808/64

Int. Cl. E04c 5/12; E04b 1/22
 U.S. Cl. 24—114.5 10 Claims

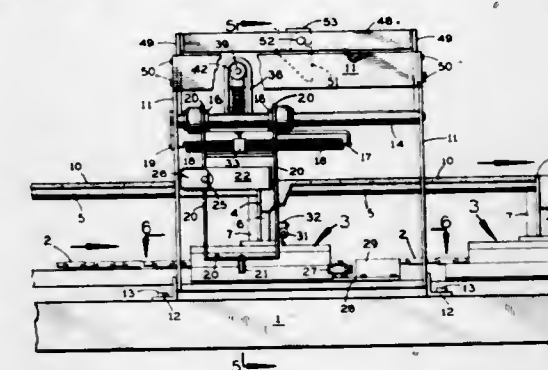


An anchor for a grouted structural tensile member of the type coated throughout that part of its stressed length otherwise exposed to aggressive media characterized in that a rigid load-transmitting sleeve provided with at least one external surface disposed transversely to said tensile member is secured by wedging around a stripped or otherwise uncovered length of said member to enclose said stripped length and a small unstripped length at one or both ends of the stripped length and is sealed to the unstripped length or lengths by flexible sealing means so that the complete anchor structure forms a sealed protective and load-transmitting casing around the length of the tensile member which is closed thereby continuous with the coating which covers the remainder of the member.

The foregoing abstract is not intended to be a comprehensive discussion of all of the principles, possible modes or applications of the invention disclosed in this document and should not be used to interpret the scope of the claims which appear at the end of this specification.

3,596,331
DEVICE FOR PIERCING NAIL HOLES IN MACHINE-MOLDED TILE
 Frank A. Gory, and Clarence Peavy, both of Hallandale, Fla., assignors to Gory Industries, Boca Raton, Fla.
 Filed Dec. 10, 1969, Ser. No. 883,905
 Int. Cl. B28b 5/00

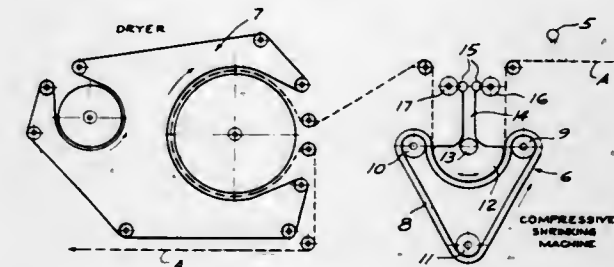
U.S. Cl. 25—1 R 6 Claims



A power-driven automatic device for piercing a pair of nail holes in semicured tile successively molded in an automatic tile machine.

3,596,332
OSCILLATING MACHINE FOR SHRINKING AND FINISHING WOVEN TEXTILE FABRICS
 Paul N. Winberg, Hempstead, N.Y., assignor to Cluett, Peabody & Co., Inc., Troy, N.Y.
 Filed Mar. 3, 1969, Ser. No. 803,536
 Int. Cl. D06c 21/00

U.S. Cl. 26—18.6 12 Claims

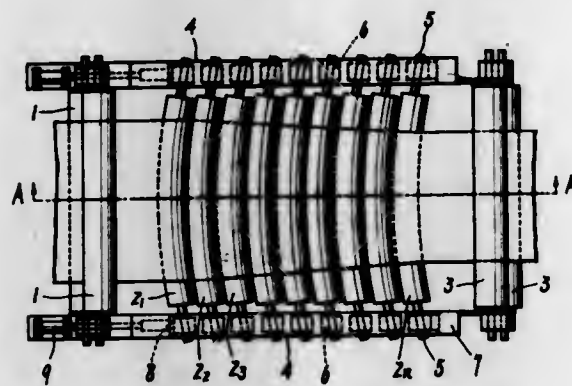


This invention is directed to a machine for compressively longitudinally shrinking a continuously advancing woven textile web and simultaneously ironing one face thereof and includes an endless rubber belt carried on a pair of parallel rolls (one of which is driven) and an idler roll parallel thereto. An oscillatory arcuate segment is interposed between the rolls and displaces the belt toward the idler roll. Preferably, the segment, which may be heated, is oscillated through a small amplitude more rapidly in the machine direction than in the opposite direction.

3,596,333
APPARATUS FOR COMPRESSIVELY SHRINKING WOVEN TEXTILE FABRICS
 Motohiro Tsuruta, Kyoto-shi; Hiroshiro Kimura, Uji-shi; Akio Koshimo, Uji-shi; Hirohisa Nara, Uji-shi; Tokuji Goto, Nari-shi, and Kunio Amemlya, Uji-shi, all of, Japan, assignors to Nippon Rayon Kabushiki Kaisha (Nippon Rayon Co. Ltd.), Uji-shi, Kyoto-fu, Japan
 Continuation-in-part of Ser. No. 701,701, Jan. 30, 1968, abandoned
 Filed Sept. 8, 1969, Ser. No. 855,863
 Claims priority, application Japan, Jan. 30, 1967, 42/5996
 Int. Cl. D06c 21/00

U.S. Cl. 26—18.6 6 Claims
 The present invention relates to a process and apparatus for treating a woven textile fabric, which comprises passing

the fabric in its warp direction between at least a pair of rotatable cylindrical elastic rollers, whose surfaces make tight contact with each other, by compressing the rollers to in-



crease its central portions relative to their ends and whose axes are curved with the same radius of curvature and in the same plane so as to shrink the fabric in its weft direction.

3,596,334

HEAT-TREATING PROCESS OF THERMOPLASTIC FIBERS

Akira Kobayashi; Atsushi Sugiyama; Hideo Watase; Tadashi Hirakawa, and Hiroki Tamura, all of Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan

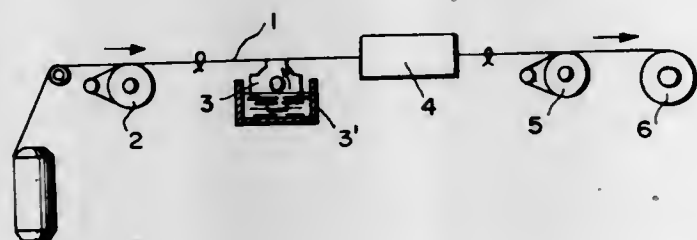
Filed Mar. 21, 1969, Ser. No. 809,210

Claims priority, application Japan, Mar. 23, 1968, Oct. 23, 1968, Feb. 8, 1969, 43/18823; 43/77274; 44/9535

Int. Cl. D02q 1/00

U.S. Cl. 28—72.1

4 Claims



This invention relates to a heat-treating process of thermoplastic fibers. According to the invention, prior to passing the thermoplastic fibers continuously through a high-temperature atmosphere maintained above the melting point of the fibers at a high speed, a liquid having a relatively large latent heat of vaporization or specific heat which is inert to the fibers is nonuniformly applied to the fiber surfaces. Thus pretreated fibers exhibit, after the aforesaid heat treatment, nonuniform dyeability (this property is expressed as "different dyeability" in the specification) and/or nonuniform crimped state. Also conjugate fibers having nonuniform latent crimpability can be prepared in accordance with the subject process.

3,596,335

METHOD FOR MAKING A MOSAIC OF ULTRASONIC TRANSDUCERS ADAPTED FOR USE WITH IMAGE CONVERSION TUBES

Grant S. Bennett, San Mateo, Calif., assignor to Litton Precision Products, Inc., San Carlos, Calif.

Division of Ser. No. 809,683, Mar. 24, 1969

Filed Mar. 24, 1969, Ser. No. 809,679

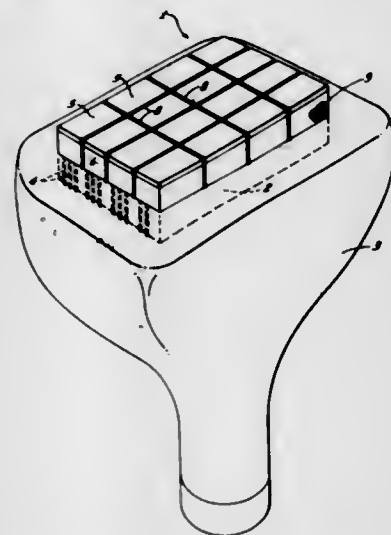
Int. Cl. B01j 17/00; H04r 17/00

U.S. Cl. 29—25.35

4 Claims

A mosaic of ultrasonic transducers is assembled and manufactured and adapted to the faceplate of an image conversion tube in a simple and expeditious procedure: a layer of piezoelectric material is joined to a layer of conductive syntactic foam preferably this is accomplished with a conductive

epoxy material. The remaining side of the syntactic foam layer is then joined, suitably with conductive epoxy adhesive material, to the wire fiber optic faceplate of an image conversion tube. A plurality of spaced parallel slots are formed through the two layers of material and to a depth just into the tube faceplate, and a plurality of spaced parallel slots are formed perpendicular to the aforementioned slots in the piezoelectric and foam layers also to a depth just into the



tube faceplate. The resulting configuration is a checkerboard mosaic of piezoelectric transducers which are spaced from each other, acoustically isolated from one another, and electrically coupled to individual wires in the tube faceplate. A novel result of this process permits substitution of other transducers to the faceplate of a conversion tube by simply scrapping off the old transducer and reforming the new mosaic on the tube faceplate in the same manner as described.

3,596,336

MACHINE FOR PRODUCING MICA CAPACITOR PILES WITH FOIL LEADS

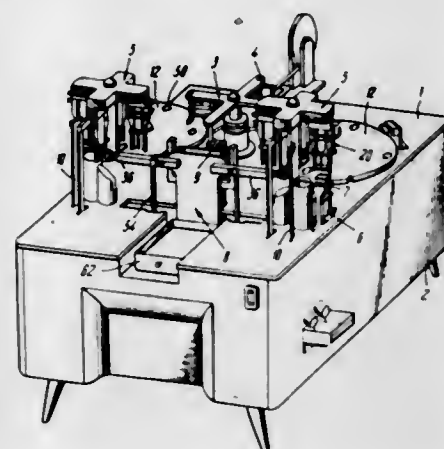
Anatoly Nikolaevich Barakin, Pavlovsky Posad, Trudovaya ul., 2/2, kv.53, and Vladimir Alexandrovich Maltsev, Pavlovsky Posad, Volodarskogo ul., 93, kv.46, both of Moskovskaya Obl., U.S.S.R.

Filed Oct. 28, 1968, Ser. No. 771,127

Int. Cl. H01g 13/00

U.S. Cl. 29—25.42

4 Claims



A machine is provided for producing mica capacitor piles and comprises a plurality of transfer heads which periodically turn, lift, and drop for transferring capacitor piles between a plurality of stations where the piles have operations performed thereon. At a first station is located a mechanism for bending and additional pressing of the foil leads of the piles the mechanism alternatively cooperating with grippers of the transfer heads. At a subsequent station are dielectric strength monitors of the capacitor piles for detecting defective capacitor piles and causing removal of the defective piles from the grippers of the transfer heads. At a further station is a mechanism which receives the piles and effects a dipping of the piles into an impregnant.

3,596,337

UNIVERSAL CUTOFF AND GROOVING TOOL

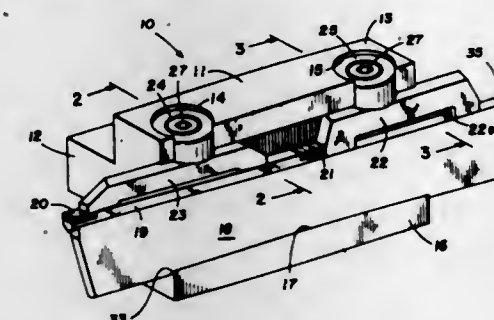
Donald W. Arnold, Fort Worth; Orien M. Knight, Hurst, and John A. Nelson, Fort Worth, all of, Tex., assignors to United Tool Corporation, El Paso, Tex.

Filed Feb. 28, 1969, Ser. No. 803,191

Int. Cl. B26d 1/00

U.S. Cl. 29—96

7 Claims



A toolholder for positioning lathe-type cutoff and grooving tools to cut workpieces located on either the left-hand or the right-hand side of the tool and either above or below the tool. The toolholder includes a pair of identical J-clamps located on the left-hand and right-hand sides of the holder for selectively securing a cutoff and grooving tool on either side of the holder. The J-clamps are adapted for adjustment from either the top or the bottom of the holder so that the holder can be used either upright or upside down.

3,596,338

TOOL AND HOLDER THEREFOR

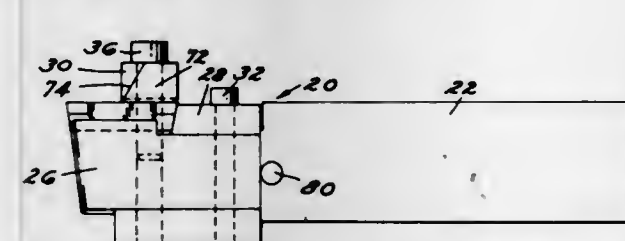
Edward M. Meehan, Southington, and William J. Morrissey, Sr., Naugatuck, both of, Conn., assignors to Fansteel Inc., North Chicago, Ill.

Filed July 7, 1969, Ser. No. 839,262

Int. Cl. B26d 1/00

U.S. Cl. 29—96

3 Claims



An improved tool for use on lathes and other turning, tracing, or cutoff machinery of known construction which includes a side plate anvil held in place by a clamp which serves also as an adjustable backup for a cutting insert mounted on the anvil, and a clamping block which cooperates with the adjustable element for locking the anvil side plate in position as well as locking the cutting insert in place on the anvil.

3,596,339

METHOD AND APPARATUS FOR HANDLING COIL COMPRESSION

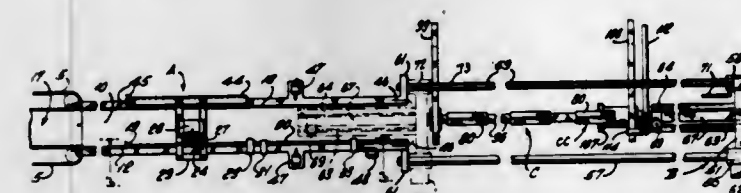
Jack G. Turner, Jr., 1050 Broad Street, and Christopher Turner, Jr., 93 W. Milton Avenue, both of Rahway, N.J.

Filed Sept. 13, 1968, Ser. No. 759,547

Int. Cl. B23p 13/00; B23q 7/10; B23b 19/04

U.S. Cl. 29—173

31 Claims



A method and apparatus for handling coil compression springs in the manufacture of spring assemblies for use in mattresses, cushions and the like. The apparatus arranges coil springs in a rigidly held oriented position from which they are picked up by a movable magazine. The loaded magazine then scans a plurality of coil snatching heads which

withdraw individual oriented coils from the magazine during the magazine movement and present them in operative relationship for a subsequent assembly operation.

3,596,340

COMPONENT ASSEMBLY APPARATUS

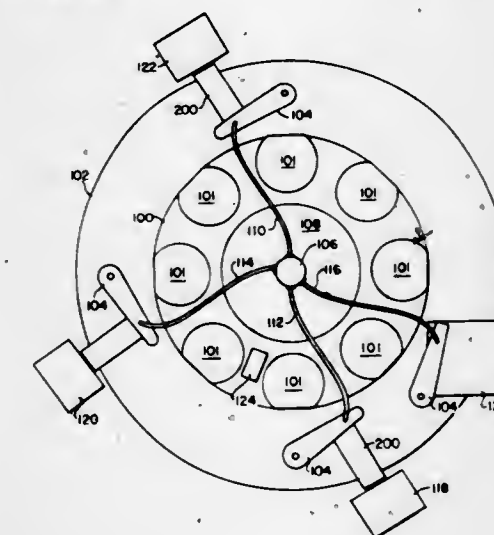
Paul V. Costa, Peabody, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Oct. 20, 1969, Ser. No. 867,469

Int. Cl. B23p 19/04; B23q 7/10

U.S. Cl. 29—208 R

25 Claims



Apparatus for the assembly of components which require a small temporary rotation for proper assembly (e.g., an adjustment lever and guide plate of a variable geometry mechanism for a razor blade magazine) comprising a turret having, at symmetrically spaced fixed positions about its periphery, eight nest elements thereon; a first machine station at which clamping jaws of the nest element are opened and into which are deposited by an operative head at that station an adjustment lever; a second machine station at which a magazine is deposited over the adjustment lever by an operative head; a third station at which an operative head receives a guide plate from a feeder mechanism, transfers the guide plate to the nest element, and engages the guide plate with a protruding portion of the adjustment lever by means of a small (8°) temporary rotation of the operative head and guide plate; a plurality of machine stations which perform tests to determine the structural soundness of the magazine and the proper assembly of the guide plate; and a final machine station for removal of the assembled magazine from the nest element.

3,596,341

SPLIT RING ASSEMBLY MACHINE

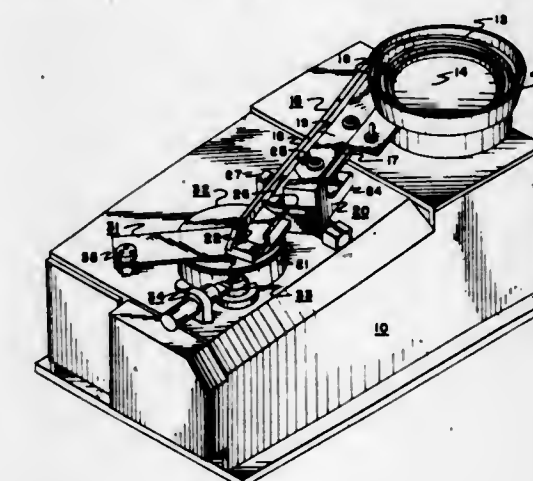
Edward C. Herkner, 4407 Plum, Boise, Idaho

Filed Sept. 29, 1969, Ser. No. 864,271

Int. Cl. B23g 7/02

U.S. Cl. 29—211

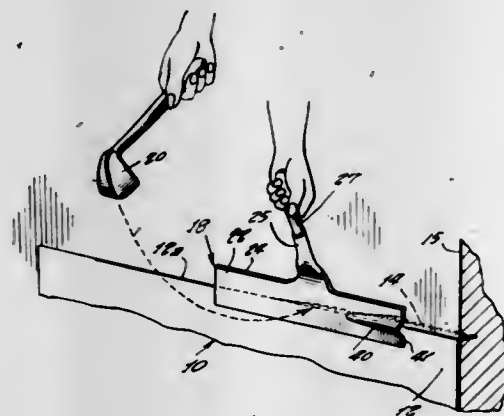
5 Claims



The "split" ring assembly machine of the present invention comprises a ring feed mechanism operable to feed one

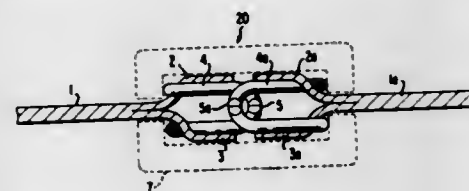
spiralled wire "split" ring one at a time to the operating assemblies of the machine; a "split" ring placing means operable to place a "split" ring from the feed mechanism into operative position; a "split" ring holding means operable to hold a "split" ring placed in operative position by the placing means while the ring is being opened to receive other components and accessories to be linked together by the ring, a knifelike means operable to open a "split" ring on the holding means; and a spindle means operable to cause the ring to be turned on the ring holding means in response to rotation of the spindle means and to be opened by the knifelike means in engagement with the ring at which time components and accessories intended to be linked by the ring may be put over the terminal end thereof. During the next succeeding cycle as above described the components and accessories may be linked together on the spiralled "split" ring in response to further rotational movement of the spindle means.

3,596,342
GUIDE TOOL FOR FASTENING AN INVERTED BASE
Erich Willfurth, 31 W. Chestnut St., Farmingdale, N.Y.
Filed Dec. 27, 1968, Ser. No. 787,510
Int. Cl. B25b 27/14
U.S. Cl. 29-275 4 Claims



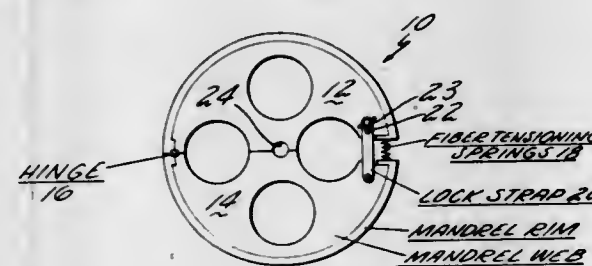
For use with an inverted base provided with upper and lower rows of projecting teeth adapted to be driven into a wall panel and floor at the base of the wall with the inverted base located in a recess inwardly of the wall surface, a transparent substantially rigid guide element of elongated form and narrow width and being substantially flat for the major portion of its length. Provided at either end of the guide element is a longitudinal end groove of inwardly tapering formation having its outer end widest at the terminal edge of the guide element and merging at its inner narrow end into the flat body of the guide element, the wall of the groove extending outwardly from the outer surface of the guide element. The flat elongated portion of the guide element provides a hammering surface for driving the teeth along a row of the inverted base into the wall panel and/or the floor with the guide element movable along the row and the teeth forwardly of the guide element coacting with the groove to guide the same along the edge of the inverted base. A handle may be affixed to the guide element to extend at an inclination either from the grooved end thereof or may be disposed transverse to the guide element at its center and extending from the upper side edge thereof. A special half-hammer is utilized for use with the guide element constituting a metal hammer head having a substantially rectangular bottom hammering surface of a width corresponding to the width of the guide element, the sides and front of the hammer head arcuately tapering upwards, with the back of the hammer head flat and normal to the bottom hammering surface. A handle is affixed to the upper end of the hammer head extending rearwardly of the back flat wall, the handle tapering towards its fixed end with its larger thickness arranged to be conveniently held in the hand.

3,596,343
METHOD OF MAKING A SLIDE FASTENER UNIT
Wilhelm Uhrig, Mannesmann Strasse 11, Wuppertal-Elberfeld, Germany
Division of Ser. No. 698,203, Jan. 16, 1968, Pat. No. 3,551,962
Filed June 12, 1970, Ser. No. 45,715
Int. Cl. B23p 15/00; B21f 45/18
U.S. Cl. 29-410 6 Claims



A method of making a slide fastener unit having two rows of links which are secured to the two halves of the supporting tape, each of the halves being a Y-tape with the upper and lower ends of each half partly covering the row of links at each side so that adjacent upper and lower ends form parallel longitudinal bands exposing to view the middle of the rows of links at each side where these rows come together and the individual loops of the rows of links remote from the center. These rows of links are formed by weaving a continuous length of heavy duty thermoplastic synthetic monofilament as a warp into the two short arms of the Y-tape to form loops and links in a single operation. The loops and the links which are initially in the same plane are heat deformed between the free ends of the arms of the Y-tape to form U-shaped links facing towards the edge of the tape while the loops are compression set at the part of the arm remote from the edge to form a guide for the fastener slide.

3,596,344
METHOD OF FABRICATING FIBER-REINFORCED ARTICLES
Kenneth G. Kreider, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Sept. 27, 1968, Ser. No. 763,279
Int. Cl. B23p 17/00
U.S. Cl. 29-419 7 Claims



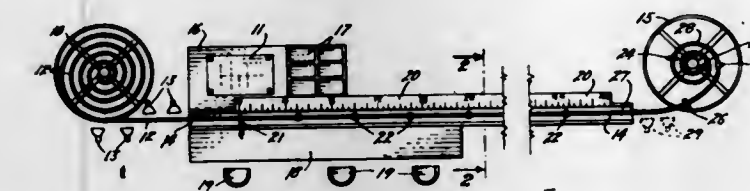
An improved process of fabricating a multilayer fiber-reinforced metal matrix composite by winding a filament on a spring-loaded mandrel, preheating the mandrel, plasma arc spraying metal matrix material in coalescent form onto the filament windings to form a composite layer, forming additional composite layers by repeating the steps of winding, preheating and spraying and subjecting the resulting multilayer composite to heat and pressure.

3,596,345
METHOD AND MEANS FOR PREINSTALLING SPRINKLER HEADS AND FITTINGS IN PLASTIC PIPE FOR SPRINKLER SYSTEMS
Everett O. Nord, Aurora, Colo., assignor to High Country Enterprises, Inc., Aurora, Colo.
Filed Oct. 13, 1969, Ser. No. 865,905
Int. Cl. B23p 19/00
U.S. Cl. 29-429 8 Claims

Plastic pipe is thermally softened and withdrawn from a supply roll and impelled through a straight elongated guide trough provided with a measurement scale. Sprinkler heads

and pipe fittings are fabricated in the trough-contained pipe at points indicated on the measurement scale which are determined by study of a presubmitted plan. The pipe with its

gate-cathode junction which is exposed in the surface of the wafer. The wafer is then divided into chips by cracking or sawing, and the cracked or sawn junctions are then improved

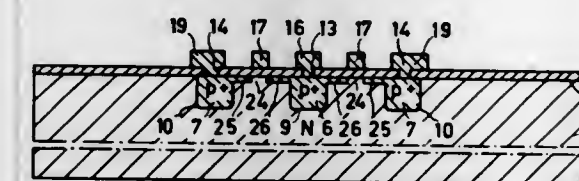


installed heads and fittings in place is reeled and delivered as a unit to an installer for burial in the ground to provide a complete lawn sprinkling system.

3,596,346
METHOD FOR JOINING METALS
Stanley G. Berkley, Colchester; Irwin Segalman, Bloomfield, and Perry Goldberg, West Hartford, all of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Apr. 2, 1969, Ser. No. 812,858
Int. Cl. B23k 31/02, 35/38
U.S. Cl. 29-494 8 Claims

A process for joining metals is described wherein the metals are concurrently coated and diffusion bonded in a dry impregnating pack at a temperature of 2,000°-2,550° F.

3,596,347
METHOD OF MAKING INSULATED GATE FIELD EFFECT TRANSISTORS USING ION IMPLANTATION
Julian Robert Anthony Beale, and John Martin Shannon, both of Surrey, England, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 19, 1968, Ser. No. 753,449
Claims priority, application Great Britain, Aug. 18, 1967, 38144/67
Int. Cl. B01j 17/00; H01g 13/00
U.S. Cl. 29-571 10 Claims



A method of making an insulated gate field transistor is described. Source and drain contact regions are first formed in a semiconductor, after which a metal ion mask is provided over the body to form metal contacts to the source and drain regions and a metal gate. Following this, ions are implanted in the semiconductor through an insulating layer covering the semiconductor so as to extend the source and drain regions to the edge of the metal gate which serves as a mask to define the desired channel length. Preferably the metal layer which provides the source and drain contacts and the gate is grounded to the ion-generating equipment to prevent charging of the insulating layer.

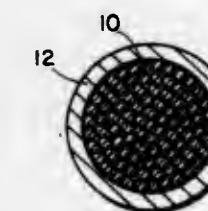
3,596,348
THYRISTORS AND OTHER SEMICONDUCTOR DEVICES
Michael Albert Stacey, Solihull, and Michael Searle, Sutton Coldfield, both of, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Mar. 4, 1969, Ser. No. 804,083
Claims priority, application Great Britain, Mar. 15, 1968, 10608/68
Int. Cl. B01j 17/00; H01f 7/66
U.S. Cl. 29-583 6 Claims

Thyristors are produced starting with an N-type wafer and forming P-type layers on opposite sides to act as the anodes and gates of the thyristors. N-type layers acting as the cathodes are then produced in or on the plate layers, after which the wafer is coated with nickel and then with gold, and gold is removed from at least part of the portion of each



by etching, the etching at the same time removing the nickel from the junctions exposed by the removal of the gold. A similar process is applied to manufacture transistors.

3,596,349
METHOD OF FORMING A SUPERCONDUCTING MULTISTRAND CONDUCTOR
Roger W. Boom, Woodland Hills; Luther Carlton Salter, Jr., Los Angeles, and James B. Vetrano, Woodland Hills, all of, Calif., assignors to North American Rockwell Corporation
Division of Ser. No. 369,205, May 21, 1964, abandoned. May 2, 1968, Ser. No. 763,437
Int. Cl. H01v 11/00
U.S. Cl. 29-599 5 Claims

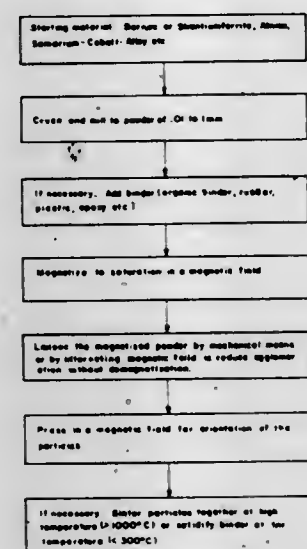


A method of fabricating a unitary superconducting multistrand conductor. The method includes coating a plurality of fine superconducting wires with a normal metal having ductility characteristics similar with those of the superconducting metal, assembling the coated wires in a close-packed array, and swagging the array so that the metal coatings of the wires form a conductive continuous matrix in which the wires are solidly embedded.

3,596,350
PROCESS FOR THE PRODUCTION OF PERMANENT MAGNETS FROM ANISOTROPIC PERMANENT MAGNET POWDER
Erich Steingrover, Bonn, Germany, assignor to Magnetfabrik Bonn GmbH. vorm. Gewerkschaft, Windhorst, Postfach, Germany
Filed Sept. 11, 1968, Ser. No. 758,970
Claims priority, application Germany, May 8, 1968, P 17 64 279.4
Int. Cl. H01f 7/06
U.S. Cl. 29-608 14 Claims

A process for producing permanent magnets from an isotropic permanent magnet powder which is compressed by

means of a magnetic field but which is first exposed to a magnetic field and then loosened whereby the particles of the



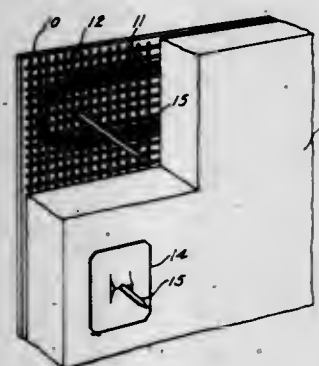
magnetic powder are particularly adaptable for easy alignment in the magnetic field during compression.

3,596,351 METHOD OF MAKING HEATED CONCRETE FORM ASSEMBLY

Warren D. Tilton, Englewood; Kenneth J. Champney, Idledale, and Roy M. Woodard, Broomfield, all of Colo., assignors to Concrete Curing Engineers, Incorporated, Denver, Colo.

Filed July 16, 1969, Ser. No. 842,249
Int. Cl. H05b 3/00

U.S. Cl. 29-611



A method for attaching heating grids and thermal insulation to metal concrete forms comprises the welding of protruding spikes or pins at a multiplicity of points on the form placing a flexible backing having heating elements bonded thereto over the pins and against the form, pressing a rigid plastic insulating sheet over the pins and against the backing and locking the insulation in position against the form by applying friction locknuts on the pins and against the plastic sheet. A flexible plastic layer or sheet may be employed between the grid and the rigid sheet for distributing the pressure and minimizing air passages. The heated concrete form assembly provides for the continuous pressing of the heater elements against the metal of the form and when including a flexible plastic layer between the rigid plastic and the form minimizes the effect of bumps or other irregularities on the surface of the metal form.

3,596,352 METHOD OF CALIBRATING BIMETALLIC ELEMENTS IN A THERMAL OVERLOAD SWITCH

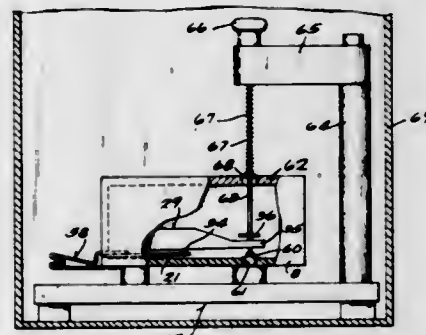
Eduard W. Isler, Cleveland, Ohio, assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed Apr. 16, 1968, Ser. No. 721,755
Int. Cl. H01h 11/00, 11/02, 65/00

U.S. Cl. 29-622

This disclosure relates to a thermal bimetal operator for a multiple line control switch unit and to the method of construction.

A switch housing is provided with a series of small cavities in one end wall. A bimetal strip includes an L-shaped tab which projects into the recess. A thermoset resin is disposed within the respective cavities and the bimetal strips are resiliently clamped with the outer end of the bimetal element disposed outwardly of a set position. A U-shaped trip bar is pivotally mounted within the housing with the base engaging the free ends of the bimetal strips and with an outer arm aligned with a switch blade. The switch is a snap action over-center variety having the compensating switch arm or blade projecting laterally parallel to the trip bar and interengaged



by the depending arm of the trip bar. The switch includes an adjustment screw connected to a pivot support to control the snap action position. The assembly is placed in a fixture having a support pin extending through a housing opening to support the outer arm and an adjustable tool spring loaded rod extending through an opposite housing opening into engagement with the switch blade to position the components including the bimetal strips. The fixture and assembly are placed in a curing oven which is raised to the curing temperature. Prior to the setting of the resin and after the operating temperature is established, the switch adjustment is made. The curing step is then completed.

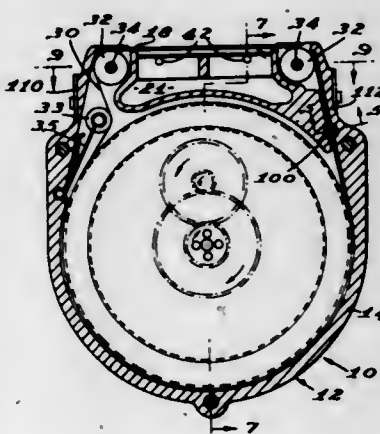
3,596,353 ELECTRIC SHAVER

Ray E. Day, 340 Lakeland, Grosse Pointe, Mich.

Filed Nov. 19, 1968, Ser. No. 776,918
Int. Cl. B26b 19/14

U.S. Cl. 30-43.6

10 Claims



The electric shaver of this invention comprises a housing having a slotted head, and drive means for moving an endless cutting band within the housing continuously in one direction across the head to cut whiskers projecting through the slots.

3,596,354 WATERMELON-HANDLING UTENSIL

Ralph W. Emerson, 116 N. Lee, Cordell, Okla.

Filed Oct. 22, 1969, Ser. No. 868,373
Int. Cl. B26b 11/00

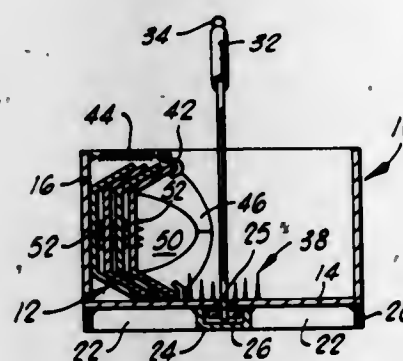
U.S. Cl. 30-124

11 Claims

A watermelon-cutting and -serving utensil which includes a watermelon-containing housing having sidewalls and a bottom. Upwardly projecting tines are secured to the bottom for retaining a whole, uncut watermelon in the housing. An elongated cutting device has one of its ends pivotally secured in a

track extending across the central portion of the bottom of the housing between the tines. Retaining clips are provided on the bottom of the housing to one side of the tines for cooperation with a spring-biased restraining clip secured to the upper edge of one of the sidewalls of the housing in hold-

cal except for a horizontally turned tip portion of one blade intercepting the path of the other, the blades of each pair



ing in place a plurality of nested serving trays which are utilized in serving slices of the melon. Each serving tray is provided with a plurality of small tines in the bottom thereof, and with an opening for permitting the juice of the melon to drain from the tray without simultaneously discharging seeds from the tray.

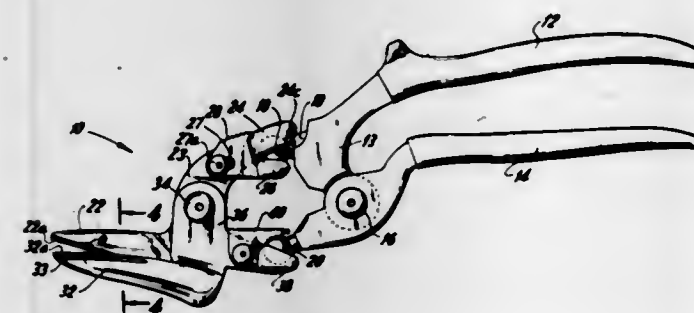
3,596,355 SWIVEL SHEAR

Rudolph J. Wertepny, Sr., 804 Linden Ave., Elizabeth, N.J.

Filed Dec. 13, 1968, Ser. No. 783,498
Int. Cl. B26b 13/26

U.S. Cl. 30-252

10 Claims



A shear implement having a movement based on either of two forms of compound levers, the intermediate pivotal connections of which are arranged to swivel by one or two ball joints. The ball joint is adapted for selective pivotal movement in azimuth, that is, laterally to the plane of the shear action and to allow for free pivotal movement about a horizontal axis. The swivel effect of the ball-joint connection provides for shearing action even with the blades swiveled as much as substantially 90° from the pivoting plane of the blades. A manually operated form includes two ball joints and a detent for holding the device to a plurality of angular positions. An electric-motor-operated form includes one ball joint and an adjustable swivel to allow for selected positions at any desired angle.

3,596,356 GROOVING KNIFE ASSEMBLY

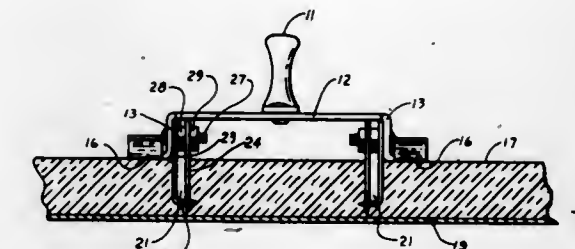
John E. O'Neal, Indianapolis, Ind., assignor to John J. Cotton, Indianapolis, Ind., a part interest

Filed July 11, 1968, Ser. No. 744,013
Int. Cl. B26b 3/04

U.S. Cl. 30-279

3 Claims

A blade holder with parallel horizontally spaced feet for support on a board surface, with inverted channel-shaped bridge portion between the feet and a handle atop the bridge portion. Two pairs of knife blades, each pair removably secured to the bridge portion adjacent one of the feet, and including two generally triangular blades substantially identi-



being closely horizontally spaced the width of the desired groove to be cut in the board.

3,596,357 METHOD FOR PERFORMING ORTHODONTIC LIGATION OF THE BANDS AND THE ARCHWIRE APPLIED TO A SERIES OF TEETH, AND AN ORTHODONTIC LIGATION BRACE AND A PRE-SHAPED LIGATION WIRE PIECE FOR USE IN SAID METHOD

Takeshi Matsumoto, 27-5, Hakusan Ichome Bunkyo-ku, Tokyo, 113, Japan

Filed Mar. 3, 1969, Ser. No. 803,880
Claims priority, application Japan, Nov. 14, 1968, 43/82872
Int. Cl. A61c 7/00

U.S. Cl. 32-66

7 Claims



Orthodontic ligating operation is conducted with a greatly increased efficiency and economy by the use of a preshaped ligation wire piece having a forward loop section, an adjacent intermediate widened section and a rodlike twisted end portion extending from said intermediate section, and by having said end portion held firmly between the grasping arms of a chuck means contained in a pencil-like orthodontic ligation brace and adapted to be closed by a chuck closing and opening means provided in said brace, then hooking the brackets of the selected band and an archwire which have been already applied to a tooth, thereafter twisting up the wire piece by turning said brace until said brackets and archwire are firmly fixed together by said loop, and then opening said arms of the chuck to release the end portion of the fixed wire piece therefrom.

3,596,358 ARRANGEMENTS IN EARTH MOVING MACHINES

Karl Uno Einar Andersson, Oxelösund, Sweden, assignor to Eric Reinhold Gustafsson, Malmö, Sweden

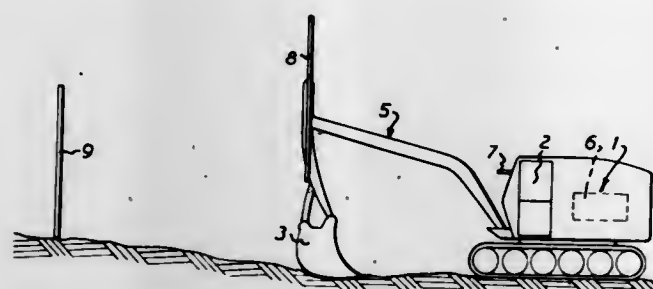
Filed Apr. 14, 1969, Ser. No. 816,007
Int. Cl. G01c 5/00, 15/00

U.S. Cl. 33-46

3 Claims

An arrangement in excavators, bulldozers and like machines for determining the depth in the ground of an

earthmoving instrumentality consists of a levelling instrument located in the vicinity of the driver's seat, a levelling staff on edges of the rules in close relationship with the board or platen and in the same plane while permitting travel of the



the earth moving instrumentality, and an optional number of panels to be set up in the terrain.

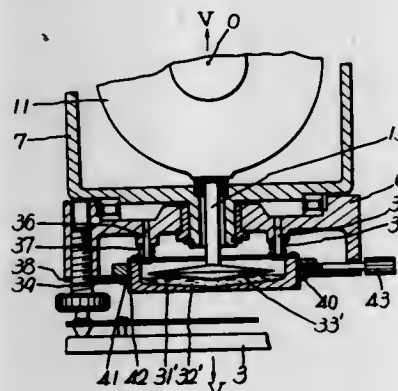
3,596,359

MERIDIAN DETECTOR

Michio Fukano, Yokohama-shi, Japan, assignor to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan
Filed Dec. 17, 1968, Ser. No. 784,321
Claims priority, application Japan, July 9, 1968, 43/48,038
Int. Cl. G01c 19/38

U.S. Cl. 33-72

1 Claim



A device for determining the position of a meridian which includes a gyroscope mounted on a horizontal axis and which is supported so that it tends to point north. The gyroscope is suspended on a suspension wire and the torque in the suspension wire is balanced with the north-seeking action of the gyro rotor. The torsion in the suspension wire is removed by rotating the gyro case and thus aligning the spin axis of the gyro with true north. A disc is attached to the case of the gyroscope and is immersed in a viscous liquid so as to damp the north-seeking action of the gyroscope. The elevation of the container for the viscous liquid is adjustable to vary the degree of immersion of the disc, which is downwardly tapered so as to vary the damping torque with the degree of immersion.

3,596,360

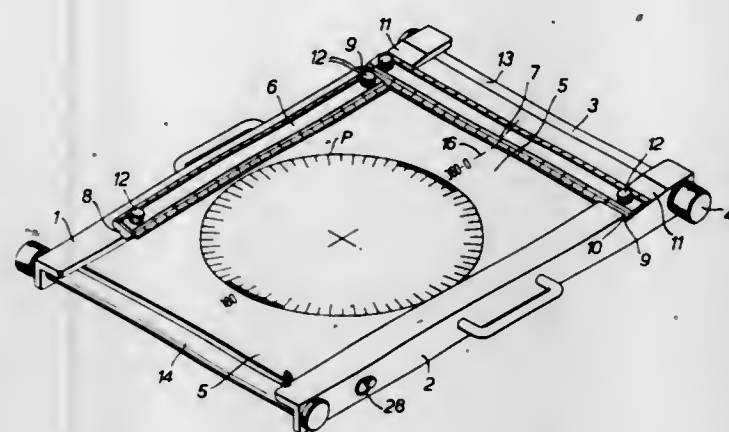
APPLIANCE FOR USE IN SURVEYING

David J. Franklin, The Maisonette, Yenna, Wolfs Row, Limpfield, Oxted, Surrey, England
Filed July 29, 1969, Ser. No. 845,796
Claims priority, application Great Britain, Aug. 1, 1968, 36,856/68
Int. Cl. B43I 5/00

U.S. Cl. 33-76

4 Claims

An appliance for use in surveying, comprising a board or platen, spaced parallel rollers form one to the other of which a roll of drawing material may be wound so that a section thereof is supported by the board or platen, and longitudinal and transverse scaled rules under with the material may be displaced on the board or platen so that a scaled plan of the site surveyed can be plotted on the material in the field. The rules may each have a flat face and an opposite face bevelled and the flat faces supported by inclined or bevelled faces of a frame which supports the rollers so as to bring the scaled



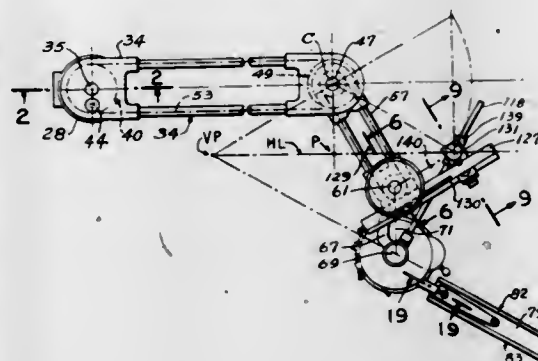
3,596,361

PARALLEL AND PERSPECTIVE DRAWING DEVICE WITH ANGULAR SETTING MEANS

Igor A. Pirogow, Georgetown Road, Erieville, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,747
Int. Cl. B43I 13/14

U.S. Cl. 33-77

23 Claims



A drawing device is described which is convertible to and from a perspective drawing device and a parallel drawing device by which a move positive and convenient means is provided for drawing angularly directed parallel lines. In addition this setting may be made without changing the perspective setting. Also an improved construction is provided for the control pivot means by which the position of the vanishing point for perspective drawing is selected.

3,596,362

SURFACE MEASURING APPARATUS

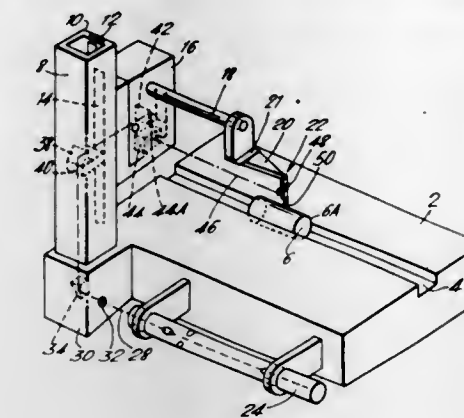
Richard Edmund Reason, Market Harborough, England, assignor to The Rand Organization Limited, London, England
Filed Dec. 16, 1968, Ser. No. 783,995
Claims priority, application Great Britain, Dec. 18, 1967, 57387/67
Int. Cl. G01b 11/00, 15/00

U.S. Cl. 33-174

23 Claims

The profile of a surface is tested automatically by directing a parallel reference beam of light substantially parallel to the surface on to beam displacement means, such as a reflecting prism, carried by a surface-engaging stylus, so that a measuring beam is produced which is displaced relative to the reference beam by an amount proportional to the stylus

movement. Detection means, for example a differential photoelectric sensor, are used to indicate change in said dis-



placement and thereby provide an indication of the surface profile.

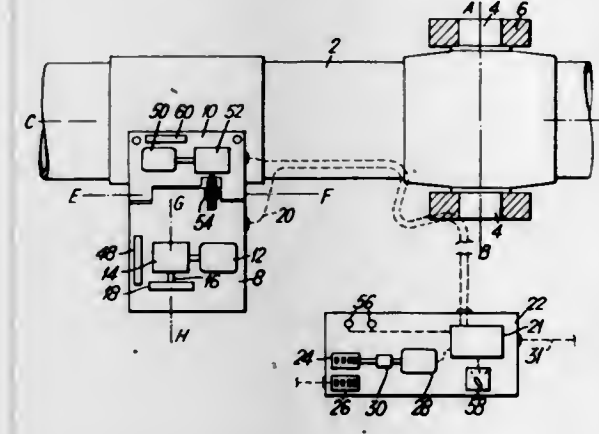
3,596,363

EQUIPMENT FOR AIMING GUNS OR OTHER APPARATUS IN ELEVATION

Allan Maurice Squire, Harpenden, and Peter Duncan Morris, Knebworth, both of, England, assignors to British Aircraft Corporation Limited, London, England
Filed Oct. 9, 1968, Ser. No. 766,218
Claims priority, application Great Britain, Oct. 13, 1967, 46892/67
Int. Cl. G01c 9/06

U.S. Cl. 33-206 D

5 Claims



An apparatus for determining a given angular relationship to the gravitational vertical. A saddle is provided which is attached to the object and incorporates an electrically indicating tilt-sensitive device. A mounting with two tilt-sensitive devices is pivotally connected to the saddle. A number of electric motors are arranged to move the tilt-sensitive devices relative to the mounting to produce an electrical signal indicative of the angular position of the object. A transducer is connected to receive the signal and to indicate the angle of elevation of the object. The tilt-sensitive device can comprise a curve tube containing an electrolyte and a bubble of air, which is incorporated into a bridge circuit to indicate the change in the conductivity which occurs when the tilt-sensitive devices are removed from the horizontal plane.

3,596,364

ARRANGEMENT FOR VEHICLE-NAVIGATING SYSTEM

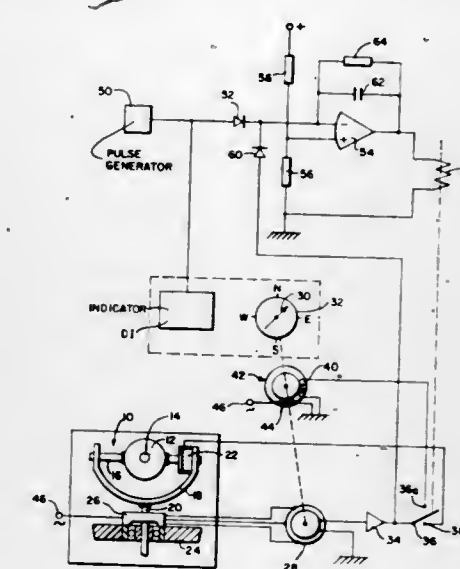
Klas Rudolf Wiklund, Lahall, Sweden, assignor to Aga Aktiebolag, Lindingo, Sweden
Filed Mar. 27, 1969, Ser. No. 810,958
Claims priority, application Sweden, Mar. 27, 1968, 4,059/1968
Int. Cl. G01c 19/32, 19/34, 23/00

U.S. Cl. 33-204

10 Claims

An arrangement for use in a navigating system for a vehicle includes a directional gyro, a heading indicator responsive to the gyro, and a generator for generating a signal dur-

ing the movement of the vehicle. During movement of the vehicle the reading of the heading indicator is determined by a signal corresponding to the position of the gyro, under the control of a relay responsive to the presence of the generator



signal. While the vehicle is stationary this relay switches the small signal due to gyro draft to cause energization of a torque motor which locks the gyro in a position corresponding to the reading of the heading indicator by nulling the drift.

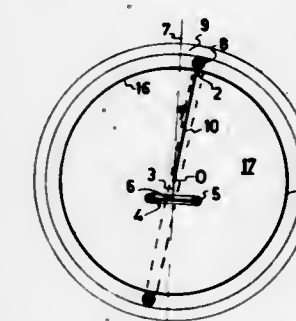
3,596,365

INCLINATION-MEASURING DEVICE

Cornelis M. Verhagen, Heemstede, Netherlands, assignor to Datawell N.V., Haarlem, Netherlands
Filed Aug. 26, 1969, Ser. No. 853,140
Claims priority, application Netherlands, Aug. 27, 1968, 68,12205
Int. Cl. G01c 15/10

U.S. Cl. 33-216

5 Claims



A device for measuring deviations from vertical comprising a spherical liquid-filled container with a pendulous coil supported by a thin thread conduct or from a fixed point on the interior of the sphere and having a density almost equally that of the liquid, and a pair of mutually perpendicular inductance coils concentrically mounted on the exterior of the sphere for monitoring the magnitude and direction of the deviation from vertical of the pendulous member.

3,596,366

GYROSCOPIC INSTRUMENT

Shin-ichi Kawada, Yokohama-shi, Japan, assignor to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan
Filed Jan. 2, 1968, Ser. No. 695,127
Claims priority, application Japan, Jan. 13, 1967, 42/2649
Int. Cl. G01c 19/38

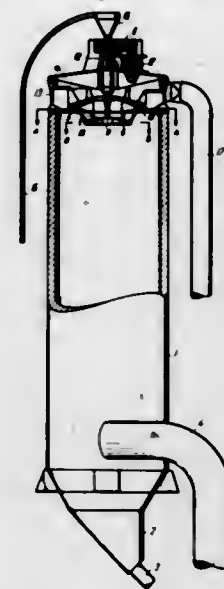
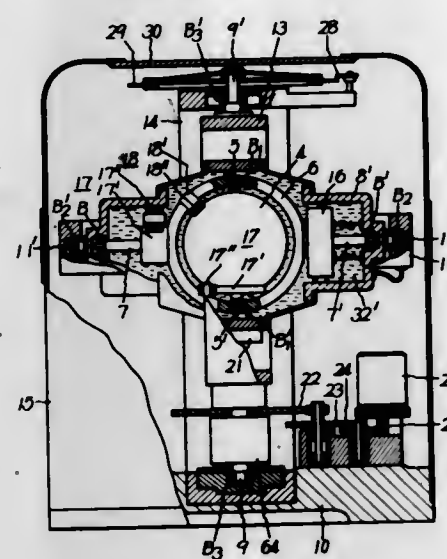
U.S. Cl. 33-226

6 Claims

A gyroscopic instrument having a gyro case including a gyro therein and supported with three degrees of freedom

and means for applying a control torque to the gyro about a substantially horizontal axis across the gyro-spin axis at right

the preheated material entrained by the upstreaming gases. The material is supplied through the hollow shaft of said fan



angles thereto in response to a differentiated value of the inclination of the gyro-spin axis.

3,596,367

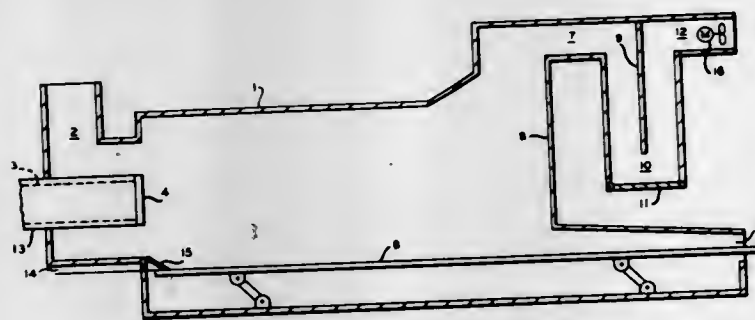
PROCESS AND APPARATUS FOR DRYING, COOLING, AND CONVEYING EXTRUDATE
A. Ralph Crandall, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed July 25, 1969, Ser. No. 844,905

Int. Cl. F26b 7/00

U.S. Cl. 34-17

8 Claims



Hot, moist extrudate is discharged into an envelope of cocurrently moving gas which is maintained in a flash-drying zone for cooling, drying and uniform movement of the extrudate away from the point of discharge; also, the escape of vapors and fines is effectively controlled by providing a differential pressure across said zone.

3,596,368

ARRANGEMENT FOR PREHEATING OF PULVERULENT MATERIALS PARTICULARLY OF CEMENT RAW MATERIAL

Zdenek Zaczal, Horni Mostenice, and Petr Nemecek, Prerov, both of, Czechoslovakia, assignors to Prerovske strojny, narodni podnik, Prerov, Czechoslovakia

Filed Nov. 21, 1969, Ser. No. 878,754

Int. Cl. F26b 17/14; F27b 15/12

U.S. Cl. 34-57

5 Claims

A shaft heat exchanger for pulverulent materials, with hot gases supplied at the bottom of the shaft and with the material to be preheated supplied at the top, is provided at the top of the shaft with a fan, serving simultaneously for generating an upward draft of the gases and for separating of particles of

and is dropped on a distributing disc forming a unit with the fan wheel.

3,596,369

TRANSFORMERLESS POWER SUPPLY WITH LINE TO LOAD ISOLATION

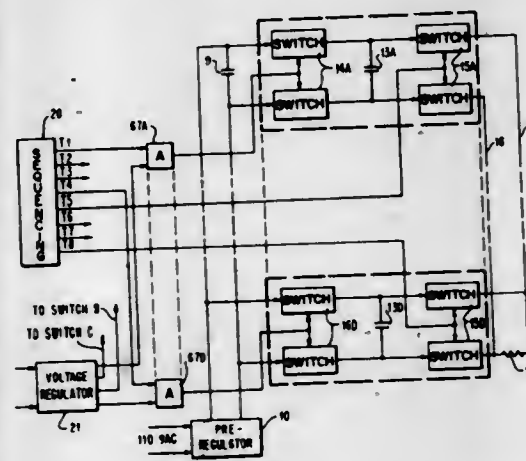
Jack A. Dickerson, Raleigh, N.C., and Gerald H. Ottaway, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,023

Int. Cl. H02m 7/12

U.S. Cl. 321-43

7 Claims



A transformerless power supply is disclosed in which a source capacitor has its charge maintained at a fraction of the AC supply voltage and a plurality of sink capacitors are sequentially switched between a charging connection to the source capacitor and a discharging connection to a load circuit. The load circuit is isolated from the line at all times to maintain safety protection. The use of a comparatively high switching speed will reduce the filter requirements in the load circuit and this together with the elimination of the transformer results in very substantial size and weight reductions from conventional supplies.

Voltage regulation at the load is achieved by controlling the voltage to which the sink capacitors are charged from the source capacitor.

3,596,370

THIN FILM CAPACITOR

Sam I. Gabrall, Syracuse, N.Y., assignor to General Electric Company

Filed Dec. 11, 1969, Ser. No. 884,164

Int. Cl. H01g 3/07

U.S. Cl. 317-230

6 Claims

This invention relates to an improved thin film capacitor structure and a method for making the same. The thin film capacitor comprises two layers of aluminum separated by a

dielectric layer. Interposed between one of the aluminum layers and the dielectric layer is a barrier layer which



prevents the various mentioned layers from alloying together in the temperature range of 400° to 600° C.

3,596,371

HAIR DRYER

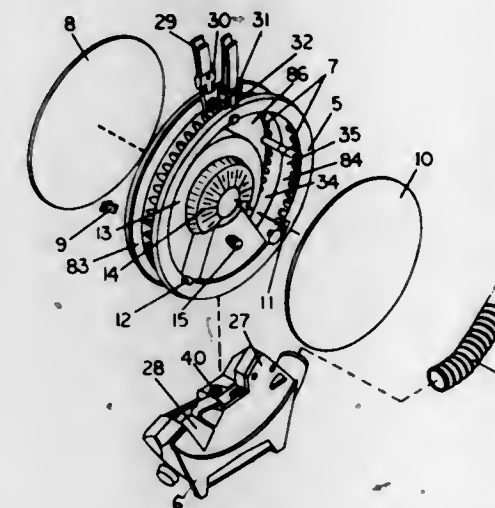
Raymond L. Hanisco, Lansdale, Pa., assignor to Proctor-Silex Incorporated, Philadelphia, Pa.

Filed Oct. 10, 1969, Ser. No. 865,319

Int. Cl. A45d 20/18

U.S. Cl. 34-99

12 Claims



A hair dryer comprises a plurality of components interrelated by means operable manually without the use of tools, said components including a housing component having a motor and blower assembly and providing hair dryer hat and cord storage space with a releasable closure insert and a control box component containing a pair of heaters and a thermostat assembly and providing a choice of heat settings. The electrical circuitry is arranged within the components so that assembly completes the internal electrical circuitry and disconnection of the dryer from the power supply cord must be made before disassembly. A hose providing flow communication between the control box component and the hair dryer hat is received within a peripheral groove in the housing component with an access groove adjacent thereto on the control box component to provide a compact, portable unit with readily replaceable components.

3,596,372

STRETCHING, DRYING AND HEAT-SETTING APPARATUS

Narve Hundseid, Slependen, Baerum, near Oslo, Norway, assignor to Aktieselskabet Thunes Mekaniske Vaerksted, Oslo, Norway

Filed Nov. 8, 1968, Ser. No. 774,397

Claims priority, application Norway, Oct. 11, 1968, 4047/68

Int. Cl. F26b 13/12

U.S. Cl. 34-162

6 Claims



The invention relates to stretching, drying and heat-setting apparatus for felt and wire for paper machines. A cantilever

support means for each roll is arranged extending from one side and over the entire web, thus providing supports for temporary support of one shaft journal of the roll. This enables easy introducing and removing of the felt. The cantilever means are preferably assembled to a unit which also supports one part of the drying box.

3,596,373

PROGRAMMED EDUCATIONAL COMPARATOR

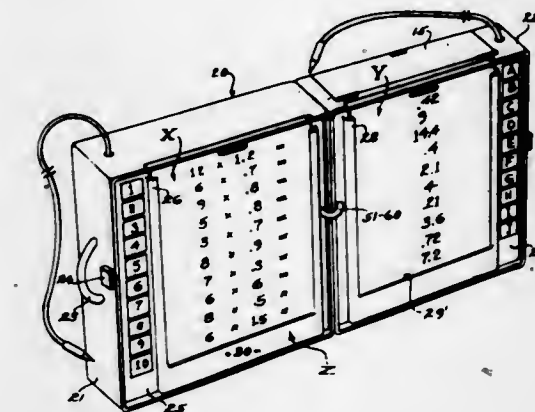
Glen E. Morgan, 17901 Yorba Linda Blvd., Apt. 20, Yorba Linda, Calif.

Filed May 19, 1969, Ser. No. 825,810

Int. Cl. G09b 7/00

U.S. Cl. 35-9

2 Claims



A pair of information display boards are provided and upon each of which there is a multiplicity of information wherein each bit of information on one board is related to a bit of information on the other board. Each bit of information upon the two boards is associated with an electrical contact and the contacts thus associated with the two information boards are made comparable to each other by means of selectively replaceable circuit boards having comparable circuit continuity. Affirmation of correct comparison is by means of switching effected by simultaneously touching a pair of manipulatable probes to said contacts at the two information boards respectively, said probes being in a series circuit through a power supply and signal means.

3,596,374

SNOWSHOE FASTENING

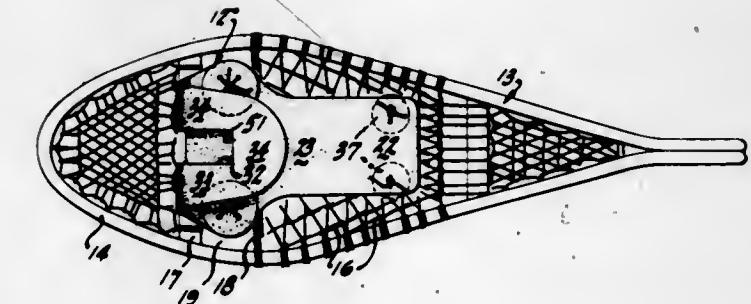
William M. Covington, 559 Olive Court, Placerville, Calif.

Filed Nov. 12, 1969, Ser. No. 875,899

Int. Cl. A63c 13/00

U.S. Cl. 36-4.5

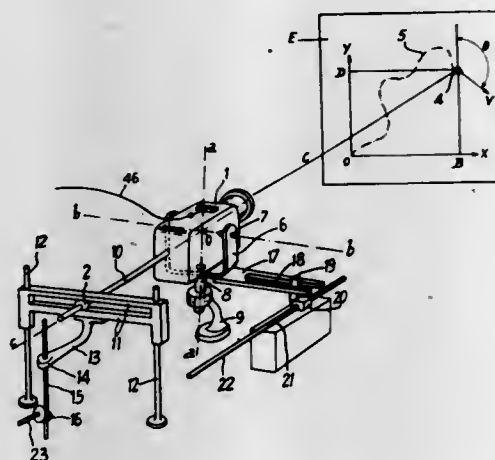
9 Claims



An elongated sheet of elastomeric material includes a heel portion, a sole portion and a laterally enlarged toe portion adjustably secured in a median fore-and-aft alignment on the webbing of a snowshoe. The forward end of the toe portion is arcuately recurved and merges into a rearwardly extending portion apertured to receive the wear's boot therethrough and to afford resilient ankle-encompassing straps capable of biasing forwardly against the back of the boot with sufficient force to urge the toe of the boot tightly against the arcuate recurved toe portion of the sheet.

3,596,375
APPARATUS FOR SIMULATING ON A SCREEN THE
MOVEMENTS OF A SEA OR LAND CRAFT
 Rene Hervieu, 3 bis, rue Lamartine, Nantes, Loire-Atlantique,
 France

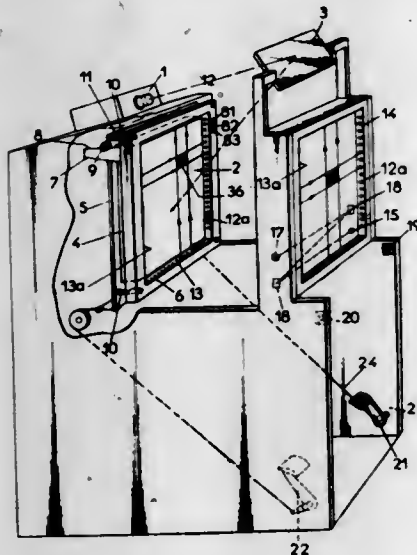
Filed Dec. 12, 1968, Ser. No. 783,214
 Int. Cl. B64g 7/00; G09b 9/08
 U.S. Cl. 35-12 N 11 Claims



This invention relates to apparatus for simulating the movements of a sea or land craft including a screen on which the route to be traveled by the craft is shown, a projector for projecting an image of the craft on the screen, which projector is mounted for angular rotation about two perpendicular axes to enable the image to be moved in two perpendicular directions on the screen and a drive mechanism controlled by the user of the apparatus or by the navigator or driver of the craft for effecting angular rotation of the projector about its axes in dependence on the simulated direction and speed of the craft.

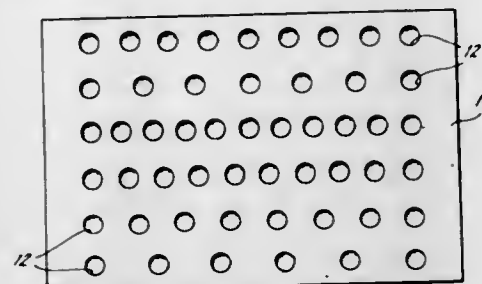
3,596,376
APTITUDE TESTING MACHINE
 Gaston Avedissian, 4, rue Beausejour, Colombes; Dominique Lamotte, 5, rue du Hameau, Meudon-Bellevue; Lucien Lamotte, 5, rue du Hameau, Meudon-Bellevue, and Martine Lamotte, 5, rue du Hameau, Meudon-Bellevue, all of, France

Filed Apr. 30, 1969, Ser. No. 820,375
 Claims priority, application France, May 2, 1968, 150 354
 Int. Cl. G09b 19/00
 U.S. Cl. 35-22 5 Claims



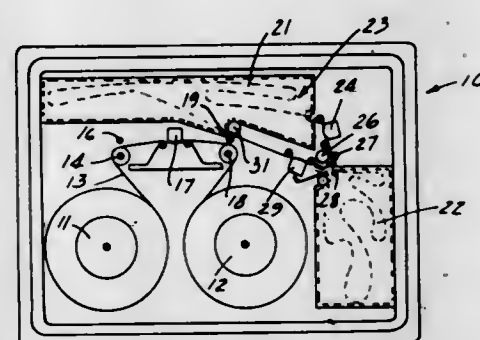
Method and apparatus for administering aptitude tests which comprises a motion-picture projector, a screen on which it projects pictures, means for determining the speed at which an object is caused by a test subject to approach the screen in response to a stimulus projected thereon, means for measuring the force exerted on the screen when said object strikes it, and means for correlating such measurements to measure the aptitudes utilized by the subject in responding to said stimulus.

3,596,377
EDUCATIONAL TEACHING AND TESTING DEVICE
 Janet Ballard Abbey, Philadelphia, Pa., assignor to Jerome H. Lacheen, a part interest
 Filed May 28, 1969, Ser. No. 828,577
 Int. Cl. G09b 19/00
 U.S. Cl. 35-22 A 8 Claims



The method and means for teaching and evaluating the intellectual and perceptual development of children including a board containing a plurality of rows of recesses each capable of receiving a disc therein.

3,596,378
AUTOMATIC TAPE MACHINE
 Charles H. Flubacker, Arlington Heights, Ill., assignor to Artag Plastics Corporation, Chicago, Ill.
 Filed July 1, 1969, Ser. No. 838,110
 Int. Cl. G09b 5/04; G11b 5/02
 U.S. Cl. 35-35 C 13 Claims



An automatic tape machine that may be used to teach foreign languages for example and in which a student may listen to a master tape, and then record on a student tap his pronunciation of the lesson and then listen to his recorded lesson before once again hearing the master tape.

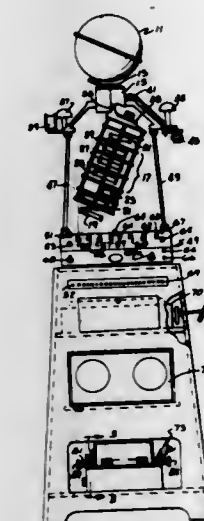
The machine is designed and constructed such that it operates with a single talk-review lever wherein prior tape machines for teaching have required a number of switches and operations by the student to operate the machine.

A number of automatic features are provided including automatic cuing such that while the student is recording on the student tape the master tape backs up one sequence so that it will be prepared to repeat the master tape after the student has completed his recording.

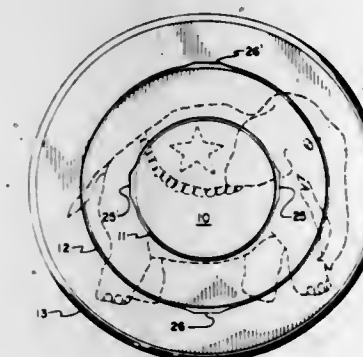
3,596,379
AUTOMATIC CONTROL FOR PLANETARIUM OPERATION
 Albert A. Faulkner, Conshohocken, Pa., assignor to Spitz Laboratories, Inc., Chadds Ford, Pa.
 Filed July 5, 1968, Ser. No. 742,879
 Int. Cl. G09b 27/00
 U.S. Cl. 35-42.5 7 Claims

A planetarium for projecting celestial objects includes control means which is connected to a magnetic tape recorder. A description of a celestial display is normally recorded on the magnetic tape through the recorder and alternatively or in conjunction therewith information can be recorded on photographic slides. As the persons in attendance listen to the voice description of the display from the magnetic tape recorder, a second track on said tape provides control signals to automatically turn off certain of the planetarium lamps.

The control signals further act to turn on and turn off motors which move the lamps, thereby simulating the movement of the celestial bodies as they are being described by the voice

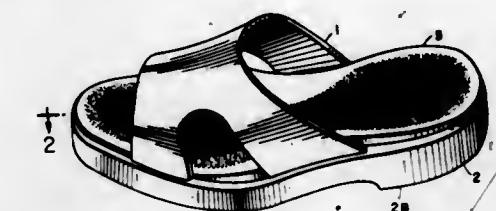


3,596,380
COMBINATION TOY AND EDUCATIONAL APPARATUS
 James J. Williams, 2330 S. Pacific, Boise, Idaho
 Filed Jan. 8, 1970, Ser. No. 1,416
 Int. Cl. A63f 9/08
 U.S. Cl. 35-77 3 Claims



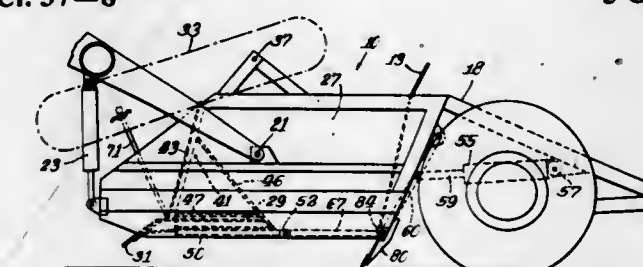
The combination toy and educational apparatus of the present invention includes a plurality of annular rings concentrically disposed one within another. The ring elements are each provided with a convex terminal edge portion and an opposing concave terminal edge portion so that the convex edge portion of one ring is engageable with a next succeeding larger concentrically disposed ring. The convex edge portions of the rings are provided with a flat planar surface athwart the edge, while the opposing concave edge portion is provided with a transversely planar receded portion adjacent one of the contiguous faces of the ring. When the planar surfaces of one ring are aligned the recede portion of the next larger concentrically disposed ring, the first ring may be engaged with or removed from the latter ring. Indicia may be printed or embossed upon one of the faces of the rings, which indicia when aligned may form a representation of words or objects for educational purposes.

3,596,381
SANDAL
 Tatsuo Fukuoka, No. 25, 4-Ban, 2-chome, Shin-Minami-Fukushima, Tokushima, Tokushima Prefecture, Japan
 Filed Nov. 22, 1968, Ser. No. 778,178
 Int. Cl. A43b 3/12, 13/06
 U.S. Cl. 36-11.5 4 Claims



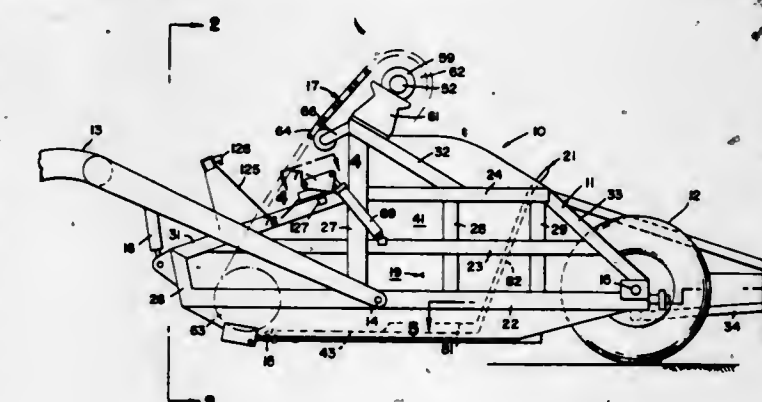
The present invention relates to an improvement of sandal, and more particularly to a comfortable improved sandal which is to be integrally formed of thermoplastic synthetic resin material.

3,596,382
EARTH HANDLING SCRAPER
 Alfred Jan. Jocher, Lombard, Ill., assignor to International Harvester Company, Chicago, Ill.
 Continuation of application Ser. No. 534,739, Mar. 16, 1966, now abandoned. This application Jan. 12, 1970, Ser. No. 1,953
 Int. Cl. E02f 3/62
 U.S. Cl. 37-8 5 Claims



A scraper having a bowl with an open end, and forward and rear compartments defined by an ejector in its rearward position, the ejector being capable of traversing the forward compartment to eject material out the open end. A sliding bottom for enclosing the rearward portion of the bowl when the ejector is rearward and movable with the ejector to an open position to permit discharge of material through the bottom of the bowl.

3,596,383
IMPROVED EJECTION SYSTEM FOR ELEVATOR SCRAPER
 Louis L. Bispo, and Medrick Perra, both of 301 Santa Barbara Ave., Modesto, Calif.
 Filed Aug. 2, 1968, Ser. No. 749,653
 Int. Cl. B60p 1/36
 U.S. Cl. 37-8 3 Claims



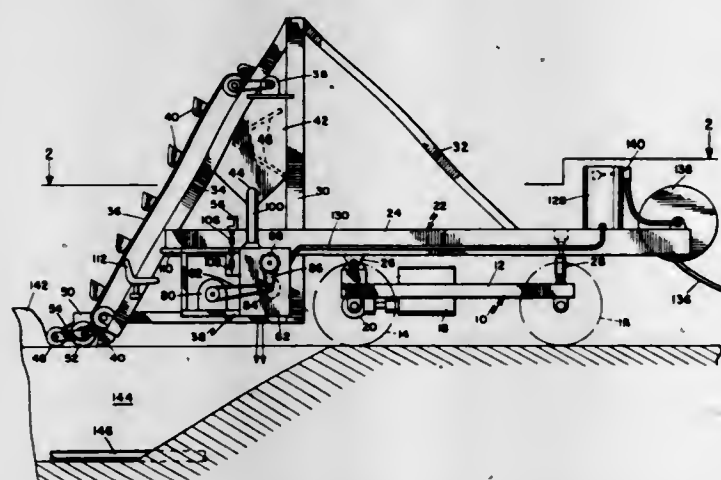
A bowl-equipped earth-moving machine having an endless conveyor with its lower end disposed adjacent an earth

cutting blade is disclosed. A fixed floor portion is arranged immediately rearwardly of the blade and a rolling floor portion with an upstanding ejection gate is arranged to first move together over the fixed floor followed by the ejection gate moving over the rolling floor for expelling earth from the bowl when the lower end of the endless conveyor is shifted to an out-of-the-way position. Fluid power is employed to drive and shift the endless conveyor and to power the earth-expelling mechanism. Interlocks are included in the fluid power circuit to prevent earth expelling prior to placing the conveyor in its out-of-the-way position and a resilient safety mechanism is arranged on the conveyor to permit sudden upward movements when the conveyor encounters large, hard to move objects.

3,596,384
EXCAVATION REFILL PACKER
Roy E. Neujahr, 1540 Nob Hill Drive, Escondido, Calif.
Filed Dec. 9, 1968, Ser. No. 782,210
Int. Cl. E02f 5/22

U.S. Cl. 37-142.5

7 Claims



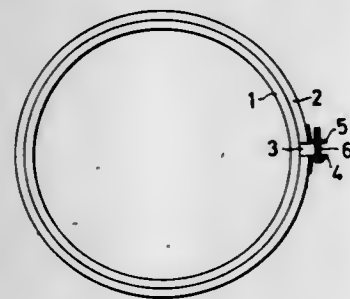
The excavation refill packer has its principal use as an ambulant ditch packer, a self-contained machine which picks up and screens soil from a pile alongside a ditch and throws the soil into the ditch; by means of a high-speed impeller, with sufficient force to pack the soil firmly without the need for tamping. Apparatus is provided for injecting a closely controlled flow of water into the moving flow of soil to obtain the desired moisture content. The entire machine is controllable by a single operator, who can direct the high-velocity stream of soil to fill the ditch evenly as the machine advances. The machine can be adapted for pack-refill of excavations which are not narrow as the word "ditch" suggests, since the machine can make repeated and progressive passes.

3,596,385
EMBROIDERY FRAME
Shizue Tachibana, No. 291, Sakoshi, Ako Hyogo Prefecture, Japan

Filed June 10, 1970, Ser. No. 45,126
Int. Cl. D05c 1/04

U.S. Cl. 38-102.2

4 Claims



An embroidery frame, which is in an annular shape and consists of an inner ring and an outer ring, the inner ring

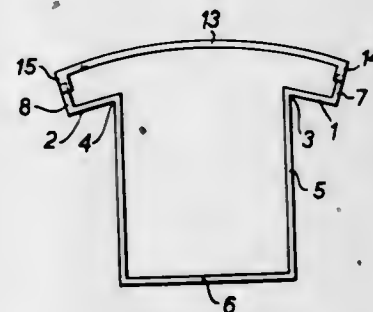
comprising a flange formed around its lower edge, ratchet-shaped slowly curving shoulders being provided on the external periphery of the inner ring, a protruding ridge being further provided in the circumferential direction on the thick part of each shoulder, the outer ring fitting into the inner ring with embroidery cloth interposed therebetween, slowly curving ratchet-shaped shoulders being similarly formed on the internal periphery of the outer ring, a groove of a fixed length being provided in the circumferential direction on the outside of each shoulder so that each of the protruding ridges of the outer ring will slidably fit into each of said grooves. This embroidery frame enables to securely stretch embroidery cloth between the inner and outer rings by fitting the outer ring into the inner ring with the cloth interposed therebetween and then slightly revolving either of said two rings.

3,596,386
PROCESS FOR THE TREATMENT OF KNITTED TEXTILE ARTICLES
Jean Zapater, Ganges, France, assignor to Societe Rhodiacta, Paris, France

Filed Feb. 27, 1969, Ser. No. 802,950
Claims priority, application France, Feb. 29, 1968, 49716
Int. Cl. D06f 59/02

U.S. Cl. 38-144

3 Claims



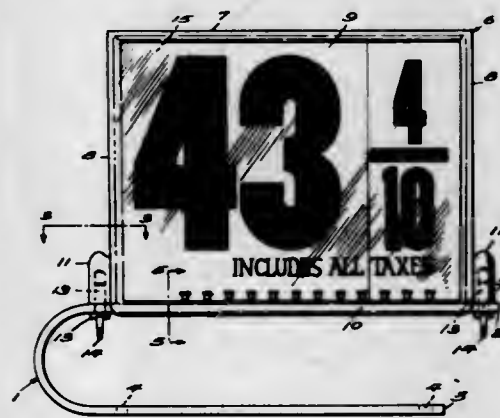
Knitted textiles are subjected to heat treatment on a contoured rigid framework formed from detachable elements which are assembled inside the knitted textile, the torso section and the neck and shoulder section of the framework being formed from separate detachable elements.

3,596,387
DISPLAY DEVICES
Edward Ten Hoeve, Toms River, and Peter De Korte, Wyckoff, both of, N.J., assignors to Empro Products Company, Inc., Paterson, N.J.

Filed Apr. 11, 1969, Ser. No. 815,382
Int. Cl. G09f 3/18

U.S. Cl. 40-10 D

6 Claims



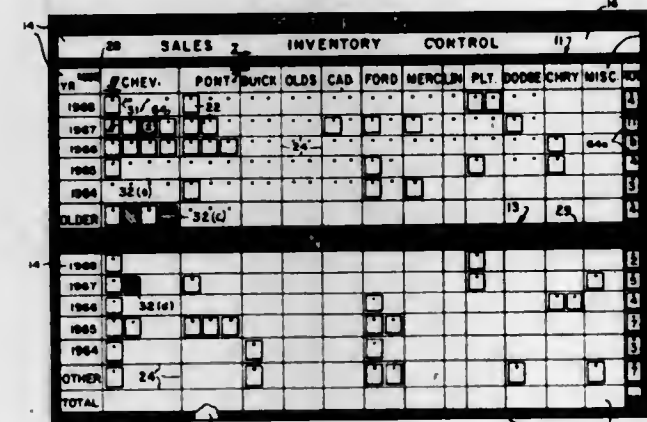
A display device for changeable signs having a transparent cover for receiving therein in upright position the changeable cards carrying suitable indicia. The cover is enclosed on all sides except the bottom, where it receives a bracket and which substantially fits in the opening to seal the latter against the entrance of foreign substances. The cover is frameless and formed of relatively thin walls which overlap

the bracket at the bottom. Ears are formed on the opposite end walls at the bottom extending substantially throughout the width of the cover and in position to be seated upon the bracket. The ears are internally threaded to receive fastening screws detachably connecting the cover with the bracket and which can be inserted through openings in the bracket into the threaded openings in the ears.

3,596,388
INFORMATION CONTROL SYSTEM AND APPARATUS
James R. Shorten, 526 Campbell St., Scranton, Pa.
Filed May 19, 1969, Ser. No. 825,693
Int. Cl. G09f 3/18; B41i 1/24

U.S. Cl. 40-19.5

9 Claims

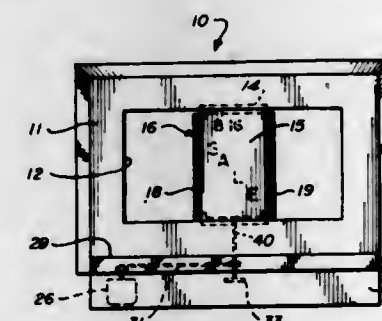


An information control system and informational display board employing centralized visual accumulation and display of inventory and sales data, equipment location, departure and arrival data, and similar information in predelineated transversely related and variable columnar order to provide a substantially instantaneous overall picture of day-to-day or other periodic business progress and/or inventory status. The display board is adapted for variable sectionalization through use of removable elastic divider tapes end fastened through terminal ring hooks to equispaced, oppositely aligned hook elements disposed in peripheral bounding relation to the marginal edges of the board and/or hook carrying removably mountable sectionalize strips mounted on the board face and to receive color coded informational tag sections identifying inventory on hand and sold or hand written informational data respecting location, departure and/or arrival information respecting equipment used in carrying on a business.

3,596,389
DISPLAY
Fred Drueck, Jr., 4941 W. Henderson St., Chicago, Ill.
Filed Aug. 26, 1969, Ser. No. 853,163
Int. Cl. G09f 1/30

U.S. Cl. 40-36

9 Claims

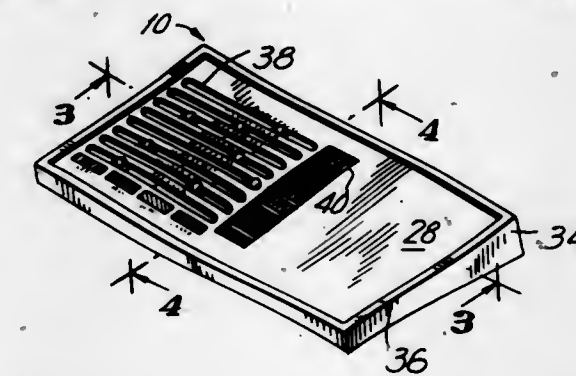


A point-of-sale display device including two parallel panels which are pivotally operated to display advertising indicia and the like provided on each of the opposite sides thereof, said panels being proportioned to overlap to close a window in the display and when so overlapped, the advertising indicia on each of the respective panels is positioned to form a complete message.

3,596,390
MANUALLY OPERABLE COMPUTER
John Scalice, West Paterson, N.J., assignor to Clinique Laboratories, Inc., New York, N.Y.
Filed Nov. 5, 1968, Ser. No. 773,494
Int. Cl. G09f 1/30

U.S. Cl. 40-65

10 Claims

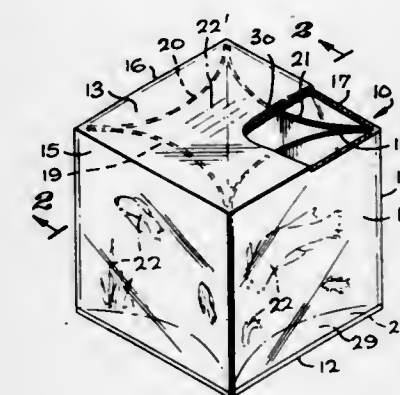


A manually operable computer used, for example, for cosmetic purposes to indicate directions for proper procedure in accordance with a predominating degree of a number of different variable factors. A plurality of indicating means are provided for indicating different degrees of a plurality of variable factors, respectively. The indicator means are manually operable and each include a manually shiftable indicating strip having a plurality of differently colored areas which are respectively indicative of the different degrees of a given variable factor. The number of colored areas of any one strip matches those of all of the others, and the several indicating means respectively include indicating locations at which selected colored areas are located. With the selected colored areas thus situated at these indicating locations, it is possible to determine which of the colors predominates over the others, and a further means is provided for giving directions as to procedures to be taken in connection with which one of the colors predominates.

3,596,391
BLOCK DEVICE
Eugene U. Knight, Jr., 3879 Clayton Ave., Los Angeles, Calif.
Filed Oct. 24, 1969, Ser. No. 869,290
Int. Cl. G09f 1/12

U.S. Cl. 40-152

23 Claims



A block device having transparent outer walls through which there are visible inner walls within the block carrying art work, with the inner walls within the block carrying art work, with the inner walls being centrally bowed inwardly away from the transparent outer walls in a manner giving a unique somewhat three-dimensional appearance to the art work.

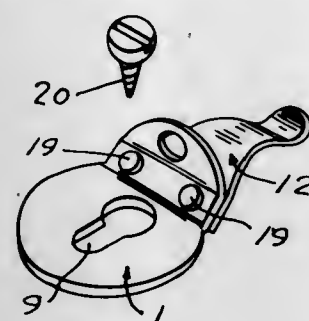
3,596,392
PICTURE FRAME CLAMP AND HANGER
Eugene J. Vani, 724 Water St., Benwood, W. Va.
Filed Aug. 12, 1969, Ser. No. 849,378
Int. Cl. G09f 1/12

U.S. Cl. 40-156

1 Claim

The present picture frame clamp and hanger is installed on a picture frame by inserting a screw at the desired location

on a frame, slipping the clamp over the screw and tightening the screw and after a series of said clamps are so installed



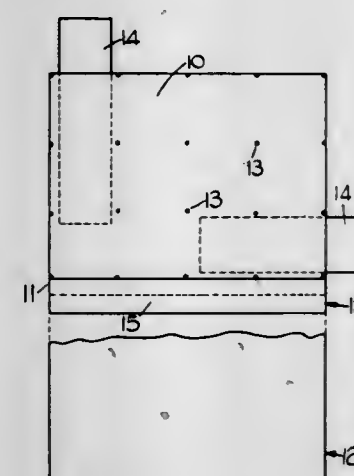
around the picture frame, a canvas panel or picture can be securely retained against the frame by said clamps.

3,596,393 DEVICE FOR THE HOUSING AND STORAGE OF MICROFILM

Janice Marilyn Lithgow, London, England, assignor to Microgen Limited, Nottingham, England
Filed Oct. 31, 1968, Ser. No. 772,336
Int. Cl. G09F 1/10

U.S. Cl. 40-159

6 Claims

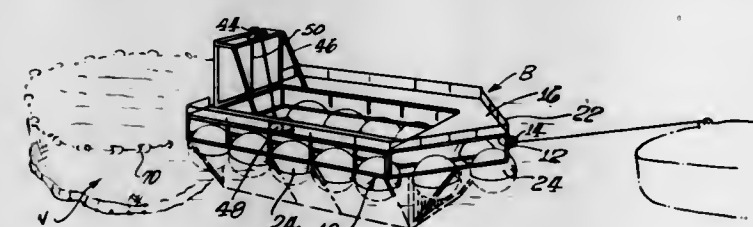


A device for retaining strips of microfilm and comprising a pair of sheets disposed in face-to-face relationship, the sheets being secured together at spaced fastening points whereby strips of microfilm can be inserted between the sheets and located at the fastening points.

3,596,394
LIVE BAIT BARGE
Thomas E. Reeder, Seal Beach, Canada, assignor to Robert Marvin Olson; Millard T. Chase and Fern C. Chase, part interest to each
Filed July 2, 1969, Ser. No. 838,449
Int. Cl. A01K 97/04, 73/12

U.S. Cl. 43-6.5

11 Claims



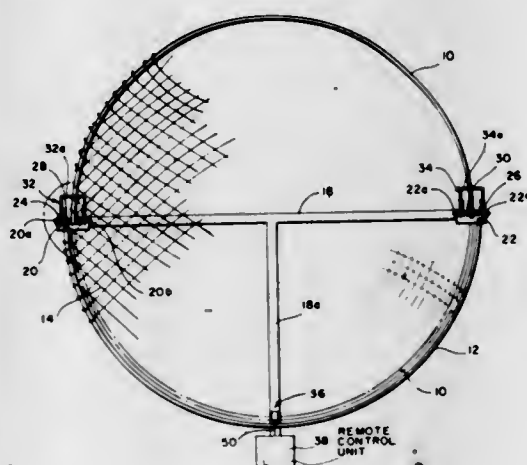
A live bait barge having a frame which supports a bait-receiving tank. The tank is provided with a bait-admitting opening and a gate for such opening. The gate is normally closed so as to retain bait within the tank. To load bait into the tank the barge is moved to a position adjacent a bait-

receiving net. The net is attached to the barge so that the opening faces the confines of the net. The gate is then opened relative to the opening and bait swim from within the confines of the net to within the confines of the tank. The bait tank after being loaded is moved to its bait-dispensing station. The barge is provided with apertures to permit the free flow of ambient sea water relative to the confines of the bait tank.

3,596,395
REMOTE-CONTROLLED TRAP FOR SMALL GAME
Dee S. Clement, 245 East 100 North, Santaquin, Utah, and Warren Alfred Ross, Ajo, Ariz.
Filed Apr. 10, 1969, Ser. No. 815,148
Int. Cl. A01M 23/32

U.S. Cl. 43-63

9 Claims

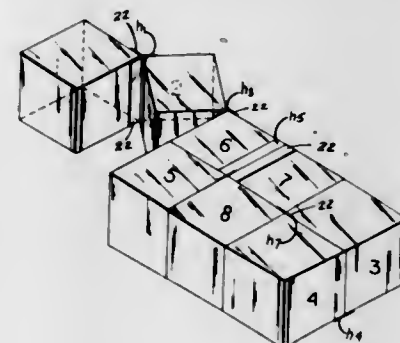


A trap for small game is provided wherein movement of a hinged bow between a first, cocked position and a second, sprung position is controlled by a radio receiver arrangement responsive to a remote radio signal provided by the trapper. The receiver arrangement controls a triggering device including a pivotable trigger release member and a curved, generally upright springlike "striker" member which cooperate to retain the hinged bow therebetween. Pivoting of the trigger release member responsive to the radio receiver arrangement provides release of the hinged bow member and thus springing of the trap.

3,596,396
SYSTEM OF HINGED POLYGONIC SHAPES
Betty J. Thomson, New York, N.Y., assignor to Geometric Industries Inc.
Filed Apr. 23, 1969, Ser. No. 818,615
Int. Cl. A63h 33/00

U.S. Cl. 46-1 R

9 Claims

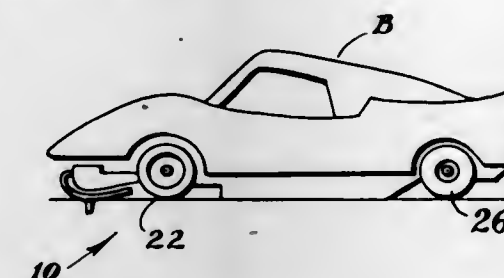


This disclosure is directed to a system of hinging a plurality of distinct similar polygonic shapes for movement between an enlarged modular unit shape composed of the respective plural shapes and a variety of alternate nonmodular shapes. The arrangement is such that one or more of the respective shapes may be pivoted individually or in groups about their respective axis of rotation independent of the remainder shapes. The respective polygonic shapes are hinged so as to pivot or rotate about perpendicularly disposed axis.

3,596,397
MINIATURE SLOT CAR
Anthony Colletti, 158 Horse Block Road, Centereach, N.Y.
Filed Feb. 13, 1970, Ser. No. 11,130
Int. Cl. A63h 18/12

U.S. Cl. 46-243 M

10 Claims

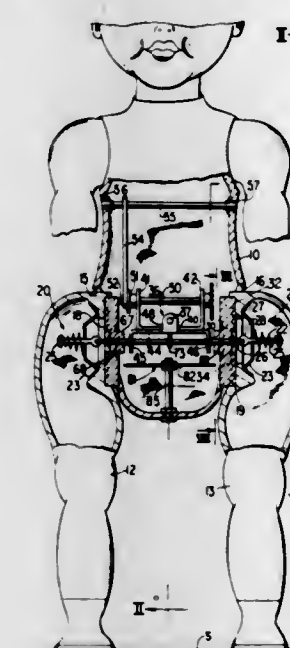


A slot car is provided with a first chassis that rotatably supports front and rear axles on which are mounted the steering and driving wheels, respectively. A second chassis is pivotally mounted on the rear axle and supports the drive motor, the transmission means, as well as the guide pin and the brushes that contact a slotted track. A feature of the invention is the ease of replaceability of the motor without the need for soldering, crimping tools or the like.

3,596,398
WALKING TOY FIGURE
Robert Gardel, New York, and Egon Gorsky, Brooklyn, both of, N.Y., assignors to Lettam, Inc., New York, N.Y.
Filed Dec. 13, 1965, Ser. No. 513,380
Int. Cl. A63h 11/00

U.S. Cl. 46-150

7 Claims



A walking toy figure, such as a doll, provided with mechanism designed to rock the body from side to side around a horizontal fore and aft axis with respect to a frame to which the legs are attached, thus causing the weight of the figure to be borne first by one leg and then by the other, the legs being pivoted for independent swinging movement about a transverse horizontal axis but interconnected so as to swing alternately, in a simulation of walking, as first one leg and then the other is burdened with the weight of the figure and the opposite leg is freed to swing forward.

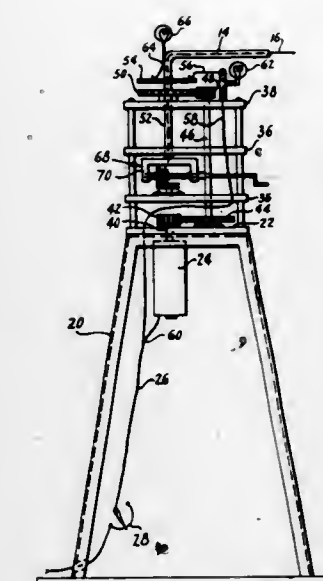
3,596,399
PYLON FOR TETHERED MODEL AIRPLANE
Boyd D. Barbee, 1941 63rd Ave., Sacramento, Calif.
Filed May 13, 1969, Ser. No. 824,194
Int. Cl. A63h 33/26

U.S. Cl. 46-228

3 Claims

A pylon from which a model airplane or the like is tethered and which includes power means for rotating the

model airplane in an orbit about the pylon and in which a tethering cable can be payed out, and in which rotatable

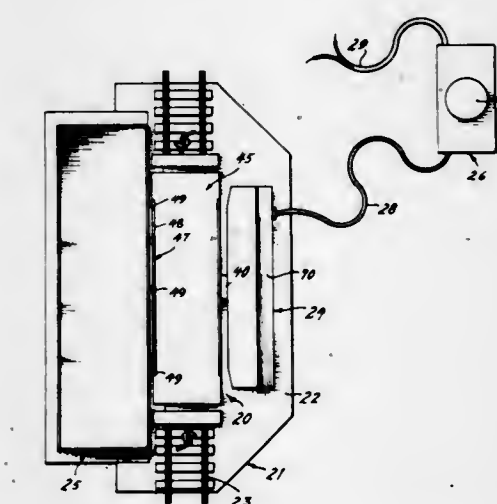


lights are energized by a slip-disc-type contact for illuminating translucent portions of the pylon.

3,596,400
MODEL RAILROAD FREIGHT DUMPING CAR ASSEMBLY
Richard C. M. Cheng, Hong Kong, British Crown Colony, assignor to Tyco Industries Inc., Woodbury Heights, N.J.
Filed Nov. 6, 1968, Ser. No. 773,768
Int. Cl. A63h 33/26, 19/15

U.S. Cl. 46-235

7 Claims



A wheeled chassis carrying a swingable dumping body, the chassis having electromagnet means and the body carrying an armature cooperating with the electromagnet means to effect a swinging, dumping action upon energization of the electromagnet means.

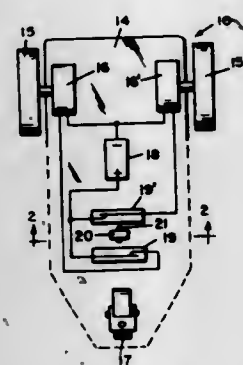
3,596,401
VEHICLE GUIDANCE SYSTEMS
Arthur J. Camlre, 14422 S. Louie, Riverdale, Ill.
Filed Feb. 18, 1970, Ser. No. 12,382
Int. Cl. A63h 17/36

U.S. Cl. 46-244 R

7 Claims

A toy-type vehicle carries a movable magnet for detecting a guide wire in the roadbed. Movement of the magnet actuates magnetic switch means in circuit with motors driving the

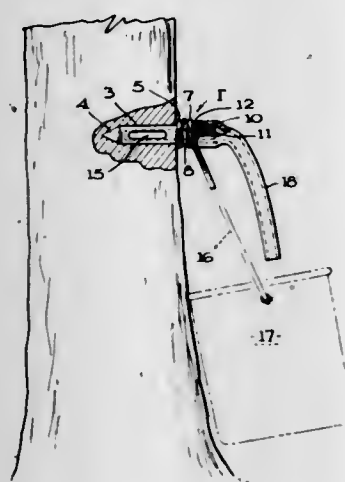
vehicle wheels, so that the vehicle is steered by driving along peripheral edges of the door engage peripheral portions of a path predetermined by the guide wire. In another embodiment the doorframe so that outwardly directed loads against the



ment the magnetic switch means control a steering motor of a dirigible vehicle wheel.

3,596,402
POWER-GUN-DRIVEN TAPPER
Vincent F. Palmer, 2106 Randolph Road, Apt 212, Wheaton, Md.
Filed June 5, 1969, Ser. No. 830,801
Int. Cl. A01g 23/14; B67b 7/26
U.S. Cl. 47-53

1 Claim



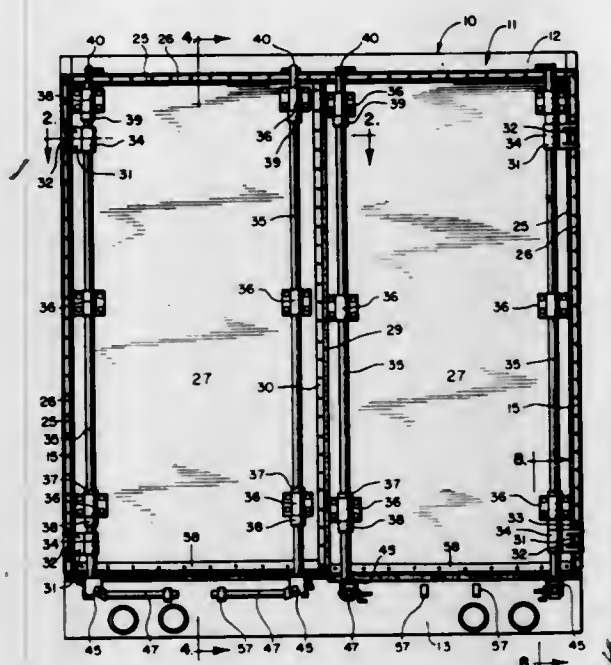
A tapper to be driven into a substantially rigid mass by a power gun for the extraction of fluid therefrom and having a longitudinal body of cylindrical section including transverse and longitudinal fluid passages. A stop collar limits the forward movement of the tapper and a rearwardly disposed pull ring, defines, with the stop collar, a groove for supporting a collection container and permitting reception of a removal tool.

3,596,403
CONTAINER DOOR CONSTRUCTION
George W. Carr, Cincinnati, Ohio, assignor to Pullman Incorporated, Chicago, Ill.
Filed Jan. 20, 1970, Ser. No. 4,255
Int. Cl. E05f 7/02

U.S. Cl. 49-256

14 Claims

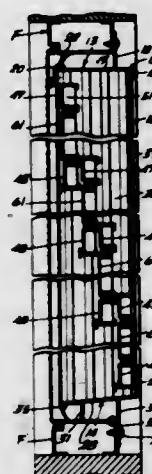
A container includes a door construction having a hinged door which is shiftable vertically when the door is disposed over a container opening. Locking rods are rotatable on the door and are movable vertically therewith. Manually operable levers are connected to the lower ends of the locking rods and abutments on the door frame may be engaged by said levers whereby the door is shiftable to its raised and closed position and maintained therein. In this position the



door are carried solely by the frame and not on the door hinges or locking rods.

3,596,404
SLIDING SASH WINDOW ASSEMBLY
James R. Moose, Miami, Fla., assignor to Foldown Awnings Inc.
Filed Apr. 29, 1969, Ser. No. 820,171
Int. Cl. E06b 3/44
U.S. Cl. 49-419

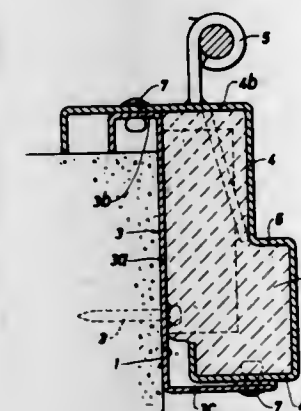
8 Claims



A sliding window sash assembly glazed with vinyl film and adapted for easy attachment to framework openings in screened enclosures and the like for use as a windbreak under adverse weather conditions is described. Both the window framework and the sash frameworks are fabricated or thin wall section extruded aluminum members, and to prevent sticking and jamming of the sashes in the frame, vinyl slide members are provided between the insides of the frame and the outsides of the sashes, the slides being somewhat loosely affixed in the lateral direction with respect to the sashes and including adjustable means for controlling the sliding friction of the slide members with respect to the insides of the window frame.

3,596,405
DOOR FRAME ESPECIALLY FOR USE IN FIRE DOOR ASSEMBLES
Bo Ingulf, c/o Hellbergs Industrier AB Box 73, 46400 Mel-lerud, Sweden
Filed Jan. 16, 1970, Ser. No. 3,380
Claims priority, application Sweden, Jan. 23, 1969, 879/69
Int. Cl. E06b 1/04
U.S. Cl. 49-504

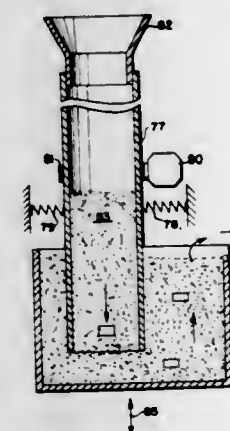
1 Claim



The present door frame is for being mounted in an opening in a wall and includes fixing elements attachable to the walls and a frame portion adapted to fit a door or the like and connected to said fixing elements.

3,596,406
SONIC POLISHING APPARATUS
Howard E. McKinney, La Jolla, Calif., assignor to Shell Oil Company, New York, N.Y.
Continuation-in-part of application Ser. No. 710,993, Mar. 6, 1968. This application Oct. 15, 1968, Ser. No. 767,763
Int. Cl. B24b 19/00, 31/00, 1/00
U.S. Cl. 51-7

6 Claims



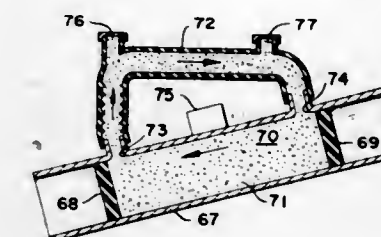
Method and apparatus for improving the rate of surface treatment of industrial parts being treated in a continuous flow sonic finishing apparatus by adjusting the pressure exerted by the treating medium on articles being treated as they pass through the treating chamber.

3,596,407
SONIC POLISHING APPARATUS
Howard E. McKinney, La Jolla, Calif., assignor to Shell Oil Company, New York, N.Y.
Continuation-in-part of application Ser. No. 710,993, Mar. 6, 1968. This application Oct. 24, 1968, Ser. No. 770,223
Int. Cl. B24b 19/00, 31/00
U.S. Cl. 51-7

5 Claims

A resonant finishing apparatus having a finishing chamber

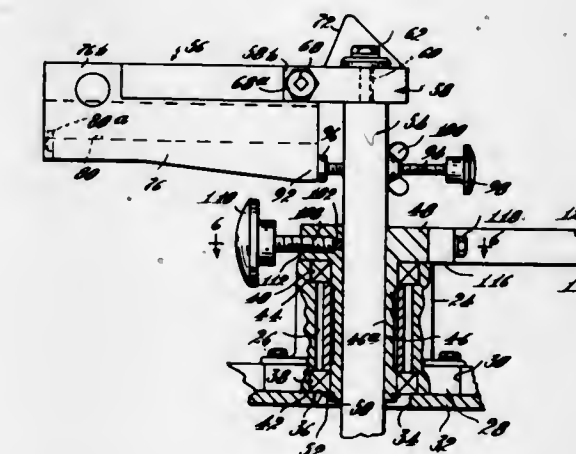
is provided with means for recirculating parts and/or finish-



ing medium between spaced portions of said chamber in response to resonant vibration of said chamber.

3,596,408
LENS GRINDING MACHINE
Lindsay M. Ball, Medford, and George L. Guaraldi, Chelmsford, both of, Mass., assignors to Bond Research Laboratories, Inc., Somerville, Mass.
Filed June 4, 1969, Ser. No. 830,388
Int. Cl. B24b 7/00, 9/00
U.S. Cl. 51-55

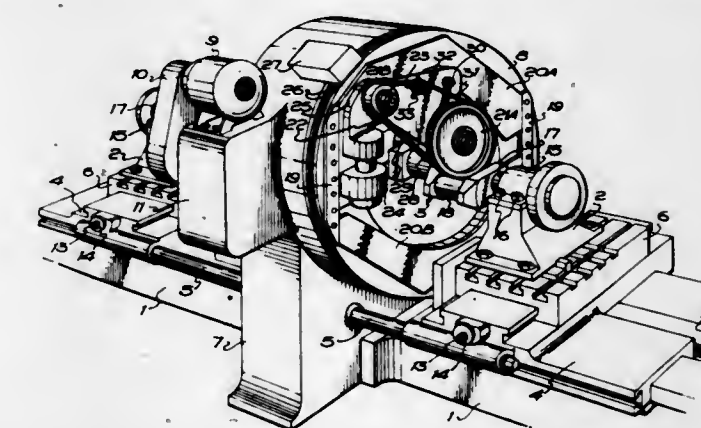
8 Claims



A lens polishing and/or grinding machine comprising a base, and means for supporting a spindle above the base, comprising a post mounted on the base for oscillation about its vertical axis and for heightwise adjustment thereon, an arm mounted at the upper end of the post for adjustment about a horizontal axis at right angles to the axis of the post, and means at the distal end of the arm for holding the spindle.

3,596,409
METHODS AND MACHINES FOR GRINDING CRANKSHAFTS
Eric Levesley, Sheffield, England, assignor to English Steel Corporation Limited
Filed Aug. 12, 1969, Ser. No. 849,470
Claims priority, application Great Britain, Aug. 27, 1968, 40892/68
Int. Cl. B24b 21/00
U.S. Cl. 51-135

9 Claims



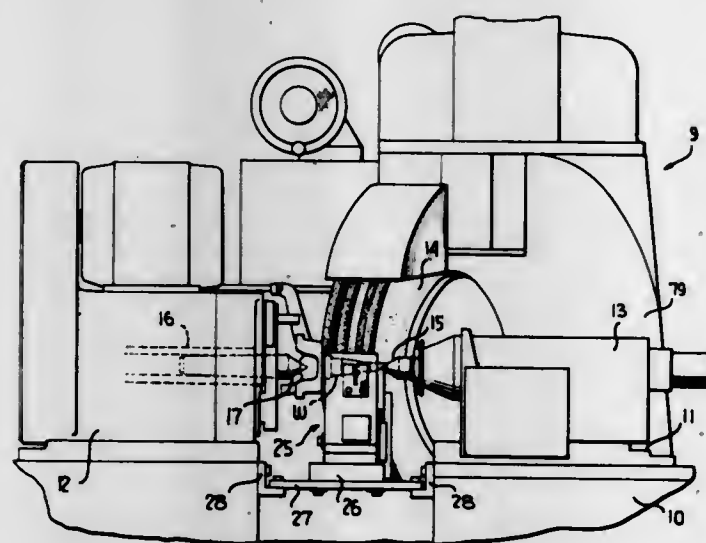
A machine for grinding crankshafts has an annular carrier rotatable coaxially around a crankpin of a stationary

crankshaft, and a pair of pulleys are mounted on the carrier in such a manner that one of them can be moved towards the axis of the carrier, and abrasive belt is trained around the pulleys with its abrasive surface facing outwards, and one of the pulleys is adapted to be driven, so that as the belt orbits with the pulleys around the crankpin the belt is driven in contact with the crankpin for the grinding operation. At the contact point, the back of the belt is in contact with one of the pulleys.

3,596,410
MACHINE TOOL WITH RETRACTABLE COMBINED CHORDAL GAGE AND LATERAL LOCATOR
William E. Happel, Waynesboro, Pa., assignor to Litton Industries, Inc., Beverly Hills, Calif.
Filed Feb. 17, 1969, Ser. No. 799,565
Int. Cl. B24b 49/04

U.S. Cl. 51-165

21 Claims



This disclosure relates to a combined chordal gage and axial locator for use on grinding machines wherein cylindrical and annular surfaces are to be ground. A combined, single mounting for the normally independent chordal gage and axial locator and a common means for advancing and retracting both devices are provided. The gage and locating devices are advanced at the beginning of a grinding operation and prior to work rotation to provide endwise or axial location of the workpiece in relation to the grinding wheel and, at this time, the locating device is made operative, whereas, the chordal gage is maintained inoperative and is maintained a small distance from the workpiece during the axial movement thereof. Upon completion of endwise or axial location, the combined assembly is retracted, the grinding wheel is advanced, the workpiece is rotated, and the combined assembly is again advanced during the grinding operation whereupon the chordal gage is brought into operative engagement with the workpiece, whereas the axial locator is maintained inoperative. Retraction of the combined assembly into a protective hood is effected at the end of each grinding operation and said assembly is protected from damage during the placement of a further workpiece upon the machine.

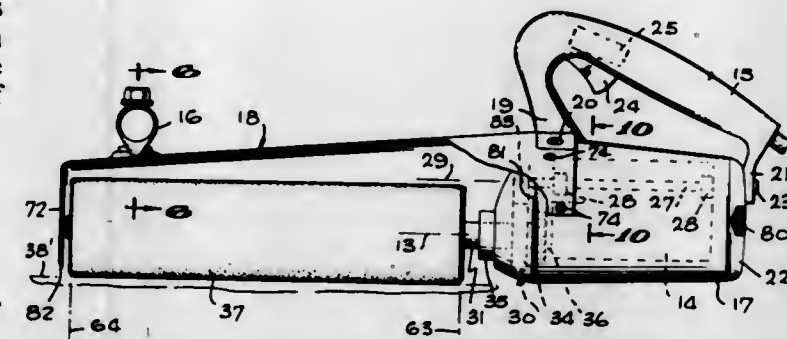
3,596,411
PORTABLE DRUM-TYPE SURFACE-TREATING TOOL
Alma A. Hutchins, 49 N. Lotus, Pasadena, Calif.
Filed Mar. 9, 1970, Ser. No. 17,478
Int. Cl. B24b 23/00

U.S. Cl. 51-170

22 Claims

A portable surface-treating tool including a drum which is driven rotatively by a motor, and is mounted for its desired rotation relative to a body of the tool by bearings located at opposite ends of the drum, and which carries a sheet of sandpaper or other surface treating material about the drum for contacting a work surface. The sandpaper sheet is desirably of a length to extend approximately one complete turn about

the drum and is secured to the drum in a manner enabling removal and replacement of the sandpaper without partial or

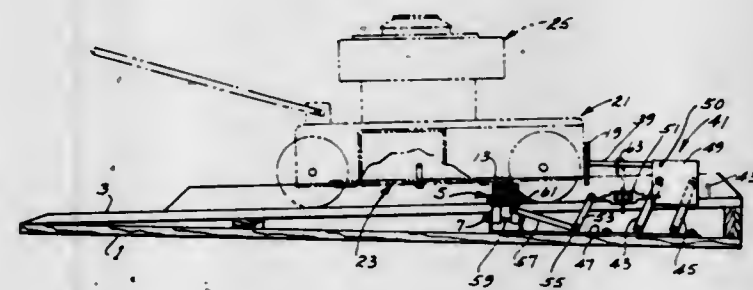


complete detachment of the drum or its bearings from the body of the tool.

3,596,412
ROTARY MOWER BLADE SHARPENING APPARATUS
Jay H. Brayman, P.O. Box 2, Dorsey, Ill.
Filed Sept. 25, 1969, Ser. No. 860,979
Int. Cl. B24b 19/00

U.S. Cl. 51-246

9 Claims



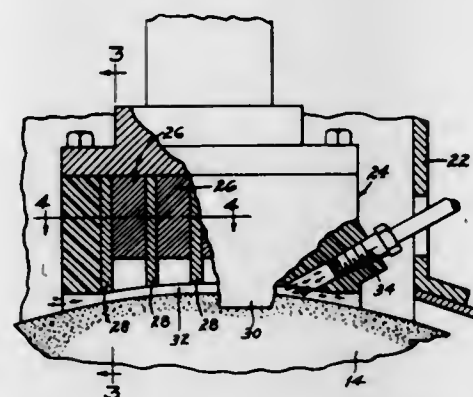
Apparatus for sharpening the blade of a rotary lawn mower without removing it from the mower, utilizing the mower engine for rotating the blade for sharpening it, having a base and a sharpener mounted for up-and-down movement with respect to the base, the sharpener being moved up into position for sharpening the blade from below on rolling the mower over the sharpener, and a special blade adapted for being sharpened by the apparatus.

3,596,413
ABRADING TOOL CHIP EXTRACTOR AND REMOVER
Donald R. Stewart, 2565 Yellow Spring Road, Springfield, Ohio

Filed Nov. 26, 1969, Ser. No. 880,190
Int. Cl. B24b 55/00, 55/04

U.S. Cl. 51-262 A

7 Claims



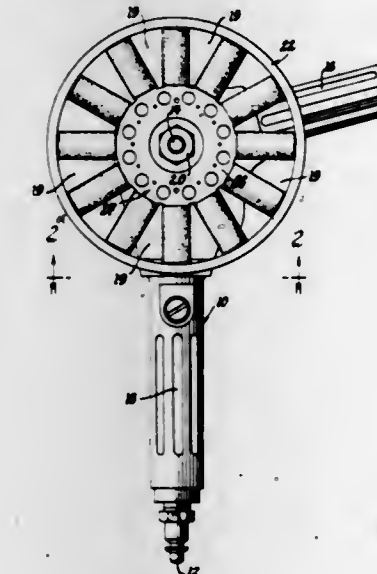
A system for removing metal chips from a driven endless abrading tool to prolong the useful life of the tool. A magnet is provided to extract loosely clinging chips from the abrasive surface to remove the chips of the tool before the chips are ironed into such abrading tool by further abrading contact with a workpiece. A wind tunnel is provided and is in part

formed by the magnet, and the abrasive surface of the tool, and an air stream passing through the tunnel exerts a force greater than the magnetically attractive force of the magnet to preclude the accumulation of chips on the magnet.

3,596,414
METAL-FINISHING APPARATUS
Antonio Pirrello, Lincoln Park, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 17, 1969, Ser. No. 877,247
Int. Cl. B24d 17/00; B24b 23/00, 9/00

U.S. Cl. 51-358

6 Claims

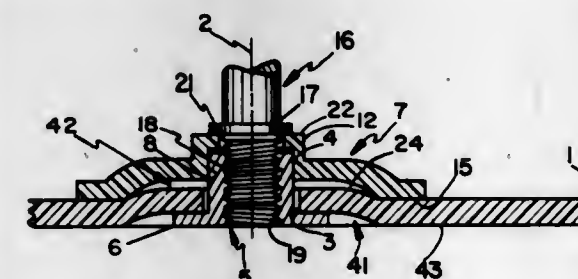


A metal-finishing assembly which has a quickly replaceable abrasive and lookthrough viewing means for continually observing the surface being finished. One form of the assembly includes a disk-shaped member having radially extending abrasive tubes resiliently mounted on arms. The assembly is attached to a shaft by locking means which may easily be disengaged to allow the tubes to be rotated on the arms.

3,596,415
GRINDING WHEEL HUB ASSEMBLY
Irving James Donahue, Jr., 100 Oak St., Shrewsbury, Mass.
Filed Nov. 6, 1968, Ser. No. 773,918
Int. Cl. B24d 17/00

U.S. Cl. 51-378

13 Claims

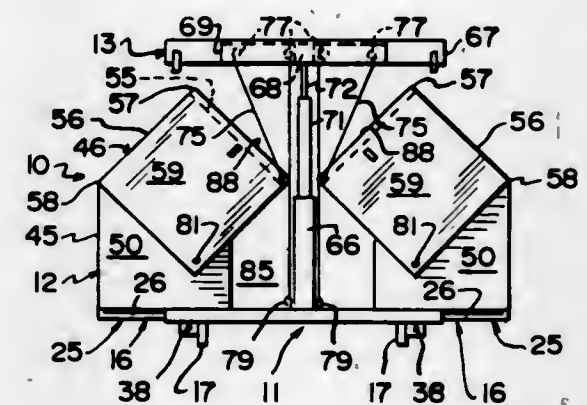


An abrasive grinding disk hub assembly for mounting the disk on a spindle is made up of a nut member which is inserted through a clearance hole in the disk up to a shoulder on the nut and into a socket in a dish-shaped mounting flange on the other side of the disk. When mounted, the nut threads to the spindle which shoulders against a lip on the flange and so as the nut is screwed onto the spindle, the flange acts as a disk spring squeezing the grinding disk between the nut and the flange and a spindle shoulder distorts the lip, tending to lock the nut on the spindle. The nut is of substantially harder material than the flange and may have ridges which cut into the flange socket, thereby fixing the nut in the socket so that it cannot rotate relative thereto.

3,596,416
EXPANDABLE STRUCTURE
Walter S. Hojka, 5300 W. 135th St., Midlothian, Ill.
Filed June 19, 1969, Ser. No. 834,715
Int. Cl. B60p 3/34; E04b 1/344

U.S. Cl. 52-64

9 Claims

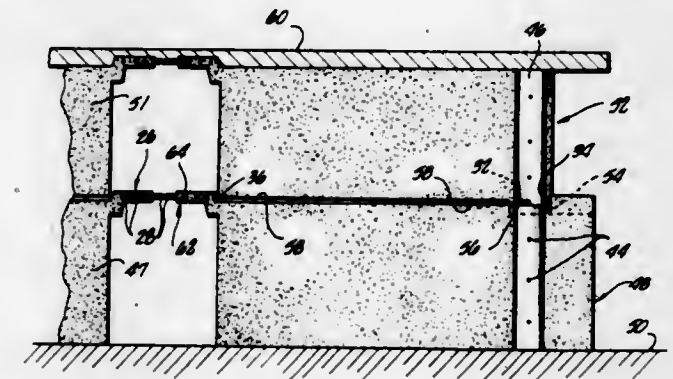


An expandable structure is disclosed herein in the form of a trailer. The trailer is provided with an extensible base frame and collapsible shells which, in addition to being vertically expandable, are extendible with the base frame. A means is provided for extending the secondary frame means along with a means for adjustably positioning a roof assembly with respect to the shells and to expand the shells.

3,596,417
PRECAST ROOMS
Henry B. Zachry, San Antonio, Tex., assignor to H. B. Zachry Company, San Antonio, Tex.
Filed Apr. 9, 1969, Ser. No. 814,612
Int. Cl. E04b 1/34; E04h 1/04

U.S. Cl. 52-73

6 Claims



Concrete rooms, each having an integrally cast top segment, consisting of a top panel and three sidewalls, and a precast floor segment, secured to the top segment during its integral casting, are stacked on top of one another to form a rigid structure of multiple floors. The rear ends of the rooms have integrally cast cantilevered overhangs such that when the rear ends of two stacks of rooms are positioned adjacent one another the cantilevered overhangs form floors and ceilings for the corridors defined by the space between the stacks. Each stack of rooms consists of an alternating arrangement of long and short rooms; each short room having a locking ridge at its forward end for locking into an opening formed across the forward end of a corresponding longer room.

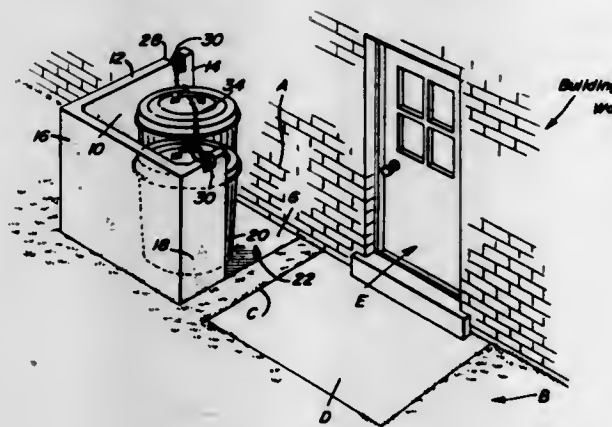
3,596,418
CONCRETE GARBAGE CAN ENCLOSURE
George L. Sedwick, Jr., 227 1st St., and Leo K. O'Neill, 109 Delaware Drive, both of Butler, Pa.
Filed Sept. 8, 1969, Ser. No. 856,041
Int. Cl. E04h 1/12

U.S. Cl. 52-79

2 Claims

A prefabricated portable open-top stall-like enclosure expressly designed for permanently erected use on a plot of one's backyard adjacent an edge of a back door stoop or

patio surface and which serves to accessibly support and protectively shield outdoors garbage and trash cans. It is constructed of high strength reinforced concrete. It is expected to meet its greatest demand for use in currently used housing projects where closely grouped families normally use two, or



more lid-covered cans. Upper notched edge portions of two of the walls are provided with embedded J-shaped eyebolts for use by workmen to attach hooks for lifting, lowering and handling. When the enclosure is finally set in place, the then available eyes serve to anchor the ends of an optionally useable lightweight security chain.

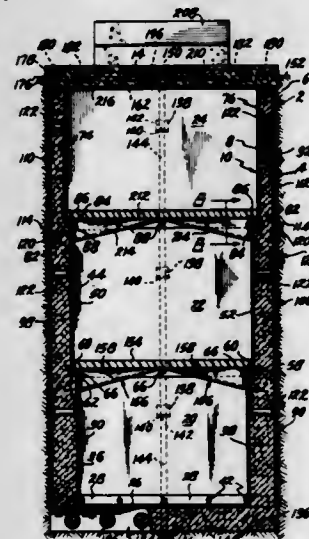
3,596,419

WATERPROOF CONCRETE BURIAL VAULT AND METHOD OF CONSTRUCTION

Donald A. Jalbert, 612 E. 4th St., Bartlesville, Okla.
Filed May 27, 1969, Ser. No. 828,190
Int. Cl. E04h 13/00; E02d 31/02

U.S. Cl. 52-137

19 Claims



A waterproof concrete burial vault, cast in situ by using inner and outer plastic forms that remain in place. The inner plastic form is watertight and defines at least one casket receiving chamber, a sheet of plastic being secured in a watertight manner to the inner form to completely seal a casket placed within said chamber. The vault features a tube that extends vertically from the bottom to the top thereof, which relieves underground liquid pressure beneath the vault.

3,596,420

WALL ASSEMBLY

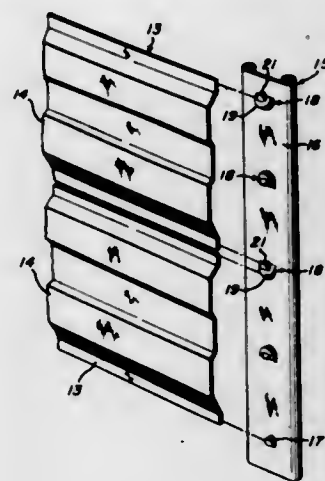
Yale Ducker, 3776 Dorset Drive, Dayton, Ohio
Filed Apr. 30, 1969, Ser. No. 820,566
Int. Cl. E04b 2/72; E04c 2/40

U.S. Cl. 52-222

10 Claims

Apparatus for mounting and assembly of wall segments of

strip or panel form to create a unitized wall structure. The mounting means have a strip form and are characterized by



spaced anchor elements devoid of special fixing means and capable in part of serving a dual-holding function.

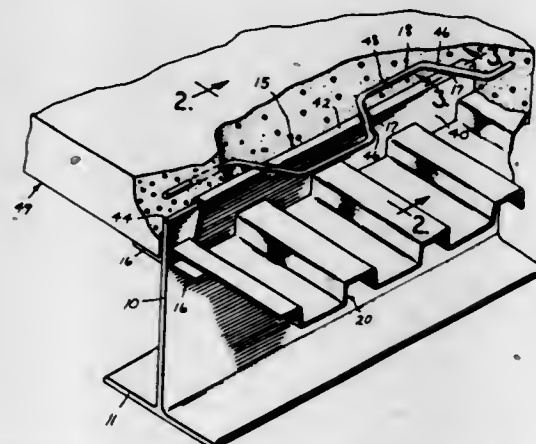
3,596,421

STRUCTURAL BEAM FOR SUPPORTING CONCRETE FLOORING

Frank E. Miller, Elkhart, Ind., assignor to Elkhart Bridge & Iron Company, Elkhart, Ind.
Filed Jan. 21, 1969, Ser. No. 800,326
Int. Cl. E04b 5/40

U.S. Cl. 52-333

4 Claims



A structural beam for supporting concrete flooring including a base part and an integral web extending upwardly from said base part. An inverted U-shaped cap is mounted over the upper margin of the web. The U-shaped cap has a plurality of longitudinally spaced transverse slots in its upper portion and includes out-turned flanges extending oppositely and laterally from the web. The flanges of the cap are adapted to support deck plates which extend between adjacent parallel beams and over which the concrete flooring is to be poured.

3,596,422

SECURING MEANS FOR FLOORING

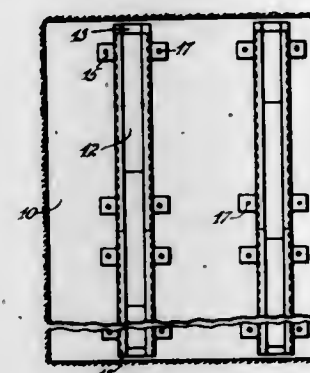
William A. Boettcher, 4507 N. Clark St., Chicago, Ill.
Continuation-in-part of application Ser. No. 778,037, Nov. 22, 1968, now abandoned. This application Mar. 16, 1970, Ser. No. 19,920
Int. Cl. E04c 3/292

U.S. Cl. 52-368

5 Claims

The invention comprises securing means for flooring laid over a concrete base between opposite walls of rooms or halls. A set of metal channel casings is secured on the base in spaced relation with ends facing the walls. The casings have intumed top flanges and are overlaid crosswise by the floor boards. The casings each have a series of slidable sleeper sections on the inside in endwise succession. The ends of such series are spaced from the walls opposite them. The usual nails are driven slantwise through the floorboards into the sleeper sections to a point where the nails meet the metal bottom of the casings and are deflected to form endhooks

under the sleeper sections, serving to retain the flooring to the same. The sleeper sections slide endwise when the floor-



boards expand laterally from damp weather, preventing the buckling of the floor.

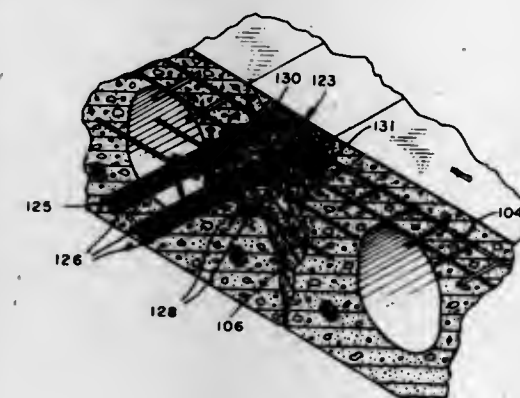
3,596,423

JOINT STRUCTURES FOR CONNECTING PRESTRESSED CONCRETE SLABS HAVING INTEGRAL LATERALLY EXTENDED MESH

Alexander L. Jacobus, Salina, Kans., assignor to Hastings Dynamold Corporation, Salina, Kans.
Filed Mar. 17, 1969, Ser. No. 808,024
Int. Cl. E04b 1/41; E04c 5/518

U.S. Cl. 52-432

3 Claims



This invention relates to an improved concrete slab forming machine and further to a concrete slab forming machine having an improved sidemold member thereon operable to construct a concrete slab having unique sidewall construction with laterally extended wire mesh to provide for easy connection of adjoining pairs thereof. Still, more specifically, this invention relates to a sidemold structure having mesh guide bar means operable to produce concrete slabs having laterally extended mesh and providing new and novel means for adjoining adjacent concrete slabs through the use of the laterally extended mesh and other connecting means.

3,596,424

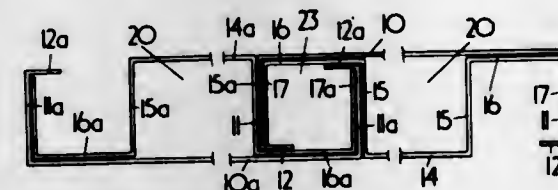
A PANEL ASSEMBLY MEANS FOR THE CONSTRUCTION OF THE WALLS OF BUILDINGS

Robert Mitchell Ward, 58 Traquair Park West, Edinburgh 12, Scotland
Continuation of application Ser. No. 690,804, Dec. 15, 1967, now abandoned. This application Sept. 15, 1969, Ser. No. 858,187

Int. Cl. E04d 3/35, 3/362

U.S. Cl. 52-520

2 Claims



A panel assemblage for forming the walls of buildings comprising an outer and inner metal sheet or components both formed with longitudinal channels at their vertical edges

which channels are of such section that the channels of one sheet interfit with those of the other sheet to form between the sheets a cavity which is filled with heat-insulating material, and also form outer channels which are open on one of the faces of the panel, assembling said panels so that the outer channels of laterally adjacent panels interfit and form therebetween vertical channels or cavities, inserting locking members into the vertical channels or cavities to bind together said panels, which members project upwards to engage the corresponding channels in the assembled panels immediately above and anchoring the said locking members to purlins secured to a supporting framework.

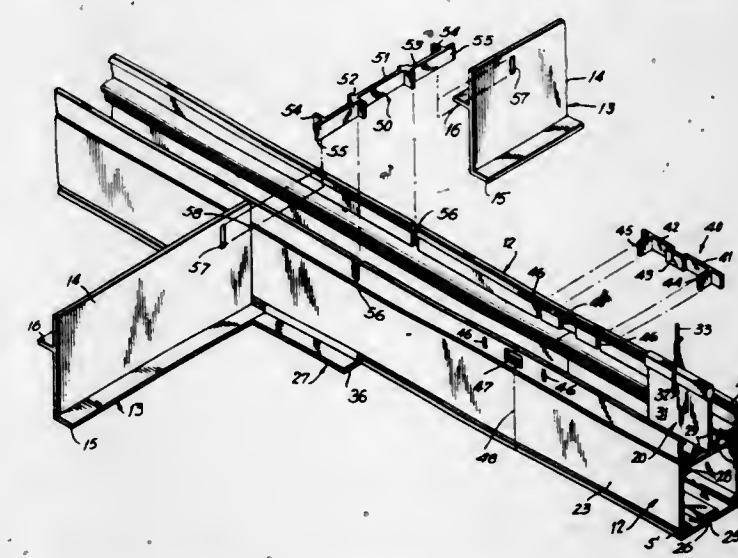
3,596,425

CEILING TILE SUPPORT GRID SYSTEM

Michael J. Kodaras, Scarsdale, N.Y., assignor to Keene Building Products Corporation
Filed Feb. 20, 1970, Ser. No. 12,969
Int. Cl. E04b 5/57

U.S. Cl. 52-665

13 Claims



A suspended ceiling structure including a grid system defining a rigid, interconnected series of transversely and longitudinally extending ceiling tile support elements, characterized by the support elements mounting adjacent ceiling tiles at disparate heights. The structure has sufficient rigidity to form the upper anchor portion for a vertical partition wall.

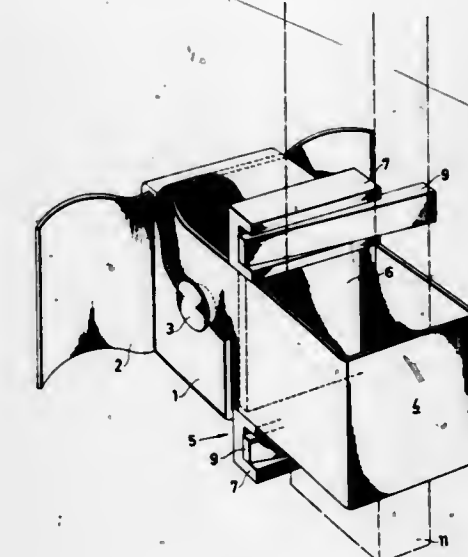
3,596,426

FASTENING DEVICE FOR BALCONY RAILINGS, BANISTERS, BRIDGE RAILINGS AND THE LIKE

Nils Gosta Loov, P.O. Box 19, Ersmark, Sweden
Filed Dec. 12, 1968, Ser. No. 783,342
Claims priority, application Sweden, Dec. 19, 1967, May 2, 1968, 17416/67; 5920/68
Int. Cl. E04b 1/41; E04f 11/18

U.S. Cl. 52-704

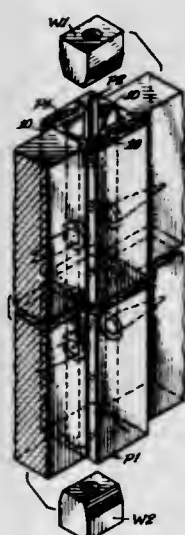
8 Claims



A body is adapted to be embedded in a concrete floor, step and the like. A socket portion includes a plurality of walls

defining an opening therethrough for receiving a vertical metallic post of a railing and the like. The socket portion is pivotally supported by said body for pivotal movement about a pivot axis with respect to the body. A member is disposed between the opening and said body, the member defining a pair of grooves facing said opening. These grooves are disposed on opposite sides of said pivot axis, and each groove receives a wedge means engaging and holding a vertical post in place within said opening.

3,596,427
PANEL POST JOINING MEANS
 Arthur Fernandez, Bayamon, and David H. Humphrey, San Juan, both of, P.R., assignors to Orbit International, Inc., San Juan, P.R.
 Filed Mar. 14, 1969, Ser. No. 807,323
 Int. Cl. E04c 3/32; E04g 25/08
 U.S. Cl. 52-731 10 Claims

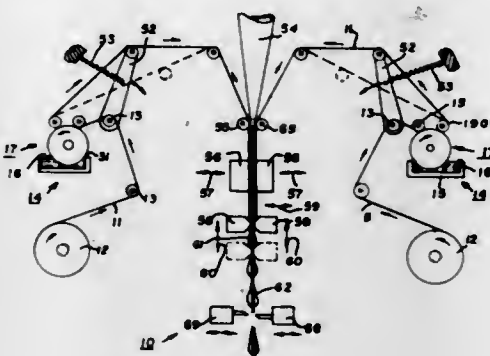


Means is provided for joining panel posts together in such manner that partitions or the like formed of panel and post units may be readily assembled in a minimum of time, and thereafter "knocked down" with equal facility. Channel-shaped posts are provided having the flanges thereof interfitting with each other and joined as a result of plug wedges forced into the ends of the posts between the webs and flanged thereof and concealed inside the channel-shaped posts. The plug wedges are designed to coact with the webs and flanges of the posts in such manner that interlocking tongue and groove connections between the flanges of one channel-shaped post and the flanges of the other channel-shaped post so coact with each other that the two posts form a single substantially rectangular post. These channel-shaped posts may be formed as extrusions of metal, plastic or the like and used for assembling panels together by securing the channel-shaped posts to the edges of panels of wood, plastic, particle board or the like as by means of screws. For disassembling the post and panel units, the plug wedges are tapped so that pull rods can be threaded thereto.

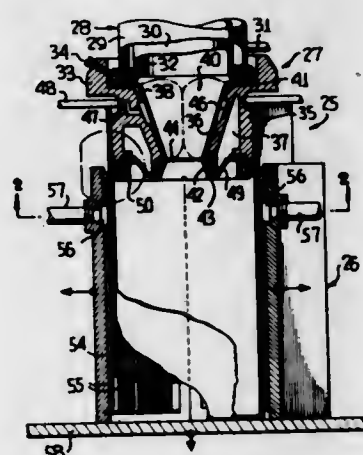
3,596,428
PACKAGING PROCESS AND APPARATUS
 William E. Young, Stamford, Conn.; Robert Wolfesperger, Fairfield, N.J., and Charles Wallace, Glen Rock, N.J., assignors to American Maize Products Company
 Filed Oct. 7, 1968, Ser. No. 765,289
 Int. Cl. B65b 9/02 U.S. Cl. 53-28 40 Claims

A process and apparatus particularly adapted for packaging food stuff in a water-soluble and preferably edible starch film manufactured to certain specified characteristics which for the first time makes it possible to form a water-soluble

package sealed with a solvent activator such as water which is applied in a controlled manner to the film to preserve its



3,596,429
APPARATUS AND METHOD FOR FILLING FLEXIBLE CONTAINERS
 Clarence W. Vogt, Box 232, Westport, Conn.
 Filed July 26, 1968, Ser. No. 748,087
 Int. Cl. B65b 57/06, 3/14, 1/28
 U.S. Cl. 53-67 5 Claims

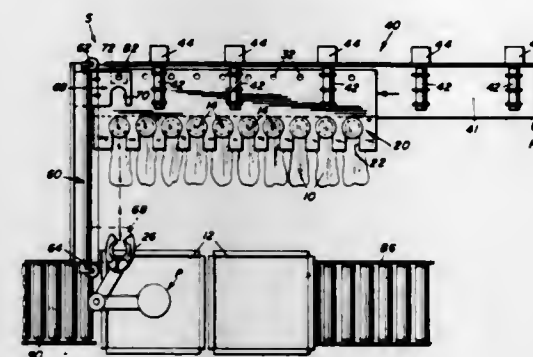


This disclosure relates to the filling of flexible containers with compacted finely divided materials utilizing a filler of the pressure differential type. During the filling of the container, the container is pneumatically supported to establish and maintain a predetermined shape and volume whereby finely divided material of a constant density may be compactly placed therein to obtain a filled container having therein a predetermined weight of the material without weighing the material. Another feature of the apparatus is that in the absence of a container, although a filler may be actuated to dispense material, no dispensing will take place. A further feature is the relationship of the filler to a carton having upstanding flaps and a liner wherein the carton may be filled to overflowing, but wherein the material in the carton has a recess due to the shape of the filler, and wherein the overflowing material may be automatically displaced into the recess to provide for a completely filled carton.

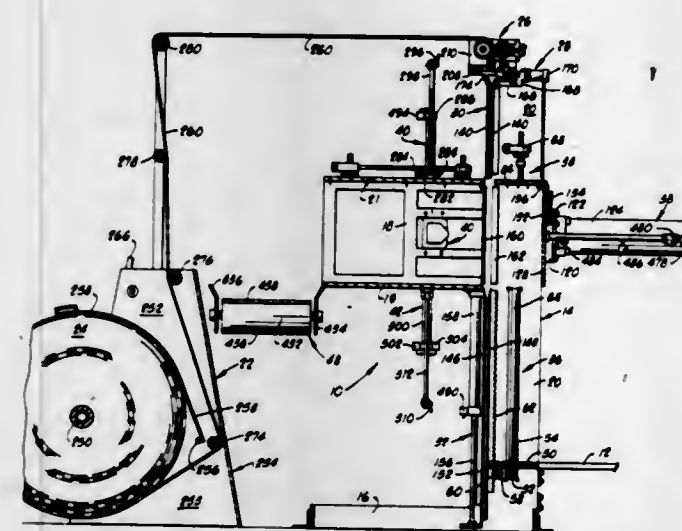
3,596,430
AUTOMATIC MILK PACKAGING MACHINE
 Laurence P. Parish, RN No. 2, Gettysburg, Pa.
 Filed Dec. 9, 1968, Ser. No. 782,230
 Int. Cl. B65b 57/02, 67/12 U.S. Cl. 53-67 6 Claims

A machine for rapidly delivering to a filling apparatus and the removal therefrom, polyethylene bags having a relatively

rigid spout fitting attached thereto, comprising a carrier to which the bags are attached, a conveyor system for moving

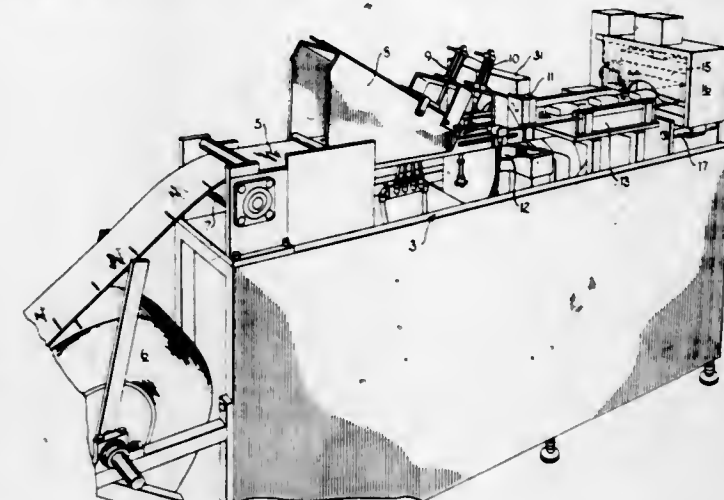


3,596,431
METHOD AND APPARATUS FOR COMPRESSING AND WRAPPING BAGS
 William L. Davis, Camden, Ark., assignor to Davis Machine Corporation, Camden, Ark.
 Filed June 27, 1969, Ser. No. 837,054
 Int. Cl. B65b 13/20, 51/02; B31b 1/62
 U.S. Cl. 53-124 A 8 Claims



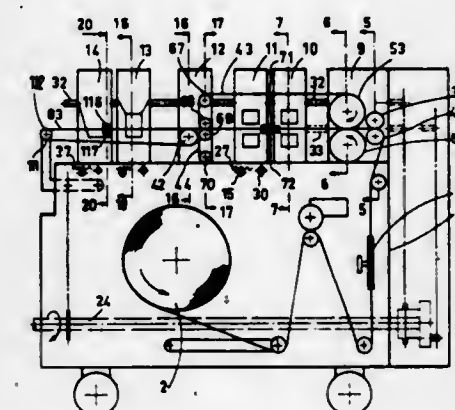
An apparatus and method for compressing a stack of flat, empty bags to form a compressed bale, and for wrapping the bale in an open ended wrapper, the apparatus including cooperating upper and lower platens between which the stack is compressed, and a piston and cylinder assembly for displacing the compressed bags while under compression into a wrapping zone. A wrapper paper feeding and guiding mechanism automatically interposes an elongated sheet of wrapper paper in the path of travel of the compressed bags into the wrapping zone. This causes the wrapper paper to extend around the compressed bale on three sides after a reciprocating knife has severed a portion of the wrapper paper from the continuous sheet. A piston and cylinder assembly then folds down a top extension of the severed portion of the wrapper sheet to cover a portion of the fourth side of the bale. A reciprocating adhesive spray head then moves across the folded down top extension and sprays adhesive thereon. Another piston and cylinder assembly then folds upwardly a bottom extension of the wrapper sheet so that it overlaps the folded down top extension and covers the remainder of the fourth side of the bale. Finally, a press roller is extended across the wrapped bale along the line of adhesive application to bond the top and bottom extensions of the severed portion of the wrapper paper.

3,596,432
PACKAGING MACHINE
 Melvin J. Straub, Minnetonka, and Thomas L. Schuette, Osseo, both of, Minn., assignors to Possis Machine Corporation, Minneapolis, Minn.
 Filed July 18, 1969, Ser. No. 842,991
 Int. Cl. B65b 61/18, 33/00
 U.S. Cl. 53-133 19 Claims



A packaging machine wherein a web of paperboard is continuously drawn along a defined path, under a loading device by which articles or products to be packaged are successively deposited upon the web to be carried thereby through a curtain or sheet of molten thermoplastic resin which debouches from a downwardly opening nozzle, to lay itself onto and form a covering film on the web and over any articles or products thereon. The mouth of the nozzle is a slit which extends transversely across the path of the web and is arched to have its ends close to the web while its midportion is spaced much farther from the web. The film-covered web then travels across a vacuum chamber by which any space between the covering film and the web is evacuated and the film drawn tightly over the articles or products and against the web. A series of closely spaced parallel rollers across the top of the vacuum chamber with their axes transverse to the web supports the web, and certain of the rollers are driven to draw the web through the machine. Beyond the vacuum chamber, the web with the covered articles or products thereon enters a guillotine-type cutoff station where it is cut into discrete units each of which is a complete package.

3,596,433
MACHINE WITH MECHANISMS PLACED IN DISPLACEABLE BOXES FOR THE MANUFACTURING AND DELIVERY OF PLASTIC BAGS OF DIFFERENT LENGTHS STARTING FROM A TUBULAR SHEET
 Guido D. Bertoglio, Lugano-Viganello, Switzerland, assignor to Centra Anstalt, Vaduz, Liechtenstein
 Filed June 6, 1969, Ser. No. 831,192
 Claims priority, application Switzerland, Oct. 30, 1968, 16.300/68
 Int. Cl. B65b 9/10 U.S. Cl. 53-183 6 Claims



A machine for manufacturing of plastic bags from a tubular web having a plurality of mechanisms for performing the

various necessary operations, such as feeding the tubular web from a roll into the machine, thermowelding the web for forming bag portions, cooling the weldments with provisions for preventing deformations of the welded web, inserting a straw into the tubular web at each bag portion, cutting the finished bag portions off the tubular web and delivering the finished bags, whereby each one of the operating mechanisms is enclosed in a box and whereby some of the boxes are manually displaceable for varying the length of the bag portions.

3,596,434

AUTOMATIC PALLET WRAPPING MACHINE

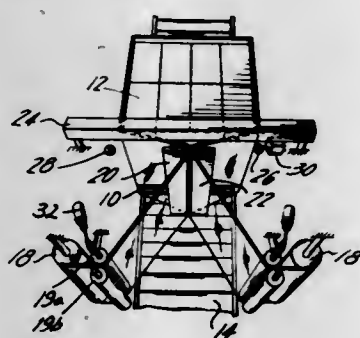
Seymour Zelnick, Orange, N.J., assignor to Weldtron Corporation, Newark, N.J.

Continuation of application Ser. No. 706,601, Feb. 19, 1968, now abandoned. This application June 24, 1970, Ser. No. 56,044

Int. Cl. B65b 11/10, 27/00

U.S. Cl. 53-198R

4 Claims



The system provides a vertical sleeve about a loaded pallet. The pallet is advanced into a curtain of film to form a bight which is sealed therebehind under tension by a pair of clamping sealing jaw assemblies. The assemblies, however, release the tension in the web where the seal is made, by initially forming a bulge between two spaced apart clamping lines, which is subsequently relaxed before sealing heat is applied thereto.

3,596,435

ARTICLE-WRAPPING APPARATUS

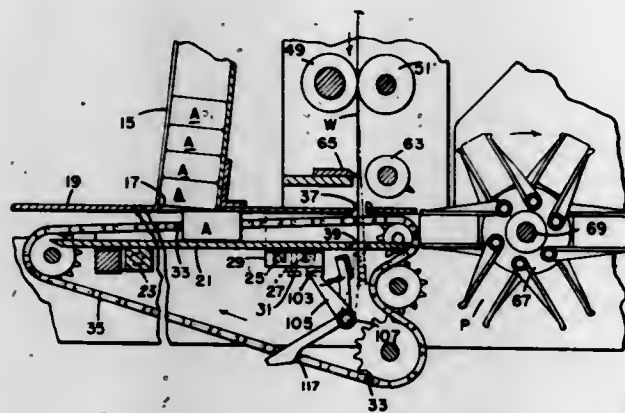
Goodwin S. Graves, and Carl R. Pepmeier, both of Fredericksburg, Va., assignors to FMC Corporation, Philadelphia, Pa.

Filed Apr. 4, 1969, Ser. No. 813,607

Int. Cl. B65b 11/12, 41/02

U.S. Cl. 53-389

7 Claims



A device for use in a wrapping apparatus in which a wrapping material is delivered from a supply roll into and across the path of an advancing article which is to be wrapped. The delivered wrapping material often assumes a curl along its longitudinal edges and/or along its leading end which interferes with article wrapping and which the device of the present invention removes by engaging and straightening the free end thereof.

3,596,436

PROCEDURE FOR THE RECOVERY OF DIOLEFINS FROM A MIXTURE THEREOF WITH MONOLEFINS

Pierre Dasse, Jemeppe-Sur-Sambre, Belgium, assignor to Solvay & Cie, Brussels, Belgium

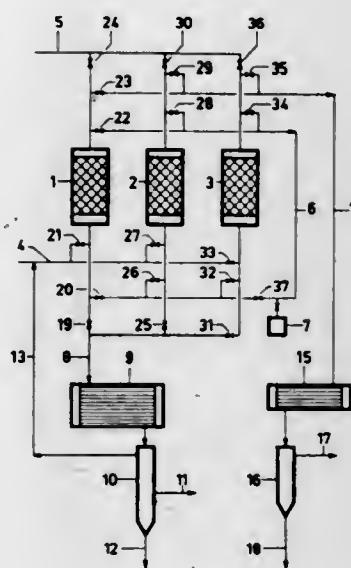
Filed Feb. 9, 1970, Ser. No. 9,559

Claims priority, application Belgium, Feb. 10, 1969, 69,856

Int. Cl. B01d 53/02

U.S. Cl. 55-19

8 Claims



A cyclic process is provided for the recovery of diolefins from vapor mixtures thereof with monoolefins by selective adsorption over a solid adsorbent. A mixture of diolefins and monoolefins is circulated in the presence of a solid adsorbent whereby the diolefins are selectively adsorbed. After the solid adsorbent has adsorbed the diolefins, it is treated with superheated steam to cause desorption of the diolefins and the production of a mixture of gaseous diolefins and water vapor. The vapor mixture is then condensed and the diolefins are separated from water by decantation. The adsorbent is dried and cooled by flushing with the mixture of monoolefins from which diolefins have been removed, to complete the regeneration of the adsorbent so that it is suitable for reuse.

3,596,437

USE OF CARBON DIOXIDE IN A CRUDE OIL PIPELINE

Ralph E. Styring, Jr., and Leonidas P. Whorton, both of Dallas, Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Oct. 18, 1968, Ser. No. 768,923

Int. Cl. B01d 19/00

U.S. Cl. 55-51

16 Claims

A low-viscosity, low-melting point fluid liquefiable at the pressure and temperature in a pipeline and containing at least 50 percent by volume of carbon dioxide and less than 10 percent by volume of ethane is mixed with crude oil to reduce the viscosity and pour point of the oil while the oil is flowed through the pipeline. The carbon dioxide may later be separated from the crude oil and used in an oil recovery process. Natural gas produced with the oil may be used to form part of the carbon dioxide.

3,596,438

REMOVAL OF CARBONYL SULFIDE FROM INDUSTRIAL GASES

John Beukenkamp, deceased, late of Milltown (by Mrs. John Beukenkamp, administratrix); Carl Kirby Stoddard, Westfield, and Joseph L. Waldman, Elizabeth, all of N.J., assignors to National Lead Company, New York, N.Y.

Filed Nov. 3, 1969, Ser. No. 873,563

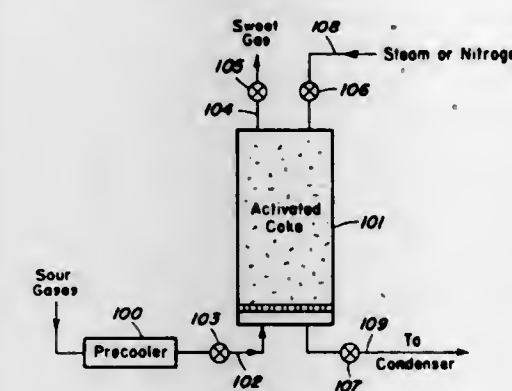
Int. Cl. B01d 53/00

U.S. Cl. 55-59

12 Claims

The disclosure is of a practical, economical process for removing carbonyl sulfide from the gases generated in a commercial process for producing titanium tetrachloride by chlorinating ilmenite ores, and is carried out by first freeing the gases of titanium tetrachloride, hydrochloric acid and chlorine and then sending the remaining gases, which com-

prise mainly, CO, CO₂, N₂, and COS, through a substantially dry static bed of activated carbon maintained at a relatively low temperature whereby the carbonyl sulfide is adsorbed on the activated carbon, the activated carbon then being regenerated for subsequent use by passing steam or an inert gas through the carbon bed at elevated temperatures followed by cooling; the invention being comprehensive also of a cyclic process wherein a series of four towers of activated



carbon are used in a predetermined sequence for removing carbonyl sulfide from chlorinator gases continuously on a plant scale.

For purposes of identification and brevity the term "sour" gas will be used to identify chlorinator gases which have been freed of TiCl₄, HCl and Cl and comprise relatively large amounts of CO₂ plus CO, N₂ and small amounts of COS, while the term "sweet" gas will be used to identify a sour gas from which the COS has been removed.

3,596,439

AIR CLEANER

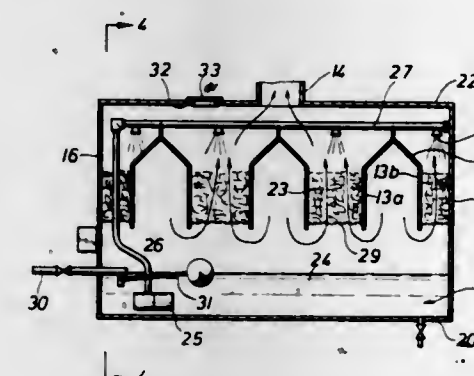
Edward L. Moragne, 4723 Nenana, Houston, Tex.

Continuation-in-part of application Ser. No. 713,205, Mar. 14, 1968, now Patent No. 3,494,108. This application July 2, 1969, Ser. No. 838,465

Int. Cl. B01d 47/00

U.S. Cl. 55-233

19 Claims



A partially enclosed structure having an inclined wall which is provided with a plurality of ports for admitting grease-laden vapors. Baffles extend internally from each of the ports and are employed to direct the incoming vapors through filter material disposed within the structure. A spray header is disposed above the filter material and a submersible pump in the lower portion or reservoir of the structure forces cleaning solvent through the header where it is sprayed on the filter material to cleanse it of grease and oil. The baffles prevent the cleaning solution from flowing out of the ports in the inclined wall and all of the solution is returned to the reservoir and recirculated. A water supply line and float valve are employed to maintain a predetermined liquid level in the reservoir. The inclined, ported surface of the structure is designed to fit closely adjacent a cooking surface to effectively gather grease-laden vapors and the reservoir is designed to fit in the spacing between the stove and kitchen wall.

In a modification, the structure is made in two adjoining sections to facilitate construction and servicing.

3,596,440

GAS SCRUBBER

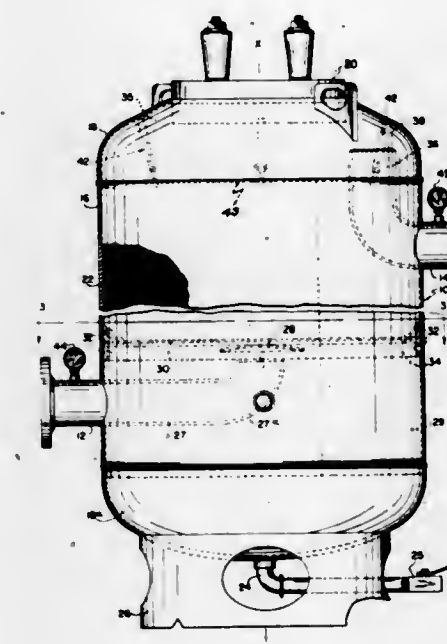
Raymond W. Nutter, Fairview, and Frederick M. Sitter, Erie, both of Pa., assignors to Van-Air, Incorporated, Erie, Pa.

Filed May 14, 1969, Ser. No. 824,510

Int. Cl. B01d 50/00

U.S. Cl. 55-320

8 Claims



An air or gas filter or scrubber adapted for disposal downstream from an air or gas compressor, for removing hydrocarbons from the compressed air or gas stream. The scrubber comprises an enclosure containing an elastic bed of curled fibrous material of generally open pore nature through which the compressed air or gas passes, with such bed scrubbing the air or gas and soaking up and retaining hydrocarbons, dirt and other contaminants. A drain is provided in the bottom of the enclosure for removing hydrocarbon and other contaminant solution from the mechanism as it drains down from the bed. The bed material may have a bulk density of between approximately 12 to 22 pounds per cubic foot, and results in very little pressure drop through the mechanism.

3,596,441

FILTERING DEVICE FOR VEHICLE EXHAUST

Ernest W. Lundahl, P.O. Box 2525, Idaho Falls, Idaho

Continuation-in-part of application Ser. No. 689,616, Dec. 11, 1967, now abandoned. This application Nov. 26, 1968, Ser. No. 795,375

Int. Cl. B01d 46/02

U.S. Cl. 55-376

3 Claims



A filtering device is described which attaches temporarily to the exhaust pipe of an internal combustion engine powered automobile. The device includes a multiply bag operating to filter out moisture and solid particles discharged from the exhaust pipe.

3,596,442

DRUM FILTER

Gerhard Max Neumann, Berlin-Dahlem, Germany, assignor to Deibag-Luftfilter G.m.b.H., Berlin, Germany
Filed June 23, 1969, Ser. No. 835,543

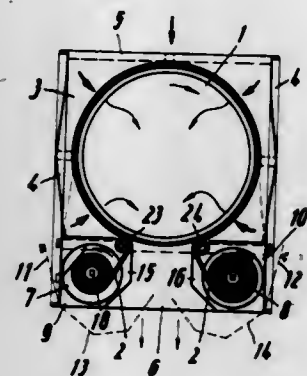
Claims priority, application Germany, June 22, 1968, P 17 57

865.3

Int. Cl. B01d 46/20

U.S. Cl. 55-354

22 Claims



A drum filter for filtering a stream of gas, comprising a boxlike casing which can be connected in horizontal and/or vertical juxtaposition with other like casings, a drum having a gas-permeable circumferential surface adapted to be enveloped at least partially by a travelling filter cloth drawn from an idler spool and wound on a driven spool, the spools each being mounted in a spool chamber and being rotatable about axes parallel to the axis of the drum, the spool chambers each having at least one hinged access door disposed in a plane parallel to the axis of the drum, a gas entry in one side of the casing and a gas exit in another side of the casing, the location of the entry and exit being chosen according to the desired direction of flow of the gas stream through the casing and filter and the construction being such that the gas stream can enter the casing either radially or axially of the drum dependent upon the location of said entry.

3,596,443

VACUUM CLEANER FILTER BAG

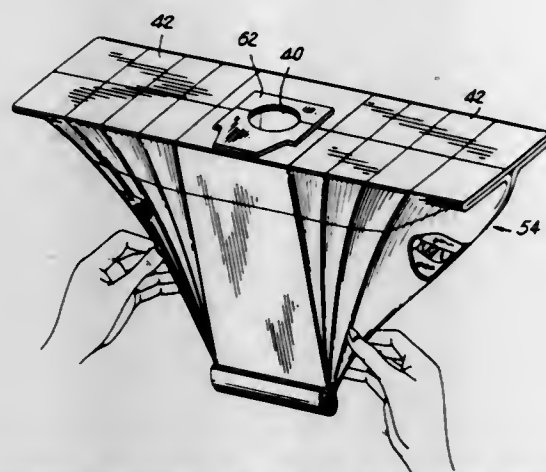
Howard Zev Goldberg, Monsey, N.Y., assignor to Modern Dust Bag Co., Inc., West Haverstraw, N.Y.

Filed Oct. 29, 1969, Ser. No. 872,058

Int. Cl. B01d 46/02

U.S. Cl. 55-376

8 Claims



The present invention pertains to a new and novel bag construction and the method of making same. The bag is formed of a flexible sheet material and has fold lines thereon, whereby the bag is formed by folding the same on the fold lines and results in the formation of a self-opening square construction. The bag may also have side pleats to result in a small compact bag which is readily expandable, which is readily adapted for manufacture on existing machinery and is particularly adapted for use in the manufacture of disposable vacuum cleaner filter bags.

3,596,444

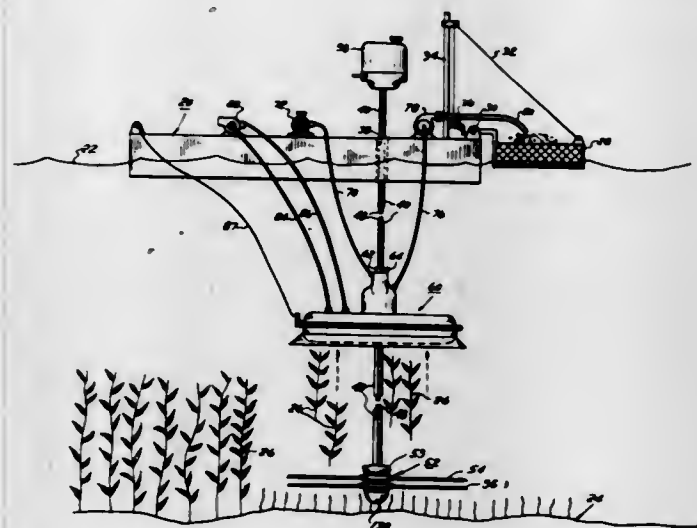
UNDERWATER WEED CUTTER

Joseph D. Beattie, 22794 Almond, East Detroit, Mich.

Filed Feb. 5, 1969, Ser. No. 796,697

Int. Cl. A01d 45/08

32 Claims



An underwater weed-cutting device comprising a longitudinally adjustable shaft for immersing in a body of water, a drive motor mounted at one end of the shaft and cutting blades mounted at the other end of the shaft. A submersible float is adjustably mounted on the shaft intermediate its ends and contains an independently driven chopper mechanism and a suction device adapted to suck up and finely chop the weeds cut off at the bottom of the body of water for disposal, the intermediate submersible float being provided to maintain balance of the cutting device, to adjustably raise or lower the cutting blades in relation to the various depths of the body of water, and to vary the height of the chopper mechanism relative to the height of the weeds.

3,596,445

A DEVICE FOR MOWING CROP

Theodorus Llievers, Gaanderen, and Herbert Visser, Nieuw-Vennep, both of, Netherlands, assignors to Landbouwwerktuigen-en Machinefabriek H. Visser N.V., Nieuw-Vennep, Netherlands

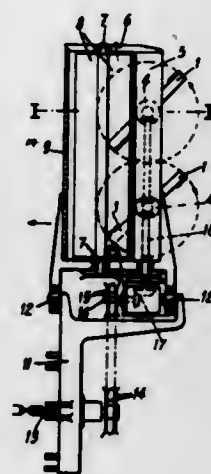
Filed Jan. 2, 1968, Ser. No. 694,995

Claims priority, application Netherlands, Jan. 13, 1967, July 14, 1967, Sept. 27, 1967, 67.00613; 67.09251; 67.13134

Int. Cl. A01d 43/00

U.S. Cl. 56-13.7

24 Claims



A method and a device for mowing crop according to which the crop is cutoff by one or more mowing elements and the invention has for its object to reduce the frictional resistance which the mowing elements encounter at the crop cutoff.

The mowing elements cooperate with a conveying member which raises the crop and takes it up during the cutting off and discharges it after the cutting off. To this end a convey-

ing member e.g. shaped as a rotor is provided and cooperates with the mowing elements for raising the crop and discharging it after this cutting off, so that the mowing elements do not come into contact with the crop cutoff.

3,596,446

ADAPTER FOR YIELDABLY CONNECTING THE BLADE OF A ROTARY LAWN MOWER TO THE DRIVE SHAFT

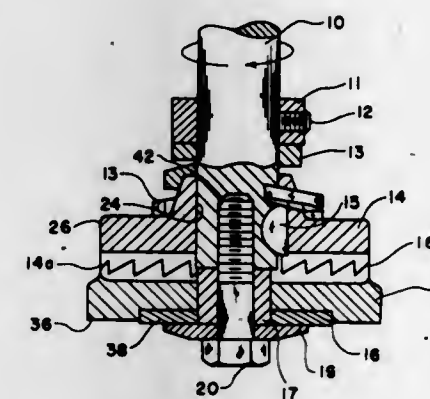
Gideon M. Bryan, Winston-Salem, N.C., assignor to Sidney C. Whiteheart, Winston-Salem, N.C., a part interest

Filed Mar. 6, 1969, Ser. No. 804,953

Int. Cl. A01d 35/26

U.S. Cl. 56-10.3

8 Claims



This invention is directed to an adapter for yieldably connecting the drive shaft of a rotary lawn mower with the mower blade, and more particularly to an adapter comprising a pair of clutch plates, each having a plurality of teeth thereon, the faces being normally urged into engagement with each other, so that the teeth mesh. One of the clutch plates is slidably mounted on the drive shaft, and the other plate, to which the blade is attached, is rotatable with respect to the drive shaft when the two clutch plates are disengaged. The opposing faces of the two clutch plates are resiliently urged together during operation of the mower forming a drive means for the blades. However, when a large rock, stake, or other unyieldable object is encountered by the blade, the resilient clutch connection allows the two clutch plates to separate slightly permitting the drive shaft to continue rotating, although the blade itself remains stationary.

3,596,447

CROP TOPPER

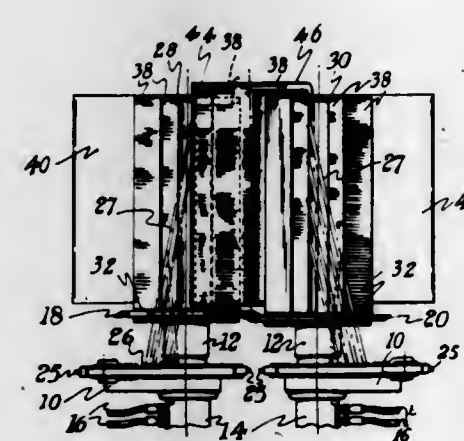
Sam Robert Makeham, and Keith Leonard Ruback, both of Bundaberg Queensland, Australia, assignors to Crichton Industries Pty. Ltd., Bundaberg, Queensland, Australia

Filed Feb. 5, 1969, Ser. No. 796,843

Int. Cl. A01d 45/02

U.S. Cl. 56-63

10 Claims



A harvesting machine including a crop-cutting apparatus particularly for cutting the tops off a standing crop. The cutting apparatus includes a pair of rotatable knife discs rotatable on substantially vertical axes and having a slight overlap in cutting area. A pivoted vertically-extending guide

vane directs cut material toward one knife or the other. A drum is carried above each knife and rotates therewith. The drums have radially extending crop moving paddles thereon. Curved vertically extending guide plates are located to the rear of the drums and intersect at the pivot axis of the guide vane. The knives and drums are individually driven and means are provided to move the guide vane.

3,596,448

CORN-HARVESTING ATTACHMENT

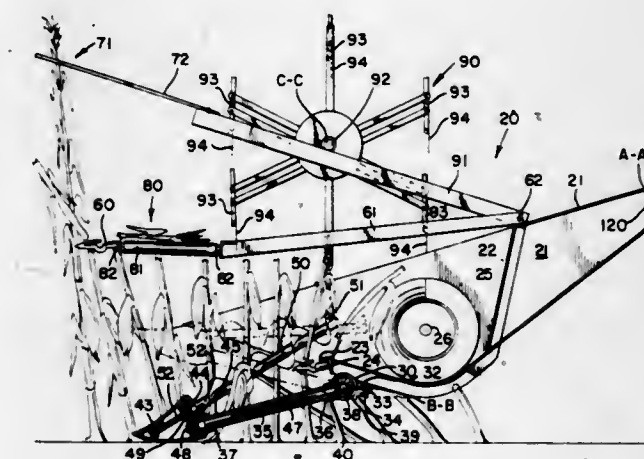
Ernest Melville Van Buskirk, East Moline, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed June 3, 1968, Ser. No. 733,884

Int. Cl. A01d 45/02

U.S. Cl. 56-63

1 Claim



A harvester including a grain platform adapted to harvest corn comprising a plurality of ground-engaging divider points pivotally mounted and transversely spaced across the platform, for directing the stalks rearwardly toward the sickle. A vertically adjustable topping cutter is arranged to sever the stalks above the ear-bearing area and a deflector and a trash conveyor are provided for disposing of the severed stalk tops. A reel is located above the sickle and rearwardly of the topping cutter for influencing the ear bearing portion of the stalk that has been separated to fall upon the platform bed where it is collected and fed to the combine.

3,596,449

COMBINE WITH MEANS FOR ADDING A PRESERVATIVE TO HARVESTED GRAIN

Edward William Rowland-Hill, New Holland, Pa., assignor to Sperry Rand Corporation, New Holland, Pa.

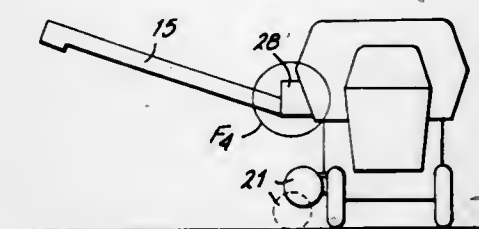
Filed May 29, 1969, Ser. No. 828,894

Claims priority, application Belgium, Sept. 13, 1968, 48,293

Int. Cl. A01d 41/12

U.S. Cl. 56-124

17 Claims



A combine has a grain storage tank with an upwardly inclined grain discharge pipe containing a screw conveyor. A preservative applicator is mounted on the grain discharge for delivery of propionic acid to grain passing into the discharge conveyor to preserve moisture-containing grain in storage. In one form the applicator is positioned at the intake of the discharge pipe and contains the screw conveyor. The propionic acid discharge in the applicator is connected through a pump and control valve to a tank storing propionic acid. In another form the screw conveyor adjacent the pipe discharge has jets connected to an inner pipe concentric to the tubular shaft of the screw.

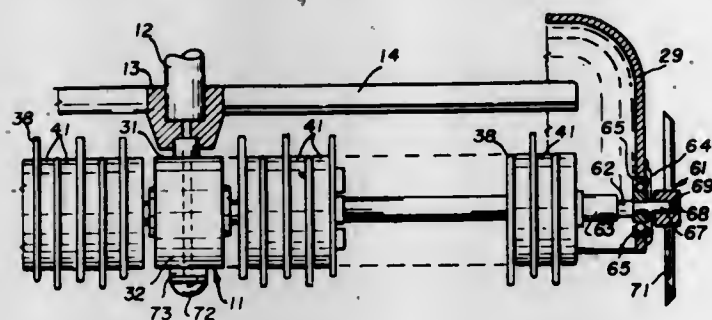
3,596,450

LAWN MOWER ATTACHMENTS

Richard A. Bowers, 1029 E. 3rd St., Florence, Colo.
Continuation-in-part of application Ser. No. 522,608, Jan. 24, 1966, now Patent No. 3,455,398. This application June 19, 1969, Ser. No. 835,911
Int. Cl. A01d 43/02

U.S. Cl. 56-193

12 Claims



An adapter system and attachments therefor which utilizes the structural and drive features of powered lawn mowers inclusive of the cutter blade-fan to provide additional power rake, brush, edger and nonscalping features. A drive connection is provided to power a horizontally disposed shaft upon which flails and similar edger or lawn dressing tools may be positioned for contact with a lawn or turf surface. Flexible tines or flails of a power-rake attachment are held in operative position by a plurality of intermeshing disc supports. A combination cutter blade-fan is used in alternate positions, and a mounting component therefor provides a nonscalping feature.

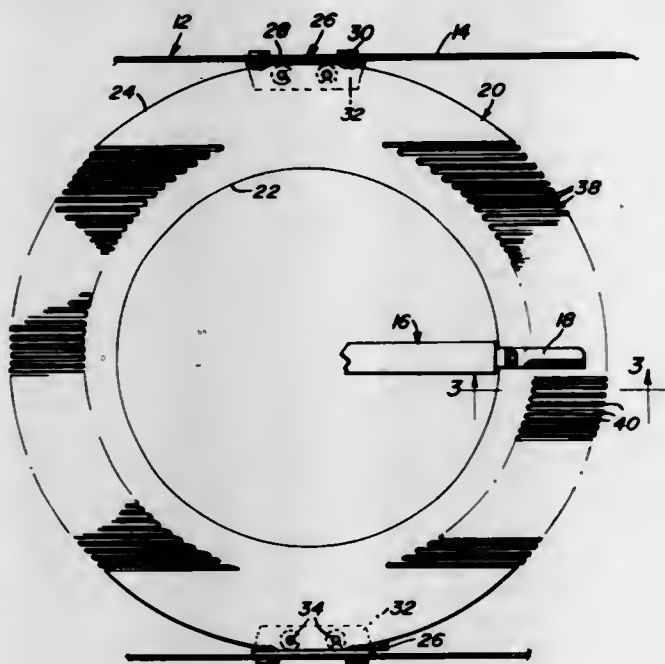
3,596,451

LAWN MOWER CUTTER BAR

Frank M. Spear, 625 Todd Ave., Ellwood City, Pa.
Filed July 24, 1969, Ser. No. 844,255
Int. Cl. A01d 55/18

U.S. Cl. 56-255

6 Claims



In a rotary lawn mower having a housing with a depending side skirt and a centrally mounted rotary cutting blade, a combination cutter bar and blade guard comprising a flat annular member positioned in underlying concentric relation to the rotary blade and mounted on the opposed sides of the housing by angle brackets. The annular member, along the forward and rearward directed portions thereof, has a series of spaced parallel slots defined therein, forming grass receiving and guiding fingers, these slots extending inwardly from the outer periphery of the member and terminating short of the inner periphery of the member. The path of the outer cutting ends of the cutter blade overlies the fingers for engagement with and the cutting of grass guided thereby.

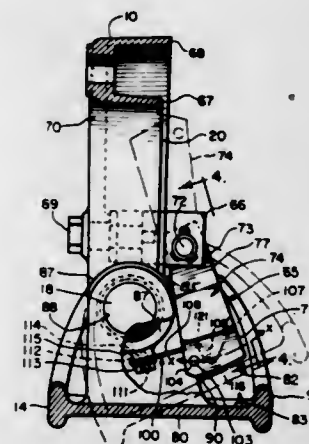
3,596,452

GAG-LIMITING DEVICE FOR A MOWER

Thomas J. Scarnato, Barrington; Paul C. Gordon, Hinsdale, and Craig M. Lawler, Downers Grove, all of, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Jan. 2, 1970, Ser. No. 80
Int. Cl. A01d 55/02

U.S. Cl. 56-286

6 Claims



A gag lift-limiting device for a mower comprising a pivoted latch having an upswung position disengaged from a cutter which is pivoted on a mower frame to permit the mower to be pivoted to transport position, the latch in its raised position having a center of gravity close to the pivot point so that the latch automatically drops from raised position to working position due to vibrations developed from operation of the mower.

A releasable lock to the latch is provided for releasably holding the latch from accidentally swinging out of gag-limiting position once the latch is so positioned.

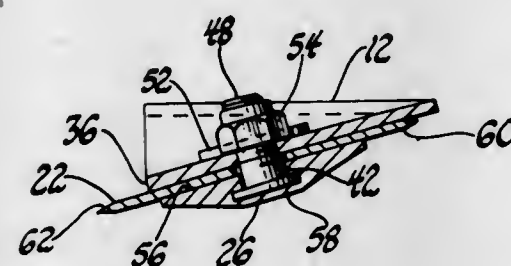
3,596,453

MOWER BLADE ASSEMBLY

Derward G. Smkh, 3334 Renault Drive, Flint, Mich.
Filed Nov. 25, 1969, Ser. No. 879,663
Int. Cl. A01d 55/18

U.S. Cl. 56-295

10 Claims



A mower blade assembly for rotary mowers comprising a cutter bar, a pair of rectangular blades, each having two cutting edges, and a pair of blade retainer plates. The plates are provided with a fixed bolt for fastening the plates and blades to the bar and with a pair of cylindrical projections for preventing the transfer of shear loads from the blades to the bolt.

3,596,454

DIVIDER BOARD FOR WINDROWER

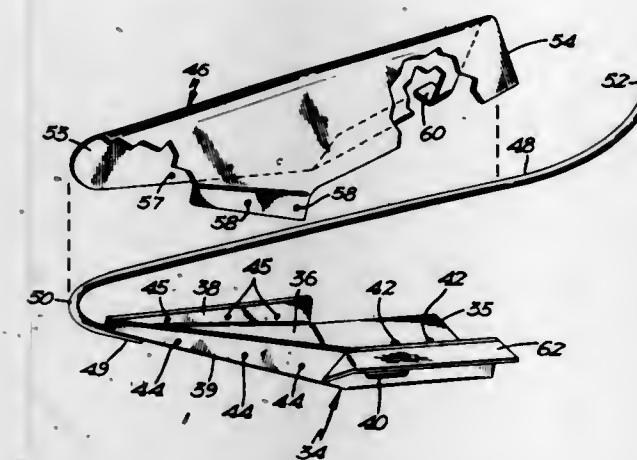
Wallace Kluck, Route 1, Rothsay, Minn.
Filed June 18, 1969, Ser. No. 834,413
Int. Cl. A01d 63/04

U.S. Cl. 56-314

3 Claims

For use on a windrower, an improved grain divider having a grain separating nose portion projecting forwardly in front of the windrower's cutting sickle and a substantially upright divider section projecting rearwardly over a grain-receiving conveyor, the divider section terminating in front of the rear

frame structure of the transverse platform on which the conveyor is supported, thereby providing an unobstructed and forced air may be directed from the pickup unit along



discharge opening through which cut grain stalks may drop freely onto the canvas conveyor.

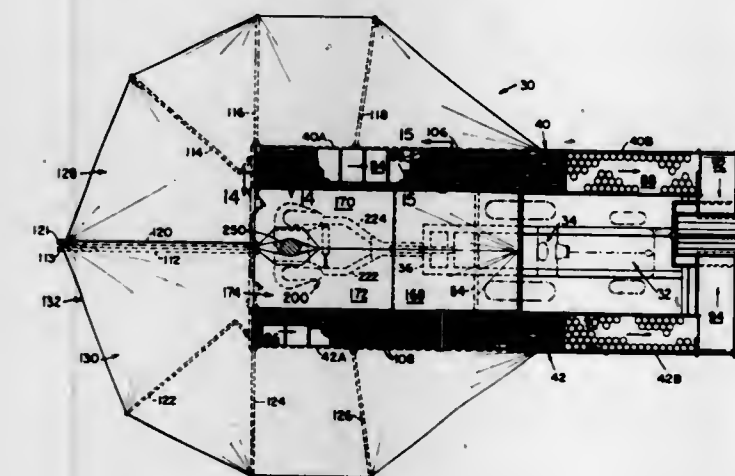
3,596,455

FRUIT-HARVESTER

Phillip R. Adrian, Escalon, Calif., assignor to Fruit Harvesting Co., Inc., Escalon, Calif.
Filed May 1, 1969, Ser. No. 820,717
Int. Cl. A01g 19/06

U.S. Cl. 56-329

9 Claims



A device for harvesting fruit or the like from a tree, the device including a pair of conveyors disposed on either side of the trunk of the tree, sheet means downwardly sloping from the trunk of the tree toward the conveyors to feed fruit falling thereon toward the conveyors, and a sheet of generally bowl-like configuration, the sheet being made up of two sheet portions to feed fruit falling thereon toward the conveyors. The sheet portions are retractable so that they may be folded up. Longitudinal resilient members, in spaced-apart, staggered relationship, are positioned to receive fruit fed toward the conveyor and limit the acceleration of the fruit, meanwhile allowing it to fall therethrough and to the conveyors without damage.

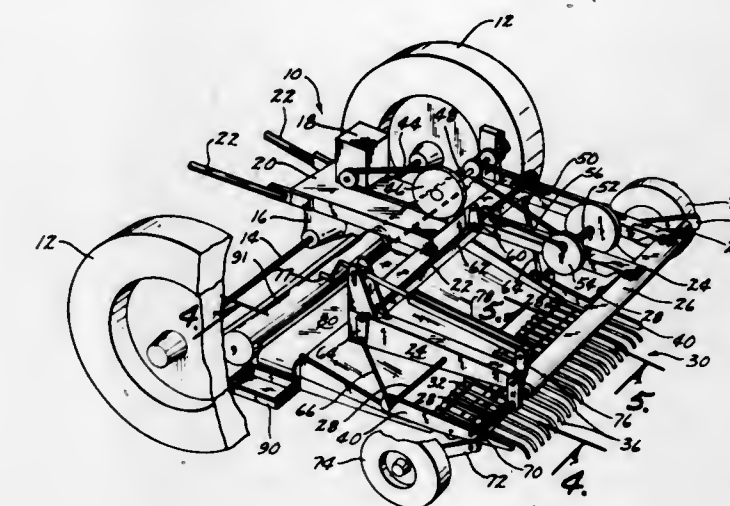
3,596,456

STRAWBERRY-HARVESTING DEVICE, assignor to Graeme R. Quick, Ames, Iowa and Iowa State University Research Foundation, Ames, Iowa
Filed Aug. 19, 1968, Ser. No. 753,553
Int. Cl. A01g 19/00

U.S. Cl. 56-330

4 Claims

A device for harvesting strawberries including a pickup unit having spaced-apart teeth and a roller extending thereunder and being connected to a vibration means for imparting arcuate vibratory motion to the pickup unit for gathering, stripping and conveying strawberries to a collecting unit. A platform may extend between the pickup unit and



the platform rearwardly to provide an air elevator for the berries and also separate the foreign material therefrom.

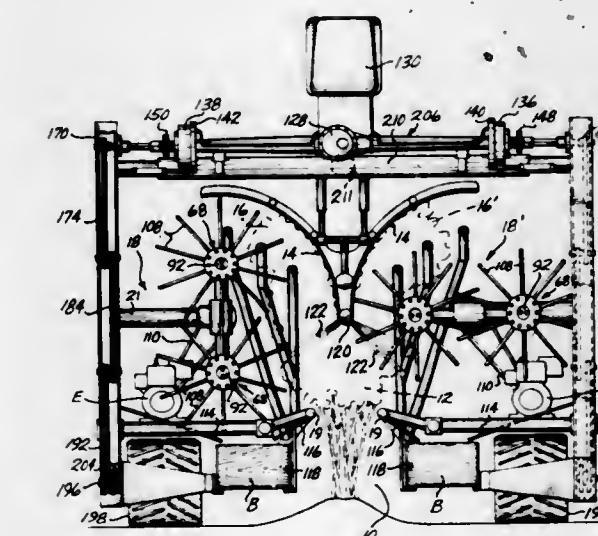
3,596,457

FRUIT HARVESTER

Ernest L. Van Tine, Bellevue, Wash., and Wesley R. Wagner, 5332 S. Fountain St., Seattle, Wash., assignors to said Wagner by said Van Tine
Filed Oct. 24, 1969, Ser. No. 869,044
Int. Cl. A01g 19/00

U.S. Cl. 56-330

19 Claims



The harvester is a self-propelled vehicle having two side assemblies adjustably connected together near the top of the vehicle. A divider depends from the interconnecting frame structure downwardly into a front-to-rear tunnel defined by and between the two side assemblies. A row of fruit collector boxes is supported on each side of the tunnel. The divider divides the bushes traveling relatively through the tunnel into two parts and deflects the parts laterally outwardly into the paths of the bush shakers, generally above the collector boxes. Each shaker includes a wheel mounted for rotation about a fixed horizontal support extending longitudinally of the vehicle. This support is rotated for swinging the wheel upwardly through fruit laden branches. The wheel includes a plurality of radial tines and means for reciprocating it back-and-forth on its support. Air screens are provided for directing the falling fruit towards the collector boxes. The vehicle drive mechanism includes differential gearing mechanism having a pair of output shafts. A system of chains and sprockets drivingly connects each output shaft to a plurality of small diameter drive wheels on its side of the vehicle. The output shafts are provided with independently controllable brakes used for steering the vehicle.

3,596,458 SPUN YARN OF ELASTIC FIBER AND PREPARATION THEREOF

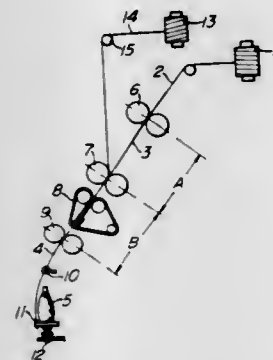
Hiroshi Nakano, Suita-shi; Hideo Takai, Fuji-shi, and Fumio Nakajima, Yoshiwara-shi, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Feb. 24, 1967, Ser. No. 618,469

Claims priority, application Japan, July 6, 1966, July 6, 1966, 41/43692; 41/43693

Int. Cl. D01g 1/08; D02g 3/04

U.S. Cl. 57—156

18 Claims



A spun yarn of a 100 percent elastic fiber or of an elastic fiber blended with a hard fiber. The yarn is prepared by stretching and heat setting a multifilament yarn or tow of the elastic fiber, stretch breaking, drawing, if necessary, and twisting. The blended yarn is prepared by, after the stretch breaking of the basic elastic fibers and before the drawing, blending with hard fiber roving. The yarn is prepared by employing a modified direct spinning machine equipped with top and bottom aprons in a stretch breaking zone between the back roll and the intermediate roll; the aprons being driven by the revolution of the intermediate roll.

3,596,459 PROCESS OF PRODUCING A NONSTRETCH OR LOW-STRETCH COMPOSITE YARN OF SUPER HIGH BULKINESS

Osamu Wada, Ibaragi-shi; Yoshiyuki Sasaki, Ibaragi-shi, and Masaaki Tomiji, Kashiwara-shi, all of Japan, assignors to Teijin Limited, Osaka, Japan
Division of Ser. No. 701,138, Mar. 4, 1968, Pat. No. 3,495,393

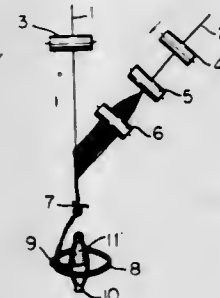
Filed July 1, 1969, Ser. No. 838,203

Claims priority, application Japan, Mar. 8, 1967, Mar. 8, 1967, Mar. 8, 1967, May 23, 1967, May 23, 1967, May 23, 1967; 42/14641; 42/14643; 42/14644; 42/43351; 42/43352; 42/43353

Int. Cl. B65h 81/06

U.S. Cl. 57—160

5 Claims



Process of producing a nonstretch or low-stretch composite yarn of super high bulkiness. At least one core yarn is fed, and at least one covering yarn having a plurality of filaments is tensioned and relaxed and is then fed in an overfed state to a wrapping point where it is wrapped around the core yarn. The rate of delivery of the covering yarn to the wrapping point is such that the ratio of the length of the covering yarn is from 110—300 percent of the length of the core yarn per unit length of the composite yarn. The composite yarn has a final twist imparted thereto.

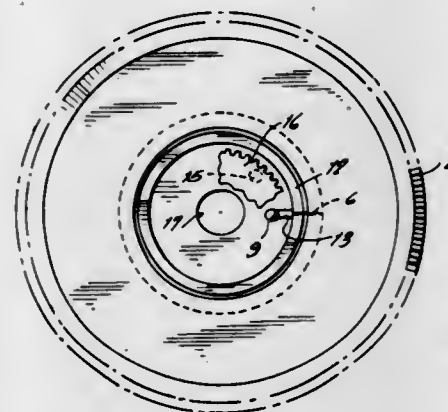
3,596,460 ALARM DEVICE FOR A HOROLOGICAL INSTRUMENT

Paul Wuthrich, Woodbury, Conn., assignor to Timex Corporation, Waterbury, Conn.
Filed Apr. 29, 1969, Ser. No. 820,189

Int. Cl. G04c 21/20

U.S. Cl. 58—19

5 Claims



A horological instrument includes a source of electrical energy and an electrical audible alarm. The circuit between the energy source and the alarm is normally open. A setting stem rotates a geared disc. The disc carries a conductive track and a conductive contact point. The contact point, normally twice a day, contacts a portion of the hour wheel, closing the circuit and allowing the alarm to sound.

3,596,461 ELECTROMAGNETIC DRIVING SYSTEM FOR TIMEPIECES

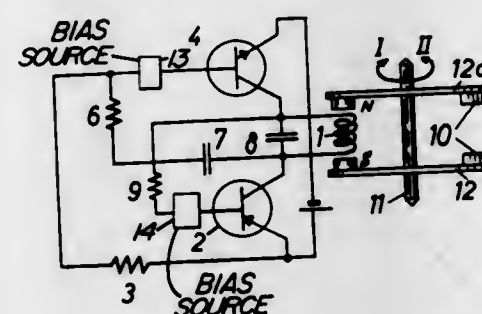
Robert W. Reich, Via Nosedà 8, CH-6977 Ruvigliana-Lugano, Switzerland
Filed Aug. 22, 1968, Ser. No. 754,596

Claims priority, application Switzerland, Feb. 2, 1968, 1,903/68

Int. Cl. G04c 3/04

U.S. Cl. 58—28

11 Claims



In an electromagnetic driving system for timepieces during the first half-oscillation of the oscillating member an astatic magnet system swings over only one coil inducing therein an impulse which opens two complementary transistors. The current flowing through the transistors and the coil creates a repellent impulse on the magnet system. The circuit includes blocking means rendering ineffectual the impulse induced in the coil during the second half-oscillation.

3,596,462 ELECTRONIC CLOCK

Royce Hayes, 2236-A Old Stone Mountain Road, Chamblee, Ga.
Filed Jan. 31, 1969, Ser. No. 795,595

Int. Cl. G04b 19/00

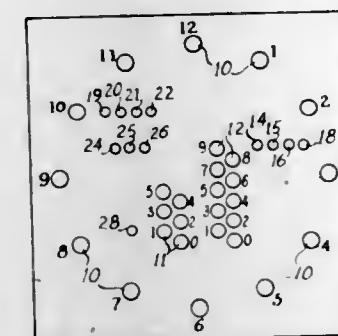
U.S. Cl. 58—50

5 Claims

An electronic clock in which the time is indicated by a combination of hour indications and decimal minute indications. A basic time input is successively divided by factors to

provide signals that control lights, the lights including a first series of lights to indicate the hour, a second series of lights

terline of the corresponding link of the other row when the linkage is in its contracted position and viewed from the side.



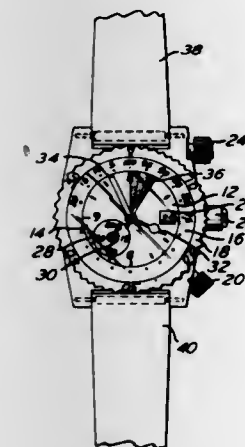
3,596,463 WATCH

Richard E. Rudolph, Elkins Park, Pa., assignor to Richard E. Rudolph, Philadelphia, Pa.
Filed June 23, 1969, Ser. No. 835,370

Int. Cl. G04b 37/12

U.S. Cl. 58—152

5 Claims



A watch to assist a smoker to break the smoking habit comprises a standard watch mechanism including hour, minute and second indicators, an additional minute indicator that is resettable to zero by the momentary depression of a first switch, a counter with a rotatable indicator that is incrementally displaced by the momentary depression of a second switch and a manually rotatable graduated dial mounted about the periphery of the watch crystal.

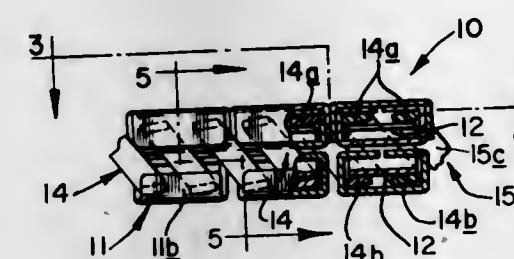
3,596,464 EXPANSIBLE LINKAGE FOR USE IN MAKING A WATCH BRACELET OR SIMILAR ARTICLE

Stephen F. Bert, West Warwick, R.I., assignor to Textron Inc., Providence, R.I.
Filed Apr. 21, 1969, Ser. No. 818,007

Int. Cl. F16g 13/24

U.S. Cl. 59—79

12 Claims



An expansible linkage for use as a bracelet having two rows or links, each link of one row having its longitudinal centerline located substantially above the longitudinal cen-

A fuel control for a turbine-type power plant is designed to include an isochronous governing system wherein both integrating and proportional valves control servo fluid to the actuator so that the velocity of the actuator is proportional to the flow into and out of it whereby the stroke rate is a func-

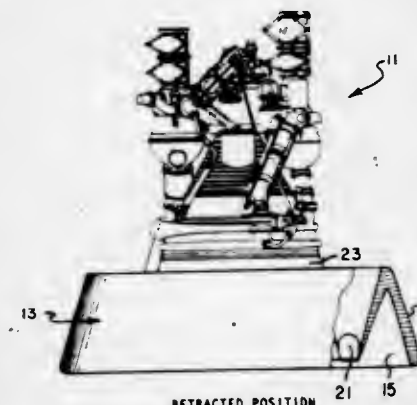
3,596,465 INFLATABLE TRANSPIRATION COOLED NOZZLE

Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Donald E. Pryor, Huntsville, Ala.; Benjamin K. Holmes, Huntsville, Ala.; James R. Thompson, Jr., Decatur, Ala.; Charles N. Scott, North Canton, Ohio, and William W. Sowa, Medina, Ohio
Filed Mar. 12, 1970, Ser. No. 18,982

Int. Cl. F02k 1/08; B63h 11/10; D03d 15/02

U.S. Cl. 60—271

10 Claims



A rocket engine nozzle skirt for increasing the expansion ratio of a main engine nozzle. The skirt is fabricated from a woven, double wall, fabric material which can be folded back around the main nozzle and later inflated to achieve its desired shape. The exterior surface of the nozzle extension is coated with a suitable sealant leaving the inner wall unsealed and with a porosity such that the inflation gas bleeds through to provide transpiration cooling of the nozzle skirt.

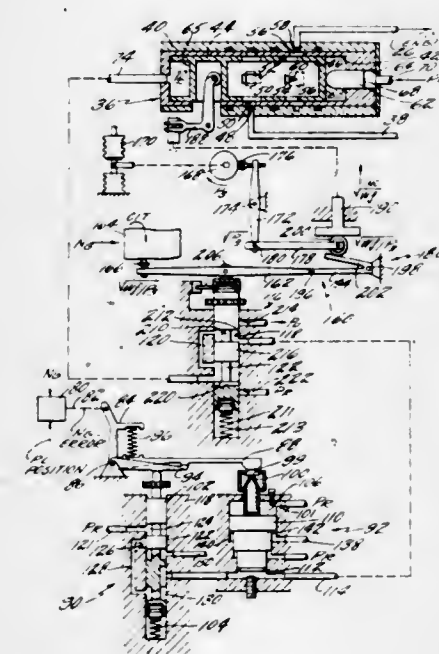
3,596,466 ISOCRONOUS GOVERNING SYSTEM WITH ACCELERATION/DECELERATION LIMITING MEANS

Donald E. Anschutz, Wilbraham, Mass., and Lawrence S. Smith, Simsbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 20, 1970, Ser. No. 21,261

Int. Cl. F02c 9/08

U.S. Cl. 60—39.28

9 Claims



tion of the error plus the rate of change of the error in combination with means for controlling the acceleration and deceleration of the power plant.

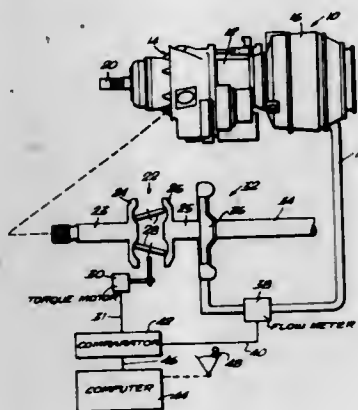
3,596,467 INTEGRATED FUEL CONTROL SYSTEM FOR A GAS TURBINE ENGINE

Paul A. Avery, Shelton, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Oct. 31, 1969, Ser. No. 872,938
Int. Cl. F02c 9/06

U.S. Cl. 60—39.28

14 Claims



The disclosure illustrates an integrated fuel control system for a gas turbine engine. The system comprises a stepless variable speed ratio toroidal-type transmission driven by a rotor assembly of the engine. The output from the variable-speed transmission is connected to an alternator and a centrifugal fuel pump. The pump receives fuel from a suitable source and pressurizes it for delivery into the engine. An electrical computer generates a scheduled fuel flow signal and a flow transducer generates an actual fuel flow signal. These signals are fed to a comparator which supplies the resultant output to a torque motor. The torque motor causes a change in the speed ratio of variable speed drive to change the centrifugal pump r.p.m. and the resultant fuel flow to the engine. The electrical output of the alternator is used by the computer, comparator and actual flow-generating elements and other engine control devices. In an alternate design the variable-speed drive and centrifugal pump are used to maintain a constant pressure differential across a fuel flow metering valve which is driven by a hydromechanical fuel control.

3,596,468 FISH LADDERS

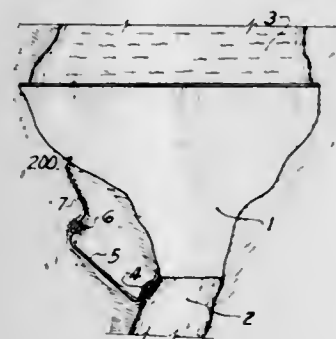
Herbert K. Fairbanks, SR 35, Box 195, St. George, Maine

Filed June 2, 1969, Ser. No. 836,685

Int. Cl. E02b 8/08

U.S. Cl. 61—21

5 Claims



A fish ladder having located within one body of water a chamber which is selectively opened and closed to isolate fish therein, and passage means for delivering into the chamber from a second body of water at a higher elevation a predetermined minimum flow of water when the chamber is opened to thereby attract fish therein, and a predetermined

maximum flow of water when the chamber is closed whereby fish isolated within the chamber are subjected to increased pressure and instinctively swim through passage means and into the second body of water.

3,596,469

PROCESS FOR THE STABILIZATION OF SOIL

Einosuke Higashimura; Shunsuke Tazawa, and Eiichi Nakamura, all of Tokyo, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan and Nitta Chemical Industry Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1968, Ser. No. 781,299

Claims priority, application Japan, Nov. 30, 1967, 42/76419
Int. Cl. E02d 3/12

U.S. Cl. 61—36

13 Claims

In the stabilization of soil by injecting into the soil a mixture comprising a water-soluble divinyl compound, a water-soluble vinyl compound and a redox catalyst, a mixture of an amine and a reducing metal complex is used as the reducing component of the redox catalyst, whereby the soil can be made particularly great in strength in a short period of time.

3,596,470

PROCESS AND APPARATUS FOR THE LOW-TEMPERATURE SEPARATION OF A HYDROGEN-RICH GAS MIXTURE

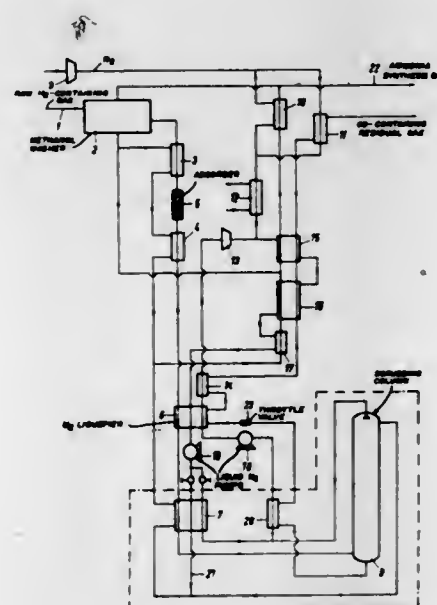
Fritz Jakob, Kreis Wolftratshausen, Germany, assignor to Linde A.G., Wiesbaden, Germany

Continuation-in-part of application Ser. No. 550,782, May 17, 1966, now abandoned. This application Aug. 1, 1968, Ser. No. 767,011

Claims priority, application Germany, May 18, 1965, G 43635
Int. Cl. F25j 3/00, 3/08

U.S. Cl. 62—20

16 Claims



In a process for the low-temperature separation of a hydrogen-rich gas mixture by scrubbing out at least a portion of the higher boiling components of the gas mixture by nitrogen in a scrubbing column, operating at about 80 to 210 atm. a., and at a temperature of about 1° to 15° C. above the freezing point of nitrogen at the pressure of the scrubbing column, several improvements in the technique employed for cooling both the nitrogen and the hydrogen-rich gas mixture to the necessarily low temperatures, wherein after the gas mixture and/or nitrogen is conveniently cooled in indirect heat exchange with vaporizing residual fluid from the scrubbing column, it is further cooled in indirect heat exchange with both residual fluid and ammonia synthesis gas withdrawn directly from the scrubbing column.

3,596,471 PROCESS FOR RECOVERING A MIXTURE OF KRYPTON AND XENON FROM AIR WITH ARGON STRIPPER

Martin Streich, Nieder-Eschbach, Germany, assignor to Messer Griesheim G.m.b.H., Frankfurt, Germany

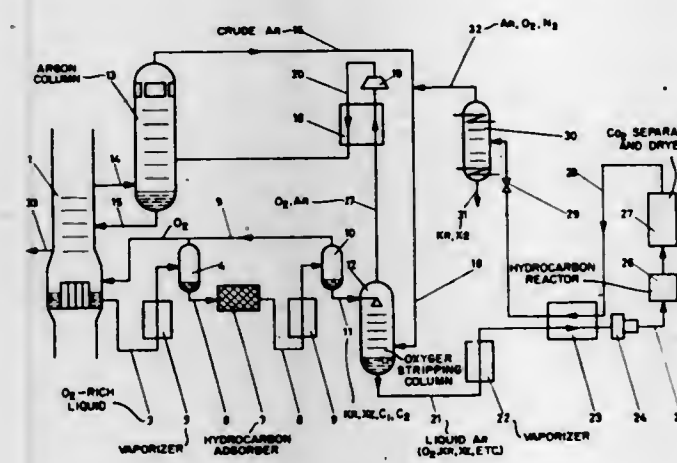
Filed Mar. 12, 1969, Ser. No. 806,415

Claims priority, application Germany, Mar. 15, 1968, P 16 67 639.4

Int. Cl. F25j 3/02, 3/08

U.S. Cl. 62—22

10 Claims



Oxygen-rich liquid from the bottom of the low-pressure column of a two-column air separation plant is partially vaporized, hydrocarbons are removed from the residual liquid, and the liquid is then stripped of oxygen by contact with gaseous argon. The stripped liquid is vaporized, the vapor is compressed, residual hydrocarbons in the vapor are burned, and the combustion products are removed from the vapor. Thereafter, the vapor is expanded into a rectifying column from the bottom of which a mixture of krypton and xenon is recovered. Desirably, the gaseous effluent from this rectifying column is further expanded into another rectifying column from the bottom of which argon is recovered.

3,596,472

PROCESS FOR LIQUEFYING NATURAL GAS CONTAINING NITROGEN

Martin Streich, Nieder-Eschbach, Germany, assignor to Messer Griesheim GmbH, Frankfurt, Germany

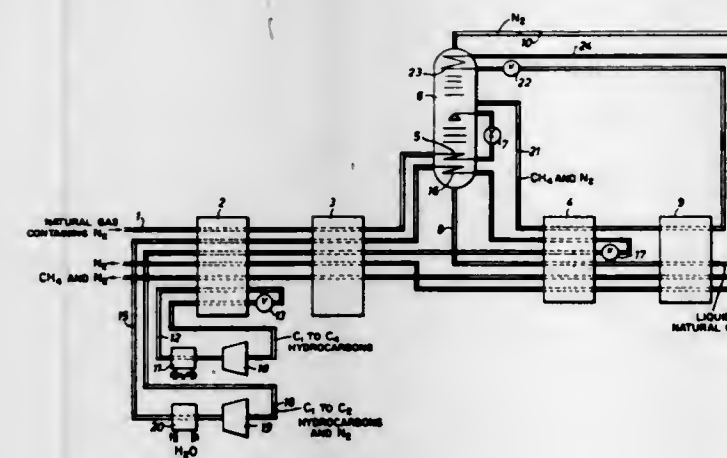
Filed Dec. 16, 1968, Ser. No. 784,124

Claims priority, application Germany, Dec. 20, 1967, P 15 51 611.7

Int. Cl. F25j 1/02, 3/02

U.S. Cl. 62—28

6 Claims



Natural gas containing nitrogen is cooled and liquefied by a cascade system having two closed refrigeration circuits

operating on multicomponent refrigerant mixtures. The liquefied gas is distilled into three fractions: nitrogen, a mixture of nitrogen and methane, and liquid natural gas substantially free of nitrogen. The mixture of nitrogen and methane provides the refrigerant in a third and coldest open circuit of the cascade system to subcool the liquid natural gas to storage temperature.

3,596,473

LIQUEFACTION PROCESS FOR GAS MIXTURES BY MEANS OF FRACTIONAL CONDENSATION

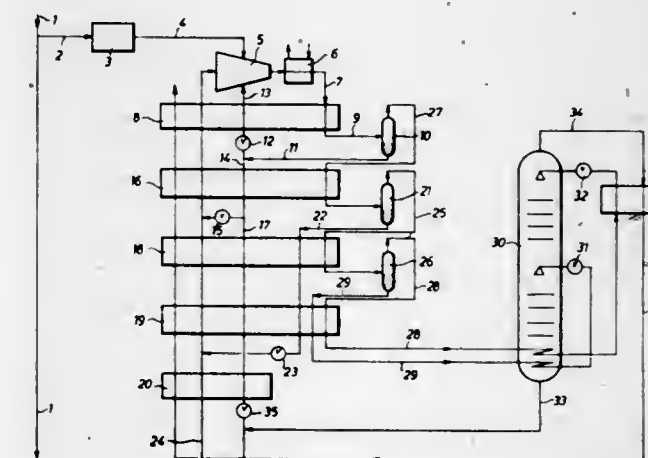
Martin Streich, Nieder-Eschbach, Germany, assignor to Messer Griesheim GmbH, Frankfurt am Main, Germany

Filed Dec. 24, 1968, Ser. No. 786,595

Int. Cl. F25j 3/00, 3/02, 3/06

U.S. Cl. 62—28

7 Claims



A process for the liquefaction of gas mixtures by at least two open partial cycles with different boiling points includes premixing the gas mixture with the cycle media and by means of a compressor bringing it to an elevated pressure and subjecting it to a fractional condensation where the cycle media and the more difficult boiling mixture constituents are precipitated as liquid fractions in separators. The liquid fraction of the first separator is divided into two partial streams. The first stream, which forms the first partial cycle, after expansion to an average pressure gives off coolness from cycle gas and gas mixture to be liquefied to the mixture streaming to the first separator and again conducts back to the compressor. The second stream is deep-cooled, expanded to about atmospheric pressure and admixed to the last cycle medium streaming back to the compressor. Furthermore, it is proceeded with the compressor of the subsequent separator accordingly, the expansion of the first partial streams occurring at average pressure until finally the liquid precipitating in the last separator after cooling of itself and expanding to about atmospheric pressure, gives off coolness to the gas mixture to be liquefied and to the other separated cycle media and is again conducted to the compressor.

3,596,474

GAS-HANDLING APPARATUS AND METHOD

Alden T. Bloxham, Bridgeville, Pa., and Harry C. Fischer, Royal Oak, Md., assignors to Kellogg American, Inc., Oakmont, Pa., by said Harry C. Fischer

Filed Dec. 18, 1968, Ser. No. 784,597

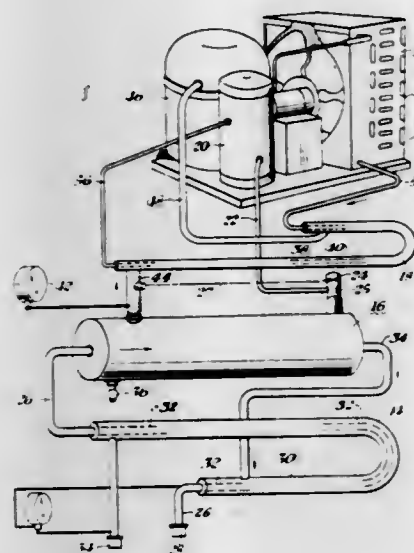
Int. Cl. F25d 17/06

U.S. Cl. 62—93

16 Claims

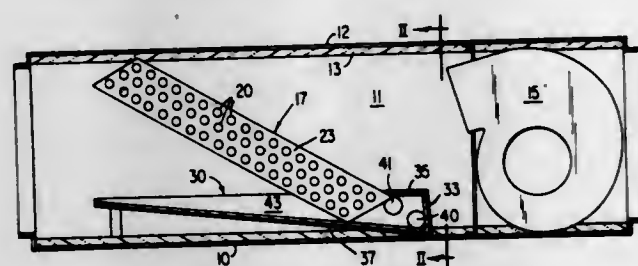
We disclose gas-handling apparatus comprising a primary evaporator, first conduit connections for establishing a flow path for a compressed gas and the like through said evaporator, second conduit connections for establishing a flow path of a refrigerant fluid through said primary evaporator in heat

exchanging relation with said gas path, a refrigerant unit coupled to said second conduit connections, and an auxiliary airstream of subfreezing temperature. The water is advantageously precharged with ice crystals or other nucleating



evaporator coupled between said refrigerating unit and said primary evaporator.

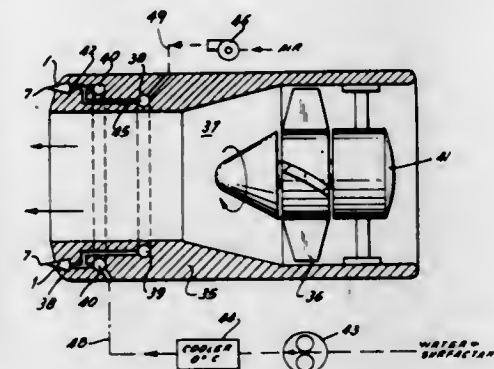
3,596,475
HEAT EXCHANGER WITH IMPROVED CONDENSATE DISPOSAL ARRANGEMENT
Isaac Berger, Hacienda Heights, Calif., assignor to Carrier Corporation, Syracuse, N.Y.
Filed Sept. 19, 1969, Ser. No. 859,472
Int. Cl. F25d 21/14
U.S. Cl. 62-285 1 Claim



A plate-finned coil unit diverges upwardly from the drain pan at an angle of less than 45° in the direction of the air flow. The lower end of the coil terminates in the pan in close spaced relation to an end wall thereof. The pan has a top wall extending from that end wall toward the lower end of the coil. This arrangement provides a sump for the collection of condensate from the coil when the fan coil unit is installed in either the vertical or horizontal position.

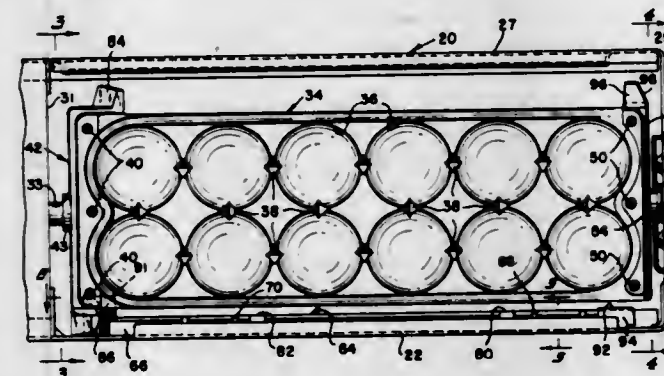
3,596,476
PROCESS AND SYSTEM FOR MAKING ARTIFICIAL SNOW
Fritz Jakob, Achmühle; Gerold Tesar, Pullach, Isartal, and Karl-Heinz Kuhnlenz, Delsenhofen, all of Germany, assignors to Linde Aktiengesellschaft, Holbriegelskreuth, Germany
Filed Mar. 26, 1969, Ser. No. 810,711
Claims priority, application Austria, Apr. 8, 1968, 3459/68
Int. Cl. F25c 3/02

U.S. Cl. 62-347 12 Claims
Water under high pressure, cooled to approximately 0° C., is fed to a set of nozzles together with a high-pressure airflow serving as a dispersion agent to convert the issuing fluid into fine droplets which are discharged into a low-pressure



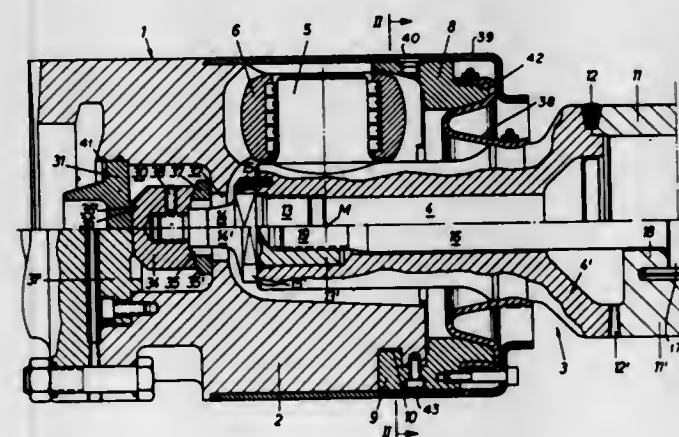
agents, such as silver iodide, and may also have a surfactant admixed therewith to lower its surface tension.

3,596,477
AUTOMATIC FLEXIBLE ICE TRAY
Earl K. Harley, Greenville, Mich., assignor to White Consolidated Industries, Inc., Greenville, Mich.
Filed Jan. 13, 1969, Ser. No. 790,654
Int. Cl. F25c 1/10
U.S. Cl. 62-353 5 Claims



An automatic icemaker in which a flexible ice tray is twisted to loosen the ice blocks by rotating one end of the tray while restraining the other end. The continued rotation of the driven end of the tray releases the other end of the tray after a predetermined twisting motion of the tray has been effected.

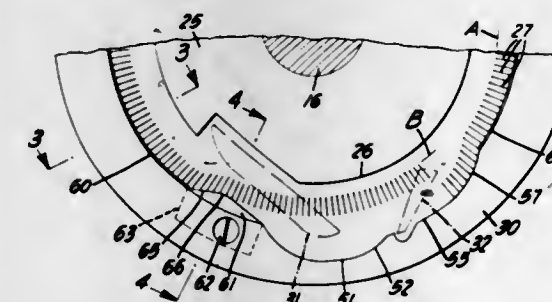
3,596,478
CONSTANT VELOCITY JOINT COUPLING
Walter Komuzin, Bottrop, Germany, assignor to Gelenkwellenbau GmbH, Essen, Germany
Filed Jan. 28, 1970, Ser. No. 6,506
Claims priority, application Germany, Jan. 31, 1969, G 69 03 751
Int. Cl. F16d 3/30
U.S. Cl. 64-21 7 Claims



Constant velocity joint coupling includes one joint half formed with a plurality of axially parallel concave race surfaces defining a number of cylindrical spaces therebetween;

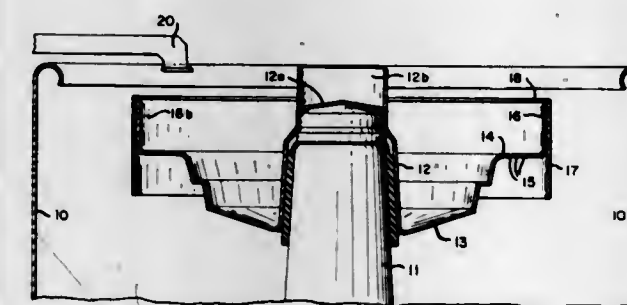
and another joint half-including a hub having at least three arbors extending radially in stellate form therefrom, and a spherically convex roller-shaped joint member rotatably and axially displaceably mounted on each of the arbors, the joint members being received respectively in the cylindrical spaces, the hub having a free end formed with a spherically convex axial bearing surface having a center of curvature located at the point of intersection of the longitudinal axis of the hub and the axes of the joint members, and the one joint half being formed with a support bearing surface cooperatively engaging the axial bearing surface.

3,596,479
DIAL MECHANISM FOR MULTISTATION CIRCULAR KNITTING MACHINES
John F. Remlinger, Lebanon, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Jan. 26, 1970, Ser. No. 5,697
Int. Cl. D04b 15/02, 15/61
U.S. Cl. 66-95 3 Claims



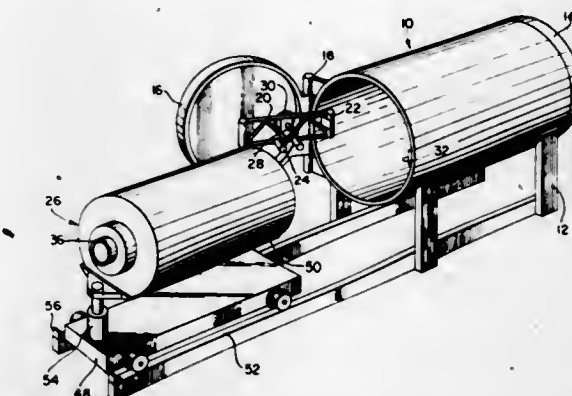
Dial mechanism for a multistation circular knitting machine adapted to form multifeed turned welt portions on tubular fabrics; the dial mechanism including transfer bits, cam means at one of the knitting stations for moving the transfer bits to engage the transfer course of the makeup or starting courses of the welt and for then moving the transfer bits to a first holding position to hold the transfer course as other makeup courses are formed at the other knitting stations and a further cam means adjacent one of the other knitting stations for moving the transfer bits to a second holding position to facilitate severance of yarns introduced into and removed from knitting action during the formation of the welt by yarn severing means associated with the dial.

3,596,480
LINT FILTERS AND BLEACH-DISPENSING DEVICES
Peyton W. Douglas, Bemus Point, N.Y., assignor to Blackstone Corporation
Division of Ser. No. 749,482, Aug. 1, 1968, Pat. No. 3,520,156
Filed Jan. 30, 1970, Ser. No. 7,031
Int. Cl. D06f 39/02, 39/10
U.S. Cl. 68-17 A 4 Claims



A combination lint filter, bleach or other wash and rinse water additive dispenser and fabric conditioner dispenser adapted for mounting on the agitator post of a clothes washer having a recirculating system and a spin-rinse cycle which receives wash-rinse water from the recirculating system, filters it and dilutes and delivers the bleach to the tub of the clothes washer and thereafter dispenses fabric conditioner during the spin-rinse cycle.

3,596,481
BEAM DYEING APPARATUS
Harold R. Wilcox, 6 Howard Road, Maynard, Mass.
Filed Nov. 28, 1969, Ser. No. 880,693
Int. Cl. B05c 8/02
U.S. Cl. 68-150 9 Claims



A pressure chamber rotatably supports internally a removable perforated tubular beam about which fabric to be treated is wrapped. The hollow beam is provided with a propeller rigidly mounted coaxially within the beam and is adapted to rotate the beam under the pressure of a dyeing liquid pumped therethrough. The dye beam is supported at one end by a rotary seal communicating with a conduit connected to a pump and at its other end by a hinged gate mounted to swing in proximity with a hinged hatch. A dolly having a cantilevered and hydraulically operated cradle is mounted on tracks for movement in and out of the vessel when the hatch is open to replace dye beams.

3,596,482
DOOR-LOCKING ARRANGEMENT
Walter Pollak, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Jan. 26, 1970, Ser. No. 5,553
Int. Cl. E05b 65/32
U.S. Cl. 70-101 4 Claims



A locking lever control arrangement on a vehicle door having a latch mechanism with a locking lever which automatically returns from an unlocked to a locked position upon closing movement of the door includes a three position internal control member on the door inner panel, a two position external control member on the door outer panel, a bellcrank, a blocking member and draft links connecting the internal control member to the bellcrank, the bellcrank to the locking lever and the bellcrank to the blocking member. The external control member is operable to move the locking lever from locked to unlocked position and the internal control member is operable upon movement to one position to rotate the blocking member to a blocking position preventing movement of the external control lever and upon movement to another position to move the locking lever from locked to

unlocked position, and the locking lever is operable upon automatic movement from the unlocked to the locked position to move the internal control member to the third of the three positions thereof.

3,596,483

STEERING COLUMN LOCK

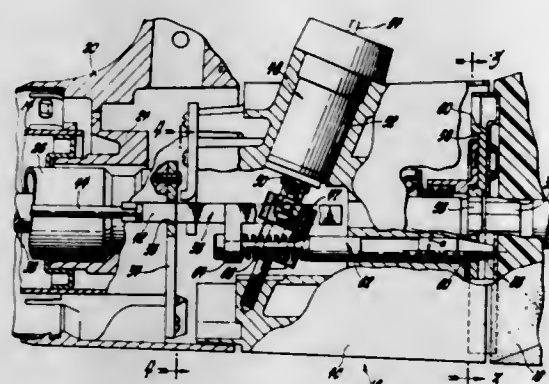
Harold V. Elliott, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 9, 1969, Ser. No. 840,282

Int. Cl. B60r 25/02

U.S. Cl. 70—186

3 Claims



A steering column lock is provided with a lock bolt selectively engageable with a keeper on the steering shaft component of the steering column to hold the latter against rotation, the lock bolt being provided with a tapered head engaging the keeper and operative in the presence of predetermined large amounts of torque on the steering shaft component to provide a force component tending the bolt to move out of its locked position.

3,596,484

CLOSURE LATCH

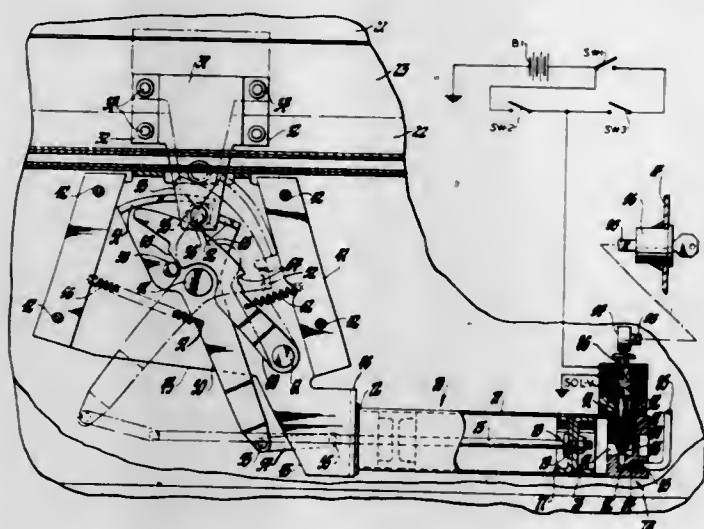
Theodore F. Peters, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 31, 1969, Ser. No. 846,539

Int. Cl. E05b 51/02, 65/19

U.S. Cl. 70—240

6 Claims



A closure latch for a vehicle deck lid or the like includes a striker secured to the deck lid in cooperative relation to a latch pivotally connected to the vehicle body for movement from a first or unlatched position out from engagement with the striker to a second or latched position engaging the striker to pull it, thereby pulling the deck lid firmly against the vehicle body with a weather seal compressed between the deck lid and the vehicle body. A latch hook is pivotally connected adjacent to the latch and is normally biased to engage the latch and retain it in the first position but is adapted to be contacted by the striker for disengagement from the latch to permit movement of the latch by a differential fluid pressure operated piston or by rotation of the latch hook as effected by contact with the striker.

3,596,485 HYDROMECHANICAL METHOD AND DEVICE FOR THE REVERSE REDRAWING OF SHEET METAL

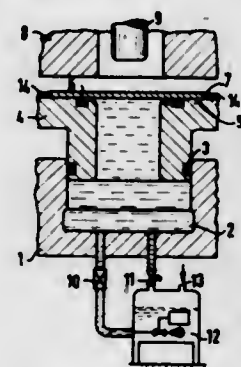
Eugen Burk, Traunstein, Germany, assignor to Siemens-Elektrogerate G.m.b.H., Berlin & Munich, Germany
Filed Sept. 11, 1969, Ser. No. 857,030

Claims priority, application Germany, Sept. 12, 1968, P 17 77 153.8

U.S. Cl. 72—57

Int. Cl. B21d 26/04

7 Claims



Blanks for sheet metal are drawn with the aid of a pressure container, a liquid displacing annular plunger pressure tightly glidable in the container and having a top adapted for accommodating the blank, a holddown for pressing the blank against the top, and a draw punch passing through the hold-down. The container and plunger are first filled with liquid up to the top. Then the blank is placed onto the top, whereafter the holddown is forced downwardly against the blank, thereby pressing the plunger into the container. The increasing liquid pressure in the container draws the blank to a shape bulging upwardly into the holddown. Thereafter, the blank is reversely redrawn into the pressure container by pressing the punch from above against the blank and downwardly into the container.

3,596,486

APPARATUS AND PROCESS FOR PRODUCING ELECTRICAL COMPONENTS

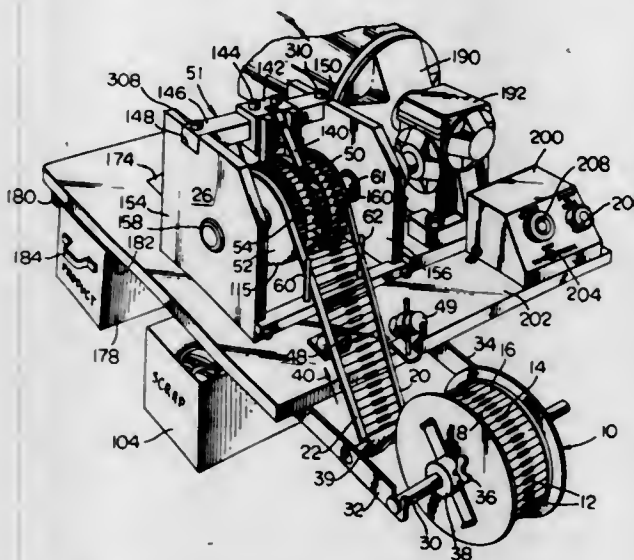
Werner Dolder, Greenville, Tenn., assignor to Magnavox Company

Filed Jan. 23, 1969, Ser. No. 793,381

Int. Cl. B21f 11/00; H01r; B21d 31/02

U.S. Cl. 72—129

12 Claims



The process and apparatus for electrical components in which the electrical components are spaced regularly apart and are held by tapes which secure the ends of the leads of the components and carry them into position for processing so that the components are continuously fed by positive means to a continuously rotatable member which receives the components, trips the edges thereof and forms them to a prescribed shape, the process described being a continuous inflow of components for processing and a continuous outflow of finished components with the result that the speed of production of the finished electrical components is greatly increased.

3,596,487

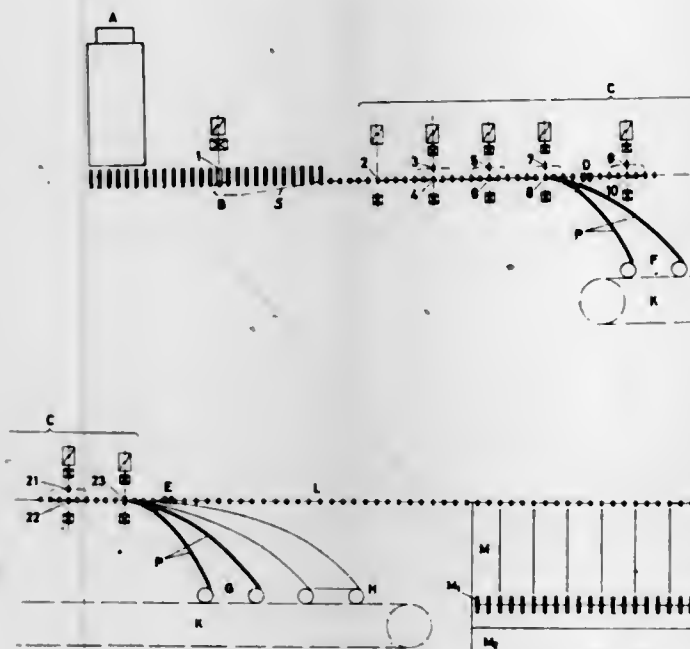
ROLLING MILL

Karl S. O. Forsberg, Hogstengsgotau St., 77700 Sweden
Jebacken, Morgardshammar, Sweden
Continuation of application Ser. No. 381,625, July 10, 1964, now Patent No. 3,422,654. This application Jan. 10, 1969, Ser. No. 790,295

Int. Cl. B21b 41/04, 41/10

U.S. Cl. 72—228

2 Claims



A continuous rolling mill plant for rod steel and wire having several rolling mill units each consisting of a pair of stands disposed side-by-side with a first stand of each pair being aligned in the direction of rolling, which stands form a finishing train permitting continuous rolling. The second stands of each pair permit repeater rolling. A runout roller table may be arranged below the finishing train in order to discharge the roller material from any stand. Instead of a runout roller, table coiler means may be arranged along and adjacent to the finishing train.

3,596,488

ROLLING MILLS

Harry Laurence Fred Bond, Hathersage, near Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England

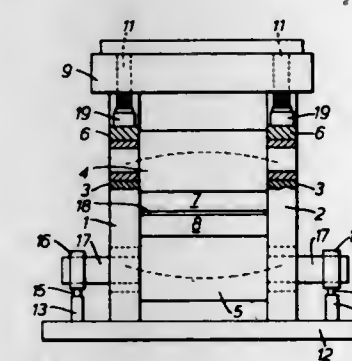
Filed Oct. 11, 1968, Ser. No. 766,851

Claims priority, application Great Britain, Oct. 13, 1967, 46868/67

Int. Cl. B21b 37/00

U.S. Cl. 72—237

2 Claims



A four-high rolling mill is provided with backup roll bending on the lower backup roll only. The compensating bending moment is applied to the roll by means of controllable pressure applying means operably engaged with neck portions of the roll outboard of the bearing chocks and with a stiff beam extending beneath the housings and projecting outwardly therefrom. A four-high mill can be designed and erected without provision for backup roll bending and by later positioning the stiff beam beneath the housings, backup roll bending can be applied to the lower backup roll.

3,596,489

APPARATUS FOR PROCESSING SHEET AND STRIP MATERIAL

Saamyendranath Ball, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England

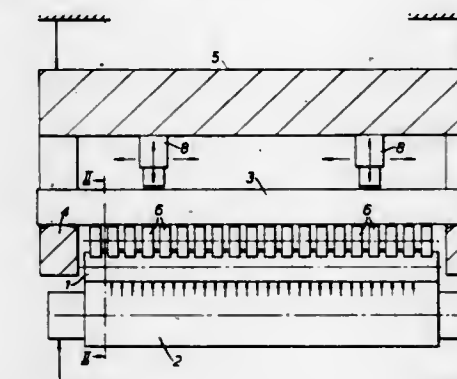
Filed Nov. 21, 1968, Ser. No. 777,738

Claims priority, application Great Britain, Nov. 21, 1967, Apr. 3, 1968, 52852/67; 15928/68; 15929/68

Int. Cl. B21b 13/14, 29/00

U.S. Cl. 72—241

12 Claims



A machine for processing sheet and strip material such as a temper bending machine or a rolling mill has a pair of work rolls between which the material is processed and at least one of the rolls is engaged along its length by a plurality of casters which are supported on a flexible beam, extending parallel to the axis of the roll. Means, conveniently in the form of hydraulic piston and cylinder assemblies are provided for flexing the beam to apply forces to the roll which oppose other forces which act on the roll during processing. In this way any tendency of the roll to bend and thereby produce sheet or strip of nonuniform shape is overcome.

3,596,490

ROLL STAND, WITH MEANS FOR THE FINE ADJUSTMENT OF THE ROLLS UNDER ROLLING PRESSURE

Horst Willeke, Dusseldorf, and Wilhelm Beckmann, Ratingen, both of, Germany, assignors to Schloemann Akkiongesellschaft, Dusseldorf, Germany

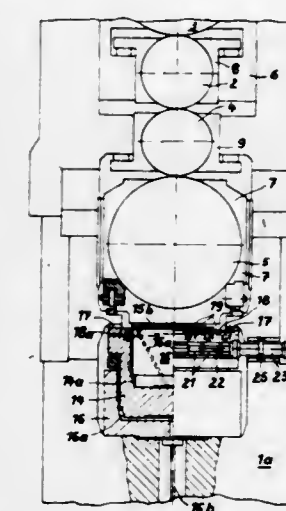
Filed Sept. 11, 1968, Ser. No. 759,047

Claims priority, application Germany, Sept. 13, 1967, P 16 02 176.4

Int. Cl. B21b 31/20, 31/32

U.S. Cl. 72—240

9 Claims



A roll stand, particularly for rolling sheets or strips, comprising coarse adjusting means for adjusting the rolls when unloaded, and hydraulic fine adjusting means for adjusting the rolls under rolling pressure, the fine adjusting means comprising an adjusting cylinder which bears upon a lower crosshead, and in which an adjusting plunger can be raised and lowered hydraulically, the free upper end of this adjusting plunger bearing against the under surfaces of the lower

chocks, which are vertically movable in windows in the roll housing, the said adjusting cylinder forming the shifting plunger of a further hydraulic unit, between which and the lower crosshead is arranged a shifting cylinder accommodating the said shifting plunger, which bears with its free upper end against shoulders on the roll housing extending into the windows thereof.

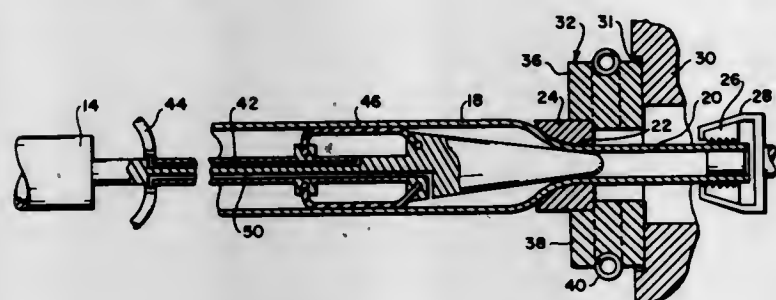
3,596,491

METHOD FOR TAPERING TUBES

Hobart A. Cress, San Pedro, and John W. Hinshaw, Garden Grove, both of, Calif., assignors to The Battelle Development Corporation, Columbus, Ohio
Filed May 19, 1969, Ser. No. 825,481
Int. Cl. B21c 1/24

U.S. Cl. 72-283

21 Claims



Tubular shapes are tapered by drawing through a deformable die over a tapered mandrel that is of a length that differs from that of the tapered product by causing relative movement between the mandrel and the tube and die.

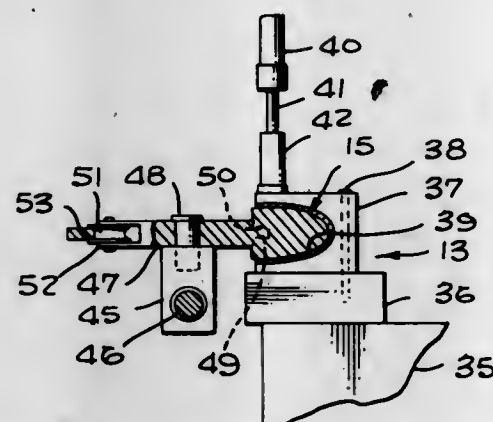
3,596,492

METHOD FOR DRAW FORMING ELONGATED SHAPES

Wilford A. Swanson, 10730 Wheatland, Sunland, Calif.
Filed Nov. 4, 1968, Ser. No. 773,271
Int. Cl. B21d 11/02

U.S. Cl. 72-297

4 Claims



A preformed elongated workpiece which has a hollow interior and an open side is placed in a machine with both exterior sides of the workpiece restrained. An arcuate forming tool is made having a length much shorter than the workpiece as, for example, about one-tenth as long. One end of the forming tool is given an exterior size and shape the same as desired at one end of the finished workpiece and the other end of the forming tool is given a size and shape the same as that desired at the opposite end of the finished workpiece. The forming tool is pivotally mounted on a carriage so that the large end of the forming tool is pressed into what will become the large end of the finished shape. The forming tool is then moved progressively from one end to the other of the workpiece and progressively rotated during its movement at a rate such that as the forming tool moves bodily from one end to the other of the workpiece, it is rotated progressively less rapidly in order to have the small end of the tool just reach a point of engagement with the workpiece when the carriage travel reaches the opposite end, thereby to proportionately change the size of the finished shape at a ratio of 10 to 1 as compared to the change in size of the forming tool. Rotation is accomplished by employment of a cam track on the machine and a cam follower connected to the pivotally moving forming tool. The workpiece is stretched endwise while the forming is being performed.

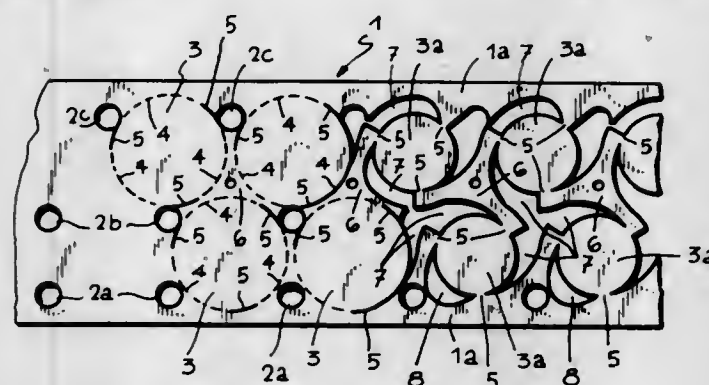
3,596,493

STAMPING PROCESS FOR METAL OBJECTS

Maurice Lachaussee, 360, rue de l'Yser, Ans-Lez-Liege, Belgium, and Andre Maignet, 4, Avenue de la Grange, Saint Maur Des Fosses, France
Filed Aug. 26, 1968, Ser. No. 755,214
Claims priority, application Belgium, Sept. 15, 1967, 41,474
Int. Cl. B21d 28/00; B21c 1/00

U.S. Cl. 72-339

4 Claims



In a process for producing metallic objects by stamping blanks located side-by-side in echelon formation in a metal strip which is then advanced through shaping means for executing shaping operations there is provided blanks to be stamped by cutting said strip along portions of the true peripheries of the objects so that said blanks remain connected to spacer web portions of said strip solely by connecting elements maintaining said blanks within said strip during the subsequent shaping operations and until final separation of the finished objects.

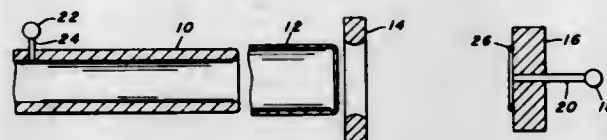
3,596,494

VACUUM STRIPPING

John M. Hagan, Verona, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Dec. 23, 1968, Ser. No. 786,046
Int. Cl. B21d 45/00

U.S. Cl. 72-344

6 Claims



Cup-shaped metal object is stripped from ram of hydraulic press using a stripper plate at end of stroke of the ram, the stripping being accomplished by applying a positive pressure inside the ram and cup-shaped object and a vacuum or substantial negative pressure outside the bottom of the object at the stripper plate.

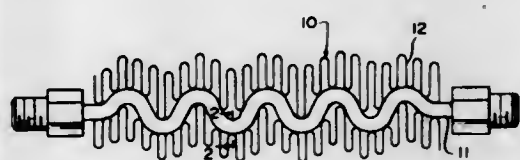
3,596,495

HEAT TRANSFER DEVICE AND METHOD OF MAKING

Homer D. Huggins, Racine, Wis., assignor to Modine Manufacturing Company
Filed Apr. 1, 1969, Ser. No. 812,017
Int. Cl. B21d 53/06

U.S. Cl. 72-367

16 Claims



A heat transfer device and a method of making the same in which the device comprises a heat transfer tube having a longitudinal bore for flow of fluid therethrough, spaced heat

transfer internal fins within the tube and distortions in the wall of the tube adjacent the fins that not only distorts the wall but also deflects the fins in the region of the distortions to increase internal fluid turbulence and thereby promote better heat transfer.

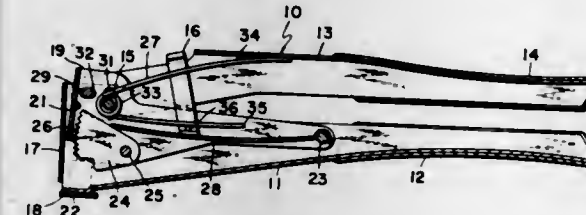
3,596,496

RIVET SETTING TOOL

Gabriel M. La Pointe, Worcester, Mass., assignor to Parker Mfg. Company, Worcester, Mass.
Filed Feb. 14, 1969, Ser. No. 799,201
Int. Cl. B21d 9/05

U.S. Cl. 72-391

9 Claims



This disclosure has to do with a rivet setting tool and, more particularly, apparatus for setting separable mandrel rivets.

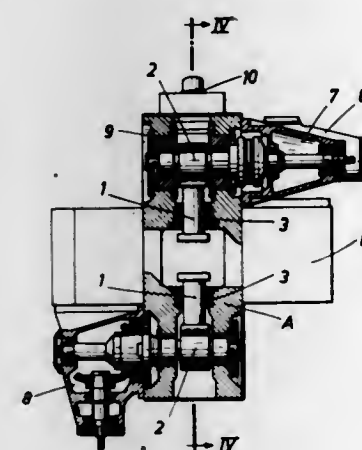
3,596,497

APPARATUS FOR THE CONTINUOUS SWAGING OF CONTINUOUS WORKPIECES

Bruno Kralowetz, St. Ulrich near Steyr, and Gottfried Blaimschein, Steyr, both of, Austria, assignors to GFM Gesellschaft Fur Fertigungstechnik Und Maschinenbau Aktiengesellschaft, Steyr, Austria
Filed June 4, 1969, Ser. No. 830,408
Claims priority, application Austria, June 25, 1968, 6061/68
Int. Cl. B21j 7/00

U.S. Cl. 72-403

8 Claims



An apparatus for the continuous swaging of continuous workpieces in which at least two pair of swaging units are provided, each of which defines an aligned path of travel for the workpiece. The first unit of each swaging unit pair has two opposed dies set 90° to the opposed dies of the second unit of each pair. Only the dies of one of the units is fully extended at any given time. The dies of each unit perform a pivotal movement which has a component in the workpiece-feeding direction along the feed path when the dies are extended. The second pair of swaging units operate at a higher speed than the preceding pair of units, however, the arrangement is such that velocity of the component of movement in the workpiece-feeding direction is substantially the same in all units.

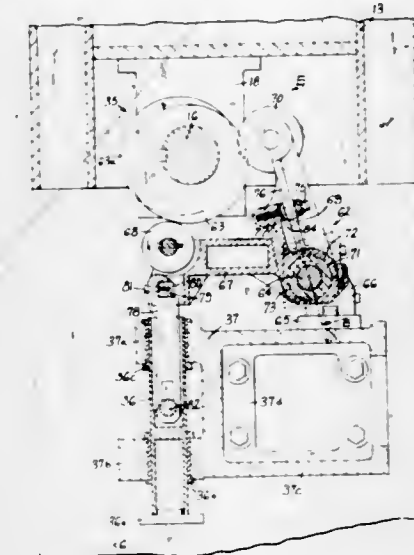
3,596,498

PRESS

Charles R. Bradlee, Cheshire, Conn., assignor to Textron, Inc., Providence, R.I.
Filed Dec. 27, 1968, Ser. No. 787,493
Int. Cl. B21j 11/00

U.S. Cl. 72-405

12 Claims



This disclosure relates to a press of the type provided with aligned plungers arranged to successively form a workpiece and having driving and restoring cams arranged to actuate the plungers through a crank mechanism having arms arranged in predetermined angular relationship and in engagement with the cams at all times.

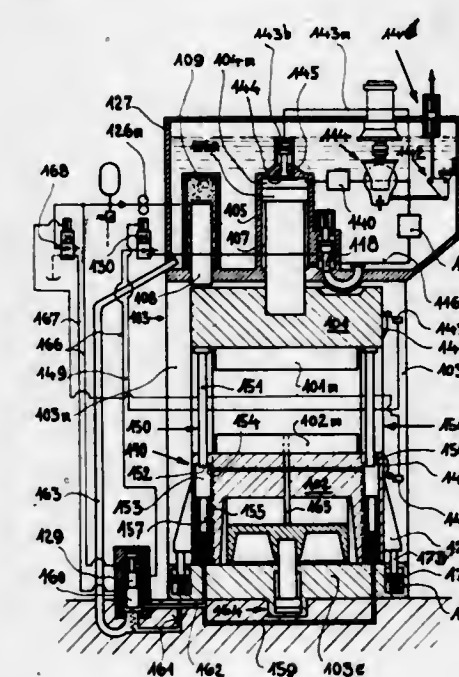
3,596,499

MACHINE FOR PRESSURE FORMING AND IMPACT FORMING WORKPIECES

Horst M. Sauerbrey, Coburg, Germany, assignor to Langenstein & Schemann Aktiengesellschaft, Coburg, Germany
Filed Oct. 16, 1968, Ser. No. 768,042
Claims priority, application Austria, Oct. 16, 1967, A 9341/67
Int. Cl. B21j 9/10

U.S. Cl. 72-407

12 Claims



A pressure-fluid-operated machine for forming a workpiece between two ram heads, at least one of which is reciprocable relatively to the other, capable of operating alternatively as a press or as a counterblow hammer, by means of an hydraulic coupling with two coupling branches laterally engaging at least one of the rams incorporating a

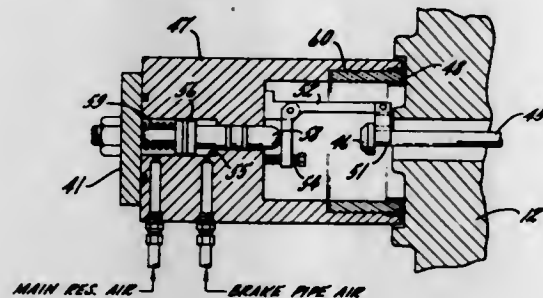
clapper valve, a reversed-run cylinder chamber and two impact (hammering) chambers bounded by pistons engaging the movable ram and arranged beside the press cylinder chamber, and other ancillary means.

3,596,500 APPARATUS FOR TESTING AIRBRAKE CONTROL VALVES

James G. Rees, 105 Industrial Road, Hammond, Ind.
Filed May 5, 1969, Ser. No. 821,801
Int. Cl. G01m 3/26

U.S. Cl. 73-39

8 Claims



Apparatus is provided for testing airbrake valve portions. The apparatus features a fluid-operated brake clamp to confine the airbrake control valve portion by applying sealing pressure to the airbrake portion from a pivotable C-clamp which is free to move longitudinally with respect to the airbrake portion. In addition, the apparatus includes a device for confining and locating the airbrake control piston via a controllable piston stop contained within a sealed chamber. Several air control valves in the test apparatus are activated automatically, and substantially the entire test program is conducted on automatic control.

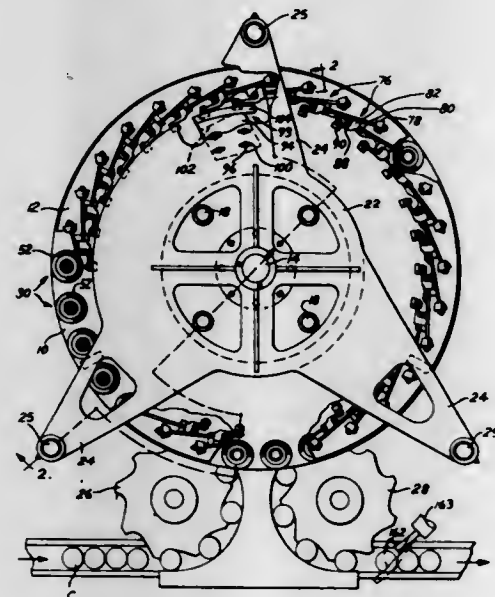
3,596,501 METHOD AND APPARATUS FOR DETERMINING VACUUM LEVEL IN SEALED CONTAINERS

Donald R. Forry, Columbus, Ohio; Charles A. Cummings, Columbus, Ohio; Robert Russell, Columbus, Ohio; Ben C. Peralta, Fort Wayne, Ind.; Albert M. Schaffer, Cedar Rapids, Iowa; Dale A. Denny, Columbus, Ohio, and William H. Welch, Columbus, Ohio, assignors to Abbott Laboratories

Filed Aug. 6, 1969, Ser. No. 847,996
Int. Cl. G01m 3/00

U.S. Cl. 73-52

17 Claims



A method and apparatus for testing the vacuum level in sealed containers includes a support for the container having an accelerometer attached thereto. The container and support is accelerated by an impacting hammer to cause

hydrodynamic oscillations of the contents in the container which in turn are transmitted to and sensed by the accelerometer. If the vacuum level in the container is insufficient, the oscillations are damped and if the vacuum level is sufficient the container contents freely oscillate to produce vibrating oscillations in the container support. The accelerometer produces signals having characteristics correlated to the vibrating oscillations and the containers are accepted or rejected in response to the accelerometer signals.

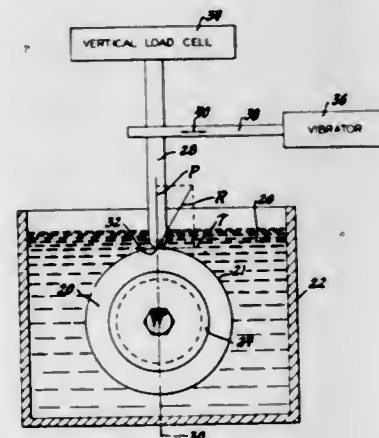
3,596,502 ULTRASONIC FATIGUE TESTING

Willard W. Bayre, Amherst, and John A. Erickson, Port Clinton, both of, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 6, 1969, Ser. No. 874,625
Int. Cl. G01n 29/00

U.S. Cl. 73-67.3

4 Claims



A method of duplicating the stress cycling experienced by a bearing race in which a probe is loaded radially into the raceway and ultrasonically vibrated in a tangential direction is disclosed.

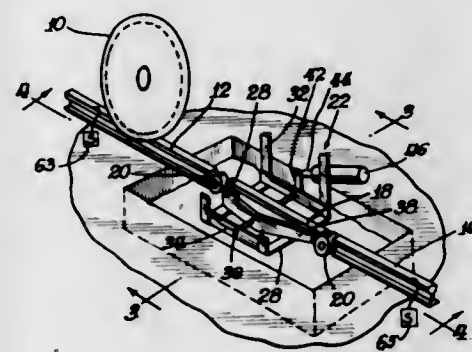
3,596,503 METHOD AND APPARATUS FOR MANIPULATING AND TESTING RAILWAY WHEELS

Alden V. Gay, and Beverly J. Balbinot, both of Prairie Village, Kans., assignors to Amsted Industries Incorporated, Chicago, Ill.

Continuation-in-part of application Ser. No. 504,342, Oct. 24, 1965, now abandoned. This application July 15, 1968, Ser. No. 744,724
Int. Cl. G01n 24/00

U.S. Cl. 73-67.8

15 Claims



An apparatus is provided for moving railway wheels into and out of a testing station where they are lowered into a tank containing water and rotated in an upright position. During rotation, ultrasonic devices located within the tank test the wheel for internal defects and warpage. The wheel is then ejected from the testing station.

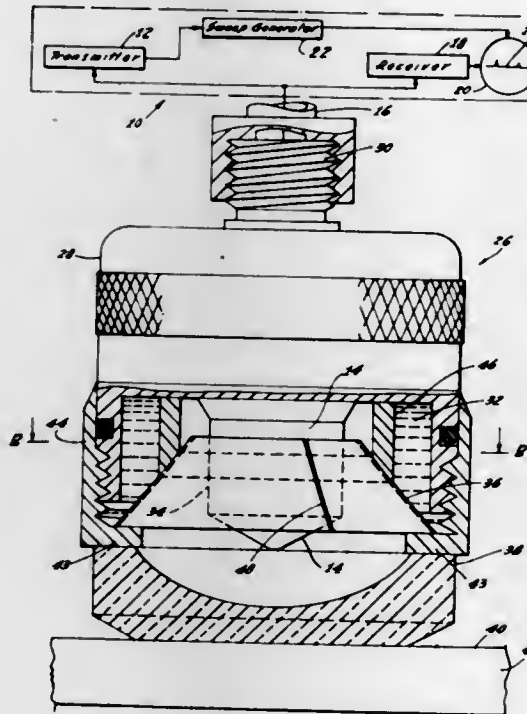
3,596,504 ULTRASONIC SEARCH UNIT

Albert E. Frey, Danbury, Conn., assignor to Automation Industries Inc., Century City, Calif.

Filed Jan. 10, 1969, Ser. No. 790,309
Int. Cl. G01n 29/04

U.S. Cl. 73-67.8

13 Claims



A nondestructive ultrasonic test system which includes a search unit with a crystal transducer which is cylindrical in shape and radiates beams of ultrasonic energy normal to the cylindrical axis of the crystal. A conically shaped reflector surrounds the cylindrical crystal transducer and reflects the beams therefrom into the workpiece. The reflector is deformable for change of the included angle of the conical shape to focus the beam.

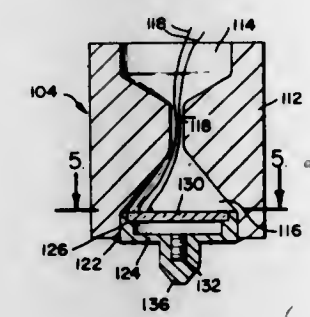
3,596,505 ULTRASONIC SEARCH UNIT WITH RADIAL MODE MOTION TRANSDUCER

Milton F. Zeuschel, Bellevue, Wash., assignor to Automation Industries Inc., Los Angeles, Calif.

Filed June 24, 1969, Ser. No. 836,002
Int. Cl. G01n 24/04

U.S. Cl. 73-71.5

11 Claims



An ultrasonic search unit and a nondestructive material tester are described. The search unit comprises a housing generally formed of a relatively dense material, one end of which is hollow. An insert is securely connected over the hollow end. The insert has a relatively thick outer portion and a relatively thinner diaphragm portion. A transducer crystal is secured to the thick outer portion of the insert and is capable of being vibrated in the radial mode when excited with electrical energy. A contactor is secured to the diaphragm and adapted to be coupled to the workpiece under test.

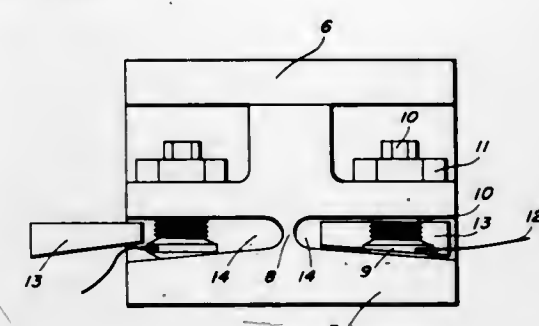
3,596,506 TOOL FORCE MONITOR

Andy R. Wilson, Jr., Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 25, 1969, Ser. No. 810,282
Int. Cl. G01l 5/00

U.S. Cl. 73-133

2 Claims



A device for use during single point tool turning operations on lathes to monitor and limit tool force with additional utility as an adaptive control sensing mechanism. Four compressible load cells produce electrical signals proportional to the force exerted upon them. The load cells are located and entrapped between two parallel plates that are connected by a pivot or flexure joint and the entire device is positioned between the tool and tool bar.

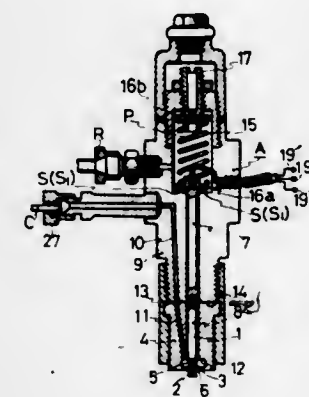
3,596,507 APPARATUS FOR DETECTING THE INJECTION TIMING OF AN INTERNAL COMBUSTION ENGINE

Yujiro Oshima, Ichinomiya-shi; Nobuyuki Mori, Nagoya-shi, and Kizo Hayakawa, Aichi-ken, all of, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan

Filed Aug. 12, 1969, Ser. No. 849,325
Claims priority, application Japan, Aug. 20, 1968, 43/59737
Int. Cl. G01m 15/00

U.S. Cl. 73-119 A

6 Claims



Apparatus for detecting the injection timing of an internal combustion engine, wherein the strain dislocation, or stress change of the injector spring, due to the lift of the needle valve of the injector when fuel is sprayed out of the injector to the ends of the cylinder, is converted to an electrical signal, said signal being used to trigger a stroboscopic lamp so as to flash synchronously with the lift of the needle valve of the injector, the stroboscopic lamp being positioned to illuminate a crank angle scale rotating with the engine crankshaft and a fixed index on the engine block, permitting observation of the crank angle, as if the engine were in static state.

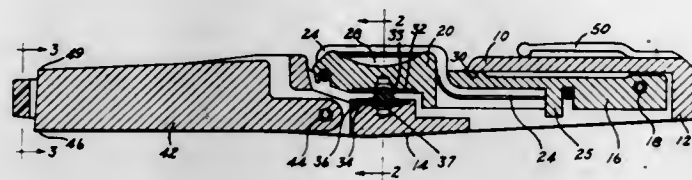
3,596,508

BELT TENSION MEASUREMENT DEVICE

Graham W. Howard, 5996 S. Crocker St., Littleton, Colo.
Filed Dec. 4, 1969, Ser. No. 882,166
Int. Cl. G011 5/06

U.S. Cl. 73-144

11 Claims



A tension measuring device particularly for automotive drive belts includes a body having a belt contact point, a lever pivotally mounted from one end of the body extends to a holding position providing a second belt contact point, and a second lever pivotally mounted from about the holding position extends to the opposite end thereof forming a third contact belt point. A predetermined pressure indicating means associated with the first lever indicates when a predetermined pressure is applied to the unit by the user while the unit is seated on a belt, and movement of the second lever on a scale indicates tension on the belt.

3,596,509

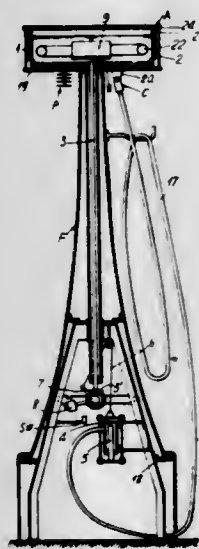
APPARATUS FOR MEASURING TIRE PRESSURES

Giulio Raffaelli, via del Duomo 12, Lucca, Italy
Continuation-in-part of application Ser. No. 624,805, Mar. 21, 1967. This application Aug. 18, 1969, Ser. No. 850,992
Claims priority, applications Italy, Mar. 26, 1966, June 3, 1966, Jan. 19, 1967 and Aug. 20, 1968, 16027/66, 18647/66, 32902/67, 32911/68

U.S. Cl. 73-146.3

Int. Cl. B60c 23/02

6 Claims



A pressure gauge for communication with the air in a tire including a graduated circular scale rotatable with respect to a pointer in response to the pressure in the tire. The pointer is operatively connected to a galvanometer controlled by a circuit having two thermistors responsive to the temperatures of the air in the tire and the ambient air respectively.

3,596,510

RESONANT INFRASONIC GAUGING APPARATUS

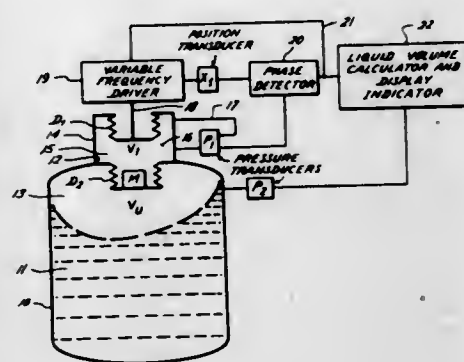
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Bernard Siegel, 4200 Artesia, Torrance, Calif., and Seymour Lieberman, 3826 Hauser, Los Angeles, Calif.
Filed Feb. 4, 1970, Ser. No. 8,497
Int. Cl. G01f 23/28

U.S. Cl. 73-149

6 Claims

An apparatus for determining the quantity of liquid in a closed reservoir containing a liquid and an ullage gas. An enclosed gas filled cavity communicates with the reservoir through a common elastomeric diaphragm surface. Infrasonic

pressure signals directed into the cavity from a variable frequency driving means cause the ullage gas and the diaphragm to resonate at a frequency proportional to the



volume of ullage gas in the reservoir. The ullage volume and therefore the remaining liquid volume is proportional to the ullage gas pressure and the resonant frequency.

3,596,511

METHODS AND APPARATUS FOR MONITORING AND CONTROLLING A TOOL IN A BOREHOLE

Herbert J. Hart, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 802,708, Dec. 31, 1968, abandoned
Filed July 15, 1969, Ser. No. 857,252
Int. Cl. E21b 49/06

U.S. Cl. 73-153

30 Claims



The particular embodiment described herein as illustrative of the invention shows methods and apparatus for use with a core slicing tool in a borehole. Various circuits for monitoring and controlling the core slicing operation are disclosed, as well as circuits for deriving directional and depth control information. Means are disclosed for transmitting information from a plurality of information sources in the tool on one conductor pair. Also, automatic bias control means at the surface of the earth are shown for accurately detecting the transmitted information. Power can be selectively applied to either the core slicing circuits or the directional and depth circuits on the same conductor set by providing two different power modes. Means in the tool are responsive to one or the other power mode to switch various circuits in the tool onto various cable conductors. Also, a plurality of core slicing operations are controlled from the surface of the earth on one conductor pair by utilizing switching means responsive to a plurality of current logic states. Additionally, a method of determining the overload operating point of a motor in a tool in a borehole is disclosed.

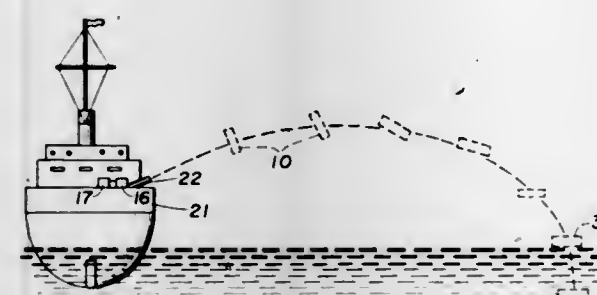
3,596,512

EXPENDABLE AIR PROBE

Richard W. Bixby, Little Compton, R.I., assignor to The Slipican Corporation, Marion, Mass.
Filed Jan. 5, 1970, Ser. No. 641
Int. Cl. G01d 1/00

U.S. Cl. 73-170 A

5 Claims



A device for measuring the characteristics, such as temperature and humidity, of the air above a water surface comprises a probe which is launched in a trajectory over the body of water. The probe is connected to a measuring station by a conducting wire. The measuring probe is designed to have a low speed during descent, and may be in the form of a rotor, or be provided with a drag device such as a parachute to slow its descent.

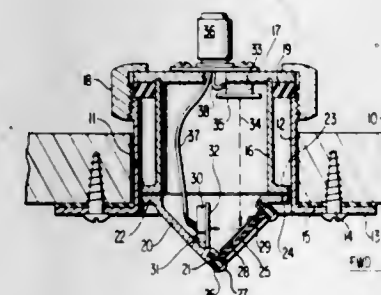
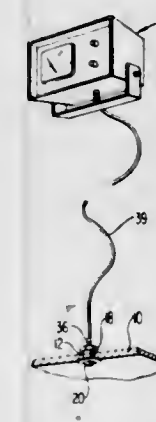
3,596,513

SPEEDOMETER FOR BOATS

Gary O. Sandstedt, Kansas City, Mo., assignor to Roger H. Finch, Silver Spring, Md.
Filed Jan. 27, 1970, Ser. No. 6,237
Int. Cl. G01c 21/00

U.S. Cl. 73-181

14 Claims



A boat speedometer embodies a radiant energy source and a receiver means which is responsive to radiant energy and produces an output. A speed indicator means is coupled to the receiver means. Another means responsive to water pressure caused by movement of the boat in the water produces changes in the response effect of the receiver means in accordance with speed variations of the boat.

3,596,514

POWER METER FOR MEASUREMENT OF RADIATION

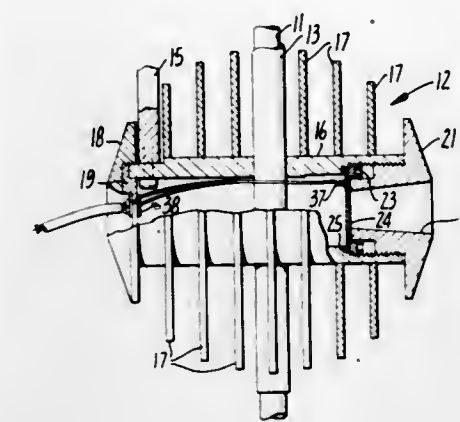
Wayne S. Mefford, Palo Alto; Robert J. Rorden, Los Altos, and James L. Hobart, Palo Alto, all of Calif., assignors to Coherent Radiation Laboratories, Inc., Palo Alto, Calif.
Filed Jan. 2, 1968, Ser. No. 695,160
Int. Cl. G01k 17/00

U.S. Cl. 73-190

6 Claims

A power meter for measuring radiation including a radiation target disc, a heat sink for cooling the periphery of the

disc, and a circumferentially extending array of radial thermocouples for measuring the total power of energy incident



on the central area of the disc as a function of the sum of radial temperature gradients of the disc.

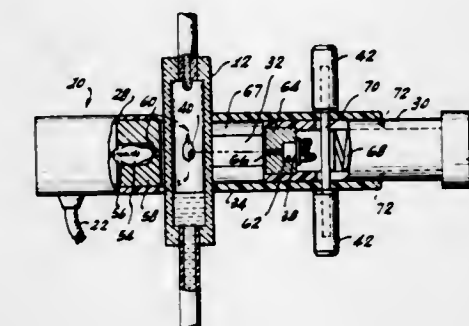
3,596,515

DROP FLOW SENSOR AND RESILIENT CLAMP THEREFOR

Richard A. Cramer, La Jolla, Calif., assignor to Ivac Corporation, La Jolla, Calif.
Filed Nov. 27, 1967, Ser. No. 685,928
Int. Cl. G01p 5/00

U.S. Cl. 73-194 R

10 Claims



Apparatus for monitoring drop flow in the drip chamber of an intravenous set and including a sensor housing containing a reference light source located a fixed distance from a photocell to define a fixed optical sensing gap therebetween, with a reference light beam normally impinging upon the photocell. The housing can be selectively clamped upon the drip chamber with the drip chamber positioned within the sensing gap to intercept the reference beam. A falling drop of fluid within the drip chamber interrupts the reference beam, and the variation in the electrical response of the photocell is communicated to an indicator to indicate the presence of a drop. A spring-biased sleeve clamps the housing onto any size drip chamber without altering the size of the sensing gap. The clamping sleeve is provided with rods which extend radially outward from opposite sides of the sleeve and, in conjunction with one end of the housing, define a syringe-type grip for positioning the sleeve.

3,596,516

METHOD AND APPARATUS FOR MEASURING STEAM PROPERTIES

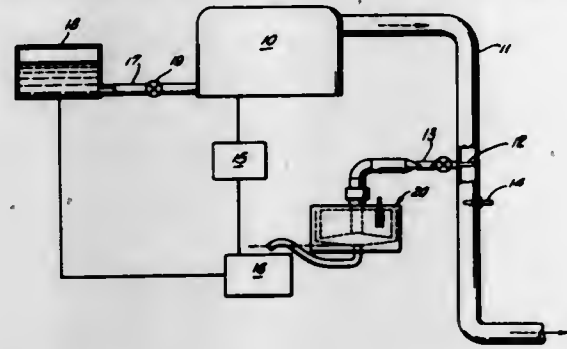
Stewart Haynes, Jr., and Fuad T. Saadeh, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.
Division of Ser. No. 686,931, Nov. 30, 1967
Filed Mar. 27, 1969, Ser. No. 839,102
Int. Cl. G01k 17/00

U.S. Cl. 73-190 R

10 Claims

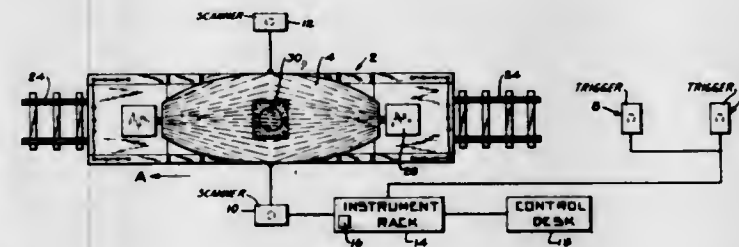
A method of and apparatus for determining the properties of steam by measuring the temperature thereof, adiabatically

expanding a sample of the steam, separating the liquid from the expanded sample of steam, and comparing the chloride



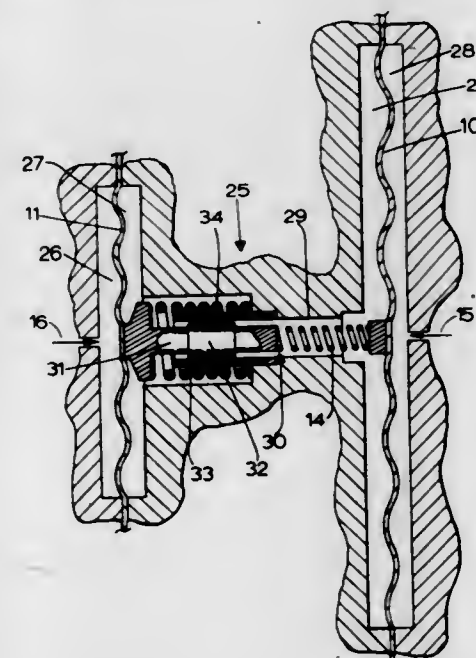
cooling water is circulated. Gas flows through the tube at a predetermined rate past two temperature measuring thermocouples in the duct. By reading the temperature at the two thermocouples, the temperature of the gas entering the tube may be determined.

3,596,519
HOT SPOT DETECTOR SYSTEM
Fred Blonder, West Palm Beach, and Theodore H. Elworth, North Palm Beach, both of Fla., assignors to Molecular Research, Inc., Palm Beach, Fla.
Continuation of application Ser. No. 685,465, Nov. 24, 1967.
This application Jan. 21, 1970, Ser. No. 870,299
Int. Cl. G01J 5/02; G01k 13/06
U.S. Cl. 73-355 4 Claims



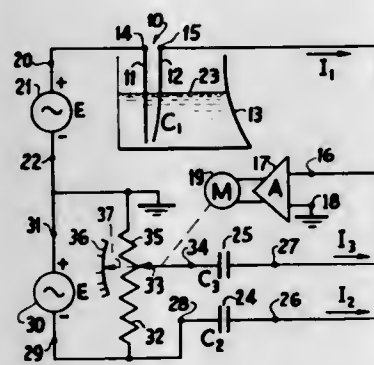
A spot detecting system for automatically measuring and recording said temperature levels of the surface of a container to anticipate breakthroughs in the lining of the container in order to properly schedule lining maintenance. The spot detecting system includes a triggering means for actuating the system, thermal radiation sensors for detecting the temperature levels of various areas of the outer surface of the container, recording means connected to the sensors for printing a temperature level profile of the container, and an alarm means connected to the system for indicating possible breakthroughs in the container.

3,596,520
SPRING COMPENSATED DIFFERENTIAL PRESSURE CELL
Philip H. Sanford, Walpole, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed Aug. 4, 1969, Ser. No. 847,080
Int. Cl. G011 7/08
U.S. Cl. 73-407 14 Claims



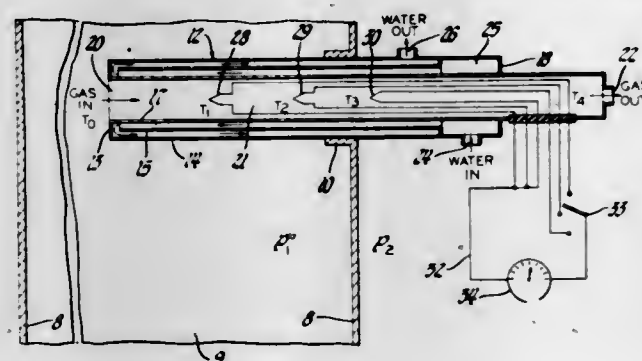
A differential fluid pressure capsule. The capsule has a chamber with diaphragms as opposite walls. The diaphragms have different effective areas, one large, one small. A spring connection joins the diaphragms. The chamber is filled with substantially incompressible liquid. An application is in temperature compensation. Temperature change results in fill liquid volume change and consequent relieving movement of

3,596,517
CAPACITANCE-TYPE FLUID MEASURING APPARATUS
Frederick L. Ryder, 50 Harrison Ave., Lynbrook, N.Y.
Filed Mar. 10, 1969, Ser. No. 805,455
Int. Cl. G01f 23/26
U.S. Cl. 73-304 4 Claims



Measuring apparatus includes measuring condenser immersible in fluid in a container, dielectric constant K and density D of fluid being related by equation:
 $(K-1)/D = A + B(K-1)$
Electrodes of condenser are spaced and shaped so that dry capacitance of portion of condenser which will be wetted by fluid volume V is a function g of V . Function G is selected so that when multiplied by function of D resulting from solution of above equation for $K-1$, a function results dependent upon value of DV alone, regardless of separate values D and V .

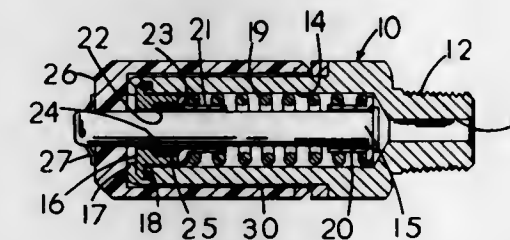
3,596,518
GAS TEMPERATURE MEASUREMENT
John W. Kirkpatrick, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed June 17, 1968, Ser. No. 737,457
Int. Cl. G01k 7/02, 13/02
U.S. Cl. 73-341 10 Claims



A device for measuring the temperature of very hot gas comprises a tube which has a double wall through which

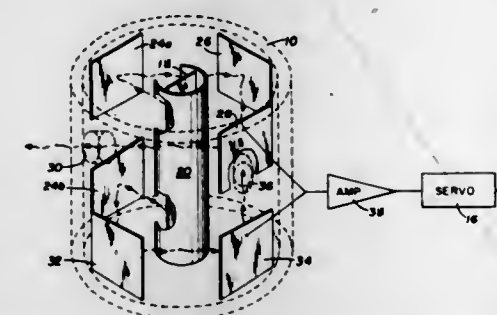
the large diaphragm, while the small diaphragm remains without movement. External differential pressure change moves both diaphragms and signal output is from movement of the small diaphragm. Application examples are motion systems and force balance systems.

3,596,521
LUBRICATING MEANS FOR PRESSURE INDICATOR
Billy Lynn Guy, Lexington, Ky., assignor to Unibraz Corporation, New Rochelle, N.Y.
Filed Nov. 18, 1968, Ser. No. 776,685
Int. Cl. G011 7/16
U.S. Cl. 73-419 1 Claim



A pressure indicator includes a body having movable means therein with which sealing means cooperates to determine the area of the movable means responsive to fluid introduced into the body. Lubricating means is disposed adjacent the sealing means and lubricates both the sealing means and a movable surface with which the sealing means cooperates.

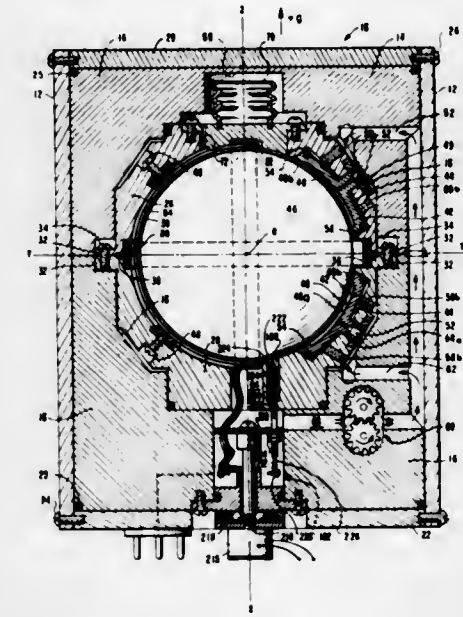
3,596,522
SECOND SOUND MEASUREMENT OF ABSOLUTE ROTATIONAL MOTION
Donald L. Ensley, San Leandro, Calif., assignor to Harvest Queen Mill & Elevator Co., Dallas, Tex.
Filed Apr. 5, 1968, Ser. No. 719,133
Int. Cl. G01p 3/00
U.S. Cl. 73-505 16 Claims



A method and apparatus for measuring absolute rotational motion by producing entropy waves in liquid helium II filling a cylindrical container rotationally mounted with respect to a fixed reference. A carbon resistance heater generates an entropy wave beam to a beam splitter where it is divided into two beams progressing oppositely through the liquid helium II at a speed independent of the angular velocity of the container. Reflectors attached to the container reflect the two oppositely directed beams to a detector station where the sense and magnitude of any phase difference between the beams actuates a phase detector. The phase detector produces a signal proportional to the sense and magnitude of the phase difference to a servo loop coupled to adjust the rotational motion of the container.

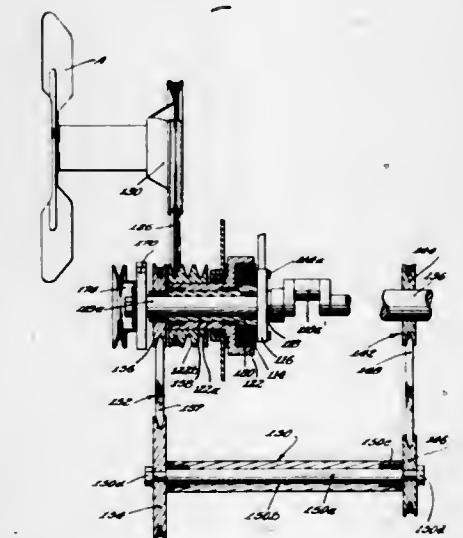
3,596,523
FULL-FREEDOM GIMBALESS GYROSCOPE SYSTEM
Richard B. Clark, Granada Hills, Calif., assignor to Whitaker Corporation, Los Angeles, Calif.
Filed Dec. 4, 1967, Ser. No. 687,563
Int. Cl. G01c 19/28
U.S. Cl. 74-5.6 30 Claims
A gyroscope system having a gyro rotor completely enclosed within a spherical float that is supported within a hol-

low spherical cavity by a flotation fluid and a spherical arrangement of hydrostatic bearing pads. The gyroscope rotor is mounted on a spin axle by a duplex bearing arrangement to be spun by a motor also within the float. A set of orthogonally arranged sensing coils are mounted within the spherical cavity to surround the float. Flux emanating from magnetic pole pieces carried on the rotor cut the coil windings to generate output signals, the relative amplitude and phasing of which is indicative of the angular displacement of the rotor spin axis from each of the coil axes. A caging mechanism maintains the float in an initial position and may be used to supply power from an external source to accelerate the spin motor. After uncaging, spin motor power is supplied either from batteries carried within the float or from an external source which supplies power through a capacitive or conductive coupling between the conductive surface of the hydrostatic bearing pads and adjacent circular conductive segments at either end of the float.



ment of the rotor spin axis from each of the coil axes. A caging mechanism maintains the float in an initial position and may be used to supply power from an external source to accelerate the spin motor. After uncaging, spin motor power is supplied either from batteries carried within the float or from an external source which supplies power through a capacitive or conductive coupling between the conductive surface of the hydrostatic bearing pads and adjacent circular conductive segments at either end of the float.

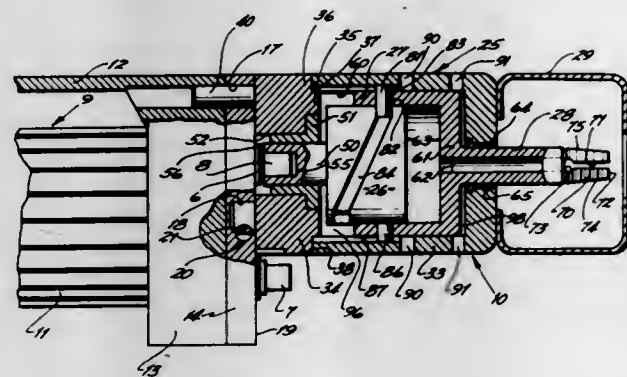
3,596,524
ENGINE ACCESSORY DRIVE SYSTEM
Harvey A. Cook, Cleveland, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed Jan. 20, 1970, Ser. No. 4,321
Int. Cl. F16h 37/00; F01p 7/02
U.S. Cl. 74-15.4 8 Claims



Efficient operation of vehicle power source or engine accessories over a smaller and more compatible speed range i.e., at a higher speed than the speed of the power source when the power source is at low speed and a lower speed than the power source when the power source is at high speed, is made possible by an accessory drive system which includes the power source interconnected between a first gear means and a second gear means wherein the second

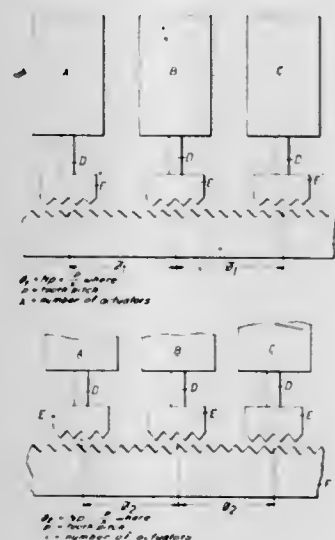
gear means serves to rotate a drive shaft at a speed which will usually be different from the power source and wherein the first or planetary gear means includes first, second and third elements with the power source being directly connected to the first or planet carrier element, the second drive shaft being connected to the second or sun gear element by means of a power transmitting assembly and the accessory power takeoff means cooperating with the third or ring gear element.

3,596,525
PORTABLE TOOL ATTACHMENT
George M. Niesz, Cincinnati, Ohio, assignor to F. L. Cappaert d/b/a Cappaert Enterprises, Vicksburg, Miss.
Filed Aug. 12, 1969, Ser. No. 849,479
Int. Cl. F16h 25/16
U.S. Cl. 74-57 6 Claims



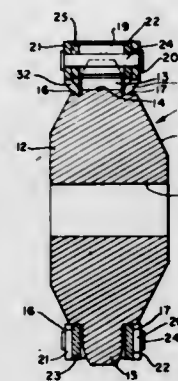
A rotary to linear tool attachment adapted to be secured to an underwater power tool so as to enable a rotary output shaft of the tool to drive a reciprocating output shaft of the adapter. Specifically, the adapter enables the rotary output shaft of a power tool to drive rotary saws, chippers, descalers or hammers for underwater applications.

3,596,526
MEANS FOR PRODUCING RELATIVE MOVEMENT BETWEEN TWO BODIES
Maurice Woolmer Gribble, 18, Ley Hey Road, Marple, Cheshire, England
Filed Jan. 7, 1969, Ser. No. 789,459
Claims priority, application Great Britain, Jan. 13, 1968, 2028/68
Int. Cl. F16h 21/44
U.S. Cl. 74-110 5 Claims



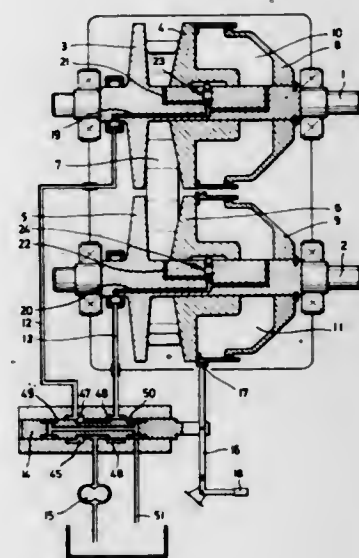
Means for moving one body relative to another comprises a main toothed rack carried on one body and at least three actuators carried on the other body. Each actuator carries a stub rack of similar form to the main rack and is operable to force the stub rack into engagement with the main rack. The spacing between the actuators causes the bodies to move relative to one another in the required direction.

3,596,527
CHAIN AND SPROCKET ASSEMBLY
Alfred Den Besten, Fulton, Ill., assignor to Joseph T. Chester and Richard A. Kummcrer, Fulton, Ill., part interest to each
Filed May 28, 1969, Ser. No. 828,591
Int. Cl. F16h 7/06, 55/30; F16g 13/02;
U.S. Cl. 74-229 5 Claims



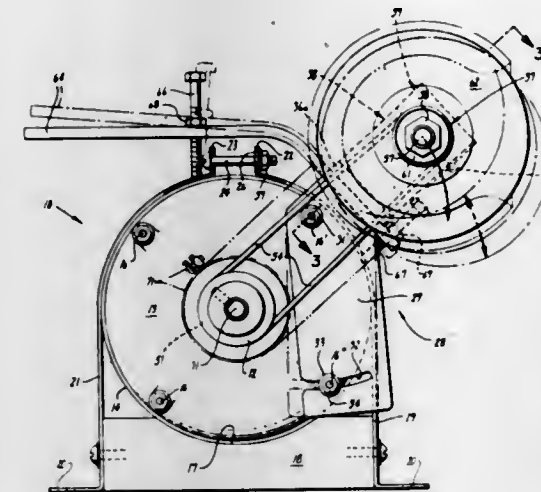
A chain and sprocket drive in which the chain is composed of a plurality of joined U-shaped links and the sprocket has annular shoulders on opposite sides of its teeth on which the sides of the links may ride so as to retain the bight portion of the links out of contact with the base portions of the teeth.

3,596,528
INFINITELY VARIABLE CONE PULLEY TRANSMISSION
Otto Dittrich, and Herbert Kirchner, bad Homburg Vor Der Hohe, Germany, assignors to Reimers Getriebe A. G., Zug, Switzerland
Filed Dec. 22, 1969, Ser. No. 887,048
Claims priority, application Germany, Dec. 24, 1968, P 18 16 949.8
Int. Cl. F16h 55/22; B60k 21/10
U.S. Cl. 74-230.17 F 14 Claims



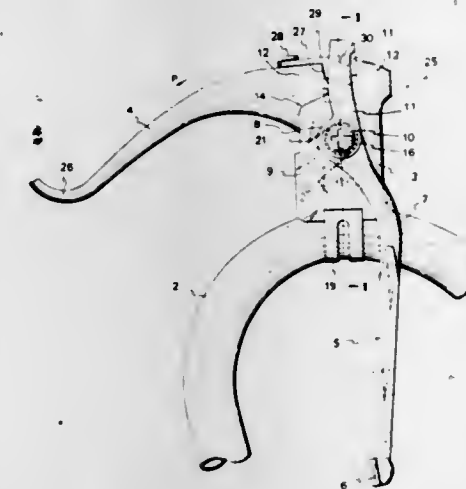
A fully hydraulic control mechanism for an infinitely variable cone pulley transmission in which the axially movable conical disc of each pulley is pressed against an endless belt or chain running between the pulleys with a different contact pressure than the corresponding disc of the other pulley. The control mechanism acts at the same time upon the axially movable discs on the driving and driven shafts of the transmission, and the contact pressure of all discs is load-responsive as well as speed-ratio progressive.

3,596,529
QUICK CHANGE MOTOR-MOUNTED ARBOR MOUNTING ASSEMBLY AND REPLACEABLE UNIT THEREFOR
Homer G. Allen, 2726 Haste St., Berkeley, Calif.
Filed Feb. 2, 1970, Ser. No. 7,509
Int. Cl. F16h 7/10; B24b 7/00
U.S. Cl. 74-242.15 R 9 Claims



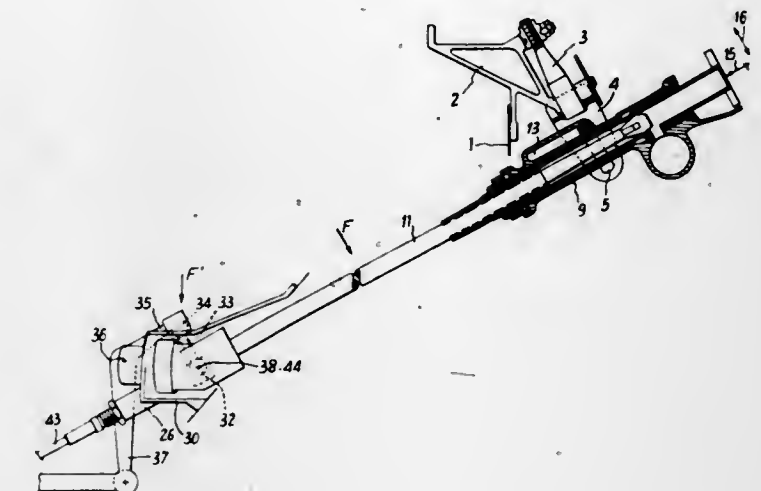
A readily releasable means for holding and operating an arbor construction of a type carrying a pulley and tool to be cyclically driven from an electric motor assembly includes a mounting base providing a seat to receive the motor. The motor can be rotatably positioned relative to the seat for proper positioning of the tool. The arbor rests in a readily releasable bearing block while means are provided to align the sheaves of the arbor pulley and a drive pulley mounted on the motor shaft so that the two sheaves lie in the same plane.

3,596,530
BRAKE OPERATING DEVICE
Kiyokazu Yoshigai, 9-15 Wakaeminami-machi 1-chrome, Higashiosaka-shi, Osaka-Ku, Japan
Filed July 8, 1969, Ser. No. 839,861
Claims priority, application Japan, Aug. 10, 1968, 43/68679
Int. Cl. G05g 11/00
U.S. Cl. 74-480 R 3 Claims



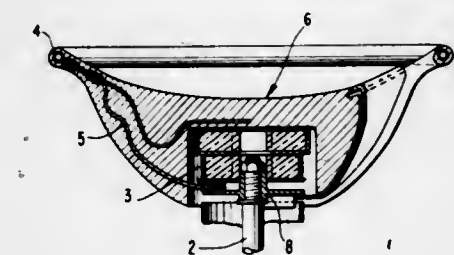
A drop-type bicycle handle is provided with hand operating brake means having a conventional brake lever member pivoted to a bracket secured upon the handle. Said lever member has a stepped portion formed at a portion thereof which abuts against the bracket and an engaging member is pivotally secured to the lever member for releasable engagement with the stepped portion. Upon release of this engaging member from the stepped portion, the lever member is rotated further so as to further release the release wire.

3,596,531
TELESCOPIC STEERING COLUMN GEAR-CHANGE MECHANISM
Albert Grosseau, Chaville, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France
Filed Sept. 23, 1969, Ser. No. 860,358
Claims priority, application France, Oct. 8, 1968, 3564
Int. Cl. G05g 13/04
U.S. Cl. 74-484 5 Claims



A steering column gear-change linkage is capable of accommodating adjustments in two perpendicular directions of a steering column which is telescopic. A support arrangement movable with respect to a fixed support, such as an automobile scuttle incorporates slides having slots extending in said two perpendicular directions. Movement in a vertical plane about a pivot axis is accommodated at a position remote from the steering column head by a slide cooperating with splines on a control tube, angular movement about the longitudinal axis of which is effected by a control lever. The slide is rigid with a lever connected by a linkage with the gearbox. Movement of the control lever axially of the control tube serves to control the gearbox selector rods through a rod coaxial with the control tube and a bowden cable.

3,596,532
SAFETY STEERING WHEEL FOR MOTOR VEHICLES
Karl Wilfert, Gerlingen-Waldstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Apr. 18, 1969, Ser. No. 817,326
Claims priority, application Germany, Apr. 18, 1968, P 17 55 247.5
Int. Cl. B62d 1/04
U.S. Cl. 74-552 4 Claims



A safety steering wheel for motor vehicles in which the steering wheel rim, the steering wheel spokes and the hub as well as the deformation member are surrounded with a relatively soft elastic synthetic resinous material and in which a large impact surface is provided on the inside of the steering wheel rim which preferably does not extend significantly below the plane of the steering wheel rim; the steering wheel spokes are elastic and may be made, for example, of band steel.

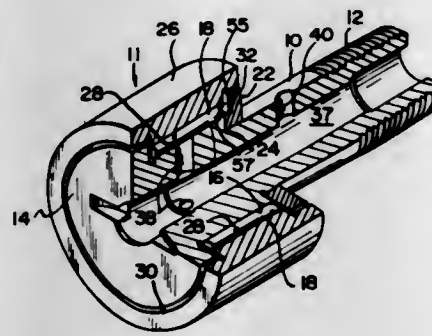
3,596,533

LUBRICATING WASHERS FOR REDUCING FRICTION BETWEEN MOVING PARTS IN A CAM FOLLOWER
George C. Nightingale, Valparaiso, Ind., assignor to McGraw-Hill Manufacturing Company, Inc., Valparaiso, Ind.
Continuation-in-part of application Ser. No. 675,473, Oct. 16, 1967, now abandoned. This application Aug. 27, 1969, Ser. No. 857,284

Int. Cl. F16h 53/08

U.S. Cl. 74-569

7 Claims



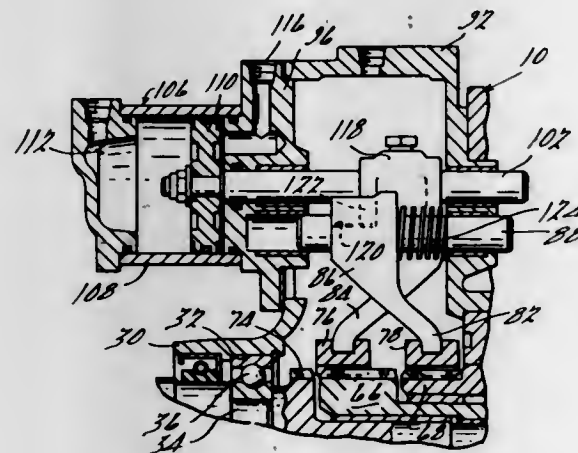
An annular nylon washer is inserted between mutual surfaces formed by the integral end flange of the stud of a cam follower-type bearing and the face of a counter bore in the axial end of the outer racing in which it is fitted. A similar washer is inserted between the mutual surfaces formed by the annular end plate and the face of the counterbore in which it is mounted. The ring is self-lubricating and acts to reduce the sliding friction between these surfaces to prolong the life of the bearing.

3,596,534

POWER TRANSFER GEAR CASE
John S. Logan, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Apr. 28, 1969, Ser. No. 819,590
Int. Cl. F16h 37/06; F16d 21/02

U.S. Cl. 74-655 T

1 Claim



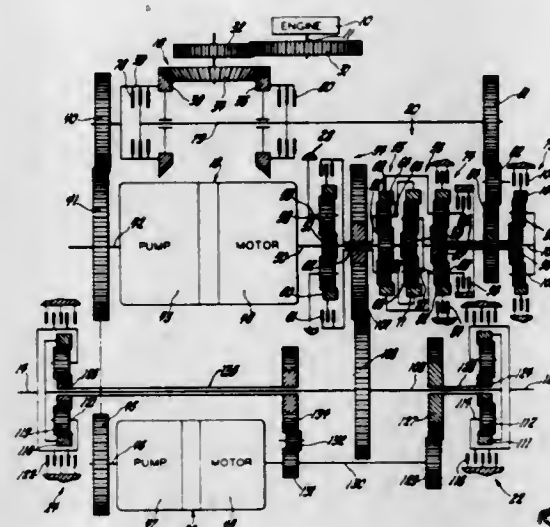
Torque transfer gearing for distributing driving torque from the power shaft of a main power transmission mechanism for a wheeled vehicle to each of two axle shafts, said gearing comprising a shiftable coupling for establishing and disestablishing a driving connection between a driven gear and each of the two drive shafts for the vehicle, said coupling comprising a clutch sleeve for drivably connecting the driven gear to the separate drive shafts regardless of the presence of driving torque on one of the drive shafts.

3,596,535

TRANSMISSION PROVIDING HYDROSTATIC DRIVE AND HYDROMECHANICAL DRIVE
James C. Polak, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 4, 1969, Ser. No. 855,147
Int. Cl. F16h 37/06, 47/04

U.S. Cl. 74-720.5

8 Claims



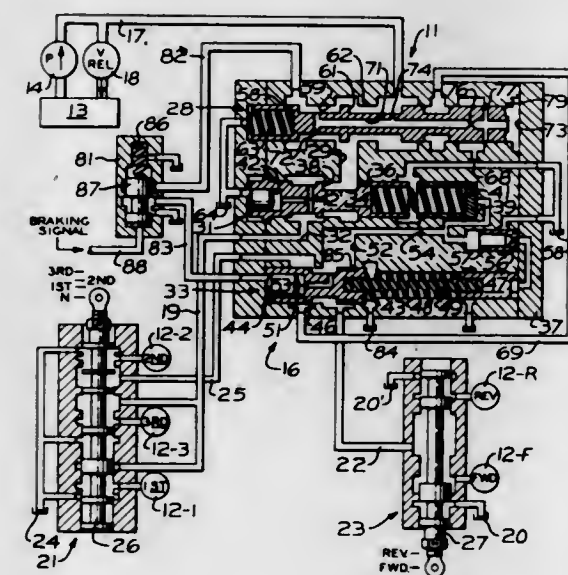
A transmission having a hydrostatic propulsion drive unit combined with planetary gearing to provide in both forward and reverse a full hydrostatic drive in a low speed range and three hydromechanical drives in successively higher speed ranges with synchronous drive establishing device shifting, the transmission with dual output also having a separate hydrostatic steer drive unit combined with the gearing to provide steering.

3,596,536

TRANSMISSION SHIFT CONTROL WITH CONDITIONAL AUTOMATIC NEUTRALIZING MEANS
James G. Starling, Pekin, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Oct. 24, 1969, Ser. No. 869,020
Int. Cl. F16h 57/10; F16d 13/00

U.S. Cl. 74-753

6 Claims



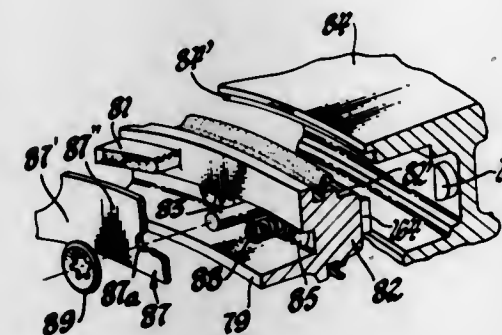
A compact simplified safety valve functions to inactivate fluid operated drive conditioning clutches of a vehicle transmission if the operating fluid pressure has remained below a particular level for a predetermined time and the control lever is not at the neutral position. This prevents the transmitting of drive through the transmission if the vehicle engine should be started up while the transmission controls are at a setting other than neutral.

3,596,537

CLUTCH PISTON AND RETRACTION SPRING SUBASSEMBLY AND METHOD OF TRANSMISSION ASSEMBLY
Erkki A. Koivunen, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed June 11, 1969, Ser. No. 832,168
Int. Cl. F16h 15/56; F16d 55/10, 25/06

U.S. Cl. 74-759

16 Claims



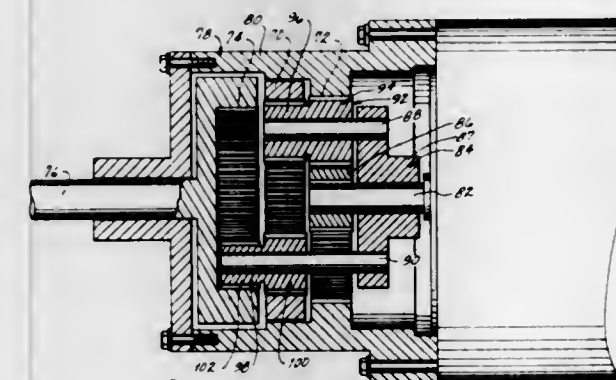
This transmission has multiratio drive planetary gearing and a plurality of fluid actuators for selectively engaging a plurality of friction devices to engage the ratio drives. A central web splined to the transmission housing has oppositely facing fluid actuators each having an annular piston in a cylinder. Each piston has an inner annular engagement seat and an outer interrupted annular engagement seat for engaging the brake plates with retraction springs and fastener posts located between the seats. A retainer plate has an annular portion between the seats engaging the springs, an aperture for receiving the fastener posts and ear portions extending into engagement with the web. Snap rings hold the retainer plates and web against axial movement. A fastener on each fastener post holds the retainer plate, piston and springs in assembled position for assembly into the cylinder of the transmission.

3,596,538

SPEED CHANGING DEVICE
Arthur R. Braun, 508 N. Cary-Algonquin Road, Cary, Ill.
Filed Dec. 5, 1968, Ser. No. 781,510
Int. Cl. F16h 1/28

U.S. Cl. 74-801

5 Claims



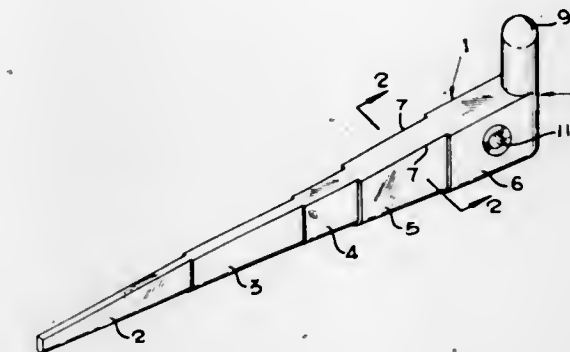
A speed changing device comprising a stationary female ring gear, a rotating female ring gear having a different pitch diameter and in axial alignment with the stationary ring gear, and a drive gear system which rides about the stationary ring gear while simultaneously engaging and rotating the rotating ring gear. Speed reduction or amplification is accomplished by the difference in pitch diameters and resultant number of teeth of the ring gears and, in one embodiment, speed reduction is further accomplished by a planetary drive gear system.

3,596,539

TAPERED DRIFT PINS AND METHODS OF MAKING AND USING THE SAME
Russell L. Gollaber, 604 Baden Avenue, St. Louis, Mo.
Filed June 9, 1969, Ser. No. 831,356
Int. Cl. B25b 27/00

U.S. Cl. 81-3

1 Claim



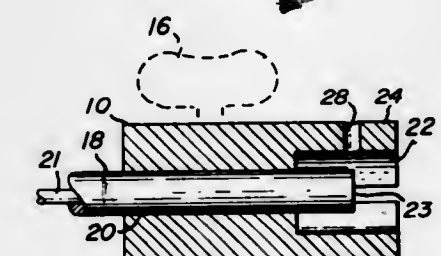
A tapered drift pin comprising an elongated member provided with a plurality of tapered sections for use with various sized machines.

3,596,540

END DRESSING APPARATUS FOR SEMI-RIGID COAXIAL CABLES
Donald F. Hooper, Ben Lomond, Calif., assignor to Itek Corporation
Filed Dec. 20, 1968, Ser. No. 785,700
Int. Cl. H02g 1/12

U.S. Cl. 81-9.5

10 Claims



An end dressing apparatus for preparing the ends of small diameter semirigid coaxial cable for receiving a precision end fitting. The apparatus includes a cable clamping and cutting tool alignment means and a pair of cutting tools for removing a portion of the outer conductor and insulator from the end of a coaxial cable and shaping the exposed end of the inner conductor thereof.

3,596,541

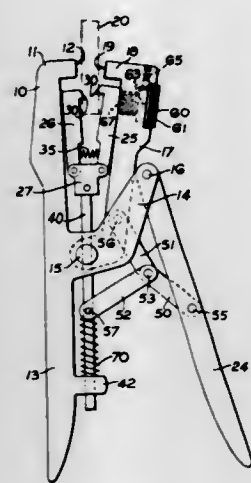
WIRE STRIPPING TOOLS
Zdzislaw Bieganski, c/o Apem Works, St. Albans Road, Watford, Hertfordshire, England
Filed Oct. 31, 1968, Ser. No. 772,101
Claims priority, application Great Britain, Nov. 4, 1967, 50228/67
Int. Cl. H02g 1/12; B23p 19/04; B26b 17/02

U.S. Cl. 81-9.5 A

3 Claims

The invention provides a wire stripping tool having cutting blades for part-severing the sheath which is to be stripped

from the wire, each blade being fabricated of a set of laminations in face-to-face contact so that the laminations can col-



lectively accommodate themselves to the cross-sectional shape of the cable to achieve a better cut.

3,596,542

PNEUMATIC PUSH-START, TORQUE SHUT-OFF SCREW DRIVER

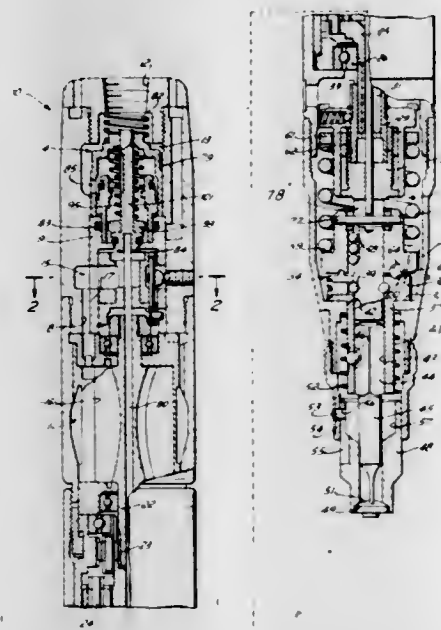
William K. Wallace, Barneveld, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.

Filed May 1, 1969, Ser. No. 820,749

Int. Cl. B25b

U.S. Cl. 81-52.4

9 Claims



A pneumatic screw driver, the operation of which is automatically started when it is pressed against the work and automatically interrupted when the work has been driven to a predetermined degree of tightness, and the mechanism of which is automatically restored to normal condition when the tool is removed from the work. A clutch assembly which is slidable relative to the tool housing when the tool is pressed against the work, actuates a control valve mechanism by push rod means to cause live air flow to start operation of the tool. During the time the tool is pressed against the work, a torque releasable overriding cam clutch is adapted, upon delivery of a predetermined maximum torque to the work, to disengage and cause the push rod means to actuate the control valve mechanism to interrupt operating air flow to the motor. Whenever the tool is removed from the work, the clutch assembly and valve mechanism automatically return to normal condition. The invention is adapted to be incorporated in a linear type housing as well as in a piston grip type housing.

3,596,543 PRE-SET TORQUE MEASURING DEVICE OF THE BEAM TYPE

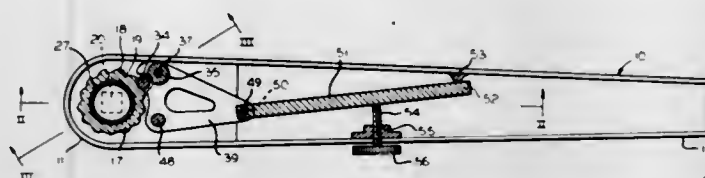
Talmage O. Green, Schaumburg, Ill., assignor to Snap-on Tools Corporation, Kenosha, Wis.

Filed Sept. 8, 1969, Ser. No. 855,819

Int. Cl. B25b

U.S. Cl. 81-52.4

10 Claims



This disclosure embodies the concept of utilizing mechanical expedients comprising torque turning load resisting flexure instrumentalities, other than conventional springs, between the work engaging member and the handle member constituting a preset torque measuring wrench. The work engaging and handle members are operatively connected by combined roller and flex beam components which are calibrated to offer a predetermined turning load resistance to roller slip lever engagement measured by the flex beam roller carrier in confronting relation to a work engaging fluted revolvable member and the turning handle member. The beam flex may be constant or adjustable by means of a calibrated and adjustable fulcrum disposed in relation to the flex beam.

3,596,544

MACHINE TOOL CUTTING INDICATION AND CONTROL

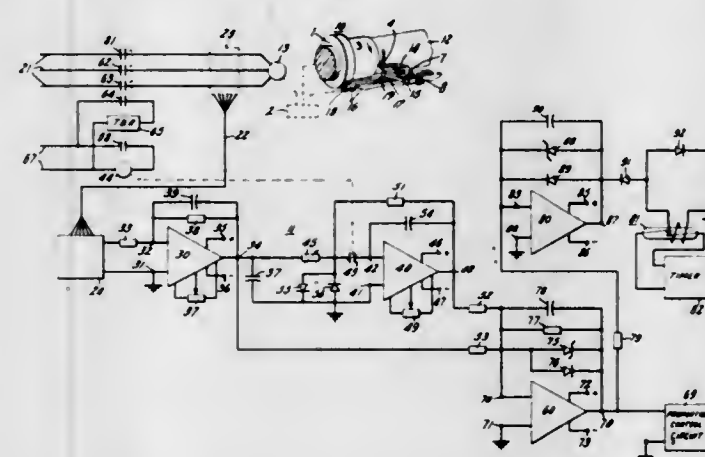
Malcolm H. Pitman, Scotia, N.Y., assignor to General Electric Company

Filed Feb. 28, 1969, Ser. No. 803,203

Int. Cl. B23b 3/06

U.S. Cl. 82-1 R

7 Claims



Circuit means are provided for sensing the no load power into an electrical motor for driving machine tool and storing an electrical signal representative thereof. Power input in response to loading of said motor is also sensed. Circuit means are provided responsive to the difference in the no load and load power signals to provide a resultant signal varying in accordance with the magnitude of the difference. The existence of the signal indicates contact of the cutting tool with the workpiece and the magnitude of such signal indicates the degree of engagement.

3,596,545

AUTOMATIC MACHINE TOOL FOR WORKING ELONGATED MATERIAL IN INCREMENTS

Horst E. Eisenhardt, Weinsberg, Germany, assignor to Conver-Maschinenbau GmbH & Co. KG

Filed June 11, 1969, Ser. No. 832,087

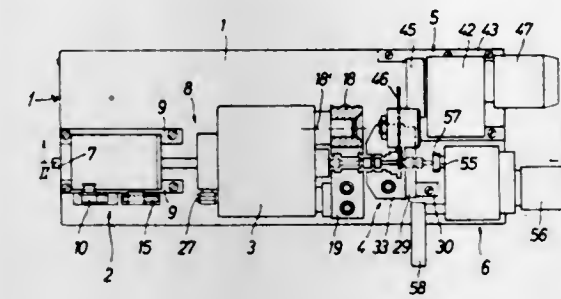
Int. Cl. B23b 13/02

U.S. Cl. 82-2.5

9 Claims

Automatic lathe for working elongated material in increments. The lathe has a feed head at one end, a head stock intermediate its ends carrying rotating cutting tools and a collet

for holding the material from rotation, a tail stock spaced in advance of the head stock and having gripping jaws conforming to and gripping the formed material for severing by a cut-off tool. The feed head grips and advances the material along the head stock and tail stock. The cutting tools carried by the head stock rotate about the material and form an increment of the material in a single forming operation. The



tail stock carries gripping jaws movable inwardly in parallel planes in synchronism to grip and hold the material from rotation for the cutting off of a complete article. A second tail stock having gripping jaws may be spaced in advance of the first tail stock, to cooperate with the jaws in the first tail stock to further hold the material during a severing operation.

3,596,546

MACHINE TOOL RESETTNG APPARATUS

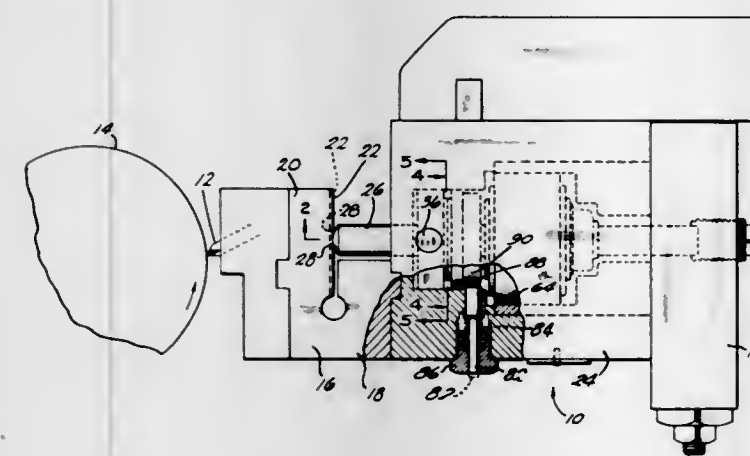
John L. van den Kleboom, St. Clair Shores, Mich., assignor to La Salle Machine Tool, Inc., Warren, Mich.

Filed Sept. 11, 1968, Ser. No. 759,081

Int. Cl. B23b 21/00

U.S. Cl. 82-24

3 Claims



Apparatus for periodically moving a machine tool, such as a cutting tool, to compensate for tool wear and automatically maintain a preestablished position of the tool within predetermined tolerance limits. In response to a signal indicating the necessity for resetting the cutting tool to compensate for wear, a cam and cam follower structure are actuated to provide for adjustable movement of the tool through a predetermined incremental distance. The cam and cam follower structure are arranged to prevent automatic adjustment of the tool beyond a predetermined limit, and a signal is given when this predetermined limit is reached so that the apparatus of this invention can be reset.

3,596,547

CUTTING TOOL

John D. Alexander, Hawthorne, N.J., assignor to Lever Manufacturing Corporation, Paterson, N.J.

Filed Oct. 24, 1969, Ser. No. 869,257

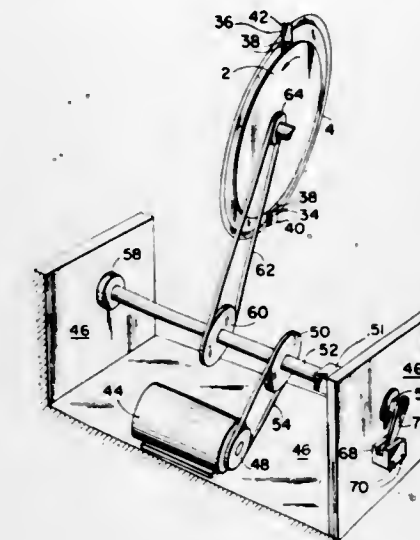
Int. Cl. B23b 5/14

U.S. Cl. 82-53

27 Claims

An improved rotary cutting tool for use in cutting or slicing rolls of a material is a combination gouge device for removing waste material formed by a double edged cutting blade and a cutting device for slicing or cutting a core ele-

ment upon which said material is rolled. Positioning means are provided to insure that the gouging device does not contact the core element during the final slicing operation. In one embodiment of the invention the basic blade has a beveled cutting edge and contains at least one gouging tooth inset into the blade periphery which is extended into its



operational position by centrifugal force when the tool is rotated. A limit switch operating in connection with a vane element and a braking means affixed to the driving mechanism for the blade may also be used to stop the rotation of the tool in the desired position for severing the central core element of the roll.

3,596,548

APPARATUS FOR CONTINUOUSLY FORMING EDGES OF STEEL PLATES INTO BEVELING

Kazuo Nagai, Chiba; Masami Fuchigami, Okayama; Isao Yamato, Okayama, Japan, and Manfred Lortz, Rheymt Rhineland, Germany, assignors to Maschinenfabrik, Froriep GmbH, Rheymt, Germany

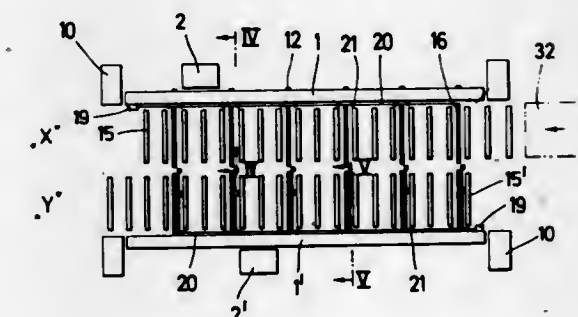
Filed July 17, 1969, Ser. No. 842,498

Claims priority, application Japan, July 19, 1968, 43/51382

Int. Cl. B26d 3/02

U.S. Cl. 83-3

3 Claims



Steel plate edge beveling apparatus having a pair of elongate beveling tables with associated beveling tools and conveyor means between the tables for moving plates longitudinally of the tables and laterally between the tables.

3,596,549

CUTTING MACHINE FOR TUBE BEING FED IN A CONTINUOUS LENGTH

Katsuji Miyazaki, 111, Eifuku-cho, Suginami-ku, Tokyo, Japan

Filed May 23, 1969, Ser. No. 827,250

Claims priority, application Japan, Dec. 14, 1968, 43/91367

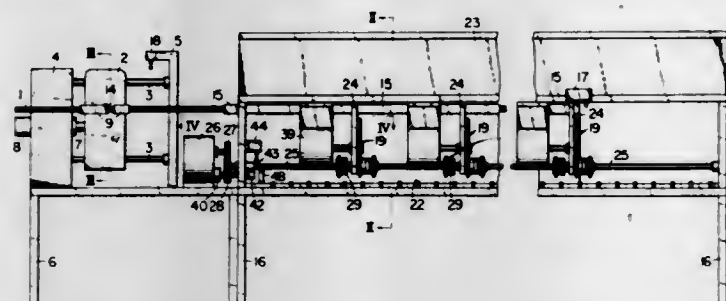
Int. Cl. B26d 11/00

U.S. Cl. 83-37

11 Claims

A machine which provides structure for continuously severing a main length of tubing being fed from a feeder means, such as an extruder, first cutting the advancing tubing into primary lengths, and then, severing each of the primary lengths into a plurality of relatively short lengths. The

machine includes a first reciprocally moving cutting station with support and guide means for moving it along the path of movement of advance of the tubular material. This station includes a cutter operable while the primary cutting station is moving in parallel and at a similar velocity to that of the ad-



vancing tube to cut a primary length from the advancing tube on each advanced stroke of the reciprocating primary cutter. The cutting machine also includes conveyor means and a secondary station for cutting each of the primary lengths into a plurality of relatively short secondary lengths which are the product of the machine.

3,596,550

CUTTING DEVICE FOR THE METALIC MATERIAL

Hiroshi Tominaga, Kanagawa-ken, Japan, assignor to Tokyu Sharyo Seizo Kabushiki Kaisha, Kanagawa-ku, Yokohama-shi, Kanagawa-ken, Japan

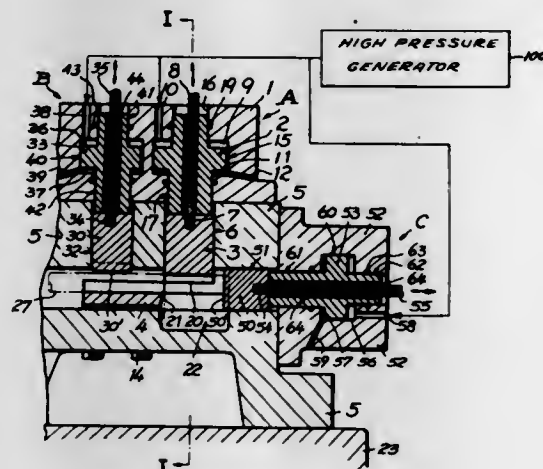
Filed Mar. 12, 1969, Ser. No. 806,646

Claims priority, application Japan, Mar. 19, 1968, 43/17852

Int. Cl. B26d 7/02

U.S. Cl. 83—390

8 Claims



This invention concerns an apparatus for cutting off metallic material and the like with the application of shearing force which comprises cutting means including a cutting tool which is actuated by the energy in the form of fluid pressure conveyed instantaneously through fluid from a high-pressure generator, and at least one of other means, namely, work holding means capable of holding the work with an adequately strong force, compression means capable of exerting a compressive force on the work in the direction normal to the shearing direction, and means for regulating the speed at which the cutting tool operates, said cutting means and said one of means being combined together to constitute cutting functional means which can instantaneously cut off a work of metallic material or the like with a great composite shearing force, not with the simple shearing force of conventional shears.

3,596,551

DEVICE FOR PIECE-BY-PIECE FEEDING OF BAR BLANKS

Konstantin Lukich Lyamets, ulitsa Iskorovskaya, 1, kv.36, Kiev, U.S.S.R.

Filed Nov. 4, 1969, Ser. No. 873,854

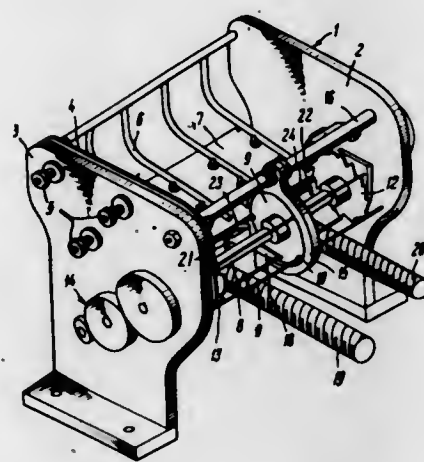
Int. Cl. B26d 7/06

U.S. Cl. 83—417

2 Claims

The present invention relates to devices for piece-by-piece feeding of bar blanks. The device consists of a hopper for the

blanks, a disc with a drive for its rotation, said disc having pockets for the blanks and provided with a clamp fitting around the disc and keeping the blanks in place during disc rotation, a device for shaking the blanks in the hopper, a



blank cutter and at least one pair of magnets arranged so that their magnetic fields attract the blanks to the disc. The invention can be used most effectively for piece-by-piece feeding of bar blanks of a large length and small diameter with an insufficient stiffness, particularly bicycle wheel spokes.

3,596,552

DEVICES FOR SECURING STRINGS IN MUSICAL INSTRUMENTS

Birger Lager, Vetlanda, Sweden, assignor to AB Nordiska Piano, Brodsgatan, Vetlanda, Sweden

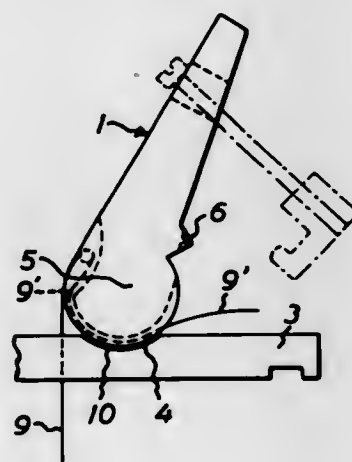
Filed Feb. 13, 1970, Ser. No. 11,196

Claims priority, application Sweden, Feb. 17, 1969, 2179/69

Int. Cl. G10c 3/10; G10d 3/12

U.S. Cl. 84—207

3 Claims



A device which serves to secure strings in pianos and like stringed instruments in a simple and reliable manner with the aid of a swingably mounted tension element having an arcuate portion and a likewise arcuate groove therein, in which the string is placed in a state folded back upon itself so as to be clamped in the groove by wedge action when the element is swung and thereby tensioned.

3,596,553

ARTICLE FOR REPAIRING DROP-ACTION PIANOS

Ernest Vagias, 265 Prospect St., Baden, Pa.

Filed Nov. 12, 1969, Ser. No. 875,694

Int. Cl. G10c 3/18

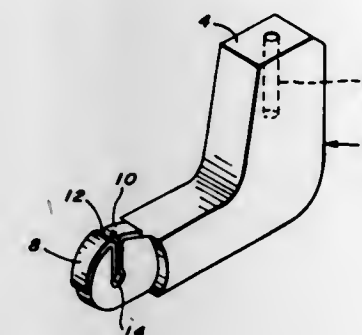
U.S. Cl. 84—240

4 Claims

Disclosed are an article and method that make it possible to lessen remarkably the time and labor required for replacing brittle or broken shoes or elbows in drop-action pianos. I provide a shoe that has a vertically extending cushioned slot in its wippen end. This makes it possible to snap the shoe or elbow into place, in contact with the pin in the wippen, obviating the necessity in a shoe-replacement job of removing

the piano to the tuner's shop and withdrawing the wippen from the action and withdrawing and reinserting of the wip-

bore of the weapon barrel. The presence of a pressure differential caused by the annular grooves allows the front end



pen pins, as has hitherto customarily been necessary in such a job.

3,596,554

SAFETY-TYPE LOCKING PIN

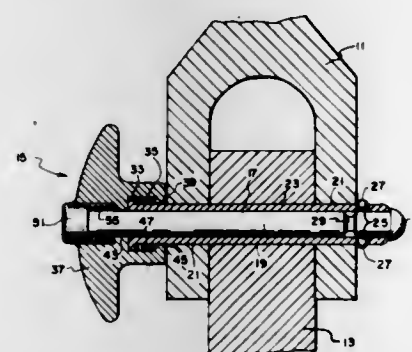
George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with Respect to an Invention of; Ture E. Othman, Northridge, Calif.; Ervin P. Nelson, Malibu, Calif., and Lawrence J. Zmuda, Sepulveda, Calif.

Filed May 19, 1970, Ser. No. 38,814

Int. Cl. F16b 19/00

U.S. Cl. 85—5 B

7 Claims



A safety-type locking pin for joining two load-carrying members and including means for preventing removal of the pin unless the pin is free of load. A slidable plunger moves between a locked and unlocked position of the pin by plunger actuation of detent balls. The plunger is spring-urged toward the locked position. A handle on the end of the pin opposite the detent balls is slidable against a spring to a position that interferes with the plunger being maintained in the unlocked position that is necessary to remove the pin. However, if the pin is free of load, and thus withdraws easily from the joined members, the pin will withdraw from the members and the handle will not shift to the interfering position.

3,596,555

FIRING CHAMBER SEAL

Duane A. Somers, Port Clinton; Edward S. Daniels, Port Clinton, and William E. Lahey, Oak Harbor, all of Ohio, assignors to TRW Inc., Cleveland, Ohio

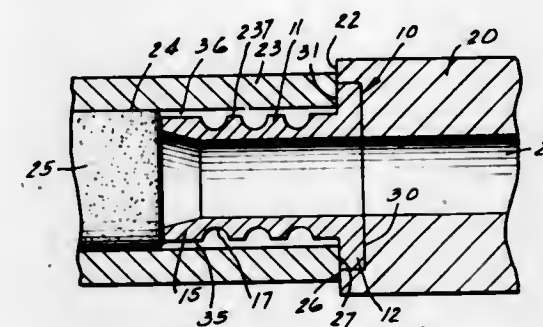
Filed May 5, 1969, Ser. No. 821,639

Int. Cl. F41c 21/00

U.S. Cl. 89—26

2 Claims

A combination projectile guide and firing chamber seal especially adapted for use in caseless cartridge firing weapons. The seal consists of a tubular member which is adapted to be attached to the breech end of a weapon barrel with a tubular portion projecting into the firing chamber in close spaced relation to the inner diameter wall thereof. The outer diameter of the seal has a series of annular pressure drop grooves which successively reduce the propellant gas pressure. The front end of the tube has an increased diameter conical counterbore adapted to guide a projectile to the main bore which is concentric with and has a diameter equal to the



of the seal to circumferentially expand within the firing chamber, thereby further reducing the gas flow.

3,596,556

FEEDER DRIVE

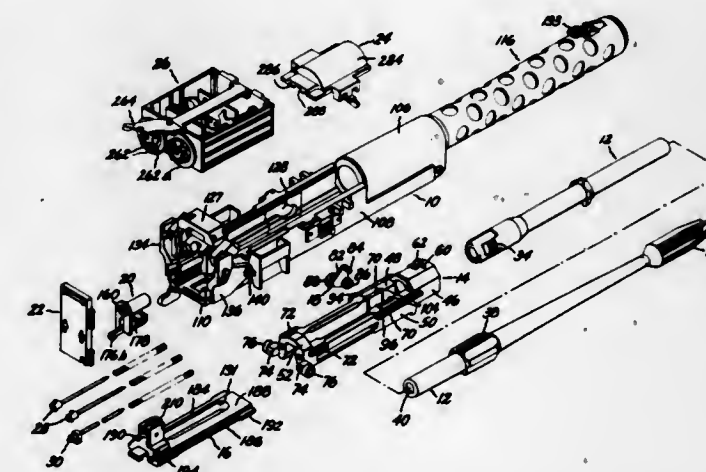
Alfred L. Montana, East Longmeadow, Mass., assignor to General Electric Company

Filed Apr. 7, 1969, Ser. No. 814,094

Int. Cl. F41d 9/02

U.S. Cl. 89—33 SF

9 Claims



A machine gun is disclosed with a recoil and counterrecoil operated crank mechanism which has spaced detents to two-step drive a feeder sprocket assembly.

3,596,557

POSITIONING DEVICE FOR CORRECTING MISLINKED AMMUNITION

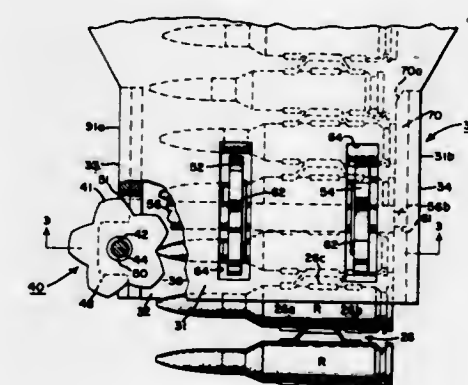
Robert W. Henshaw, Shelburne, Vt., assignor to General Electric Company

Filed Jan. 2, 1968, Ser. No. 695,145

Int. Cl. F41t 9/00

U.S. Cl. 89—33 C

6 Claims



A device for correctly positioning mislinked ammunition in a linked ammunition belt, including, a toothed wheel supported from an open-ended housing through which the belt passes, wherein the wheel teeth engage the bullet ends of in-

dividual rounds for automatically realigning said mislinked rounds with respect to the other rounds in the belt.

3,596,558

MAGNETIC BASE MILLING MACHINE

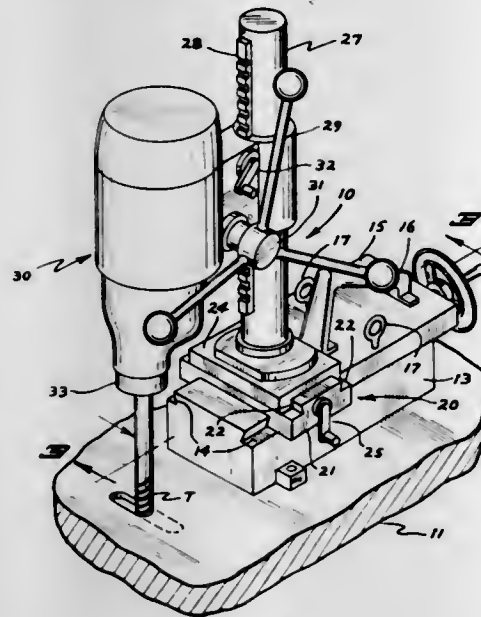
Edmund W. F. Rydell, 1900 Dwight Lane, Minnetonka, Minn.

Filed May 16, 1969, Ser. No. 827,476

Int. Cl. B23c 1/20

U.S. Cl. 90-12

4 Claims



This invention relates to machine tools and the like and primarily to a machine tool capable of triaxial movement with electromagnetic means included in the base portion thereof to permit the unit to be attached to various magnetic surfaces for machining thereof. The electromagnetic mounting means permits the unit to be moved from place to place for machining selected areas of relatively large surfaces which normally could not be machined with standard milling equipment.

3,596,559

SHUTTLE FIXTURE FOR BROACH OR THE LIKE

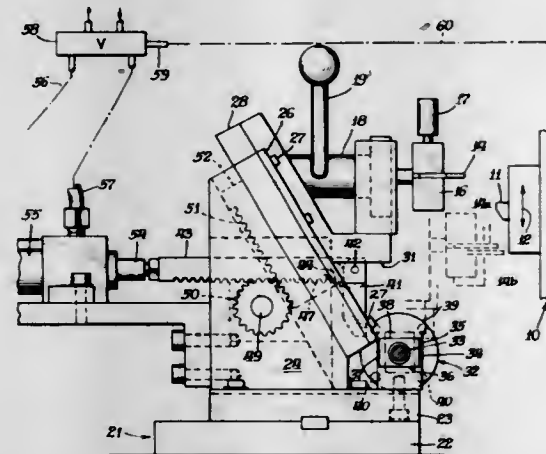
Arthur R. Gregersen, Hinsdale, Ill., assignor to Ty Miles, Inc., Westchester, Ill.

Filed July 17, 1969, Ser. No. 842,665

Int. Cl. B23d 41/02; B23q 3/18

U.S. Cl. 90-76

13 Claims



A workpiece holder is mounted in front of a broach cutting tool moving along a vertical path. The holder is on a slide which is movable downwardly at an angle toward the path. The bottom of the slide has an abutment positioned to contact one of a plurality of faces of a rotatable stop means. The faces of the stop means are at different radial distances from the axis of rotation so that when the abutment is against one of the faces the holder is closer to the path than when the abutment is against another of the faces. Power means are connected to the slide and to the stop means to raise the slide after a downward cutting movement of the broach and, after

an upward movement of the broach, to rotate the stop means to present a new face and to lower the slide against that new face.

3,596,560

FLUID PRESSURE OPERATED MOTORS

Philip Butterworth, Bramhall, England, assignor to Butterworth Hydraulic Developments Limited

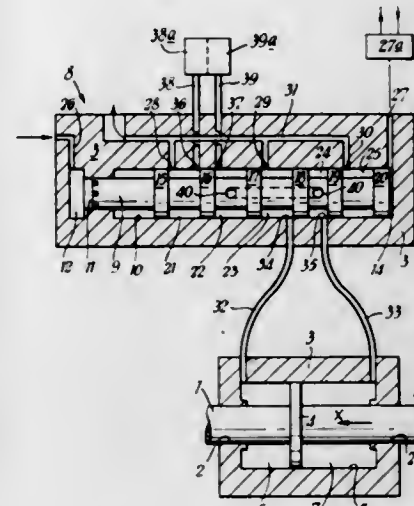
Filed Jan. 31, 1969, Ser. No. 795,536

Claims priority, application Great Britain, Feb. 12, 1968, 6796/68

Int. Cl. F01b 25/02

U.S. Cl. 91-6

6 Claims



A fluid pressure operated motor having valve means adapted to control the flow of fluid under pressure to the pressure chambers from two separate sources of fluid under pressure, the valve means so controlling the flow of fluid that, in a first controlled position of the valve means, fluid from both sources is admitted into a first pressure chamber simultaneously with the second pressure chamber exhausting to cause the piston to move axially in one direction and, in a second controlled position of the valve means, fluid from only one of the sources is admitted into the second pressure chamber simultaneously with the first pressure chamber exhausting to cause the piston to move axially in the opposite direction.

3,596,561

HYDRAULIC CLAMPING ARRANGEMENTS FOR INJECTION MOULDING MACHINES

Heinrich Keller, Bad Oeynhausen, Germany, assignor to Stubbe Maschinenfabrik G.m.b.H., Kalletal-Kalldorf, Germany

Continuation-in-part of application Ser. No. 623,427, Mar. 15, 1967, now abandoned. This application Jan. 8, 1969, Ser. No. 789,909

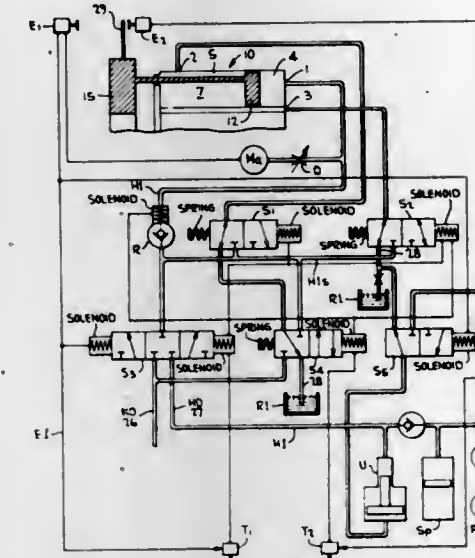
Int. Cl. F01b 25/04; F15b 11/08, 13/044

U.S. Cl. 91-20

4 Claims

A mold-clamping plate is attached to one end of a tubular piston rod the other end of which is attached to an annular piston. The piston is slidably mounted in an outer cylinder and surrounds a concentric inner cylinder along which it is slidable. Hydraulic pressure applied to the full area face of the piston moves the clamping plate to a clamping position. Hydraulic pressure applied to the annular face of the piston via the space between the piston rod and the outer cylinder moves the clamping plate to a nonclamping position and during this movement oil is transferred from the full-face side of the piston to the space between the piston rod and the inner

cylinder, being returned during the next clamping stroke of the piston. Feed and transfer of oil is controlled by hydraulic



flow control valves operated under control of electrical switches.

3,596,562

TRANSDUCER FOR CONVERTING FLUID PRESSURE OSCILLATIONS INTO MECHANICAL OSCILLATIONS

Keith Foster, Birmingham, England, and John Duff, Fredericton, New Brunswick, Canada, assignors to National Research Development Corporation, London, England

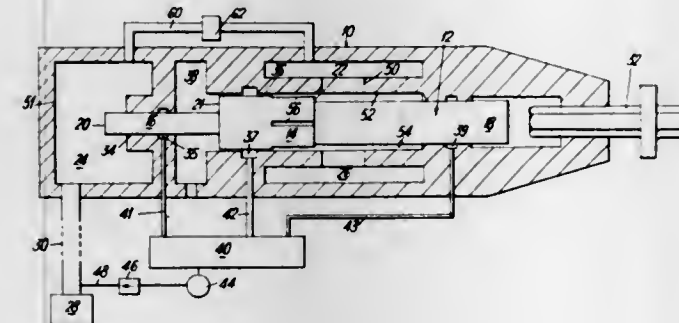
Filed Jan. 10, 1969, Ser. No. 790,225

Claims priority, application Great Britain, Jan. 12, 1968, 1945/68

Int. Cl. F01b 7/18

U.S. Cl. 91-235

12 Claims



A transducer for converting fluid pressure oscillations into mechanical oscillations comprising a piston member in a cylinder, the piston member and the cylinder being relatively movable, first and second opposing faces of the piston member being respectively disposed in first and second chambers in the cylinder, each chamber being adapted to contain fluid under pressure, and means for connecting at least the said first chamber to a respective source of oscillating pressure fluid to cause relative oscillating movement of the piston member and the cylinder, excessive relative movement of the piston member and the cylinder in one sense being limited by a snubber, the piston and cylinder being predisposed to relative movement in the opposite sense to a predetermined position by means including limited fluid flow between the first and second chambers, valve means being provided to vent the fluid from the second chamber to drain when the piston and cylinder are in said predetermined position.

3,596,563

OSCILLATING VANE STEAM ENGINE

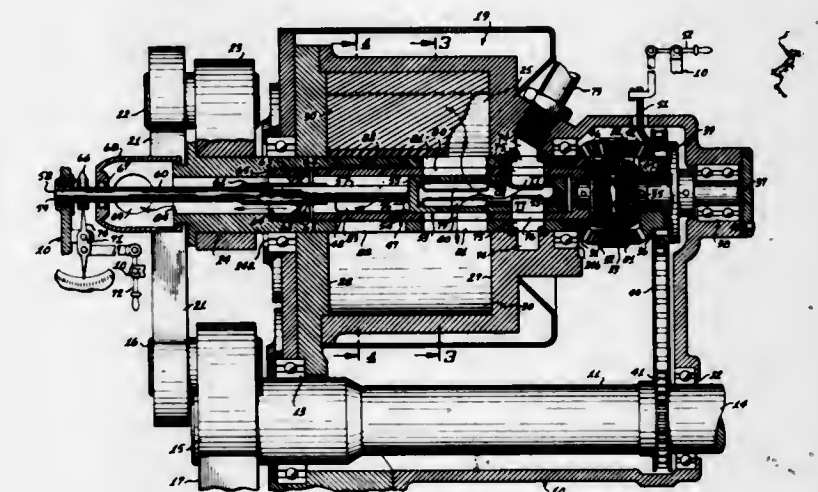
Willard E. Buck, P.O. Box 671, Lake Havasu City, Ariz.

Filed May 22, 1969, Ser. No. 826,930

Int. Cl. F01i 31/00; F01c 9/00; F01i 33/02

U.S. Cl. 91-252

5 Claims



An oscillating vane steam engine having a double differential control mechanism for the steam supply for operating the engine.

3,596,564

CLUTCH BOOSTER MEANS

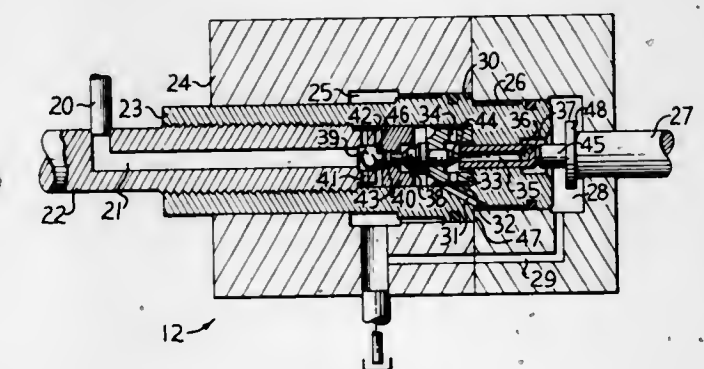
Howard L. Johnson, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 20, 1969, Ser. No. 808,903

Int. Cl. F15b 9/10; F01b 31/00

U.S. Cl. 91-370

6 Claims



A clutch booster means is operatively connected between a clutch pedal and a clutch actuating linkage to provide a hydraulic boosting force for aiding the operator in effecting clutch disengagement. The booster means comprises a piston attached to the clutch actuating linkage and means for communicating a pressurized fluid behind the piston when the pedal is depressed for clutch disengagement purposes. Upon pedal release, such means automatically functions to exhaust such pressurized fluid to permit the piston and clutch to return to their normal, clutch engagement positions.

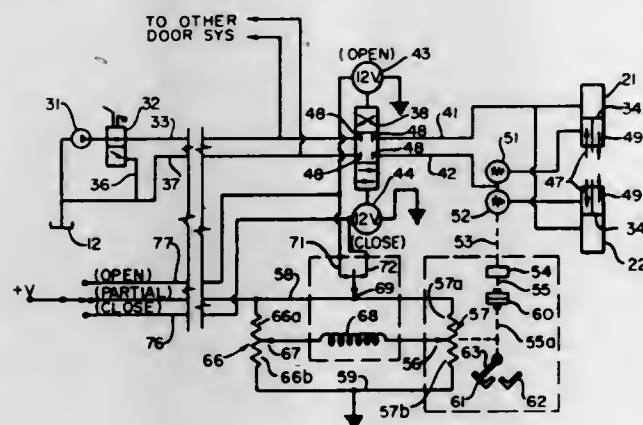
3,596,565

REMOTELY CONTROLLED HYDRAULIC SYSTEM
Duane Edward Atkinson, 136 Newton Drive, Burlingame, Calif.

Filed July 25, 1969, Ser. No. 844,839
Int. Cl. F15b 1/116

U.S. Cl. 91-411 R

14 Claims



Heavy duty equipment such as construction equipment with adjustably positioned, remotely controlled, hydraulically actuated movable members.

3,596,566

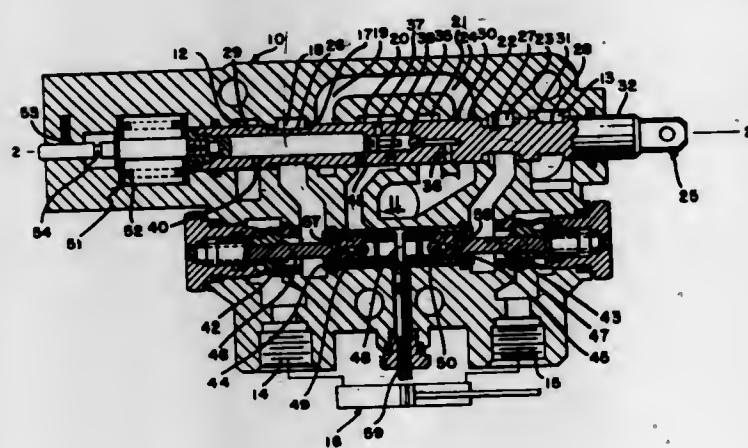
HYDRAULIC VALVE

Robert D. Krehbiel, Hutchinson, and Homer R. Graber, Pretty Prairie, both of, Kans., assignors to The Cessna Aircraft Company, Wichita, Kans.

Filed May 15, 1967, Ser. No. 638,226
Int. Cl. F15b 13/042, 11/08

U.S. Cl. 91-420

11 Claims



A manually operated spool-type closed-center flow control valve having two lockout check valves, one for each end of a double-acting pressure-fluid-actuated motor. The valve affords precise spool metering of pressure fluid returning from either end of the motor to the hydraulic system reservoir because both lockout check valves are fully opened and maintained open prior to, and entirely independent of, any flow of fluid to or from either end of the motor. Thus fluid flowing through either of the fully open lockout check valves can in no way interfere with precise spool metering of flow through the control valve. The flow-metering spool can also be positioned to afford floating movement of the motor plunger and rod in either direction in response to an applied external load.

3,596,567

FAIL-SAFE VALVE ASSEMBLY FOR POWER CHUCK MOTORS AND THE LIKE

Milton L. Benjamin; David D. Walker, both of Chagrin Falls, Ohio, and Erickson Tool Company, Solon, Ohio

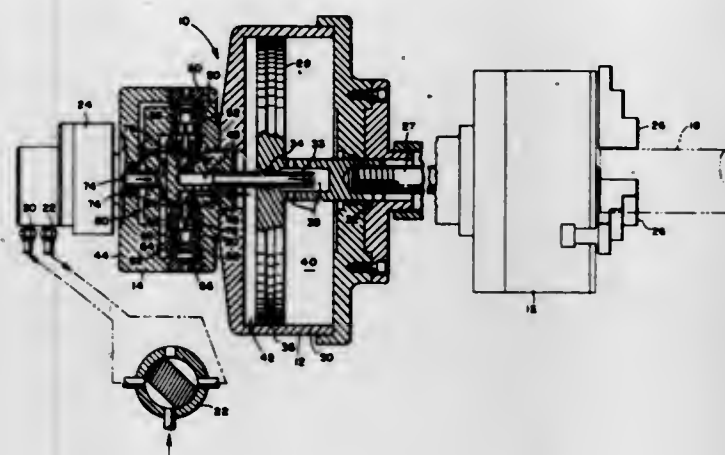
Filed Aug. 12, 1969, Ser. No. 849,374
Int. Cl. F15b 11/08, 13/042

U.S. Cl. 91-420

10 Claims

A fail-safe control valve assembly for rotatable fluid motors. The valve assembly rotates with the motor and a pair of

free floating check valve members of the assembly are movable radially against their valve seats aided by centrifugal ac-



tion to trap fluid in the motor in the event of loss of source pressure.

One of the check valve members controls inlet flow and the other exhaust flow, or vice versa, depending upon the direction in which the motor is actuated. Valve spools exposed to the inlet and exhaust flow pressure differential act on the valve members to hold that valve member controlling exhaust flow removed from its valve seat. The spools are radially movable outward away from the valve seats to facilitate valve closing.

3,596,568

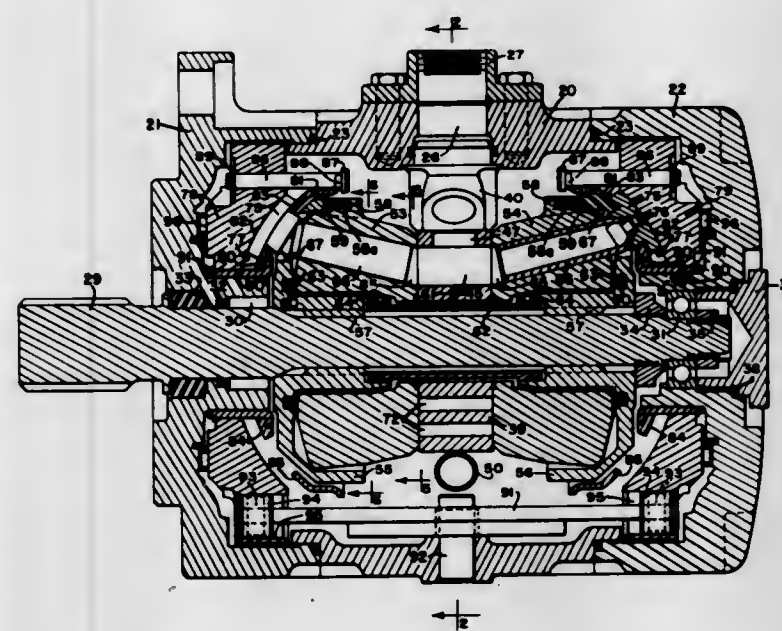
FLUID-TRANSLATING APPARATUS

Richard Arthur Wittren, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Oct. 14, 1968, Ser. No. 767,318
Int. Cl. F01b 3/00; F04b 1/02

U.S. Cl. 91-472

31 Claims



A constant pressure variable displacement axial piston pump employing two stroking cams and two banks of opposed pistons mounted in circular array in rotary cylinder barrels positioned on opposite sides of a flat port plate. The stroking cams and piston slippers have arcuate concave cam and convex bearing surfaces, respectively, formed about an axis which intersects and is perpendicular to the axis of rotation of the cylinder barrels. With this construction, each piston will be forced through two strokes per revolution of the cylinder barrels, all radial forces will be in inherent balance, and there will be an area contact between the piston slippers and the stroking cams at all times.

3,596,569

VALVE FOR A CLOSED-LOOP HYDRAULIC TORQUE AMPLIFIER

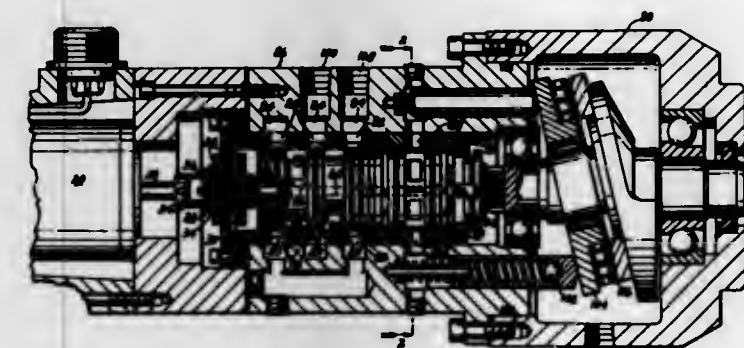
Jerry D. Wisbey, Loveland, Ohio, assignor to The Cincinnati Milling Machine Co., Cincinnati, Ohio

Filed June 3, 1969, Ser. No. 830,076

Int. Cl. F01l 33/02; F15b 9/10; F01b 3/02

U.S. Cl. 91-503

5 Claims



A torque amplifier for translating a number of digital input pulses into a proportional angular displacement of a rotary piston and cylinder hydraulic motor. The input pulses drive an electric stepping motor which imparts a linear displacement to a valve. The valve displacement functions to meter fluid into the valve and consequently to the hydraulic motor. The hydraulic motor, through a coupling means, transmits its rotation back to the valve. The valve rotation, first, operates to sequentially distribute the fluid from said valve to the hydraulic motor cylinders, and second, provides a mechanical feedback to displace the valve back to its neutral position.

3,596,570

FRICION-WELDED HYDRAULIC ACTUATOR

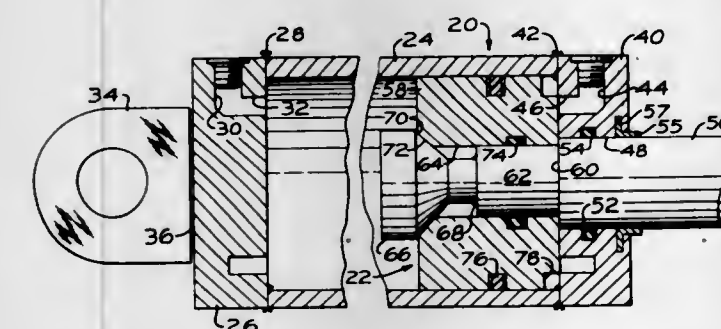
Alexander M. Kenyon, Cuyahoga County, Ohio, assignor to Towmotor Corporation, Cleveland, Ohio

Filed Sept. 10, 1969, Ser. No. 856,618

Int. Cl. F16j 1/12, 11/00; B23p 15/00

U.S. Cl. 92-168

26 Claims



A hydraulic actuator is entirely assembled by means of a plurality of friction welds. The construction permits the elimination of many parts formerly necessary in such actuators, reduces the possibility of fluid leakage, and reduces the overall length of the actuator as compared with prior art actuators having the same length of stroke.

3,596,571

PISTONS

Harold T. Hill, Sway, near Lymington, England, John Robson, Lymington, England, and Roger A. Day, Lymington, England, assignors to Wellworthy Limited, Lymington, England

Filed July 7, 1969, Ser. No. 839,515

Claims priority, application Great Britain, July 15, 1968, 33,714/68

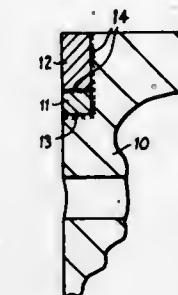
Int. Cl. F02f 7/00; F16j 1/04; F16j 1/00

U.S. Cl. 92-222

9 Claims

This invention relates to a piston for an internal combustion engine, compressor or the like, which is composed of at least two mating parts, for example a light alloy piston body

part and a wear-resistant ring groove carrier part or heat-resistant crown part, the parts being permanently assembled



together by friction welding. The invention also relates to a method of making such pistons.

3,596,572

INSULATION FOR POWER CABLE JOINTS AND A METHOD OF MAKING SAME

Kenji Matsuura, Ikeda, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

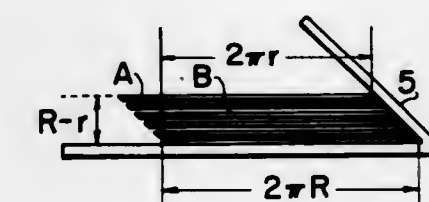
Filed Apr. 11, 1969, Ser. No. 815,432

Claims priority, application Japan, Apr. 12, 1968, Aug. 27, 1968, 43/24,027; 43/73,355

Int. Cl. B31d

U.S. Cl. 93-1

5 Claims



An insulation for power cable joints wherein a previously shaped split-type paper cylinder is placed over the cable core such that the outside edge thereof forms a snail-like border-line.

3,596,573

FLAT BOTTOM BAG AND METHOD OF MAKING THE SAME

William E. Shrum, St. Louis, Mich., assignor to The Dow Chemical Company, Midland, Mich.

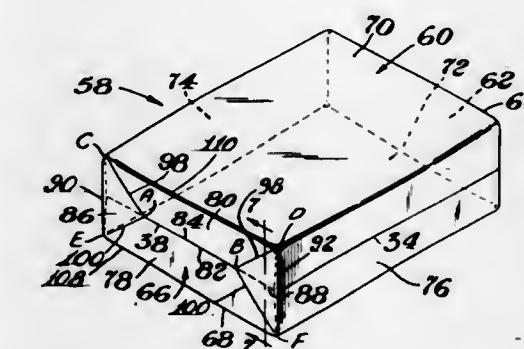
Division of Ser. No. 687,630, Dec. 4, 1967, Pat. No. 3,485,439

Filed June 2, 1969, Ser. No. 840,088

Int. Cl. B31b 49/04

U.S. Cl. 93-35 R

5 Claims



This invention pertains to a flat bottom bag formed from flexible tubular material by making a pair of folds and a single seal. Specifically, the bag is formed by longitudinally folding the edge portions of a collapsed flexible tube inwardly to a superposed position on the main body portion thereof not extending beyond the longitudinal centerline of the tube. A transverse seam is then formed across the width of the tube adjacent the free edges at one of its ends securing together

therealong the overlying plies comprising the folded tube. This completes the structure of a basic bag element from which a flat bottom bag can be formed. Several methods are taught as suitable for shaping the secured end of the above bag element to form the desired flat bottom structure. For example, by turning the bag element inside out and shaking out its folded edge portions a flat bottom bag is readily obtained.

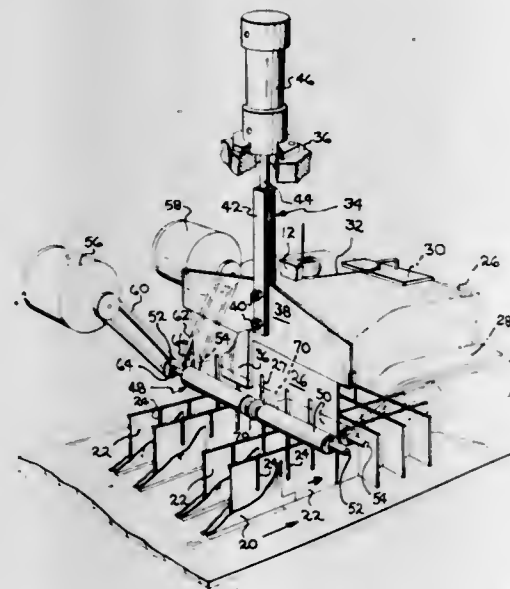
3,596,574

PARTITION ROLL FEED APPARATUS

Tadeusz Kozlowski, Glenn W. Maze, and Francis A. McCormick, all of Toledo, Ohio, assignors to Owens-Illinois, Inc.
Filed Feb. 4, 1970, Ser. No. 8,659

Int. Cl. B31b 11/02, 11/14; B31d 3/04

U.S. Cl. 93—37 R



Apparatus is provided for assembling longitudinal and transverse partition strips to produce cell-type fillers for a carton. Longitudinal partition strips are advanced in parallel spaced relationship into position to receive transverse partition strips fed from above by the combined action of a knocker bar and driven feed rolls. The knocker bar is employed to advance the individual transverse partition elements into the nip of a pair of high-speed feed rolls which drive the transverse partition members at a high speed downwardly into assembled relation with the longitudinal partition members.

3,596,575

BUNDLING APPARATUS FOR FLATTENED TUBE SECTIONS MADE BY A TUBE-MAKING MACHINE

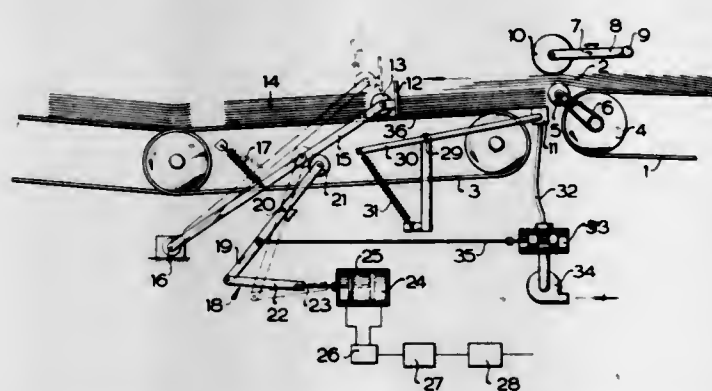
Friedrich Franz Brockmüller, Lengerich, Germany, assignor to Windmoller & Holscher, Lengerich, Germany
Filed Dec. 23, 1969, Ser. No. 887,631

Claims priority, application Germany, Dec. 24, 1968, P 18 16 977.2

Int. Cl. B65h 33/00

U.S. Cl. 93—93 DP

8 Claims



A bundling apparatus for flattened tube sections coming from a tube making machine comprising a first conveyor for

depositing the tube sections from the machine thereon in an overlapping scale formation followed by a continuously movable second conveyor for transporting the tube sections after they have been formed into bundles. A suction beam engages and holds the lowermost tube section of each bundle on the second conveyor and is adapted to have its suction effect interrupted after each bundle has been formed with a predetermined number of tube sections. A substantially vertical abutment plate for the tube sections has its bottom edge disposed immediately above the conveying run of the second conveyor during formation of each bundle and is adapted to be raised after the formation of each bundle.

3,596,576

SYNTHETIC GOLF GREEN

Carl J. Cicero, and Robert T. Witherspoon, Jr., both of Decatur, Ala., assignors to Monsanto Chemical Company, St. Louis, Mo.

Filed Nov. 29, 1968, Ser. No. 780,259

Int. Cl. E01c 7/00

U.S. Cl. 94—7

6 Claims

The performance characteristics, i.e., ball response and contour maintenance, of a golf green covered with a synthetic turf product are improved by stabilizing the sandy subsurface, prior to laying down the turf, with a liquid elastomer.

3,596,577

APPARATUS FOR SOIL STABILIZATION

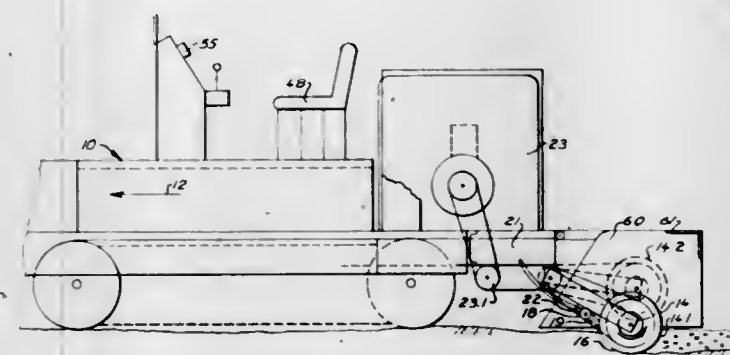
Donald A. Chennells, 13 Iroquois Bay, St. Boniface 6, Manitoba, Canada

Filed Dec. 2, 1968, Ser. No. 780,472

Int. Cl. E01c 19/02

U.S. Cl. 94—40

4 Claims



The method and apparatus for soil stabilization wherein the soil to be stabilized is first shaved and the shavings rubbed against the resultant soil face while at the same time applying a liquid stabilizing additive. The apparatus employed includes a driven reel having shaving and rubbing elements thereof which continuously, as the reel is rotated and moved over the ground, first shave the soil to provide a soil face, then pulverize the shavings and rub the shavings against the soil face as a liquid stabilizing additive is sprayed onto the pulverized soil so as to be mixed therewith as the reel rotates.

3,596,578

APPARATUS FOR FINISHING CONCRETE SURFACES
Mason Eugene Jones, Columbus, Ohio, assignor to Mason E. Jones, Inc., Columbus, Ohio

Filed Jan. 14, 1969, Ser. No. 791,068

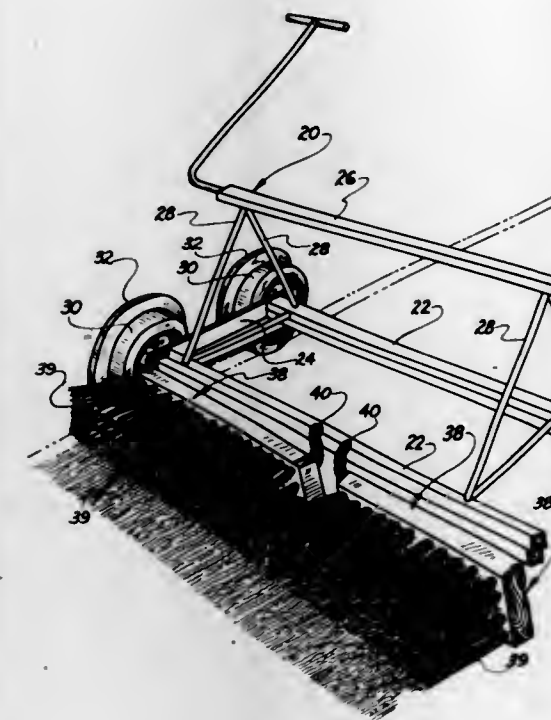
Int. Cl. E01c 23/08

U.S. Cl. 94—45

4 Claims

An apparatus for finishing the surface of concrete pavements which includes a frame means provided with rotatably mounted wheels adapted to ride along the forms used in concrete paving construction. The frame means includes a plurality of brushlike or bristled finishing members flexibly

connected thereto for limited vertical movement responsive to the contour of the pavement being finished and adapted to



impart upon the surface of the pavement a plurality longitudinal grooves of relatively uniform depth.

3,596,579

EXPOSURE CONTROL AND LOW-LIGHT WARNING SYSTEM

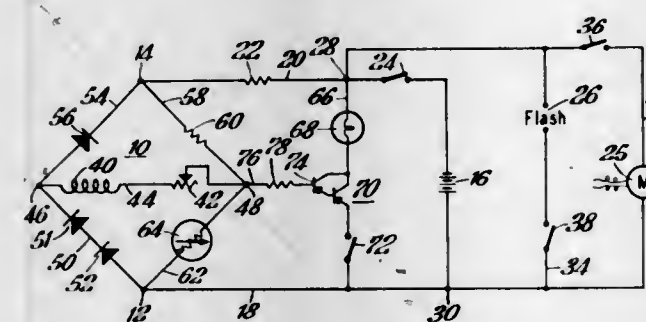
John F. Coughlin, and Ralph I. Berge, both of Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y.

Filed June 25, 1969, Ser. No. 836,378

Int. Cl. G01j 1/44; G03b 17/18, 19/18

U.S. Cl. 95—10

8 Claims



A bridge is connected across the terminals of a low voltage camera battery through a voltage-dropping resistor. The four arms of the bridge contain, reading clockwise from the positive terminal thereof, 1) a plurality of diodes leading to one null terminal, 2) single diode leading to the negative terminal, 3) a balancing resistor leading to the other null terminal, and 4) a photocell leading to such positive terminal. The central crossarm contains an exposure control galvanometer and an adjustable resistor in series between the null terminals. A low-light warning lamp circuit is connectable across the battery by a switch and is provided with a Darlington transistor circuit having its base connected through a resistor to the null terminal leading to the photocell for limiting current to such base and isolating the galvanometer circuit from the Darlington transistor circuit. Thus, in operation, changes in the battery voltage result in only a very slight change in current through the galvanometer at a single light level, while the Darlington transistor circuit provides a high gain resulting in the turn "ON" point of the low-light warning lamp to be sharply defined.

3,596,580

CAMERA SHUTTER TIMING CUTOFF SWITCH

Waldemar T. Rentschler, Calmbach, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier G.m.b.H., Calmbach, Black Forest, Germany

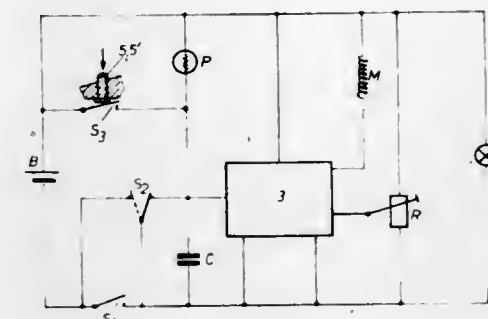
Filed July 15, 1969, Ser. No. 841,724

Claims priority, application Germany, July 25, 1968, P 17 72 948.5

Int. Cl. G03b 9/62, 17/18

U.S. Cl. 95—10 C

6 Claims



A photographic camera that has an electronic timing device controlled in dependence upon light conditions by a photosensitive resistor in the circuit of the timing device. A lamp is disposed in the circuit to indicate the open state of the camera shutter and a manually operated switch is placed in the circuit and is operable to cause the camera shutter to close independently of the action of the timing device. A switch button formed as a translucent body is connected to the switch and is disposed to be illuminated by the lamp to indicate the open state of the camera.

3,596,581

PHOTOGRAPHIC APPARATUS FOR FIRING PERCUSSION-IGNITABLE FLASH LAMPS

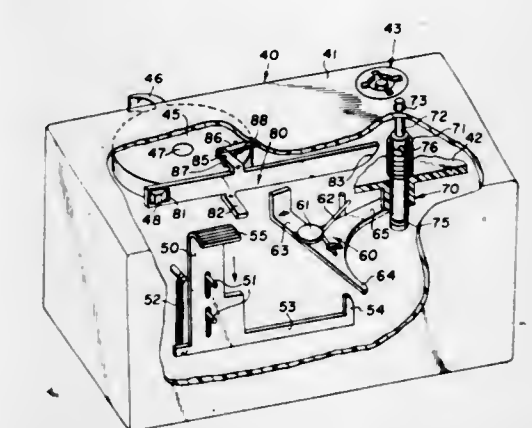
Joseph V. Poweska, and Jeffrey R. Stoneham, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 11, 1968, Ser. No. 766,751

Int. Cl. G03b 17/38

U.S. Cl. 95—11

1 Claim



Photographic apparatus for use with percussion-ignitable flashlamps supported in a multilamp flash unit. The flashlamps each include a striker element releasably retained in a preenergized position and mounted for selective release at individual access sites on the unit. The apparatus is adapted to cooperate with such units through the access sites to effect selective release of individual striker elements in synchronization with picture-taking operations.

3,596,582

SYSTEM FOR REPLACING ENVIRONMENTAL FLUID IN BOREHOLES AND OTHER FLUID-CONFINING MEANS
Wayne L. Sayer, Bakersfield, Calif., assignor to Underground Surveys Corporation

Filed July 26, 1968, Ser. No. 747,969

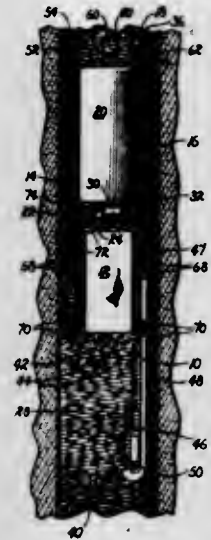
Int. Cl. G03b 19/00

U.S. Cl. 95—11

8 Claims

A system for replacing environmental fluid in boreholes and similar fluid-confining structures for photographic and

similar purposes. The system includes a cylinder having opposite ends, a transparent fluid in the cylinder, a piston in the cylinder adjacent to one end of the cylinder urged toward the opposite end, remotely operable flow control valve structure confining the transparent fluid within the cylinder and thereby releasably restraining the piston adjacent to said one



end, a conduit extended from said opposite end of the cylinder to an area to be photographed to deliver the transparent fluid thereto upon release of the piston, and a conduit extended from said one end of the cylinder to the area to be photographed to draw environmental fluid from said area into the cylinder for replacement purposes.

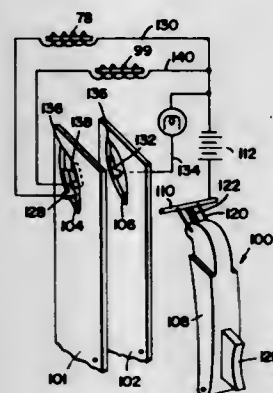
3,596,583 CAMERA

Peter N. Portugal, 21A Rowland Court, San Anselmo, Calif.
Filed July 15, 1968, Ser. No. 744,725

U.S. Cl. 95—11.5

Int. Cl. G03b 9/70

12 Claims



A camera for photographing closeup objects with a wide angle comprising a housing with a fixed aperture spaced close to a flat base and a mirror within the housing and rearwardly from the aperture for reflecting the viewed image upwardly to a horizontal plane. A light-sealing inner wall surrounds the mirror and cooperates with a film cartridge that fits within the upper portion of the camera. In a battery-powered circuit a main control switch operates in sequence a first mechanism for moving the shutter away from the aperture, a flashgun circuit for providing a momentary high intensity light and a third circuit for releasing a locking device which automatically advances the film in the cartridge to the next exposure frame.

3,596,584

METHOD FOR CONVERTING RELIEF PHOTOGRAPHS
Harry S. Jones, Monmouth Beach, N.J., assignor to Chrom-Tronics, Inc., New York, N.Y.

Filed June 27, 1967, Ser. No. 649,311

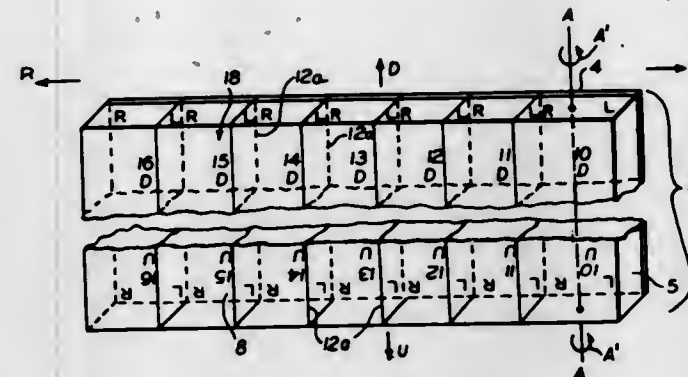
Int. Cl. G03b 35/08

U.S. Cl. 95—18 P

3 Claims

Method of converting abnormal three-dimensional or relief photographic images into normal photographic reproductions

thereof by physical separation of discrete film data strips selectively exposed through each lens element of a multielement lens overlay rotation thereof and reassembly thereof into a true composite photographic reproduction.



ment lens overlay rotation thereof and reassembly thereof into a true composite photographic reproduction.

3,596,585 FILM HOLDER

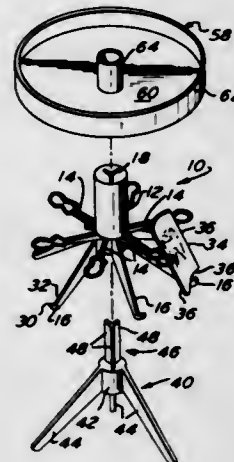
Walter A. Lewandowski, Hatboro, Pa., assignor to Uni-Chem Corporation, Pennsauken, N.J.

Filed Mar. 10, 1969, Ser. No. 805,772

Int. Cl. G03d 3/10

U.S. Cl. 95—100

5 Claims



A film holder particularly adapted to hold dental X-ray film. The holder includes a pair of laterally spaced legs having notches therein and a third leg which is vertically spaced from the other two legs, and also has a notch therein. The X-ray film is supported at its edges in the three notches.

3,596,586

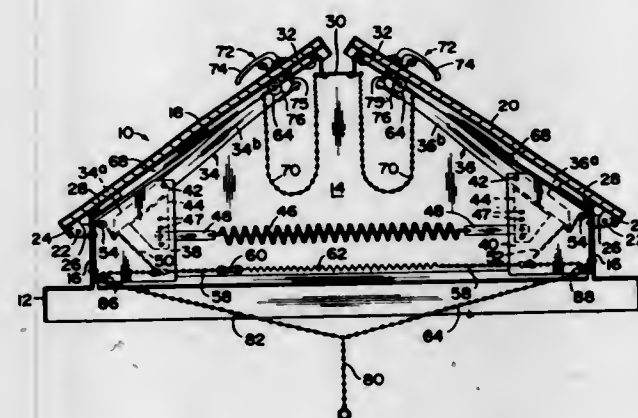
EMERGENCY VENTING DEVICE
Albert R. Krannich, Akron, Ohio, assignor to The Burt Manufacturing Company, Akron, Ohio

Filed Apr. 22, 1970, Ser. No. 30,839

Int. Cl. F23i 17/62

U.S. Cl. 98—86

10 Claims



An automatic relief-type ventilator for a building with dampers or covers movable to and from open and closed

positions and damper-operating mechanism including a damper lift arm with a support means pivotally engaging each lift arm intermediate the ends thereof, latch means operatively engaging an end of each lift arm to latch the dampers in closed position, and fusible restraining means associated with the latch mechanism to release the same for automatic damper-opening action under predetermined heat conditions.

3,596,587

OFFTAKE FOR COOKING EQUIPMENT

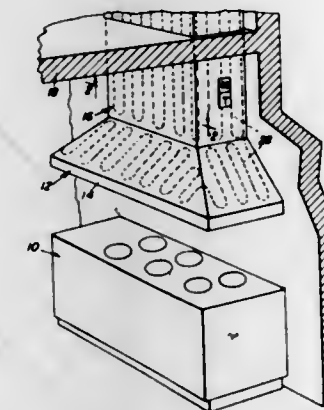
James E. Kilger, 5714 S. 114th St., Hales Corners, Wis.

Filed May 21, 1969, Ser. No. 826,331

Int. Cl. F23j 11/00

U.S. Cl. 98—115

4 Claims



A cooking equipment offtake comprising hood, duct and related appurtenances with attached heating means for raising the inner surface temperature of said offtake and thus preventing the condensation of grease thereon.

3,596,588

AUTOMATIC BEVERAGE MAKER

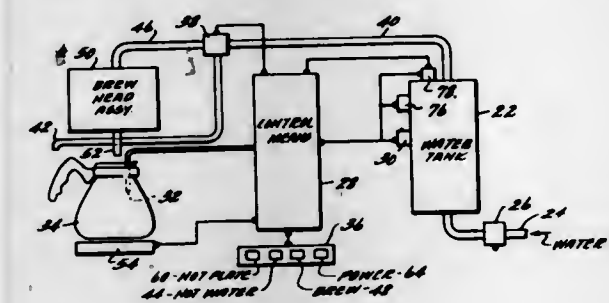
Tillman R. Moss, Renton, Wash., assignor to General Electric Company

Filed Nov. 10, 1969, Ser. No. 875,043

Int. Cl. A47j 31/34

U.S. Cl. 99—282

6 Claims



A small, compact beverage maker, particularly adapted for use in commercial aircraft and of the type which heats water and then passes the heated water through a beverage-producing material such as ground or powdered coffee, is provided with an improved protective control means related to the heating of water. Such control means affects the operation of water-heating means as a function of pressure in the water-heating container and temperature of the water heaters. In another form, such protective control means operates, in addition, as a function of liquid pressure, as a measure of volume, in a beverage server into which a brewed beverage is first deposited.

3,596,589

COFFEEMAKERS

Samuel Hertzberg, 740 Grand Concourse, New York, N.Y.

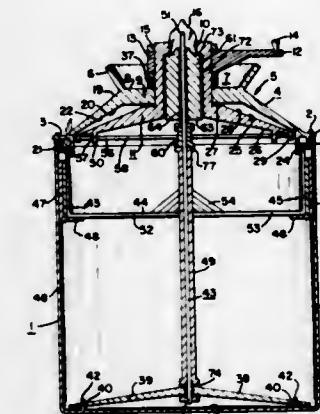
Filed June 26, 1969, Ser. No. 836,797

Int. Cl. A47j 31/42

U.S. Cl. 99—286

10 Claims

Coffeemaker in which coffee may be brewed either by the open pot, the drip pot, or the percolator method. Consists of



a bowl, a lid, and an internal structure emanating from the bowl interior and abutting the lid. The lid incorporates a coffee grinder. Two platforms, rotatably locked, fragment the coffee beans between cooperating milling surfaces, one platform maintained stationary while the other rotates subject to the application of torque. The coffee beans are infused

3,596,590

COOKING UTENSIL

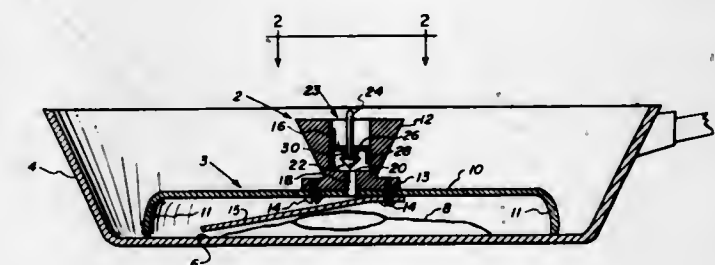
John Madison Harris, P.O. Box 12336, Palm Beach Gardens, Fla.

Filed July 22, 1969, Ser. No. 843,496

Int. Cl. A47j 37/10

U.S. Cl. 99—345

8 Claims



A cover-type cooking utensil wherein food, such as an egg, is cooked on both sides at the same time. The cover-type cooking utensil having a cover with a knob or handle having a reservoir therein for liquid is placed over the food which has previously been placed on a heated surface such as a skillet or grill. Valve means are provided to admit the liquid such as water from said reservoir into the area enclosed by said cover whereby hot vapors such as steam is formed which cooks the side of the food facing the cover at the same time as the food facing the heated surface is cooked.

3,596,591

FOOD BROILER HAVING COMBINED SLIDEABLE FOOD RACK, DOOR AND DRIP PAN

William A. Spates, Beloit, Wis., assignor to Louis A. M. Phelan, Pompano Beach, Fla.

Filed Sept. 11, 1969, Ser. No. 857,043

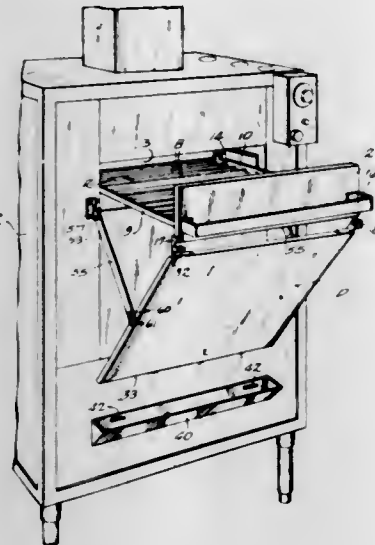
Int. Cl. A47j 37/06

U.S. Cl. 99—392

19 Claims

Food broiling apparatus of the type utilizing a side-loading broiling chamber through which a rack containing the food to be broiled is slid into and out of the broiling chamber. A door is attached to one end of the rack, which door fully closes the side opening and when the rack is fully in the broiler chamber; a downwardly extending drip pan is at-

tached to the door and is pivoted for swinging movement so that regardless of the extent to which the rack is pulled out of the broiling chamber the drip pan is located under the rack so as to catch any drippings therefrom. The discharge end of



the drip pan moves only in a generally vertical direction so that it is always located over a lower receptacle into which the drippings can drain. Thus, a combined removable rack, door and swingable drip pan are provided for a side-loading-type broiler.

3,596,592

CAPACITIVE DETECTOR FOR A RAM MOVABLE ON A FRAME

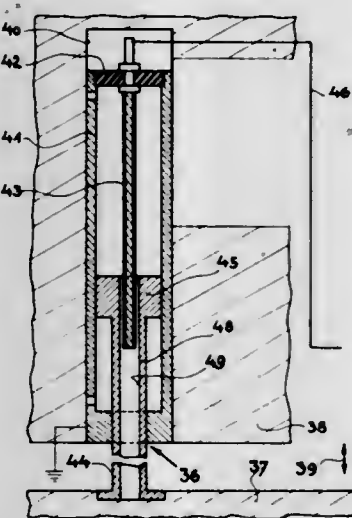
Karl Trissnak, and Kurt Siller, both of Coburg, Germany, assignors to Langenstein & Schemann Aktiengesellschaft, Bayer, Germany

Filed Mar. 20, 1969, Ser. No. 808,972

Claims priority, application Germany, Mar. 20, 1968, P 17 63 002.3

Int. Cl. B30 1/08

U.S. Cl. 100-99



A capacitive detector for a ram of a press hammer where a rod forms one electrode of the capacitor and the wall of a bore forms the other electrode of the capacitor, the rod and bore being arranged so that one can move with the ram and the other is joined to a stationary frame.

3,596,593 ELECTROMAGNETIC SETTING MEANS AND HAMMER ACTUATING MEANS IN PRINT WHEEL ARRANGEMENTS

Tasaku Wada, Tokyo-to, Japan, assignor to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan

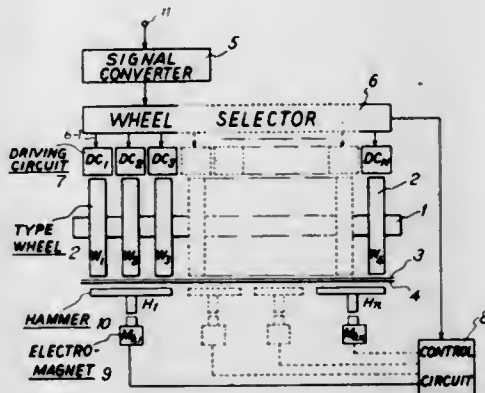
Filed June 5, 1968, Ser. No. 734,809

Claims priority, application Japan, June 29, 1967, 42/41263

Int. Cl. B41j 1/28, 9/38; H02k 37/00

U.S. Cl. 101-93 C

6 Claims



A printer for selecting automatically types of numerals and/or characters in response to input signals and for printing the selected types of numerals and characters on a printing paper, in which a plurality of type wheels are arranged rotatably on a shaft at regular intervals. Each of the type wheels has an even number of permanent magnets radially arranged from the center of the type wheel at regular intervals in the alternating arrangement of magnetic polarities of the permanent magnets. Type characters are fixed along the periphery of each type wheel at respective projections each arranged between adjacent two of the permanent magnets. One of the types is selected by rotating each type wheel in the clockwise or counterclockwise direction by driving alternately a pair of electromagnets arranged oppositely to one of the types and the pole of one of the permanent magnets respectively until the selected type opposes a print hammer.

3,596,594

HIGH-SPEED PRINTER EMPLOYING PLURAL PRINT HEADS AND PAPER FEED EXPEDIENTS

Kenichi Ukitsu, and Kosaku Mukai, both of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

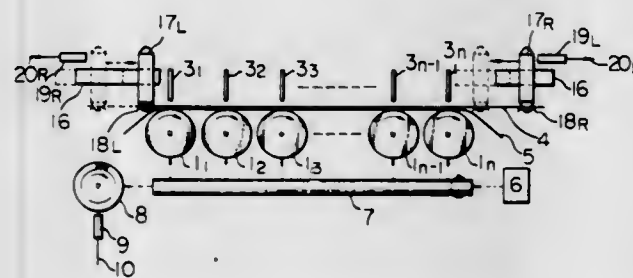
Filed Apr. 7, 1969, Ser. No. 814,029

Claims priority, application Japan, Apr. 22, 1968, 43/26571

Int. Cl. B41j 1/54, 15/00

U.S. Cl. 101-93

1 Claim



This invention relates to a high-speed printer to be used for output of data transmissions. The printing mechanism of this invention employs a high-speed print system and a plurality of print heads arranged in parallel, whereby mechanical-type selecting operation can be simplified. Further, the invention also employs a novel controlling circuit, which is adapted to read out respective data to be printed from a memory device in correspondence with the mechanical operations. And further, the present printer provides a novel line feed mechanism and spacing mechanism.

3,596,595 SCREEN PRINTING MACHINE WITH MAGNETIC WORK SUPPORT

Peter Zimmer, 6330 Engelhardstrasse, Kufstein, and Willibald Ruckl, Tirol, both of Austria, assignors to said Peter Zimmer, Kufstein, Austria by said Willibald Ruckl

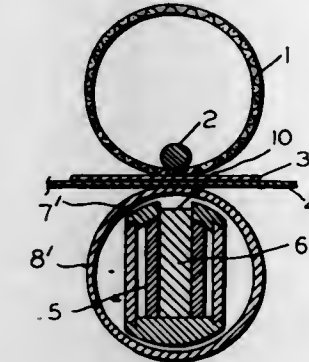
Filed Aug. 27, 1968, Ser. No. 755,543

Claims priority, application Austria, Aug. 28, 1967, Sept. 4, 1967, A7874/67; A8065/67

Int. Cl. B41f 15/08, 15/18

U.S. Cl. 101-120

1 Claim



A device for the treatment, particularly for the printing, of flat-shaped material which is moved between two working elements exerting a pressure upon each other. One of the working elements, particularly the printing support of a printing form body, contains a magnet body consisting of a plurality of electromagnets whose magnet cores are arranged in one or more lines having preferably axes perpendicular to the flat shaped material to be treated. The magnet cores project into a stable support body directed to the flat-shaped material to be treated, covered, if the case may be, by a thin casing wherein the stable support body is provided with a recess or perforation passing through the line of magnet cores in whose zone the pole faces of the magnet cores end at a distance from the surface of the support body directed to the material to be treated.

3,596,596

GUIDE MEANS FOR TRAVELING ROLLER IN PORTABLE IMPRINTERS

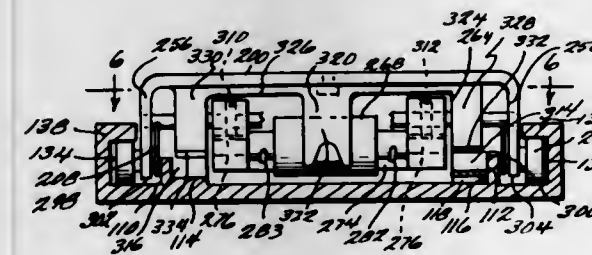
Herbert G. Chillingworth, Annandale, Va., assignor to Farrington Business Machines Corporation, Springfield, Va.

Filed Dec. 3, 1968, Ser. No. 780,664

Int. Cl. B41f 3/20, 3/56

U.S. Cl. 101-269

9 Claims



A portable imprinter is disclosed, the construction thereof being particularly compact. The imprinting head moves along a pair of tracks disposed at opposite sides of the print bed, the head being guided along the tracks by wheels and guide members disposed on the opposite sides of the bottom thereof to respectively minimize vertical motion of the head with respect to the print bed and rotational motion with respect to an imaginary vertical axis passing through the head. The printing plates are placed directly on the bed and appropriate means are provided for securing them to the bed. Means are also provided for securing the document over the print bed, these means becoming operative after the imprinting head has left its rest position. Also provided are means disposed within the imprinting head for adjusting the initial clearance between the roller platen and the print bed, these means being operative to move the roller platen shaft

downwardly against the upwardly acting force exerted by a spring disposed within the head. Means are also disclosed for raising the roller platen upwardly from the print bed after an imprinting operation, the roller platen being lowered to its print position immediately upon its return to the rest position of the head. Means attached to the imprinting head and projecting from the front thereof are also provided for holding the document in place during the imprinting operation.

3,596,597

PRINTING PRESS BLANKET ANCHOR BAR

Roy D. Fountain, 24 Farmcrest Ave., Lexington, Mass. Division of Ser. No. 672,785, Oct. 4, 1967, abandoned

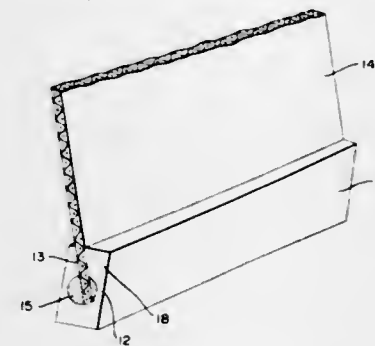
Filed Aug. 8, 1969, Ser. No. 870,799

No. 870,799

Int. Cl. B41f 27/12

U.S. Cl. 101-415.1

4 Claims



An improved end anchor for a printing press blanket is prepared by forming a bar with a bore or slot and filling the bore or slot with solidified resin around the end of the blanket.

3,596,598

SELF-DESTROYING BLASTING CAP

Josef Prior, and Gottfried Prasnik, both of Troisdorf, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

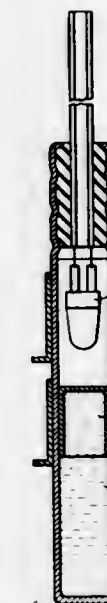
Filed Nov. 18, 1968, Ser. No. 776,382

Claims priority, application Germany, Dec. 1, 1967, P 16 46 347.1

Int. Cl. F42b 3/12

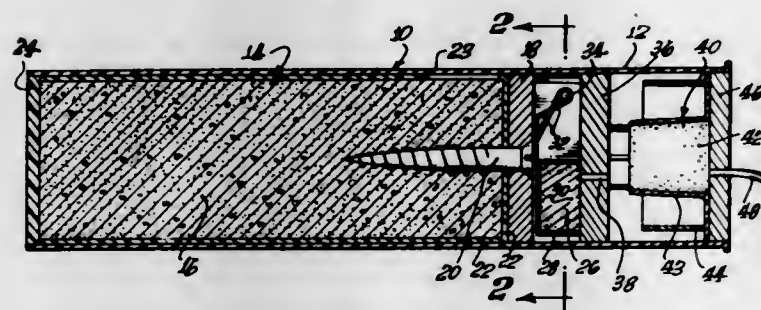
U.S. Cl. 102-28 M

5 Claims



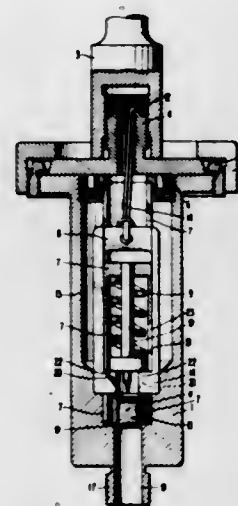
Blasting cap for use in underwater blasting (seismic) exploration having a magnesium or magnesium base alloy casing decomposable in water. A preferred embodiment provides a second metal, having higher electrical potential than the magnesium casing, in strips or bands around the casing. The casing of this invention decomposes in a predetermined immersion time in water whereupon rendering the blasting cap undetonatable.

3,596,599
PYROTECHNIC ASSEMBLY
 George H. Schillreff, Glendora, Calif., assignor to General Dynamics Corporation, Pomona, Calif.
 Filed Dec. 9, 1968, Ser. No. 782,082
 Int. Cl. G06d 1/04
 U.S. Cl. 102-37.4 9 Claims



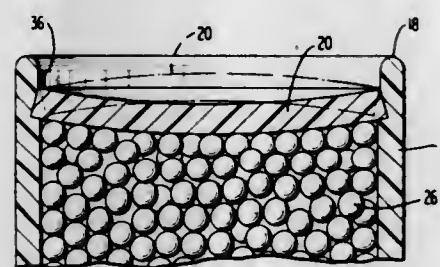
A pyrotechnic assembly including a safety device to prevent the ignition of the main pyrotechnic load until the load has been completely expelled from an associated launch tube. The safety device is biased to operate only upon the explosive launch of the load from the launch tube.

the spring is not biased or biased only to a small degree. The wobbler plate has a clamped peripheral weakened sealing



portion that breaks when the wobbler plate is subjected to a force above a predetermined magnitude.

3,596,600
SHOTGUN SHELL
 Jesse R. Himmelsbach, Jr., P.O. Box 6, Baker, Oreg.
 Filed Nov. 26, 1968, Ser. No. 778,947
 Int. Cl. F42b 7/06, 7/08
 U.S. Cl. 102-42 10 Claims

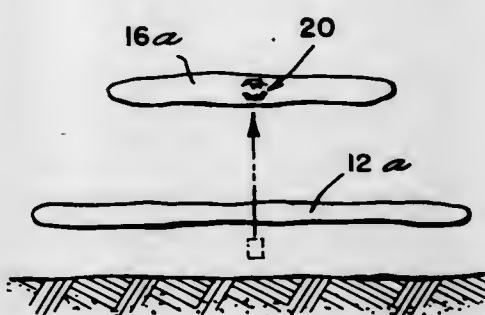


A shotgun shell having a plastic wad secured in an annular groove formed around the inner periphery of the shell case adjacent its open mouth to receive and retain the plastic wad. The wad is a concave-convex, or dome-shaped disc having an outer periphery of a size to closely fit within the open mouth of the shell case to radially align the peripheral edge of the wad with the groove. The wad is initially positioned into the open mouth of the shell case with the convex surface toward the open end of the case, then the wad is oil-canned, or snapped over center to expand the peripheral edge portion of the wad into the groove to seal and retain the wad in the shell case.

3,596,601
COLLAPSIBLE DETONATING DEVICE FOR MINES
 Heinrich Koff, Troisdorf, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
 Filed Jan. 3, 1969, Ser. No. 788,762
 Int. Cl. F42c 7/02, 15/14, 15/18
 U.S. Cl. 102-70 S 9 Claims

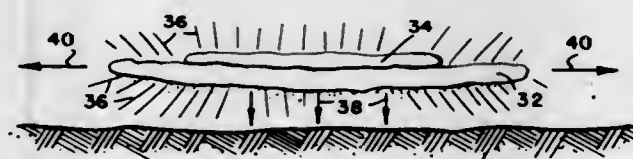
Pressure from an external force near the detonating device will collapse or move a triggering rod to thus rock an attached wobbler plate, which rocking will lift a U-shaped clamping claw that will pull a firing pin against the bias of a spring away from a primer to a position where the clamping claw automatically releases the firing pin so that it will move under the bias of the thus tensioned spring to strike and detonate the primer. In the normal position, the clamping claw prevents movement of the firing pin into the primer and

3,596,602
DISTRIBUTED EXPLOSIVES AGENT DISPERSAL SYSTEM
 William A. Gey, and Armin T. Wiebke, both of China Lake, Calif.
 Filed Sept. 12, 1966, Ser. No. 578,894
 Int. Cl. F42b 11/24, 15/30, 25/14
 U.S. Cl. 102-90 1 Claim



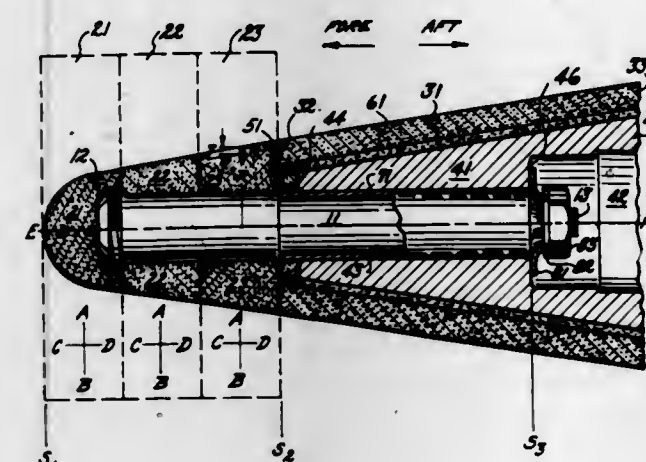
This invention relates to biological and chemical (BW/CW) warfare and more particularly to improvements in dispensing the BW/CW agent.

3,596,603
METHOD OF DISPERSING BW/CW OR OTHER MATERIALS
 Harold J. Grytling; Lewis A. Stevens, China Lake, and Robert C. Robbins, Menlo Park, all of, Calif., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Sept. 12, 1966, Ser. No. 578,922
 Int. Cl. F42b 15/30, 25/12
 U.S. Cl. 102-90 2 Claims



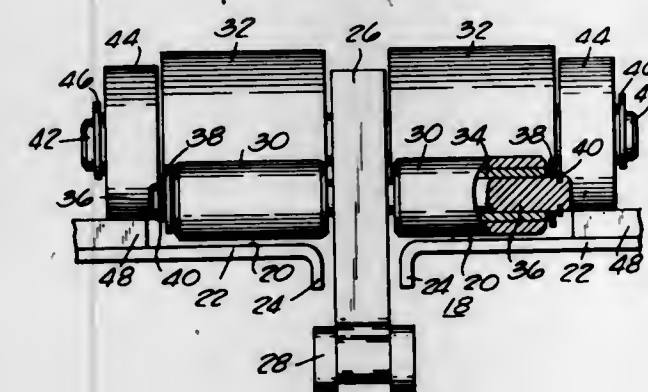
A method and apparatus for forming a flat cloud of BW/CW agent and simultaneously a superposed flat cloud of fuel air. The fuel air cloud is then detonated.

3,596,604
PYROLYTIC GRAPHITE NOSE TIP FOR HYPERVELOCITY CONICAL REENTRY VEHICLES
 Raymond G. Corkery, Redlands, Calif., assignor to The United States of America as represented by the Secretary of the Air Force
 Filed Feb. 19, 1969, Ser. No. 800,648
 Int. Cl. F42b 15/00
 U.S. Cl. 102-105 4 Claims



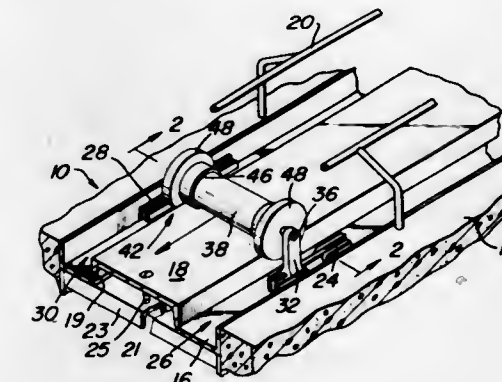
A pyrolytic graphite nose cone tip for hypervelocity conical reentry vehicles in which thermal strain compatibility is achieved longitudinally, radially, and through the load paths of the nose cone tip, by positioning adjoining plates of pyrolytic graphite of varying composition, of varying number, and of varying thickness, along the most forward portion of the nose cone tip; orienting the plates so that they are less thermally conductive in the longitudinal direction (i.e. forward) than they are radially; and, contouring the plates to conform to the desired nose cone tip external configuration.

3,596,605
CONVEYOR MECHANISM
 Richard J. Shelstad, P. O. Box 35, Butler, Wis.
 Filed Oct. 24, 1968, Ser. No. 770,327
 Int. Cl. B65g 19/24
 U.S. Cl. 104-172 4 Claims



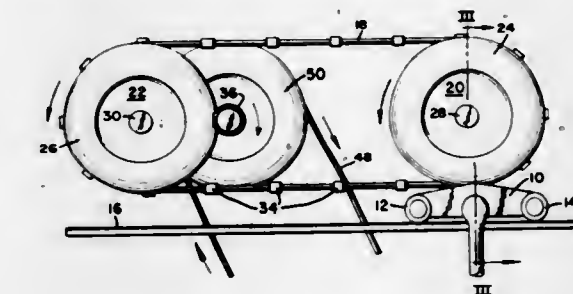
A conveyor mechanism for moving a car through an automatic car wash comprising a plurality of spaced drive unit assemblies fastened to a drive chain. Each drive unit is comprised of a trolley frame having a small set of front rollers and a larger set of rear rollers mounted thereon. Both sets of front and rear rollers engage the tire of the car and cause it to roll along a predetermined path. A third set of support rollers are mounted on the trolley frame outboard of said front and rear tire engaging rollers. The support rollers roll on bearing strips positioned along the conveyor path and serve to stabilize the load exerted on the drive unit assembly by the car tire during the conveying operation.

3,596,606
VEHICLE CONVEYOR
 Courtland N. Smith, Jr., Glen Ridge, and Edward L. Verhagen, Rahway, both of, N.J., assignors to Sherman Car Wash Equipment Co., Palmyra, N.J.
 Filed Nov. 12, 1968, Ser. No. 774,748
 Int. Cl. B65g 17/38
 U.S. Cl. 104-172 5 Claims



A vehicle conveyor is provided which includes pusher assemblies for contact with the tires of a vehicle. The pusher assemblies are supported by a shaft having wheels in rolling contact with a track. Wheel flanges are provided on the pusher assemblies to prevent lateral shifting with respect to the track. The pusher assemblies may be removably coupled to their conveyor chain with a quick release mechanism.

3,596,607
CABLE DRIVE DEVICE FOR AN ENDLESS CABLE INSTALLATION
 Jean Pomagalski, 114 Avenue de l'Eygala, 38 La Tronche, France
 Filed Aug. 9, 1968, Ser. No. 751,505
 Claims priority, application France, Aug. 11, 1967, 117,847
 Int. Cl. B61b 9/00
 U.S. Cl. 104-178 6 Claims

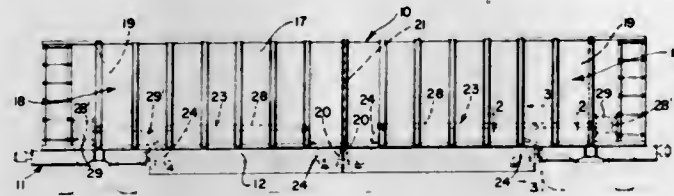


This disclosure concerns a device for driving a carriage along a rail by means of an endless aerial cable. The cable has a plurality of stops mounted thereon and is stretched between two pulleys, each having a pneumatic outer surface. The first pneumatic surface engages the carriage to synchronize the speed of the carriage with the endless cable.

3,596,608
HOPPER DOOR ACTUATING MECHANISM
 Herman A. Aquino, Hobart; Ernest J. Nagy, Munster, and William R. Shaver, Munster, all of, Ind., assignors to Pullman Incorporated, Chicago, Ill.
 Filed Nov. 20, 1968, Ser. No. 777,430
 Int. Cl. B61d 7/02, 7/18, 7/21
 U.S. Cl. 105-251 22 Claims

This invention relates to a vehicle discharge arrangement for hoppers which may be carried by a railway car or other type of vehicle. Bottom doors are pivoted about a generally horizontal axis to open lowered and closed raised positions and are provided at their lower ends with edge portions positioned in overlapping closed positions. One door is operated by a transversely extending arm which in turn is moved by means of a vertical lever pivoted on a supporting sill extending longitudinally of the vehicle. The other door is intercon-

nected to move with the first door by means of a linkage and bellcrank mechanism which permits the first door to move initially out of the closed position before any substantial movement of the second door occurs. In a partially opened position the overlapping edge portion of the first door is out



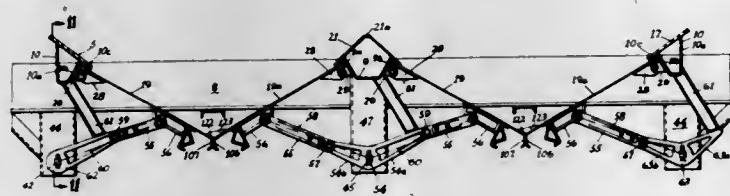
of the way of the second door which then can pivot to its open position. The linkage and bellcrank mechanism, as well as the transverse arm and vertical lever means, are arranged to be positioned in overcenter locking configurations to positively secure the doors in their closed positions.

3,596,609

RAPID DISCHARGE HOPPER CAR DOOR ACTUATOR
Robert C. Ortner, Cincinnati, and Norman S. Adams, Maderia, both of Ohio, assignors to Ortner Freight Car Company, Cincinnati, Ohio
Continuation-in-part of application Ser. No. 546,722, May 2, 1966, now abandoned. This application Aug. 13, 1969, Ser. No. 857,269

Int. Cl. B61d 7/18, 7/22, 7/28
U.S. Cl. 105—240

29 Claims

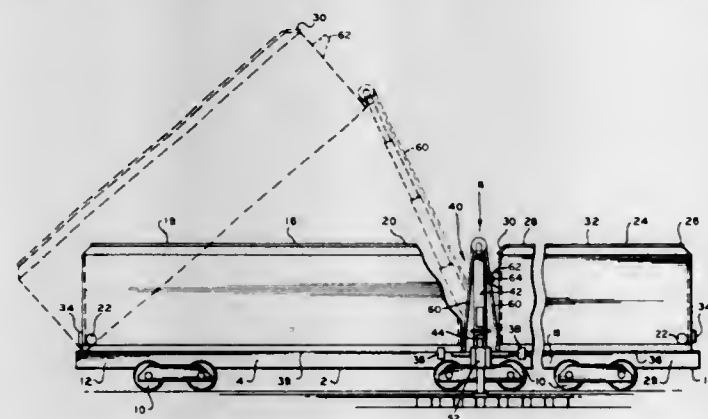


Door-actuating means for use in a hopper car of the type having a plurality of hopper doors arranged in opposing pairs and swingable between a downwardly depending open position and a closed position wherein their bottom edges meet in abutting relationship. The hopper doors have portions capable of being flexed inwardly relative to the normal plane of the door. The operating means for the doors being capable of fine adjustment so as to effect flexure of the doors as they swing from their closed to their open positions. The bottom edges of the doors are provided with sealing means which will not obstruct the discharge of material from the hopper car during the unloading process.

3,596,610

COMPOSITE TILTING BODIED RAILWAY CAR
William A. Keene, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed June 27, 1969, Ser. No. 837,127
Int. Cl. B61d 5/02; B61d 9/02; B61d 9/10
U.S. Cl. 105—261 A

2 Claims



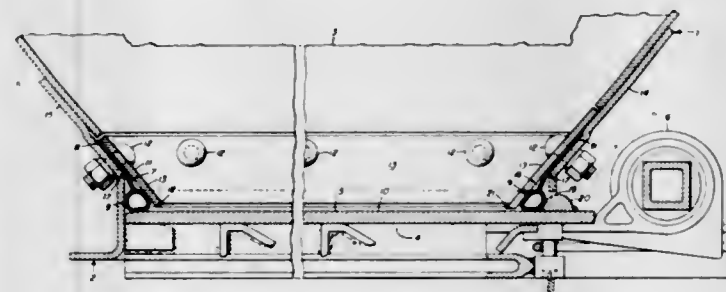
A composite tilting bodied railway car comprising two tanks that are constructed to be independently elevated to an

inclined position by a single hydraulic unit for injection and discharge of material thereinto and therefrom.

3,596,611
RESILIENT GASKET-SEALING DISCHARGE GATE ASSEMBLY

Walter L. Floehr, Toledo, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio
Filed Nov. 4, 1968, Ser. No. 772,935
Int. Cl. B61d 7/20, 7/22, 7/24
U.S. Cl. 105—282 A

9 Claims



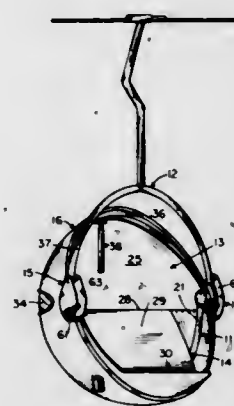
A railway hopper car discharge gate assembly rendered self-sealing by a resilient gasket clamped to the gate frame and engaging an upper surface of the gate in the latter's closed position, a section of the gasket overlying a gate-receiving opening in the frame and constantly engaging the gate being prevented from pinching on movement of the gate by being backed only when the gate is closed, by a member carried by the gate.

3,596,612

SUSPENDED SPHEROIDAL CAR

Tony R. Sowder, East 814 Grave Ave., Spokane, Wash.
Filed June 2, 1969, Ser. No. 829,209
Int. Cl. A47c 7/66; B61b 7/08; B61d 19/00
U.S. Cl. 105—329 S

8 Claims

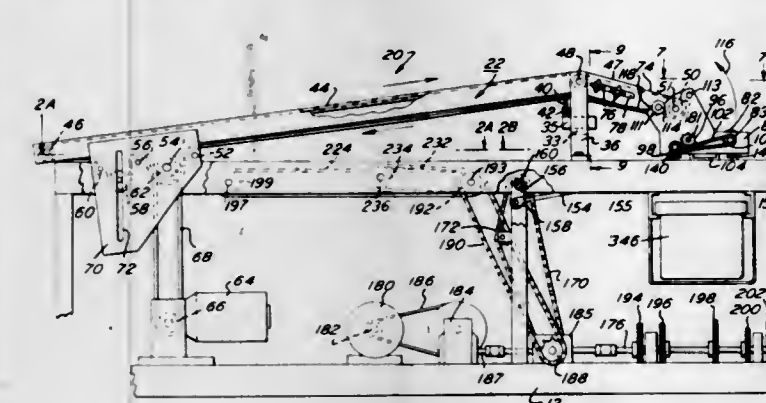


A compound aerial tram chair cover formed with one smaller shell and a second larger shell pivotable about a horizontal axis to extend over the smaller shell in opening. The pivotable mounting of the cover provides shock absorption upon extreme pivotable motion and from an offcenter position biases the movable shell to either closed or open positions. Means are provided to maintain the cover partially open to allow comfortable extension of a user's legs. The cover provides a small reactive surface to wind pressure while providing a large contained volume for user comfort, and allows loading during carrier motion.

3,596,613
AUTOMATIC MACHINE FOR CUTTING AND DEPOSITING DOUGH INTO PANS
Ernest J. Roth, Ridgewood, N.J., and Frank D. Chipchase, New York, N.Y., assignors to International Multifoods Corporation, Minneapolis, Minn.
Filed Nov. 29, 1968, Ser. No. 779,691
Int. Cl. A21c 5/00

U.S. Cl. 107—4

23 Claims



Raw dough is formed in a sheet. The sheet may be cut and separated into webs and curled into rolls. Alternatively, the single sheet may be fed to the automatic machine. The rolls are simultaneously cut into gobs which fall into pans. Alternatively, the sheet is cut into distinct single gobs one of which falls into each pan. The pans are moved in synchronization along a conveyor with the action of the cutting blades so that a row of gobs or a single cut sheet is provided in each pan. The pans are automatically dispensed from a hopper and moved into position wherein they will receive the cut raw dough.

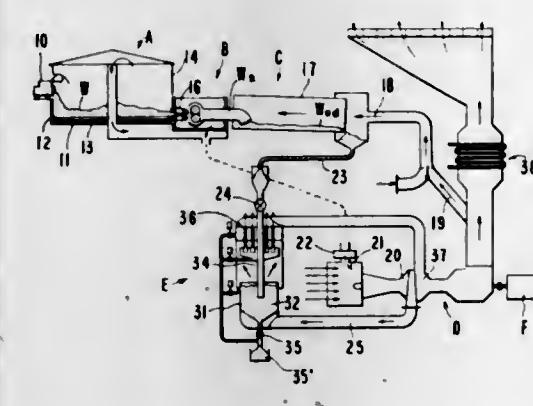
3,596,614

FLUID BED REACTOR MATERIAL COMBUSTION APPARATUS

Richard S. Smith, Palo Alto; Dale A. Furlong, Sunnyvale, and Ronald D. Kinsey, Cupertino, all of Calif., assignors to Combustion Power Company, Inc., Palo Alto, Calif.
Filed Aug. 30, 1968, Ser. No. 756,593
Int. Cl. F23g 5/00

U.S. Cl. 110—8 P

2 Claims



A material combustion method and apparatus is disclosed wherein material to be combusted is directed into a fluid bed reactor, compressed air directed through the fluid bed and entrained particles removed from combustion gases evolved during combustion.

3,596,615

SEED METERING DEVICE

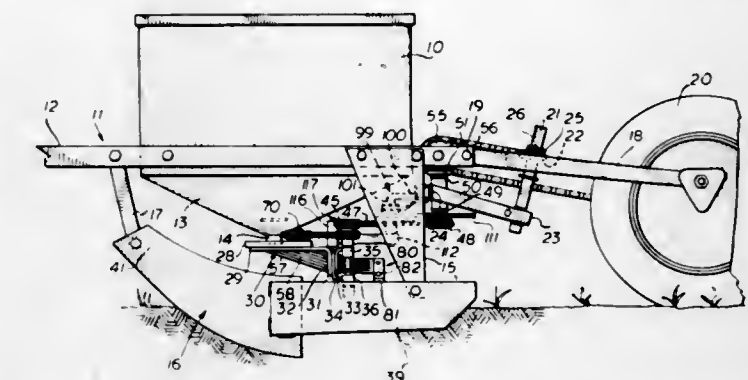
Raymond C. Fisher, Hinsdale, Ill., assignor to International Harvester Company, Chicago, Ill.
Filed Oct. 1, 1968, Ser. No. 764,131
Int. Cl. A01c 7/18

U.S. Cl. 111—76

6 Claims

A high capacity seed metering device is provided which also has high tolerance to seed size and shape, wherein the seed is fed to a relatively stationary plate separate from the hopper and having openings communicating with a plurality

of inclined chutes through which the seed passes on the way to the furrow. Bridging of the seed at the openings is



prevented and advance thereof through the chutes or passage is accomplished by vibrating the plate and the chutes.

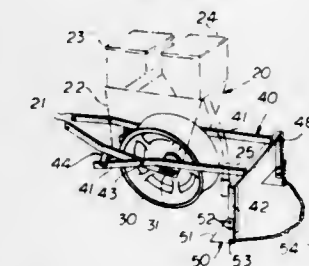
3,596,616

SOIL MULCHING DEVICE

Jack L. Bauman, Naperville, and John F. Reynolds, Downers Grove, both of Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Oct. 21, 1968, Ser. No. 769,284
Int. Cl. A01c 5/08

U.S. Cl. 111—80

2 Claims



A soil tilling and mulching device including a soil penetrating tool with a chain attached to it in such a manner as to form a catenary and be drawn under the surface of the soil to dislodge undesirable vegetation, produce a surface mulch and to mix surface deposited chemicals into the soil.

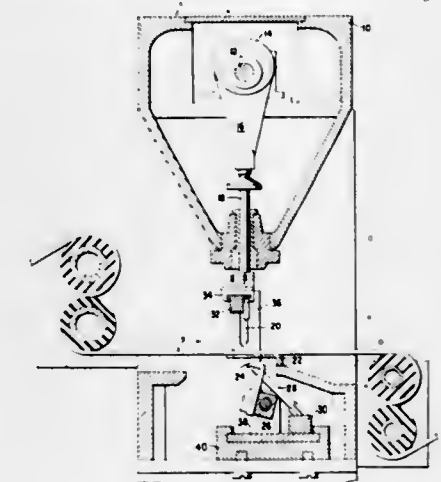
3,596,617

SPLIT GAUGE TUFTING MACHINE

Charles William Watkins, Hixson, Tenn., assignor to The Singer Company, New York, N.Y.
Filed Apr. 3, 1969, Ser. No. 813,131
Int. Cl. D05c 15/30

U.S. Cl. 112—79 R

5 Claims



This disclosure relates to a novel and improved tufting machine for producing relatively dense pile fabrics with standard gauge parts and wherein desired pattern effects can be obtained. The advantages of the invention are generally obtained by initiating relative movement between the gauge parts such as the needle, looper and cutting knife, and the backing fabric and needle plate. In accordance with the invention, the gauge parts are such that they always remain in

registry during relative movement thereof. By this means, the gauge parts may be shifted distances lesser than the actual gauge of the parts so that rows of tufts may be produced which are spaced more closely than the gauge of the parts themselves. It will be seen, therefore, from the following specification that relatively dense pile fabrics can be produced without requiring relatively fine gauge parts with their inherent problems of operation.

3,596,618 AUTOMATIC BUTTONHOLE MECHANISMS FOR ZIGZAG SEWING MACHINES

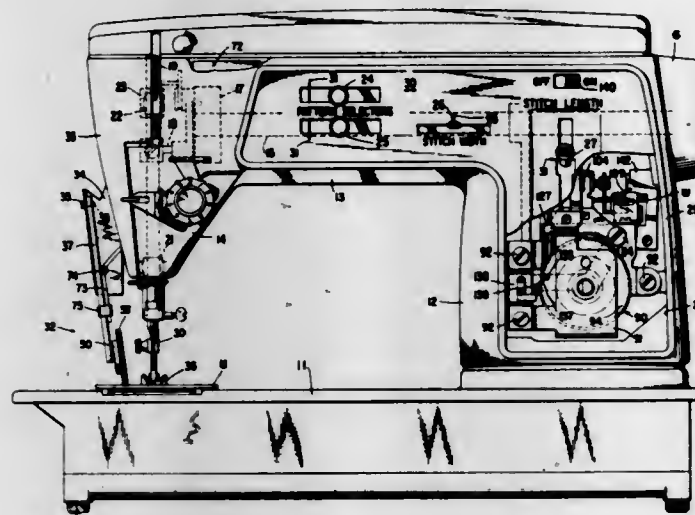
Henry T. Goldbach, Little Ferry; James V. Molnar, Parsippany; Robert C. Hauf, West Paterson, and Robert W. Graft, Somerville, all of, N.J., assignors to The Singer Company, New York, N.Y.

Filed Apr. 17, 1970, Ser. No. 29,622

Int. Cl. D05b 3/02

U.S. Cl. 112-158

5 Claims



A buttonhole mechanism having a wheel, which rests upon the material being sewn so that the wheel turns as the material is being fed, to provide sensing pulses at preset intervals which control electromechanisms for proper operation of a compact buttonholing assembly of a household zigzag sewing machine. When an operator sets a single-switching device, the buttonholing assembly is coupled to all of the sewing machine controls requiring variation during the stitching of the buttonhole.

3,596,619 LOCK STITCH SEWING MACHINE HAVING CRESCENT-SHAPED BOBBIN

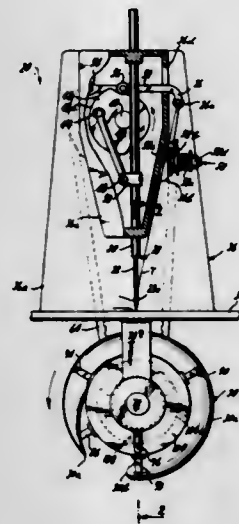
Ragnar William Winberg, 115 W. Elder Ave., Floral Park, N.Y.; Robert W. Winberg, 19 York Place, Williston Park, N.Y.; and Paul N. Winberg, 247 8th St., Troy, N.Y.

Filed Apr. 12, 1966, Ser. No. 542,005

Int. Cl. D05b 57/14

U.S. Cl. 112-181

8 Claims



A sewing machine having a crescent-shaped bobbin case which receives a supply of bobbin thread which cooperates

with a needle movable through a stitch-forming cycle and receiving a needle thread which provides a lock stitch sewing machine having an exceptionally large capacity bobbin.

3,596,620 ROTARY LOOPTAKER FOR LOCKSTITCH SEWING MACHINES

Willi Vogel, Karlsruhe-Durlach, Germany, assignor to G. M. Pfaff AG, Kaiserslautern, Pfalz, Germany

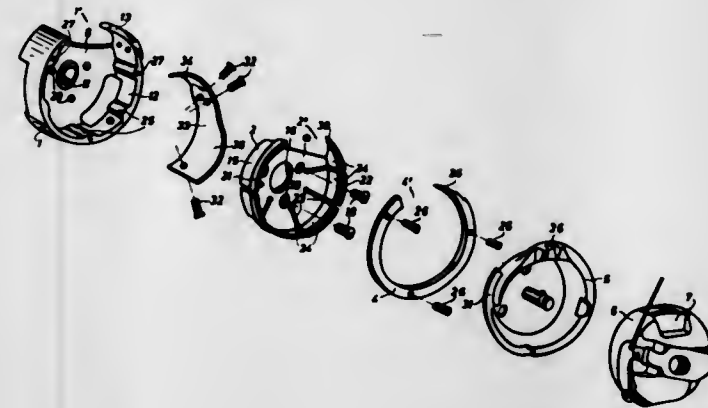
Filed Jan. 2, 1970, Ser. No. 208

Claims priority, application Germany, Mar. 7, 1969, P 19 11 562.9

Int. Cl. D05b 57/14

U.S. Cl. 112-228

8 Claims



In a rotary looptaker for lockstitch sewing machines of the type comprising a rotating cup-shaped looptaker body having a circular raceway engaged by the bearing rib of a stationary bobbin case, said raceway being formed by a shoulder on the inside edge of the cylindrical sidewall of said body and a ring-shaped cove overlying the recess formed by said shoulder, the looptaker body is subdivided into a plurality of segments by slits extending from a reinforced central bottom portion thereof radially outwardly and along the cylindrical wall in a direction parallel to the looptaker axis. The segments with their shoulders forming part of the raceway are elastically connected and the cover forming the remaining part of the raceway is rigidly connected with the central bottom portion of the looptaker body.

3,596,621 LONGITUDINALLY SPLIT AND HINGED BARGE

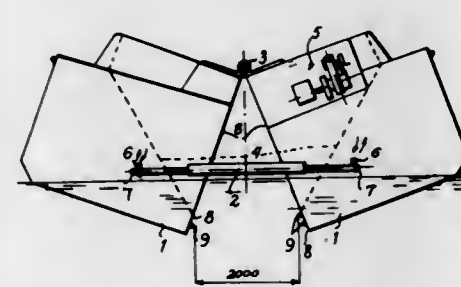
Kjell Werenskiold, Bekkestua near Oslo, Norway, assignor to Ingenior F. Selmer A/S, Oslo, Norway

Filed Mar. 5, 1969, Ser. No. 804,502

Int. Cl. B63b 35/30

U.S. Cl. 114-29

3 Claims



This invention relates to an improvement in longitudinally split barges where the edges of the hopper of the barge with sealing means are pressed together on closing the barge. Said sealing means consisting of at least one projecting web on one barge half and at least two projecting webs on the second barge half (i.e. the edges of the hopper), the said webs interacting and thus form a labyrinth seal and a shearing force resistant element between the two barge halves.

3,596,622 LIGHT-WEIGHT WRECK-RESISTANT VEHICLE

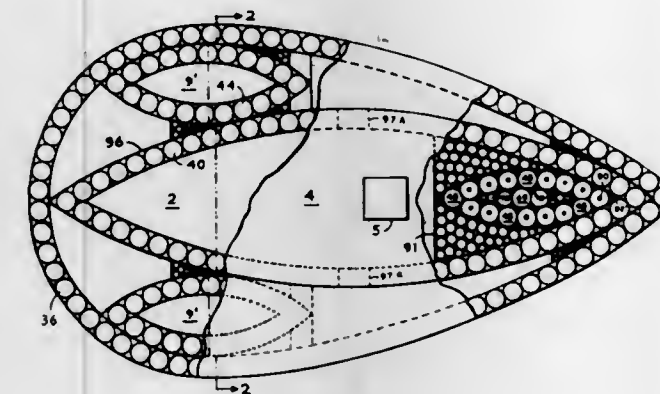
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.

Filed Jan. 27, 1969, Ser. No. 794,092

Int. Cl. B63b 43/10, 35/00

U.S. Cl. 114-69

35 Claims



A vehicle, especially adapted for marine use, having strong, lightweight walls, comprising gas-containing thin-metal, cylindrical or corrugated cans, between skins, and surrounded by foamed plastic. These receptacles are: sealed pipes or tubes; or rows of aligned short cans, end-to-end glued together. The skins may be: metal sheets, epoxy-glued or brazed to the cans; or metallic mesh attached to the cans by brazing or glue and/or bolts, coated with stucco. Optionally the rows comprise short cans of slightly different diameters, with the smaller cans nested and glued within rims of the larger cans; and skin-holding bolts are between opposite smaller cans in adjacent pairs of the rows. Sheet rubber is glued to the outer skin of stucco or metal.

3,596,623 DOUBLE-HINGED FLotation RAMP

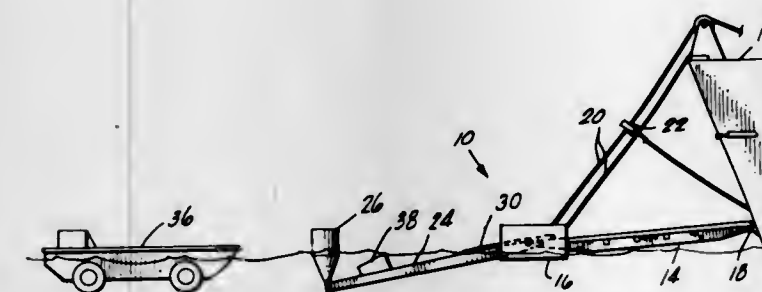
Ernst G. Frankel, Los Angeles, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed May 31, 1967, Ser. No. 642,512

Int. Cl. B63b 35/44

U.S. Cl. 114-43.5

11 Claims



An apparatus for coupling a small floating object such as a ship to another larger object or ship where the component of motion in the vertical direction of the portion of the apparatus contacted by the small ship is maintained substantially synchronous with the component of motion in the vertical direction of the small ship.

3,596,624 PROPELLING AND STEERING MEANS FOR BOATS

Willard E. Lay, 1810 N. Monitor Ave., Chicago, Ill.

Filed Mar. 13, 1970, Ser. No. 19,250

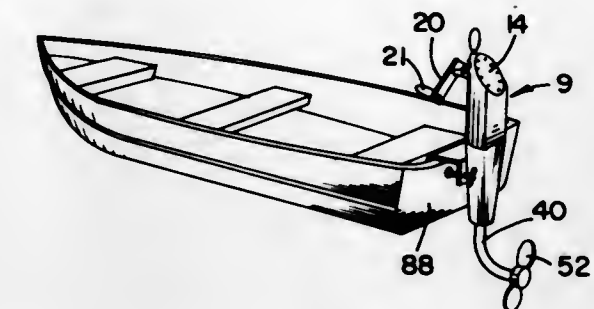
Int. Cl. B63h 21/26

U.S. Cl. 115-18

10 Claims

A manually operated propelling and steering means for boats comprising, a rotatable hand operated member which

when rotated will through gears rotate a flexible shaft, a propeller for propelling the boat, and including a tubular



housing surrounding the flexible shaft which is rotated manually to position the propeller to steer the boat.

3,596,625 TROLLING ATTACHMENT FOR OUTBOARD MOTORS

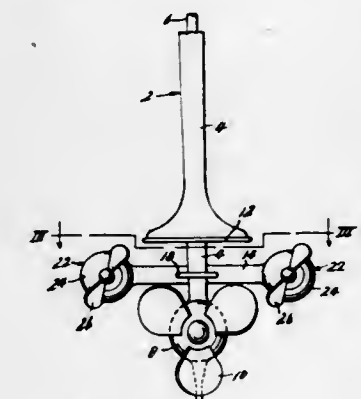
Manfred H. Guenther, 610 E. 151st Terrace, Grandview, Mo.

Filed Feb. 24, 1969, Ser. No. 801,691

Int. Cl. B63h 21/26

U.S. Cl. 115-18 A

3 Claims



A trolling attachment for an outboard motor having a vertical column with an engine at the upper end thereof adapted to drive a horizontal screw at the lower end thereof, the boat being steerable by turning said column about a vertical axis, said attachment consisting of a crossarm fixable to or integral with said column, said crossarm carrying an electric motor at each end thereof each adapted to drive a small propeller, said propellers being disposed respectively at laterally opposite sides of the main screw, and means for operating said motors either separately or concurrently.

3,596,626 STEERING AND TILTING SYSTEMS FOR MARINE VESSELS

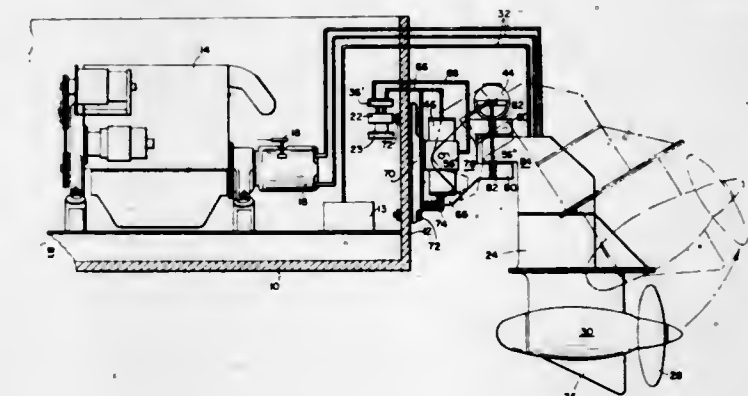
Curt Buddrus, 2522 Hayes St., Muskogee, Okla.

Filed May 22, 1969, Ser. No. 826,913

Int. Cl. B63h 25/42, 5/12

U.S. Cl. 115-35

7 Claims



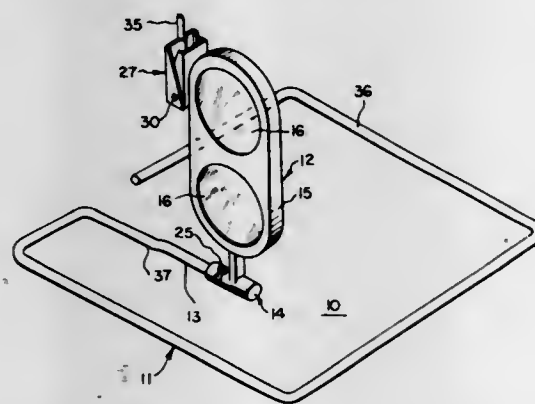
Steering and tilting systems featuring hydraulic actuators. The steering system comprises two self-contained units in-

cluding a first helm pressure generating assembly positioned as desired within the vessel and a second hydraulic rotary actuator assembly suitably mounted to the vessel guidance system. The tilting system also comprises two self-contained units including a first motor driven hydraulic pump positioned as desired within the vessel and a second hydraulic actuator assembly suitably mounted to the underwater propulsion system.

3,596,627
PORTABLE WARNING DEVICE
Carl E. Monk, 428 Southland Blvd., Louisville, Ky.
Filed Jan. 19, 1970, Ser. No. 3,752
Int. Cl. E01f 9/10

U.S. Cl. 116-63 P

10 Claims

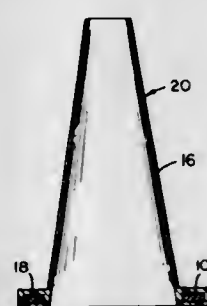


A portable warning device has a heavy base of steel rod formed into a polygon. The rod has a portion, extending into the polygon, to which is pivotally secured a reflector. The portion is spaced from one side of the polygon a distance sufficient to allow the reflector to assume a stored position wherein it lies between the portion and the polygon side substantially within the plane of the base.

3,596,628
WARNING MARKER
Allen C. Wright, Moraga, Calif., assignor to Utility Products Inc., Oakland, Calif.
Substitute for application Ser. No. 599,427, Dec. 6, 1966.
This application Mar. 23, 1970, Ser. No. 11,304
Int. Cl. E01f 9/00

U.S. Cl. 116-63 P

1 Claim



Disclosed herein is a method of making a weighted warning marker wherein the warning marker body is formed about a rigid core, and wherein the rigid core is acted upon to make it nonrigid while it is enclosed within the marker body. Also disclosed is a weighted warning marker made by the above method wherein the core which acts as a weight is composed partly of magnetic material.

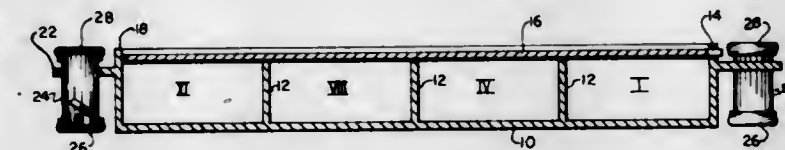
3,596,629
PILL CONTAINER DESIGNATED BY TIME
Henry H. English, deceased, late of Lubbock, Tex. (Bennie Wayne English, executor, 2320 54th Street, Lubbock, Texas, 79412)
Filed Oct. 1, 1969, Ser. No. 862,826
Int. Cl. G09f 9/00

U.S. Cl. 116-121

24 Claims

Twenty-nine individual pill bottles or containers are attached to a carrier. The individual containers are grouped, there being one emergency container and a group of four

containers for each of the seven days of the week. The containers for each day have caps of a distinctive color, which is

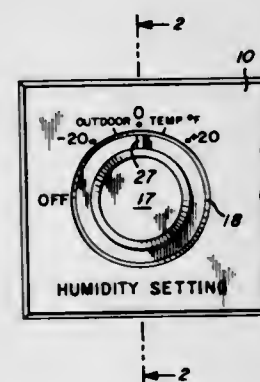


correlated to the hour color shown on a simulated clock face upon the carrier.

3,596,630
CALIBRATING KNOB FOR CONTROL DEVICE
Walter E. Edelman, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Feb. 27, 1970, Ser. No. 14,915
Int. Cl. G09f 9/00

U.S. Cl. 116-124

6 Claims

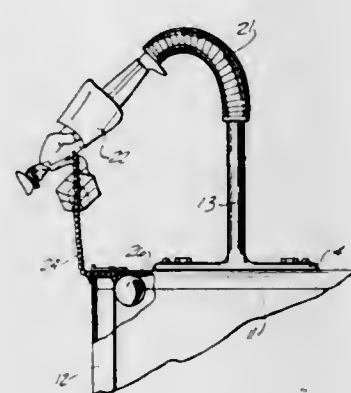


An adjusting knob for a control device, the knob having a pointer, that cooperates with a scale on the instrument cover in normal use. If recalibration is desired, the cover is removed to expose indicia on the dial carried by the knob with which the pointer also cooperates. The pointer has a slip friction mounting on the knob to permit its adjustment to a selected one of the indicia on the dial.

3,596,631
SIGNAL DEVICE
Donald F. Sutton, 1206 N. 95th St., Omaha, Nebr.
Filed Mar. 19, 1970, Ser. No. 21,006
Int. Cl. G08c 5/00

U.S. Cl. 116-132

8 Claims

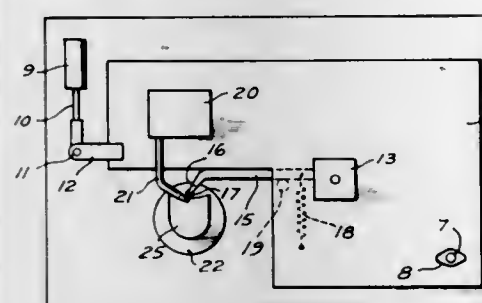


A signal device to be mounted on top of a mailbox, the device comprising base means, biasing means, a signal element, linkage means, and an anchor; whereby when the lid is opened, the preplaced anchor is released allowing the depressed signal element to spring to an upright position, thus indicating to a distant observer that the mailbox has been opened.

3,596,632
ADHESIVE APPLICATOR
Gordon Gauvin; Arnold Jaffe, and Albert Warner Armstrong, all of Amsterdam, N.Y., assignors to Fownes Brothers & Co., Incorporated, New York, N.Y.
Filed Dec. 31, 1968, Ser. No. 788,133
Int. Cl. B05c 11/00, 5/00

U.S. Cl. 118-8

3 Claims



This invention is directed to a machine for automatically applying a continuous stripe of adhesive to one face of an irregularly shaped object, such as a shoe heel or sole, in which the adhesive stripe is located uniformly at a predetermined distance inwardly from the side edges. The object is releasably secured to a one revolution turntable, and an applicator nozzle is mounted adjacent the exposed surface and is automatically moved toward or away from the geometric center of the exposed face of the object in accordance with changes in the edge contours thereof as the object is being rotated. The edges of the object are used to control or direct the movement of the applicator nozzle.

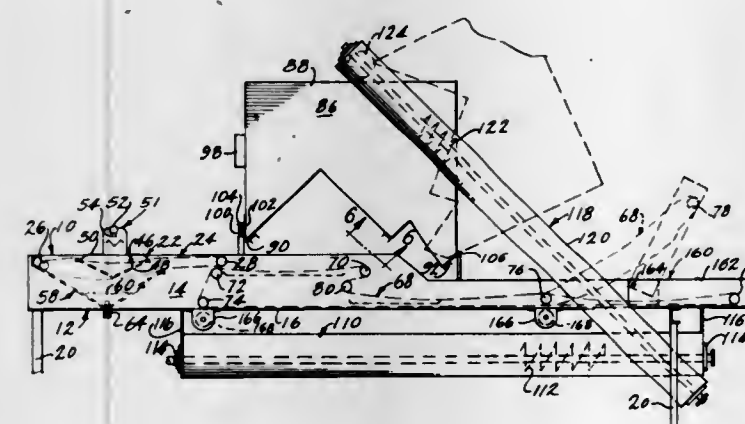
3,596,633
APPARATUS FOR COATING EDIBLE FOOD PARTS
Horace C. Porter, and Marion E. Claytor, both of Gainesville, Ga., assignors to Gainesville Steel Products Company, Gainesville, Ga.

Filed Nov. 30, 1967, Ser. No. 687,012

Int. Cl. A23g 3/20

U.S. Cl. 118-16

7 Claims



A method of coating food parts such as chicken parts, shrimp or potatoes, by moving the parts continuously on a conveyor while dropping a flour breading mixture on one side and then causing the parts to turn over still continuously receiving the breading substance on the other side and recovering the breading substance which has not deposited on the food parts and returning it for reuse. The apparatus comprises a machine with an open mesh conveyor on it continuously driven through a coating pan which receives a liquid flour compound under pressure and into which the edible food parts are dipped as the conveyor moves therethrough and then beneath the breading hopper which is vibrated to gravity feed the bread crumbs onto one side of the coated food parts which are conveyed to a drop-off point at which the parts flip over thereafter passing beneath another breading outlet on the breading hopper receiving bread crumbs on the other side. A screw conveyor on the machine recovers the breading compound which falls unused through the mesh conveyor and returns it to the hopper for

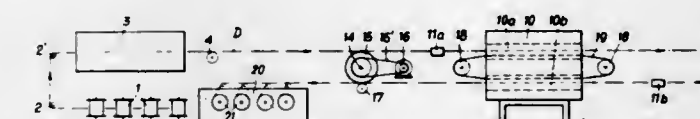
reuse. All of the pans and other parts of the machine are removable for cleaning and may be from stainless steel as are the other parts of the machine.

3,596,634
OVEN INSTALLATION FOR USE IN THE MANUFACTURE OF A PLURALITY OF ENAMELED WIRES

August Fuchs, 76 Koerblergasse, Graz, Austria
Filed Dec. 4, 1969, Ser. No. 882,124
Claims priority, application Austria, Dec. 18, 1968, 12335/68
Int. Cl. B05c 11/12

U.S. Cl. 118-65

10 Claims



An oven body contains first and second drying retorts. A plurality of wire-handling lines are provided, each of which is operable to move a wire to be enameled in a first direction along a first pass path through first enamel coating means and thereafter through said first drying retort in a first plane, then to move said wire in a second direction, which is opposite to the first, along a second pass path through second enamel coating means and thereafter through said second drying retort in a second plane, which is parallel to said first plane, and to repeat said movement of said wire in said first direction through said first enamel coating means and through said first retort in said first direction in said first plane along at least one additional odd-numbered pass path and through said second coating means and said second retort in said second direction in said second plane along at least one additional even-numbered pass path. Said first and second planes are common to all said wire-handling lines. Each of said wire-handling lines comprises first reversing means for guiding said wire from each odd-numbered pass path to the next succeeding even-numbered pass path, and second reversing means for guiding said wire from each but the last even-numbered pass path to the next succeeding odd-numbered pass path. Said first reversing means comprises first axle means extending in said first plane, a first set of loose pulleys freely rotatably mounted independently of each other on said first axle means, second axle means extending in said second plane, and a second set of pulleys freely rotatably mounted independently of each other on said second axle means. Said second reversing means of each of said wire-handling lines comprise a single multigrooved pulley. Each of said wire-handling lines comprises a variable-speed drive unit and an endless tensile element operatively connecting said drive unit to said multigrooved pulley to drive the same, whereby said multigrooved pulley is operable to pull said wire through said drying retorts. All said multigrooved pulleys are rotatably mounted on a common axle.

3,596,635
ELECTROSTATOGRAPHIC OFFICE COPIER
Louis A. Smltzer, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Mar. 16, 1967, Ser. No. 623,770

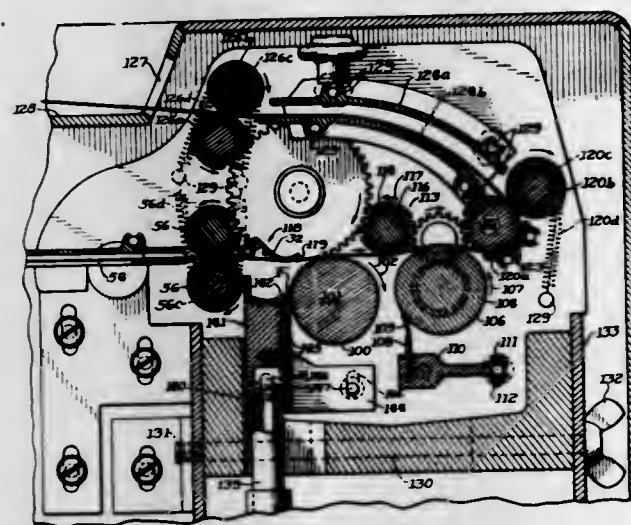
Int. Cl. B05b 5/02; B05c 3/02

U.S. Cl. 118-637

5 Claims

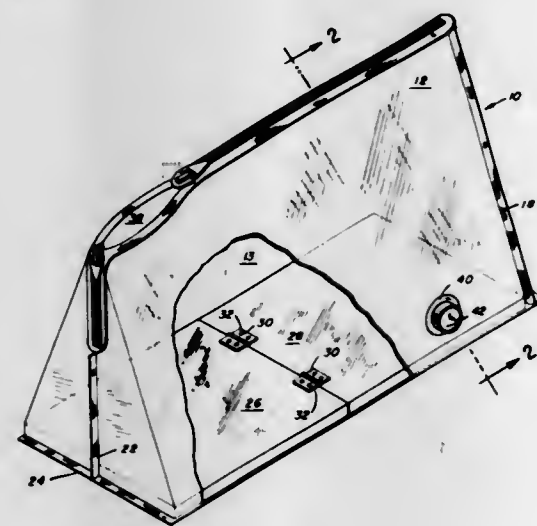
Apparatus for electrostatographically copying, particularly with the use of copy sheets coated with a photoconductor wherein the photoconductive surface is charged, exposed to form a latent electrostatic image and developed. In the development zone, a copious supply of developer liquid is engaged against the image-bearing surface in close adjacency to an electrode surface. This is accomplished by applying liquid to the peripheral surface of an electrode in the form of a roller, or by the use of an electrode taking the form of a wick having capillary passages formed therein, or by a stationary

electrode member having an action surface intersected by plural capillary passages. Liquid developer material is thus ture with means for securing an animal in place on the first support means. A second animal support means is adjustably



applied to only the image-bearing surface to render the latent image visible and utilitarian.

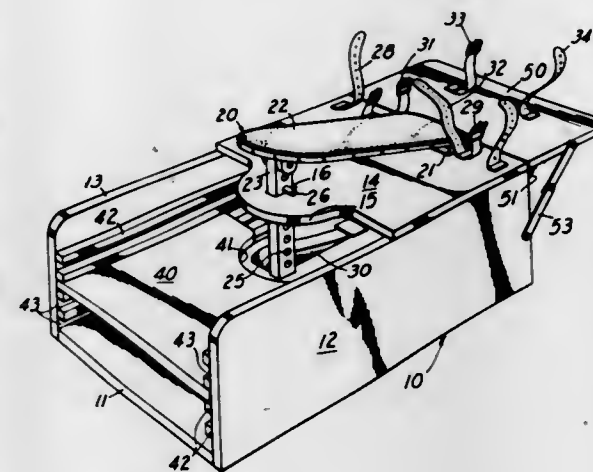
3,596,636
PET DRYING ENCLOSURE
Bette L. Stobaugh, Rte. 2, Box 118, Jennings, Okla.
Filed Dec. 13, 1968, Ser. No. 783,474
Int. Cl. A01k 29/00, 31/08
U.S. Cl. 119-1



A pet drying enclosure is triangularly shaped and includes a substantially rigid floor member, hinged to permit collapsibility to convenient size for storage and travel.

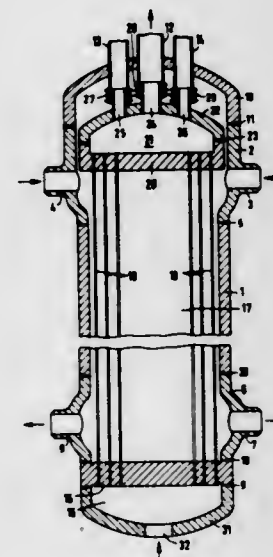
3,596,637
ANIMAL BREEDING AND GROOMING BOX
Esther J. Swafford, Rte 6, Crestland Court, Stone Mountain, Ga.

Filed Oct. 24, 1969, Ser. No. 869,028
Int. Cl. A01k 21/00; A61d 03/00
U.S. Cl. 119-99
This invention relates to an animal breeding and grooming box for use in the care of small domestic animals, such as dogs. More particularly, this invention includes a first animal support means adjustably mounted on a base support struc-



mounted on the base support structure adjacent one edge and beneath the first animal support means.

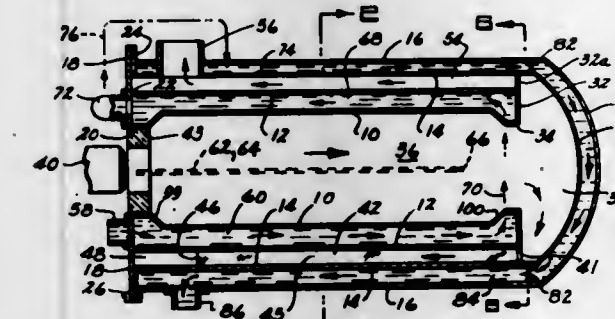
3,596,638
FORCED-FLOW STEAM GENERATOR TO BE HEATED BY PRESSURIZED COOLANT OF A NUCLEAR REACTOR
Rupprecht Michel, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany, München, Germany
Filed Oct. 15, 1968, Ser. No. 767,750
Int. Cl. F22b 1/06



A forced-flow steam generator which is to be heated by pressurized water or other nuclear-reactor pressurized coolant comprises a vertically elongated heat exchanger whose pressure-resistant vessel structure encloses a system of vertically parallel tubes which extend from a plenum chamber at the vessel bottom upwardly to a plenum chamber at the vessel top. The tubes are all straight and have no mixing points between the two plenum chambers. At least one of the two structures that form the respective plenum chambers is movably connected with the wall structure of the heat exchanger vessel to permit a heat-responsive movement. Preferably one of the conduits entering into the vessel to communicate with one of the plenum chambers is joined with an outlet of the chamber by a movable or overlapping joint which is sealed by means of an expansible diaphragm such as a corrugated sealing tube.

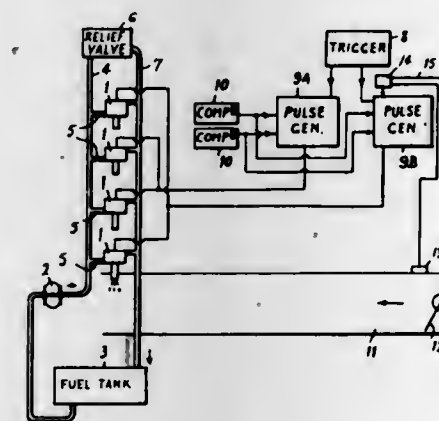
3,596,639
TELESCOPING SLEEVE HEATER
Raymond A. Hemmert, Williamsville, N.Y., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y.

Filed Aug. 11, 1969, Ser. No. 849,036
Int. Cl. F22b 7/12
U.S. Cl. 122-149



A fluid heater, primarily for water, wherein the hot combustion gases and heat-absorbing fluid flow through separate sinuous passage systems formed by four telescoping sleeves and radially spaced partitions in the annular spaces between adjacent sleeves.

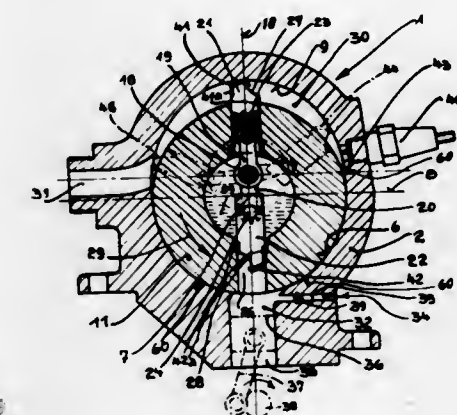
3,596,640
FUEL INJECTION SYSTEMS FOR INTERNAL COMBUSTION ENGINES
George V. Bloomfield, Coventry, England, assignor to Brico Engineering Limited, Coventry, England
Filed Apr. 1, 1969, Ser. No. 811,914
Claims priority, application Great Britain, Apr. 5, 1968, 16640/68
Int. Cl. F02m 5/06
U.S. Cl. 123-32 EA



This invention relates to fuel injection systems for internal combustion engines of the kind in which fuel is fed to an engine through one or more electrically operated fuel injection valves or injectors which are opened intermittently. The invention provides means for controlling the injection valve or valves under engine overrun conditions, and also means for controlling the fuel pressure to the injection valves in accordance with the engine induction passage pressure.

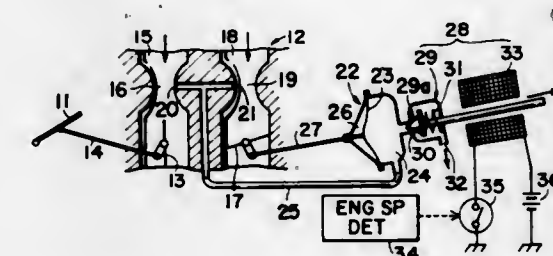
3,596,641
INTERNAL-COMBUSTION ENGINE WITH ROTARY PISTON
Josef Hofmann, Krombach, Germany, assignor to ARO Tankanlagenbau GmbH, Nordring, Offenbach am Main, Germany

Filed Jan. 15, 1970, Ser. No. 2,991
Int. Cl. F02b 57/00, 53/00, 55/00
U.S. Cl. 123-44 D



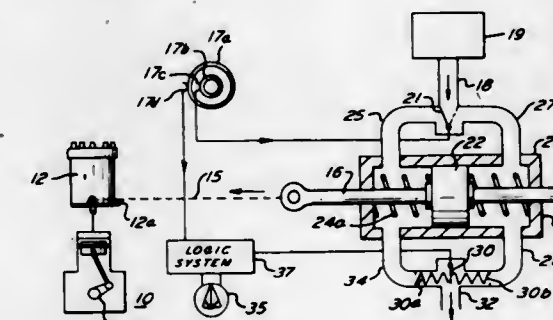
An engine construction in which a casing has circular and oval sections accommodating a rotatable piston guide ring through which pistons radially reciprocate.

3,596,642
CONTROL SYSTEM FOR LIMITING OVERLOAD AND OVERRUNNING OF AN INTERNAL-COMBUSTION ENGINE
Shigefumi Nakata, Aki-gun, Japan, assignor to Toyo Kogyo Co., Ltd., Aki-Gun Hiroshima-Ken, Japan
Filed July 9, 1969, Ser. No. 840,186
Claims priority, application Japan, July 11, 1968, 43/48920
Int. Cl. F02d 11/08; F02m 13/04; F02d 9/00
U.S. Cl. 123-103



A control system for limiting overload and overrunning of an internal-combustion engine having diaphragm-operated intake sectional area control means from the vacuum of the air intake systems employs a solenoid valve operating when the r.p.m. of the engine or the power thereof exceeds a predetermined limit to terminate operation of the diaphragm.

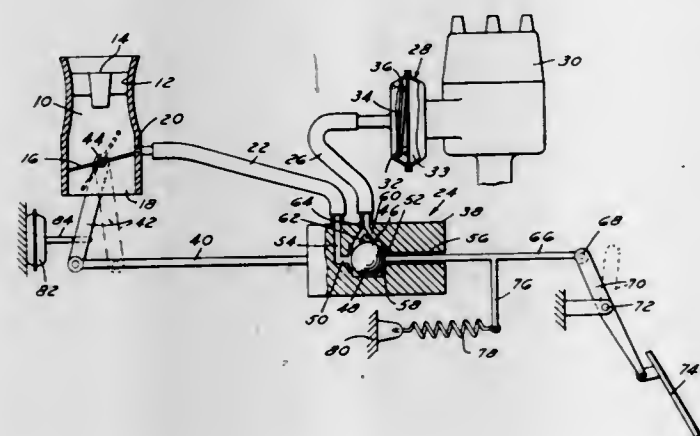
3,596,643
AUTOMATIC OPTIMUM-POWER-SEEKING CONTROL SYSTEM
Paul H. Schweitzer, State College, Pa., assignor to Optimizer Control Corporation
Filed Aug. 12, 1968, Ser. No. 752,064
Int. Cl. F02p 5/14; G05b 13/00; G05d 17/00
U.S. Cl. 123-117 A



The power output of a power-producing machine may be optimized by continuously varying the fluid pressure applied

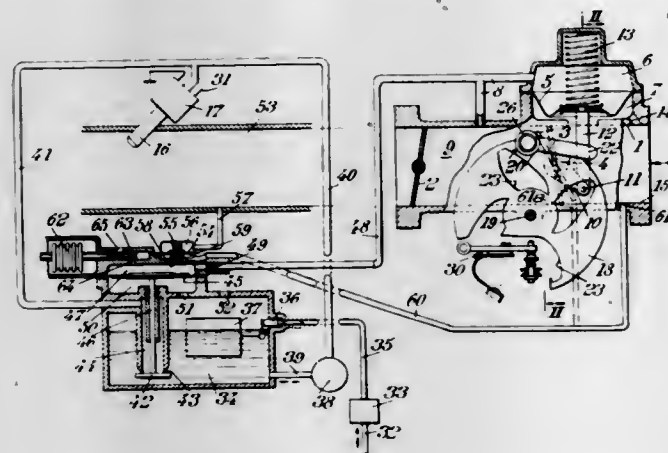
to an actuator which oscillates the setting of an adjustable machine variable about a zero position. The resultant changes of the output power are sensed. Signals are produced which correspond to these changes and to the direction of instantaneous position change of the setting and the fluid pressure is controlled in accordance with these signals in a manner to adjust the zero position about which the setting is being oscillated.

3,596,644
ENGINE DISTRIBUTOR SPARK ADVANCE SYSTEM
Francis P. Hutchins, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Sept. 9, 1968, Ser. No. 758,238
Int. Cl. F02p 5/04; F02d 3/100
U.S. Cl. 123-117 2 Claims



An internal-combustion engine has an ignition spark advance system that includes a valve controlling either a supply of air at atmospheric pressure to the vacuum servo moving the spark advance lever, or subjecting the servo to changing intake manifold vacuum; the valve being connected to and movable with the vehicle accelerator pedal; the valve body in which the valve slides being connected to the carburetor throttle valve; the system including a dashpot permitting slow closing of the throttle valve upon deceleration while simultaneously retarding the spark.

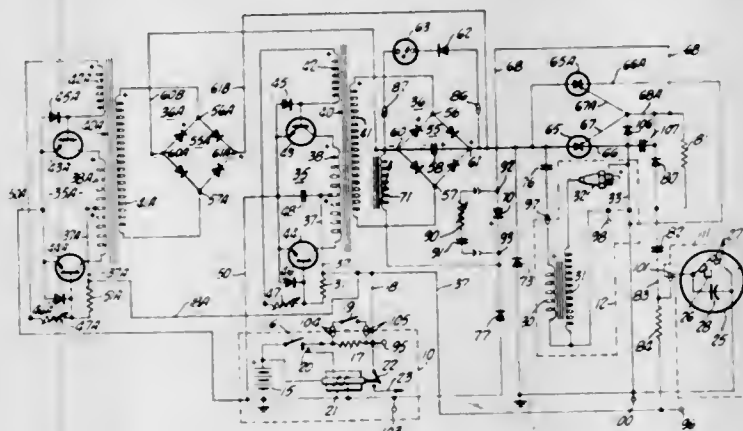
3,596,645
FUEL FEED DEVICES FOR INTERNAL-COMBUSTION ENGINES
Andre Louis Mennesson, Neuilly-sur-seine, France, assignor to Societe Industrielle De Brevets et D'Etudes S.I.B.E., Neuilly-sur-Seine, France
Filed Dec. 9, 1969, Ser. No. 883,401
Claims priority, application France, Dec. 12, 1968, 177918
Int. Cl. F02m 5/102
U.S. Cl. 123-139 AW 9 Claims



The overall duration of opening of an injection valve in the fuel feed is regulated by an auxiliary throttle member opening automatically arranged upstream of a main throttle member. The pressure of the fuel passing through the injection

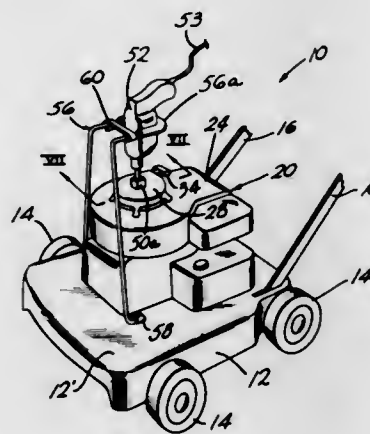
valve is regulated by a system sensitive to the suction existing in the space between the two throttle members. Correction means act by feeding air into the system so as to reduce the suction and can include a diaphragm-controlled return valve and/or a capsule-driven piston obturating a calibrated orifice to the atmosphere.

3,596,646
CAPACITOR-DISCHARGE ELECTRONIC IGNITION SYSTEM
August C. Weiss, 11658 Harvard Drive, Norwalk, Calif.
Filed Apr. 18, 1969, Ser. No. 817,428
Int. Cl. F02p 3/06
U.S. Cl. 123-148 E 2 Claims



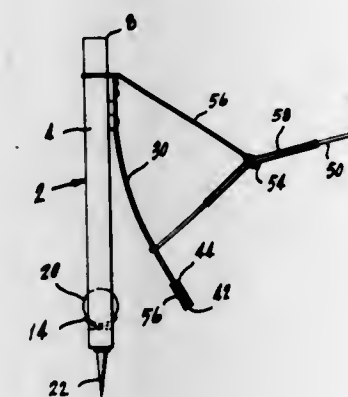
A battery-powered capacitor discharge type of ignition system for a piston engine in which the storage capacitor is charged through a DC-to-DC power converter the output of which is fed to the storage capacitor through an inductance capacitance circuit. A silicon-controlled rectifier means in series with the storage capacitor and a primary ignition coil in a discharge circuit having a diode and capacitor in parallel therein, is triggered by a pulse generated by a circuit powered from the battery and operated in synchronism with the breaker points.

3,596,647
ELECTRIC STARTER MECHANISM FOR SMALL GASOLINE ENGINES
Clarence J. Heisler, R.R. #2, Springport, Mich.
Filed Feb. 3, 1969, Ser. No. 796,094
Int. Cl. F02n 17/00
U.S. Cl. 123-179 SE 5 Claims



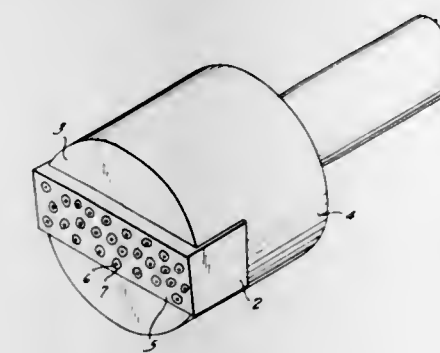
This small engine starting apparatus employs an overriding clutch and a quick disconnect connection for an external electrical power unit; the overriding clutch being engageable, for instance, through the engine crankshaft, flywheel, or alternatively through the power drive to the wheels of a power driven lawn mower or the like; the power unit being safely restrained against reverse torque by attached torque resisting means, and the clutch being coupled, in the deluxe combination, also with a hand pull starter mechanism including a second overriding clutch means in particular relationship to the other overriding clutch in order to enable alternative hand or power starting.

3,596,648
SPRING-TYPE BALL-PROJECTING DEVICE
Russell A. Severs, Jr., 19 E Franklin Ave., Pennington, N.J.
Filed Feb. 7, 1969, Ser. No. 797,535
Int. Cl. F41b 7/00
U.S. Cl. 124-16 4 Claims



A device for projecting a ball or other object in an intended manner for amusement or in a contest. The device has a movable or portable frame provided with an article support and an impact element which is yieldably movable toward a ball or article located on said support to project the ball from the support in a controlled or predetermined manner toward a target or similar objective.

3,596,649
ABRASIVE TOOL AND PROCESS OF MANUFACTURE
Oswald E. Olivieri, Chatham, N.J., assignor to J. K. Smit & Sons, Inc., Murray Hill, N.J.
Filed Apr. 4, 1968, Ser. No. 718,734
Int. Cl. B24b 53/12; C04b 3/16
U.S. Cl. 125-11 12 Claims

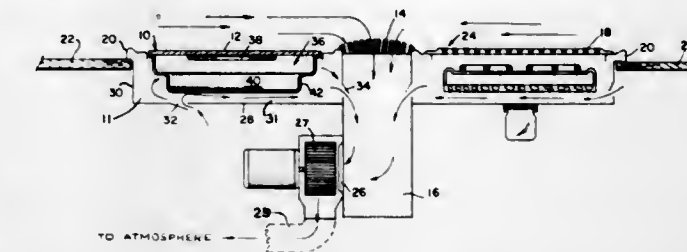


An abrasive tool having improved efficiency and cutting properties which is useful for dressing cutoff, grinding and other abrasive wheels is composed of a tough metallic matrix in which are embedded a number of uniformly dispersed diamonds each encircled by a substantially brittle cermet. The abrasive tool is prepared by coating the diamonds with a ceramic, establishing complete contact between a metal powder and the ceramic-coated diamonds and then hot pressing at a temperature above the sintering temperature of the metal.

3,596,650
VENTILATED COOKING RANGE
Joseph J. Cerola, Indianapolis, Ind., assignor to Jenn-Air Corporation, Indianapolis, Ind.
Filed Jan. 15, 1970, Ser. No. 3,155
Int. Cl. F24c 7/04, 15/10, 15/20
U.S. Cl. 126-37 R 19 Claims

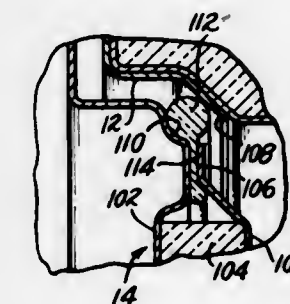
This invention relates to a ventilated cooking device having a ceramic panel cooking surface through which cooking heat is transmitted from a heat source underneath. More specifically, the device includes a stove frame or housing having an upwardly facing recess into which is received a heat cartridge having the ceramic panel facing upwardly therefrom for defining a cooking surface. Ventilating ap-

paratus draws cooling air past and in contact with a portion of the heat cartridge for removing heat therefrom to reduce



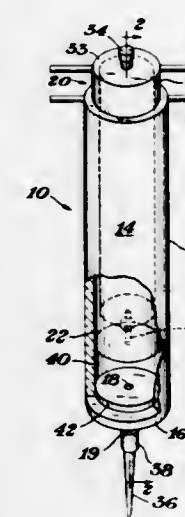
heat transmission to the stove frame and consequently to a kitchen counter in which the frame is adapted to be received.

3,596,651
SELF-CLEANING GAS-FIRED OVEN
John A. Welshofer, Cleveland, and Earl T. Rhinehart, Apison, Tenn., assignors to Magic Chef, Inc., Cleveland, Tenn.
Division of Ser. No. 796,756, Feb. 5, 1969, this application
Feb. 3, 1970, Ser. No. 12,512
Int. Cl. F24c 15/02
U.S. Cl. 126-190 1 Claim



An oven cavity having an upper broil burner and a lower bake burner both of which are supplied with air from a motor-driven blower and a centrifugal switch disables both burners when the blower stops. A first selector places both burners in operation for cleaning or conditions the apparatus for cooking and a first thermostat cuts the broil burner out when cleaning temperature is approached. A second cooking selector and thermostat selects one of the burners for cooking operation. Hot gases from the oven are discharged into surrounding air after being diluted and cooled by air from the blower.

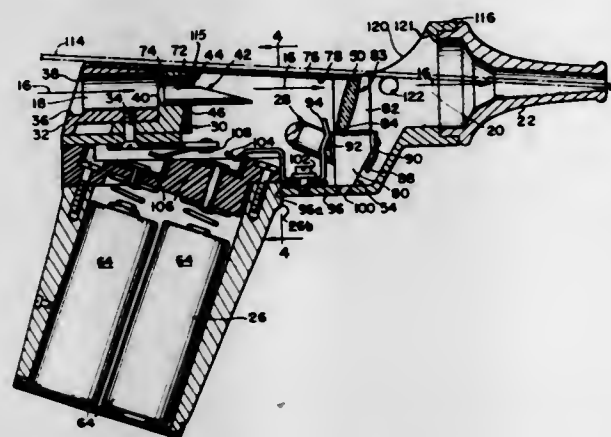
3,596,652
FLUID SEPARATORY DEVICE
James W. Winkelman, Studio City, Calif., assignor to Bio-Science Laboratories, Van Nuys, Calif.
Filed Oct. 14, 1968, Ser. No. 767,374
Int. Cl. A61b 5/10
U.S. Cl. 128-2 5 Claims



The device includes a barrel and plunger assembly for drawing the fluid into a separating chamber, chemical separating means such as an agglutinating agent for separat-

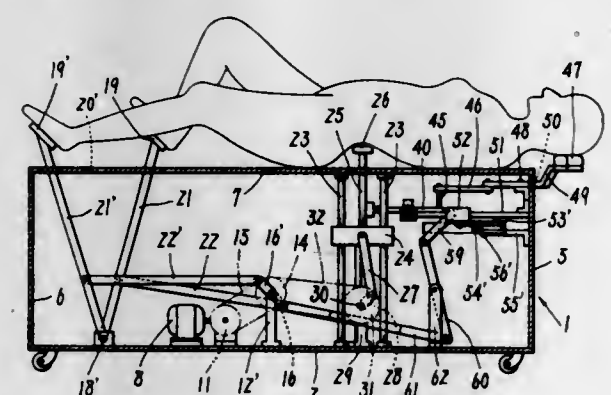
ing the phases in the chamber and means in the plunger assembly including a one-way valve for mechanical separation of the less dense supernatant phase from the more dense phase. The device is of particular utility in separation of plasma from whole blood in preparation for chemical analyses of the plasma.

3,596,653
ENDOSCOPE WITH COINCIDENT ILLUMINATION AND VIEWING
John E. Hotchkiss, Corte Madera, Calif., assignor to Hotchkiss Instruments, Inc.
Continuation-in-part of application Ser. No. 675,811, Oct. 17, 1967. This application Aug. 27, 1968, Ser. No. 755,660
Int. Cl. A61b 1/22
U.S. Cl. 128-9 16 Claims



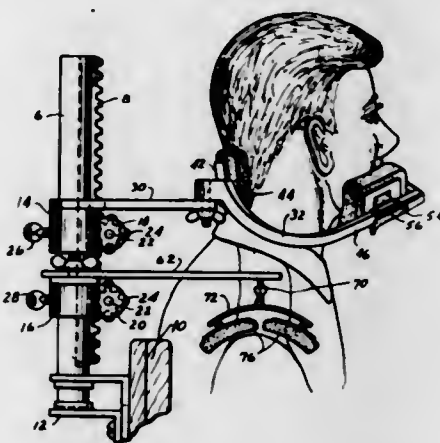
An endoscope for the simultaneous illumination and viewing of an area in a cavity, the endoscope having a housing with a sight passage between a viewing aperture and an aligned, spaced-apart sight aperture. A mirror defining a portion of the sight passage is disposed linearly opposite an electrical light source directing light on the mirror for reflection along the axis of the sight passage, through the sight aperture and onto the area being viewed. A light shield prevents the direct passage of light from the source to the viewing aperture and interior portions of the housing have nonreflecting light-absorbing surfaces to minimize glare at the viewing aperture. A magnifying lens in the sight passage is slanted to eliminate sight-disturbing glare and reflection on its surface, converges the reflected light at a point beyond the sight aperture, and magnifies the image of the area viewed at the viewing aperture. The lens separates the sight aperture from the viewing aperture and the housing includes a sealable opening adjacent the sight aperture and a porthole for connecting air-pumping means with the sight aperture to permit the performance of pneumoscopy. Means can be provided for adjusting the focal point of the reflected light. An electric power source is coupled with the light source via a switch.

3,596,654
MACHINE FOR EXERCISING THE WHOLE BODY
Shichiro Tamura, Tokyo, Japan, assignor to Tensho Electric Industries Co., Ltd., Tokyo, Japan
Filed July 2, 1969, Ser. No. 838,417
Int. Cl. A61h 1/02
U.S. Cl. 128-25 3 Claims



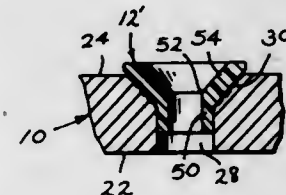
An exercising machine for simultaneously exercising the legs, waist, head and arms of the human body. Various elements are provided for imparting movements to the body members and a motor is provided for driving these elements.

3,596,655
TRACTION CRADLE DEVICE
Joseph D. Corcoran, 66 Greenway Terrace, Forest Hill, N.Y.
Filed Nov. 20, 1968, Ser. No. 777,261
Int. Cl. A61h 1/02
U.S. Cl. 128-75 3 Claims



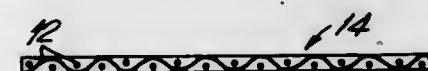
Traction cradle device comprising a standard, formed with a toothed rack and adapted to be secured to the back of a patient's chair, means for applying pressure to a patient's occipital area and to both sides of a patient's jaw area and shoulder-restrainer means for maintaining stability of the shoulders while pressure is being exerted upward on a patient's jaw-occipital area, first adjustable means for securing said occipital and jaw pressure-applying means on said standard and second adjustable means for securing said shoulder-restrainer means on said standard.

3,596,656
FRACTURE FIXATION DEVICE
Bernd B. Kaute, 87 Prinzegenten St., Berlin, 31, Germany
Filed Jan. 21, 1969, Ser. No. 792,449
Int. Cl. A61f 5/04
U.S. Cl. 128-92 1 Claim



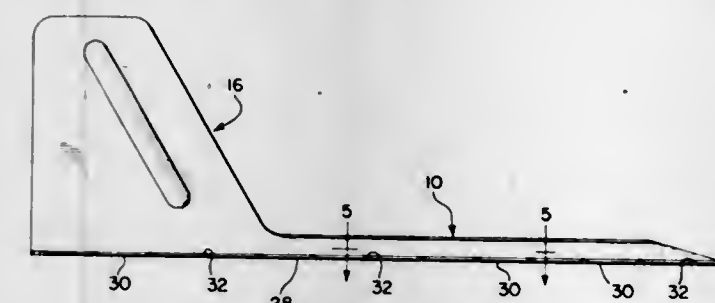
A device for use in the fixation of bone fractures including a metal plate having front and back faces and having at least one bore therethrough with a countersunk portion in the front face of said plate. The backface of said plate is adapted for positioning against the bone. A nonmetallic frustoconical washer is seated in the countersunk portion of the plate bore. A metal pin is inserted through the washer and the plate bore. Said pin has a shank end part which is anchored into the bone and an enlarged head which engages the washer and which serves to hold the plate firmly against the bone.

3,596,657
THERMALLY CONDUCTIVE SURGICAL DRESSING
William Eldus, 2 Essex Lane, Suffern, N.Y.
Filed Feb. 14, 1969, Ser. No. 799,471
Int. Cl. A61l 15/00
U.S. Cl. 128-156 10 Claims



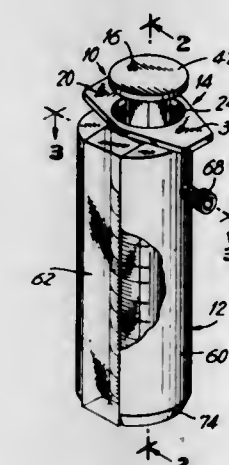
Surgical dressings comprising a combination of conventional cotton gauze materials and thermally conductive elements interwoven or impregnated in the cotton gauze materials to provide a surgical dressing having an adequately high degree of absorbency and excellent thermal conductivity to facilitate cooling or heat treatment to body areas while bandaged.

3,596,658
DETACHABLE GUIDE NEEDLE
Carl W. Lange, Des Plaines, and Frank J. Rychlik, Northbrook, both of, Ill., assignors to Illinois Tool Works, Inc., Chicago, Ill.
Filed May 22, 1969, Ser. No. 826,969
Int. Cl. A61m 05/00
U.S. Cl. 128-214.4 4 Claims



A sheet material element is provided with a plurality of spaced scored portions along a predetermined path and frangible connecting webs are provided between the spaced scored portions. In the illustrated embodiment, detachable guide needle devices are utilized in conjunction with flexible catheters in withdrawing or introducing fluids relative to a body, have features incorporated therein which permit separation of the guide needle into detached sections after use thereof for complete removal from an associated flexible catheter.

3,596,659
A SHIELDING HOLDER FOR A SYRINGE
Herman Glasser, Nassau County, N.Y., assignor to Nuclear Associates, Inc.
Filed Dec. 9, 1968, Ser. No. 782,311
Int. Cl. A61m 5/00
U.S. Cl. 128-215 9 Claims

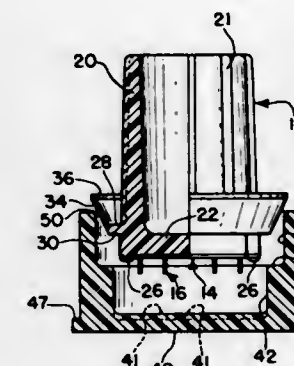


Syringe and holder therefor fabricated of high-density material to reduce transmission of energy, either by radiation or particle bombardment, either inwardly or outwardly thereof while yet enabling visual observation of material within the syringe.

3,596,660
INJECTION DEVICE
Robert Richard Melone, Des Plaines, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed May 12, 1969, Ser. No. 823,644
Int. Cl. A61b 17/20; A61m 5/00
U.S. Cl. 128-253 3 Claims

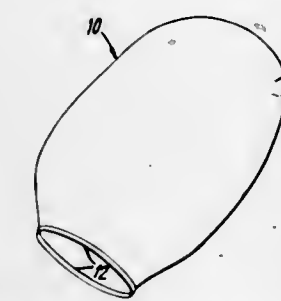
A transcutaneous injector having an integral sealing means for cooperation with a protective cover to facilitate aseptic storage of biological substances. The cup-shaped cover is provided with vent ports for accomplishing a vacuum before

the injector is fully positioned within the cover interior. A resilient flange annularly attached to the injector selectively



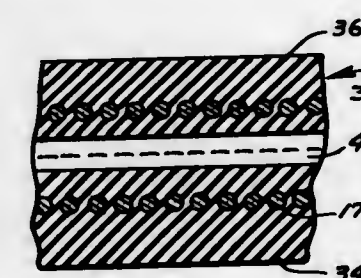
effects a seal with the cover or allows communication of the vent ports to the interior of the cover.

3,596,661
DERMATOLOGICAL COSMETIC PROCESS
Lloyd Motz, New York, N.Y., assignor to Geoscience Instruments Corporation, Mt. Vernon, N.Y.
Filed Nov. 12, 1968, Ser. No. 774,624
Int. Cl. A61b 17/00
U.S. Cl. 128-355 4 Claims



A skin massaging and stimulating method wherein a sheet or mitt is formed of a poromeric, coriaceous material ("cor-fam") and is useful per se, or in conjunction with cosmetic compositions. The coriaceous material serves to effect massaging and removal of dead skin when moved across the skin.

3,596,662
ELECTRODE FOR CARDIAC STIMULATOR
Lee R. Bolduc, Minneapolis, Minn., assignor to Medtronic Inc., Minneapolis, Minn.
Filed Sept. 4, 1968, Ser. No. 757,232
Int. Cl. A61n 1/00
U.S. Cl. 128-418 1 Claim



An electrode having a pair of electrical conductors encapsulated in a unitary, homogeneous body of flexible nonconductive plastic material, such as silicone rubber. The electrical conductors are platinum alloy coil springs having spaced coils. The plastic body surrounds the coils and fills part of or the entire centers of the springs. The process of making the electrode utilizes a three-piece mold comprising a pair of identical female molds and a male mold. The female molds have elongated cavities of a size and shape of one-half of the plastic body covering the conductors. The male mold has elongated ribs which each have a volume equal to one-half of

the volume occupied by the conductor coils plus one-half of any volume to be left void. The halves of the bodies are initially made by mounting the male mold in assembled relation with the female mold and injecting plastic into the mold cavity under high pressure. The male mold is then removed from the female mold exposing the grooves in the molded halves of the bodies. The conductors are then placed between the halves of the bodies in alignment with the grooves formed by the ribs of the male mold. The conductors are encapsulated in the body by combining the halves of the body into a one-piece member by simultaneously subjecting the assembled female molds to a high pressure and temperature sufficient to cause the plastic to flow between the coils of the conductors to fill the center portions of the conductors.

3,596,663

VENTILATED SMOKING ARTICLE

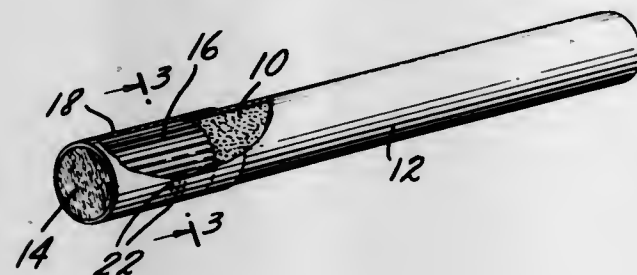
Frederick J. Schultz, and Chase W. Lassiter, both of Greensboro, N.C., assignors to Lorillard Corporation, New York, N.Y.

Filed May 29, 1969, Ser. No. 828,835

Int. Cl. A24d 01/04; A24f 13/06

U.S. Cl. 131-10 A

5 Claims



The admission of outside air to a tobacco smoke filter is enhanced by providing a corrugated wrapper around the filter plug, thereby to define a multiplicity of passages for conducting air admitted through the tipping paper over a relatively large portion of the surface of the filter plug.

3,596,664

FILTER CIGARETTE

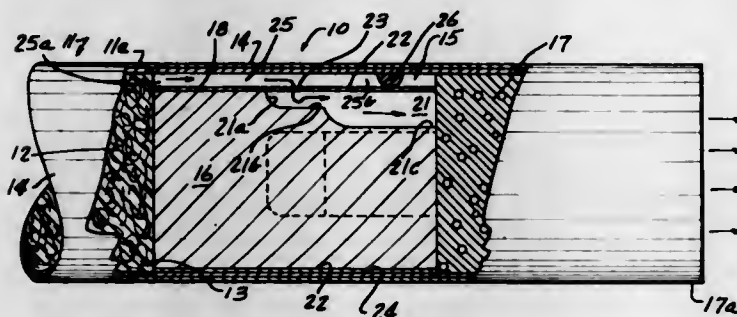
Jesse R. Pinkham, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Co., Winston-Salem, N.C.

Filed Sept. 22, 1969, Ser. No. 859,969

Int. Cl. A24d 01/04

U.S. Cl. 131-10.5

18 Claims



A filter cigarette is provided which includes an elongated tobacco rod and an axially aligned filter assembly affixed to one end thereof. The filter assembly comprises a smoke-imperious core piece, and a smoke-pervious member disposed in abutting relation with respect to the downstream end of the core piece. The core piece is provided with a plurality of elongated facets; each facet being provided with an elongated indentation through which smoke is adapted to flow. The core piece is encompassed by a thin perforated membrane having perforations thereof aligned with the indentations. A sleeve is also provided which encompasses the perforated membrane. Portions of the sleeve and perforated membrane are in spaced relation and form a plurality of elongated longitudinally extending shallow passageways through which smoke is adapted to flow. Each passageway is in communication with an adjacent indentation through a

membrane perforation. The smoke is emitted from the membrane perforations at a very high velocity and impinges against an adjacent surface before flowing through the smoke-pervious member.

3,596,665

TOBACCO SMOKE FILTER

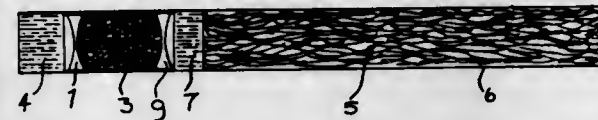
Knud Lindgard, 436 Illwahi Loop, Kailua, Oahu, Hawaii

Filed Mar. 4, 1970, Ser. No. 16,314

Int. Cl. A24d 1/04; A24f 7/04

U.S. Cl. 131-266

7 Claims



A frangible tobacco smoke filter composed of a resilient tubular casing and a unit consisting of interconnected, opposed seals. When the smoker applies pressure to the casing, the unit is broken thereby allowing for passage of the tobacco smoke through a smoke-treating medium contained within the casing.

3,596,666

HAIRPIECES

Reginald Francis Dooley, 168 Queen Drive, Childwall, Liverpool, 15, England

Filed May 13, 1968, Ser. No. 728,485

Claims priority, application Great Britain, May 19, 1967,

23,276/67

Int. Cl. A41g 3/00

U.S. Cl. 132-53

9 Claims



The invention provides a hairpiece and method of making same in which a plurality of hairs are secured to a base by a chemically setting adhesive of the type which undergoes a chemical reaction in the actual setting process.

3,596,667

ELECTRICALLY DRIVEN FINGERNAIL TRIMMER

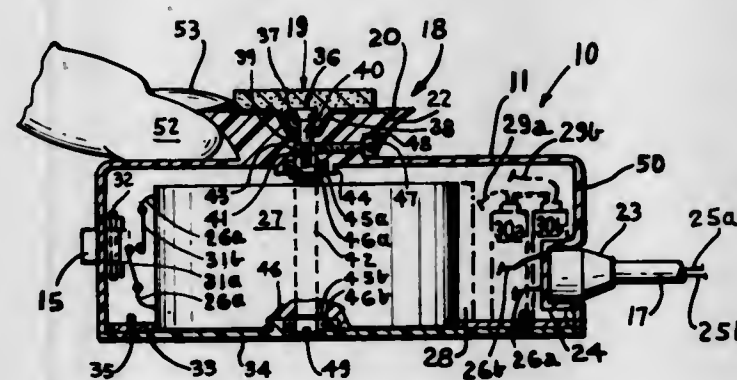
Robert R. Buercklin, deceased, 2424 Chimney Rock, Houston, Tex., and Mrs. Billie E. Keeth, executrix, P.O. Box 187, Portia, Ark.

Filed June 17, 1968, Ser. No. 737,746

Int. Cl. A45d 29/05

U.S. Cl. 132-73.6

12 Claims



The housing of the trimmer provides a boss on top with upper surface round or preferably oval in contour, the boss

extending arcuately downwardly and inwardly so that the fingertip may extend protectively under its top surface as the fingernail bears against an emery connected to a shaft rotated by a fractional horsepower motor within the trimmer housing. The emery wheel and motor shaft are connected in manner that they are assembled with the trimmer housing against displacement of the shaft in direction of its axis; the preferred contour of the top surface of the boss being preferably elliptical to give the best fingertip protection, as when a long fingernail is to be trimmed.

3,596,668

AMBULATORY DEVICE

Leonard Tosto, 245 Newman Ave., Bronx, N.Y.

Filed Jan. 27, 1970, Ser. No. 6,054

Int. Cl. A61h 3/00

U.S. Cl. 135-45 A

1 Claim



A removable bracket comprising a padded knee or leg support mounted in the open frame structure of an invalid-walker and particularly adapted for use by an amputee, minus the lower or upper extremity of one leg, as a means for making walking easier, safer and faster.

3,596,669

PRESSURE RATIO DEVICE

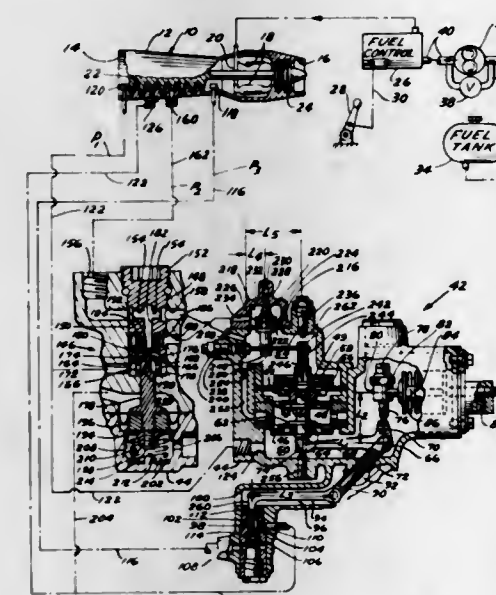
Julius Alberani, 4785 Curtis, Dearborn, Mich.

Filed July 10, 1969, Ser. No. 840,768

Int. Cl. F16k 31/145

U.S. Cl. 137-81

5 Claims



A pressure ratio device having a first pressure-responsive diaphragm exposed at opposite sides to two different control pressures is operatively connected as by cooperating links and levers to a valve member which when actuated to one position produces a first output pressure signal and when ac-

tuated to a second position produces a second output pressure signal; a second reset type of pressure-responsive diaphragm is operatively connected to the first diaphragm and at times exposed at opposite sides thereof to the same two different control pressures and at other times exposed at opposite sides thereof to only one of the control pressures; the second reset diaphragm thereby functioning to develop a controlled hysteresis within the overall system thereby requiring a greater force to be exerted on the first diaphragm to move the valve member to the first position as compared to the force exerted on the first diaphragm required to move the valve member to its second position.

3,596,670

FLUIDIC CONTROL DEVICE

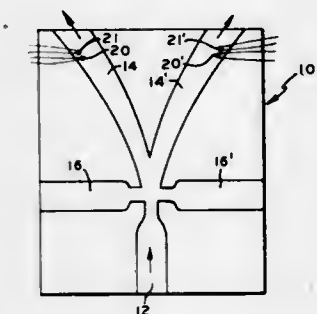
Robert O. Fehr, Greenwich, and Augustus H. Fiske, Jr., West Redding, both of, Conn., assignors to Fehr & Fiske, Inc., Westport, Conn.

Filed Oct. 24, 1968, Ser. No. 770,273

Int. Cl. F15c 1/04

U.S. Cl. 137-81.5

6 Claims



In a fluidic control circuit having a main fluid inlet conduit, a pair of main fluid outlet conduits for receiving fluid from said inlet conduit, and a set of control conduits for causing responsive to fluid flow in the latter the main fluid to flow either in one or the other outlet conduit, a thermally responsive electrical-sensing means is provided in each of said outlet conduits to be responsive to the presence or absence of fluid flow. The sensing elements are connected in an electrical circuit which provides a condition responsive signal suitable for control purposes.

3,596,671

FLOW-RESPONSIVE VALVE

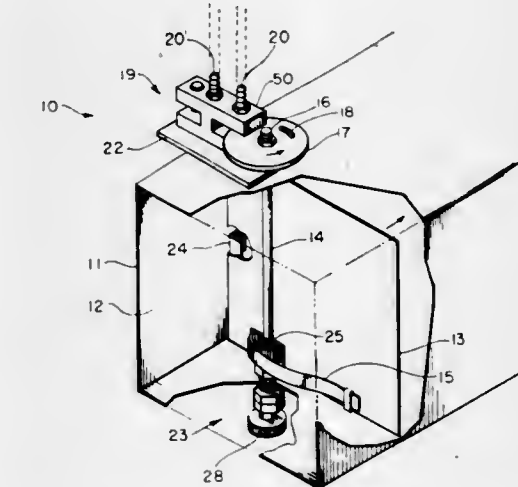
James A. Scharfenberger, Indianapolis, Ind., assignor to Ransburg Electro-Coating Corp., Indianapolis, Ind.

Filed Apr. 9, 1969, Ser. No. 814,690

Int. Cl. G06d 11/00; B05c 11/00

U.S. Cl. 137-87

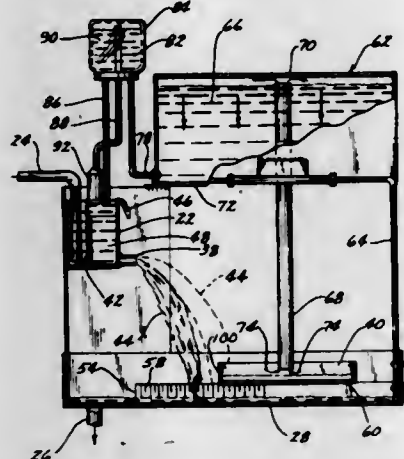
17 Claims



A switch includes an orifice connected to a fluid source, which supplies a fluid to the orifice, and an opening spaced from and substantially aligned with the orifice. The opening is connected to a device adapted to be actuated as a result of a fluid flowing from the orifice to the opening. A movable

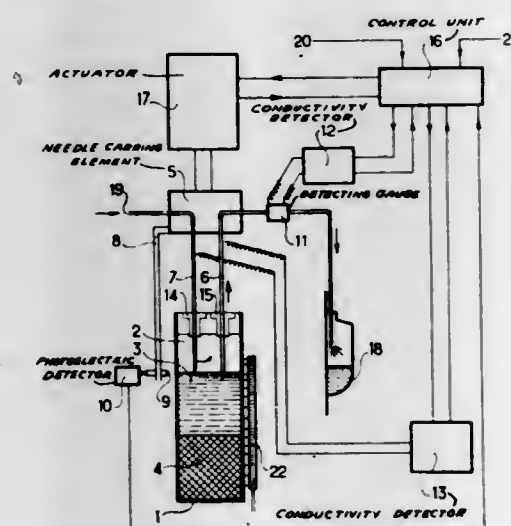
member is in the path of a gaseous flow and is adapted to respond to the gaseous flow. An apertured, displaceable element is adapted to be displaced by movement of the movable member. The displaceable element is positioned between the orifice and the opening in an interference path with the fluid flow. Displacement of the displaceable element to a position so that the aperture is substantially aligned with the orifice and the opening allows fluid to flow between the orifice and the opening permitting actuation of the device.

3,596,672
VISCOSITY CONTROL SYSTEM
Mervin R. McBee, 6107 Walnut Hill Drive, Des Moines, Iowa
Filed Mar. 6, 1969, Ser. No. 804,960
Int. Cl. G05d 11/00
U.S. Cl. 137-92 7 Claims



A fluid system including circulation of fluid by gravity in a variable projectory to a second station. The fluid reaching the second station is dependent upon the viscosity of the fluid whereby the lower the viscosity the more fluid will reach the second station. An air inlet pipe extending from the top of a solvent container is positioned in the second fluid station and thus will supply solvent to the first fluid station when insufficient fluid is in the second station to close off the air inlet pipe. The solvent is siphoned to the first fluid station and upon the level of fluid at the first station falling below the end of an air inlet pipe the siphon line will be exposed to air and thus stop the flow of solvent.

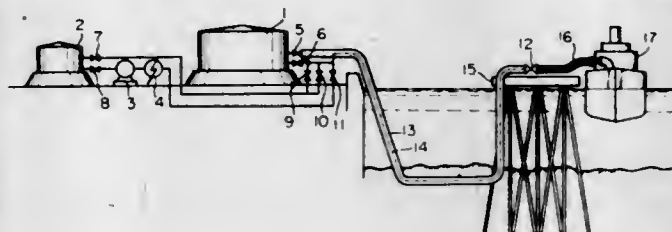
3,596,673
AUTOMATIC TRANSFER APPARATUS
Robert Laucournet, L'Hay-Les-Roses, France, assignor to F. Hoffman-La Roche & Co., Aktiengesellschaft, Basel Switzerland
Filed Jan. 23, 1969, Ser. No. 793,498
Claims priority, application France, Jan. 24, 1968, 137,316
Int. Cl. B67d 5/54
U.S. Cl. 137-209 10 Claims



Automatic device for delivering a calibrated quantity of a liquid from a first receptacle into a second receptacle by

positioning a duct into the liquid to be delivered, aspirating the liquid into the duct for delivery into the second receptacle including control means cooperating with detectors of the position of the duct in the liquid and the aspirating duct.

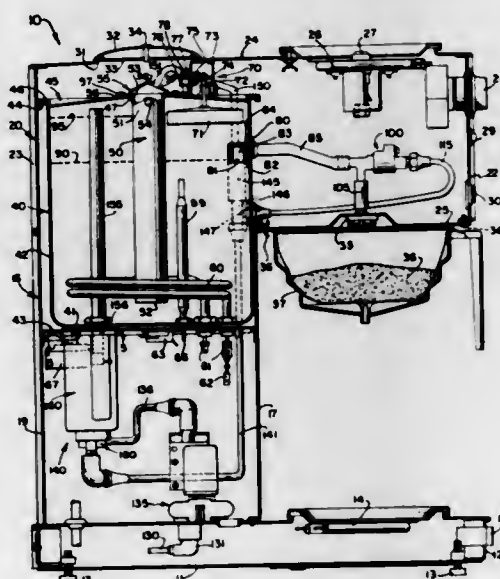
3,596,674
SUBMARINE PIPING SYSTEM FOR TRANSFERRING LIQUIDS
Yoshie Takizawa, Yokohama-shi, and Tatsuhiko Egami, Tokyo, both of Japan, assignors to Nigata Engineering Co., Ltd., Tokyo and Nihonkai Oil Co., Ltd., Toyama-Ken, Japan
Filed June 4, 1969, Ser. No. 830,293
Claims priority, application Japan, June 13, 1968, Oct. 9, 1968, Oct. 9, 1968, Apr. 18, 1969, 43/49949; 43/88347; 43/88348; 44/35581
Int. Cl. B63b 27/24; B67d 5/00
U.S. Cl. 137-334 4 Claims



When transferring liquid with high-solid point or high viscosity, such as crude oil or heavy fuel oil from a vessel to a shore tank or vice versa by means of a submarine piping system, the liquid remaining inside the pipe solidifies after the completion of the transferring operation and blocks the flow of the liquid through the pipe.

To eliminate this drawback, an inner pipe is provided inside the pipe, thus forming a double pipe. Heated liquid with low solid point is sent through the inner pipe and back through the outer pipe, thereby replacing the liquid inside the inner and outer pipes. This serves to preheat the double-pipe construction prior to the liquid transferring operation, thus enabling the transfer of the liquid to be carried out smoothly and economically.

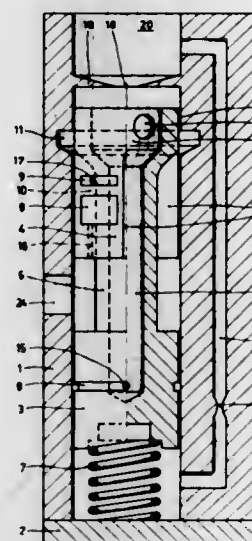
3,596,675
OVERFLOW CONTROL SYSTEM FOR AUTOMATIC BEVERAGE BREWER
Harvey R. Krueger, Carpentersville, and Arthur A. Morgan, Palatine, both of Ill., assignors to Reynolds Products, Inc., Rolling Meadows, Ill.
Division of Ser. No. 756,592, Aug. 30, 1969, Pat. No. 3,527,172, which is a continuation-in-part of application Ser. No. 708,121, Feb. 26, 1968, now Pat. No. 3,443,508. Divided and this application Dec. 18, 1969, Ser. No. 888,115
Int. Cl. F16k 3/18
U.S. Cl. 137-389 8 Claims



There is disclosed herein an overflow control system for use in an automatic beverage brewer or the like, comprising,

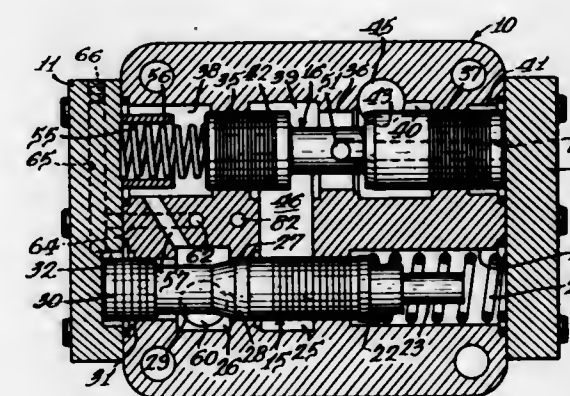
in combination, a tank for holding fluid therein, discharge means associated with the tank for discharging fluid therefrom, fluid inlet means including first valve means for introducing fluid into the tank when the first valve means is in an open position, means for operating the first valve means to the open position, means for operating the first valve means to a closed position after a predetermined quantity of fluid has been introduced into the tank, and magnetically controlled valve means disposed in the fluid inlet means and having a normally open position permitting fluid to flow therethrough and into the tank so long as the first valve means is in the open position and having a closed position preventing the flow of fluid to the tank, the magnetically controlled valve means being operable to the closed position thereof in response to the introduction into the tank of a quantity of fluid in excess of the predetermined quantity, thereby to prevent flooding of the tank.

3,596,676
PRESSURE-REDUCING VALVE
Hillebrand Johannes Josephus Kraakman, Emmasingel, Eindhoven, Netherlands, assignor to U. S. Phillips Corporation, New York, N.Y.
Filed Sept. 10, 1969, Ser. No. 856,635
Claims priority, application Netherlands, Sept. 18, 1968, 6813307
Int. Cl. G05d 7/01
U.S. Cl. 137-501 5 Claims



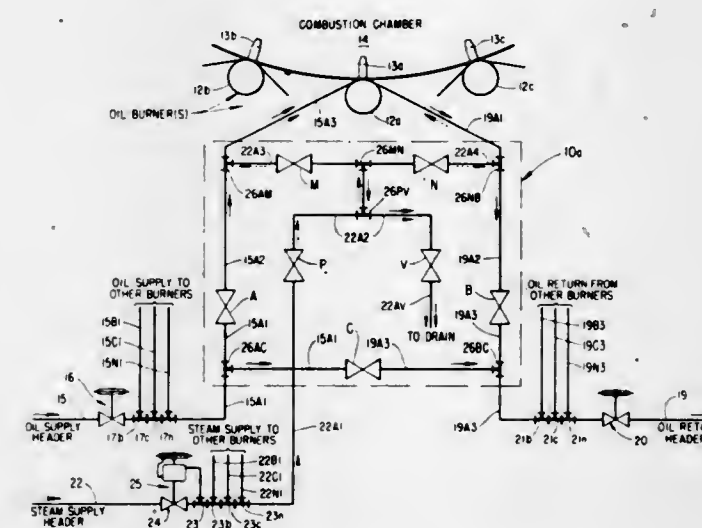
A pressure-reducing valve for obtaining a constant low-pressure flow of high volume of fluid which is supplied to the valve under high pressure. The valve comprises a pair of axially movable pistons connected by a rod within a valve-housing cylinder. The cylinder is closed at one end and a spring acts on free end of the piston assembly for urging the piston away from the closed end. The other end of the cylinder is provided with an outlet port through which the low-pressure fluid is passed from the valve and an inlet port is provided in the sidewall of the cylinder for introducing high pressure fluid to a space between the pistons. The piston assembly is hydrostatically journaled within the cylinder and is provided with a plurality of axially extending slits which vary in passageway size by the relative position of the piston within the cylinder. The high-pressure fluid is passed through the slits to a chamber on the other side of the piston and then through a turbulent-producing orifice to the outlet port.

3,596,677
REMOTELY OPERABLE PRESSURE COMPENSATED FLOW CONTROL VALVE
Richard J. Clark, Racine; John L. Acheson, Franklin, and Lawrence R. Landherr, Racine, all of, Wis., assignors to Rex Chainbelt Inc.
Filed Jan. 13, 1969, Ser. No. 790,803
Int. Cl. F16k 17/22; F15b 11/04
U.S. Cl. 137-501 4 Claims



A flow control valve and, more particularly, a pressure compensated flow control valve having a feed spool settable to determine the rate of fluid flow and remote power means for setting the feed spool, more particularly, an electrically operated pilot pressure control unit which can establish a pilot pressure acting on the feed spool and a pressure compensating valve which maintains a nearly constant pressure drop across the feed spool.

3,596,678
VALVE ACTUATOR MANIFOLD FOR A RETURN FLOW OIL BURNER SYSTEM
Nick Kutrubs, Cleveland; Michael Panich, Willoughby; Lino Perossa, Willoughby, and Jack F. Shannon, Euclid, all of, Ohio, assignors to Bailey Meter Company
Filed Feb. 3, 1970, Ser. No. 8,348
Int. Cl. F23d 11/28; F16k 11/00
U.S. Cl. 137-624.18 11 Claims



An apparatus, for lighting-off, maintaining fire on and shutting-down one or more oil burners, having a plurality of valves independently biased in the closed direction and mounted in a base. The plurality of valves form first and second valve banks adapted to be alternatively actuated by a plurality of crank arms locked to a drive shaft which is journaled for rotation through a predetermined angle plus and minus of a reference position. A manual-automatic controller, having a handwheel drive and an electric motor drive for alternative control modes, rotates the drive shaft to open and close the valves. In the automatic mode the electric motor is energized by a logic system to turn the burner on, off or trip, and the motor is deenergized when switches associated with preselected valves indicate that a predetermined position of the valves has been obtained.

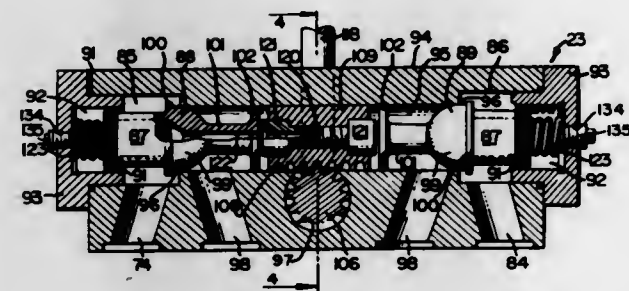
3,596,679

MANUALLY OPERABLE PILOT VALVE

Harry Sugden, Jr., Statesboro, Ga., assignor to Emerson Electric Co., St. Louis, Mo.
Division of Ser. No. 728,295, May 10, 1968, this application
July 16, 1969, Ser. No. 871,040
Int. Cl. F16k 11/14

U.S. Cl. 137-636

2 Claims



A manually operable pilot control valve for a fluid motor control system having a four-way fluid pressure responsive valve for determining the direction and rate of flow of the motive fluid in response to the positioning of which includes a piston operated double poppet selectively operable to controllably vent the downstream side of selected inlet chamber and outlet chamber fluid pressure responsive valves to predetermine the direction and rate of flow of the motive fluid to the fluid motor.

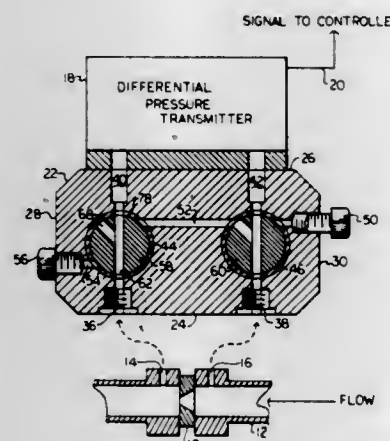
3,596,680

PLUG VALVE MANIFOLD

Donald L. Adams, Rte. 2, Box 25-A, Tulia, Tex.
Filed Feb. 24, 1969, Ser. No. 801,450
Int. Cl. F16k 11/22

U.S. Cl. 137-637

10 Claims



A manifold connection is provided to connect the pressure taps from either side of an orifice to a pressure transmitter. By the use of two valves and two side ports, which are normally capped, it is possible to connect the pressure taps from the line to the transmitter or to interconnect the transmitter connections for zero calibration or to connect the transmitter to the side ports for connection of a calibrating pressure or to connect the pressure taps to the side ports to blow sediment from the lines. The handles are arranged not to interfere with each other except that the valves must be moved to a certain position in sequence or the handles will interfere with each other. The plugs of the valves are tapered at a smaller conical angle than the cavities in the valve body and the lining is feathered at each end for a good seal.

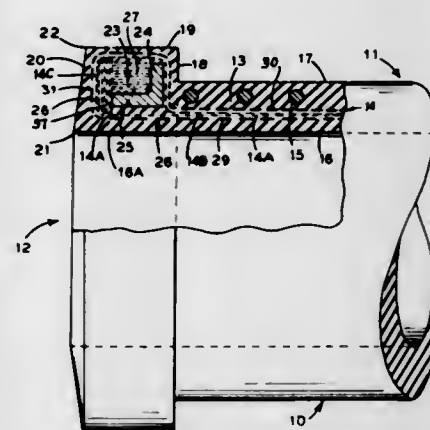
3,596,681

FLANGE FOR HOSES

Arthur M. Elson, Hamilton Township, Mercer County, N.J., assignor to Acme-Hamilton Manufacturing Corporation, Trenton, N.J.
Filed Dec. 12, 1969, Ser. No. 884,414
Int. Cl. F16l 11/12

U.S. Cl. 138-109

10 Claims



A hose construction having reinforced flanged ends which are firmly anchored through fabric of high tensile strength which, in turn, is anchored by a wire helix in the carcass portion of the hose, for coupling successive lengths of hose and forming a high-pressure resistant seal at the mating flanged end portions thereof. The mating pressure supplied by split coupling rings is highly concentrated in the region of the mating surfaces. A "fabric cushion" provided in the region of each mating surface significantly increases the springiness of the flanged end mating surfaces.

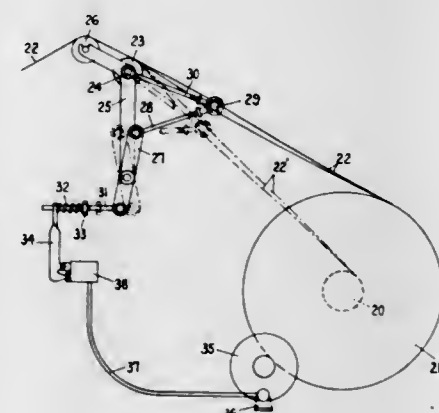
3,596,682

FRICTION LETOFF CONTROL

John H. Nydam, Whitinsville, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Nov. 20, 1968, Ser. No. 777,306
Int. Cl. D03d 49/08

U.S. Cl. 139-109

7 Claims



A compensating follower device for a friction-type letoff actuated by variations in the angle at which a web of yarn or other wound material is withdrawn in going from a full to empty beam.

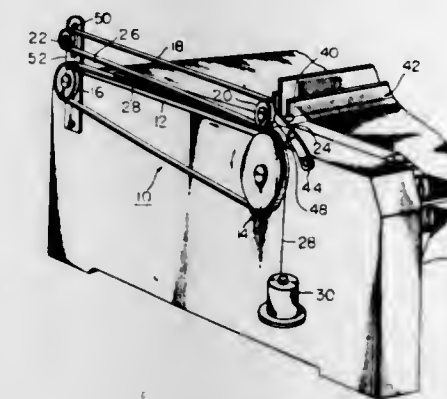
3,596,683

WEFT YARN MEASURING AND DETAINING DEVICE FOR SHUTTLELESS LOOM

Terumitu Dendo, Tokyo, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Filed Sept. 18, 1969, Ser. No. 858,965
Claims priority, application Japan, Sept. 21, 1968, 43/68383; 43/82388
Int. Cl. D03d 47/34

U.S. Cl. 139-122 R

10 Claims



A device for continuously measuring and detaining unit lengths of weft yarn in a shuttleless loom. The device has two conveying belts set at an angle formed by the belt surfaces facing each other and diverging from the common tangential contact line in the drive end where the unit lengths are continuously measured and then detained in the angular space formed between the belt surfaces facing each other.

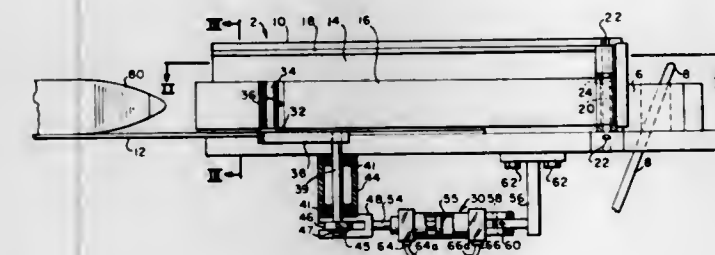
3,596,684

SHUTTLE CHICK MECHANISMS

William Kenneth Miller, Greenville, Tenn., assignor to Huyck Corporation, Remseler, N.Y.
Filed Mar. 18, 1968, Ser. No. 713,807
Int. Cl. D03d 49/56

U.S. Cl. 139-187

10 Claims



This invention relates to an improved shuttle-checking mechanism for a loom, comprising a shuttle box having a pivotally mounted shuttle binder which forms one wall of the shuttle box and one edge of the opening of the shuttle box. By causing the binder to be pivoted to a closed position prior to the shuttle entering the box, the curved surface of the shuttle will engage a generally arch-shaped surface of the binder and the motion of the shuttle will be uniformly arrested and shuttle rebound substantially eliminated. By causing the binder to be pivoted to an open position prior to the shuttle being picked from the box, contact pressure between the shuttle and the edge of the box opening formed by the binder will be substantially eliminated, making it easier to drive the shuttle from the box and reducing the abrasion on the weft yarn being carried by the shuttle.

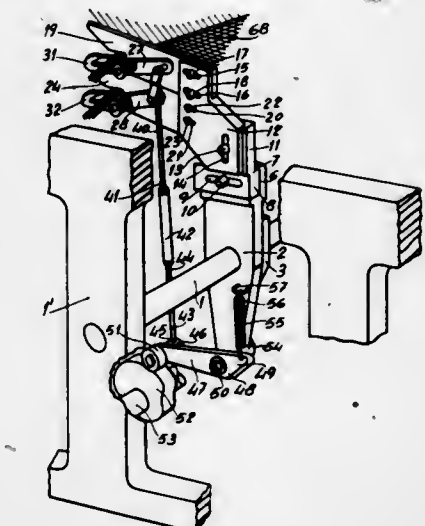
3,596,685

DEVICE FOR CUTTING AND RETAINING THE WEFT THREADS IN SHUTTLELESS LOOMS

Jose Bassa Bassart, Calle Bailen 150, Barcelona, Spain
Filed July 3, 1969, Ser. No. 838,753
Claims priority, application Spain, July 6, 1968, 356168
Int. Cl. D03d 47/34, 45/50

U.S. Cl. 139-302

6 Claims



Device for cutting and holding weft threads in a shuttleless loom comprising two forklike plates, each with a groove for holding the weft thread, each groove having a lower edge defined by a cutting edge, two lever blades applied in articulation to said two plates and which present one of their ends bent in the shape of a hook, the upper inside edge of each hook being provided with a cutting edge, and drive means for imparting pivotal movement to said lever blades relative to said plates whereby weft threads which are disposed between the cutting edge in the grooves and the cutting edge on the hooks are cut by shearing action.

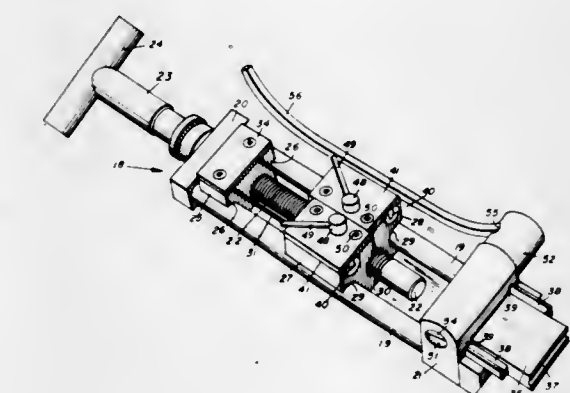
3,596,686

APPLYING TOOL FOR WIRE-TYPE CLAMP

Barry J. Blumenfeld, Randallstown, and Charles K. Mauer, Baltimore, both of, Md., assignors to Cast Iron Soil Pipe Institute, Washington, D.C.
Filed Nov. 3, 1969, Ser. No. 873,365
Int. Cl. B21f 15/02

U.S. Cl. 140-123

11 Claims



A tool for tightening and clamping around a pipe coupling a single strand of wire formed in two laterally spaced loops connected at one end by an integral bight, with the free shanks of respective loops underlying the bight. The tool comprises a threaded shaft rotatably supported in a frame which has a fulcrum foot at one end for pivotal engagement with the bight between the spaced loops. A pair of shank-gripping blocks are mounted on either side of the shaft for independent, longitudinal, sliding movement with respect to the shaft. A pulling block is threadably mounted on the shaft and is connected to the gripping blocks by a flexible, load-equalizing cable running freely through an arcuate groove in the shaft.

the pulling block, with opposite ends of the cable secured to respective gripping blocks. The threaded shaft is rotatable by a handle to retract the pulling block longitudinally on the shaft and thereby exert independent pulling force on the respective gripping blocks and, in turn, on individual shanks of the wire loops. When the respective loops have been tightened to the desired extent, the bodily rotation of the tool about its fulcrum bends the wire shanks over the bight and clamps the loops around the pipe sections. Means are provided for cutting off the excess lengths of the shanks after clamping.

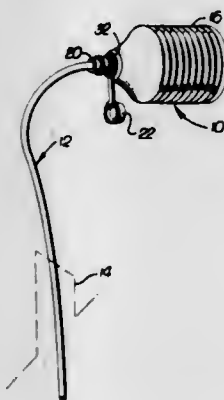
3,596,687

SUCTION SAMPLE CONTAINER

Edward J. Forgeron, Paloso Verdes Peninsula, Calif., assignor to Analysts, Inc., Rolling Hills Estates, Calif.
Filed July 7, 1969, Ser. No. 839,261
Int. Cl. B65b 1/04

U.S. Cl. 141-24

3 Claims



A transfer and storage means adapted to draw off and retain a liquid sample, such as crankcase oil. The transfer means comprises a tube which is adapted to be removably sealed in said storage means. Said storage means includes a compressible suction means and a sealing means to receive said tube. Closure means are associated with said container including cooperating sealing means between said closure means and said container.

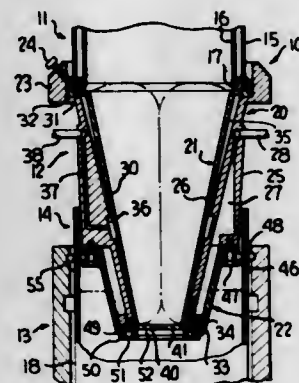
3,596,688

FILLER HEAD

Clarence W. Vogt, P.O. Box 232, Westport, Conn.
Continuation-in-part of application Ser. No. 748,087, July 26, 1968. This application Sept. 30, 1968, Ser. No. 763,570
Int. Cl. B65b 1/16

U.S. Cl. 141-287

10 Claims



This subject relates to a filler head of a differential pressure-type filler which is particularly adapted for filling containers with a finely divided material. The filler head is particularly adapted for filling containers having an elongated cross section with the filter head including a valve member having a dispensing opening which is also of an elongated cross section, with the elongation thereof corresponding to the elongation of the carton cross section. The cross section of the valve member, including the dispensing opening thereof, providing for a maximum volume and uniform flow for the particular carton for which the filler head is intended.

The filler head also includes a lower filter which is of an outer peripheral outline to correspond to the container to be filled and an inner peripheral outline corresponding generally with the dispensing opening of the valve member.

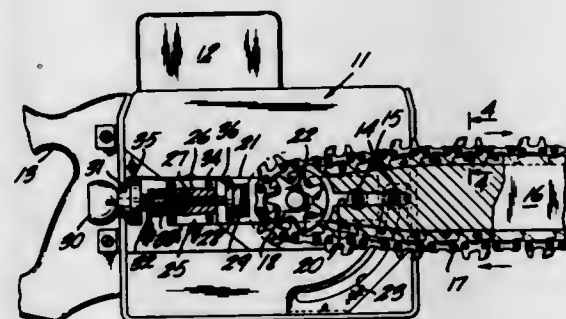
3,596,689

SAW CHAINS AND SHARPENERS

John W. Oehrli, Pacific Palisades, Calif., assignor to Textron, Inc., Providence, R.I.
Continuation-in-part of application Ser. No. 195,519, May 17, 1962, now Patent No. 3,260,287. This application Apr. 12, 1965, Ser. No. 447,434
Int. Cl. B27b 33/14, 17/02

U.S. Cl. 143-32

31 Claims



In a saw chain running on an elongated cutter bar and travelling in an approximately circular path at at least one end of said cutter bar and in an approximately straight path between the ends of said cutter bar, a link comprising an approximately planar body portion, means adjacent opposite ends of said body portion pivotally connecting said link with preceding and succeeding links, a depth gauge portion projecting upwardly from the forward end portion of said body portion, a side portion spaced rearwardly from said depth gauge portion and extending upwardly from said body portion and offset laterally outwardly from the longitudinal center line of the chain, and a cutter portion extending from said side portion inwardly over said body portion at least to the center line of said chain, said cutter portion being defined by a front face inclined at an acute angle to a line connecting the pivot axes of said pivotal connecting means, a rear face substantially equidistant from said front face and an upper edge face defined by a convex surface of revolution concentric with said approximately circular path when said link is travelling therein, said edge face intersecting said rear face at an obtuse angle and intersecting said front face at an acute angle to define a cutting edge disposed between said pivot axes, whereby said cutting edge is resharpened by progressively dressing down said upper edge face by engagement with cutting means as said link travels along said approximately circular path, said cutting edge being disposed rearwardly of the midpoint between said pivot axes and tangents to said convex surface of said upper edge face rearwardly of said cutting edge being inclined at small angles to a line connecting said pivot axes to provide clearance.

3,596,690

DELIMBER CUTTERS, DELIMBER AND TREE PROCESSING FEED MEANS

Douglas D. Hamilton, Mount Royal, and Joseph J. R. Boivin, Montreal, both of, Canada, assignors to Canadian International Paper Company, Montreal, Quebec, Canada; Quebec North Shore Paper Company, Montreal, Quebec, Canada and Abitibi St. Anne Paper Ltd., Beaufort, Quebec, Canada, a part interest to each

Filed July 11, 1969, Ser. No. 840,930

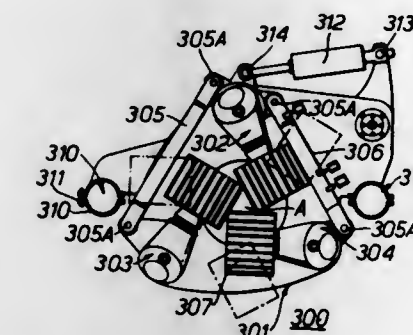
Claims priority, application Canada, July 12, 1968, 15004/68
Int. Cl. A01g 23/02

U.S. Cl. 144-2 Z

6 Claims

A delimeter arm for use in delimbing trees and which may be mounted on a frame, the arm being segmented and with the segments resiliently urged into position with respect to one another whereby the arm or several arms open and close like an iris to closely follow the trunk of a tree having relatively wide variations in diameter. A delimeter further incorporating delimbing members of the foregoing type and means for feeding a tree or group of trees endwise through the de-

limber incorporating hydraulic systems for urging the feed rolls against the tree with a force proportional to the force required to propel the tree through the delimeter. Further, a tree delimeter incorporating a frame having a notch in the



upper surface for supporting one or more trees and one or more cutting members pivotally mounted on the frame and arranged to move toward and away from the recess in the frame for removing limbs from trees moved relative thereto.

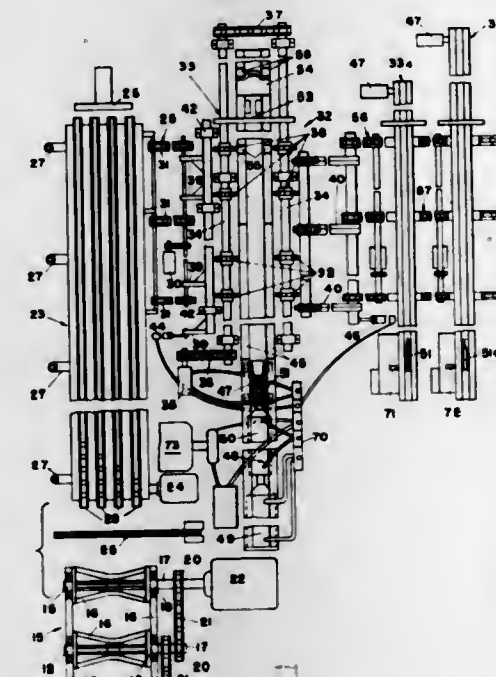
3,596,691

APPARATUS FOR MANUFACTURING WOOD FENCING MATERIAL

Lindell L. Broadfoot, Rte 2, St. Maries, Idaho
Filed June 20, 1968, Ser. No. 738,510
Int. Cl. B271 7/00

U.S. Cl. 144-193

10 Claims



Apparatus for machine-splitting logs to form wooden fencing materials wherein the log is held while a powered knife or wedge is caused to split it from end to end and additionally having means to hold the split segments according to manual selection in their relative positions while effecting additional splitting functions.

3,596,692

EASY-OFF COUPLING

Roy L. Swanke, Newington, Conn., assignor to Dynamics Corporation of America

Filed Aug. 14, 1969, Ser. No. 850,183

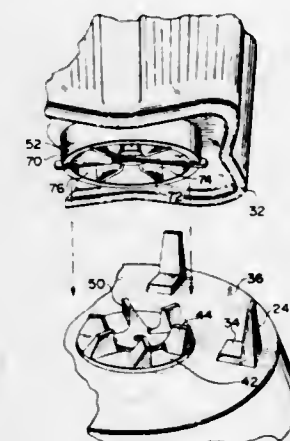
Int. Cl. A47j 43/08; B02c 18/12, 18/24

U.S. Cl. 146-68 A

10 Claims

Means are disclosed to lock a driven shaft through a wall of a vessel and to a flexible coupling adapted to interengage a drive shaft with a mating coupling at the extended end. The lock means comprises in one embodiment, a lever pivoted at one end to the driven shaft and positionable in a first unlocked position so that the longitudinal axis of the lever is

aligned with the axis of the shaft and in a second locked position so that its axis is radial to the shaft, whereby the lever, in the aligned position can be withdrawn or inserted through a bore hole in rotatable member, and, in the radial position locks to the rotatable member. In one embodiment, a single lever can be provided and resilient means included to releasably retain the lever in the respective positions. In another embodiment a pair of levers can be used, each



pivotable to a radial position opposite the other from a common axis. The locking levers are preferably flat elongated members proportioned so that their total thickness is such that they can be mounted edgewise in a recess within the driven shaft and that their effective width in unlocked position is no greater than the diameter of the driven shaft or no greater than the diameter of the bore hole upon which or within which they are carried.

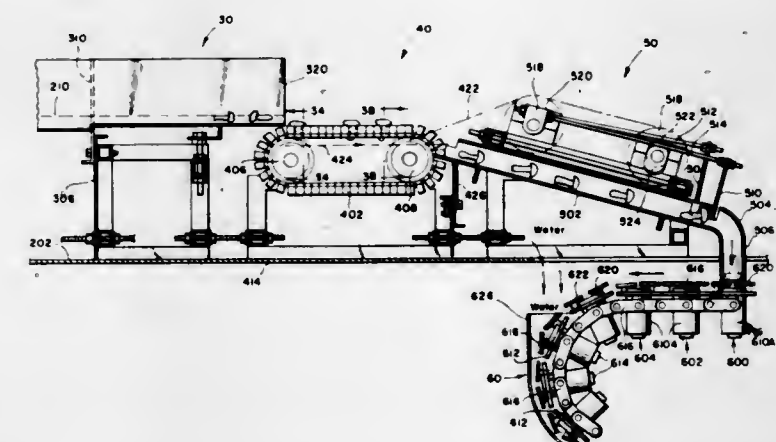
3,596,693

MUSHROOM-HANDLING APPARATUS

William H. Baker, Mentor, Ohio, assignor to American Specialty Foods, Inc., Wilmington, Del.
Filed Apr. 18, 1968, Ser. No. 722,267
Int. Cl. A23n 15/04

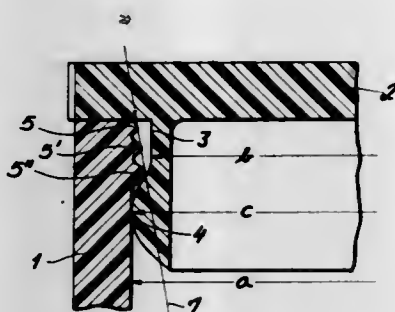
U.S. Cl. 146-78

23 Claims



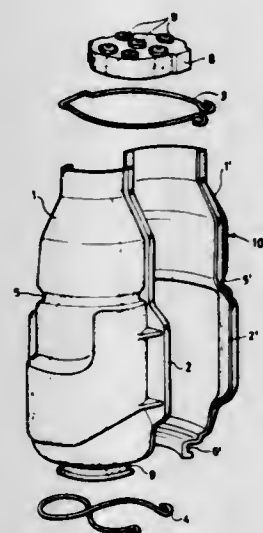
An apparatus is disclosed for handling mushrooms hydraulically in a tank or series of tanks by generally flowing the mushrooms from a mushroom reservoir in an upstream location through a series of devices to a final downstream location where the mushrooms are cut to remove the roots and to separate the stems from the caps. The apparatus includes a device for controlling the rate and quantity movement of the mushrooms which are being hydraulically fed; a device for axially orienting the mushrooms into at least one row along a single axis; a device for directionally orienting the axially oriented mushrooms so that the caps face in the same direction, such as downstream; a device for receiving the directionally oriented mushrooms and for uniformly refeeding them sequentially in timed relationship, preferably in a cap down position; a device for receiving the mushrooms in a cap down position and reversing them to a cap up position; and a device for carrying the mushrooms in the cap up position past cutting blades which first cut off the roots and then separate the stems from the caps.

3,596,694
CONTAINERS
 Herbert W. Jaeniche, D-7641, Leutesheim, Germany
 Filed Oct. 24, 1969, Ser. No. 869,118
 Claims priority, application Austria, Nov. 26, 1968, 11501/68
 Int. Cl. B65d 1/16, 39/04
 U.S. Cl. 150—.5 2 Claims



A closure assembly for containers wherein a synthetic-resin plug-type cap has a disk portion adapted to overlie the rim of the container and a cylindrical tubular boss formed with an outwardly convex circumferential bulge or bead of arcuate profile. The inner wall of the container mouth is provided with a plurality of spaced-apart inwardly projecting circumferential beads or bulges of arcuate profile and progressively increasing elevation inwardly from the rim, the bead of the cap resting behind the last or innermost bead of the container mouth in a sealing position of the cap.

3,596,695
PROTECTIVE HOOD FOR IGNITION DISTRIBUTORS OF MOTOR VEHICLES
 Aldo Stevenazzi, Rho, Italy, assignor to Alfa Romeo S.p.A., Milan, Italy
 Filed Sept. 29, 1969, Ser. No. 861,928
 Claims priority, application Italy, Oct. 8, 1968, 10,139 B/68
 Int. Cl. B65d 1/118
 U.S. Cl. 150—52 K 4 Claims



A protective casing for ignition distributors of internal combustion engines is disclosed, comprising two half-shells adapted to encompass the outer surface of the ignition distributor, a resilient cap to be slipped onto the adjoining upper ends of the half-shells, and at least two clips for holding the two half-shells together.

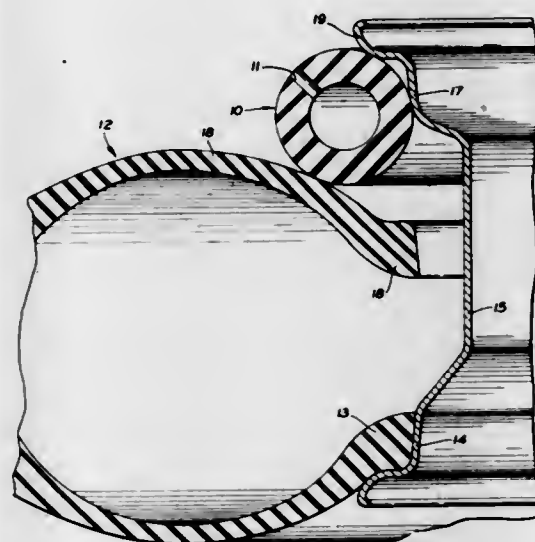
3,596,696
VULCANIZABLE RUBBER COMPOSITIONS AND LAMINATED SOLID RUBBER TEXTILE COMPOSITION BASED ON THE SAME
 Helmut Freytag, Cologne-Stammheim; Ivo Dane, Leverkusen; Erwin Muller, Leverkusen, and Guido Fromandi, Schildgen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
 Continuation of application Ser. No. 478,723, Aug. 10, 1965, now abandoned. This application July 14, 1969, Ser. No. 849,538
 Int. Cl. B29h 5/02; B32b 27/42; B60c 5/00
 U.S. Cl. 152—330 14 Claims

Solid vulcanizable rubber composition having improved bonding properties for textile compositions and based on hexamethylol melamine or an ester or a partial ether thereof as a first additive and an m-substituted benzene derivative containing $-OH$, $-O$ or $-OCOCH_3$ groups or 1,5-dihydroxynaphthalene as the second additive.

3,596,697
BLENDS OR RUBBERY POLYMERS
 Virgil L. Hansley, Cincinnati, Ohio; Raymond G. Newberg, Wyoming, Ohio, and Fred K. Morgan, Cold Springs, Ky., assignors to National Distillers and Chemical Corporation, New York, N.Y.
 Filed May 1, 1968, Ser. No. 725,894
 Int. Cl. C08d 1/102, 9/02; B60c 1/100
 U.S. Cl. 152—330 16 Claims

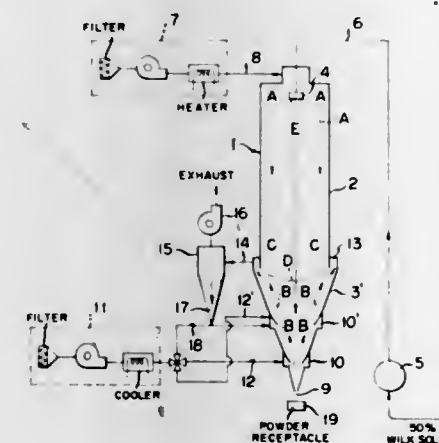
Rubber polymers prepared by polymerizing conjugated diolefinic compounds alone or with other suitable monomers in the presence of an alfin catalyst and a molecular weight control agent are blended with styrene-butadiene rubber to provide novel compositions useful in tire tread formulations.

3,596,698
TIRE INSTALLATION DEVICE
 George M. Jordan, Akron, Ohio, assignor to Akro-Mills, Inc., Akron, Ohio
 Filed July 14, 1969, Ser. No. 841,377
 Int. Cl. B60c 25/12
 U.S. Cl. 157—1.1 12 Claims



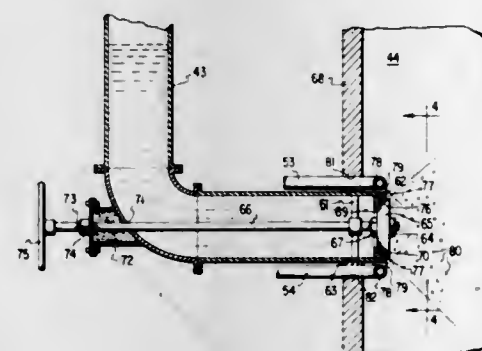
An uninflated torus-shaped tube of soft elastomeric material having high stretch properties for facilitating inflating and seating a tubeless automobile tire on its rim, said tube adapted to be interposed between and to form a seal with the inner surface of the adjacent rim flange and the tire sidewall before inflation thereof, whereby as air under pressure is introduced into the tire between its beads the bead adjacent said tube progressively compresses said tube while maintaining its seal with said sidewall and rim as the bead moves into sealing contact with its bead seat and finally ejects said tube.

3,596,699
APPARATUS FOR SPRAY DRYING MILK AND THE LIKE
 Katsuto Okada, Tokyo, and Fumio Kato, Kawasaki-shi, both of Japan, assignors to Morinaga Nyugyo Kabushiki Kaisha, Tokyo, Japan
 Filed May 1, 1969, Ser. No. 820,920
 Claims priority, application Japan, May 6, 1968, 43/30199
 Int. Cl. B01d 1/16, 1/00; A22c 1/00
 U.S. Cl. 159—4 4 Claims



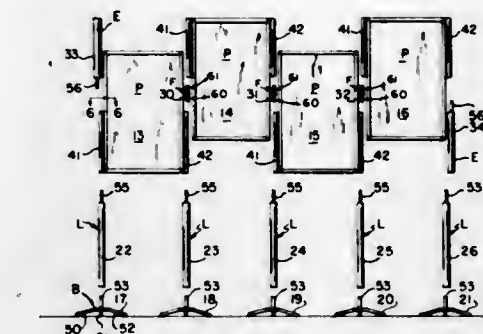
A method of spray drying and apparatus therefor in which milk and the like is sprayed and dried chiefly with hot air. The liquid to be dried is sprayed by means of a single pressure spray nozzle disposed in the upper portion of a drying tower into which hot air is also introduced. The liquid sprayed proceeds downward with the hot air and falls, after being substantially dried, into a zone of cool air provided in the lower portion of the tower where complete drying as well as cooling takes place. The hot air issuing from the upper portion of the tower in the downward direction encounters dry cooling air supplied from the lower portion of the tower and they are exhausted from the side of the tower.

3,596,700
APPARATUS FOR RECOVERING POLYMERS FROM SOLUTION
 Stanford E. Groves, Baton Rouge; Hal G. Ginn, Baker, and John D. Sutherland, Jr., Prairieville, all of La., assignors to Copolymer Rubber & Chemical Corporation
 Filed Apr. 20, 1967, Ser. No. 632,226
 Int. Cl. B01d 1/14
 U.S. Cl. 159—16 5 Claims



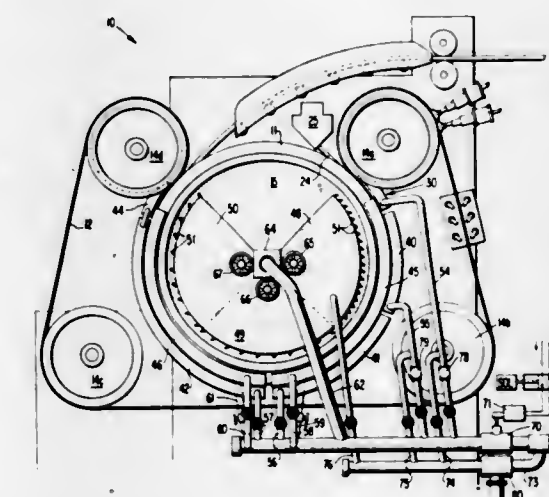
New and improved apparatus for separating polymers from solutions thereof wherein the polymer solution is extruded through an adjustable valve formed by a valve seat having a diverging conical seating surface and a moveable valve member in the form of a diverging frustocone and the resulting cone-shaped polymer thus extruded is broken up into particles of solid particles by a fluid jet, and preferably a steam jet, from an annular header spaced about the valve whereby the crumb size of the resulting polymer can be controlled by displacement of the valve member relative to the valve seat.

3,596,701
DISPLAY PANEL ASSEMBLY
 Ermond G. Cowan, St. Petersburg, Fla., assignor to Oravisual Company Inc., St. Petersburg, Fla.
 Filed Sept. 11, 1969, Ser. No. 857,085
 Int. Cl. A47g 5/00
 U.S. Cl. 160—135 9 Claims



A plurality of identical, reversible, rectangular display panels each has two cylindrical column members along one-half of the length of opposite sides, the panels being arranged side-by-side to form a display unit with the column members on one panel axially aligned with and pivotally attached to the column members of the two adjacent flanking panels by connector pins extending into the adjacent end sections of the members. Individual cylindrical extension members telescoped with the fixed frame members provide continuations of the column members along the other half of the panel edge of the end panels of the display unit. The panels forming the unit are supported vertically by tubular cylindrical legs having upright shanks received in the lower ends of the column members, and the support legs, column members and extension members appear as continuous panel supporting columns. The display panels are assembled and disassembled from their standards and with one another by telescoping slide joints.

3,596,702
PRELIMINARY COOLING OF CONTINUOUS CASTING MACHINE
 George C. Ward, and George E. Linaeus, both of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.
 Filed Mar. 13, 1969, Ser. No. 806,915
 Int. Cl. B22d 1/106
 U.S. Cl. 164—87 4 Claims



Cooling a continuous casting machine during the preliminary stages of casting molten metal, in which coolant is sprayed at a relatively low velocity onto the external surfaces of the flexible band and casting wheel which form the mold into which the molten metal is poured. The coolant is applied at the relatively low velocity prior to and during the initial pouring of the molten metal, and when the operator of the casting machine has established a proper constant level of molten metal in the mold and the hazard of splashing and explosion of the molten metal has been reduced, the coolant is applied at increased velocities and volumes and the rate of casting the molten metal is increased.

3,596,703

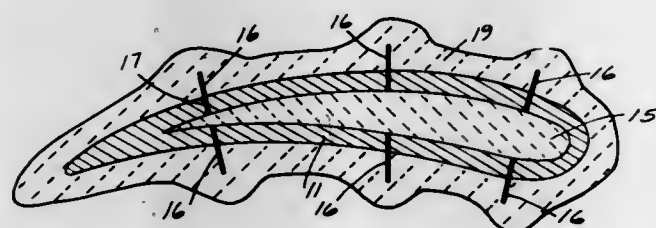
METHOD OF PREVENTING CORE SHIFT IN CASTING ARTICLES

Thomas H. Bishop, Alliance, and Kenneth K. Young, Jr., Paris, both of, Ohio, assignors to TRW Inc., Cleveland, Ohio

Filed Oct. 1, 1968, Ser. No. 764,208
Int. Cl. B22d 29/00

U.S. Cl. 164-132

4 Claims



Shell-type casting molds for producing hollow cast articles, the mold being built up by forming a low melting pattern about a ceramic core, inserting thin metal pins through the pattern and into engagement with the core, forming a shell mold about the resulting pattern so that the ends of the pins are anchored in the resulting shell mold, removing the meltable pattern, and casting the molten metal into the cavity thus produced whereby the molten metal dissolves the pins and no holes appear in the finished article.

3,596,704

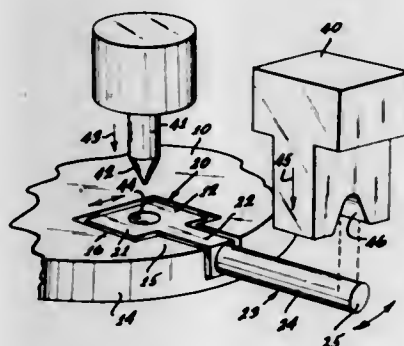
TRANSFER MECHANISM WITH FLOATING CAST-ARTICLE SUPPORT MANDRELS IN A DIECASTING AND TRIMMING MACHINE

Forrest D. Roe, Gardena, Calif., assignor to A & A Die Casting Co.

Filed Nov. 6, 1969, Ser. No. 874,660
Int. Cl. B22d 17/00, 29/00

U.S. Cl. 164-262

20 Claims



An improved transfer mechanism in a diecasting and trimming machine comprising an indexable turntable with floating mandrels, which extend from the table's periphery. The function of the mandrels is to support runners which in turn support the cast articles. Each station of the machine includes means which accurately position each mandrel in the station irrespective of inaccuracies in the turntable indexed position.

3,596,705

LONG BAND LIFE WHEEL-BAND CASTING MACHINE

John H. Murphy, Atlanta, Ga., assignor to Southwire Company, Carrollton, Ga.

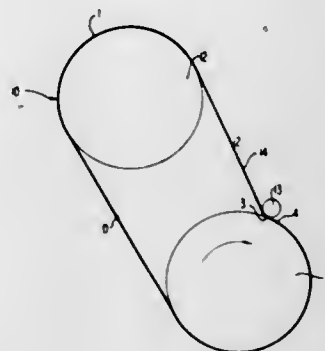
Filed Jan. 28, 1970, Ser. No. 6,429
Int. Cl. B22d 11/06

U.S. Cl. 164-278

9 Claims

A machine for continuously casting metal wherein an endless flexible band is guided into closed relationship with a

portion of the peripheral groove of a rotatable casting wheel by a plurality of band guide wheels of substantially the same diameter, and a band positioning wheel of smaller diameter than the band guide wheels is positioned adjacent the periphery of the rotatable casting wheel and is arranged to



press the flexible band into positive contact with the casting wheel. The ratio between the thickness of the flexible band and the diameter of the smaller band positioning wheel is such that no more than three times the bending strain is applied by the smaller band positioning wheel to the flexible band than the strain applied by the other band guide wheels.

3,596,706

TRACK SUPPORTING ROLLER GUIDE MEANS FOR CASTING TRACKS IN CASTING INSTALLATIONS AND MORE PARTICULARLY IN CURVED CASTING INSTALLATIONS

Johann Knorr, and Otman Kleinhagauer, both of Kapfenberg, Styria, Austria, assignors to Gebr. Bohler & Co. Aktiengesellschaft, Vienna, Austria

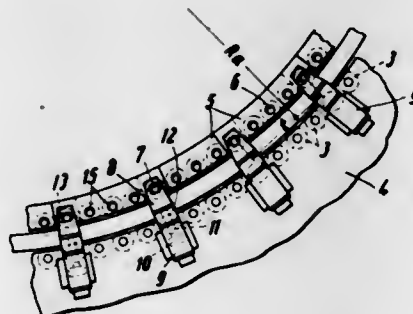
Filed Dec. 27, 1968, Ser. No. 787,513

Claims priority, application Austria, Dec. 27, 1967, A 11662/67

Int. Cl. B22d 11/12

U.S. Cl. 164-282

6 Claims



A track supporting roller guide for casting tracks in curved casting installations in which rotatable track supporting rollers are essentially arranged on two equidistant curves or rows with the supporting rollers of at least one curve or row being attached to the lengths of a link chain which link chain is adjustable in the direction of the track.

3,596,707

APPARATUS FOR CONTINUOUS VERTICAL CASTING

Serge Peyraud, and Jean Freiche, both of Issoire, France, assignors to Cegedur GP, Paris, France

Filed June 21, 1968, Ser. No. 739,032

Claims priority, application France, June 29, 1967, 112,362

Int. Cl. B22d 11/12

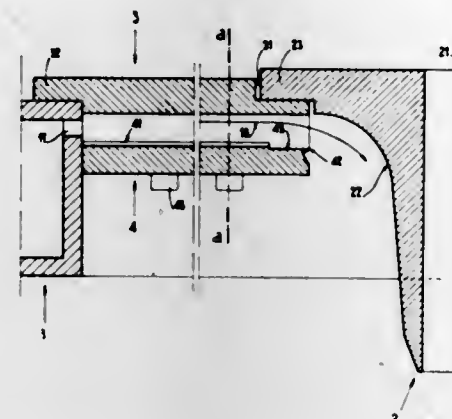
U.S. Cl. 164-283

3 Claims

An apparatus for continuous vertical casting which includes extenders for adapting a casting frame for use with

molds of different format including a member extending crosswise between the frame and mold to support the mold

ends of the blades are trimmed to length using the notches as a reference point and the hub projections fit into the blade notches. The notch and projection connection holds the blades against radial movement relative to the hub. The hub



on the frame and to guide coolant liquid from the frame onto the outer walls of the mold.

3,596,708

LOCKING MECHANISM FOR DIECASTING

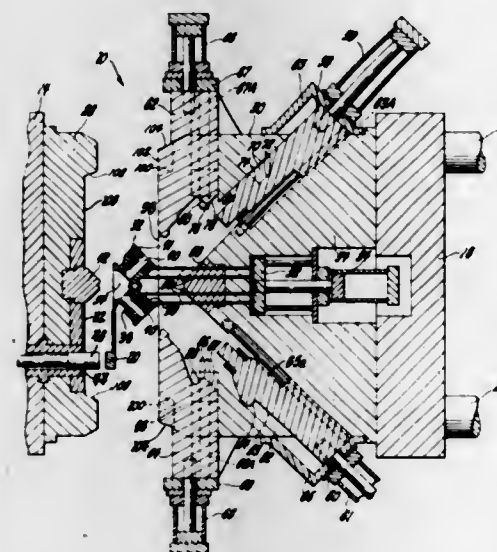
John Lapin, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 24, 1969, Ser. No. 879,121

Int. Cl. B22d 17/26

U.S. Cl. 164-343

4 Claims



A diecasting machine of the horizontal type including a stationary cover die and an ejector die movable along a longitudinal axis between a mold open and mold closed position. The ejector die comprises a plurality of die elements including die elements movable obliquely to the longitudinal axis of the die assembly and other die elements movable transversely of the longitudinal axis of the die assembly. In accordance with the invention the transversely movable die elements interlock with and hold the obliquely movable die elements in a closed position and the cover die interlocks with and holds the transverse die elements in a closed position when the cover die and ejector die assembly are in a closed position.

3,596,709

TRANSFER WHEEL ASSEMBLY FOR AIR CONDITIONER

Konstantins Dravnieks, Madison, Wis., assignor to Wehr Corporation, Milwaukee, Wis.

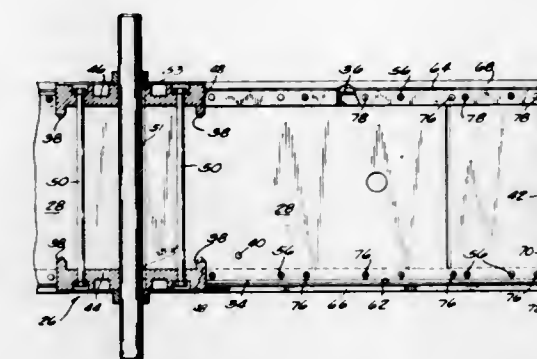
Filed Nov. 28, 1969, Ser. No. 880,544

Int. Cl. F28d 19/04

U.S. Cl. 165-9

15 Claims

To hold radially extending blades of a transfer wheel in a desired orientation in the wheel notches are provided in the axially facing edges of each blade and a hub is provided which includes a pair of generally annular, axially spaced projections projecting toward each other. The radially outer



is also provided with a number of ribs spaced circumferentially with respect to each other and all arranged in radial spaced relation from the hub projections. Each blade extends between an adjacent pair of ribs for engagement by the ribs to thereby prevent angular movement of the blades.

3,596,710

SELF-DEFROSTING EXTERIOR-TYPE VEHICLE MIRROR ASSEMBLY

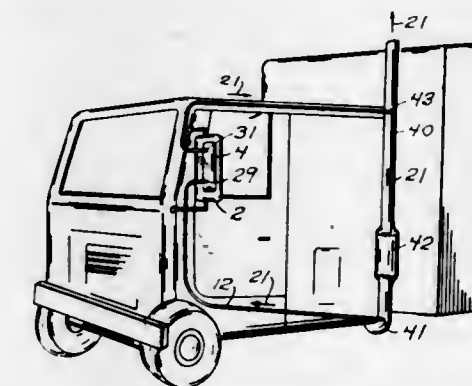
Arthur Neal, Dayton, Ohio, assignor to John P. Tarlano, Dayton, Ohio, a part interest

Filed Dec. 16, 1969, Ser. No. 885,498

Int. Cl. F25b 29/00

U.S. Cl. 165-41

1 Claim



The present invention relates to a self-defrosting exterior-type vehicle mirror assembly which frees the front viewing surface of the mirror therein of ice or snow or a collection of moisture. Two pipes are attached into the back cover of a standard exterior-type vehicle mirror assembly. Vehicle exhaust gas is passed from the high-pressure side of a vehicle muffler through the chamber between the back cover of the standard exterior-type vehicle mirror assembly, and the back nonviewing surface of the mirror therein.

Heat is transmitted by thermal conductivity to the front-viewing surface of said mirror, to remove frost, ice or moisture which has accumulated thereon. An exit pipe is provided within said back cover of said standard exterior-type vehicle mirror assembly for exiting cooled vehicle exhaust gas from the chamber into the low pressure side of a vehicle muffler.

3,596,711

COOLING APPARATUS

Hubert Rothert, Berlin; Eugen Renz, Mulheim/Ruhr, and Helmut Widder, Essen-Heidhausen, all of, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed June 26, 1969, Ser. No. 836,720

Claims priority, application Germany, June 28, 1968, P 17 63 597.1

Int. Cl. F28d 11/00

U.S. Cl. 165-86

8 Claims

Cooling apparatus for electrical components includes a chamber for retaining cooling liquid therein, electrical com-

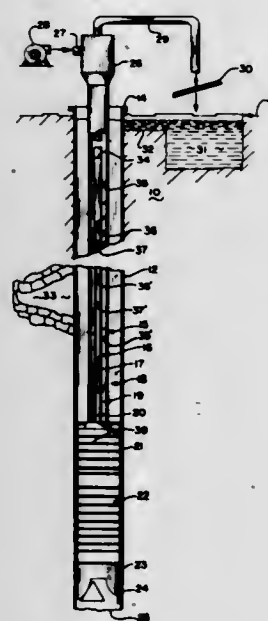
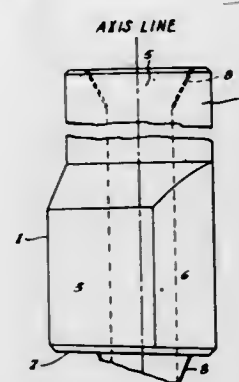
therein and movable by a handle against a spring between an open position in which a scraping edge projects from the sampler and a closed position; an earth sampling groove is provided in the sampling member immediately adjacent the scraping edge; the device is driven into the ground by any suitable means, as for example by a vibratory hammer attached to one end, and the sampling member opened while the sampler is rotated to scrape earth from the bore wall and form a sample in the groove; the sampling member is then closed and the sampler withdrawn from the bore. The elongated sample that is obtained is representative of the whole length of the bore.

3,596,720
METHOD OF FORMING A BOREHOLE USING A COMPRESSIBLE AND NONCOMPRESSIBLE FLUID IN A DUAL PIPE STRING

Wayland D. Elenburg, Box 1588, Monahans, Tex.
Filed Nov. 3, 1969, Ser. No. 873,415
Int. Cl. E21b 21/00, 21/04

U.S. Cl. 175-69

13 Claims and greater control can be exercised over the direction of deviation.



Drilling apparatus having a dual pipe string connected to a drill bit by a bit sub, with the bit sub comprising one or more subs, with the outer surface of each sub including turbulence producing means formed thereon. Compressible fluid is flow connected to the pipe annulus while drilling fluid is flow connected to the hole annulus, and the length of the bit sub is adjusted to control the pressure drop of the noncompressible fluid thereacross to thereby control the ratio of compressible and noncompressible fluid which flows up through the central passageway, carrying formation samples formed by the bit admixed therewith.

3,596,721
APPARATUS FOR DEVIATION BOREHOLE DRILLING
Howard Trethwen Edgecombe, Filton, England, assignor to Rolls-Royce Limited, Derby, England

Filed Jan. 27, 1969, Ser. No. 794,222
Claims priority, application Great Britain, Feb. 2, 1968, 5557/68

U.S. Cl. 175-73

Int. Cl. E21b 7/04

7 Claims

A bent-sub, which is a deviation control device, has arcuate stabilizing surfaces on opposite sides of the plane containing the direction of deviation of the borehole, the maximum width between the surfaces being nearly equal to but less than the diameter of the borehole and an arcuate knee contact area, so that when the direction of the deviation is

changed by rotating the drill string, the bent-sub is encouraged to slide, rather than roll, around the borehole wall

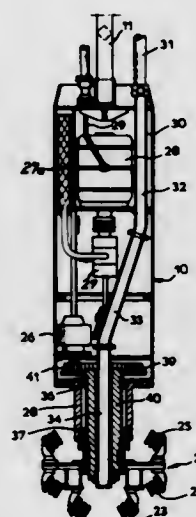
3,596,722
BORING UNIT, IN PARTICULAR FOR SMALL AND MIDDLE DEPTHS

Pierre Jean Marie Theodore Allard, 178, Boulevard Francois 1er, Le Havre (Seine Maritime), France
Filed Sept. 4, 1969, Ser. No. 855,094

Claims priority, application France, Sept. 13, 1968, 166,062
Int. Cl. E21b 3/12, 7/02

U.S. Cl. 175-93

10 Claims



A boring unit, in particular for small and middle depths, comprising a cylinder hanging from a hoisting apparatus mounted on a truck, rotary drilling means mounted at the end of the cylinder, at least one bar for axially lowering the said cylinder and driving the said rotary drilling means into the borehole, a fixed plate for holding against rotation the said bar which is solid with the said cylinder, and means for recovering the drilling waste from the boring hole.

3,596,723
CORE-RETRIEVING METHOD AND APPARATUS

Wayland D. Elenburg, P.O. Box 1588, Monahans, Tex.
Continuation-in-part of application Ser. No. 714,551, Mar. 20, 1968, now Patent No. 3,473,617. This application June 9, 1969, Ser. No. 831,361

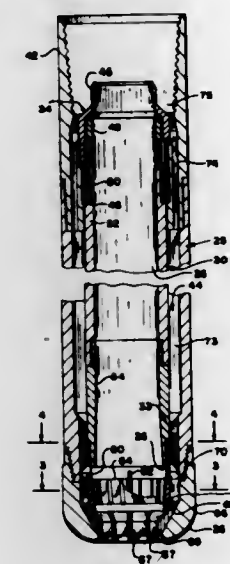
U.S. Cl. 175-255

Int. Cl. E21b 9/20, 25/00

8 Claims

Apparatus for retrieving cores while drilling a borehole which enables an elongated cylindrical solid core sample to be obtained from a formation. A coring bit together with a core barrel which remains stationary with respect to the core being cut enables the core to be broken into predetermined

lengths and circulated uphole to where the core is captured within a core retriever made in accordance with the present invention, and which enables the intact core to be removed from the drill string.



invention, and which enables the intact core to be removed from the drill string.

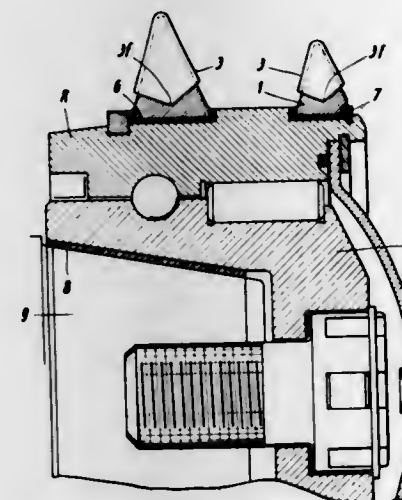
3,596,724
CUTTING ROLLER
Karl Gunther Bechem, Hagen, Germany, assignor to J. C. Soding & Halback KG, Hagen, Germany

Filed June 7, 1968, Ser. No. 735,431
Claims priority, application Germany, June 9, 1967, P 15 33 703.8

U.S. Cl. 175-331

Int. Cl. E21b 9/14; E21c 13/01

5 Claims



A cutting roller for use in rock-boring equipment and having two circumferentially extending parallel cutting ribs. Each rib is provided with a series of wear-resistant exchangeable inserts which protect the crown and flank surfaces of the rib against wear.

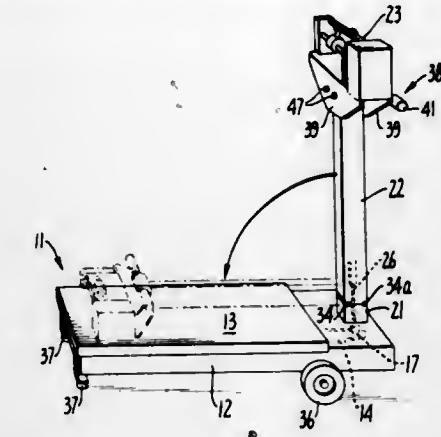
3,596,725
HINGED COLUMN FOR SCALE
Douglas M. Homs, c/o Douglas Homs Corp, 1538 Industrial Way, Belmont, Calif.

Filed Nov. 1, 1968, Ser. No. 772,489
Int. Cl. G01g 21/00

U.S. Cl. 177-126

4 Claims

A column for scales is provided with a hinge near the base of the column to permit the column to be pivoted inward to rest on the scale platform during shipment, for field use, and storage. The steelyard is connected to the long lever nose iron by a chain or other flexible connection to facilitate pivoting. The hinge is duplicated on opposite sides of the column so that the column and beam may be rotated 180° to make the beam readable from the front or reverse sides of



snubbers protecting the column and platform in horizontal position are likewise reversible.

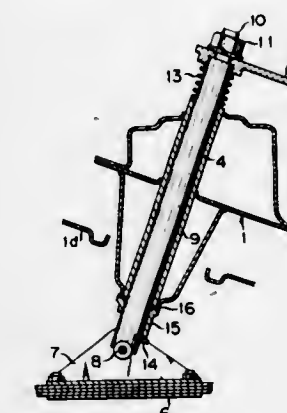
3,596,726
ENDLESS-BELT TRACTION SNOW VEHICLE
Norio Takada, Shizuoka-ken, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Mar. 27, 1969, Ser. No. 810,993
Claims priority, application Japan, Mar. 30, 1968, 43/20663

U.S. Cl. 180-5

Int. Cl. B62m 27/02

8 Claims



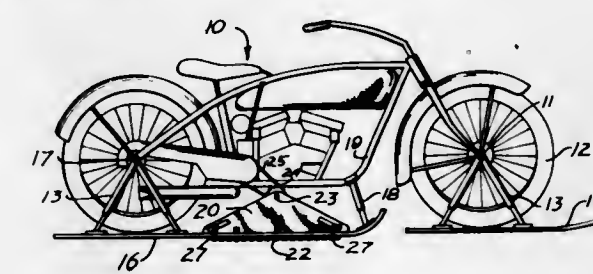
An endless-belt traction snow vehicle has a pair of front skis for directing the course. Said skis are supported at the front bottom of the vehicle body by extensible leg members which are fixed to the vehicle body in a suitable length desired each time.

3,596,727
RUNNER ATTACHMENT FOR MOTORCYCLE
Vincent A. Graham, Rte. 1, Salem, S. Dak.

Filed June 2, 1969, Ser. No. 829,461
Int. Cl. B62m 27/02

U.S. Cl. 180-5

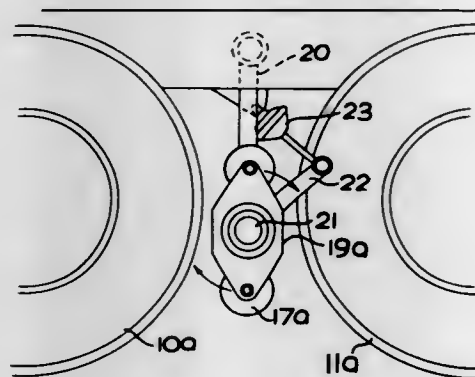
6 Claims



A device adapted to convert a motorcycle into a vehicle adapted to be driven over snow covered surfaces including a skilike front runner for attachment to a front wheel and a similar runner for the rear wheel; the rear runner having a belt driven by power from the cycle engine.

3,596,728
EMERGENCY DRIVE FOR VEHICLES
 George Edgar Neville, Cresta Lodge, Robln Down Lane, Mansfield, Nottinghamshire, England
 Filed Dec. 26, 1968, Ser. No. 786,970
 Claims priority, application Great Britain, Dec. 30, 1967, 59290/67
 Int. Cl. B60k 17/14, 17/36, 59/02
 U.S. Cl. 180—24.12

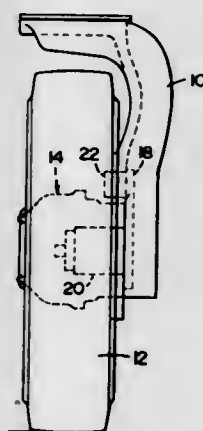
5 Claims



In a vehicle having front and rear pairs of wheels, the two wheels at each side are connected at will by a roller arrangement acting as an idler. There may be a mechanical or hydraulic connection between the rollers at opposite sides of the vehicle, providing a differential lock. Alternatively, an emergency drive for a single pair of wheels is provided by hydraulically driven rollers movable into and out of engagement with the wheels.

3,596,729
WHEEL DRIVE MECHANISM
 John B. Shaw, 1812 E. Marlette, Phoenix, Ariz., and William H. Schwartz, 260 Summit Drive, Corte Madera, Calif.
 Filed Jan. 8, 1969, Ser. No. 789,906
 Int. Cl. B60k 7/00
 U.S. Cl. 180—55

1 Claim



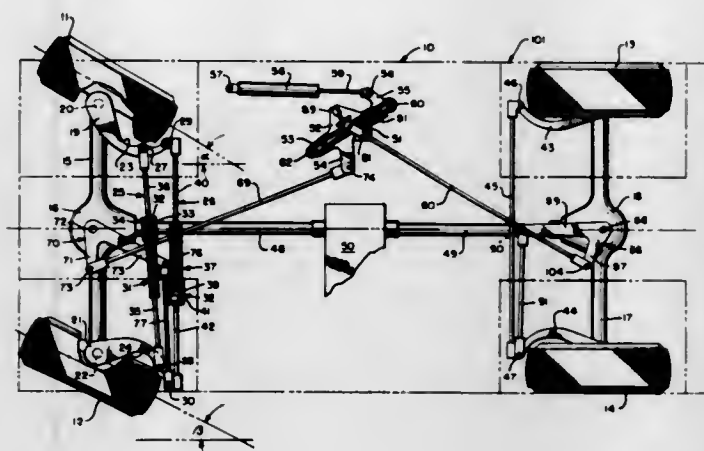
A wheel drive mechanism having a drive motor which is substantially shrouded and protected by a gear train casing containing a gear train through which the motor drives the wheel. The drive motor is removable and, when so removed, does not expose the inside mechanism of the gear train casing.

3,596,730
STEERING SYSTEM
 Robert F. Cecce, New Carrollton, Md., assignor to Fairchild Hiller Corporation, Montgomery County, Md.
 Filed Apr. 22, 1969, Ser. No. 818,207
 Int. Cl. B62d 5/06, 7/16
 U.S. Cl. 180—79.2 R

17 Claims

This invention includes a steering system for use with a vehicle capable of exhibiting three modes of steering, said vehicle having forward and rearward wheels, the first of said modes comprising forward-wheel steering control of the vehicle,

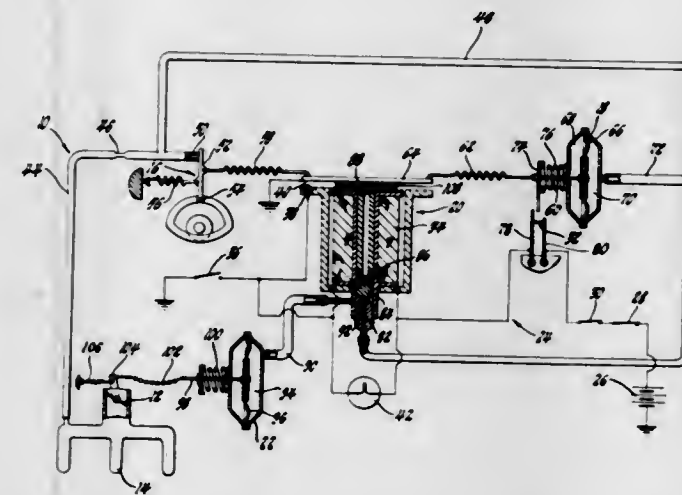
the second and third of said modes comprising forward- and rearward-wheel steering control of the vehicle, the



system including means for converting one of said modes to another.

3,596,731
VEHICLE ROAD SPEED CONTROL SYSTEM
 Douglas I. Fales, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Nov. 14, 1969, Ser. No. 876,730
 Int. Cl. B60k 15/00
 U.S. Cl. 180—108

3 Claims



A system for maintaining a desired vehicle speed, with the desired speed being set through a self-tracking sensor. A vehicle road speed-responsive valve is connected to a tracking spring which is moved by a vacuum-operated servomotor under control of the valve so that the position of the tracking spring, and therefore the tension exerted by it, reflects vehicle speed. This tension is set by a valve and lock assembly when the system is energized, so that the control valve desired vehicle speed input is set. Another servomotor also operating under control of the control valve is connected to operate the vehicle engine throttle valve to maintain the desired vehicle speed substantially at the set speed.

3,596,732
SPEED AND DIRECTION CONTROL MECHANISM FOR A TRACTOR HAVING TWO SEPARATELY DRIVEN FRONT WHEELS
 Emmett F. Glass, Akron; Edmund O. Howell, New Holland, and Bruce D. Schwalm, Leola, all of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
 Filed Apr. 14, 1969, Ser. No. 816,001
 Int. Cl. B62d 11/04

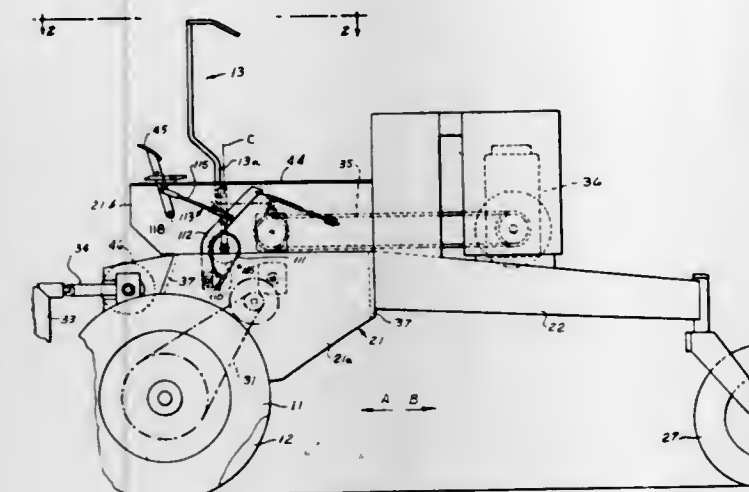
U.S. Cl. 180—6.48

A tractor with two spaced front wheels and a trailing tail wheel has an operating lever controlling two sets of hydraulic pumps and motors independently driving a respective front

12 Claims

wheel. The operating lever controls the pumps and motors through a linkage system by movement in a vertical longitudinal plane and the turning of the tractor by clockwise or

rounding the unconfined stream of gas with a blanket of foam from a location adjacent its origin and extending axially

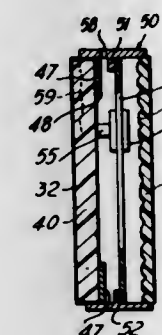


counterclockwise rotation of the lever. Releasable friction means hold the lever in a given position in the longitudinal plane.

3,596,733
FLAT DIAPHRAGM FOR SOUND TRANSDUCERS AND METHOD FOR MANUFACTURING IT
 Jose Juan Bertagni, 1027 Hernandarias, Buenos Aires, Argentina
 Filed Dec. 29, 1969, Ser. No. 888,990
 Claims priority, application Argentina, Dec. 30, 1968, 218,851

Int. Cl. G10k 13/00; H04r 7/00; B32b 31/00
 U.S. Cl. 181—32

22 Claims

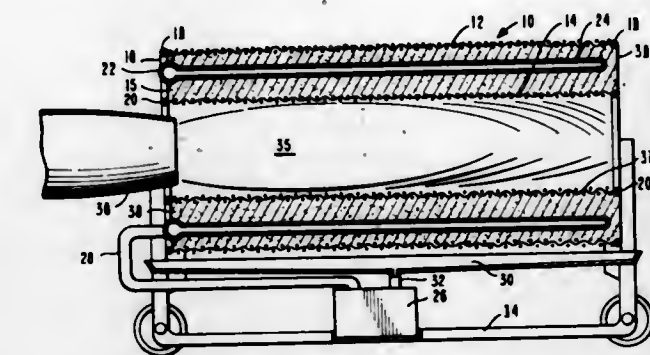


A flat diaphragm for sound transducers and a method for producing it, including providing in a cellular platelike member a pretensioned front face and a rear face defining an irregularly shaped figure portion including a central stiffened portion at a zone out of the geometric center of said figure portion, and a marginal vibration damper portion substantially circumscribing said figure portion, said central stiffened portion defining a center for capturing vibrations. The flat diaphragm is preferably made of a granular expanded-bonded cellular, strong, stiff, imperforated plastics platelike member.

3,596,734
MEANS AND METHOD FOR NOISE SUPPRESSION
 Donald N. Yates, Jr., Chatsworth, Calif., assignor to Leisure Systems Corporation, Manhattan Beach, Calif.
 Filed July 7, 1969, Ser. No. 839,318
 Int. Cl. F01n 3/04; B64d 33/06
 U.S. Cl. 181—33

10 Claims

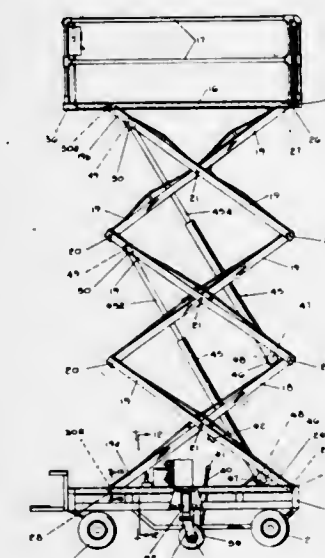
The suppression of noise radiating from a high-velocity, unconfined stream of gas is accomplished by radially sur-



rounding the stream of gas for a distance equal to several diameters of the stream at its origin.

3,596,735
PORTABLE ELEVATOR WORKING AND LOAD-LIFTING PLATFORM
 Howard H. Denier; Dennis J. Denier; Thomas Hedger, and Lee R. Garrett, all of Cincinnati, Hamilton County, Ohio, assignors to Howard H. Denier, Cincinnati, Ohio
 Filed Oct. 30, 1969, Ser. No. 872,542
 Int. Cl. E04g 1/22
 U.S. Cl. 182—16

24 Claims



The invention teaches the use of a hydraulic system having primary ram booster means to start the raising of a platform coaxing with other ram means to raise and lower the platform. The platform is raised and lowered by remote control by a workman on the platform and it also can be raised and lowered by any one not on the platform. It utilizes a vehicle for the platform having a usual controlled rectified electric circuit for a motorized driving means for the vehicle that prevents the drive motor attaining maximum speed when the platform is slightly raised above the chassis and permits the drive motor to attain maximum speed when the platform is completely collapsed down on the chassis. It is steered while in motion in any desired direction, hydraulically under remote control by the workman while the platform is at either its lowest or uppermost position.

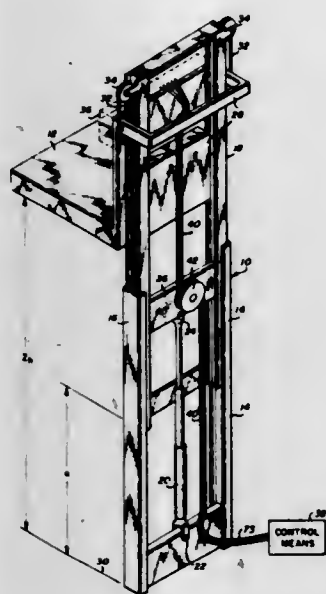
3,596,736
MEANS FOR PROVIDING PLURAL ELECTRICAL INTERCOMMUNICATION BETWEEN RELATIVELY MOVING TERMINALS
 Lynn D. Crawford, San Jose, Calif., assignor to Mobility Systems, Inc., Santa Clara, Calif.
 Filed Apr. 28, 1969, Ser. No. 819,804
 Int. Cl. E04g 1/18

U.S. Cl. 182—148

A plural conductor cable and cable-carrying apparatus for interconnecting a control console mounted to a movable

3 Claims

platform and a relatively stationary control means. The cable-carrying apparatus is comprised of a spring-biased reel means which causes a single unbroken length of ribbonlike cable to be wound back on itself about the drum of the reel



means as the tension applied to the ends thereof is relaxed so that no slack is allowed to develop in the cable. On the other hand, the cable is played out in two directions upon application to the cable of a tension exceeding the spring return force of the reel means.

3,596,737

BRAKING APPARATUS

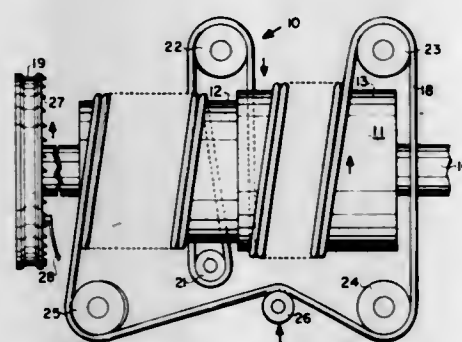
Victor F. Volk, New York, N.Y., assignor to Anacanda Wire and Cable Company

Filed July 10, 1969, Ser. No. 840,755

Int. Cl. F16d 63/00

U.S. Cl. 188-1 R

14 Claims



A brake or tensioning device does not rely on friction to absorb energy but absorbs energy by the elongation of an endless strand passing from a smaller to a larger capstan. The strand is continuously relaxed in passing back again to the smaller capstan.

3,596,738

VEHICLE SHOE DRUM BRAKES

Charles Newstead, Walsall, England, assignor to Girling Limited, Tyseley, England

Filed May 7, 1969, Ser. No. 822,477

Claims priority, application Great Britain, May 9, 1968, 21,936/68

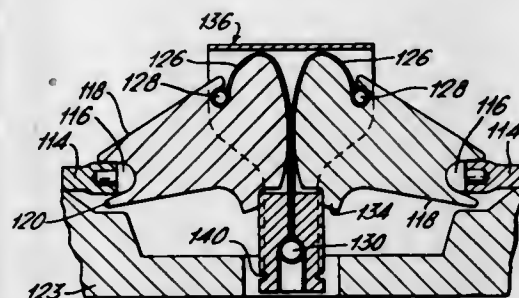
Int. Cl. F16d 51/22

U.S. Cl. 188-78

3 Claims

The invention relates to an internal shoe drum brake of the type in which an expansion movement is imparted to the brakeshoes through thrust members which in turn are moved apart by cams having cam surfaces in rolling contact with one another, the rolling motion of the cams being controlled by a pull rod. In such a brake construction, the invention

provides a flexible strap or a pivotal link between the pull rod and each cam, the strap or the link being pivoted to the cam.



Additionally, the invention provides for articulated engagement of each cam with the cooperating thrust member.

3,596,739

SPEED RESPONSE BRAKE ASSEMBLY

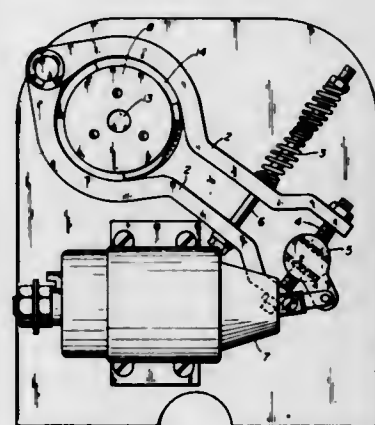
Claude C. Ramsey, and William W. Ramsey, both of Tulsa, Okla., assignors to Ramsey Winch Co., Tulsa, Okla.

Filed June 30, 1969, Ser. No. 837,722

Int. Cl. B60t 13/04, 8/04

U.S. Cl. 188-105

2 Claims



An electrical brake-clutch assembly useful in controlling the speed of rotation of a shaft capable of moving in a forward or reverse direction. The speed response brake in combination with the electrically controlled brake becomes effective to overcome the override in an electric motor caused by the excessive speed of the assembly shaft connected to the electric motor.

3,596,740

TORQUE LIMITER

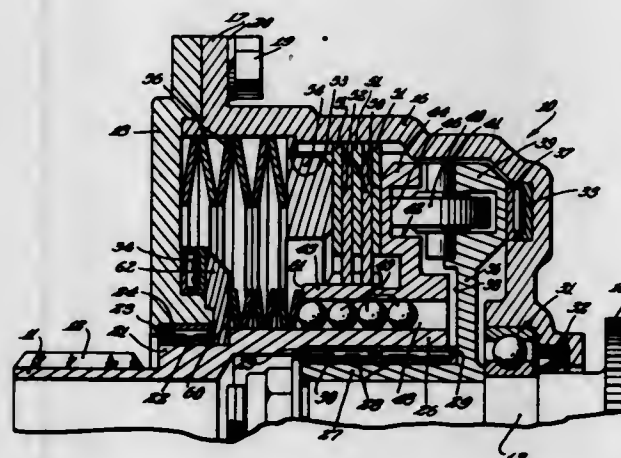
Carl S. Nau, South Euclid, Ohio, assignor to TRW Inc., Cleveland, Ohio

Continuation-in-part of application Ser. No. 746,586, July 22, 1968, now abandoned. This application Jan. 27, 1970, Ser. No. 6,110

Int. Cl. B60t 7/12; F16d 67/00

U.S. Cl. 188-134

18 Claims



A bidirectional torque limiter operable as a torque sensitive brake to stop the motion of the power supply while limit-

ing the output torque when a jam occurs in the driven mechanism. The inertia of the power supply is dissipated by providing for limited relative motion between the input and output shafts of the torque limiter while absorbing the kinetic energy of the drive unit by means of a friction brake. By reversing input and output shafts, a torque-limiting device is provided which will not release following lockup even if the output torque is reduced to zero unless the input torque is reduced below the lockout torque level or is reversed in direction of rotation.

3,596,741

DRUM BRAKE ASSEMBLY INCLUDING PLURAL**OPERATOR**

Haruo Miyajima, Kariya-shi, Japan, assignor to Aisin Seiki Company Limited, Kariya-shi, Aichi-ken, Japan

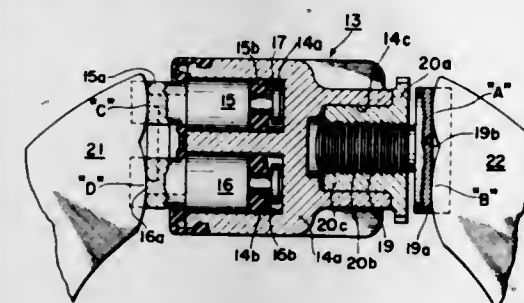
Filed May 20, 1969, Ser. No. 826,111

Claims priority, application Japan, May 25, 1968, 43/4338.4

Int. Cl. B60z 11/16; F16d 65/24

U.S. Cl. 188-152

5 Claims



A drum brake assembly for powered vehicle, said assembly comprising two independently operable hydraulic piston-and-cylinder units for operating a pair of brakeshoes for expanding, said assembly being characterized by that the parallel hydraulic pistons are kept in mechanical engagement with one of said shoes and the oppositely outer end of said wheel cylinders is kept in mechanical engagement at a plurality of points with the remaining one of said shoes and said engaging points are positioned on the respective extensions of the longitudinal axes of said hydraulic pistons, for minimizing otherwise possible development of severe turning moment acting upon the hydraulic cylinder means for the both pistons.

3,596,742

CLUTCH AND BRAKE FLUIDIC CONTROL SYSTEM**THEREFOR**

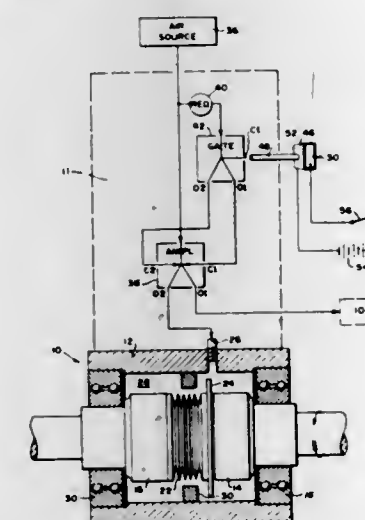
Stephen J. Zlerak, Westwood, Mass., assignor to Metal Bellows Corporation, Sharon, Mass.

Filed Nov. 14, 1969, Ser. No. 876,862

Int. Cl. F16d 67/04; F15c 1/14

U.S. Cl. 192-14

5 Claims



A bellows-operated clutch is actuated by a sharp pulse from a fluidic digital amplifier. The amplifier is controlled, in

turn, by a fluidic gate which can be pulsed on and off very rapidly.

3,596,743

CONTROL SYSTEM FOR AUTOMATIC STOPPING OF A**MACHINE ELEMENT IN A PREDETERMINED POSITION**

Masahiro Yokoyama, Nagoya, Japan, assignor to Mitsubishi

Denki Kabushiki Kaisha, Tokyo, Japan

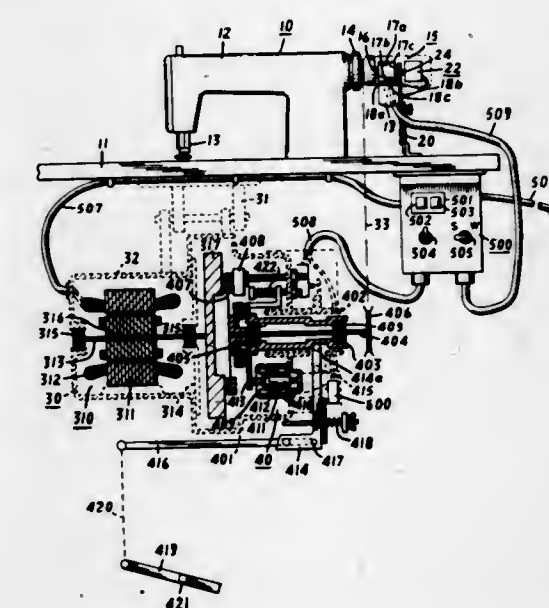
Filed July 28, 1969, Ser. No. 845,264

Claims priority, application Japan, Aug. 1, 1968, 43/54566; 43/54567

Int. Cl. F16d 71/04, 67/06

U.S. Cl. 192-142

2 Claims



Upon decelerating a rotary machine, an electric control circuit energizes an electromagnet. A capacitor charges in the normal mode of operation and beings to discharge upon braking of the machine by a brake device. A relay is energized in the normal mode and utilizing a discharge current from the capacitor, closes its normally open contacts thereby connecting the control circuit to a position sensor. The sensor responds to the machine being at one of its predetermined positions during the energization of the electromagnet to stop it through the brake device after which the relay maintains the control circuit disconnected from the sensor through the normally open contacts. A second relay is energized to change that position where the machine is to stop.

3,596,744

COIN-TESTING APPARATUS

Vladimir Yakovlevich Chesnokov, Kuznetsovskaya ulitsa, 10, kv. 115, and Valentin Petrovich Nikitin, Prospekt Shaulina, 58, kv. 45, both of Leningrad, U.S.S.R.

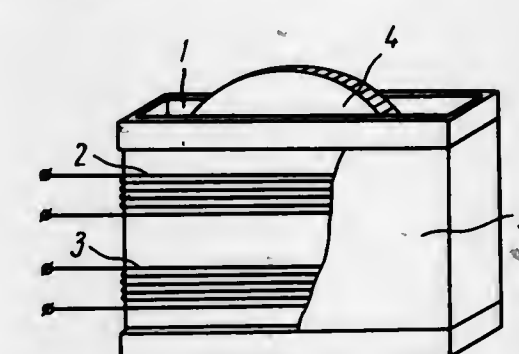
Filed Mar. 26, 1969, Ser. No. 810,732

Claims priority, application U.S.S.R., Apr. 27, 1968, 1236119

Int. Cl. G07f 3/02

U.S. Cl. 194-100

2 Claims



A coin tester for vending machines in which the coin to be tested forms a core to concentrate the magnetic flux between a first coil provided with a constant voltage AC current, and a second testing or measuring coil in which an EMF is to be

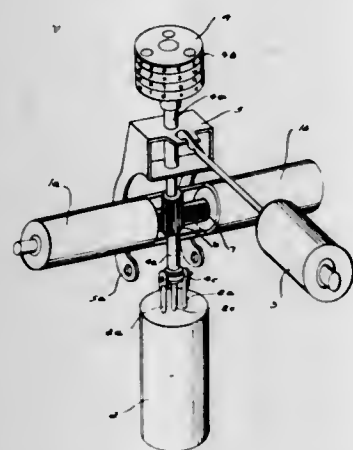
induced whereby deviations of the magnetic properties of a coin being tested from the magnetic properties of an acceptable coin will cause a signal actuated by said testing or measuring coil to reject the coin if it is counterfeit.

3,596,745
SOLENOID OPERATED TYPE HEAD SETTING ARRANGEMENT

Hermann Waldenburger, Wolkersdorf, Germany, assignor to Grundig E. M. V. Elektro-Mechanische Versuchsanstalt, DNH. Max Grundig, Fuerth/Bavaria, Germany
Filed Sept. 6, 1968, Ser. No. 757,918
Claims priority, application Germany, Sept. 7, 1967, G 37 918/15g
Int. Cl. B41j 1/26

U.S. Cl. 197-55

4 Claims



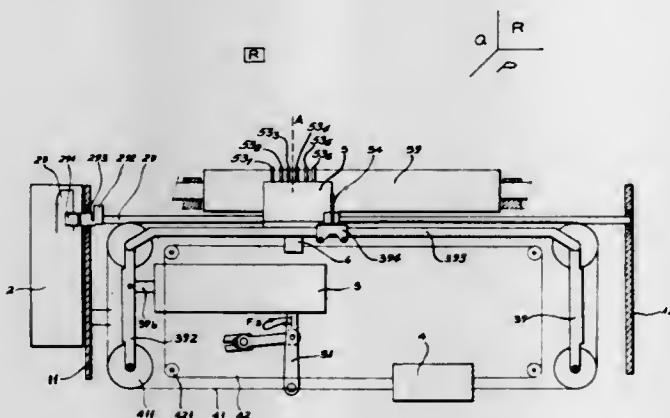
The keys of a typewriter effect the energization of selected electromagnetic windings whose cores are displaced steps of different length. The cores are connected to a control element which is displaced a distance corresponding to the total of the steps made by the cores. The displaced control element sets the type head to a selected position in which a selected type face, associated with the operated key, is operative.

3,596,746
MULTITYPE WHEEL PRINTING MACHINE

Jean-Pierre Murat, Argenteuil, France, assignor to Societe D'Applications Generales D'Electricite et de Mecanique, Paris, France
Filed Sept. 24, 1969, Ser. No. 860,524
Claims priority, application France, Sept. 25, 1968, 167,510
Int. Cl. B41j 1/26

U.S. Cl. 197-55

4 Claims



Teleprinting machine in which the characters are distributed on a plurality of type wheels. It comprises a type wheel carriage slidable along and rotatable about a selector shaft, a plurality of type wheels mounted on said type wheel carriage and rotatable about and controlled in rotation by said selector shaft, a striker carriage, a stepping mechanism for imparting to both said striker and type wheel carriages a

step-by-step movement, means for receiving character signals expressed in the binary code, a rotary selector device and a traversing selector device respectively controlling the selector shaft in rotation and the type wheel carriage in translation. These two devices include a reciprocating crank and link mechanism controlled by the receiving means, two racks and a pinion, the two racks meshing at two diametrically opposite points of the pinion, two toggles respectively connecting the two racks to the crank and link mechanism, a rack selector switching member controlled by the receiving means for selecting a rack out of the two ones, and a plurality of mobile stop members selectively positioned by the receiving means on the path of the toggles for stopping the racks at quantified predetermined positions. The pinion of the rotary selector device drives the selector shaft and the pinion of the traversing selector device drives the type wheel carriage.

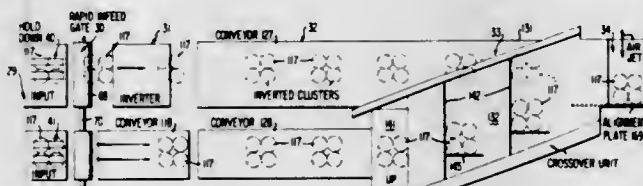
3,596,747
BAKERY-PRODUCT-STACKING METHOD AND APPARATUS

Frank M. Irving, Jr., York; Albert S. Schmidt, Sr., Wormleysburg; Ronald G. Andrus, Wrightsville, and Herbert J. P. Beckius, York, all of, Pa., assignors to Alto Company, York, Pa.

Filed May 27, 1968, Ser. No. 732,179
Int. Cl. B65g 57/00

U.S. Cl. 198-35

38 Claims



Bakery product units are received from a depanner and/or slicer at a marshaling station in two discrete rows. Product units from the two rows are then released in a controlled manner and are advanced in timed relation with or without inversion of the units in one or both rows. The product units in one row move gradually into superposed relation with corresponding product units of the second row and each superposed pair of product units is then engaged and advanced in unison until stacked registering relationship of each superposed pair is attained.

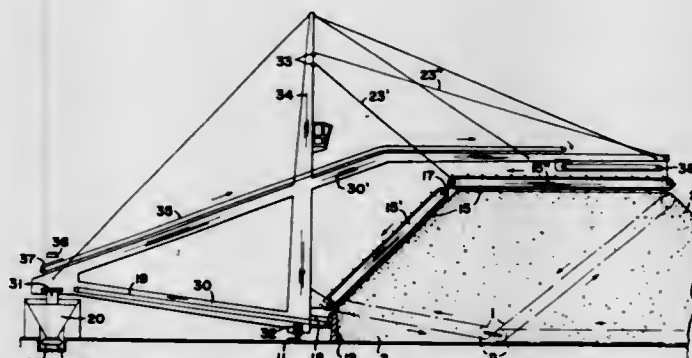
3,596,748
CONVEYOR UNLOADING APPARATUS

Gerhard Julius Konrad Fischer, Kirchhoeder Berg, Germany, assignor to Gustav Schade Maschinenfabrik, Dortmund, Germany

Division of Ser. No. 713,535, Mar. 15, 1968, Pat. No. 3,509,985
Filed Nov. 5, 1969, Ser. No. 874,310
Int. Cl. B65g 65/28

U.S. Cl. 198-36

3 Claims

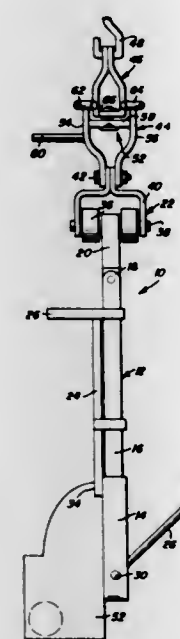


Unloading apparatus in which an articulated conveyor pivots about a central axis to pickup material heaped circumferentially around the axis and to discharge said material at said central axis.

3,596,749
POULTRY GRADING POSITIONER

U.S. Cl. 198-38

11 Claims

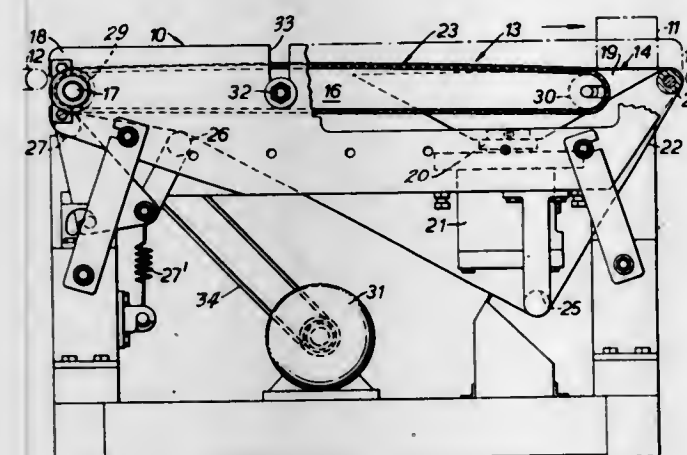


A poultry carrying frame is suspended from a conveyor for angular positioning at a grading station and automatic reorientation to an unloading position as it is moved away from the grading station by the conveyor. The carrier frame is swivel mounted by a link member pivotally connected between a load transferring roller assembly and the conveyor connector. A positioning arm and camming elements project from the link member for engagement by stationary elements during movement of the conveyor to effect said automatic reorientation operationally realigning the carrier frame with a release mechanism.

3,596,750
BELT CONVEYORS

U.S. Cl. 198-39

15 Claims

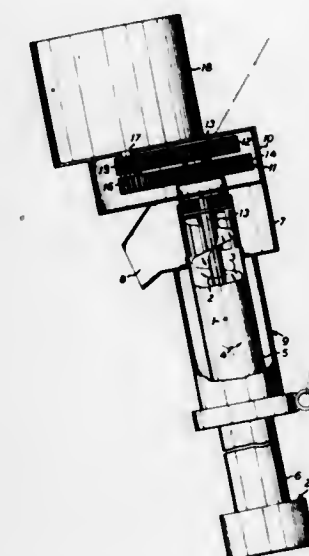


A belt conveyor especially designed for use in high speed weighing and comprising a carrier belt powered by a drive belt or belts in contact with part of the operative run of the carrier belt. In combination with a weighing platform the drive belt bypasses the platform and the carrier belt carries articles for weighing over the platform at a low tension.

3,596,751
DEVICE FOR SUPPLYING MATERIAL TO THE ENTRANCE END OF A CONVEYOR COMPRISING A SCREW AND A CONDUIT THEREFOR

U.S. Cl. 198-64

14 Claims

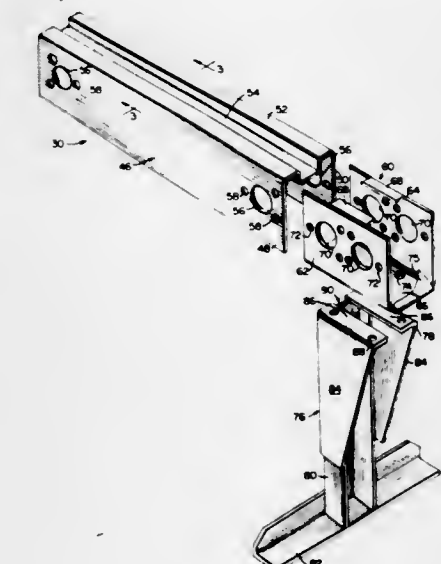


A device for supplying or drawing material to the entrance end of a screw conveyor has a guide surface which is rotatable about the longitudinal axis of the conveyor independently of the screw thereof, and the guide surface is in the form of a helically or spirally coiled vane in an open cap formed by said guide surface around the entrance end of the conveyor.

3,596,752
MODULAR SUPPORTING STRUCTURE FOR ENDLESS BELT CONVEYORS

U.S. Cl. 198-182

6 Claims



The modular supporting structure for an endless belt conveyor, or a system of such conveyors, comprises component units including tubular bed modules, adapters for interconnection of the modules to one another and to various related structures, and certain ancillary components, including drive and transfer apparatus.

3,596,753

HEAT-RESISTANT CONVEYOR BELT

Heinrich, Philipp, Knapp; Gerda, Elsbeth, Schanz, and Regina, Regina rene, Hansel, all of Bad Blankenburg, Thuringian Forest, Germany, assignors to VEB Transportgummi, Bad Blankenburg, Thuringian Forest, Germany
 Filed Aug. 1, 1968, Ser. No. 749,342
 Int. Cl. F16g 1/12, 5/10

U.S. Cl. 198-193

4 Claims

Heat-resistant conveyor belt consisting of an elastomer mixture with steel wire supporting inserts, the elastomer mixture consisting of nitrile rubber and polychloroprene with the nitrile rubber contents exceeding 50 percent; preferably an adhesive soluble in the elastomers is incorporated in the elastomer mixture.

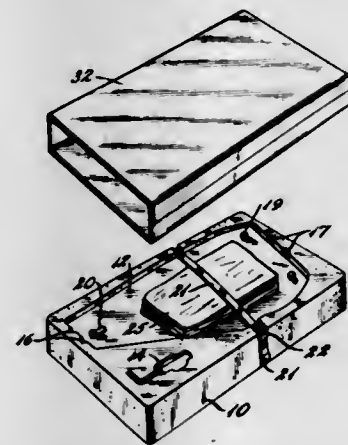
3,596,754

COMBINATION SHIPPING AND CARRYING CONTAINER

Glen R. Peterson, Jr., Summit, N.J., assignor to Oscar Schmidt-International, Inc., Union, N.J.
 Filed Dec. 11, 1968, Ser. No. 782,880
 Int. Cl. B65d 85/54; A45c 11/00

U.S. Cl. 206-14

3 Claims



A combined shipping and carrying package for a stringed musical instrument of the zither type having strings on one face thereof, said package comprising a molded cellular body having a recess for the reception of the musical instrument in inverted position, a fitted cover for said body with closure means and a handle for selectively carrying the body and contained musical instrument, said fitted cover being foldable for reception within said recess together with the musical instrument during shipping, and a disposable shock-resistant wrapper for enclosing said body and contents during shipping.

3,596,755

METHOD AND APPARATUS FOR SHIPPING FLAT GLASS WITHOUT PACKING CASES

Albert J. Bundy, and James L. Williams, both of Kingsport, Tenn., assignors to ASG Industries, Inc., Kingsport, Tenn.
 Filed Dec. 17, 1968, Ser. No. 784,370
 Int. Cl. B65d 85/48

U.S. Cl. 206-62 R

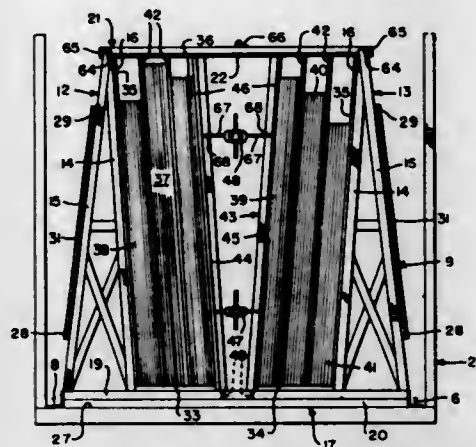
9 Claims

A mass of flat glass sheets is divided into two sections standing in edgewise nearly upright position. The outer face of each section is given lateral support at a small angle to the vertical, and substantially uniform pressures are applied in opposite directions to the adjacent inner angular faces of the two sections. This strengthens the laminated columnar structure of each section.

The lateral support for the outer faces of each of the last two sections is provided by narrow A-frames which are arranged in pairs with the A-frames of each pair opposite one another.

A central angular spacing framework or adjustable wedge-shaped locking device is placed between the inner faces of the two sections of standing glass sheets and these are forced apart by turnbuckles or the like which form part of the locking device. The shipping framework as described is assembled in a truck trailer or railroad car. The framework may also be assembled in a "container" such as is shipped

either by flat car or by steamship. It will be understood that the term "trailer" or the term "railroad car" as used in this



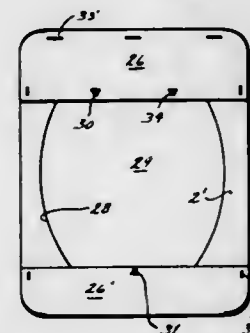
specification is to include such a container and that the term "car" includes each of these three terms.

3,596,756

DISPLAY PACKAGE FOR MIRRORS AND THE LIKE
 Bernard Nathan, and Gary L. Tate, both of Vincennes, Ind., assignors to Hamilton of Indiana, Inc., Vincennes, Ind.
 Filed July 9, 1969, Ser. No. 840,345
 Int. Cl. B65d 85/48

U.S. Cl. 206-62

2 Claims



A display package for a flat article, such as, a mirror, picture, decorative panel, and the like, which package is constructed from a single blank of sheet material having a central panel and a pair of foldable, opposed end panels. The central panel is provided with an opening for receiving the particular article; said end panels being adapted for disposition against the rear face of the article and detachably secured thereto.

3,596,757

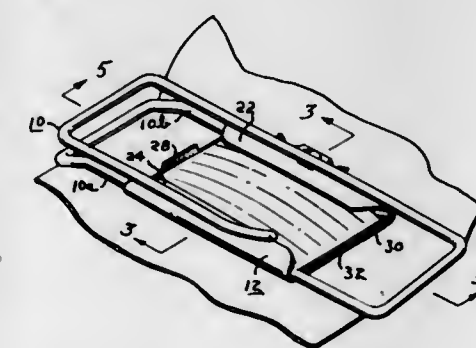
MONEY CLIP

Patrick T. Cocchiaraley, 350 Wayland Road, Cherry Hill, N.J.

Filed Dec. 29, 1969, Ser. No. 888,358
 Int. Cl. A45c 11/28

U.S. Cl. 206-.81

3 Claims



A coin-holding device for holding a limited number of coins, mounted within the framework of a paper money clip of the type having a rectangular helix of spring wire functioning to securely hold paper money certificates. The housing of

the coin holder contains a resilient bowed plate which serves as a biased element to securely hold coins placed in the housing between the top of the housing and the plate. The housing encloses two legs of the money clip in such a manner that the money clip and the coin holding device may be operated independently of each other and without interfering with one another.

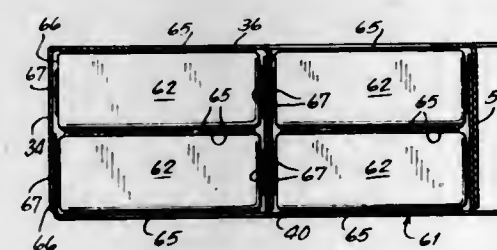
3,596,758

CARTON, CIGARETTE PACKAGE, AND CARTON FILLED WITH CIGARETTE PACKAGES

Floyd L. Phillips, Jr.; Edward J. Monahan, and Julian R. Martin, all of Winston-Salem, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
 Filed June 4, 1969, Ser. No. 830,304
 Int. Cl. B65d 5/48, 25/04, 85/10

U.S. Cl. 206-48.5

7 Claims



Cigarette carton containing packages of cigarettes having a diameter smaller than the standard, but nevertheless adapted to cooperate with conventional tax-stamp-applying apparatus constructed to fit carton and packages of standard diameter cigarettes.

The carton is formed from an elongated blank including opposing top and bottom panel-forming flaps, opposing end panels, and opposing side panels. Each side panel has four rectangular spaced flaps, each cut along three sides from the middle of the panel and hinged along the fourth side to the panel. The flaps of each side panel extend toward the opposing side panel. Pairs of flaps are aligned and secured together in completely overlapping relationship to form four partitions. The carton is thus divided into five compartments and a portion of the internal longitudinal dimension between the end panels of the carton is taken up by the four partitions.

Two packages of cigarettes may be located within each compartment. Each package is covered with material including embossed areas substantially covering its narrow longitudinal faces and at least about two horizontal margins of its wide longitudinal faces, to increase the external dimensions of the package so that a pair of packages substantially fills one compartment of the carton.

3,596,759

PROCESS FOR RECLAIMING CONSTITUENTS OF CONCRETE

John P. King, North Haven; James M. Kowolenko, Jr., Uncasville, and Ralph K. Safford, Guilford, all of Conn., assignors to The Alfred B. King Company, North Haven, Conn.

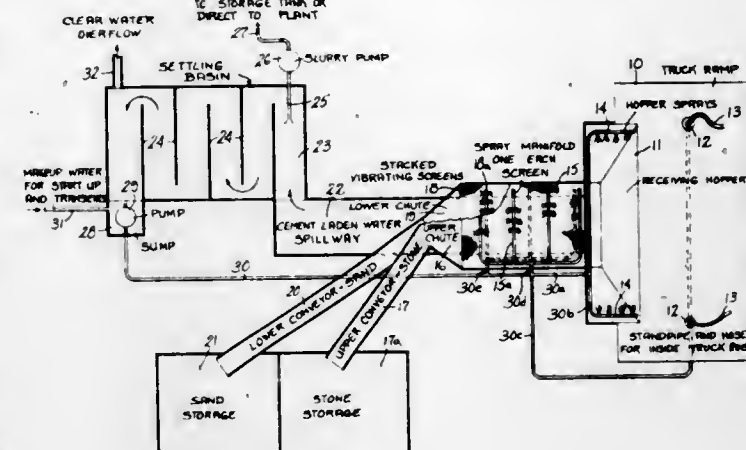
Filed Oct. 7, 1969, Ser. No. 864,462
 Int. Cl. B03b 7/00, 3/00

U.S. Cl. 209-2

12 Claims

A process for reclaiming sand and gravel from a fluid concrete mixture, comprising adding water to the mixture to form a slurry and transferring the slurry to at least one gravel screen for separating the gravel therefrom and allowing the sand and cement slurry to pass therethrough. The sand and cement slurry is then transferred to a sand screen for separating the sand from the slurry and permitting the cement slurry to flow through. The cement is separated from the slurry by settling in a basin or tank and the clear water is recycled so

that it may be added to the fluid concrete mixture being processed, or the water may be discarded. The gravel and



sand are transferred by conveyor from their respective screens to storage bins for use in preparing concrete.

3,596,760

DEGRITTING OF ATTAPULGITE CLAY

Daniel Jacobs, Metuchen, and Herbert R. Hamill, Iselin, both of N.J., assignors to Engelhard Minerals & Chemicals Corporation, Edison, N.J.
 Division of Ser. No. 587,992, Oct. 20, 1966, Pat. No. 3,509,066.
 Filed June 30, 1969, Ser. No. 870,116
 1969, Ser. No. 870,116
 Int. Cl. B03d 3/00; C10m 7/02

U.S. Cl. 209-5

1 Claim

Grit is removed from attapulgite clay by dispersing the clay in water in the presence of tetrasodium pyrophosphate as a deflocculating agent and a material selected from the group consisting of hydratable magnesia, magnesium hydroxide, aluminum hydroxide and mixtures thereof as a viscosity reducing agent for the clay dispersions.

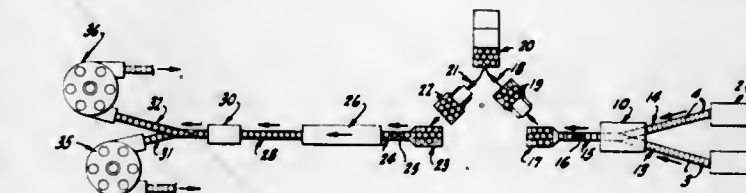
3,596,761

METHOD AND APPARATUS FOR HANDLING CANS OF DIFFERENT DIAMETERS

John Campbell, Kyabram, Victoria, Australia, assignor to Filper Corporation, San Ramon, Calif.
 Filed Dec. 8, 1969, Ser. No. 883,067
 Claims priority, application Australia, Dec. 13, 1968, 47764
 Int. Cl. B07c 5/36

U.S. Cl. 209-71

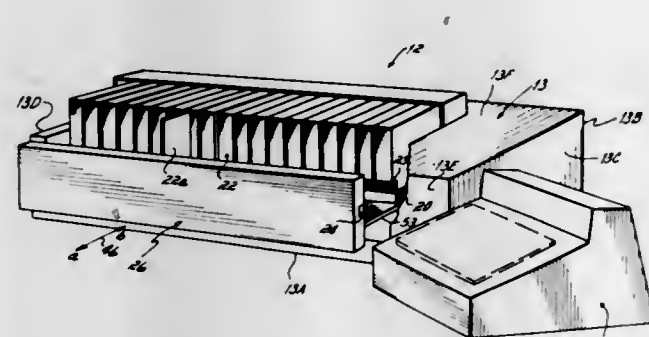
24 Claims



A method and apparatus for handling empty, cylindrical cans of different diameters, the method including the steps of supplying corresponding cans from different sources; telescopically combining cans of larger diameter with cans of smaller diameter; storing the cans so combined in the space required for only the larger diameter cans; separating the combined cans; conducting the separated cans to separate fillers, and the apparatus includes a can combiner and a can separator, the combiner comprising a pair of straight tracks on which the cans of different diameters are rollable at high speed toward the convergent ends of the tracks past a rotary aligner that axially aligns each can of larger diameter with a can of smaller diameter as the tracks join to move them to fully telescoped relation, and the can separator comprises endless belts extending along divergent paths respectively engaging the cans at the convergent ends of the belts to carry the larger diameter cans along one path from said convergent ends and the smaller diameter cans along a different path, for movement of the cans to separate fillers.

3,596,762 MAGNET SHIFTING MECHANISM FOR RETRIEVAL SYSTEM UTILIZING MAGNETICALLY RESPONSIVE CARDS

Daniel J. Bandenburg, Cincinnati, Ohio, assignor to OK Partnership, Cincinnati, Ohio
Filed June 23, 1969, Ser. No. 835,589
Int. Cl. B07c 5/06
U.S. Cl. 209—80.5 8 Claims



This invention relates to card retrieval systems of the type in which card selection from a deck of similar cards which are magnetically responsive and randomly stored in vertical face-to-face relation is effected by laterally shifting, under the force of a movable magnet, one or more of the stored cards while restraining against movement the undesired cards, thereby physically separating the desired cards from those not desired. More particularly, this invention relates to a magnet-shifting method and apparatus useful in systems of the type described which reduces the breakaway, or maximum, force which must be applied to the magnet before it can become disengaged from the undesired cards and, by further movement, increase the separation between the desired and undesired cards.

3,596,763 AMINE-AMIDE COLLECTORS FOR THE TREATMENT OF POTASH ORES

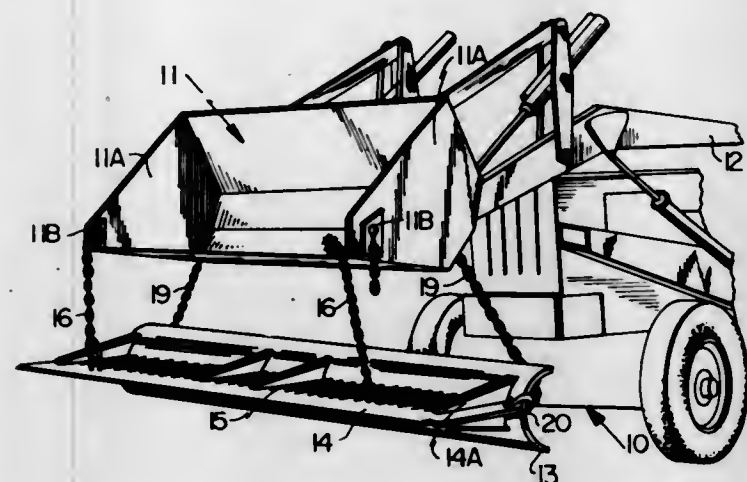
Robert Berthon, Wittelsheim; Michel Mames, Ensisheim, and Jean-Pierre Zimmerman, Cormeilles-en-Parisis, all of France, assignors to Mines De Potasse, D'Alsace S.A.
Filed Dec. 28, 1967, Ser. No. 694,071
Claims priority, application France, Jan. 6, 1967, 90,131
Int. Cl. B03d 14 Claims

A collector composition especially suitable for the coarse flotation of sylvinitic comprising: (A) at least about 90 percent by weight of a primary aliphatic amine of 16—18 carbon atoms, or water soluble salts thereof; and (B) about 0.5—10 percent by weight of a primary aliphatic amide of 10—20 carbon atoms.

3,596,764
SCRAPER-SIFTER DEVICE
Wedad J. Smith, El Paso, Tex., assignor to Wrex-All Implements, Inc., Thibodaux, La.
Filed May 5, 1969, Ser. No. 821,806
Int. Cl. B07b 1/28 1 Claim

The present disclosure is directed to a scraper-sifter device having a concavo-convex backing trowel member having a front scraper and an intermediate sifter section between the

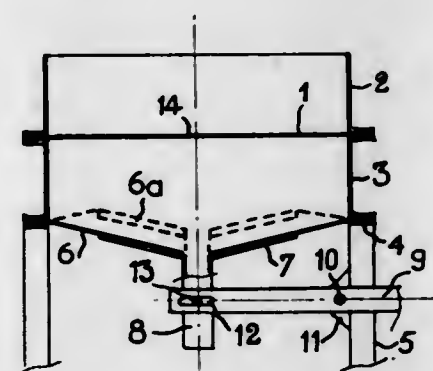
scraper and backing member. Flexible connections are provided on the device to permit attachment to a front end



loader bucket or attachment to the implement draft device of a conventional tractor.

3,596,765
DENSITY SEPARATION APPARATUS
Leonel L. Beudin, 74 Rue de la Federation, Paris 15, and Roger O. Cuvillier, 69, Rue Henri-Barbousse, 92 Nanterre, both of France
Continuation-in-part of application Ser. No. 682,440, Nov. 13, 1967, now abandoned. This application Oct. 31, 1969, Ser. No. 873,767
Int. Cl. B03b 3/22 12 Claims

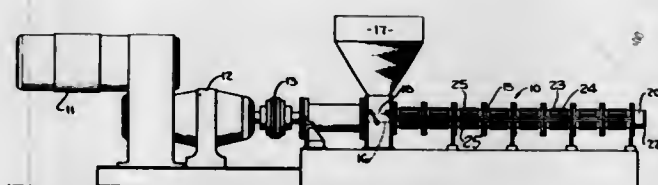
U.S. Cl. 209—456



A density separation jig that combines vertical and horizontal liquid force components to separate the end product at the center of the grid. The frequency of the diaphragm is controlled to produce the horizontal force component and establish maximum separation. The grid can comprise various zones of mesh to take advantage of the horizontal separation. The discharge chute can be transparent and the jig components designed for easy portability.

3,596,766
SCALE INHIBITION
Donald P. Johnston; Paul J. Stone, and Jules Lee-Magnon, all of Houston, Tex., assignors to National Lead Company, New York, N.Y.
Filed Mar. 28, 1969, Ser. No. 811,462
Int. Cl. C02b 5/06 4 Claims

U.S. Cl. 210—58

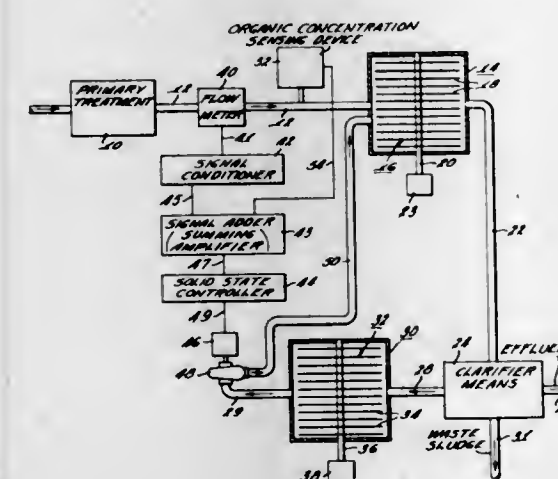


Potato starch, with or without an admixture of cellulose, is carboxymethylated by kneading, as in a dough mixer or ex-

truder. The product is an excellent scale inhibitor for aqueous systems, being superior to other carboxymethylated starches.

3,596,767
SEWAGE TREATMENT APPARATUS
Ronald L. Antonie, Milwaukee, Wis., assignor to Autotrol Corporation, Glendale, Wis.
Filed Feb. 11, 1969, Ser. No. 798,381
Int. Cl. C02c 1/10 1 Claim

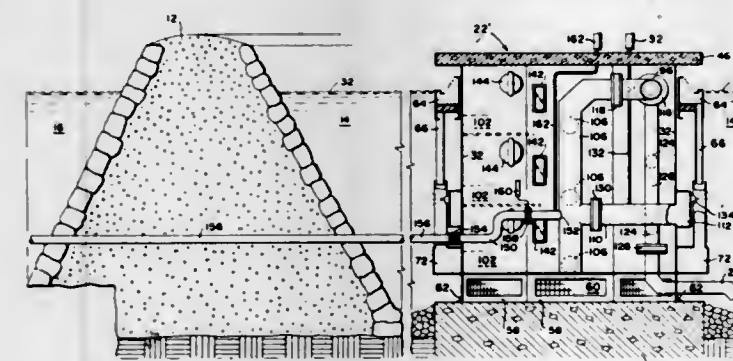
U.S. Cl. 210—96



A sewage treatment apparatus and method comprising a biological treatment tank, preferably including rotatable biological contactor means therein. Means are provided for sensing the hydraulic flow rate in the system and also for sensing the organic concentration of the sewage or of the effluent, and for recycling secondary sludge to the biological treatment tank as a function of the hydraulic flow rate and of the organic concentration.

3,596,768
APPARATUS FOR WATER PURIFICATION
George R. Whitten, Jr., 2033 Mendon Road, Cumberland, R.I.
Filed Oct. 10, 1969, Ser. No. 865,269
Int. Cl. B01d 35/26 10 Claims

U.S. Cl. 210—167

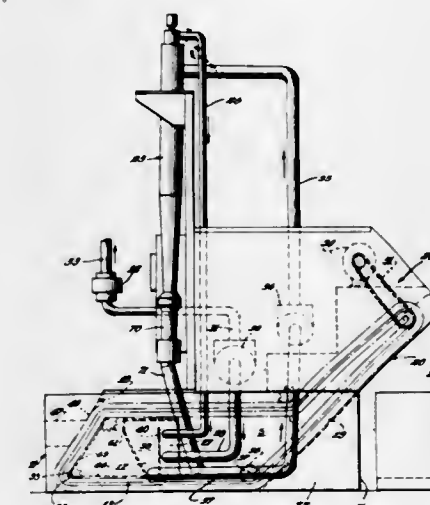


A reservoir of purified water is prepared from a natural body of water by constructing a prefiltering levee through the water to segregate the reservoir area from the remainder of the water body, pumping water from the reservoir area into the remainder, cleaning the floor of the reservoir area if necessary, installing a water purification unit in the reservoir, and then allowing the water to filter through the levee from the remainder of the water body into the reservoir for continuous further purification and recirculation by the installed unit. The water purification unit includes a mixing chamber, a filtering chamber, skimming means for intaking surface water into the mixing chamber, submerged inlets for intaking water into the mixing chamber from below the water's surface, a pump for passing water from the mixing chamber

through the filtering chamber, and outlet means for passing the filtered water directly back to the reservoir. The preferred skimming means comprises a mobile skimming gutter to insure a constant intake of surface water at various reservoir water levels and a submersible pump is preferably positioned in the mixing chamber to force the mixed water through one or more filter cells provided in the filtering chamber. The outlet means are preferably disposed to set up recirculation currents using the earth's rotation effect, and means are also provided for backwashing the filter cells. To insure that the pump does not run dry the submerged inlet flow is preferably float modulated to provide the full capacity of the pump if the skimmed flow is temporarily reduced. Various purifying chemicals may be added to the processed water in its passage through the unit, and in a modified form of the invention, a portion of the purified water is passed back to the remainder of the water body for progressive purification thereof.

3,596,769
FILTER FOR COOLANT OILS FOR CUTTING TOOLS
Dan D. Baldwin, Mundelein, Ill., assignor to Thermo Incorporated, Franklin Park, Ill.
Continuation of application Ser. No. 800,419, Feb. 19, 1969, now abandoned. This application May 4, 1970, Ser. No. 48,791
Int. Cl. B01d 21/26 10 Claims

U.S. Cl. 210—298

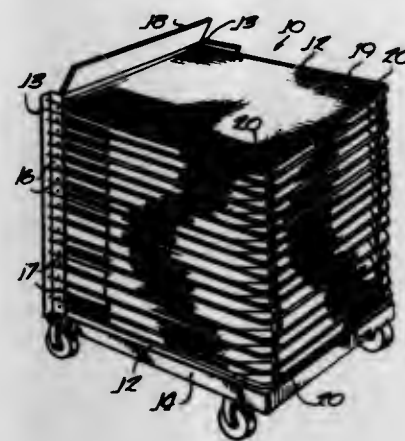


Recirculating filter for coolant oils for cutting tools including a main coolant tank having a liquid-separating tank disposed within and extending across the main tank to separate the first tank into an active zone along a dirty coolant inlet into the main tank on one side of the liquid separating tank and a settling zone on the opposite side of the liquid-separating tank. The liquid-separating tank has a dirty coolant area in communication with the active zone of the main tank and a clean coolant area separated from the dirty coolant area by a partition. A cyclone discharges clean liquid from its top into the clean coolant area of the liquid-separating tank and discharges solid particles and entrained oil into a barometric leg having communication with the settling zone of the main tank. An air inlet leads onto the barometric leg behind the apex of the cyclone. The Venturi action of the liquid and solid particles discharging through the apex of the cyclone, draws air through the air inlet to balance the liquid and solids discharging from the cyclone, and prevent the solid particles and liquid from building up into the cyclone. Swarf-controlled grates cooperate with a drag conveyor in the active zone of the main tank to reduce the floating swarf and cause it to be carried away by the drag conveyor.

3,596,770
DRYING RACK AND SUBASSEMBLIES THEREOF
Erwin Heinrich, 710 N. Highland Ave., Arlington Heights, Ill.
Filed Sept. 23, 1968, Ser. No. 761,513
Int. Cl. A47f 5/12; F26b 25/10, 25/18 10 Claims

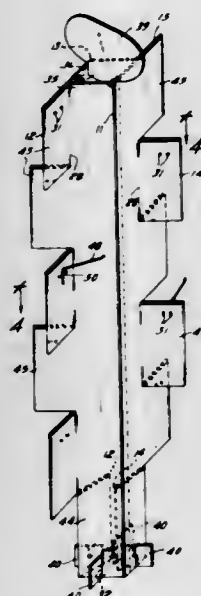
U.S. Cl. 211—150
A drying rack including a plurality of horizontally disposed, overlying trays adapted to pivot about one end and

a spacing means connected to the other end of the trays comprising a supporting means, clamping means disposed on the



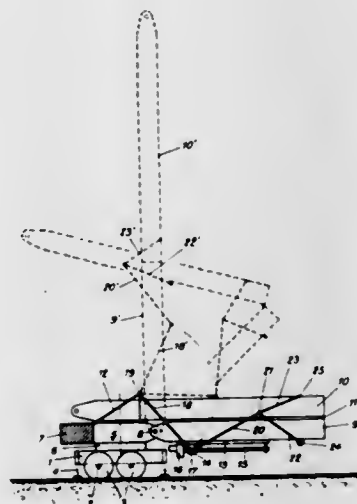
supporting means for attaching the spacing means to a tray, and a foot depending from the supporting means for spacing the tray from the next underlying tray.

3,596,771
COLLAPSIBLE DISPLAY DEVICE
John H. Wunsch, Leonia, N.J., assignor to Einson-Freeman & De Troy Corporation
Filed June 10, 1970, Ser. No. 45,144
Int. Cl. A47I 5/10
U.S. Cl. 211-178 R 11 Claims



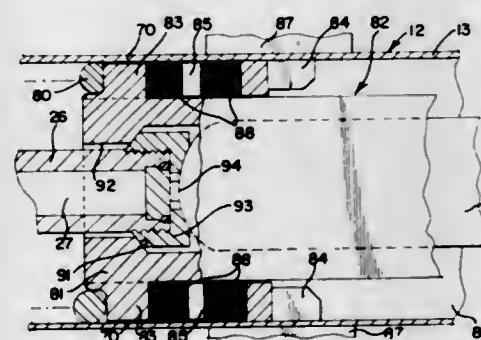
Two panels of foldable sheet material, which may be integral, can be arranged flat against each other in collapsed condition. Each panel has a main fold line along which it can be folded away from the other panel, and at least one supplementary fold line foldable in a direction opposite to its respective main fold line. When erected, by folding along these fold lines, the device includes a hollow post and wings projecting from the post. The panels may have transverse slits separating adjacent wings so that the latter can extend in different directions. A rigid member introduced between the main fold lines of the panels may keep the post in erect condition. Merchandise-holding means may be mounted on the wings.

3,596,772
TOWER CRANES
Pierre Joseph Pingon, 5, Avenue du Parmelan, Annecy (Haute Savoie), France
Filed Aug. 1, 1969, Ser. No. 846,792
Claims priority, application France, Aug. 30, 1968, Dec. 24, 1968, 164,641; 180,317
Int. Cl. B66c 23/62
U.S. Cl. 212-46 16 Claims



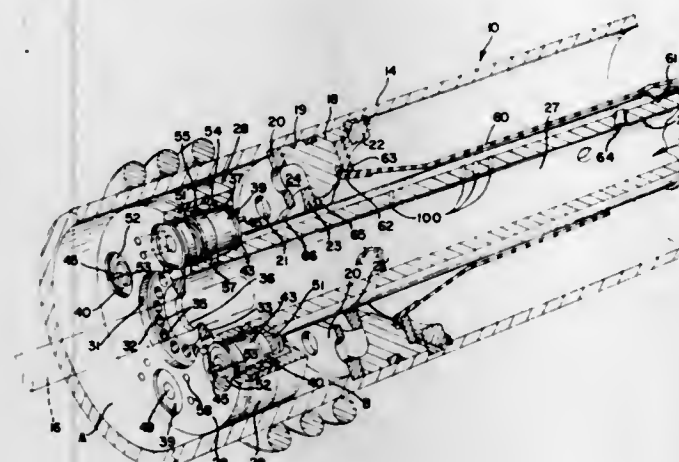
A slewable tower crane comprises upper and lower hinged mast elements, the lower of which carries a carriage reciprocated by a screw jack. The carriage is connected by rods to a fixed portion of the slewable superstructure of the crane, and by a toggle system to the upper and lower mast elements, so that operation of the screw jack raises and lowers the mast elements with a folding action. The upper end of the upper mast element hinged carries a horizontal jib comprised of two telescoping sections.

3,596,773
HYDRAULIC DRAFT GEAR AND CUSHIONING UNIT
William H. Peterson, Homewood, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Filed Feb. 14, 1969, Ser. No. 799,175
Int. Cl. B61g 9/04, 9/12
U.S. Cl. 213-8 14 Claims



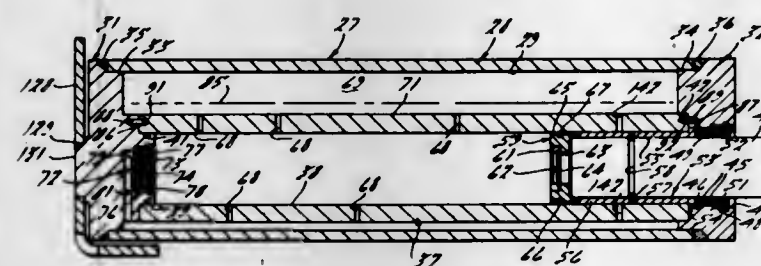
A double-acting hydraulic cushion unit for a railway car which is formed with a hydraulic-fluid-filled cylinder having a closed end and an open end afforded by an apertured cylinder head. A piston assembly is disposed for relative reciprocating movement within the cylinder and includes a piston rod which slidably moves through the cylinder head. The unit is provided with a flexible accumulator boot connected to the cylinder head and to the piston rod to close the open end of the cylinder. A metering means comprises a metering pin on the cylinder which cooperates with a slidable orifice plate in the piston, the orifice plate having one position in buff impact and another position on the return stroke of the piston assembly to facilitate the transfer of fluid from one side of the piston head to the other. A fluid-pressure-responsive valve means is movably disposed in a chamber contiguous with the accumulator to a position overlying passages communicating with the accumulator and to a position clear of said passages. The fluid-pressure-responsive

valve is designed to also restrict the flow of fluid from one side of the piston during the return stroke of the piston and upon a draft impact stroke to cushion said impact. The piston rod also includes metering openings also serving on the



return stroke to meter the fluid to the accumulator boot. In one embodiment relief valves are provided in the piston to open upon predetermined fluid pressures on opposite sides of said piston.

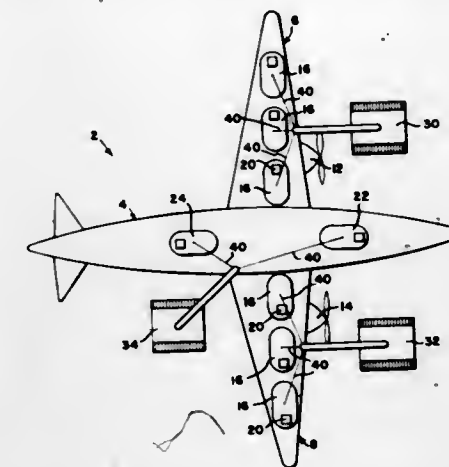
3,596,774
DIRECT-ACTING HYDRAULIC PNEUMATIC DEVICE
William K. MacCurdy, Plymouth, Mich., assignor to Evans Products Company
Filed Apr. 1, 1969, Ser. No. 811,958
Int. Cl. B61g 9/08; B61g 9/12; B61g 11/12
U.S. Cl. 213-8 8 Claims



A railway-car-cushioning arrangement embodying a hydraulic pneumatic cushioning device interposed between the car underframe and couplers. The cushioning unit includes a hydraulic dashpot from which fluid is displaced under shock loadings, the loads being transmitted to the cushioning unit from draft lugs interposed between the underframe and a sliding sill of the car that carries the couplers. The fluid is displaced into a reservoir in which a high-pressure gas is contained which gas is in direct contact with the fluid. The gas is at a sufficiently high pressure so as to act as a fluid when compressed and which exerts a restoring force on the cushioning unit when the loads are relieved.

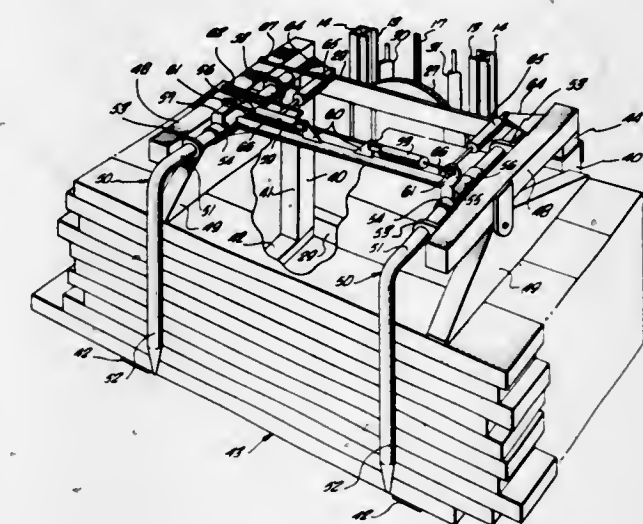
3,596,775
AIRCRAFT LIFTING SYSTEM AND APPARATUS
Edward E. Ingraham, 22 Green Hill Lane, R.F.D. 5, Huntington, N.Y.
Filed June 11, 1969, Ser. No. 832,063
Int. Cl. B66c 23/18
U.S. Cl. 214-1 R 8 Claims

A system is disclosed for lifting and moving aircraft. One or more vacuum support units are attached to top surfaces of airplane wings in such a manner as to distribute lifting forces to the wing frame structure in a manner corresponding to the supporting forces exerted to the wings when the airplane is in flight. The aircraft is thereby lifted in an efficient and de-



pendable manner without imposing objectionable stresses upon any of the components or parts. The invention is particularly adapted to retrieving and/or moving aircraft which is damaged or is disabled so that it cannot move itself.

3,596,776
FORKLIFT TRUCK WITH A LOAD-SQUARING APPARATUS
Thomas N. Melin, 1424 24 Ave., Longview, Wash.
Division of Ser. No. 609,973, Dec. 6, 1966, Patent No. 3,376,985, which is a continuation-in-part of Ser. No. 401,594, Oct. 5, 1964, abandoned. Filed Nov. 8, 1967, Ser. No. 704,196
Int. Cl. B66f 9/18
U.S. Cl. 214-6 S 12 Claims

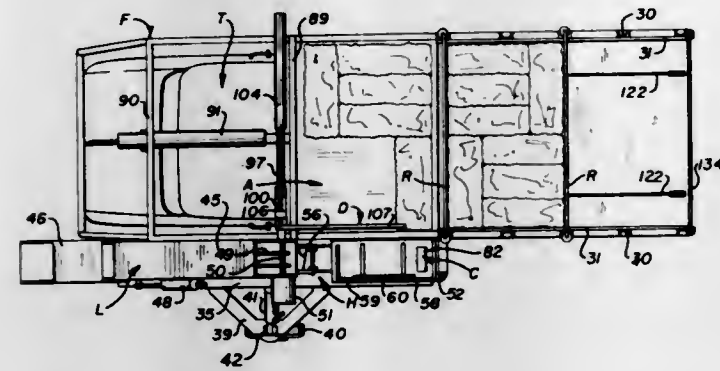


The invention encompasses apparatus for rendering coplanar the end surfaces of all the pieces of timber in a stack of lumber by placing the stack in near vertical position while subjected to slight lateral constraints, and then dropping (or its equivalent) the stack endwise to a foundation to produce a vertically effective impact upon the stack sufficient to cause the various timbers to move longitudinally relative to each other against the friction between the timbers, thereby to move the lower ends of all the timbers into a common plane. The stack is then returned to a horizontal position in such a manner that the timbers do not move longitudinally relative to each other.

3,596,777
BALING CHAMBER FOR BALE-STACKING APPARATUS
Allan B. Neely, Jr., P. O. Box X, Limon, Colo.
Continuation-in-part of application Ser. No. 719,411, Apr. 8, 1968, now Patent No. 3,523,616. This application Oct. 30, 1969, Ser. No. 872,660
Int. Cl. B65g 57/22
U.S. Cl. 214-6 12 Claims

The apparatus disclosed herein is a bale-collecting and stack-forming apparatus adapted to be carried upon a truck or a similar vehicle. A conveyor at the side of the truck picks

up bales and elevates the same to a dispensing chamber at the side of and above the bed of the truck. An assembly platform alongside the dispensing chamber overlies the bed of the vehicle and bales are moved from the chamber onto the platform. The movement of bales from the chamber onto the



platform is by swing arms and by a paddle which arranges the bales in longitudinal, transverse patterns to form a stack layer on the platform. Once the platform is loaded with a bale stack layer, it is actuated to move the bale stack layer onto a bale stack carrier on the vehicle. Subsequently, the bale stack, when it is completed, is removed from the carrier.

3,596,778

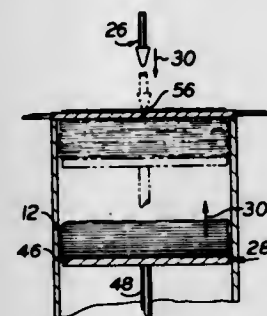
CLOTH-BLANK-STACKING APPARATUS

Joseph C. Lamonic, Garfield; Timothy Troast, Pompton Lakes, and Marinus Troast, Jr., Little Falls, all of, N.J., assignors to I. C. Herman & Co., Inc., New York, N.Y.
Filed Nov. 26, 1969, Ser. No. 880,177

Int. Cl. B65g 57/06

U.S. Cl. 214-6 H

3 Claims



A stacking apparatus for cloth blanks successively fed, one-at-a-time, into a stacking station. Each blank is deposited on horizontally movable opposing members, then in closed position at the station. Another pair of opposing members, arranged for vertical movement, then close from clearance positions upon the deposited blank, the upper member to hold the cloth blank and the lower member to receive the same when the horizontally movable members are withdrawn from beneath the blank.

3,596,779

BAG COLLATING AND STACKING APPARATUS

William B. Osteen, Camden, Ark., assignor to Davis Machine Corporation, Camden, Ark.

Filed Apr. 14, 1969, Ser. No. 815,737

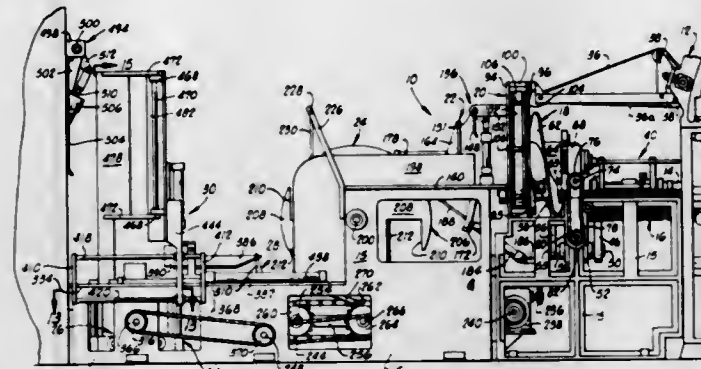
Int. Cl. B65g 57/30

U.S. Cl. 214-6.5

38 Claims

Apparatus for collating and stacking bags in vertically superimposed hands, the apparatus including a conveyor for receiving aligned bags from a bag forming machine and moving them in consecutive sequence away from the forming machine. A pair of spiral augers cooperate with the conveyor to periodically remove a preselected number (hand) of aligned bags therefrom and convey these bags into a turntable assembly. The turntable assembly periodically turns to alternate positions to face the bottoms of the bags first in one direction, and then in an alternate direction. A mechanism then forces the bags from the turntable assembly onto a tilt-

ing box assembly. This assembly tilts through an angle to move the bags from a vertical status to a horizontal status. Pushing mechanism then pushes the bags from the tilting box assembly into a rotating unit assembly which, upon actuation, delivers the bags to a transfer unit which conveys each successive hand of bags into a bag lifter assembly. The bag lifter assembly periodically lifts a stack of vertically superimposed



hands of bags upwardly to permit a new hand to be delivered beneath the stack by the transfer unit, and then the lifter assembly lowers the lifted stack onto the new hand. Finally, after the stack of bags within the bag lifter assembly has come to contain a desired number of hands, a banding press loader assembly is automatically actuated to load the stack of bags from the lifter assembly into a banding press.

3,596,780

PALLET FEED AND LOCATOR APPARATUS

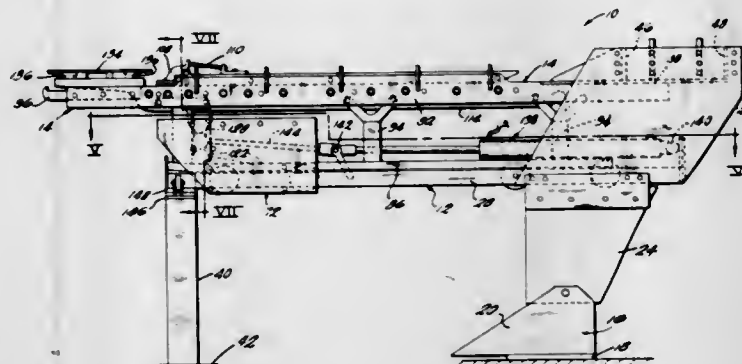
Milo G. Balhorn, Waterloo, Iowa, assignor to Go Corp., Inc., Adrian, Mich.

Filed Dec. 15, 1969, Ser. No. 885,238

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 A

17 Claims



Apparatus for feeding pallets and locating them under the mold box of a concrete block-making machine. The apparatus is a self-contained unit that is self-supporting and can be mounted on the supporting surface for the block-making machine so as to be completely independent of any structural part of the block-making machine. A main or stationary frame is provided on which a movable frame is supported for longitudinal movement. The stationary frame has a pallet magazine at its rearward end and a guide track at its forward end. The movable frame has an upper surface, the rearward end of which is adapted to slide under the magazine, and the forward end of which terminates in pallet support fingers. The movable frame and the pallet magazine cooperate during reciprocal movement of the movable frame to translate successive pallets in series from the magazine to the support fingers. A prime mover in the form of a hydraulic cylinder is provided to reciprocate the movable frame. Locator arms are pivotally connected to the movable frame and are connected to the guide track and the hydraulic cylinder so that the latter performs the additional function of raising the arms so as to lift a pallet from the support fingers upwardly for engagement with the underside of a mold box during the forward movement of the movable frame relative to the main frame.

3,596,781

METHOD AND APPARATUS FOR ASSEMBLING CYLINDERS IN A MINIMUM SPACE, AND PRODUCT OF THAT METHOD AND APPARATUS

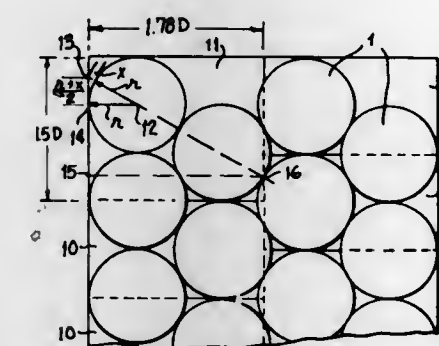
Jerry Fred Burton, Box 198-A, Rte. 8, Lexington, N.C.

Filed Feb. 27, 1969, Ser. No. 802,775

Int. Cl. B65g 1/20

U.S. Cl. 214-10-5R

14 Claims



The method and apparatus for assembling, e.g., for storage or for transportation, right circular cylinders, e.g., tobacco hogsheads, in a minimum space. The cylinders are placed on end and are aligned in adjacent rows so that each cylinder is tangent to two cylinders in each adjacent row. If so aligned, the horizontal lines connecting the cylinder axes of any three tangent cylinders intersect at angles of 60°.

Pallet structures are disclosed which assist in aligning the cylinders according to the invention, and which also assist in distributing the load between tiers of stacked cylinders, so as to make the stack more stable. Particular dimensions for the pallets, related to the cylinder diameters, are disclosed, together with particular methods of arranging the pallets under one or more tiers of cylinders.

3,596,782

SORTING APPARATUS

William Whitby Morris, Sr., Silver Spring, Md., assignor to

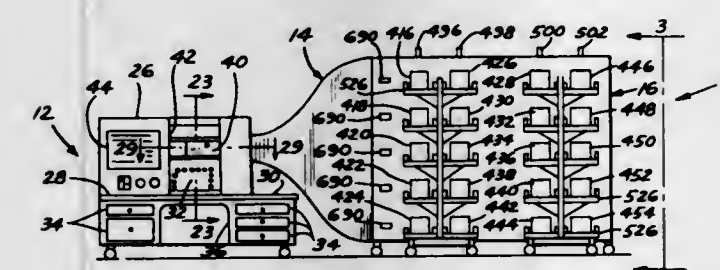
Lon H. Romanski, Detroit, Mich., a part interest

Filed Feb. 25, 1969, Ser. No. 802,061

Int. Cl. B65g 47/46

U.S. Cl. 214-11

34 Claims



A mail-sorting apparatus having an operator's console equipped with key-operated switches has a selector section positioned intermediate a mail-propelling device and a diverter section which includes sorted mail receiving trays; operation of any of the key switches causes a particular related channel or chute to be formed in the selector section and a particular related diverter door to be opened in the diverter section so as to present one path which that item of mail must follow to the desired receiving tray; operation of another of the key switches causes the establishment of another particular related path for the item of mail to follow to another mail-receiving tray.

3,596,783

AUTOMATIC LOWERING DEVICE FOR SILO UNLOADER

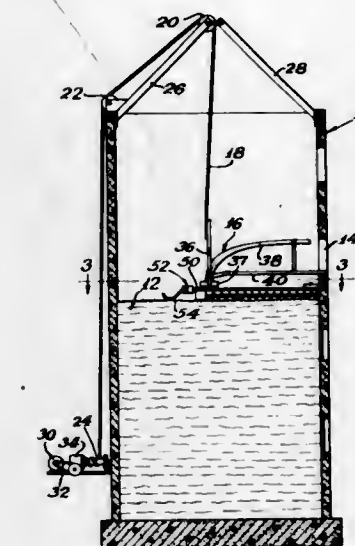
Donald M. De Bower, and Peter M. Warfield, both of Cedar Falls, Iowa, assignors to Clay Equipment Corporation

Filed Jan. 5, 1970, Ser. No. 707

Int. Cl. B65g 65/38

U.S. Cl. 214-17 DB

3 Claims



An automatic lowering device for a silo unloader. The unloader includes an auger adapted to travel concentrically about a single support cable suspended from the top and center of the silo. The auger extends from the center cable support to the wall of the silo with the outer end of the auger being supported by the silage in the silo. Extending in the opposite direction from the center cable support is a control mechanism. The control mechanism includes a foot which senses the distribution profile of the silage in the silo and operates a limit switch whenever the silage forms a steeply sided cone.

3,596,784

HAYSTACK-FORMING DEVICE

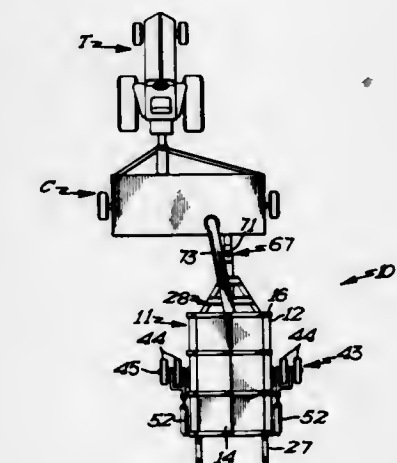
Harward G. Hanson, Wolverton, Minn.

Filed Dec. 3, 1969, Ser. No. 881,697

Int. Cl. B65g 67/22

U.S. Cl. 214-42 A

8 Claims



A mobile-towed-type haystack-forming device, for forming chopped hay into stacks, and which includes a wheel-supported housing given rear closure means for closing the open rear end thereof. A floor structure is slidably mounted on the housing and is slidable forwardly from a closed position to an opened position to open the lower end of the housing so that when the rear closure means is also opened, chopped hay within the housing will be deposited on the ground in a stabilized stack form.

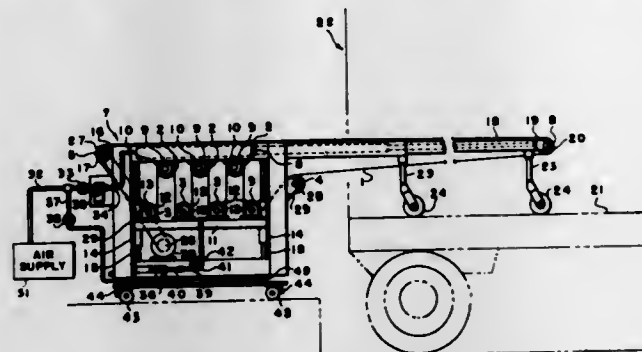
3,596,785

DEVICE FOR LOADING AND UNLOADING OBJECTSTom M. Weatherford, Jr., 3726 Holiday Circle, Dallas, Tex.
Filed July 10, 1969, Ser. No. 840,710

Int. Cl. B65g 15/26

U.S. Cl. 214-89

18 Claims



A telescoping continuous conveyor belt assembly is mounted in a compact unit. Wheels may be provided for portability to load and unload heavy objects from trucks and other vehicles. The device telescopes into a trailer or other remote location from a point outside the vehicle to be loaded or unloaded or removed from the remote location. By using pneumatic or hydraulic cylinders opposing each other, the slack is kept out of the conveyor belt. Pneumatic or hydraulic cylinder operated scissor-type cradles may be provided at each end of the belt conveyor to raise or lower the objects being loaded or unloaded as the operator desires. The device may be arranged on a pivot. Pneumatic or hydraulic cylinders may be provided at the end of the conveyor which is extended within the vehicle or to the remote location to automatically move the end of the belt to one side of the vehicle or the other or along an arc at the remote location as desired.

3,596,786

DUAL-PURPOSE WELDING CABLE

Arthur A. Bernard, Beecher, and Richard A. Bernard, Flossmoor, both of, Ill., assignors to Dover Corporation, New York, N.Y.

Filed Dec. 4, 1968, Ser. No. 780,976

Int. Cl. B23k 9/00

U.S. Cl. 219-130

9 Claims



A dual-purpose welding cable having increased electrode size and welding current capacity without substantially increased cable diameter or weight. A flexible interior electrode conduit and readily removable flexible liner are provided, each in the form of a flexible tube formed of helically wound spring metal strip to have normally butted edges defining a seam which follows a helical path about the axis of the tube.

3,596,787

PRODUCTION OF STREAMS OF ARTICLES

Tom Rowlands, and William L. Sainsbury, both of London, England, assignors to Molins Machine Company Limited, London, England

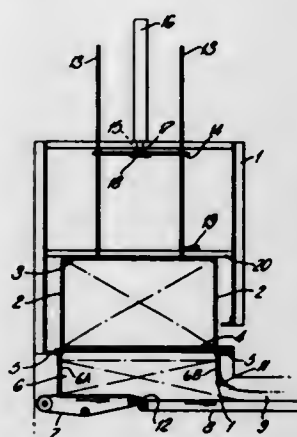
Filed Jan. 28, 1969, Ser. No. 794,691

Claims priority, application Great Britain, Jan. 31, 1968, 4908/68

Int. Cl. B65g 65/42

U.S. Cl. 214-302

8 Claims



This invention is concerned with feeding a continuous stream of cigarettes or other rodlike articles from a hopper which receives successive batches of articles lying parallel and side by side. Apparatus according to this invention includes a pressure member arranged to extend between sidewalls of the hopper and to move through the hopper, in the direction of the sidewalls, so as to apply continuous pressure to the articles in the hopper while being constrained against tilting during movement through the hopper.

3,596,788

TELESCOPIC RETRACTING CAMPER

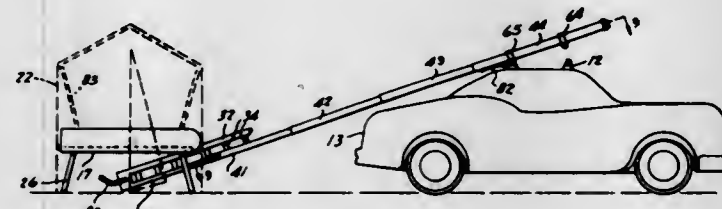
Allen R. Wille, 521 E. 12th Ave., Anchorage, Alaska

Filed Dec. 12, 1969, Ser. No. 884,677

Int. Cl. B60r 9/00

U.S. Cl. 214-450

10 Claims



A camping kit carried on luggage supports on top of an automobile. The kit is pivotally connected to one of the supports and has a telescopic frame which can be extended from the vehicle to the ground. The end section of the frame carries a platform provided with extensible legs so that it can be used as a bed. The platform is also provided with a tent which can be erected over the bed to form a shelter.

3,596,789

LOAD-HANDLING APPARATUS

Stephen F. Aaronson, Philadelphia; Alvin B. Garnick, Wrightstown, and Errick G. Morris, Philadelphia, all of, Pa., assignors to Eaton Yale & Town Inc., Cleveland, Ohio

Filed Apr. 1, 1969, Ser. No. 812,010

Int. Cl. B65g 65/02

U.S. Cl. 214-730

10 Claims

An improved stacker crane includes a shuttle assembly for depositing loads in storage racks or bins and for retrieving the loads from the bins. The shuttle assembly is extendible from a retracted condition to either one of two opposite extended conditions. When the shuttle assembly is operated between the extended and retracted conditions, an inter-

3,596,791

GRAIN DRILLS-LIQUID FERTILIZER TANK

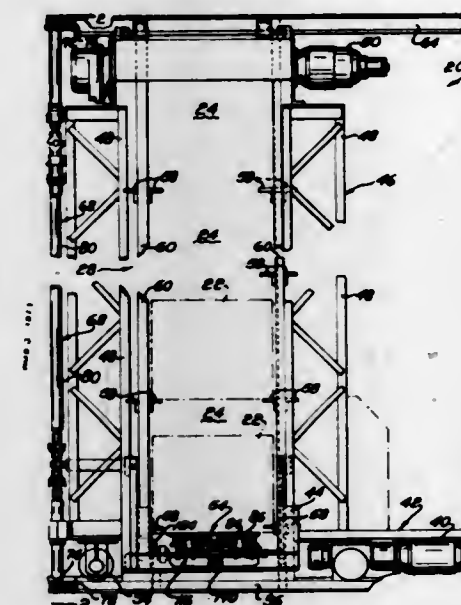
Nils O. Olsson, Ancaster, Ontario, Canada, and Roy C. Anderson, Barrington, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Jan. 22, 1970, Ser. No. 5,066

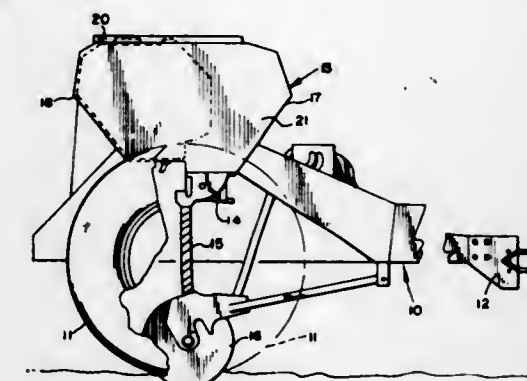
Int. Cl. B65g 1/06; B65d 25/02

U.S. Cl. 220-20

8 Claims



mediate section of the shuttle assembly is moved through a first distance at a first speed relative to a base section of the shuttle assembly. Simultaneously therewith, a load-supporting section of the shuttle assembly is moved relative to the intermediate section through a second distance which is



An elongated removable liquid-dispensing tank for a grain drill hopper or the like adapted to store seed or dry fertilizer, is made of relatively rigid material and is adapted to be inserted through the top opening and to be fully enclosed in the hopper. The tank has at least one wall conforming to the shape of one of the walls of the hopper and divides the latter into separate compartments so that liquid and dry material can be simultaneously dispensed from the single hopper.

3,596,790

CLOSURE ASSEMBLY

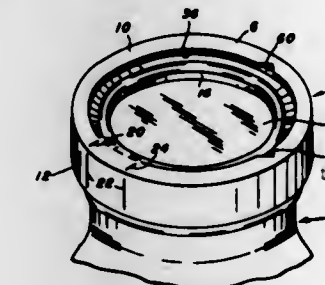
Charles J. Leftault, Jr., Richmond, Ind., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed June 11, 1969, Ser. No. 832,317

Int. Cl. B65d 43/02, 23/00, 41/10

U.S. Cl. 215-46 A

10 Claims



A closure assembly comprising a unitary frangible outer closure member and a liner member disposed within the closure member. The outer closure member having a top panel provided with an annular top panel portion and an inner top panel portion. The inner top panel portion having a recessed integrally formed ring pull tab connected to the annular top panel portion by means of an upwardly and radially outwardly directed connector portion. The integral ring pull tab is disposed radially inwardly of the annular top panel portion and at a level spaced below the plane of the annular top panel portion. The inner and outer edges of the ring pull tab are curled downwardly and transversely inwardly. The liner member has a panel with a diameter at least as great as the inner diameter of the annular top panel portion and it defines an upwardly open recess for receiving the integral ring pull tab. The liner may have a skirt which extends downwardly generally parallel to the skirt of the closure.

3,596,792

TEARAWAY CLOSURE FOR BEVERAGE CONTAINERS AND THE LIKE

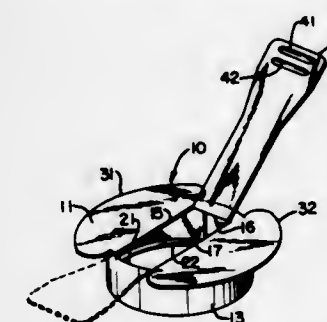
Henry O. Wilcox, Denver, Colo., assignor to Denver Plastics, Inc., Lakewood, Colo.

Filed May 5, 1969, Ser. No. 829,165

Int. Cl. B65d 17/00, 45/00

U.S. Cl. 220-27

6 Claims



A tearaway flexible closure for openings in beverage containers such as beer kegs includes a top portion, pull tab projecting from the top portion and a flange portion depending from the top portion. The flange portion is closed throughout its circumferential extent and snugly embraces surfaces of the container associated with the opening and has a weakened section at the juncture of the tab and top portions and a pair of intermediate inwardly extending projections on each side of the weakened section to facilitate a tearaway action along shear lines across the top portion and one side of the flange portion. Depending ribs on the top portion extensions engage an outer surface surrounding the opening in a contamination-preventing sealing engagement therewith.

3,596,793

STEEL CONTAINER

Reiner Kocher, Altgüllcher Strasse 22, 5162 Birkersdorf, and Artur Kiesow, Gneisenstrasse 145, 516 Duren, both of, Germany

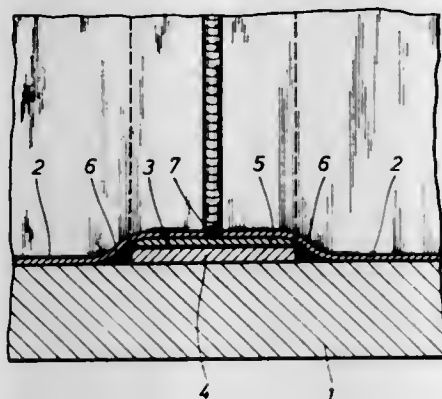
Filed Nov. 28, 1969, Ser. No. 880,776

Claims priority, application Germany, Dec. 17, 1968, P 18 15 023.7

Int. Cl. B65d 25/14; B23k 1/14

U.S. Cl. 220-63 R

2 Claims



A steel container having a lining of a metal that cannot be welded to steel and is in the form of butt-welded sheets or strips, while a composite strip is interposed between each of the butt welds and the container wall, and comprises a strip of steel plate with a plated-on face of a material of the same kind as that of the lining, the steel plate being welded along its entire length to the inner container wall surface.

3,596,794

SUPPORTING APPARATUS

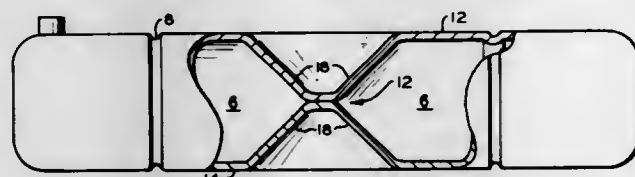
Donald L. Peters, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Nov. 18, 1969, Ser. No. 877,642

Int. Cl. B23k 27/00

U.S. Cl. 220-71

5 Claims



An apparatus for insertion within an internal column of a vessel for supporting said column and vessel.

3,596,795

NESTABLE CUPS AND HOLDERS

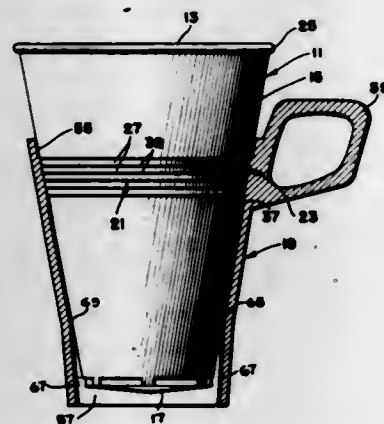
Giacinto C. D'Ercoli, Park Forest, Ill., assignor to Solo Cup Company, Chicago, Ill.

Filed Dec. 26, 1968, Ser. No. 786,975

Int. Cl. B65d 21/02; A47g 19/23, 19/03

U.S. Cl. 220-97

8 Claims



Thin-walled, expendable cups are formed to nest within one another and to have a snap fit interlock with a reusable

cup holder. The cup holders may also be formed to nest within one another to provide a reduced overall height for a plurality of stacked cup holders.

3,596,796

CONTAINER FOR CARRYING BOTTLES OR THE LIKE

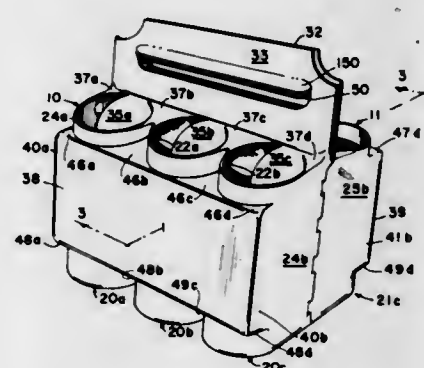
William F. Stenbridge, P. O. Box 756, East Point, Ga.

Filed Feb. 28, 1969, Ser. No. 803,190

Int. Cl. B65d 75/00

U.S. Cl. 220-102

5 Claims



A container for carrying bottles or the like made from a single thin flat plastic sheet that is deformed outwardly to provide pockets and folded together along a common inverted V-shaped central portion so that the pockets are on opposite sides of panels which form the carrying handles. The opposed side edges of the pockets have tabs and slits to provide locking members and the upper ends of the receiving pockets fold downwardly to form partition flaps which separate the bottles. The tubular wall portions of the pockets are reinforced by planar panel surfaces on which advertising is displayed.

3,596,797

DEVICE FOR CIGARETTE CONTAINERS

Nils Wallenborn, Spanga, Sweden, assignor to Arenco Aktiebolag, Stockholm-Vallingby, Sweden

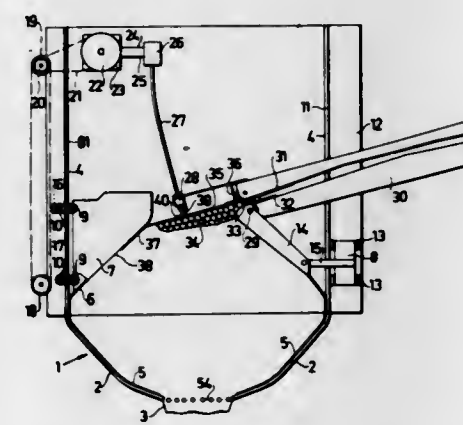
Filed Nov. 12, 1969, Ser. No. 875,684

Claims priority, application Sweden, Nov. 27, 1968, 16188/68

Int. Cl. G07f 11/00

U.S. Cl. 221-10

10 Claims



A variable capacity cigarette container or feed hopper provided with motor-driven, flexible sidewalls for varying the volume of the container. A thin, flexible strip is attached to a feed-in conveyor positioned at the top of the container and is adapted to constantly lie on top of the uppermost layer of cigarettes in the container. As the level of the top layer of cigarettes changes in response to the feed-in/feed-out ratio, the strip bends slightly and such movement is detected by an electrical proximity sensor whose output actuates the drive motor to vary the container volume accordingly. This arrangement ensures that incoming cigarettes have no drop to the top layer, which could result in unwanted misalignments.

3,596,798

DISPENSING CARTON FOR SHEET-FORM ARTICLES

Buford B. Smith, P. O. Box 567, Paxton, Ill.

Filed July 7, 1969, Ser. No. 839,239

Int. Cl. B65k 1/08

U.S. Cl. 221-56

5 Claims



A disposable carton for sheet-form articles, such as disposable plastic film gloves, plastic film bags, etc., comprises an elongated flat carton having a continuous outer wall and inner flaps. The carton is folded so that the inner flaps hold the edges of the sheet-form articles apart to facilitate removal therefrom. End flaps hold the carton in folded form and a removable portion in the folded outer wall provides an opening for removal of the contents one by one.

3,596,799

SENSOR AND FRAGMENTIZABLE GLASS MEANS FOR RELEASING A PENETRATOR

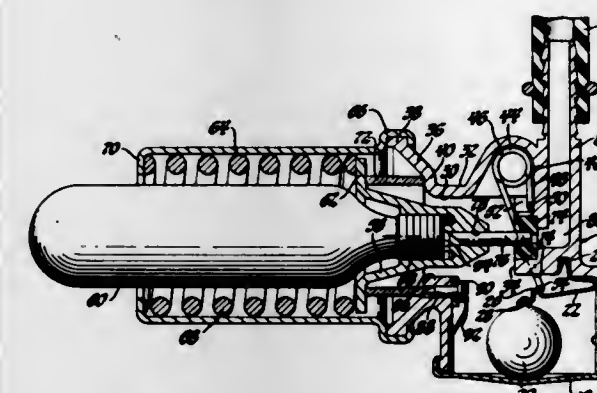
Clarence E. Fairchild, Rochester, and Ernst L. Ranft, Webster, both of, N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 5, 1969, Ser. No. 882,669

Int. Cl. B67b 7/24

U.S. Cl. 222-5

4 Claims



A sensor and trigger mechanism includes a sealed pressure vessel biased axially toward a hollow penetrator pin and normally located in spaced relationship to the penetrator pin by a hollow frangible glass cylinder having a compressively stressed continuous outer surface skin or layer. A fragmentor pin is movable normal to the end of the glass cylinder to engage the outer layer and fragmentize the glass cylinder. This permits the seal of the vessel and the penetrator pin to engage and rupture the seal so that the supply of pressure fluid within the cylinder can escape through the penetrator pin and into a manifold to inflate a restraint cushion. A ball of predetermined weight is seated at the apex of an upwardly opening conical seat. A leaf spring member includes an arm engaging the ball to hold the ball in the seat. The arm includes an integral detent portion which engages a torsionally biased arm of a torsion spring to hold the latter arm out of engagement with the fragmentor pin. The detent portion of the former engages the latter arm only when the ball is seated. Upon application of a predetermined rate of ac-

celeration change to the ball over a predetermined time duration, the ball slides up and out of the apex of the seat and from underneath the former arm to release the latter arm to engage the fragmentor pin and drive the pin into engagement with the outer layer on the end of the cylinder to fragmentize the cylinder.

3,596,800

DEVICE FOR AUTOMATICALLY AND PERIODICALLY SPRAYING PRESSURIZED FLUID

Taisho Iketani, 4-41-6, Nogata, Nakano-ku, Tokyo, Japan

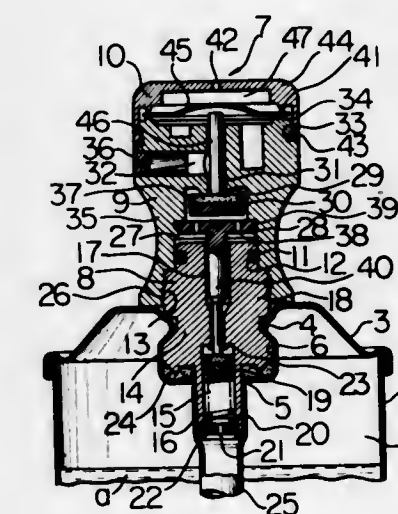
Filed Feb. 6, 1969, Ser. No. 797,006

Claims priority, application Japan, Feb. 13, 1968, 9,084/68

Int. Cl. B67d 5/08

U.S. Cl. 222-54

5 Claims



A spraying device comprising a moveable, heat-responsive element whose dimension changes with change in temperature and is movable to actuate a valve for sealing a passage through which a pressurized fluid is sprayed from a container into the atmosphere. The element is cooled by gasification of the fluid and warmed by the atmosphere. Thereby, the device automatically and periodically sprays the fluid.

3,596,801

DISPOSABLE INSTANT MIX ALL CONTAINER

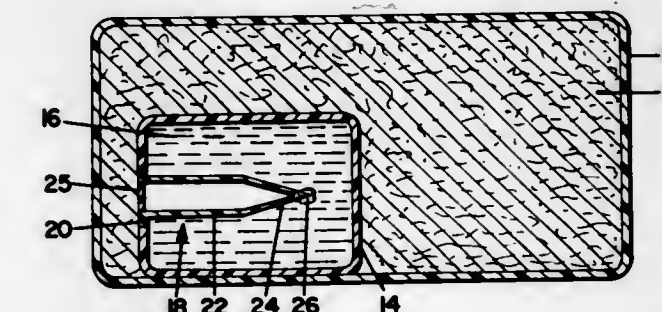
Henry C. Barnack, 126 Craiwell Ave., West Springfield, Mass.

Filed July 22, 1969, Ser. No. 843,606

Int. Cl. B67b 7/24

U.S. Cl. 222-81

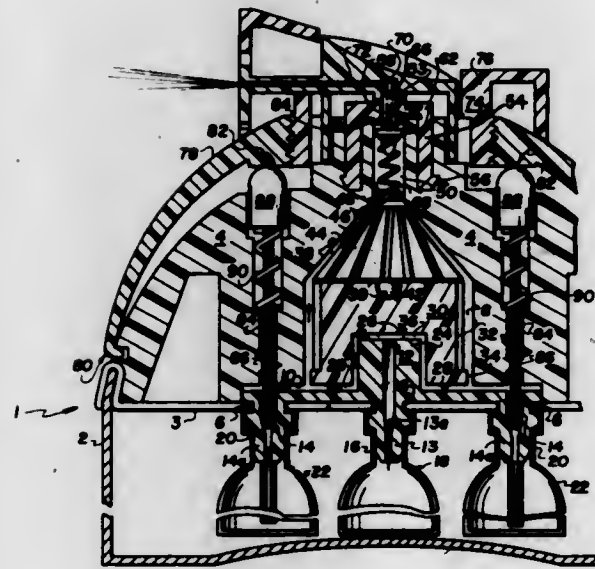
1 Claim



A container comprising a sealed outer envelope containing a powered substance, a sealed inner envelope disposed within the first sealed envelope and containing a liquid, a combination piercing means and nozzle integral with the second envelope for: (1) piercing the second envelope to permit the liquid to escape therefrom and to mix with the powder; (2) piercing the second envelope, and (3) serving as a nozzle for dispensing the resultant mixture from the container.

3,596,802
PRESSURIZED SPRAY CONTAINER FOR SELECTIVE DISPENSING OF PRODUCT
 Paul Feldman, 21 St. James Place, Brooklyn, N.Y.
 Filed Dec. 18, 1969, Ser. No. 886,288
 Int. Cl. B67d 5/52
 U.S. Cl. 222-135

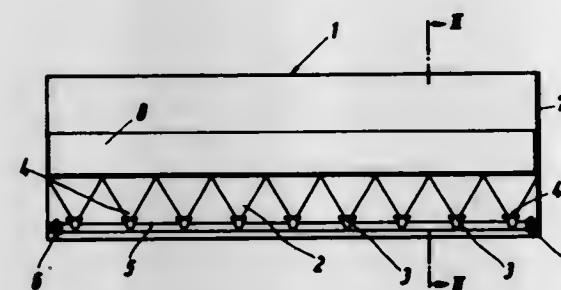
6 Claims



An aerosol dispenser having a plurality of separately contained products therein and a means for preselecting a mixture of one or more preselected amounts of the products for dispensing therefrom.

3,596,803
CONTAINER FOR THE SELECTIVE TRANSPORTATION OF POWDERY MATERIAL OR MIXED CARGO
 Wilhelm Hermanns, 462 Frankfurter Str., Portz-Urbach, Germany
 Filed Jan. 7, 1969, Ser. No. 789,447
 Claims priority, application Germany, Jan. 18, 1968, P 15 56 571.6
 Int. Cl. B67c 11/02; B67d 5/60
 U.S. Cl. 222-145

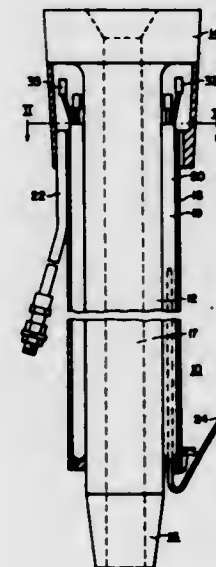
2 Claims



There is disclosed a container for the selective transportation of powdery and granulate material respectively or mixed cargo, which container is provided with discharge funnels and therebelow discharge conduits located above the container bottom wall and having connecting couplings, wherein respectively two adjacent funnel rows are spaced relative to one another and covering plates corresponding in their width to the width of the funnels are pivoted to the edges of the funnel rows closest to one another, said covering plates forming flowoff surfaces for the powdery material when placed together with their free ends and covering the funnels when placed thereupon.

3,596,804
POURING SPOUT FOR CONTINUOUS CASTING OF MOLTEN METALS
 Henry Barrow, Lancaster; Jack E. Schmidt, Bowmansville, and Robert E. Fromson, Williamsville, all of, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Mar. 7, 1969, Ser. No. 805,132
 Int. Cl. B67d 5/62; B65d 5/72
 U.S. Cl. 222-146

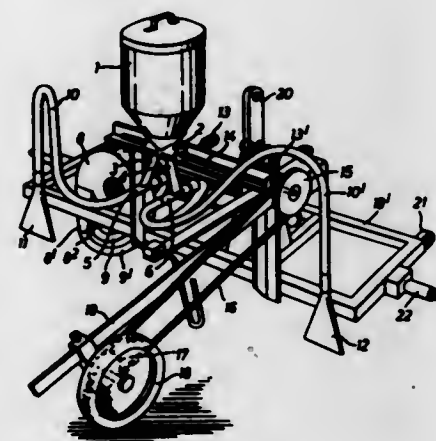
6 Claims



A pouring spout for use in the continuous casting of molten metal is described. It comprises as major components a nozzle body, heating means and antivortexing means.

3,596,805
APPLICATORS OF GRANULAR AND POWDER MATERIAL
 Horstine Farmery, North Newbald, York, Yorkshire, England
 Filed Jan. 14, 1969, Ser. No. 791,103
 Int. Cl. B67d 5/54
 U.S. Cl. 222-193

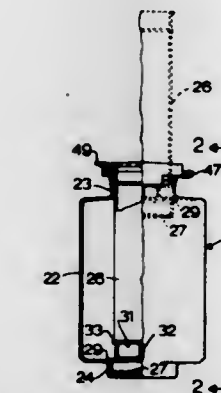
4 Claims



An applicator movable over the ground for applying powder and granular materials such as insecticides, herbicides, fertilizers and such like onto such ground and onto crops growing on such ground including at least one gravity hopper for holding said materials and feeding the same into a rotary metering device discharging into at least one but not more than two depending feed ducts each opening into an airflow duct where a venturi effect is created, a power-driven blower delivering air to said airflow duct which is connected by a flexible hose to a discharge nozzle, and means for driving said metering device at a speed related to movement of the applicator over the ground.

3,596,806
DISPENSING CONTAINER FOR PROPORTIONALLY DILUTING CONTENTS
 Jonas C. Harschel, 8 Mariposa Court, Burlingame, Calif.
 Filed July 28, 1969, Ser. No. 845,166
 Int. Cl. B67d 5/56
 U.S. Cl. 222-190

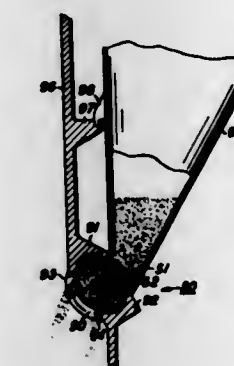
8 Claims



A container has a tube slidable through its neck when the cover is lifted. The bottom of the tube has a cup of a selected capacity which is filled with the liquid in the container when the tube is pushed to the bottom of the container. Above the top edge of the cup the tube is apertured so that as it is raised above the liquid level surplus liquid is drained from the cup. The neck of the container and tube interfit to seal off the tube from the container when the tube is in raised position and also to seal off the apertures in the tube. A diluent (e.g. water) may be poured in to fill the tube. Thus a fixed quantity of liquid and fixed quantity of diluent are measured and may be mixed and dispensed. A cap closes off the tube and container neck when the device is not in use.

3,596,807
DISPENSING APPARATUS
 Frederick W. Hudson, West Henrietta, and William C. Emerson, Rochester, both of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
 Filed Feb. 6, 1969, Ser. No. 796,964
 Int. Cl. G01f 11/20
 U.S. Cl. 222-202

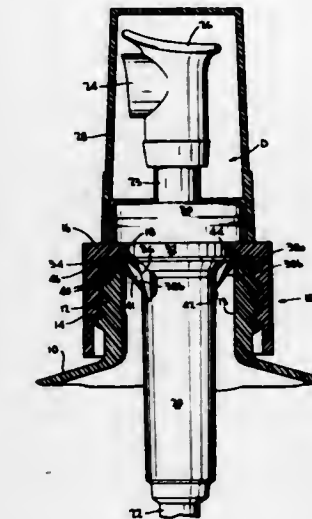
4 Claims



A disposal-dispensing unit for dispensing particulate material in which a substantially enclosed container having an opening in the bottom thereof is sealed by a resilient open-celled elastomeric roll which is rotatably supported in biasing contact with the walls of said opening to retain particulate material therein. Further means are provided exterior to the container for rotating the roll sequentially through the toner material in the container wherein the open-celled cavities on the roll surface are uniformly loaded with particulate material, and then past at least one biasing wall where the roll surface is deformed sufficiently to force the particulate material from the roll surface into the dispensing opening.

3,596,808
CONTAINER WITH VENTING GASKET
 Douglas F. Corsette, Los Angeles, Calif., assignor to Diamond International Corporation, New York, N.Y.
 Filed Jan. 8, 1970, Ser. No. 1,351
 Int. Cl. G01f 11/00
 U.S. Cl. 222-321

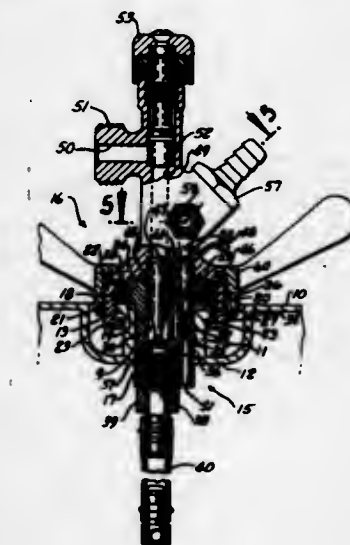
12 Claims



A dispensing container in which a reciprocating dispensing pump extends into the container through its filling and dispensing opening. A combined gasket and diaphragm valve encircles and cooperates with the pump cylinder and has a flexible substantially elastic inner peripheral valving portion snugly encircling and sealing radially against the cylinder and an outer peripheral gasket portion which is compressed between the neck of the container and the supporting flange of the pump barrel. Air is admitted from the atmosphere between the pump-supporting flange and the gasket portion to a location above the valving portion while the lower surface of that portion is exposed to the internal pressure within the container. The valving portion is of downward converging frustoconical shape to admit air into the container while preventing the outflow of fluid from the container. The valving portion may seat against the pump cylinder either at a location beneath the air vent of the latter, thus to admit an inflow only of air through the vent and to prevent outflow therethrough or, if desired, the valving portion may seat around the pump cylinder at a location above the vent to avoid interference with the usual functions of the latter.

3,596,809
KEG-TAPPING DEVICE
 Roy A. Taubenheim, Milwaukee, Wis., assignor to The Perlick Company, Inc., Milwaukee, Wis.
 Filed June 18, 1969, Ser. No. 834,370
 Int. Cl. B65d 83/14; B67d 5/54
 U.S. Cl. 222-400.7

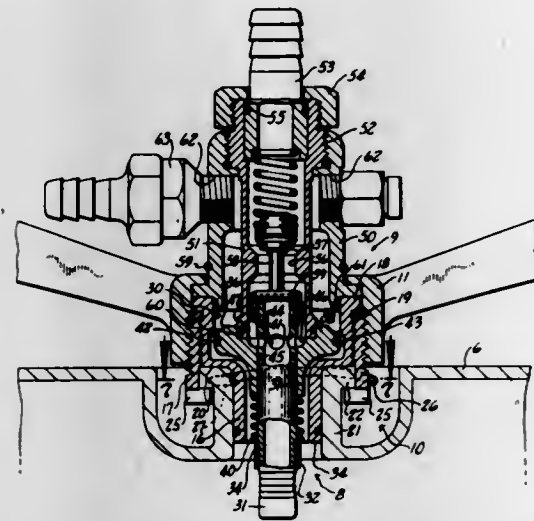
2 Claims



A beer-tapping system in which the connection of separable keg and tapping units automatically opens normally

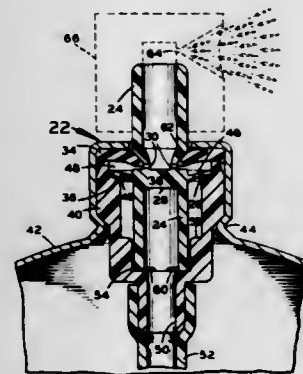
closed beer and gas valves in the keg unit, the keg unit being installed from the exterior in the tapping hole of the keg and remaining a part of the keg; and the valves being displaced from their seated positions by hollow probes that depend from the bottom of the tapping unit. The gas valve is assembled with the body of the keg unit through a hole in the side of the body which is covered by the contiguous surface of the tapping hole.

3,596,810
KEG-TAPPING SYSTEM
Roy A. Taubenheim, Milwaukee, Wis., assignor to The Perlick Company, Inc., Milwaukee, Wis.
Filed Sept. 2, 1969, Ser. No. 862,603
Int. Cl. B65d 83/00
U.S. Cl. 222-400.7 5 Claims



A beer keg-tapping device which consists of a keg unit that is permanently attached to the keg and a coupler unit detachably connected to the keg unit. Both units have liquid and gas passages which communicate when the units are coupled; a single valve element automatically closes both passages of the keg unit when units are not coupled. During coupling the passages of the two units are connected before the valve element is unseated, so that coupling is accomplished without spraying of beer.

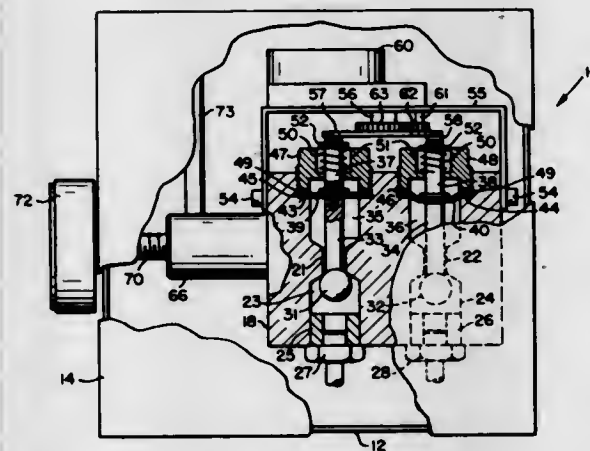
3,596,811
VALVE FOR PRESSURIZED CONTAINERS
Erich W. Gronemeyer, 3430 Galt Ocean Drive, and Louis F. Kutik, 8720 S. W. 23rd Place, both of Fort Lauderdale, Fla.
Filed June 9, 1969, Ser. No. 831,417
Int. Cl. B65d 83/00
U.S. Cl. 222-402.24 9 Claims



A valve device including a valve stem having a flange with a peripheral edge which is received by an annular receiver which constitutes a separate part of the valve device. The annular receiver has a seat receiving a peripheral edge of the flange, and either the flange or the seat has at least one, and preferably a plurality of openings therein allowing pressurized contents of the container to reach a space between

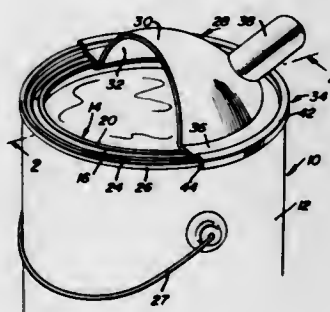
the flange and a sealing ring against which a sealing portion of the valve stem is biased. The interior of the valve stem is blocked, but a hollow portion of the valve stem has at least one opening therein within the sealing ring and normally blocked by the sealing ring. When the valve stem is depressed, the sealing ring bends to uncover the opening, thus allowing container contents to be discharged. The flange is distorted and due to the resiliency or elasticity thereof, it returns the valve stem to its valve-closed position.

3,596,812
AUTOMATIC LIQUID CHLORINE DISPENSER
Constantinos Pandajis, Rochester; David G. Flint, Rochester, and Helge K. Heen, Avon, all of N.Y., assignors to Adaks Products Incorporated, Rochester, N.Y.
Filed Sept. 23, 1969, Ser. No. 860,213
Int. Cl. G01f 11/32
U.S. Cl. 222-438 5 Claims



A valve block contains two parallel bores which communicate with a large, vented measuring chamber formed in the block above the bores. At one end the bores are connected, respectively, to a supply of liquid chlorine, and to a swimming pool. A normally closed, spring loaded valve is mounted in each bore intermediate its ends, and has a stem projecting exteriorly of the block for operation by a rotating cam having thereon a detent which momentarily and alternately opens each valve once per revolution of the cam. When one valve is opened, liquid chlorine enters the block to fill the measuring chamber, and when the other valve opens, the contents of the chamber empties into the pool. A cylindrical plunger, which is reciprocally mounted in said block and projects into said measuring chamber, is adjustable to vary the effective volume of the chamber.

3,596,813
PAINT BUCKET LID WITH POURING SPOUT
Elvin R. Munn, 6705 Hancock Ave., St. Louis, Mo.
Filed June 21, 1968, Ser. No. 738,892
Int. Cl. B65d 25/42
U.S. Cl. 22-569 2 Claims



A ready to use paint pourer is offered as a practical aid when the user desires to pour paint from one container into another container in a spillproof manner. Each of the two forms herein shown comprises a self-contained moldable

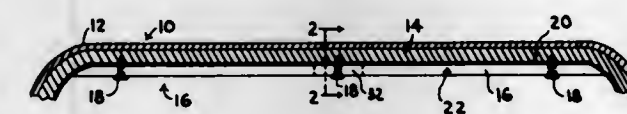
plastic attachment characterized by an auxiliary lid which is brought into use after the regular closing lid has been pried loose and removed from the keying channel of the annular mounting rim. This auxiliary or replacement lid has (1) a suitable spout and (2) marginal attaching and retaining means having a web whose outer peripheral edge is provided with an inverted channel-shaped adapter capable of being conformingly snapped over the rim's securing bead.

3,596,814
METHOD FOR PREPARING DRAPERY SAMPLES AND CASE FOR SAME
Dawnelle L. Kelley, and James M. Kelley, both of 777 Kelley Drive, Broomfield, Colo.
Filed Sept. 1, 1967, Ser. No. 664,989
Int. Cl. A41h 43/00; D06j 1/00
U.S. Cl. 223-28 3 Claims



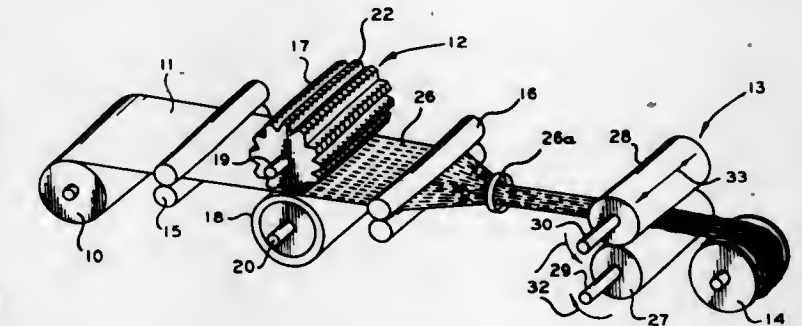
Drapery samples of large pieces of fabric have a strip of stiffening material attached to opposite ends, and the pieces are fan folded to reduce the space required for storage. A drapery sample case provided with a rod in the upper side permits the fan-folded drapery samples to hang in the case by means of clamp hanger.

3,596,815
GARMENT-HANGING RACK FOR MOTOR VEHICLES
Mamie M. Willett, 808 E. Queen, Albany, Oreg.
Filed Apr. 14, 1969, Ser. No. 815,604
Int. Cl. B60r 11/00
U.S. Cl. 224-42.1 CA 8 Claims



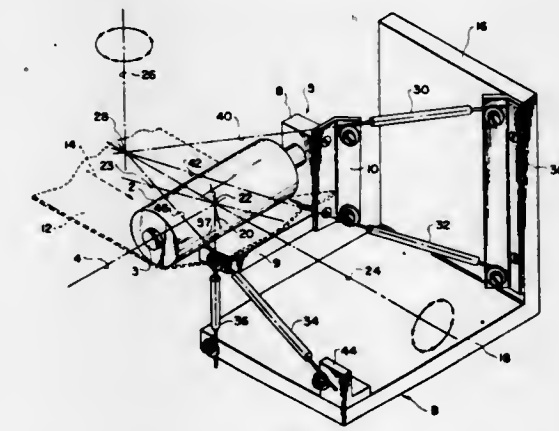
A clothes-hanging rack for motor vehicles is provided which hugs the car ceiling, and is neat, inexpensive, inconspicuous and completely out of the way when not in use. The hanger includes a tough hollow frame or housing and a series of distinct hanger-supporting fingers, normally contained, and individually retained, within the housing. Each finger is bendable under the weight of a garment hanger, and the garment carried thereby, and each has its own assigned position so that the hangers do not slide from side to side as the car rounds curves. The frame stands as an upholstery guard between the finger-supported hangers and the ceiling upholstery, as well as a housing and support for the fingers.

3,596,816
FIBRILLATION METHOD
Claude V. Brown, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed May 5, 1969, Ser. No. 821,856
Int. Cl. B26f 3/02 8 Claims



A method for fibrillating an oriented film or thermoplastic material. The method includes forming elongate lines of weakness in the film and mechanically working the weakened film to promote the splitting up along the lines of weakness.

3,596,817
WEB-HANDLING DEVICE
John E. Morse, and Richard A. Marsh, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 3, 1969, Ser. No. 873,566
Int. Cl. B65h 25/26 6 Claims

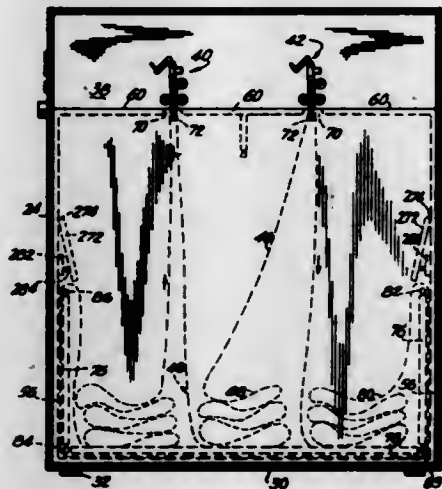


A roller across which a flexible web moves is mounted for rotation about a longitudinal axis and is constrained for two degrees of movement, namely, pivotal movement about an upstream axis which is perpendicular to a web approach plane and also pivotal movement about an axis which is perpendicular to and intersects both the longitudinal axis and the upstream axis. This constraint can be accomplished by flexures or pivoted lengths which are connected between a roller support and a base in a manner to provide the desired degrees of movement and no others.

3,596,818
TAPE-FEEDING AND STORAGE APPARATUS WITH TENSION-SENSING MEANS
Roger Charles Curtis, New Haven, Conn.; William Henry Loesch, Harrison, N.Y., and William Edward Springer, Shelton, Conn., assignors to Dictaphone Corporation, Bridgeport, Conn.
Filed Oct. 25, 1968, Ser. No. 770,696
Int. Cl. B65h 25/22 5 Claims

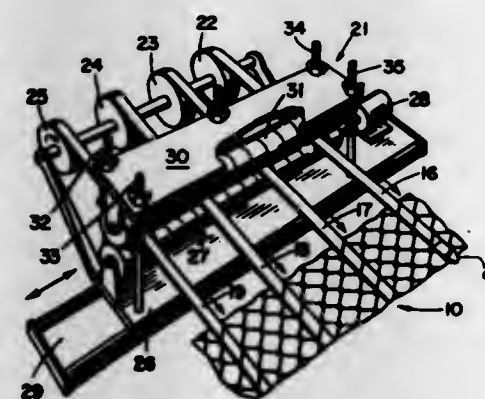
A recording and transcribing system including a single-bin, random-wind tape storage magazine to store an endless loop of magnetic tape in random folds. The tape is drawn from the magazine past a recording unit and then is fed back to the magazine where it may be stored in random folds until drawn

up past a transcribing unit and then back into the magazine again. Both the recording and transcribing units are provided with bidirectional tape drive capability and the tape storage



magazine includes tape tauntness-sensing mechanisms to disconnect either or both of the tape drive units if the tape is drawn taut during operation.

3,596,819
STRIP-INSERTING METHOD AND APPARATUS FOR CHAIN LINK FENCES
John J. Lambert, 7265 W. 83rd St., Los Angeles, Calif.
Division of Ser. No. 638,242, May 15, 1967, Patent No. 3,513,532. Filed Sept. 10, 1969, Ser. No. 871,182
Int. Cl. B65h 17/20
U.S. Cl. 226-109 4 Claims

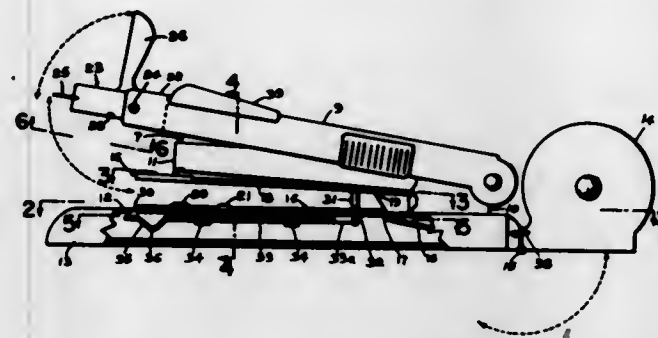


This disclosure relates to a method and apparatus for inserting elongated strips of aluminum which may be of various colors into channels defined by the chain mesh structure of chain link fences to thereby greatly enhance the beauty of the fences and also provide a windbreak and block visibility if desired.

The method involves continuously urging one or more elongated strips into the formed channels in the fence in a very rapid manner. The apparatus for carrying out the method contemplates a pair of rollers powered by an electric motor, one or more strips being simultaneously fed between the rollers directly into the channels of the chain link fence.

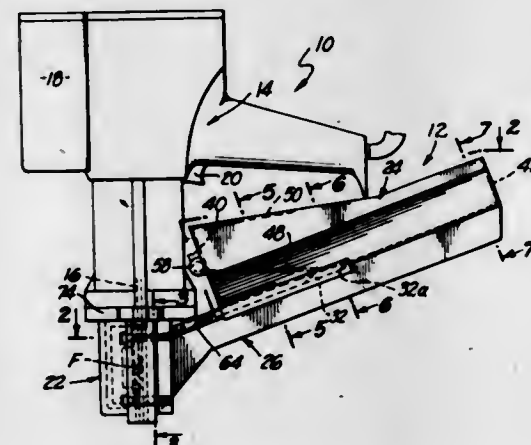
3,596,820
STAPLER
Kwong Li Lou, c/o Air Asia Company, Quality Control Division, Taiwan, China
Filed Mar. 17, 1969, Ser. No. 807,785
Int. Cl. B25c 5/02
U.S. Cl. 227-76 9 Claims
A stapler modified to feed reinforcing tape to one or both

sides of the material being stapled, prior to stapling. The sta-



pled reinforcing tape is cut after stapling by a cutter pivotally attached to the stapler.

3,596,821
HOPPER-TYPE FASTENER INFEE DEVICE FOR FASTENER-DRIVING TOOLS
Irney Lee Rogers, 1418 E. Phillips, and Donald B. Halstead, 278 Foxbury Ave., both of Pomona, Calif.
Filed May 13, 1969, Ser. No. 824,049
Int. Cl. B25c 1/00
U.S. Cl. 227-138 16 Claims

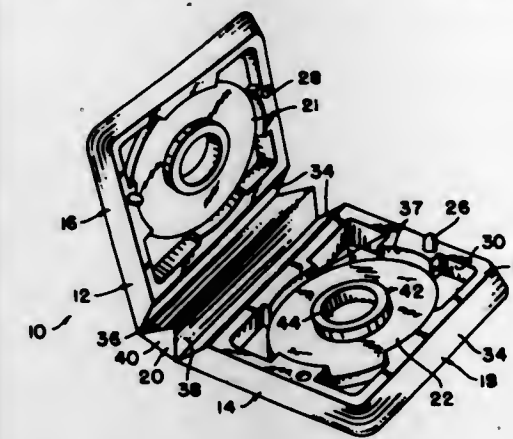


An infeed device for feeding fasteners, such as nails, to a fastener-driving tool. The infeed device has a guide for attachment to the front end of the tool body, a hopper for containing a bulk quantity of loose unattached fasteners to be driven, and an infeed chute through which the fasteners move under the action of gravity from the hopper into a bore within the infeed guide. This guide is coaxially aligned with the tool-driving spindle to receive the latter during each driving stroke and is equipped with means for locating each fastener in a fixed driving position wherein the fastener is disposed to be engaged and driven forwardly into a work-piece by the tool spindle during each driving stroke of the spindle. The hopper is uniquely constructed and arranged and equipped with novel pneumatic means for inducing passage of the bulk fasteners from the hopper into the feed chute without jamming.

3,596,822
PACKAGE STRUCTURE
Danforth Holley, Grosse Pointe Shores, Mich., assignor to Holley Plastics Company, Warren, Mich.
Filed May 21, 1969, Ser. No. 826,611
Int. Cl. B65d 1/36
U.S. Cl. 229-15 5 Claims

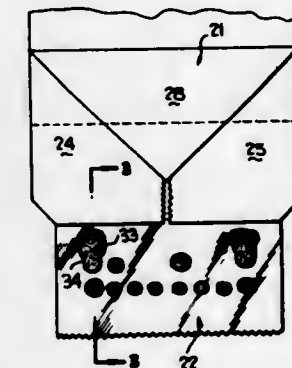
A folding package construction including a pair of body portions each having a recess therein, and a hinge portion having a triangular cross section connected to adjacent edges of the body portions. The body portions have inner and outer sides and inclined edges which provide package rigidity and permit interlocked stacking of a plurality of packages. Also, the inclined edges at the triangular hinge portion allow the body portions to pivot or fold toward each other to close the

package construction. A nipple and a recess are provided on the inner sides of each body portion cooperating with the



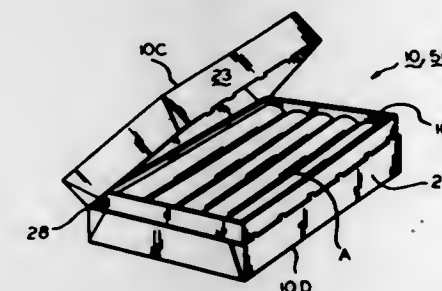
bottom of the bag. The edges of the sheet are longitudinally welded together to form the bag container, and there exists a reinforced upper portion around the open periphery of the bag, which portion is at least two layers thick. The leading edges of the upper peripheral portion is formed by a doubled over layer of material, and a grip aperture is formed in each face.

3,596,825
MULTI-PLY BAGS
Vernon Martin, Charlotte, N.C., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Sept. 9, 1969, Ser. No. 856,448
Int. Cl. B65d 33/02
U.S. Cl. 229-55 5 Claims



nipple and recess in the other body portion to provide a snap lock on closure of the package. The snap lock prevents the body portions from opening.

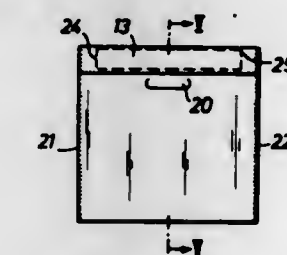
3,596,823
END-LOADED, TOP-OPENING CARTON
Karl Zitzelman, Newfoundland, Pa., assignor to Container Corporation of America, Chicago, Ill.
Filed May 2, 1969, Ser. No. 821,295
Int. Cl. B65d 5/22
U.S. Cl. 229-33 13 Claims



This disclosure relates to improvements in multi-ply bags which generally include at least an outer wrapper and an inner liner, and is particularly directed to a bottom construction formed by adhesively securing together a plurality of closure panels or flaps. The securement is effected by forming heat-shrunk openings in the inner liner to expose the interior of the outer wrapper which is brought into overlying adhesive contact with the exterior of another closure flap or panel such that the bond is between the material of the outer wrapper.

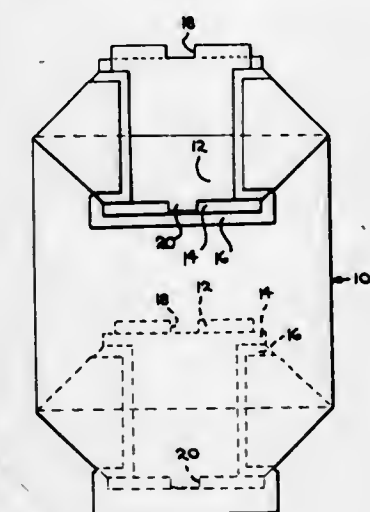
An end-loaded, top-opening carton formed from a cut and scored blank and adapted when open to display articles therein, and comprising an outer carton including tray and cover portions formed from a main panel, opposed pairs of side and end panels, the latter being hingedly connected along adjacent edges of one of the side panels. The carton is characterized by an insert collar employed in the loading thereof and arranged to surround articles during loading into the carton, the collar being adhered to the interior faces of the tray portion.

3,596,824
CARRIER BAGS
Michael Lehmacher, Unterdorf Str., and Hans Lehmacher, Beckergasse, both of Mondorf Troisdorf, Germany
Division of Ser. No. 739,559, June 24, 1968
Filed Dec. 3, 1969, Ser. No. 882,392
Claim priority, applications Germany, July 1, 1967, and July 28, 1967, L56890 and L57096
Int. Cl. B65d 33/02, 33/08
U.S. Cl. 229-54 11 Claims



A synthetic thermoplastic carrier bag which consists of a doubled over thermoplastic sheet forming both faces and

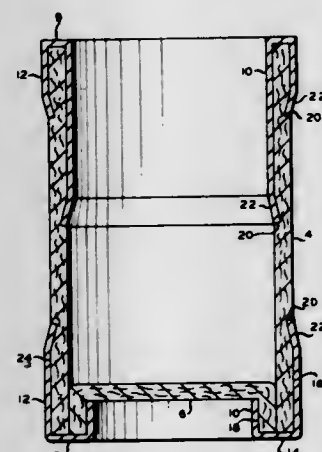
3,596,826
STEPPED END BAG
William J. Reisel, Valdosta, Ga., assignor to Owens-Illinois, Inc.
Filed Sept. 25, 1969, Ser. No. 861,004
Int. Cl. B65d 33/18
U.S. Cl. 229-55 1 Claim



A unique stepped end bag of the type having a tubular body formed from a plurality of superposed plies of bag-forming material terminating at different points to form stepped ends featuring a component arrangement which provides alternate grasping notches and tabs which facilitates the use of bottoming equipment to close and seal the ends of the bag that was previously limited to use on flush-cut bags. The alternate notches and tabs are formed in the inner ply to

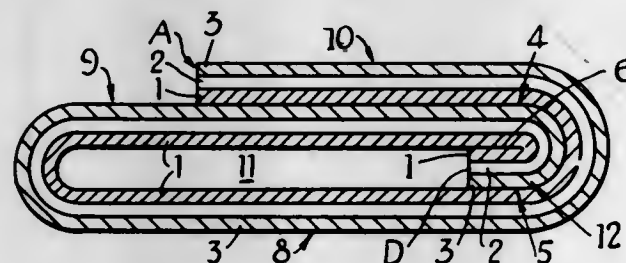
allow the grasping fingers on bottoming equipment to grasp and separate the opposite sides of the bag ends so that the ends can be automatically glued and folded into sealed relationship.

3,596,827
COMPOSITE CONTAINER AND BLANK
Alfred W. Kinney, Kansas City, Mo., assignor to Phillips Petroleum Company
Filed Sept. 10, 1969, Ser. No. 856,631
Int. Cl. B65d 3/10
U.S. Cl. 229-5.6 5 Claims



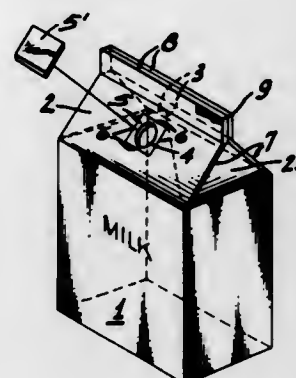
An improved composite container and paperboard blank for forming a paperboard and metal composite container, said blank formed with score lines having sides converging at an angle of at least 90° for receiving an end of the metal portions of said container.

3,596,828
FLEXIBLE POUCHES AND BAGS
Norman Foster, Hampshire; Kenneth George Tee, Hampshire; David Edward Conway, Hampshire, and Ernest Stonehouse, Somerset, all of, England, assignors to British-American Tobacco Company, Limited, London, England
Filed Sept. 11, 1969, Ser. No. 857,096
Claims priority, application Great Britain, Oct. 16, 1968, 49027/68
Int. Cl. B65d 33/22
U.S. Cl. 229-62 6 Claims



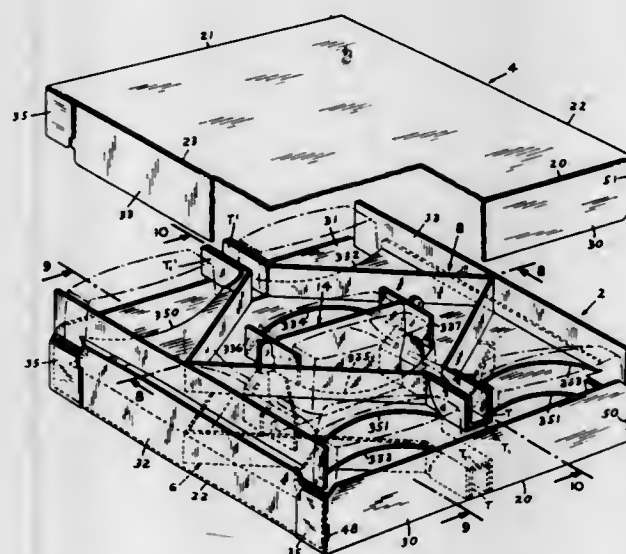
A flexible pouch, such as a tobacco pouch, comprises two layers of heat-sealable thermoplastic plastics materials adherent to opposite surfaces of a layer of metal foil. The materials of the said two layers have limited compatibility with each other and the pouch is sealed, where it will require to be opened, at a line of contact between surfaces of different layers of the plastics materials. Thus a peelable seal can be so formed between the backwall of the pouch and an inwardly folded portion at the marginal edge of the front wall thereof and/or between the front wall of the pouch and a flap folded over the said front wall.

3,596,829
CONTAINER STRUCTURES
Conrad O. Gardner, 99 Woodhaven, Edmonds, Wash.
Filed Oct. 26, 1966, Ser. No. 589,636
Int. Cl. B65d 5/70, 41/20
U.S. Cl. 229-7 S 2 Claims



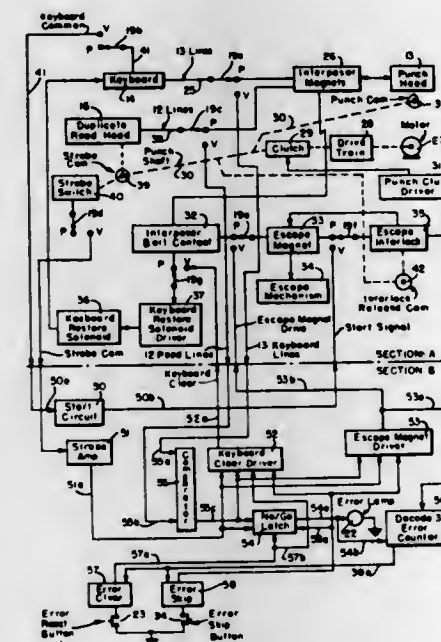
A straw puncturable dispensing opening which includes a thin sheet of material which is sealed to the outside surface of a surmounting closure of a liquid container around the dispensing opening thereby making possible an easy visible inspection of the condition of the seal.

3,596,830
TWIN TV TUBE BOX
William W. McFarland, Wooster, and Harry D. Wintringer, III, Shelby, both of, Ohio, assignors to International Paper Company, New York, N.Y.
Continuation-in-part of Ser. No. 744,267, June 17, 1968, Pat. No. 3,494,534.
Filed Nov. 26, 1969, Ser. No. 880,285
Int. Cl. B65d 25/14
U.S. Cl. 229-14 C 13 Claims



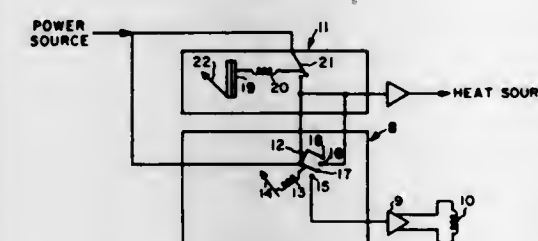
A paperboard container for shipping and storing fragile articles, more particularly television tubes, which includes an outer container, a first packaging insert spacer extending upwardly from the bottom of said outer container and shaped substantially so as to successively touch consecutive wall panels of the outer container, a first packaging insert having a plurality of apertures and hingedly connected opposed end flaps deposited into the outer container with the flaps disposed downwardly, a second packaging insert substantially identical to the first packaging insert, a second packaging insert spacer substantially identical to the first packaging insert spacer positioned inversely to the first packaging insert spacer and a top substantially identical to the bottom, thereby forming a container having a top and bottom which are substantially mirror images of one another.

3,596,831
PUNCHED CARD VERIFIER ADAPTER
William P. Parmer, Fort Lauderdale, Fla., assignor to Data Research Corporation and Computer Utilities Corporation, Fort Lauderdale, Fla., part interest to each
Filed July 22, 1969, Ser. No. 843,657
Int. Cl. G06k 1/16
U.S. Cl. 234-34 9 Claims



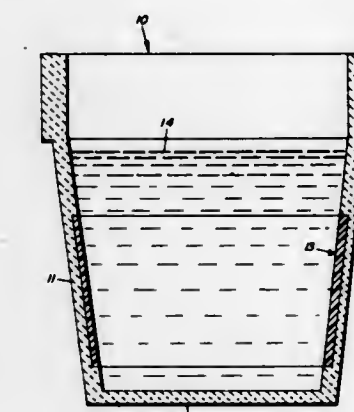
A control unit is added to a standard card punch for permitting the punch to operate in either of two modes, i.e., its conventional punch mode, or a verify mode wherein information previously punched on a card is compared with information which the operator keys into the card punch keyboard. If the keyboard and card-punched data do not agree, an error light is energized, the machine is caused to stop, and the keyboard locks up. The read head normally provided in the card punch for duplicating operations is used during the verify mode to read previously punched information from a card for comparison with information keyed into the keyboard.

3,596,832
HUMIDIFICATION APPARATUS
Albert Whetstone, Southport, Conn., and Samuel Fine, New City, N.Y., assignors to Science Accessories Corporation, Southport, Conn.
Filed June 23, 1969, Ser. No. 835,568
Int. Cl. G05d 22/00
U.S. Cl. 236-44 C 2 Claims



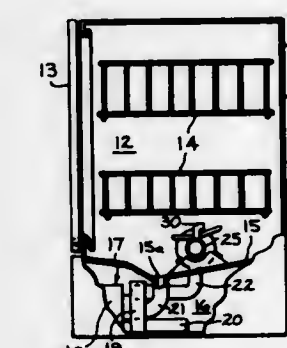
A humidifier for use in a recirculating hot water and/or steam heating system. A bypass valve is provided for the controlled delivery of the system fluid to an absorbent material placed over the radiator or fin member of the heating system.

3,596,833
FRAGRANCE-RELEASING FLOWERPOT
Francis E. Gould, Princeton, N.J., assignor to National Patent Development Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 599,911, Dec. 7, 1966, Pat. No. 3,400,890.
Filed Sept. 5, 1968, Ser. No. 757,737
Int. Cl. A611 9/04
U.S. Cl. 239-54 6 Claims



A decorative article fabricated to resemble a flowerpot and incorporating therein a synthetic hydrophilic hydrogel capable of releasing fragrance in the presence of a solvent.

3,596,834
SELF-REVERSING SPRAY ARM ASSEMBLY FOR A WASHING APPLIANCE
Donald S. Cushing, Louisville, Ky., assignor to General Electric Company
Filed July 28, 1969, Ser. No. 845,144
Int. Cl. B05b 3/06
U.S. Cl. 239-255 5 Claims

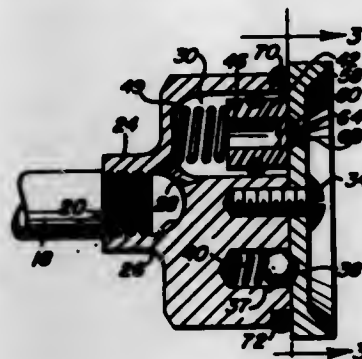


A spray arm in an automatic dishwashing machine is caused to rotate on its axis from the resultant reactive force of a washing liquid conducted through the body of the spray arm and then outwardly as a jetstream. The jetstream is discharged from a nozzle mounted to swivel between two drive positions on the body of the spray arm. The nozzle is intermittently released so that it will react to the force of the washing liquid discharged therefrom and swivel from one of its drive positions to the other and thereby reverse the direction of rotation of the spray arm.

3,596,835
ADJUSTABLE TURRET SPRAY NOZZLE
Raymond D. Smith, and Jane M. Smith, both of 4704 N.W. 61st St., Oklahoma City, Okla.
Filed Dec. 26, 1968, Ser. No. 787,097
Int. Cl. A62c 31/02
U.S. Cl. 239-394 5 Claims

A spray nozzle employed as a part of the crop-spraying system employed on a crop-spraying aircraft incorporating a rotatable plate having a plurality of orifices therein of different size for alignment with a discharge passage with the plate including one portion thereof which is imperforate to

render the nozzle inoperative when desired. The structure for adjustably locking the nozzle plate in position includes a



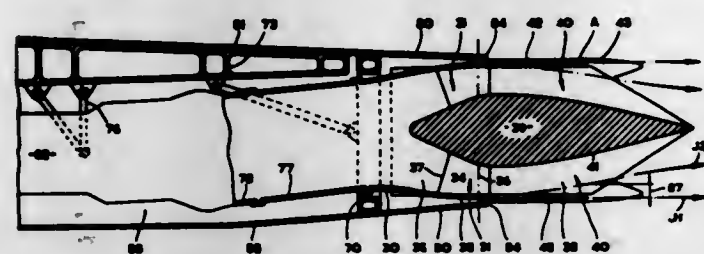
structure for causing the material discharged through the orifice to be discharged in a swirling pattern to provide efficient spraying of the material.

3,596,836 CONVERGENT-DIVERGENT RECTANGULAR SECTION NOZZLE

Ralph Murch Denning; Reginald Harold Wiltshire; Stephen Sales, and Alexander Scott, all of Filton, Bristol, England, assignors to Rolls-Royce Limited, Derby, England
Filed Sept. 11, 1969, Ser. No. 857,028
Claims priority, application Great Britain, Sept. 14, 1968, Jan. 30, 1969, 43,825/68; 05,266/69
Int. Cl. B05b 1/32

U.S. Cl. 239-456

4 Claims



The disclosure of this invention pertains to a convergent-divergent rectangular section nozzle for jet propulsion engines. To convert the nozzle into a convergent-only configuration one of the four walls of the divergent part is movable into a position adjacent the convergent part thereby allowing the ambient slipstream to enter the nozzle immediately downstream of the throat thereof.

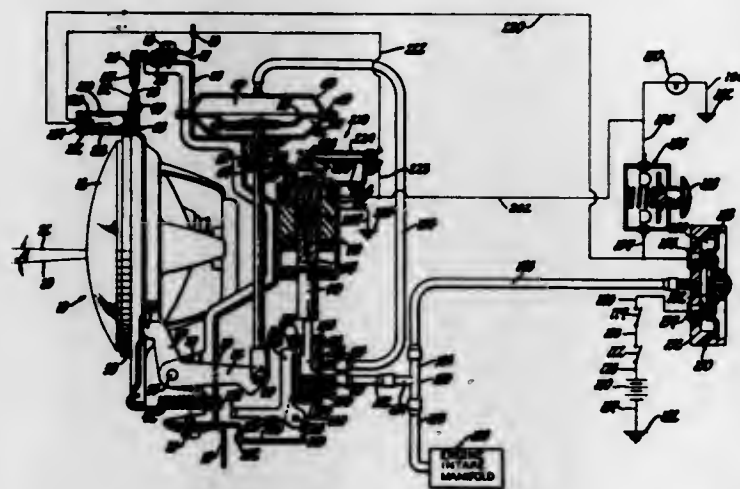
3,596,837 AUTOMATIC HEADLAMP-AIMING SYSTEM

Harold E. Todd, and David P. Clayton, both of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 18, 1969, Ser. No. 859,147
Int. Cl. B60q 1/00

U.S. Cl. 240-7.1

6 Claims



An automatic headlamp-aiming system for a motor vehicle wherein a headlamp is hingedly connected to the vehicle for

controlled rotation about a horizontal axis as driven by a vacuum motor which is energized upon operator initiation of an aiming cycle. Control means including a single-ended mercury switch electrically connected to a solenoid serves to automatically deenergize the vacuum motor and lock the system against further movement when the headlamp attains a properly vertically aimed position.

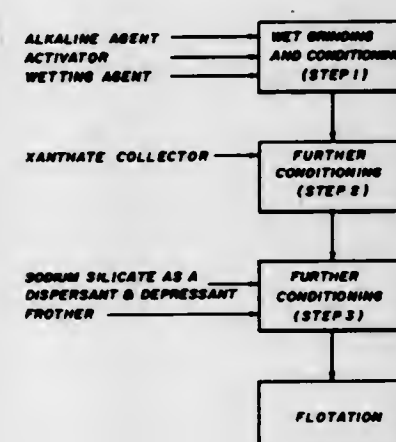
3,596,838 FLOTATION OF SULPHIDE ORES

David Weston, 32 Parkwood Avenue, Toronto, Ontario, Canada

Filed May 7, 1968, Ser. No. 727,268
Claims priority, application Canada, Apr. 23, 1968, 018,182
Int. Cl. B02c 19/00; B03d 1/02

U.S. Cl. 241-16

19 Claims



Flotation of sulphide minerals from their ores is achieved by a process in which two or more conditioning steps are carried out prior to a froth flotation step. The first step comprises conditioning a pulp of the ore in the presence of at least one alkaline agent selected from a group of agents which is defined in the specification which follows. The pulp is then further conditioned in the presence of a member of the xanthate family of flotation reagents and sufficient sodium silicate to effectively disperse the host rock minerals. The resulting pulp is then subjected to froth flotation. Preferably there are three separate conditioning steps, namely conditioning carried out in the presence of (1) one of the hereinafter defined alkaline agents, (2) a member of the xanthate family of flotation reagents, and (3) sodium silicate. The invention is particularly valuable for the recovery of metallic sulphides from ores containing talc minerals or natural slimes and the invention has been applied with signal success to the flotation of copper-nickel sulphide ores containing over 40 percent by weight of talcose host rock minerals.

3,596,839 SLURRY PARTICLE SIZE DETERMINATION

Richard E. J. Putman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation of application Ser. No. 601,608, Dec. 14, 1966, now abandoned. This application Dec. 10, 1969, Ser. No. 884,031

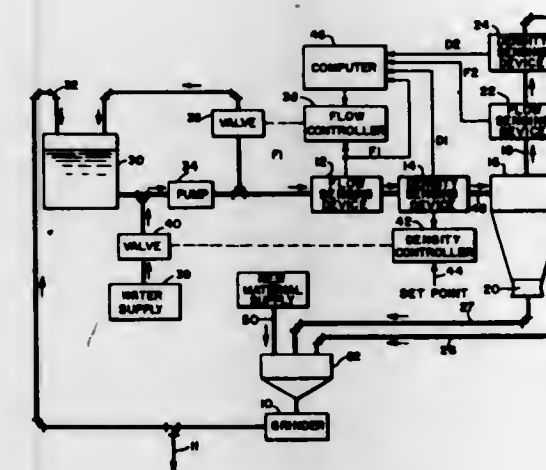
Int. Cl. B02c 21/00, 25/00

U.S. Cl. 241-20

14 Claims

Method and apparatus for determining the particle size distribution in a slurry in a grinding circuit with the method and apparatus operative in an online manner and at frequent intervals for effecting this determination. A high-speed computer is used to better control the operation of the circuit. Such particle size distribution, obtained through a determination of the cumulative percentage of solids in the grinder output slurry, is regulated in relation to the infeed of slurry material into the grinder as a predetermined function of the

weight of new material introduced into the grinder unit circuit, the known particle size distribution of that new material



from classifiers returned as infeed to the grinder and the calculated particle size distribution of that overflow material.

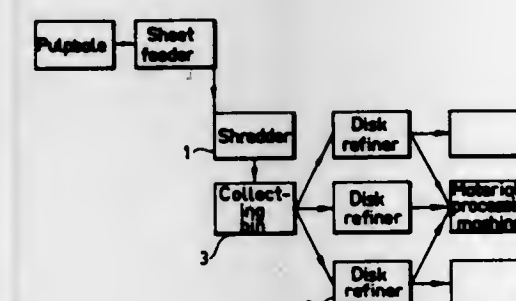
3,596,840 PROCESS FOR DISINTEGRATING DRY CELLULOSE PULP

Nils Verner Blomqvist, Ornskoldsvik; Ingemar Liss-Albin Croon, Alfreðshem, and Lars Goran Eriksson, Vasterhus, all of Sweden, assignors to Mo Och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Filed Aug. 14, 1967, Ser. No. 660,451
Claims priority, application Sweden, Aug. 17, 1966, 11152/66
Int. Cl. B02c 7/06, 13/288, 21/00

U.S. Cl. 241-28

10 Claims



A process is provided for producing disintegrated (fluffed) dry cellulose fibers from baled cut pulp sheets for use in products such as diapers, absorbent pads and rolls, and the like. The sheets are shredded into particles and subsequently fed in a carrier gas stream to a disc mill with a gap width within the range of 0.1 to about 0.5 mm. wherein the shredded particles are milled until disintegrated and the fibers liberated. The fibers are then removed by the gas stream.

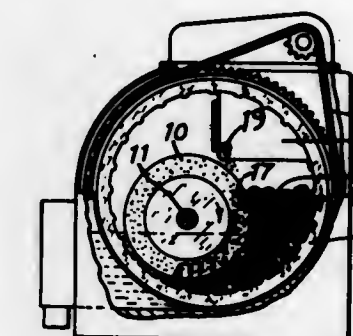
3,596,841 GRINDER FOR MECHANICAL PULP MAKING

James H. Perry, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Continuation-in-part of application Ser. No. 775,624, Nov. 14, 1968, now abandoned. This application June 2, 1970, Ser. No. 42,629

Int. Cl. B02c 4/00, 4/44, 15/00
U.S. Cl. 241-38

10 Claims



An improved grinder for mechanically making pulp from logs that has improved pulp-clearing passages associated with the grinding wheel and log-holding pocket.

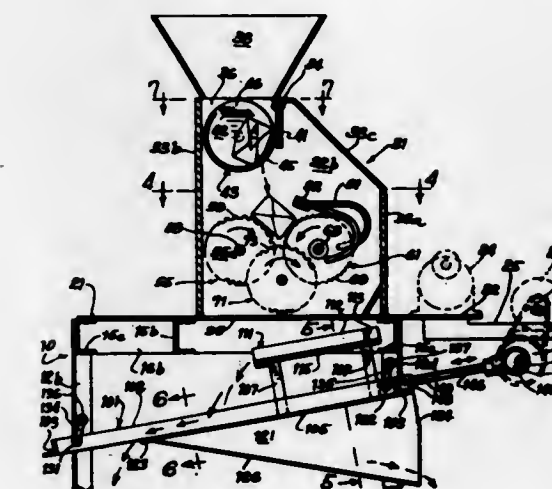
3,596,842 MACHINE FOR SEPARATING A GRANULAR SUBSTANCE FROM A CONTAINER OF PAPER OR THE LIKE

Delbert K. Barber, Dearborn, Mich., assignor to Superior Tea and Coffee Company, Chicago, Ill.

Filed Mar. 5, 1969, Ser. No. 804,510
Int. Cl. B02c 18/06, 18/22

U.S. Cl. 241-222

2 Claims



A machine for receiving closed packages of paper or other tearable material containing a granular substance, tearing the walls of the package to a substantial degree by the use of toothed means, delivering the remnants of the torn package and the contents to a vibrating screen having interstices to pass the substance to a hopper therebelow, the screen being inclined to deliver the remnants to one collecting point and the hopper being inclined to deliver the substance to another collecting point.

3,596,843 METHOD AND APPARATUS FOR MAKING A STRIP CONDUCTOR COIL

Robert B. Lightner, and Benton A. Whiteman, both of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.

Division of Ser. No. 598,347, Dec. 1, 1966, abandoned.
Filed Nov. 1, 1968, Ser. No. 793,628
Int. Cl. H01b 13/00

U.S. Cl. 242-7.03
Method and apparatus for making a strip conductor coil construction wherein means are provided for holding a core

5 Claims

element having an outer surface means and a longitudinal axis and means are provided for holding a strip of conductive material. Means are provided for rotating the core element to draw the strip of conductive material around part of a guide roller means to guide the strip before the strip is wound on the rotating core element. Means are provided for automati-

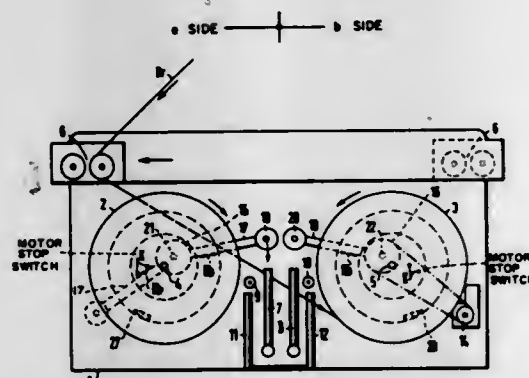


cally adjusting the position of the guide roller means relative to the core element about an axis substantially perpendicular to the longitudinal axis of rotation of the guide roller means to properly align the conductive strip relative to the core element during the winding of the strip thereon so that the strip will be wound to the outer surface means of the core element in the proper position relative thereto.

3,596,844
METHOD AND APPARATUS FOR CONTINUOUSLY WINDING FILAMENTARY MATERIAL
Gunther Engmann, Plockendorf, Germany, assignor to Maschinenfabrik Niehoff Kommandit-Gesellschaft, Schwabach near Nurnberg, Germany
Filed May 5, 1969, Ser. No. 821,799
Claims priority, application Germany, May 14, 1968, P 17 74 266.4

Int. Cl. B65h 54/00
U.S. Cl. 242-25

10 Claims



A method and apparatus for winding successively onto a plurality of spools a filamentary material, such as wire, which is continuously fed without interruption when the winding changes from one spool to another spool. A pair of spools are provided beside and parallel to each other with the winding taking place at any given instant on one of the spools. When this one spool has almost been filled the traverse which distributes the filamentary material along the spool is shifted from this one spool to the region of the empty spool while a deflecting roller is shifted to an operative position for deflecting the filamentary material into a loop around the empty spool. Each of the spools has, at an end, an auxiliary spool where a cutter cuts the filamentary material to terminate the length thereof which is wound onto the filled spool. The shifted deflecting roller is returned to its starting position so as to release the loop for movement onto the empty spool and the windings continue thereon. The operations are then repeated with the new spool after the previously empty spool has become almost filled.

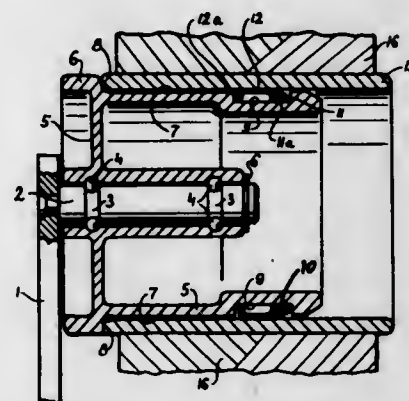
3,596,845
TEXTILE MACHINE
Jaroslav Rajnoha, Tyniste Nad Orlici, and Ladislav Bures, Usti Nad Orlici, both of, Czechoslovakia, assignors to Elltex Zavody Textilního Strojrenství Generalni Reditelství, Liberec, Czechoslovakia
Filed Feb. 5, 1969, Ser. No. 796,765

Claims priority, application Czechoslovakia, Feb. 9, 1968, 988-68

Int. Cl. B65h 75/30

U.S. Cl. 242-46.6

10 Claims

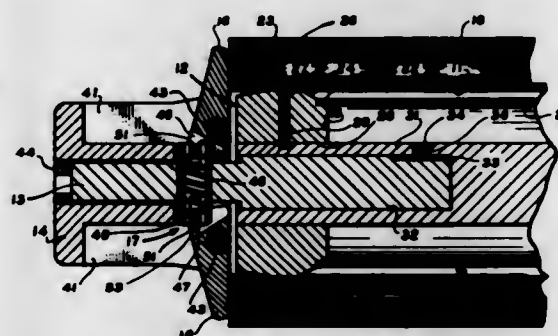


A textile machine includes mounting means and a bobbin-tube holder arrangement which is carried by the mounting means. The bobbin-tube holder means includes a hub having an outer cylindrical surface which is provided with at least one circumferential groove, and an annular clamping member located in the groove and having a portion which conically diverges axially of the groove and also radially outwardly thereof so that, when a bobbin tube is telescoped over the hub it deflects the portion which consists of elastically yieldable material and is thus releasably held and centered relative to the hub.

3,596,846
RETAINING DEVICE
Bevan H. Johnston, La Mesa, Calif., assignor to Stromberg Datagraphix, Inc., San Diego, Calif.
Filed Mar. 3, 1969, Ser. No. 803,815

Int. Cl. B65h 17/02, 75/02
U.S. Cl. 242-68.3

5 Claims



A device is described for retaining a tubular member on a support member disposed interiorly of the tubular member. The device includes at least one pivotal arm for engaging an end of the tubular member to hold it in place. The arm is pivotal to a retracted position upon movement of a reciprocally movable knob, thereby enabling the tubular member to be removed axially over the retaining device.

3,596,847
AIR MANDREL
Arnold G. Peterson, Sunderland, Mass., assignor to J. P. Stevens & Co., Inc., New York, N.Y.
Filed Dec. 17, 1969, Ser. No. 885,905

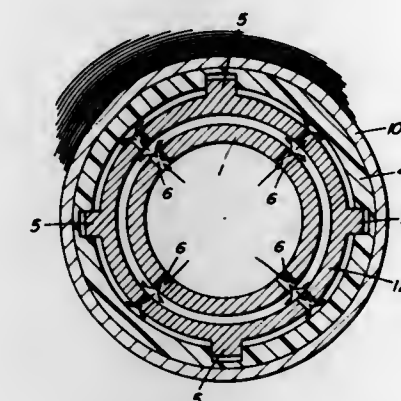
Int. Cl. B65h 75/24, 75/30

U.S. Cl. 242-72

An expansible mandrel is provided with a splined hollow shaft having perforations and connected to a source of com-

4 Claims

pressed air. Around the shaft is an elastomeric sleeve, or payout direction at a faster rate, so that the cord can be notched where it crosses a spline, which when air is introduced between the splines, expands, gripping any tube, rapidly pulled out to the desired length and then gently



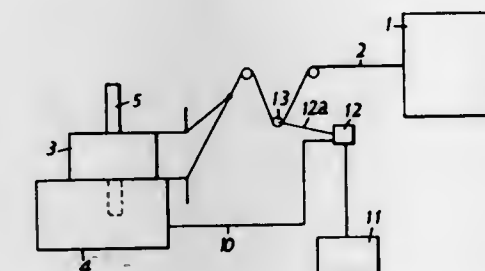
such as the tube on which a roll of paper is wound. As the splined shaft is connected to the caps at both ends of the elastomeric sleeve, the latter is not subjected to torsional strains in use.

3,596,848
WEB FEEDING MECHANISMS
Denis E. E. French, 74 Ennisdale Drive, West Kirby, Wirral, Cheshire, England
Filed Oct. 13, 1969, Ser. No. 865,549

Claims priority, application Great Britain, Oct. 19, 1968, 48511/68

Int. Cl. B65h 75/22, 23/10, 23/24
U.S. Cl. 242-75.43

10 Claims



A web is fed from a reel located on a table about a dancing roller which varies position with tension on the web. The reel is supported on a cushion of air passed through a plurality of ball bearing spring loaded normally closed nozzles on the table. The air pressure is controlled by a butterfly valve operated by the dancing roller to vary the air pressure and, therefore, the air cushion support as a function of the tension on the web.

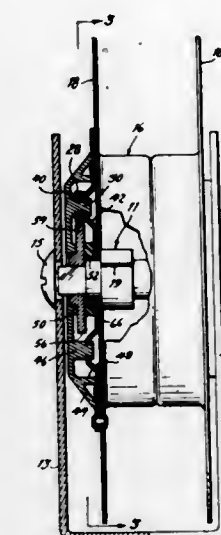
3,596,849
MAGNETIC RELEASABLE LOCKING MECHANISM FOR CORD REELS

Bernard J. Tamarin, Philadelphia, Pa., assignor to "Cordomatic" Division, The Vacuum Cleaner Corporation of America, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 738,518, June 20, 1968, now Patent No. 3,528,624. This application July 23, 1969, Ser. No. 843,924

Int. Cl. B65h 75/48
U.S. Cl. 242-107.7

14 Claims

A spring-wound rotatable cord reel having a fixed magnetized ratchet and a pawl of magnetically attractable material pivotally secured to and rotatable with the reel, the pawl lockingly engaging the ratchet when the reel rotates in a cord-winding direction at a relatively slow rate and orbiting around the ratchet when the reel rotates in a cord-unwinding

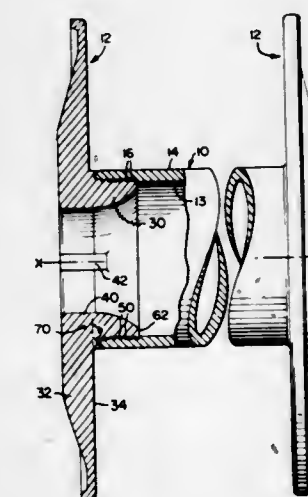


released to latch or lock it in this position and thereafter, if desired, pulled out again and rapidly released until the entire cord is retracted and wound on the reel.

3,596,850
TEXTILE BEAM
John B. McMurtrie, 230 Broadway, Milton, Pa.
Filed Sept. 15, 1969, Ser. No. 857,730

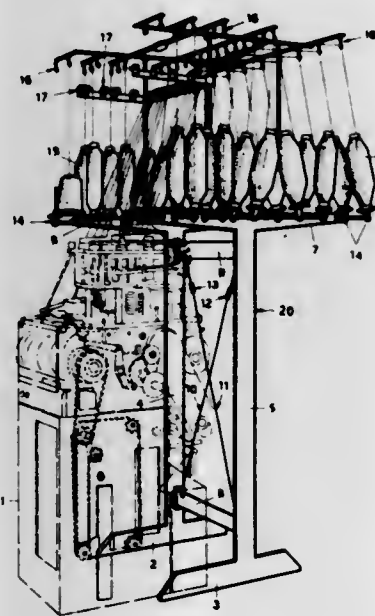
Int. Cl. B65h 75/14
U.S. Cl. 242-118.62

10 Claims



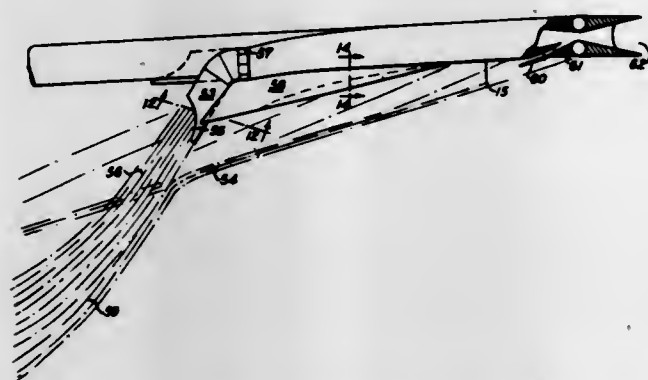
A textile beam includes a substantially cylindrical tube having internal threads at the opposite ends thereof. A pair of heads are each provided with hubs having external threads thereon which are threaded within opposite ends of the tube. The threads on the tube and heads include opposite flanks extending at oblique angles to the longitudinal axis of the tube. Abutting surfaces are formed on the ends of the tube and each of the heads. These abutting surfaces are preloaded in an axial direction parallel with the longitudinal axis of the tube and extend parallel with or are an extension of a line from the joint between the abutting surfaces and the center of deflection of the associated head. Each end of the tube is beveled, and the abutting surface formed on each of the heads joins with an annular surface of arcuate cross-sectional configuration.

3,596,851
BOBBIN-CARRIER FOR CIRCULAR KNITTING MACHINES
 Armando Vincoli, Brescia, Italy, assignor to Santoni & S.p.A., Brescia, Italy
 Filed June 23, 1969, Ser. No. 835,666
 Claims priority, application Italy, June 24, 1968, 9301 B/68
 Int. Cl. B65h 49/02; D02h 1/00; D03i 5/08
 U.S. Cl. 242-131 4 Claims



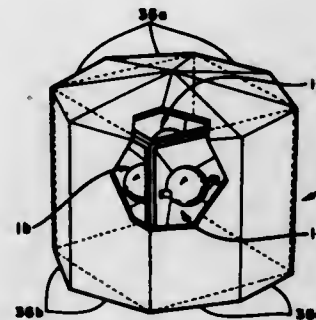
A bobbin carrier for circular knitting machines for hosiery is disclosed, which consists of a stand formed by a base portion and at least two vertical uprights, the assembly being completely independent from the knitting machine proper.

3,596,852
SUPERSONIC AIRCRAFT
 George H. Wakefield, Highland, Md.
 Continuation-in-part of Ser. No. 552,499, May 24, 1966, Pat. No. 3,497,163.
 Filed July 19, 1968, Ser. No. 746,029
 Int. Cl. B64c 3/16; B64d 33/04
 U.S. Cl. 244-13 11 Claims



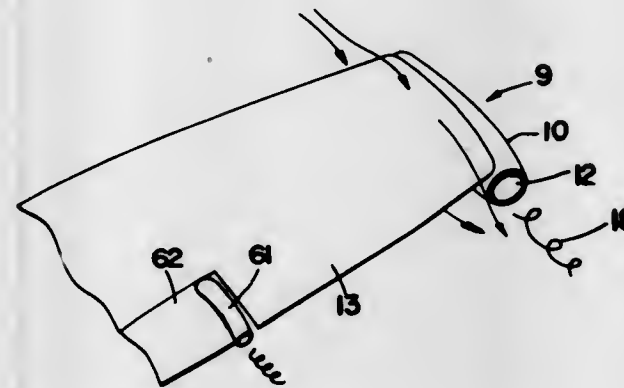
A supersonic aircraft having retractable wings and stabilizer controls wherein the leading edge of the airfoil is a continuous air inlet and the fuselage and all remaining portions of the aircraft are situated largely downstream of the air inlet, the aircraft being substantially T-shaped in configuration, a large portion of the shock wave generated by the aircraft being received into the air inlet. At least a portion of the jet exhaust is deflected into the shock wave produced by the aircraft at supersonic speeds for the purpose of disrupting the shock wave. Rapid deceleration of the aircraft from supersonic to sonic speeds obtained by extension of retractable airfoils and stabilizers.

3,596,853
SPACE HEAT SOURCE
 Charles G. Anderson, Carlisle, Ohio, assignor to The United States of America, as represented by the United States Atomic Energy Commission.
 Filed Aug. 13, 1969, Ser. No. 851,152
 Int. Cl. B64g 1/00
 U.S. Cl. 244-1 SS 6 Claims



A space capsule including heat source devices individually recoverable in which each heat source device includes a combined pyramidal-type reentry body and heat reflector and a radioisotopic heat source disposed in a hollow or concave portion of the body.

3,596,854
VORTEX GENERATOR FOR AIRFOIL STRUCTURES
 William R. Haney, Jr., 135 Chestnut Lane, Cleveland, Ohio
 Filed June 9, 1969, Ser. No. 831,560
 Int. Cl. B64c 21/06
 U.S. Cl. 244-40 23 Claims

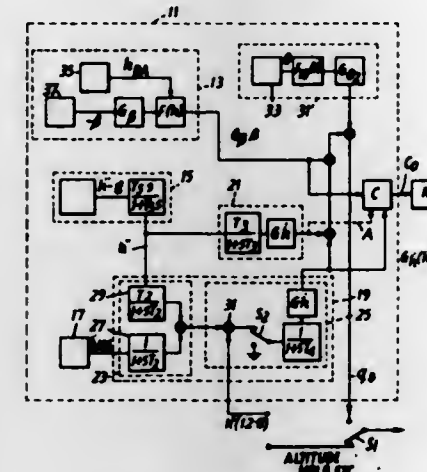


A vortex generator for the ends of airfoil structures that directs air on the high-pressure side of the structure into a vortex generator chamber and discharges the swirling air at the trailing edge of the structure. The exit orifice of the vortex generator may be directed at fixed or variable attitudes for causing the vortex created by the generator to either increase or decrease lift provided by the airfoil structure.

3,596,855
AIRCRAFT CONTROL SYSTEM
 Geoffrey M. Barling, London, England, assignor to Elliott Brothers (London) Limited, London, England
 Filed Apr. 7, 1969, Ser. No. 813,949
 Claims priority, application Great Britain, Apr. 11, 1968, 17,663/68
 Int. Cl. B64c 13/18

U.S. Cl. 244-77 10 Claims
 An aircraft control system for enabling the aircraft to capture and follow a predetermined flight path, the system including means giving a displacement error signal which is a measure of the vertical displacement of the aircraft from the flight path, means giving a vertical velocity signal representative of the vertical velocity of the aircraft, a logic circuit for connecting the output of a pitch signal generator to the input

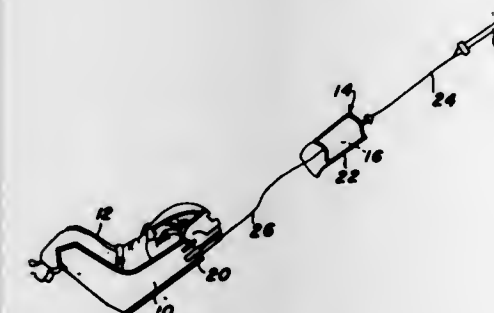
of the pitch control channel of the aircraft when the displacement error signal is equal to the vertical velocity signal, and contacts a lower stop whereupon the plane's momentum operates a mechanism cranking the wing back to its original



means for ensuring that there is no abrupt change in the pitch demand signal supplied to the pitch channel.

3,596,856
ASTERISK CONFIGURED DROGUE PARACHUTE
 Gene R. Drew, El Centro, Calif., assignor to The United States of America as represented by the Secretary of the Navy.
 Filed Dec. 15, 1969, Ser. No. 884,856
 Int. Cl. B64d 17/02

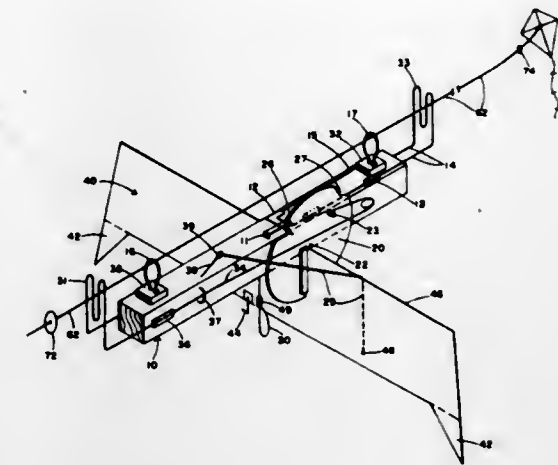
U.S. Cl. 244-145 8 Claims



A drogue parachute fabricated of elongated panels in a crisscross arrangement forming an asterisk construction, the canopy being provided with wedge-shaped sectors attached at the confluence point of adjacent panels so that the parachute will exhibit increased drag forces at low speed and decreased drag forces at higher speeds when compared with existing parachute stabilization systems presently in use.

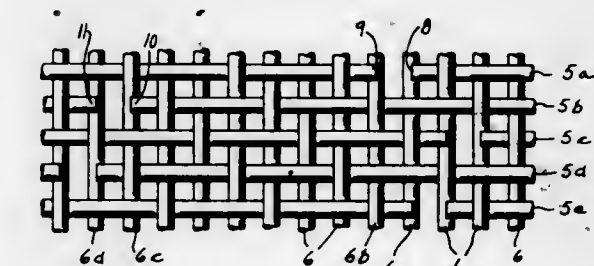
3,596,857
AUTOMATIC RECIPROCATING ACTION TOY GLIDER-KITE STRING FLYER
 Willis R. Battles, 560 So. Helberta Ave., Redondo Beach, Calif.
 Filed Jan. 28, 1970, Ser. No. 6,979
 Int. Cl. B64c 31/06

U.S. Cl. 244-155 9 Claims
 A folding wing toy glider is suspended from, and rides up a kite string, propelled by wind acting upon the vertical surface of the down-folded wing, until a latch is released by contacting a stop, allowing wing to fold horizontally and the airplane to descend kite string under the influence of gravity until it



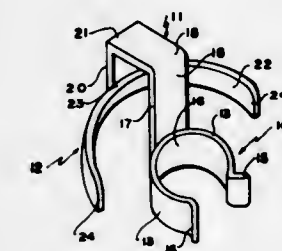
vertical position, whereupon the up-down cycle is repeated automatically, as long as desired.

3,596,858
FOURDRINIER SEAM
 Donald R. Curtis, Appleton, Wis., assignor to Appleton Wire Works Corporation, Appleton, Wis.
 Filed May 2, 1969, Ser. No. 821,353
 Int. Cl. B21f 15/00
 U.S. Cl. 245-10 3 Claims



A seam for a Fourdrinier belt having interwoven warps and shuttes in which the warps that terminate along the seam have their ends arranged on the wear side of the belt and positioned under one or more shuttes extending across the seam.

3,596,859
LIGHT CLIP
 Grant MacDonald, 8 Frost Avenue, Winnipeg, 22 Manitoba, Canada
 Filed Oct. 21, 1969, Ser. No. 868,027
 Int. Cl. E04b 7/18; A47b 97/00
 U.S. Cl. 248-214 3 Claims



A clip for attaching decorative lights to eavestroughs which hooks over the front edge of the eavestrough, said clip having resilient jaws to receive the bulb holders of the light and an arcuately curved resilient rear strip engaging the inside of the eavestrough and holding the clip firmly on to the eavestrough regardless of different constructions of front edges of eavestroughs.

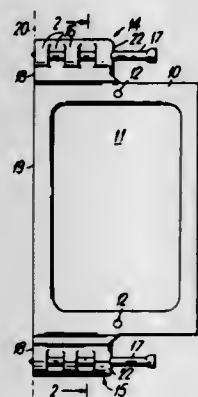
3,596,860

BRACKET FOR MOUNTING A FLUSH-TYPE ELECTRICAL PLATE

George MacKay, Corner Yacht Street & Gerald Avenue,
Clontarf Brisbane, Queensland, Australia
Filed June 26, 1969, Ser. No. 836,878
Claims priority, application Australia, June 27, 1968,
39858/68
Int. Cl. H02g 3/08

U.S. Cl. 248—216

2 Claims



A bracket for a flush-type electrical plate has extensions in which nails are held firmly but movably for driving into a wall stud. The nails are preferably held outside the periphery of the front mounting plate for easy accessibility.

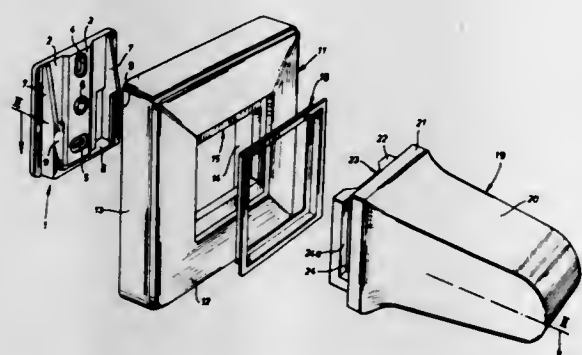
3,596,861

WALL BRACKET DEVICES

Giovanni Baldini, Turin, Italy, assignor to Carrara & Matta S.p.A., Turin, Italy
Filed Oct. 15, 1969, Ser. No. 866,627
Claims priority, application Italy, Dec. 23, 1968, 54414-A/68
Int. Cl. A47f 5/00

U.S. Cl. 248—224

1 Claim



A wall bracket device comprises an assembly of three parts; a support plate which can be secured to a supporting surface, for example by screws and which has parallel slide guides normally disposed vertically; a bracket element having a rear part with grooves which interengage with the slide guides on the support plate by vertical sliding movement, and a boxlike frame having a central opening through which the bracket element projects, the frame covering the support plate and concealing from view the fixing means for the latter.

3,596,862

POST AND CLAMP ASSEMBLY

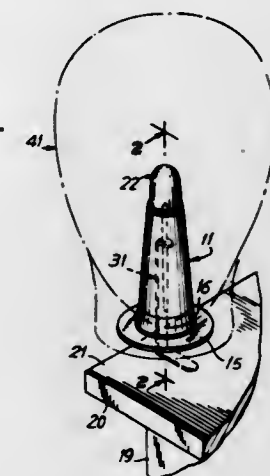
Charles Block, North Bellmore, N.Y., assignor to Crown Distributors, Inc.
Filed Dec. 8, 1969, Ser. No. 883,050
Int. Cl. D06c 15/00

U.S. Cl. 248—226 A

2 Claims

A post and clamp assembly especially suitable for supporting a wig form on a table or other flat surface so that a wig

placed on a wig form can have work done thereto. The post and clamp assembly can be quickly mounted on and removed



from a table edge and can accommodate a wide variety of table thicknesses.

3,596,863

FINE ADJUSTMENT MOUNT

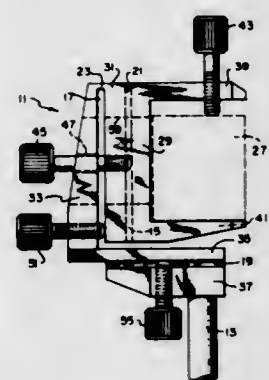
Walter E. Kaspareck, Huntsville, Ala., assignor to The United States of America, as represented by the Administrator of the National Aeronautics and Space Administration.

Filed Jan. 28, 1969, Ser. No. 794,530

Int. Cl. G02b 7/00

U.S. Cl. 248—278

4 Claims



A mount for optical devices which is formed with a horizontal slot or cutout, a longitudinal slot, and a vertical slot leaving only a small bridgelike portion between adjacent members which serves as a spring against an adjusting screw associated with each pair of members forming a slot. The most forward member adjacent the longitudinal slot has cantilevered arms to support the optical device.

3,596,864

CLIP FOR ANCHOR BRICK

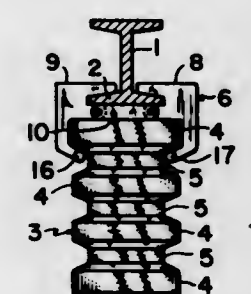
Roger C. Stephens, Hamburg, N.Y., assignor to Ferro Frontiers, Inc., Buffalo, N.Y.

Filed Apr. 11, 1969, Ser. No. 815,393

Int. Cl. F23m 5/02

U.S. Cl. 248—317

3 Claims



A clip for securing anchor brick to a flanged beam comprising two arms joined by a pivot member. The arms are

shaped to rotate into snug envelopment of the flange on the beam and thereafter to permit the sliding engagement of the anchor brick locking the clip on the beam.

3,596,865

METAL CABLE ABSORBER MOUNTING SYSTEM

Carlo Camossi, c/o Avv. Ravagli Via Corridoni, 6, Milan, Italy

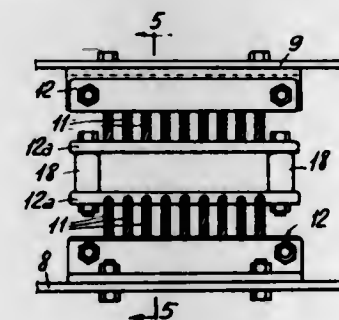
Filed May 23, 1968, Ser. No. 731,513

Claims priority, application Italy, May 26, 1967, 807666/67

Int. Cl. F16l 15/04

U.S. Cl. 248—358

10 Claims



A metal cable shock absorber mounting system between a vibrating member and a member to be damped, wherein at least one of the shock absorbing supports comprising a plurality of metal cables is free move independently of the member or element to be damped.

3,596,866

FOLDING MUSIC STAND AND CARRYING CASE THEREFOR

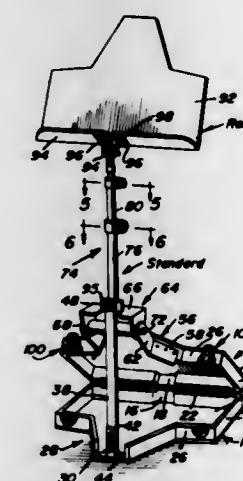
Donald B. Baker, Rte. 6, Box 380, Olympia, Wash.

Filed Feb. 11, 1970, Ser. No. 10,444

Int. Cl. A47b 97/06

U.S. Cl. 248—461

10 Claims



A portable carrying case which when closed serves to store an attached music stand and when partly open provides a base. It comprises upper and lower boxlike sections hinged together. Each section constitutes a tray. The lower section provides a self-standing base and stores a hinged leg which, in turn, serves as a prop and holds the sections apart. The adjustable music stand is integrally mounted on a handle-equipped yoke which is pivoted on paired adapter brackets carried by a median forward part of the openable and closable upper or cover section.

3,596,867

ATTACHMENTS FOR REARVIEW MIRRORS

Claes Vilhelm Allander, Stockholm, Sweden, assignor to AB Braas Spegelindustri, Brass, Sweden

Filed Aug. 7, 1968, Ser. No. 750,978

Claims priority, application Sweden, Aug. 18, 1967, 11,582/67

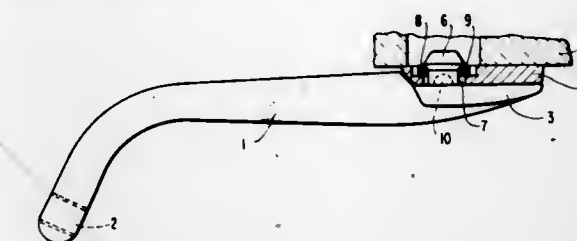
Int. Cl. B60r 1/04

U.S. Cl. 248—475

4 Claims

An attachment for rearview mirrors in vehicles, comprising a plate fixedly secured to an arm for the mirror and a plate

attachable to the vehicle. One of these plates has a projecting pin provided with a head, and the other plate has a recess corresponding to said pin and provided with bar springs at



the edges of said recess. The two plates are also provided with one or more protuberances and depressions corresponding to each other and adapted to engage each other when the plates are secured to one another by means of said pin.

3,596,868

REFRACTORY HEAT INSULATING SLEEVE

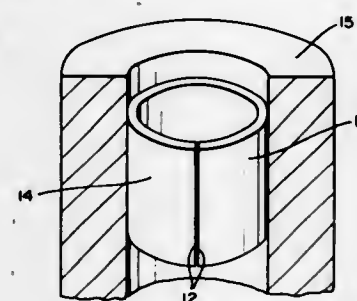
Mario Pellanda, Milan, Italy, assignor to Fosco International Limited, Birmingham, England

Filed Jan. 12, 1968, Ser. No. 697,386

Int. Cl. B22d 7/10

U.S. Cl. 249—106

10 Claims



Sleeves for thermally insulating the molten head metal in casting risers and ingot moulds are described in which the sleeve is formed incompletely, and has a gap running from top to bottom thereof. The sleeve may thus be sprung into place by closing the gap, inserting the sleeve and releasing it, so that it holds itself in position.

3,596,869

MOLD FORMING DEVICE

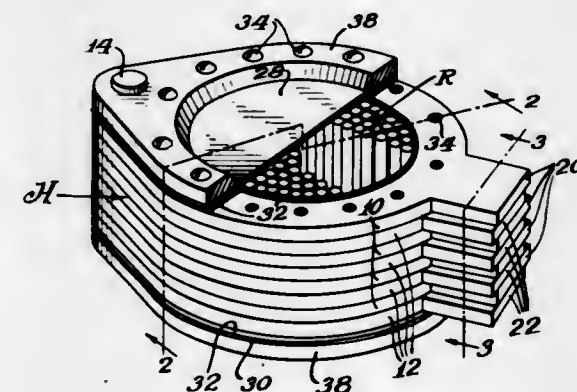
David H. Humphrey, G.P.O. Box 2226, San Juan, P.R.

Filed Mar. 10, 1969, Ser. No. 805,474

Int. Cl. B29c 1/00, 1/16

U.S. Cl. 249—155

15 Claims



A mold forming device comprising a housing having open ends, a plurality of rods loosely filling the housing and individually adjustable longitudinally therein and means to restrict the inner dimension of the housing to lock the rods against longitudinal adjustment. The rods can be adjusted manually to create a molding surface of desired contour, or may be permitted to slide longitudinally and engage a physical surface, the shape of which is to be duplicated either

positively or negatively whereupon the rods are locked so that the housing and the adjusted rods may be used as a forming mold. By laminating the housing, alternate laminations thereof may be relatively offset to effect constriction of the inner dimension of the housing in relation to the rods for locking them against longitudinal adjustment.

To effect smoothing the molding surface presented by the ends of the rods, they may be covered by a flexible diaphragm. By having diaphragms at both ends of the housing and providing sealing means for the inner wall of the housing, the space among the rods may be evacuated for pulling the diaphragms at the ends of the rods into contact therewith.

The housing and rods may be associated with vacuum-forming or pressure-forming chambers to hot-form sheets of plastic to the mold faces.

By providing rods of equal length, whenever they are adjusted to form one molding surface, either male or female, the other ends of the rods form a complementary female or male molding surface respectively.

3,596,870

CASING OF MOLTEN METAL

Edwin Walker, Don Foundry, Sheffield, England, assignor to John Fowler (Don Foundry) Limited

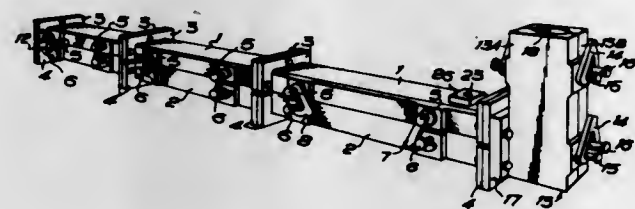
Filed Sept. 26, 1968, Ser. No. 762,874

Claims priority, application Great Britain, Nov. 9, 1967, 50927/67

Int. Cl. B22c 9/06

U.S. Cl. 249—156

7 Claims



A metal mold for use in the horizontal casting of molten metal comprising at least one upper and at least one lower mold section removably secured together and to a vertical end section containing a pouring hole, the mold cavity forming a horizontal extension to the vertical pouring hole, and closure means for the end of the mold cavity remote from the end section.

3,596,871

TRACING VALVE

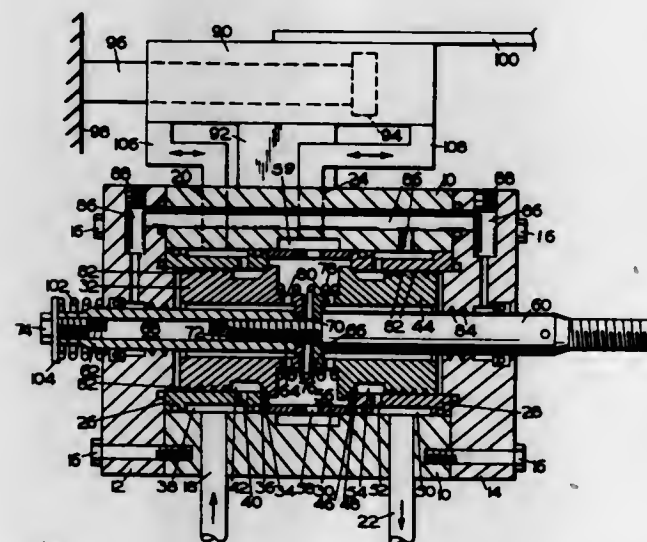
Arthur A. Rothrock, Portland, Oreg., assignor to Dupar Dynamics, Division of Palmer Supply Co., Portland, Oreg.

Filed Apr. 14, 1969, Ser. No. 815,770

Int. Cl. B23q 35/16; F16k 11/10

U.S. Cl. 251—3

5 Claims



The hollow body of a fluid pressure tracing valve contains a pair of longitudinally movable, hollow poppet valves urged

apart longitudinally by a spring. A pair of stem sections extend slidably through the hollow valves and are threaded together at their inner ends for adjusting the spacing between shoulders on said sections which confine between them projections on the pair of poppet valves. Valve seals on the poppet valves thus are adjustable relative to associated valve seats on the body.

3,596,872

VALVE ASSEMBLY

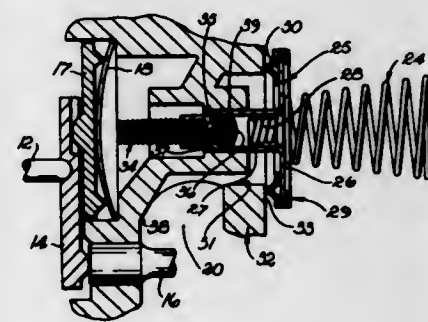
George P. Greenmyer, Monrovia, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 25, 1970, Ser. No. 13,925

Int. Cl. F16k 31/44

U.S. Cl. 251—77

14 Claims



A valve assembly having a poppet with a hole all the way therethrough. A screw is threaded in the hole at one end of the poppet, but the screw head is positioned inside the hole so that access thereto is provided through the hole. After adjustment, the screw may be held in a fixed position by applying a sealing compound to it to bond it to the poppet. A valve is formed by snapping a rubber cover around a disc. The poppet may be made of a low cost, single metal stamping. The disc may, thus, be an integral portion of the poppet.

3,596,873

VALVE ASSEMBLY AND SERVO SYSTEM INCORPORATING SAME

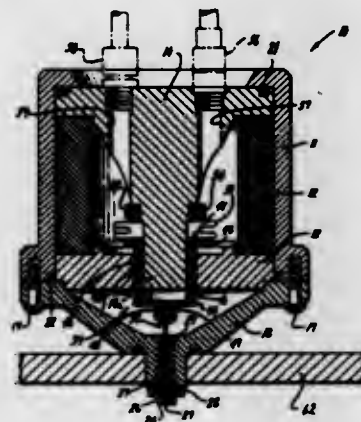
Eugene A. Eufusia, Santa Rosa, Calif., assignor to Optical Coating Laboratory Inc., Santa Rosa, Calif.

Filed Dec. 4, 1968, Ser. No. 781,150

Int. Cl. F16k 31/02

U.S. Cl. 251—140

10 Claims



A valve assembly having a needle valve precisely positioned with respect to a needle valve seat by the use of a coil in a magnetic field and a servosystem including the valve assembly for precisely controlling the position of the needle valve to maintain a predetermined flow of fluid through the valve assembly.

3,596,874

SHUTOFF DAMPERS

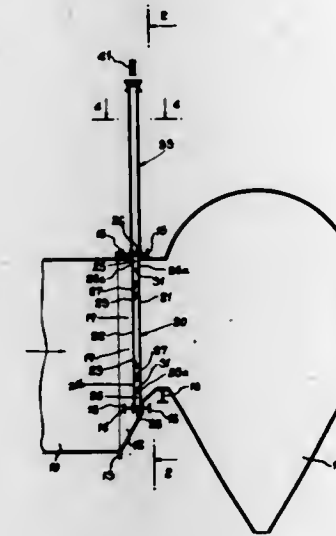
Bartel J. Di Santo, Salt Lake City, Utah, assignor to American Smelting and Refining Company, New York, N.Y.

Filed June 20, 1969, Ser. No. 835,183

Int. Cl. F16k 3/18

U.S. Cl. 251—175

5 Claims



System for the gastight sealing off and isolating of a section or sections of a flue system, wherein a damper is movable in a guide frame secured to the flue between an open position and a closed position wherein the damper nongastightly closes off a section of the flue. A pressurizable chamber is defined within the damper and extends about at least an outer marginal portion of the damper, with at least that portion of one or both chamber sidewalls adjacent a seating surface of the frame and an edge of the flue adjacent the frame seating surface (when the damper is in the closed position) being yieldable. The introduction of fluid under pressure into the pressurizable chamber when the damper is in the closed position pressurizes the chamber and forces the yieldable sidewall portion or portions into a gastight sealing relationship with at least one of a seating surface of the frame and an edge of the flue adjacent the frame, thereby sealing off and isolating a section or sections of the flue. Consequently workmen may safely perform maintenance and/or repair work on the isolated section of the flue on the downstream side of the damper.

3,596,875

REMOTELY CONTROLLED FLUID VALVE

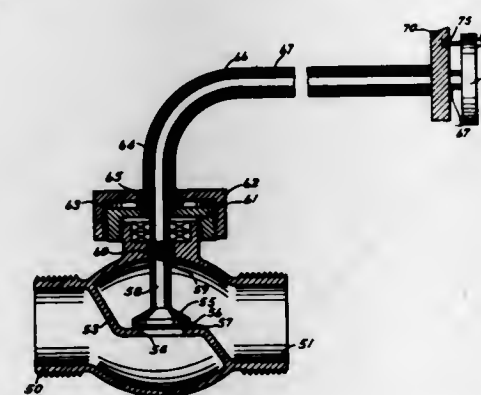
John R. Couper, Loveland, and Myer J. Schaffner, Arvada, both of, Colo., assignors to E-Z Serve, Inc., Arvada, Colo., by said Couper

Filed Jan. 30, 1970, Ser. No. 7,139

Int. Cl. F16k 5/00

U.S. Cl. 251—294

7 Claims



A remotely controlled fluid valve includes a rotatable valve member movable toward and away from a valve seat in the valve by rotation thereof, an elongated, flexible, rotatable member is secured to and extends from the stem of the valve providing means for rotating the valve member, thereby opening and closing the valve member on the valve seat. The

3,596,876

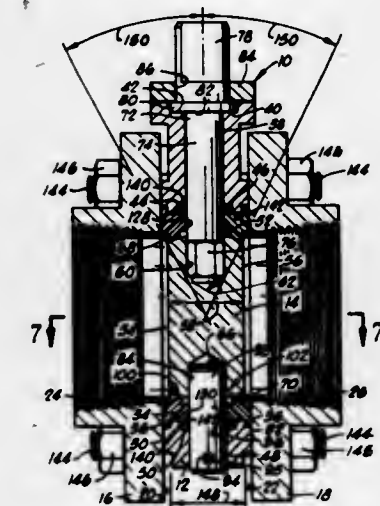
DISC VALVE WITH UPSTREAM AND DOWNSTREAM SEATS

Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla. Continuation-in-part of application Ser. No. 823,378, May 9, 1969. This application July 11, 1969, Ser. No. 840,989

Int. Cl. F16k 1/22, 5/06

U.S. Cl. 251—306

16 Claims



Improved seats for use with a disc valve having seating surfaces on both ends of the disc mating with upstream and downstream seats.

3,596,877

SCREW HOIST, ESPECIALLY FOR TRAILER LANDING GEAR

Budd Eastman, Holland, Mich., assignor to Holland Hitch Co., Holland, Mich.

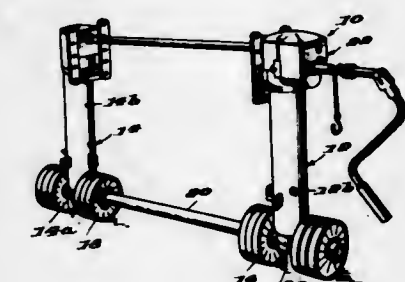
Division of Ser. No. 691,603, Dec. 18, 1967, Pat. No. 3,518,890.

Filed Dec. 17, 1969, Ser. No. 888,107

Int. Cl. B60s 9/02

U.S. Cl. 254—86 R

8 Claims



A special screw and nut assembly for operation under compression, especially as a hoist in a haulage vehicle landing gear, having substantially increased load supporting capacity and substantially greater ease of operation for elevating heavy loads, as a result of a combination of structural relationships. The threaded nut inner surface acts as a bearing bushing for the screw shaft by reason of minimal clearance between the screw core diameter and the nut root diameter, or less preferably between the nut thread full diameter and the screw outside diameter. The helix angle of both members is within a specific controlled range. The thread angle of both members is within a specific controlled range. The thread to shaft diameter is relatively large. The details of these and related features are set forth hereinafter.

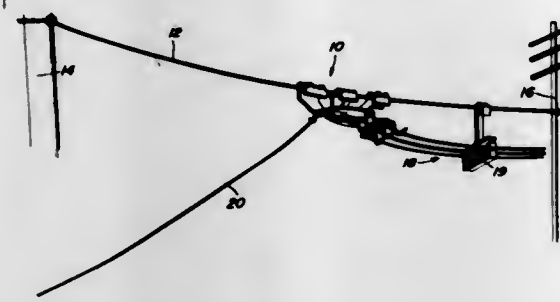
3,596,878

CABLE GRIPPING TOWING DEVICE

Edward M. Parsen, Box 1061, Pierre, S. Dak.
Filed Sept. 29, 1969, Ser. No. 861,615
Int. Cl. E21c 29/16

U.S. Cl. 254-134.3

7 Claims



A cable tow device adapted to ride on a messenger cable is pulled along by a groundman's towrope. The device is provided with means for securing a number of signal cables thereto. Releasable one-way locking means mounted on the device automatically clamps it to the messenger cable whenever the towrope is slackened to prevent reverse movement.

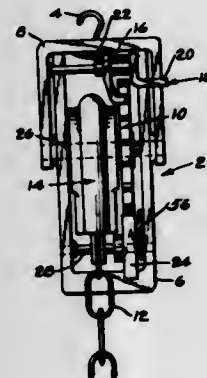
3,596,879

CHAIN HOIST

Walter C. Clark, Fort Lauderdale, Fla., assignor to Aluminum Products, Inc., Fort Lauderdale, Fla.
Filed Oct. 22, 1968, Ser. No. 769,659
Int. Cl. B66d 1/36

U.S. Cl. 254-190

10 Claims



A chain hoist mechanism including an integral chain guide and load-lift, ratchet wheel. The chain guide is U-shaped and is supportably mounted on the ratchet wheel on supporting shoulders adjacent each side of the load-lifting portion. The chain guide is easily reversible for increasing operational lifetime when certain portions become worn.

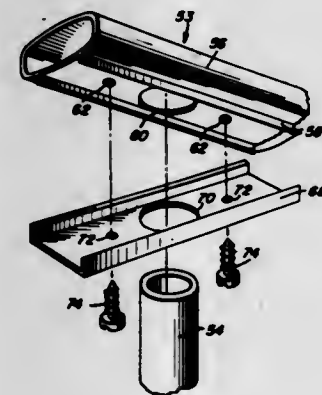
3,596,880

RAILING SYSTEM

Morton Greenberg, Sarasota, Fla., assignor to American Metal Products Corporation, Sarasota, Fla.
Filed Dec. 17, 1968, Ser. No. 784,374
Int. Cl. E04h 17/14

U.S. Cl. 256-65

3 Claims



This disclosure pertains to railing systems comprised of extruded modular units which may be connected to form vari-

ous lateral rail and post members. A first composite type construction is assembled by means of threaded fasteners. A second type is assembled by means of welded connections. In both construction types the connection means are concealed from view by means of dressing plates.

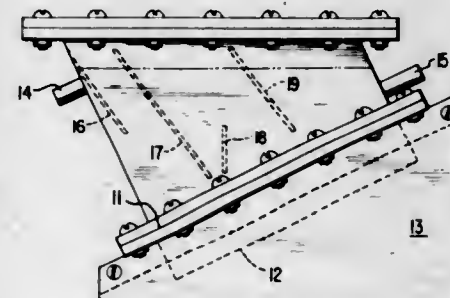
3,596,881

ULTRASONIC DEFOAMING APPARATUS

Norihisa Mimura; Kazutaka Yoshida, and Isao Tsuyuko, all of Machi, Ashigara, Japan, assignors to Fuji Photo Film Co. Ltd., Kanagawa, Japan
Filed Aug. 8, 1968, Ser. No. 751,199
Claims priority, application Japan, Aug. 14, 1967, 42/52133
Int. Cl. B01f 15/00

U.S. Cl. 259-2

7 Claims



Increasing the defoaming capability of an ultrasonic defoaming apparatus by inclining the ultrasonic vibrating plate at an angle of between 10° and 30° to the horizontal plane while inclining the flow guide plates relative to the same plane.

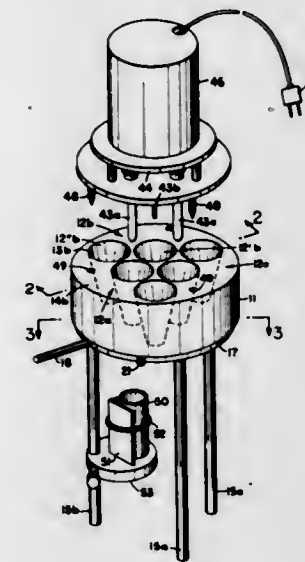
3,596,882

MULTIPLE LINEAR GRADIENT MAKER

Peter Stanton Hoefer, 2609 California, San Francisco, Calif.
Filed Sept. 17, 1969, Ser. No. 858,779
Int. Cl. B01f 7/20

U.S. Cl. 259-67

11 Claims



A multiple linear gradient maker includes a block of acrylic plastic having three pairs of conical chambers with the inner chambers being for the dense solution and the outer chamber for the less dense solution. Paddlelike stirrers are immersed in the solution in the inner chambers. A rotatable valve plate is mounted on the larger block to normally close off the lower openings of the chambers in a first position but when moved to a second position provides fluid communication channels between the chamber pairs. Outlet channels are also located adjacent the fluid communication channels to drain the fluid into test tubes.

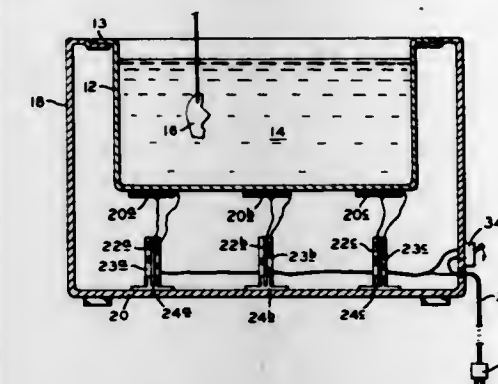
3,596,883

ULTRASONIC APPARATUS

Kilian H. Brech, Norwalk, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
Filed Nov. 8, 1968, Ser. No. 774,477
Int. Cl. B01f 11/02

U.S. Cl. 259-72

8 Claims



An ultrasonic cleaning apparatus has a plurality of electroacoustic transducers mounted to a container for providing ultrasonic energy to a liquid confined in the container. Each transducer is coupled to an individual electrical circuit for forming therewith a separate oscillatory circuit.

3,596,884

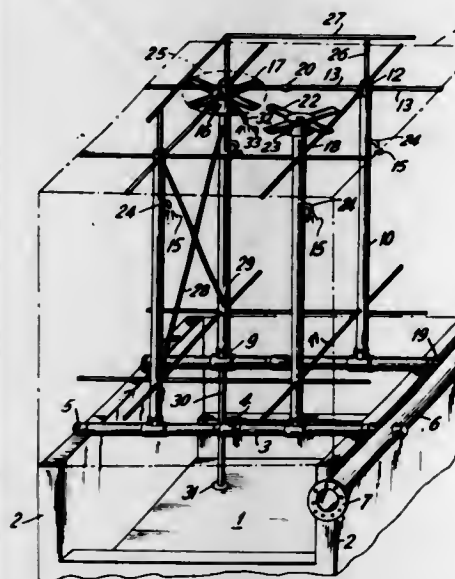
COOLING TOWER STRUCTURES

Edmund Murphy, Putney, London, England, assignor to Cooling Developments Ltd., Luzern, Switzerland
Continuation of application Ser. No. 674,184, Oct. 10, 1967, now abandoned. This application Nov. 25, 1969, Ser. No. 873,726

Claims priority, application Great Britain, Nov. 1, 1966, 48,859/67
Int. Cl. B01d 47/06

U.S. Cl. 261-25

3 Claims



A gas liquid contacting device, such as a cooling tower, which utilizes substantially vertical pipes to (i) distribute liquid to the device, and (ii) act as a structural support for the device. These pipes are interconnected by other pipes to allow liquid which is being passed into the device to be distributed into the substantially vertical pipes. The pipes may also be used as a support for one or more fans to move the gas.

3,596,885

METHOD AND APPARATUS FOR SCRUBBING GAS

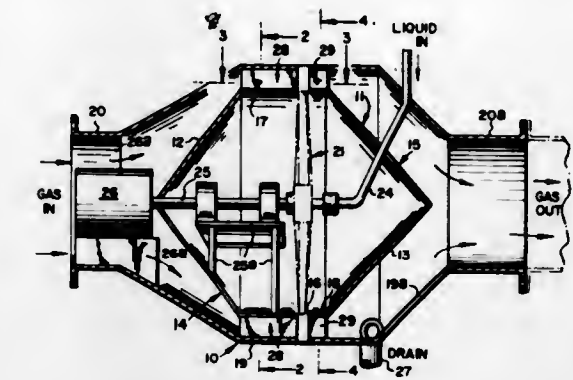
Arthur F. Stone, 186 Kings Road, Madison, N.J.
Filed July 24, 1968, Ser. No. 747,310
Int. Cl. B01d 47/18

U.S. Cl. 261-84

11 Claims

Gas to be scrubbed is conducted into an annular passage

and through a rapidly rotating curtain of cleaning liquid provided across the passage by a rapidly rotating wheel issuing



the liquid from radial jets, to entrain and thence drain out particulate matter from the gas.

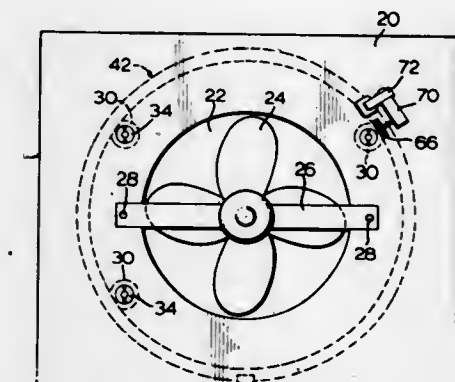
3,596,886

HUMIDIFYING APPARATUS

John Trautman, Kitchener, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada
Filed Apr. 14, 1969, Ser. No. 815,721
Claims priority, application Canada, Dec. 6, 1968, 037,016
Int. Cl. B01d 3/04

U.S. Cl. 261-92

5 Claims



A humidifier contains a reservoir through which a porous medium mounted on a framework is rotated, air being blown through the porous medium to evaporate water therefrom. A ring of gear teeth is carried by the framework and the latter is driven by a gear that engages the ring and a motor that drives the gear. The shaft of the gear is inclined at an upward angle to a horizontal plane.

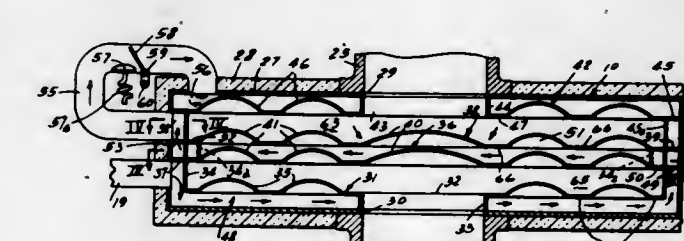
3,596,887

POST CARBURETOR FUEL CHARGE FORMING DEVICE

Robert L. Castine, Blue Island, Ill., assignor to D. Burnel Klopfenstein, Hammond, Ind., a part interest
Filed Aug. 1, 1968, Ser. No. 749,519
Int. Cl. F02m 23/14, 31/06

U.S. Cl. 261-145

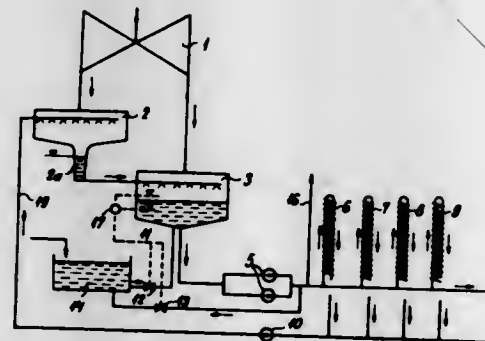
9 Claims



A device interposed between the carburetor and intake manifold of an internal combustion engine preventing raw fuel feed to the engine and supplying heated air to the fuel-air mixture from the carburetor for enhancing fuel combustion and engine efficiency and for minimizing air pollutants in the engine exhaust.

3,596,888

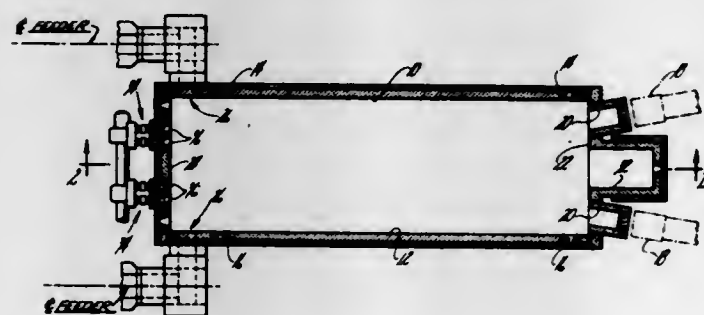
ARRANGEMENT OF MIXING CONDENSERS FOR STEAM TURBINE POWERPLANTS
 Laszlo Heller; Laszlo Forgo, and Janos Bodas, all of Budapest, Hungary, assignors to Transselektro Magyar Villamosagi Kulkereskedelmi Vallalat, Budapest, Hungary
 Filed Aug. 5, 1968, Ser. No. 750,157
 Claims priority, application Hungary, Oct. 24, 1967, HE-507
 Int. Cl. F28b 3/04, 5/00
 U.S. Cl. 261-149



A system of mixing condensers is provided in which the water levels are maintained at various levels within portions of such mixing condensers connected in series in respect of cooling waters, there being provided at least one pair of mixing condensers, the cooling water sides of which are connected in series and one of which is arranged at a higher level than the other, the cooling water introduced into the mixing condenser of higher level flowing into the mixing condenser of lower level under the action of a hydrostatic pressure difference, the water chamber of the mixing condenser of the higher level forming a vertical downflow conduit having a cross-sectional area which is a fraction of that of the mixing condenser of lower level.

3,596,889

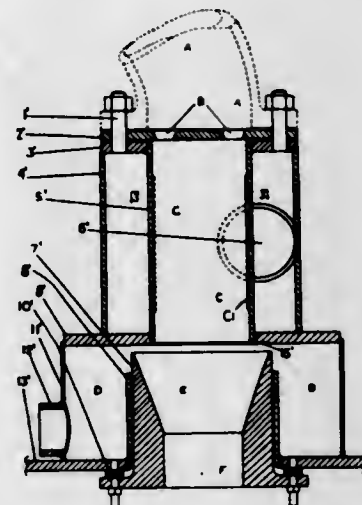
GLASS MELTING FURNACE
 George F. Hanks, Avon, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
 Filed July 7, 1969, Ser. No. 839,156
 Int. Cl. F27b 14/00
 U.S. Cl. 263-11



A rectangular furnace has openings at one end through which the batch material to be melted is introduced, and throat openings at the opposite end through which the molten glass can flow to forehearth and feeder installations. The lengths of the sides of the rectangular furnace are related to these opposed ends in the range of ratios between 3:1 and 4.5:1. The sole source of heat is provided by burners in the withdrawal end, so arranged as to fire upstream toward the batch charging end, a stack being located at the latter end to allow the products of combustion to escape from the furnace. The furnace roof provides a space for these combustion gasses above the melted and melting glass which has a constant vertical cross-sectional size throughout its length.

3,596,890

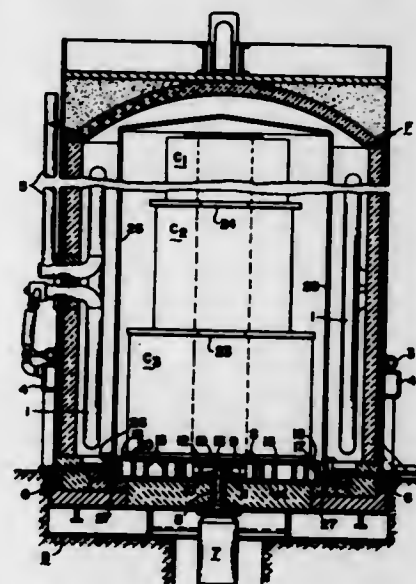
DRYING APPARATUS
 Alastair G. M. Small, deceased, late of Kent, England (by Monica Mary Small, Executrix, 67 Hadlow Road, Tonbridge, Kent, England)
 Filed Feb. 17, 1969, Ser. No. 799,788
 Claims priority, application Great Britain, Feb. 19, 1968, 7980/68
 Int. Cl. F27b 15/00
 U.S. Cl. 263-21 A



The drying apparatus of the invention incorporates two drying sections including cylindrical chambers through which the material to be dried is passed sequentially. Each drying section incorporates air nozzles arranged to discharge air tangentially inwards with respect to the axis of the associated chamber. The chamber of the second drying section in the series has heat radiating surfaces disposed in heat-exchanging relationship with the flues of a furnace the combustion air inlet of which is connected into the second drying section. Air is led to the air nozzles in proximity to the furnace flues so as to absorb heat on its way to the nozzles. Means is provided for removing dried material from the secondary drying section.

3,596,891

METHOD OF ESTABLISHING MINIMUM COIL ANNEALING TIME FOR MAXIMUM PRODUCTION
 Robert R. Hill, Westlake, Ohio, assignor to Lee Wilson Engineering Company, Inc., Cleveland, Ohio
 Continuation-in-part of application Ser. No. 764,192, Oct. 1, 1968, now abandoned. This application Feb. 9, 1970, Ser. No. 9,896
 Int. Cl. F27b 11/10
 U.S. Cl. 263-52

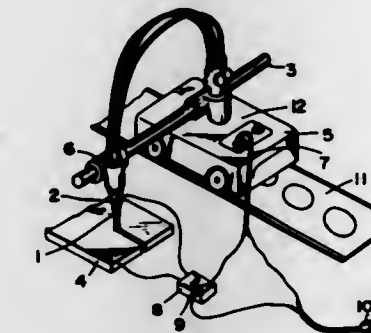


A process for determining the minimum length of time to operate an annealing furnace, such as a hood- or bell-type, to

anneal a charge of coils of strip metal, some of which may have different sizes or weights, wherein a size factor is established for each coil based on its size and weight and a weight factor is established for the total weight of the charge based on a predetermined temperature to which the charge is to be annealed. The time period for operating the furnace for such a charge of coils is substantially equal to the product of the total weight of the charge, the highest size factor noted, and the weight factor. As a convenient means of quickly determining these factors, families of curves graphically representing prior histories of annealing runs in a given type of furnace are constructed from which the values for the factors are easily and accurately noted and, if necessary, extrapolated.

3,596,892

AUTOMATIC GAS CUTTING DEVICE
 Minoru Nakanishi, and Hideohiko Hayasaki, both of Tokyo, Japan, assignors to Kabushiki Kaisha Tanaka Seisakusho, Tokyo, Japan
 Filed Dec. 9, 1969, Ser. No. 883,493
 Claims priority, application Japan, Dec. 13, 1968, 43/90,919
 Int. Cl. B23k 7/10
 U.S. Cl. 266-23 M



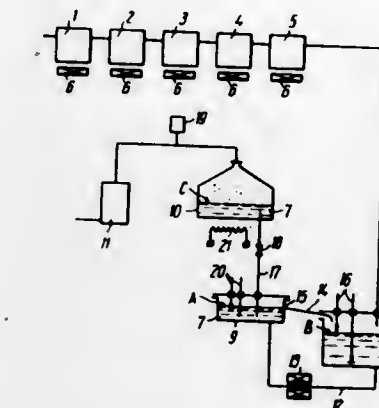
An automatic gas cutting device including means for detecting electromotive force produced across a preheating flame of the gas cutting device and means to control the running or the stopping of the device and to control the starting and stopping of the gas cutting automatically under an instruction of the detecting means. The detecting means based on a principle using a difference of the induced voltage across the flame of the gas cutting for each of the cutting conditions.

3,596,893

MERCURY PURIFYING PLANT
 Vladimir Mikhailovich Folforov, ulitsa Gorkogo, 145/4, kv. 85, Riga; Boris Nikolaevich Ukraintsev, ulitsa L. Paegle, 24, kv. 6, Riga; Viktor Georgievich Sirotenko, ulitsa Streikova, 19, kv. 3, Riga; Alvar Eduardovich Tinte, ulitsa Moskovskaya, 266/3, kv. 5, Riga; Boris Lvovich Birger, ulitsa Krasnoarmelskaya, 6, kv. 3, Riga; Alvar Yanovich Vilnits, ulitsa Dugavgrivas, 132/6, kv. 21, Riga; Nikita Mikhailovich Nadezhnikov, ulitsa Ersikas, 31, kv. 12, Riga; Mark Illich Grinshteyn, F. Engelsa, 19, kv. 13, Riga, and Sergei Lavrentievich Shashurin, Donetskaya oblast, ulitsa Sverdlova, 20, kv. 2, Gorlovka, all of, U.S.S.R.
 Filed June 11, 1969, Ser. No. 832,232
 Int. Cl. C21c 7/04

A mercury purifying plant ensuring chemical or electrolytic purification of mercury followed by vacuum distillation, comprising a number of consecutively connected purifiers, an accumulating vessel, a vacuum evaporator, and a

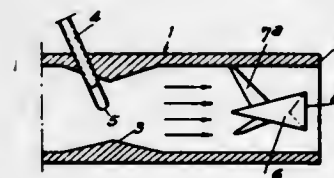
condenser. The vacuum evaporator of the plant is equipped with means for maintaining a constant mercury level in it,



which ensures a high efficiency of the purification process and increases the output of the plant.

3,596,894

METHOD OF BLOWING FURNANCES AND SYSTEM FOR THE CARRYING OUT OF THE METHOD
 Louis Duthion, Paris; Arsene Marzouvanlian, Plaisir, and Robert Augustin Chaube, Maule, all of, France, assignors to La Societe De Wendel, Paris, France
 Filed Dec. 11, 1968, Ser. No. 782,860
 Claims priority, application France, Dec. 13, 1967, Apr. 30, 1968, 132,105;150,195
 Int. Cl. C21b 7/16
 U.S. Cl. 266-41



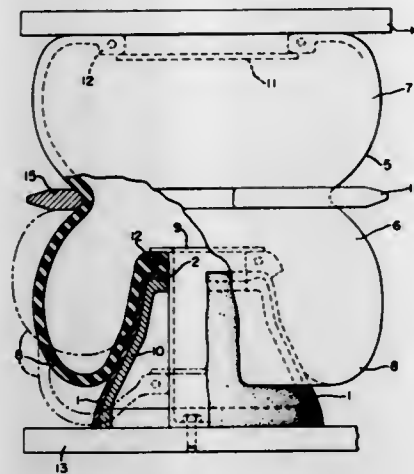
A method has been provided for the operation of a blast furnace wherein air is introduced in the blast furnace through a tuyere zone and an air flow maintained at high velocity. This method comprises of introducing the supplemental fuel into said tuyere zone and admixing the same with the air flowing through the tuyere zone; maintaining at least one lower velocity turbulent zone in said tuyere zone, said lower velocity being in respect to the velocity of the flowing air and supplemental fuel admixture, said lower velocity turbulent zone initiating and sustaining the combustion of said fuel; and controlling the amount of supplemental fuel consumed in the tuyere by varying the distance of the turbulent zone in respect to the zone at which the air flow exists from said tuyere. Apparatus illustrating various flow retarding devices and thus flame source and fuel combustion control means also have been disclosed.

3,596,895

PROTECTIVE MEMBER
 Arthur B. Hirtreiter, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Apr. 14, 1969, Ser. No. 815,556
 Int. Cl. F16f 9/04

A protective member of flexible resilient material which is retained on the surface of a member of a fluid spring assembly to prevent the substantial accumulation of harmful

abrading debris which may damage the flexible resilient spring member during the operation of the spring assembly.



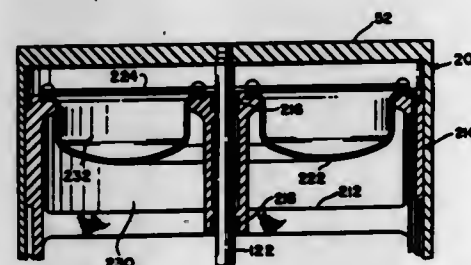
The protective member is particularly useful in a vehicle suspension system.

3,596,896

FLUID DIE CUSHION UNIT WITH AIR SAVER

Derald Henry Kraft, Canton, Ohio, assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Division of Ser. No. 653,116, July 13, 1967, Pat. No. 3,511,491.
Filed Oct. 16, 1969, Ser. No. 871,334
Int. Cl. B21d 24/02; F16f 9/04; F11f 13/00
U.S. Cl. 267-119 2 Claims



A self-contained die cushion for use on a power press wherein the normal cushion chamber includes a separate reservoir sealed from the rest of the chamber and having a movable wall in the form of a diaphragm and a fixed perforated wall to allow the fluid in the reservoir to assist in biasing the die cushion upwardly, but preventing exhaust of the reservoir when the chamber is exhausted to drop the cushion for changing or repairing dies in the press.

3,596,897

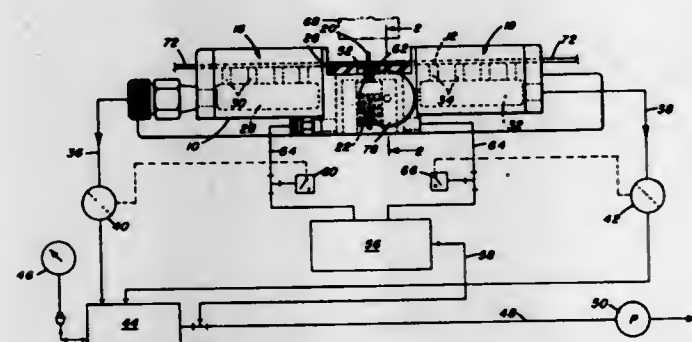
WEB SUPPORT AND ALIGNMENT STATION

Donald J. Lindsay, and Anopchand R. Vora, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 24, 1969, Ser. No. 844,586
Int. Cl. B25b 11/00

U.S. Cl. 269-21

10 Claims



A web support and alignment station, particularly for splicing photographic film, comprising a track member having channel-shaped recessed web support surface with a width

substantially equal to the width of the film being spliced. The track is divided along its length into first and second portions having a resiliently mounted film separator blade extending transversely of the film track therebetween. Means is provided for supplying a vacuum to each of the first and second portions of the track including first and second normally closed valves which are connected to a vacuum source. Pilot openings are disposed in the web support surface of the respective portions of the track immediately adjacent the separator blade and are both connected to a source of vacuum. Each pilot opening is provided with a vacuum responsive switch arranged, upon increased vacuum in the respective pilot opening, to open the respective normally closed valve to supply vacuum to the film support surface of the respective portion of the track. Thus, when a first and second strip of film are abutted against opposite sides of the separator blade, covering the pilot openings, vacuum is supplied to the film support surfaces holding the film strips in place for subsequent operations such as splicing.

3,596,898

FIXTURE FOR WELDING PIPES

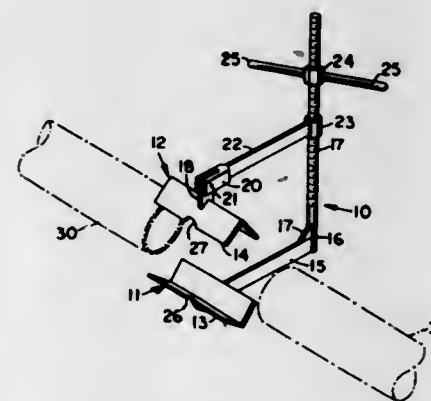
Luell Hilburn, 7240 Manila Ave., El Cerrito, Calif.

Filed Mar. 7, 1969, Ser. No. 805,279

Int. Cl. B23k 37/04

U.S. Cl. 269-243

6 Claims



A fixture for retaining the ends of two pipe sections together during welding. The fixture comprises an upper clamp and a lower clamp, the lower clamp having an extension going out to one side and rigidly secured to an upstanding threaded rod. The upper clamp has an extension going out to one side and terminating in a sleeve which is slidable up and down on the threaded rod but is not threaded to it. A wing nut or nut with a handle is threaded on the rod above the sleeve of the upper clamp and is used to tighten that clamp into place to hold the pipe ends firmly between the two clamp members. Central portions of the clamps are recessed to give greater availability to the welding fixture before the pipe has to be turned, so that only one turn is usually required to weld the entire peripheries of the two pipes.

3,596,899

METHOD OF PRODUCING WEB UNITS

James B. Fulk, Monte Sereno, Calif., assignor to Paper Converting Machine Company, Inc., Green Bay, Wis.

Filed Sept. 18, 1969, Ser. No. 859,020

Int. Cl. B65h 41/00

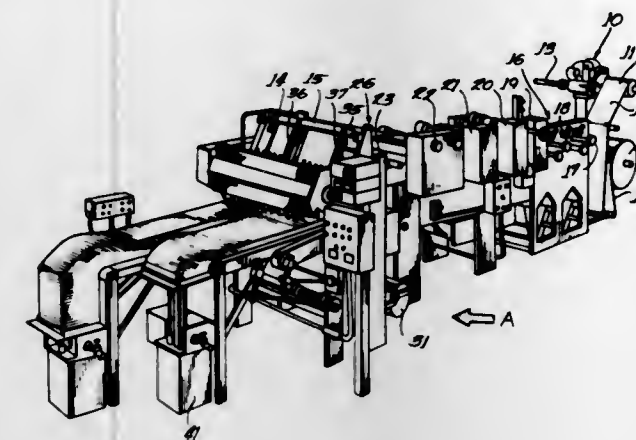
U.S. Cl. 270-52.5

14 Claims

A method of producing web units wherein at least two

units are simultaneously processed while in superimposed relation, and thereafter the units are laterally separated -- the

for an angle which is greater than approximately 25° and pressing a sheet against it while it is being removed, so that



invention finding particular utility in connection with business forms.

3,596,900

SHEET MATERIAL DISPENSER

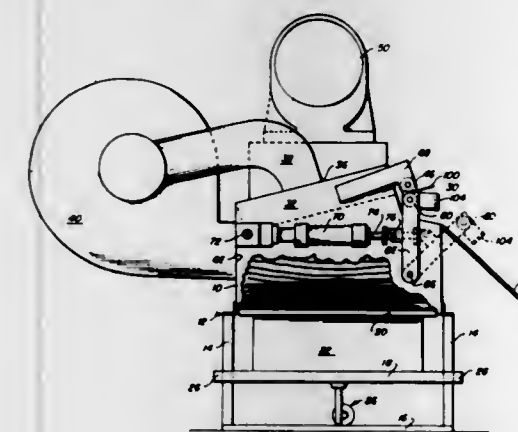
George H. Sundin, Duluth, Minn., assignor to Conwed Corporation, St. Paul, Minn.

Filed Oct. 22, 1968, Ser. No. 769,624

Int. Cl. B65h 3/08

U.S. Cl. 271-26

10 Claims



A dispenser for single sheets of material from a stack of such sheets is provided in which an air blower flutters at least the top portion of such a stack until the top sheet thereof reaches the intake manifold of the fan thus serving as a valve to shut off the flow of air and stop the fluttering of the top portion of the stack. Upon removal of the sheet from the intake manifold, either manually or automatically, the cycle is repeated.

3,596,901

SHEET SEPARATOR

Karl Rehm, and Hermann Schwarz, both of Konstanz, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Apr. 28, 1969, Ser. No. 819,712

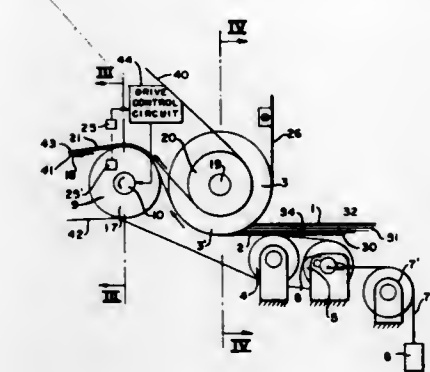
Claims priority, application Germany, Mar. 24, 1969, P 19 14 839.1

Int. Cl. B65h 3/04

U.S. Cl. 271-35

2 Claims

Apparatus for removing sheets one by one from a stack includes a transfer belt which engages one surface of a sheet on one end of a stack to remove it from the stack, and a convex surface stripper means disposed on the opposite side of the end sheet, the transfer belt looping about the convex surface



the convex surface retards removal of adjacent sheets and separates the end sheet from the stack.

3,596,902

PRINTING PRESS NONSTOP SIDE REGISTER MECHANISM

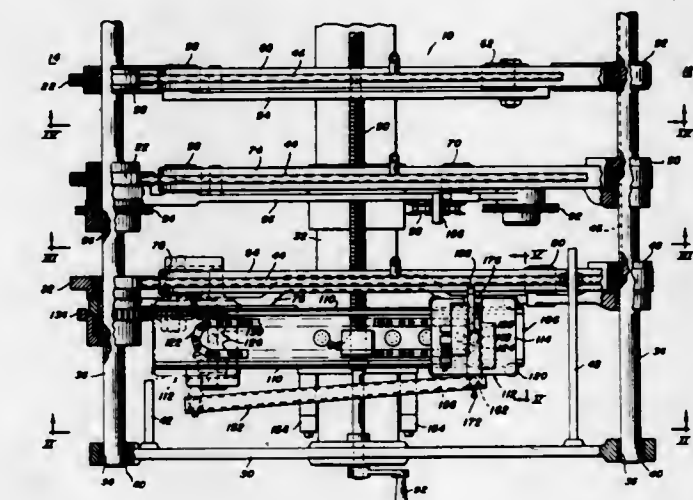
Carl O. Siebke, Gulfport, Fla., assignor to Miller Printing Machinery Co., Pittsburgh, Pa.

Filed Dec. 1, 1969, Ser. No. 881,102

Int. Cl. B65h 9/14

U.S. Cl. 271-49

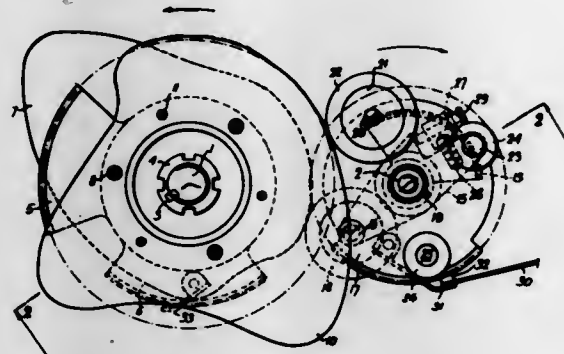
10 Claims



The side register mechanism has a feed board with endless tapes reeved about spaced pulleys for advancing the sheet toward the impression cylinder of a printing press. Endless driven chains with front stop members are arranged in parallel relation with the driven tapes. The tapes are driven at a slightly higher velocity than the chains to maintain the front edge of the sheet in abutting relation with the stops on the chains as the sheet is conveyed along the feed board. A side guide mechanism is arranged to advance with the sheet at substantially the same velocity as the sheet and has a pivotal finger member and an underlying plate member that move laterally relative to the feed board as the side guide mechanism advances toward the feed board delivery end. As the sheet is conveyed from the feed end toward the delivery end by the endless tapes, the side guide mechanism movable finger moves downwardly into abutting relation with the upper surface of the sheet and engages the sheet between the finger and the movable plate member. Both the sheet and the side guide mechanism advance at the same velocity toward the delivery end of the feed board and the finger and movable plate are moved laterally with the sheet therebetween until the side edge of the sheet abuts a side guide member. At this location the sheet is in side register. Continued advance of the side guide mechanism toward the discharge end of the feed board releases the sheet from between the finger and the movable plate.

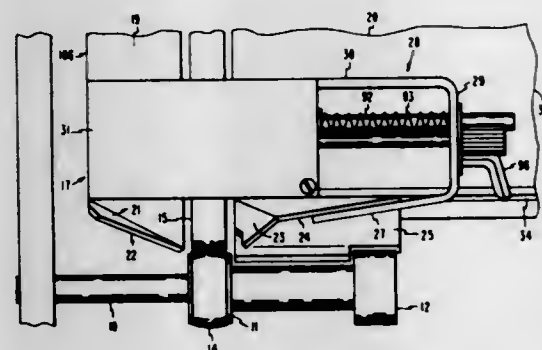
3,596,903
ARRANGEMENT FOR GENERATING A NOT UNIFORM MOTION OF PRIMARY GRIPPING DEVICES PARTICULARLY FOR PRINTING MACHINES
 Josef Juray, Sebranice, Czechoslovakia, assignor to Adamovske strojirny narodni podnik, Adamov, Czechoslovakia

Filed Apr. 8, 1969, Ser. No. 814,381
 Claims priority, application Czechoslovakia, Apr. 9, 1968, PV 2613-68
 Int. Cl. B65h 5/12
 U.S. Cl. 271-51 2 Claims



Intermittent feed means for printing machines and the like having a rotating cylinder and a rotating primary gripping feed arranged along a parallel axis thereto. The combination includes a drive shaft extending from the rotary cylinder having mounted thereon a first contoured cam and a pair of axially aligned segment gears. A mounting shaft extends from the rotating gripper feed and also has mounted thereon a pair of axially aligned gears. The gears on one shaft correspond to the gears on the other shaft. A pair of cam followers are fixed to one of the segment gears mounted on the rotating gripper shaft, the cam followers being adapted to engage their corresponding cam. A lever pivotally mounted at its center about the rotary gripper shaft is provided with still another pair of rollers at each of its ends and is spring biased with respect to the segment gear mounting the first mentioned cam followers. The driving shaft contains a control cam adapted to engage one of the rollers on the rotating lever arm. Rotation of the drive shaft causes the first cam and its three engaging cam follower rollers to effect an intermittent nonuniform motion in the rotary gripping feed while the fourth cam follower riding on the second of the cams regulates the engagement and timing of the first three cams.

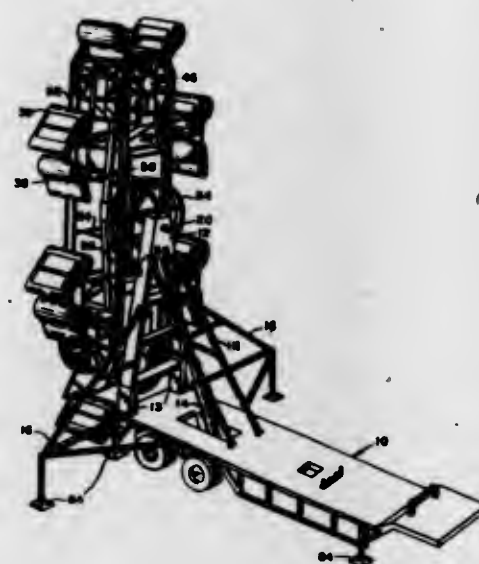
3,596,904
MULTIWIDTH DOCUMENT STACKER
 Marvin E. Nyberg, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed June 26, 1969, Ser. No. 836,775
 Int. Cl. B65h 29/22
 U.S. Cl. 271-80 4 Claims



A longitudinal bend is applied to documents being delivered to a stacker by a device that must accommodate wide variations in document length, width and weight of document paper. A cupping drive roll and a cupping idler roll cooperate to transport a document to the stacker and impart a longitudinal bend to the document. A pair of cupping guides are disposed on opposite axial sides of the cupping

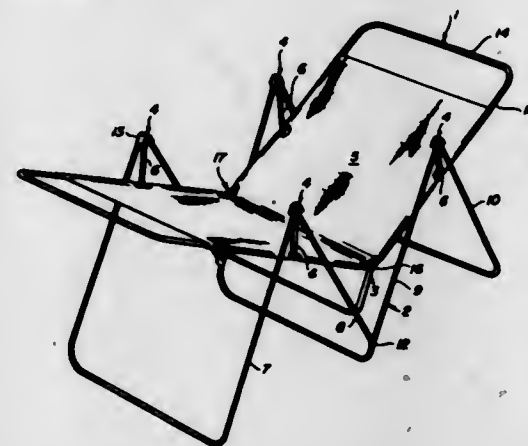
idler roll with the idler roll and one cupping guide being selectively transversely movable. The adjusting mechanism requires disengagement of the idler roll prior to movement and maintains such disengagement during adjustment to an alternate position.

3,596,905
PLURAL HORIZONTAL AXIS ROUNDABOUT HAVING SHEAVE DRIVEN CARRIAGE
 Joseph M. Brown, Wichita, Kans., assignor to Chance Manufacturing Company, Inc., Wichita, Kans.
 Filed May 2, 1969, Ser. No. 821,398
 Int. Cl. A63g 1/08
 U.S. Cl. 272-29 6 Claims



An amusement ride consisting of a tower movable from a horizontal position on a trailer to an erect position and including an elongated oblong structural member or boom centrally pivoted to the upper end of the tower. The structural member carries an oblong closed track and parallel endless conveyors trained around sheaves at opposite ends of the boom to which are attached frame means carrying freely swingable passenger cages. As the boom is rotated about a horizontal axis separate power means operate the conveyors and sheaves to move the frame and cages about the closed path defined by the track.

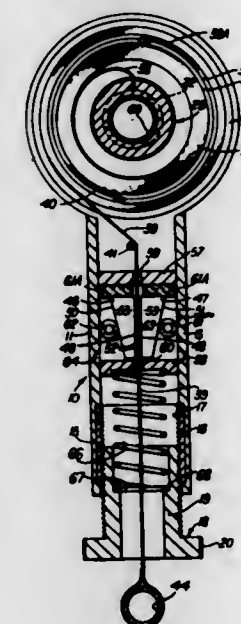
3,596,906
PORTABLE FOLDABLE EXERCISE COT
 James E. Farmer, 4542 N. 18 Ave., Phoenix, Ariz.
 Filed Aug. 25, 1969, Ser. No. 852,765
 Int. Cl. A63b 23/02
 U.S. Cl. 272-58 1 Claim



A safer, stronger, more portable exercise device of the type supporting a jackknife motion cot on an M-shaped frame articulated at the points of the M. A novel articulated joint mechanism in the support frame, particularly at the superior points of the M, formed by two adjacent superior arms of the M-shaped frame being pivotally pinned together and having a cap stop member enclosing the pivot joint, thereby

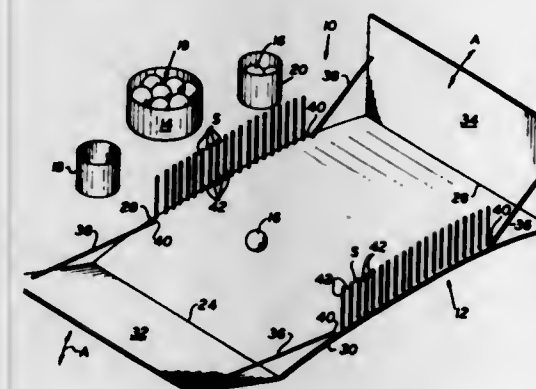
strengthening the joints, makes the device safer to operate, and permits it to be folded up into a more compact space.

3,596,907
FRICTION EXERCISING APPARATUS
 Malcolm Brighton, Beckenham, Kent, and Walter Orner, London, both of, England, assignors to Scientific Exercising Equipment Limited, London, England
 Filed Jan. 12, 1967, Ser. No. 608,777
 Claims priority, application Great Britain, Jan. 19, 1966, Apr. 6, 1966, June 23, 1966, 2526/66; 15368/66; 28081/66
 Int. Cl. A63b 21/02
 U.S. Cl. 272-83 A 7 Claims



An exercising device including an elongated flexible member for mounting within a frame. Attempted relative movement of the flexible member with respect to the frame in one direction is opposed by a force which gradually increases to a predetermined level, at which level it remains upon further movement of the flexible member in the said one direction. No significant force opposes relative movement of the flexible member in the opposite direction. Means are incorporated for regulating and adjusting the predetermined level of the opposing force.

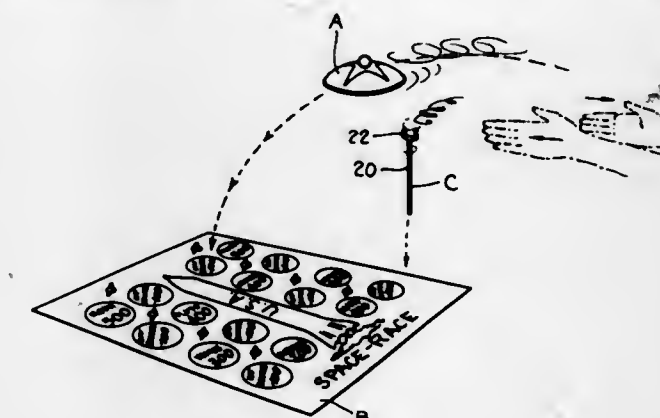
3,596,908
FLEXIBLE GAME BOARD WITH INTEGRALLY PIVOTED END FLAP PROJECTORS
 John Arthur Long, and Chester F. Meyer, both of 35 Warren St., Brentwood, N.Y.
 Filed Feb. 18, 1969, Ser. No. 800,195
 Int. Cl. A63f 9/00, 7/10
 U.S. Cl. 273-85 C 9 Claims



A ball or projectile-striking game having a centrally located flexible game board with flexible barrier elements upstanding along the opposite side edges, and projectile-striking flaps integrally connected at opposite ends of the game board which, in practice, are each manipulated by the players through a projectile-striking stroke to alternately strike the ball and thereby cause movement of the ball, during a typical

playing interval, back and forth across the playing surface of the game board until one of the players either misses the ball or causes it to leave the playing surface. Resilient bands are connected between the flaps and the game board, and urge the flaps towards an overlying relationship with the game board.

3,596,909
PROJECTILE, LAUNCHER, AND TARGET
 Marcus B. Russ, 218 W. Dorchester Blvd., Greenville, S.C.
 Filed July 22, 1969, Ser. No. 843,709
 Int. Cl. A63b 67/06 2 Claims



A game including a disc-shaped projectile which has a pair of recesses mounted in a base portion for receiving a pair of prongs carried on a launch stick. When the launch stick is rotated and released the disc-shaped projectile glides outwardly and downwardly towards a playing surface. The playing surface has indicia thereon indicating the landing areas of different points.

3,596,910
DART WITH LONGITUDINALLY ADJUSTABLE VANES
 Bartolo Rizzo, Providence, R.I., assignor to Hasbro Industries, Inc., Pawtucket, R.I.
 Filed June 13, 1969, Ser. No. 832,931
 Int. Cl. A63b 65/02
 U.S. Cl. 273-106.5 R 1 Claim



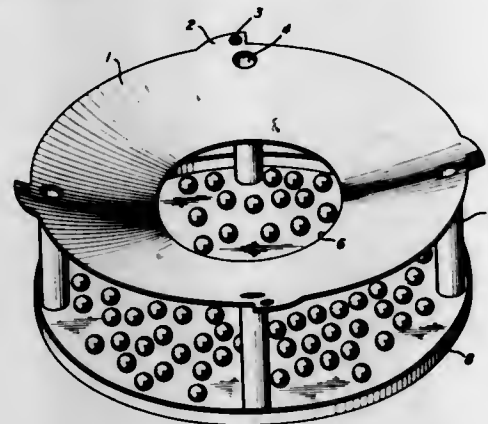
A dart construction comprising a pointed front portion having a shaft threadedly secured thereto and extending rearwardly therefrom. A vane assembly is slidably received on the shaft and is held in any given position by a pair of threaded collars. The shaft is threaded to allow longitudinal movement of the collars, but the rearmost section of the shaft is left unthreaded so the collars cannot be removed from that end of the shaft.

3,596,911 ENDLESS INCLINED RUNWAY BALL AND POCKET GAME

Elmer H. Kessler, Queen Anne Co., Centreville, Md.
Filed May 20, 1969, Ser. No. 826,177
Int. Cl. A63f 7/00

U.S. Cl. 273—123

1 Claim



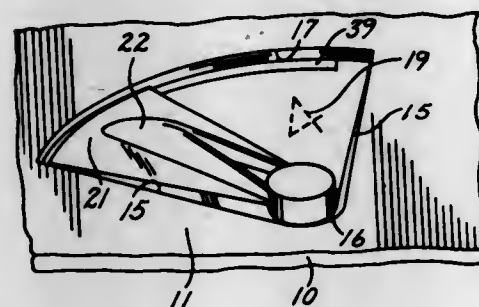
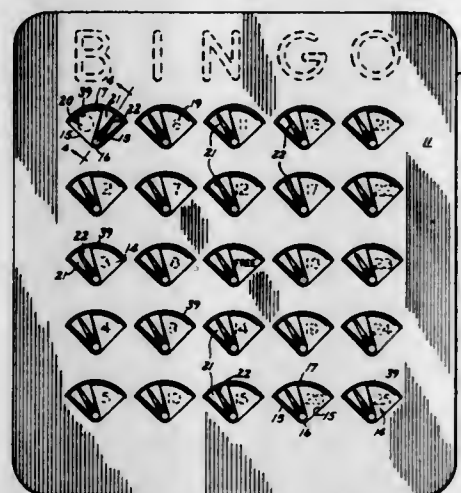
A game apparatus having a circular concave surface having a centrally disposed opening, four evenly spaced extensions located around the peripheral edge of the surface to serve as tees, and four evenly spaced pocket openings located inwardly and adjacent the tees. Supporting the surface are four hollow open-ended pocket legs joining the underside of the surface such that the centerlines of the four-leg open ends and the four surface openings coincide. Spherical objects are propelled from the tees upon the concave surface in an attempt to be rolled into the peripheral openings where they are retained in the support legs.

3,596,912 GAME BOARD WITH PIVOTED SHUTTER

Mark Herring, Scottsbluff, Nebr., assignor to James A. Warner and Margie Louise Warner, Scottsbluff, Nebr.
Filed June 19, 1969, Ser. No. 834,656
Int. Cl. A63f 3/06

U.S. Cl. 273—135 BC

3 Claims



A game board, for a Bingo-type game, is formed from a single plastic sheet by providing in the surface of the board a

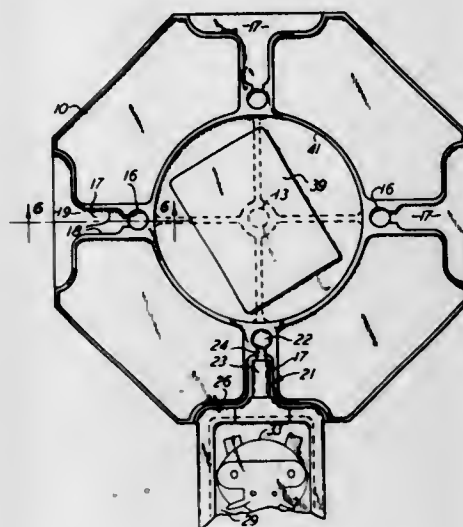
plurality of regularly spaced and arranged segmentally shaped recesses. Indicia are provided in each recess and on the game board for use in playing the game. Segmental or "fan-shaped" indicia covers are mounted in each recess and are adapted to be swung from side to side to selectively cover or expose the various indicia during the progress of the game.

3,596,913 APPARATUS FOR A GAME OF MATCHING PICTURES

Virginia A. Charves, 142 John St., East Providence, R.I.
Filed Mar. 16, 1970, Ser. No. 19,995
Int. Cl. A63f 1/10; A63h 1/00

U.S. Cl. 273—138 R

4 Claims



Two sets of picture cards having different items thereon but with the items being related between the two sets, such as an animal and its cage on two different cards. A spinnable cardholder supports the two different cards in positions such that when the holder is spun, a person gets one image of the animal within its cage. A base member supports the cardholder in the spinning position, and it also has means for supporting the cardholder in a second position. Rotatable support means are provided for the base member so that the base member and its cardholders can be rotated relative to the position of the players seated therearound. Each cardholder is provided with one picture, such as the animal cage, and the other set of cards has a related picture, such as the animal which belongs to the particular cage. The object is to select the correct card, with the selection being simply by chance rather than by intelligence or skill, and the selected card is then positioned in the holder already containing the cage card, and, upon spinning the holder and due to persistence of vision, the image of the animal within the cage is then seen and that player may be a winner depending upon the relationship of the animal to the cage.

3,596,914 SPIRAL-TYPE MAGNETIC RECORDING AND PLAYBACK HEAD DRIVE DEVICE

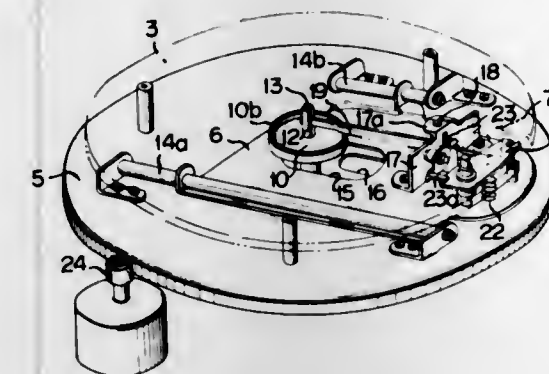
Sakae Fujimoto, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Feb. 7, 1969, Ser. No. 797,511
Claims priority, application Japan, Feb. 16, 1968, 43/11,317
Int. Cl. G11b 5/82, 21/04

U.S. Cl. 274—4

4 Claims

A spiral-type magnetic recording and playback head drive device, wherein the head is driven by an assembly composed of a rack and spiral grooves formed coaxially of the axis of rotation of the head for engagement with the teeth of the

rack. Upon completion of recording or playback, the rack is disengaged and returned to its initial position; and concurrently the head is spaced apart from a magnetic sheet while the head is returned to its normal position.

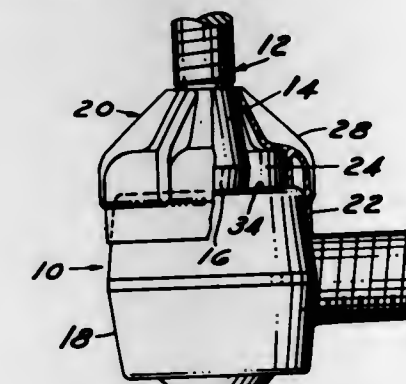


3,596,915 DUST SEAL FOR BALL JOINTS

Edward A. Snidar, Whitmore Lake, Mich., assignor to O & S Bearing & Mfg. Co., Whitmore Lake, Mich.
Filed Jan. 2, 1970, Ser. No. 282
Int. Cl. F16j 3/00

U.S. Cl. 277—212 FB

12 Claims



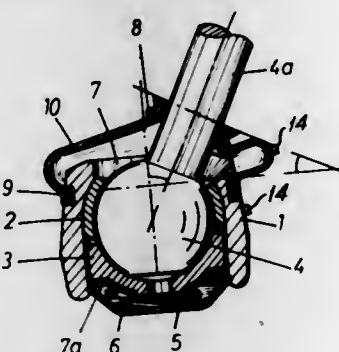
A dust seal for ball joint assemblies of a type commonly used in motor vehicle steering linkages having external and internal ribs and primary and secondary sealing lips to prevent the dust seal from becoming damaged by entrapment between the ball stud member and the body of a joint assembly and to improve the sealing properties of effectiveness of the structure.

3,596,916 SEALING BELLOWS FOR BALL JOINTS

Rudolf Gottschald, deceased, late of Osterath, Germany (by Erika Gottschald, nee Schlenstedt, heir, of Am Meerbusch 4, 4151 Osterath, Germany)
Filed May 20, 1968, Ser. No. 730,520
Claims priority, application Germany, Apr. 23, 1967, P 16 00 452.7
Int. Cl. F16j 3/00

U.S. Cl. 277—212 FB

2 Claims



A sealing bellows for a ball joint having its ball stud normally eccentrically located with regard to the ball joint housing, in which said bellows is asymmetric with an unilaterally enlarged bulge.

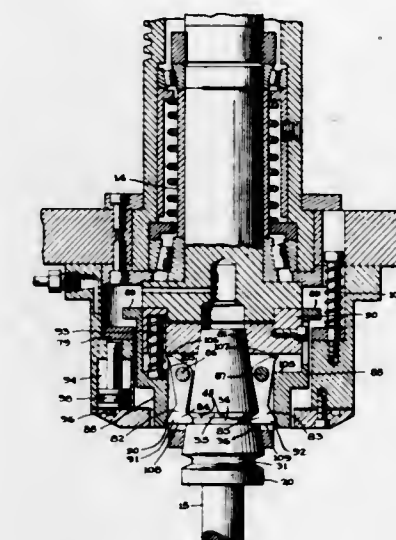
889 O.G.—6

3,596,917 TOOL ADAPTER

Henry F. Meyer, Liverpool, N.Y., assignor to The Monarch Machine Tool Company
Division of Ser. No. 614,483, Feb. 7, 1967, Pat. No. 3,466,971, which is a division of Ser. No. 309,700, Sept. 18, 1963, Pat. No. 3,316,629. Filed Feb. 17, 1969, Ser. No. 799,608
Int. Cl. B23b 31/04

U.S. Cl. 279—89

13 Claims



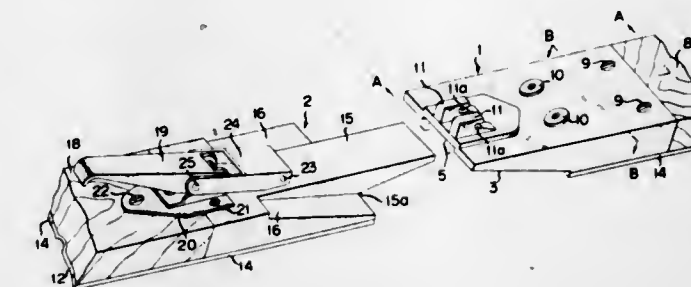
The tool adapter may be used in a tool holder of a machine tool and with adapter holding a tool which may be different. The tool holder has particular use with automatic tool changers to axially and rotatively lock the tool adapter in the tool holder by quick and positive action. The tool holder may be an operative rotating spindle in a machine tool. The tool holder includes a chuck receptacle having pivoted latch levers to engage a tool adapter groove with a recess formed by flats on the surface of the groove. The latch levers grip these recess flats to rotatively and axially lock the tool adapter in the chuck receptacle. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,596,918 TAPERED TENON-TYPE COUPLING DEVICE FOR CONNECTING THE ELEMENTS OF TWO-PIECE SKI

Masaji Masuda, Tokyo, Japan, assignor to Mirlon Kinsen Torokuki Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 19, 1969, Ser. No. 808,520
Claims priority, application Japan, Dec. 28, 1968, 43/112,451
Int. Cl. A63c 5/02

U.S. Cl. 280—11.13 K

5 Claims



Tenon-and-mortise-type coupling device comprising two coupling members provided in the proximal free ends of the ski elements of a separate-type ski, respectively, ensures firm connection of the ski elements and enables the user to connect and disconnect the elements in one step without any troublesome connecting or disconnecting operation which is performed by the use of screws and a driver.

3,596,919

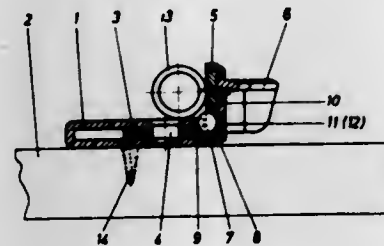
TOE IRON FOR SAFETY SKI BINDINGS

Gunter Adam, Straubing, Germany, assignor to Hannes Franz Xaver Bruckl, 8116 Eschenlohe, Krottenkopfstrasse 50, Marker, Garmisch-Partenkirchen, Germany

Filed Dec. 16, 1968, Ser. No. 784,000

Claims priority, application Germany, Dec. 20, 1967, P 15 78 702.7

Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T



The soleholder is connected by a carrying member to a baseplate that is fixed to the ski. Forces which are harmless to the leg of the skier and act on the soleholder transversely to the longitudinal direction of the ski will be elastically taken up so that the toe portion of the boot will be moved substantially transversely to the longitudinal direction of the ski. The toe portion of the boot will be released by the soleholder after a transverse movement performed in response to a sustained action of a dangerous force. The carrying member is freely rotatably mounted on the baseplate and in its normal position is locked relative to the baseplate. The soleholder is mounted on the carrying member to be movable transversely to the longitudinal direction of the ski to both sides against the force of a spring. The carrying member is adapted to be released from the baseplate in response to the transverse movement of the soleholder.

3,596,920

ADJUSTABLE SAFETY SKI BINDINGS

Alan M. Haire, 276 South Sierra Blvd., Pasadena, Calif.

Filed Apr. 14, 1969, Ser. No. 815,963

Int. Cl. A63c 9/081

U.S. Cl. 280—11.35 T

3 Claims



Heel and toe binders are opposed on a ski and bear against the sole portions at heel and toe of a ski boot. The binders are substantially the same, each having a bracket sustaining an adjustable spring-loaded screw and a thrust member articulately joined to the screw. A universal joint on the thrust member is lodged in an arm of the bracket. A boot contact yoke is fastened to the thrust member. The yoke is adjustable perpendicular to the ski with respect to the thrust member. The yoke of the toe binder engages the top of the extending boot sole. The yoke of the heel binder engages the cable groove of the boot heel. Each binder yields to release the boot if pressure in excess of the spring loading on the thrust member impinges in either horizontal or vertical direction above the ski surface. The rear binder may have a horizontally extending lever which may be depressed at its rearward end by hand or by the ski pole to release the binding from the boot heel.

3,596,921

SAFETY SKI POLE

Franz Xaver Bruckl, 8116 Eschenlohe, Krottenkopfstrasse 50, Germany

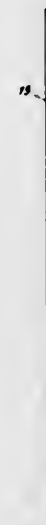
Filed Aug. 12, 1968, Ser. No. 751,955

Claims priority, application Germany, Aug. 17, 1967, P 15 78 728.7

Int. Cl. A63c 11/22

10 Claims U.S. Cl. 280—11.37 L

2 Claims



A ski pole tube having at least in its intermediate portion a cross-sectional diameter which is larger in the direction of skiing than in the transverse direction.

3,596,922

UTILITY CART

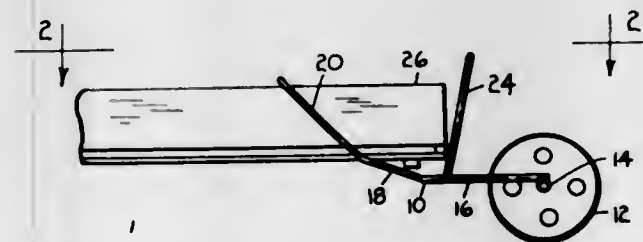
Fred A. Luttrell, Rt. 1, Box 580, St. Helens, Ore.

Filed June 2, 1969, Ser. No. 829,524

Int. Cl. B62b 1/00

U.S. Cl. 280—47.32

1 Claim



The cart of the invention includes a frame having a wheel at its forward end and a first frame portion extending rearwardly in substantially a horizontal plane from the wheel. An abutment is supported on said first frame portion. Second frame portions lead from the first frame portion in an outward and rearward flared direction and terminate in side arms leading upward and rearward. Leading inward from the upper ends of the side arms are lateral frame portions. The frame portions described form a rear opening arranged to receive longitudinally the forward end of a container to be seated forwardly against the abutment means. Upon mounting the container in the cart, the container can be wheeled like a wheelbarrow.

3,596,923

SUPPORT MEANS FOR AUTOMOBILE SUSPENSION

Iwao Nakamura, Tokyo, and Koichi Saito, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Feb. 20, 1969, Ser. No. 800,878

Claims priority, application Japan, Sept. 26, 1968, 43/82970

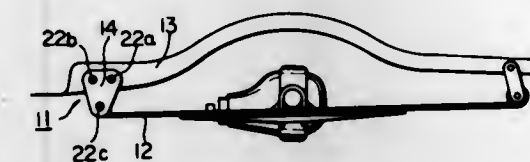
Int. Cl. B60g 11/42

U.S. Cl. 280—124

3 Claims

A support adapted to absorb shocks and vibrations occurring in three different directions, vertical, lateral and longitudinal for example in an automobile suspension, comprises two spaced-parallel plates connected with one another by

three pins extending respectively through three flanged rubber bushings disposed between the plates and held in



three collars of lesser length than the bushings. Two of the collars are fixed to a frame to be supported while the third is fixed to a support member, for example a leaf spring.

3,596,924

VEHICLE STABILIZER

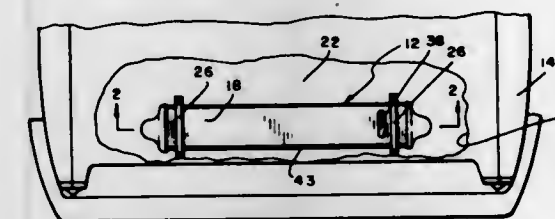
Fred D. Watts, 1149 S. E. 20th, Oklahoma City, Okla.

Filed May 29, 1969, Ser. No. 828,826

Int. Cl. B62d 37/04

U.S. Cl. 280—150 D

3 Claims



This invention is a vehicle stabilizer to be placed in the rear area of a vehicle operable on turning movement and/or stopping of the vehicle to move a weighted object to achieve greater wheel traction with the supporting surface. More particularly, this invention relates to the vehicle stabilizer including an actuator member mounted within oil in a housing means having the actuator member movable axially and rotatably about its axis to provide increased traction and prevent skidding of a vehicle during turning operations.

3,596,925

EASILY CONNECTABLE TRAILER COUPLING

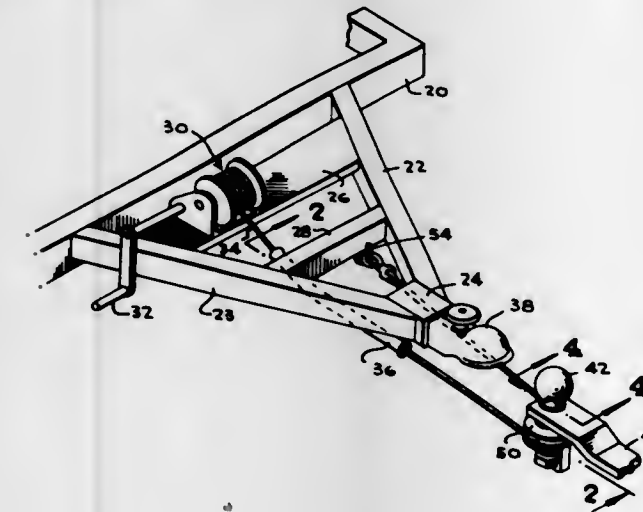
Glen W. Richie, P. O. Box 26, Salem, Va.

Filed Sept. 10, 1969, Ser. No. 856,611

Int. Cl. B62d 53/00

U.S. Cl. 280—477

8 Claims



A trailer coupling of the ball and socket type in which a ball-type male trailer connector is attached to a towing vehi-

cle with a pulley being connected coaxially with the male connector so that a cable loop from the trailer can be looped over the pulley and tightened by a winch on the trailer for positioning a female trailer connector portion on the forward end of the trailer adjacent the male connector upon tightening of the loop by the winch.

3,596,926

TRAILER HITCH COVER

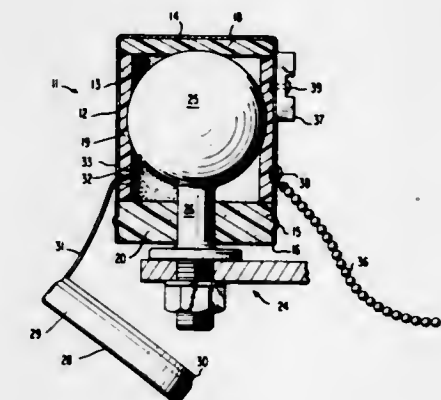
Richard R. Randall, 427 Kirk Road, Decatur, Ga.

Filed Aug. 19, 1969, Ser. No. 851,198

Int. Cl. B60d 1/00; B60s 5/00

U.S. Cl. 280—507

1 Claim



A trailer hitch cover for protecting the ball portion of a trailer hitch which comprises a cup-shaped cover member having a soft absorbent material applied to its inside surface and carrying a lubricant. A mass of flexible material is applied to the inside surface of the opening of the cover member which can be wedged about the ball portion of the trailer hitch and which functions to maintain the cover member over the ball portion of the trailer hitch at all times, and a magnet is connected to the outside surface of the cover member for releasably connecting the cover member to the vehicle or the trailer hitch. A closure cap is connected to the cover member for closing the cover member when removed from the ball portion of the trailer hitch to keep dirt, etc., from entering the cover member and contaminating the lubricant therein.

3,596,927

PRODUCTION OF 4-METHYLPENTENE-1

Willard N. Mitchell, Baytown; Armand M. Souby, Baytown, and Arthur B. Simmons, III, Houston, all of Tex., assignors to Esso Research and Engineering Company

Continuation-in-part of application Ser. No. 693,728, Dec. 27, 1967, now abandoned. This application Oct. 10, 1969, Ser. No. 865,523

Int. Cl. C07c 5/24

U.S. Cl. 260—683.2

8 Claims

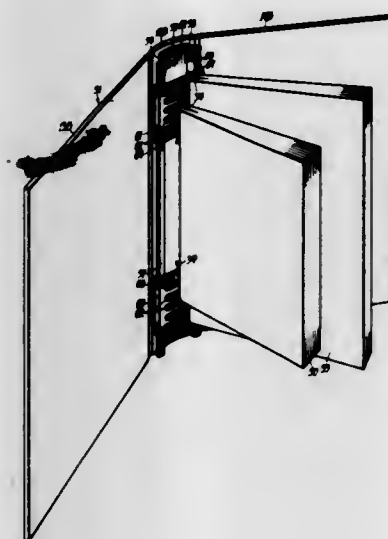
The production of 4-methylpentene-1 in increased yields is accomplished by the short-time (e.g., 0.1 to 10 seconds) contacting of 4-methylpentene-2 at elevated temperatures (e.g., 600 to 1200° F.) with a suitable isomerization catalyst (e.g., 0.5 to 1.5 percent KOH on alcoholate alumina). Yields as high as seven times greater than thermodynamic equilibrium amounts of 4-methylpentene-1 have been obtained.

**3,596,928
BINDER**

John R. Edmonds, 79 Rowell Ave., Camberwell, Australia
Filed July 3, 1969, Ser. No. 838,804
Claims priority, application Australia, July 3, 1968,
40,104/68
Int. Cl. B42d 1/06

U.S. Cl. 281-46

4 Claims



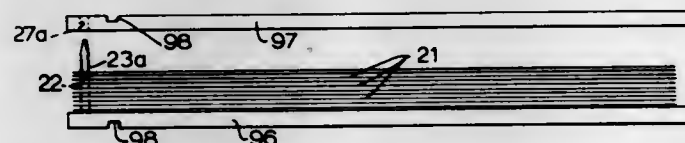
A binder having a foldable cover with webs extending across the inside of the spine. Magazines or folded sheets are bound by clipping them at top and bottom to the web with U-shaped clips.

3,596,929

BOOK FORMED OF PLASTIC STRIPS AND STUDS
William H. Abildgaard, Los Altos Hills, and Charles T. Grosz, III, Palo Alto, both of, Calif., assignors to Abildgaard Laboratories, Inc., Mountain View, Calif.
Filed Feb. 13, 1969, Ser. No. 799,045
Int. Cl. B42d 1/06

U.S. Cl. 281-21

9 Claims



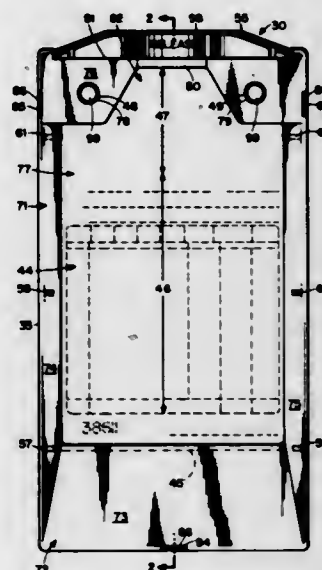
A first strip having longitudinally spaced, upstanding studs and a second strip having holes corresponding in spacing to and of a size slightly smaller than the studs are used to bind sheets apertured adjacent one margin to receive the studs. Apparatus provides a support for the first strip with the studs fitting through the holes in the sheets. A retractable member which receives the second strip is slidable toward the first strip and compresses the sheets against the first strip. Shear means in the retractable member sever the excess length of the studs projecting through the holes in the second strip. The studs are then frictionally held by the second strip. Means is provided for more permanently holding the strips in position, as by deforming the ends of the studs. The product is a temporary or permanent binding for paper sheets apertured adjacent one margin having a first strip on one edge carrying studs projecting received in undersized holes in a second strip. The studs are cut off to length and temporarily held in the second strip by friction or by more permanent means involving deformation of the severed ends of the studs.

3,596,930**DISPOSABLE AUTOGRAPHIC REGISTER**

Raymond D. Brown, Worcester Road, Hollis, N.H.
Filed Mar. 18, 1969, Ser. No. 808,076
Int. Cl. B411 1/20

U.S. Cl. 282-12 B

10 Claims



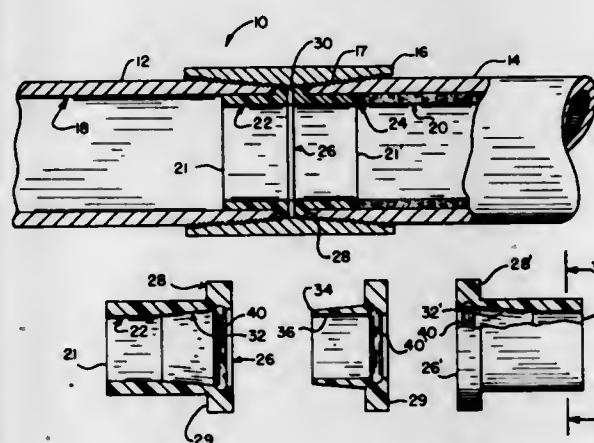
An autographic register is formed of only three molded, plastic elements at such low cost that it can be sold with a pack of register forms and thrown away when the forms are exhausted. A tray element contains the pack, a cover element contains the writing opening, and a partition element includes an unyieldable writing platen, beneath the writing opening, and an integral, hinge-pivoted, release tongue containing the usual register pins for individual and successive dispensing of the forms. The release tongue is separated by axially extending slits from the platen but connected thereto along a transverse web of the platen material, the web forming the hinge pivot line.

3,596,931**SEAL FOR LINED PIPE**

Charles L. Mishler, Odessa, Tex., assignor to Armor Cote Corporation, Odessa, Tex.
Filed Feb. 10, 1969, Ser. No. 798,012
Int. Cl. F16l 9/14

U.S. Cl. 285-55

11 Claims



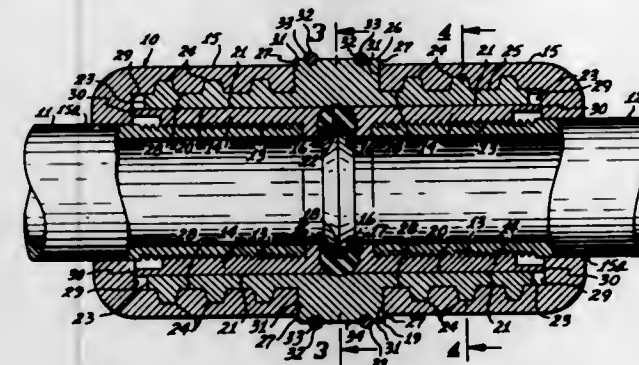
A deformable seal for protecting the exposed collar threads of a string of pipe having individual lined joints thereof joined together by a collar, wherein adjacent ends of the pipe joints have the seal interposed therebetween in a manner whereby the compressed seal prevents erosion or deterioration of the collar threads.

3,596,932**QUICK COUPLE UNION**

Lewis R. Kinsey, 108 South 25th St., Phoenix, Ariz.
Filed Feb. 18, 1970, Ser. No. 12,250
Int. Cl. F16l 35/00

U.S. Cl. 285-81

4 Claims



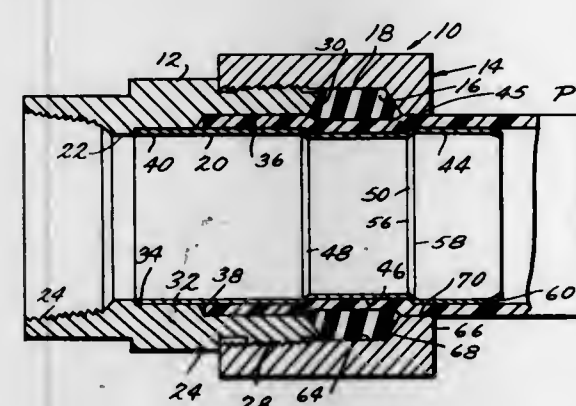
A quick connect and disconnect pipe union characterized by a new type of water gasket and sealer arranged so the pressure of the water holds down the sealing gasket and by the use of special snap rings to lock the union elements demountably together.

3,596,933**JOINT FOR PLASTIC PIPE**

Lawrence F. Luckenbill, Decatur, Ill., assignor to Mueller Co., Decatur, Ill.
Filed Nov. 5, 1969, Ser. No. 874,351
Int. Cl. F16l 11/04

U.S. Cl. 285-94

21 Claims



A joint for connecting a nonmetallic flareless plastic pipe or tube to fittings or metal pipes, the joint including two relatively movable members having a variable volume compression chamber therebetween, one of the members fixedly supporting a relatively rigid sleeve element insertable into the plastic pipe to provide a backing therefor. The sleeve element is provided with an annular recess on its exterior discriminately arranged with respect to length, depth and location relative to the compression chamber whereby a noncompressible annular gasket seal made of a deformable elastic material and positioned within the compression chamber will cause the plastic pipe to deform and completely fill the recess in the sleeve element without extrusion or thinning of the walls of the plastic pipe.

3,596,934**FLEXIBLE FLUIDTIGHT COUPLING FOR TUBES**

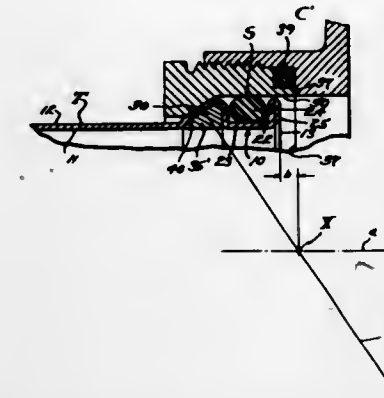
Herbert A. De Cenzo, 17901 Yorba Linda Blvd., Apt. 20, Yorba Linda, Calif.
Filed May 6, 1969, Ser. No. 822,240
Int. Cl. F16l 27/12

U.S. Cl. 285-165

18 Claims

A coupling for tubular members in mechanically flexible fluidtight relation, and providing cooperative means permitting limited axial, angular, and longitudinal misalignments; while maintaining positive mechanical interengagement of at least one tubular member with a cooperating coupling member and with the assurance of fluidtight conduction therebetween. It is lightweight, thin-walled, metallic

piping of the aircraft type with which the present invention is particularly concerned, and with the unique adaption thereto of elastomeric O-ring seals operable within uninterrupted



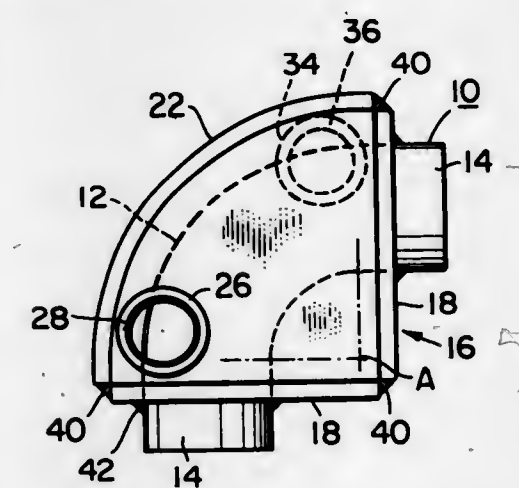
cylindrical walls, as well as the adaptation thereto of sealing glands of varied materials and having varied sealing configurations.

3,596,935**JACKETED PIPE FITTING**

George McGeoch, Sr., 502 Manor Road, Cinnaminson, N.J.
Filed Mar. 12, 1969, Ser. No. 815,243
Int. Cl. F16l 39/00

U.S. Cl. 285-133

12 Claims



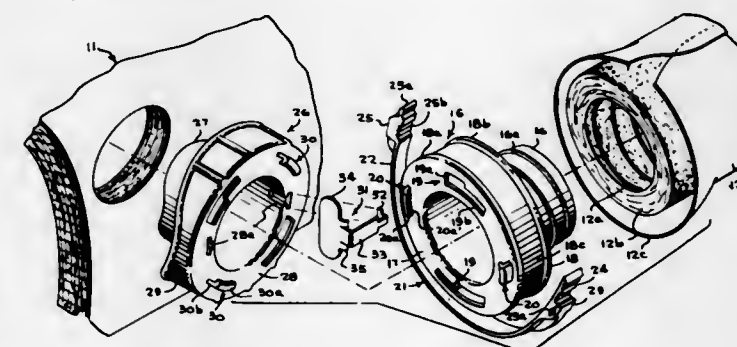
An assembly of plate members welded together and to the main body part of a pipe fitting provide a fluidtight jacket completely encompassing said main body part of the fitting.

3,596,936**QUICK CONNECT AIR DUCT FITTINGS**

John J. Dieckmann, Harrisonburg; Donald V. Bowman, Dayton, and Anthony M. Castello, Harrisonburg, all of, Va., assignors to Dunham-Bush, Inc., West Hartford, Conn.
Filed Nov. 6, 1969, Ser. No. 874,472
Int. Cl. F16l 39/00, 59/00

U.S. Cl. 285-149

10 Claims



A quickly connectable attachment system for joining a smaller air tube to a larger cylindrical duct at one end and to

an annular terminator device at the other end, including a molded plastic coupling member having coaxial neck and outer cylindrical flange portions with a circular face plate portion therebetween having bayonet slot and protrusion formations thereon, to be fitted on the respective ends of the air tube. A similar integral molded coupling member has a neck to extend through a hole in the side of the larger duct, an outer cylindrical flange to abut the exterior wall of the duct in sealed relation, and a circular flat face plate portion therebetween also having bayonet slots and protrusions to mate with the bayonet protrusions in slots of the first mentioned coupling member. Spring clips slidably and tiltably supported in slots in the second coupling member have shoulder portions extendible through the air passage in the second coupling member to inwardly abut wall portions of the duct and hold the coupling member in place. The terminator device also has a surface to abut the face plate of one of the first coupling members and bayonet protrusions to interfit in bayonet slots of the first coupling member as well as spaces to receive the bayonet protrusions of the first coupling member.

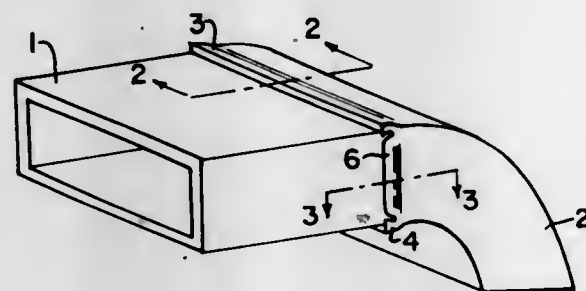
3,596,937

INTERLOCKED WAVEGUIDE ASSEMBLY

Joseph F. Baldelli, Marlboro, Mass., assignor to Microwave Development Laboratories, Inc., Needham Heights, Mass.
Filed Nov. 20, 1969, Ser. No. 878,318
Int. Cl. F16I 13/08

U.S. Cl. 285—287

5 Claims



A self-aligned waveguide assembly is constructed of interlocked sections of hollow rectangular waveguide which are abutted end to end. The abutted ends of the sections are interlocked by dovetailing the sections along the broad walls of the waveguide in a manner insuring alignment of the broad walls. One of the mated sections has locating tabs extending from its narrow walls. The tabs overlap the narrow walls of the adjacent interlocked section and maintain the narrow walls in alignment by preventing slippage along the dovetail joint. Channels in the interlocks are provided which permit solder to have access to the interface between the abutted ends completely around the joint.

3,596,938

FLEXIBLE JOINT

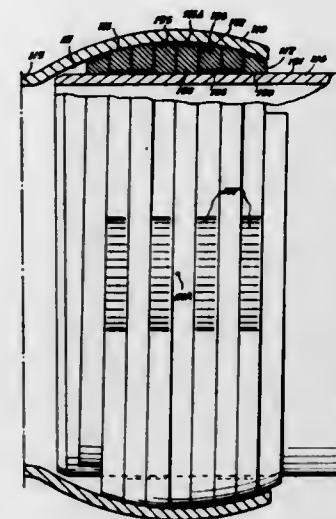
Henry James Tizzard, Filton, Bristol, England, assignor to Rolls-Royce Limited, Derby, England
Filed Aug. 4, 1969, Ser. No. 847,248
Claims priority, application Great Britain, Aug. 3, 1968, 37137/68
Int. Cl. F16I 17/02

U.S. Cl. 285—231

4 Claims

The disclosure of this invention pertains to a joint compris-

ing an outer part, an inner part and a junction piece between said parts in the form of a coiled spring having at least one



turn engaging only the outer part and at least one turn engaging only the inner part.

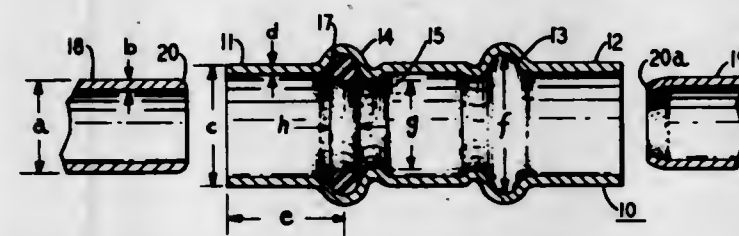
3,596,939

TUBE JOINT HAVING SEALING AND CRIMPING MEANS

Glenn J. Gibson, 97 Beech Ave., Berkeley Heights, N.J.
Filed Aug. 15, 1968, Ser. No. 752,842
Int. Cl. F16I 13/14

U.S. Cl. 285—382.2

3 Claims



An apparatus is disclosed for simplified joining of sections of metallic tubing, especially stainless steel tubing. A thin-walled fitting made from tubular stock is described which in one form involves a single O-ring seated in a formed annulus, and a ridgelike stop adjacent to the annulus. The inside diameter of the fitting provides a small clearance with the tube to be joined. The tube section is inserted into the fitting by hand, compressing the O-ring to form the seal. The tube section abuts the stop, and in this position the joint is locked as by crimping the fitting sleeve so that it engages the tube section.

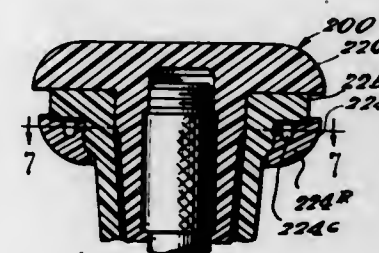
3,596,940

SNAP-FIT CONNECTION

Laurence G. Horwitt, 226 Fountain St., New Haven, Conn., and Donald J. Mattis, 15 Douglas Drive, Norwalk, Conn.
Filed Mar. 9, 1970, Ser. No. 17,718
Int. Cl. F16b 9/00

U.S. Cl. 287—20 R

11 Claims



Snap-fit connection for piece parts of hard material. Shoulders of opposite bevel that border an annular ring portion of

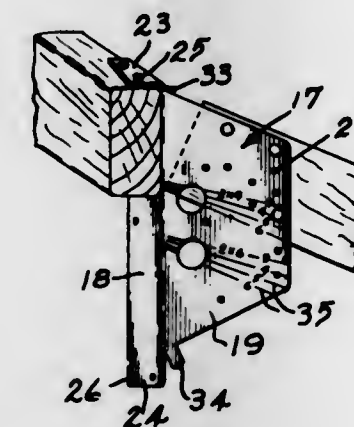
one of the parts engage in wedgelike fashion shoulders of opposite bevel that border an annular recess portion of the other part.

3,596,941

SELECTIVELY ADJUSTABLE ROOF BRACKET

Charles W. Tracy, Tallahassee, Fla., assignor to International Enterprises, Inc., Tallahassee, Fla.
Filed Sept. 2, 1969, Ser. No. 854,401
Int. Cl. F16b 7/00

U.S. Cl. 287—20.94



Apparatus applicable to the roof beams of a building under construction and having selectively adjustable means for supporting rafters of varying sizes and at varying angular positions or pitches in a way that uncut rafters can be applied by unskilled workmen.

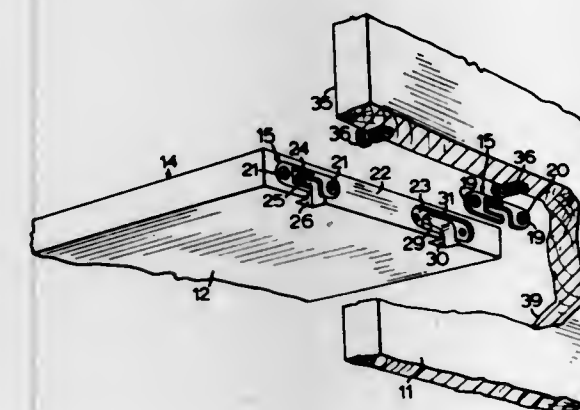
3,596,942

SECUREMENT APPARATUS

Robert G. Zobelein, c/o Refl Products Limited, 91 Milvan Drive, Weston, Ontario, Canada
Filed Sept. 12, 1969, Ser. No. 857,476
Int. Cl. F16b 9/00

U.S. Cl. 287—20.924

12 Claims



Two detachably securable structural members, such as a shelf and end wall of a bookcase, the shelf having securement plates mounted on an end face thereof with an L-shaped slot being formed through each plate and into the associated end face of the shelf. One end of each slot is closed, and the other end thereof is open at an edge of the plate and shelf, the slot being of undercut form at least adjacent to its closed end and being of such dimensions that a securement member which projects from the end wall of the bookcase may be slidably moved through the slot from its open end to its closed end. Each securement member has a head and a shank, the head, when the member is at the closed end of the associated slot, being disposed within the wider part of the undercut portion of the slot with the shank projecting through the part of the slot formed through the plate. This latter part of the slot is at least at the undercut portion of the slot of less width than the head. In passing from the open end to the closed end of the slot the head moves over an inclined

3,596,943

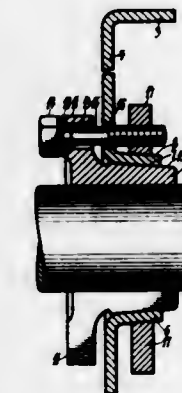
SHAFT MOUNTINGS FOR PULLEYS, SHEAVES AND THE LIKE

Walter Francis Krauss, Natalla Ave., Huntingdale, Victoria, Australia
Filed Sept. 30, 1969, Ser. No. 862,404
Claims priority, application Australia, Oct. 3, 1968, 44285/68
Int. Cl. F16d 1/06

5 Claims

U.S. Cl. 287—52.06

5 Claims



A shaft mounting having a sleeve which fits over the shaft and which has a tapered external surface engageable within a hub portion of the part to be secured to the shaft, and an annular element which is engageable externally over the hub portion, the sleeve and annular element being movable axially towards one another by tightening of screws engaged therewith to fasten the hub to the shaft.

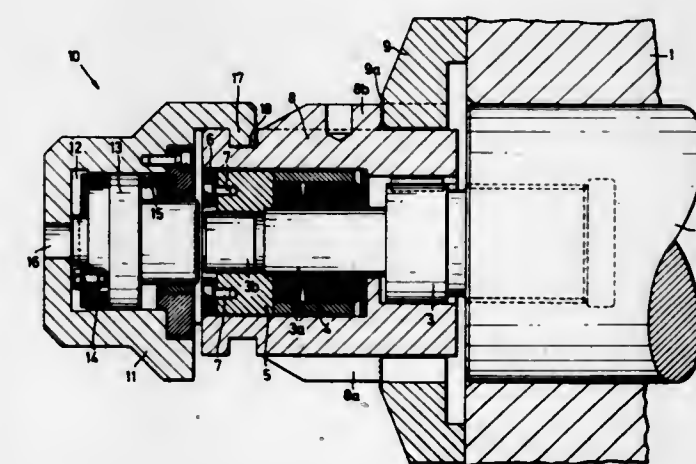
3,596,944

DEVICE FOR THE DETACHABLE FIXING OR LOCATION OF A PART ON A PIN OR SHAFT

Karl-Heinz Ecker, Erkelenz/Rhineland; Matthias Dortans, Erkelenz/Rhineland; Helmut Henschenmacher, Brachelen/Rhineland, and Karlbeinz Wahl, Erkelenz/Rhineland, all of, Germany, assignors to Maschinen-Und Bohrgerate-Fabrik Alfred Wirth & Co. KG., Erkelenz/Rhineland, Germany
Filed Mar. 26, 1970, Ser. No. 22,910
Claims priority, application Germany, Mar. 31, 1969, G 69 12 970
Int. Cl. F16d 1/06

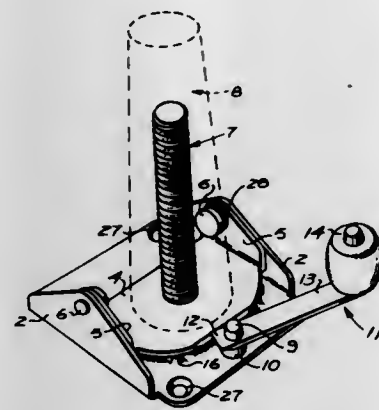
U.S. Cl. 287—53

10 Claims



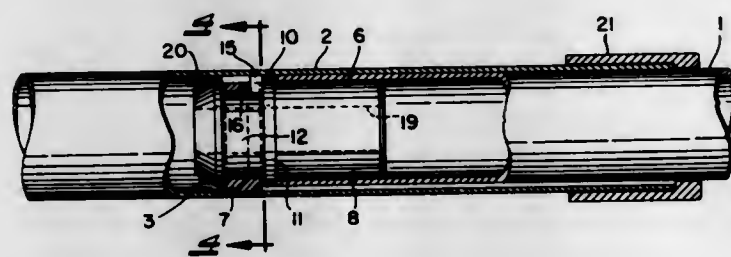
This invention relates to a device for detachably fixing or locating a part on a pin or shaft by means of a locking ring engaging with the part to be fixed or located, the locking ring resting against a support displaceable in relation to the pin or shaft and acted upon by a spring, while the support can be moved by the action of a pressure medium against the force of the spring so as to enable the locking ring to be released and in which a special actuator is provided for moving the support against the spring force.

3,596,945
LOCKING CONNECTOR FOR FOLDING FURNITURE LEGS
 Richard L. Mulvin, 706 LaPortada, South Pasadena, Calif.
 Continuation-in-part of application Ser. No. 678,919, Oct. 30, 1967, now abandoned. This application Mar. 20, 1969, Ser. No. 808,978
 Int. Cl. F16c 11/00
 U.S. Cl. 287—99



A locking connector, primarily intended for folding furniture such as tables and chairs, which includes a mounting plate for attachment to the flat undersurface of a table top or chair seat and having a pair of side flanges for mounting an essentially channel-shaped fixture. In one embodiment, the connecting web supports a screw-threaded dowel to receive a round furniture leg; and in another embodiment, one flange and a portion of the connecting web is extended for attachment to a square furniture leg. The mounting plate carries a latching lever and the fixture is provided with a cooperating surface for locking the fixture in perpendicular relation to the mounting plate.

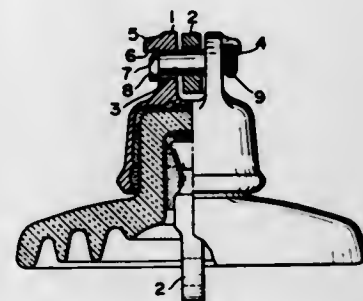
3,596,946
CAM LOCK FOR TELESCOPIC MEMBERS
 Charles A. Burton, Worthington, and Howard C. Davis, Columbus, both of, Ohio, assignors to The Wooster Brush Company, Wooster, Ohio
 Filed Mar. 9, 1970, Ser. No. 17,514
 Int. Cl. F16b 7/10
 U.S. Cl. 287—58



Cam lock for telescoping members comprises a plug adapted to be partially received in one end of the inner telescoping member and having an outwardly projecting portion containing an eccentric groove for receipt of a correspondingly shaped eccentric collar or ring. Rotation of the collar within the groove is limited between an eccentric position frictionally engaging the outer telescoping member and a concentric position permitting relative movement between such telescoping members by a projection or stop in the plug groove extending into a slot in the collar to obtain unidirectional locking and unlocking of the outer telescoping member with respect to the inner telescopic member upon relative rotation of such members in opposite directions.

3 Claims

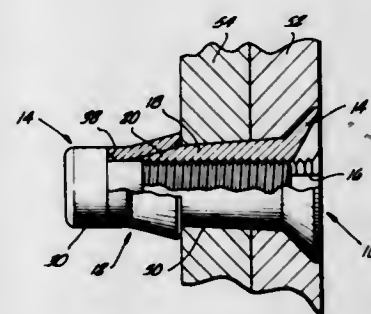
3,596,947
SECURITY CONNECTOR FOR INSULATORS AND FITTINGS THEREOF
 Masamichi Ishihara, Ama-gun, Aichi Prefecture, Japan, assignor to N.G.K. Insulators, Ltd., Nagoya, Japan
 Filed July 28, 1969, Ser. No. 845,261
 Claims priority, application Japan, Oct. 3, 1968, Nov. 28, 1968, 43/85,748; 43/103,214
 Int. Cl. F16c 11/00
 U.S. Cl. 287—100



A security connector for insulators and fittings thereof, which connects a clevis and a tongue by a clevis pin. The clevis has a clawlike projection integrally formed therewith, which engages a cutaway portion of the pinhead of the clevis pin when the connector is loaded, so as to hold the clevis pin in position. The cutaway portion of the pinhead also allows the insertion of the clevis pin into the connector without striking the projection of the clevis by the pinhead. The clevis pin can have a stop lug integrally formed on the opposite end of the clevis pin to the pinhead, which stop lug is small enough to allow the insertion of the clevis pin into the clevis and the tongue but large enough to engage the clevis surface when the connector is not loaded, so as to prevent the axial movement of the clevis pin. With the security connector, the risk of dripping of powerline conductors can be eliminated.

12 Claims

3,596,948
BLIND FASTENER AND BLIND FASTENER SYSTEM
 Thomas F. Spoehr, Pacific Palisades, Calif., assignor to VSI Corporation, Pasadena, Calif.
 Continuation of application Ser. No. 810,922, Mar. 24, 1969, now abandoned which is a continuation of application Ser. No. 685,386, Nov. 24, 1967, now abandoned. This application Oct. 27, 1969, Ser. No. 869,958
 Int. Cl. F16b 13/06, 33/04
 U.S. Cl. 287—189.36

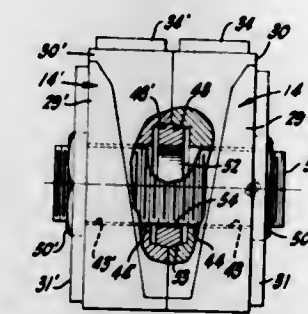


A three-piece blind fastener, having a nut with a longitudinally tapered intermediate portion, a core bolt and an expandable sleeve, is set in two or more sheets of material having a tapered hole by drawing the core bolt's head toward the blind side of the sheets, engaging the sleeve with the head and expanding it over a nose on the nut until the sleeve engages the blind side. When set, the longitudinally tapered intermediate portion of the nut is in interference engagement with the tapered hole in the sheets.

3 Claims

3,596,949
CONNECTOR FOR MODULAR BUILDING SECTIONS
 Russell L. Turpen, 2200 Central St., Richmond, Calif.
 Filed June 25, 1969, Ser. No. 836,344
 Int. Cl. F16b 7/18
 U.S. Cl. 287—189.36

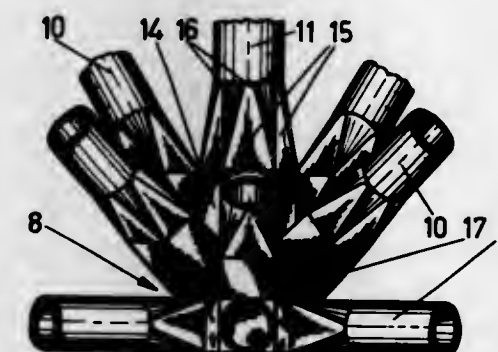
12 Claims



A connector for use in joining frame elements; floor, ceiling, and sidewall sections; and like components of modular building structures. The connector comprises a pair of connector members or components adapted to be secured to each other in a predetermined orientation of mating juxtaposition. One of the components is a joist connector adapted to have two floor or ceiling joists attached thereto at a relative angular orientation of about 90°, and the other such component is a column-connector member adapted to have a column attached thereto at a generally normal disposition relative to the plane defined by the joists. Position-enforcing structure establishes the desired predetermined orientation of the two connector members, and bolt-type fasteners secure the same in such orientation.

3,596,950
JOINTS FOR BRACING MEMBERS
 Johannes Wipkink, Sassenheim; Marinus Van Holst, Massluis, and Johan Gerhard Wolters, Massluis, all of, Netherlands, assignors to Ingenieursbureau Marcon N.V., Hague, Netherlands and Scheepsbouwbelange N.V., Hague, Netherlands
 Continuation-in-part of application Ser. No. 341,501, July 1, 1968, now abandoned. This application Feb. 13, 1970, Ser. No. 11,245
 Int. Cl. F16b 7/00
 U.S. Cl. 287—189.36R

7 Claims

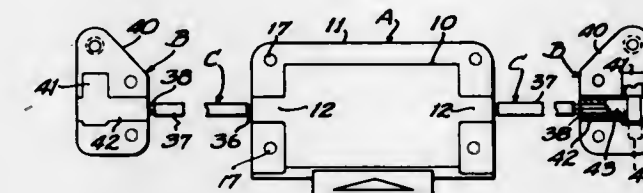


A common joint assembly for a plurality of converging bracing members in an open support structure, such as an offshore drilling platform, including a polyhedral-shaped core and transition pieces for connecting each bracing member to a polygonal face of the core. Each transition piece has a larger cross section at the core than at the bracing member and has at least in part plane sides.

3,596,951
WITHDRAWN

3,596,952
LATCH ASSEMBLY
 Ewan M. Hinkle, Laguna Niguel, and David E. Hall, Costa Mesa, both of, Calif., assignors to Shur-Lok Corp., Santa Ana, Calif.
 Filed May 15, 1970, Ser. No. 37,579
 Int. Cl. E05c 9/08, 9/14
 U.S. Cl. 292—27

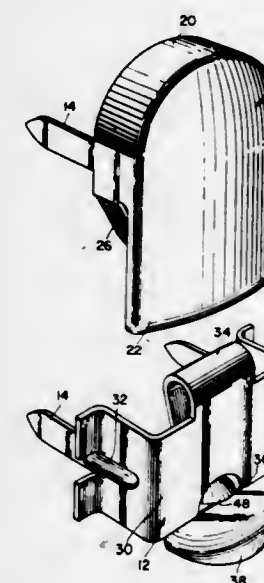
7 Claims



A slide button actuates a bellcrank or pair of bellcranks which in turn latch or latches by converting the linear motion of the slide button to rotary motion and transmitting this motion through connecting rods to the latch or latches. The button, its housing, the bellcranks and rods are embodied in a planar assembly which can be quite thin for maximum concealment in a door panel or the like.

3,596,953
LEATHER GOODS CLASP
 Andre Gastaldi, Fontaine, France, assignor to A. Raymond, Grenoble, France
 Filed May 21, 1969, Ser. No. 826,559
 Claims priority, application France, Dec. 3, 1968, 176,365
 Int. Cl. E05c 19/06
 U.S. Cl. 292—87

6 Claims



This invention is directed at a clasp including a female member having the form of an inverted cup which extends toward the male member. The female member has a hood terminated by a flange under which a male beak of attachment can lock and has lateral tabs insuring the guidance of the male element when the clasp is being closed. The male element of the clasp includes a plate having substantially the form of a T whose crossbar forms a trigger guard designed to be fixed to the article to which the clasp is fitted, and a leg bent under the guard in such a way as to project beyond the latter with its end forming the attachment beak and also serving as a key for opening the clasp.

3,596,954

UNIVERSAL SLIDING DOOR HANDLE AND LATCH ASSEMBLY

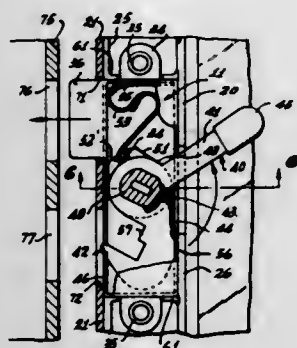
Ben A. Hull, Van Nuys, and Bernard C. Governale, Covina, both of, Calif., assignors to W & F Manufacturing, Inc., Glendale, Calif.

Continuation-in-part of application Ser. No. 805,782, Mar. 10, 1969, now abandoned. This application Sept. 26, 1969, Ser. No. 864,266

Int. Cl. E05c 19/14

U.S. Cl. 292-128

13 Claims



A handle having opposed abutments between which an elongated handle base is received and held against relative lateral and longitudinal displacement. The base, in turn, is adapted to receive a cartridge, incorporating a latch mechanism and holddown device, in either of two indexed positions whereby the possible combination of relative positions of the handle, base and latch cartridge can accommodate left- or right-hand, inside or outside sliding doors. Alternatively, the base mounts a latch actuating lever while the latch cartridge is mounted in the door stile within a mortised mount that receives a latch keeper secured to the door jamb to provide a double holddown, first, between the cartridge and the keeper and, second, between the mortised mount and the keeper.

3,596,955

AUTOMOBILE DOOR CLOSURE OPERATING ASSEMBLY

Hans Colell, Schwieberdingen, Germany, assignor to Firma Dr. Ing.h.c.F. Porsche KG, Stuttgart-Zuffenhausen, Germany

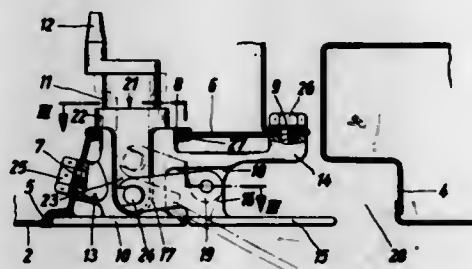
Filed Apr. 4, 1969, Ser. No. 813,627

Claims priority, application Germany, Apr. 4, 1968, P 31 217/63c

Int. Cl. E05c 1/14; E05b 3/00

U.S. Cl. 292-165

5 Claims



A door closure operating assembly, particularly for a door of an automotive vehicle body, including a fastening element with a locking member and a handle pivotable about an axis extending in a substantially vertical direction operatively engaging with the fastening element, wherein a depression is formed in a door panel in the region of attachment of the handle such that the handle lies flush with the major portion of the door panel when the handle is in a closed position.

3,596,956

DOOR LOCKING DEVICE

Kohichi Yoshie, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Aichi, Japan

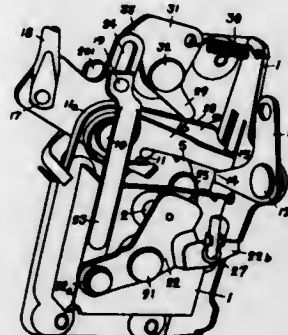
Filed Aug. 27, 1969, Ser. No. 853,427

Claims priority, application Japan, Aug. 31, 1968, 43/62591

Int. Cl. E05c 3/26

U.S. Cl. 292-216

4 Claims



A door locking device wherein a rotary member in which a latch and step are formed is secured to a shaft pivoted rotatably to a baseplate of the door locking device on the side of a door, the force of a spring energized in one direction around the shaft is applied to rotary member, and an engaging lever formed with a step to be engaged with the step of the rotary member is pivoted rotatably to the baseplate, engagement between the two steps being insured by the application of the force of a spring. Separately from the engaging lever, an unlocking lever is pivoted to the baseplate in such a manner that part of the unlocking lever and part of the engaging lever are disposed close to each other. The unlocking lever is provided with an elongated hole while the engaging lever is formed with an abutment at its adjoining edge over a section corresponding to the length of the elongated hole. A lateral pin is provided on a free end of a connecting rod related with one end of a locking lever pivoted to the baseplate, and this lateral pin is fitted into the elongated hole and protruded therefrom so as to contact the abutment of the engaging lever. Further, an automatic unlocking lever applied with resilient force so as to always abut against the engaging lever with one of its ends is pivoted to the baseplate, while the automatic unlocking lever is provided at the other end with a pawl to abut the lateral pin moved to such a position as not to contact the abutment provided on the engaging lever during the locking operation of the locking lever. But when locking operation is performed while the unlocking lever is maintained at an unlocking position at the time of the locking operation of the locking lever, the lateral pin fitted into the elongated hole of the unlocking lever is prevented from abutting against the pawl at the other end of the automatic unlocking lever even when the automatic unlocking lever is revolved.

3,596,957

CLOSURE LATCH

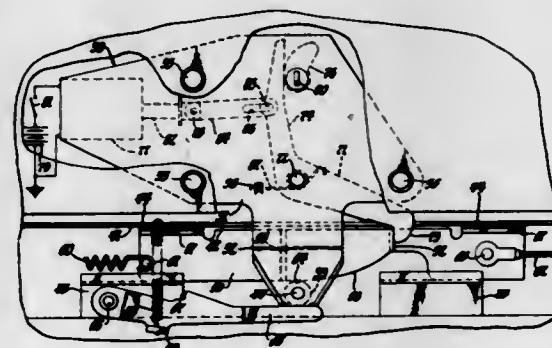
Edmond R. Gionet, Warren, and Theodore F. Peters, Utica, both of, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 31, 1969, Ser. No. 846,451

Int. Cl. E05b 63/20; E05c 19/00

U.S. Cl. 292-332

10 Claims



A closure latch for a vehicle body deck lid or the like includes a striker mounted to the deck lid for movement with

the deck lid and being positioned thereon to be in operative relation to a latch member in the form of a wedge plate slidably mounted on the vehicle body. The wedge plate is reciprocable between an unlatched position, a latched position and a release position with movement from the unlatched position to the latched position and from the latched position to the release position being power assisted so that during final closure, the wedge plate is power driven to effect latching whereby the deck lid is firmly forced into closure contact against the vehicle body with a weather seal therebetween and whereby further power movement of the wedge plate will effect a power-assisted unlatching of the deck lid, a releasable detent mechanism being used to hold the wedge plate in a latched position.

3,596,958

MAGNETIC LOCK

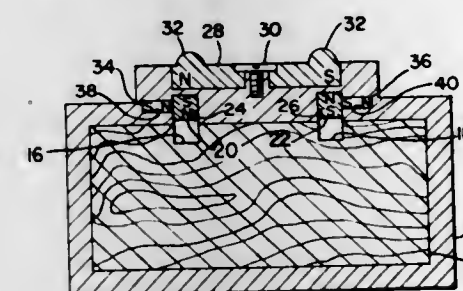
William R. Bowerman, 34 Todd Pond Road, Lincoln, Mass.

Filed Aug. 27, 1969, Ser. No. 853,257

Int. Cl. E05c 3/14, 3/04; F16d 1/12

U.S. Cl. 292-201

7 Claims



Two relatively movable members are locked in position with respect to one another by means of a pair of movable magnetic locking elements disposed in sockets in one member and adapted to move into cooperating sockets in the other member when aligned therewith. One member is provided with a control magnet in proximity to the sockets and the locking elements and movable with respect thereto. The poles of the locking elements are reversed to one another whereby the control magnet, in one position, will drive the locking elements into a locking position and, in another position, will retract the locking elements. Keeper magnets are provided to hold the locking elements in locked position.

3,596,959

DOOR LOCK MECHANISM FOR SLIDING DOOR MEANS

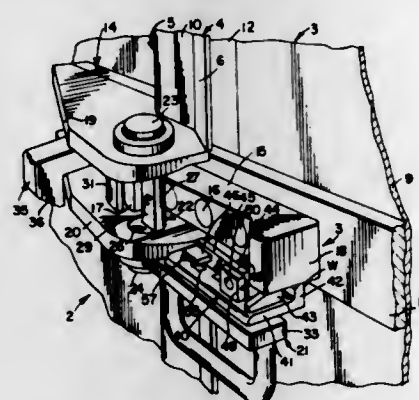
Ray L. Ferris, Thornton, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 30, 1968, Ser. No. 787,645

Int. Cl. E05c 3/14

U.S. Cl. 292-205

9 Claims



In a sliding door assembly a lock mechanism comprising a horizontally extending elongated locking latch mounted on the sliding door and having a latch head, a pivotal catch including a handle and cam mountable on the doorpost and spaced away therefrom to define a latch-receiving space, the locking operation occurring upon rotation of the handle to

the locked position and having the catch cam entrap the latch head between the cam and the doorpost, hook means preventing movement of the catch in the unlocking position, and secondary locking means including complementary registering holes on a secondary lock element on the door and on the handle, further seal holes provided on the secondary lock element and on the handle and a movable locking arm pivotally mounted on said locking element and having a cam registering with an opening in the handle in the locked position of the secondary lock means.

3,596,960

AUXILIARY LOCK FOR DOORS OF MOTOR VEHICLES

Gustav Mayer, and Horst Klebba, both of Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

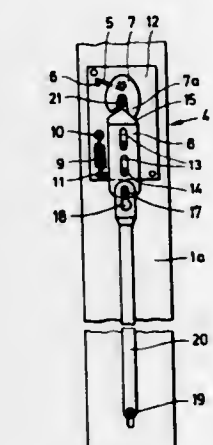
Filed May 15, 1969, Ser. No. 824,901

Claims priority, application Germany, June 6, 1968, P 17 03 532.4

Int. Cl. E05c 3/26

U.S. Cl. 292-216

5 Claims



An auxiliary lock for doors of motor vehicles, having a fork member on the impact side of the door which is swiveled by a closing bolt on the doorpost under a spring load. A stop bolt is connected with an operating peg of the main lock, and a spring is provided with the bolt engaging by means of the spring between the prongs of the forked member.

3,596,961

PORTABLE DOOR LOCK

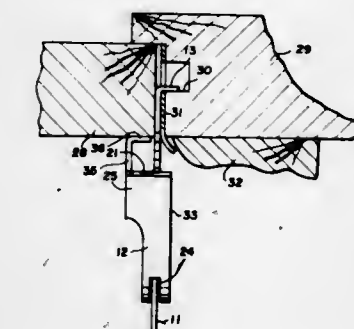
Aaron Harry Lippman, Rochester, N.Y., assignor to Brainerd Manufacturing Co., Inc.

Filed Apr. 7, 1970, Ser. No. 26,235

Int. Cl. E05c 19/18

U.S. Cl. 292-292

5 Claims

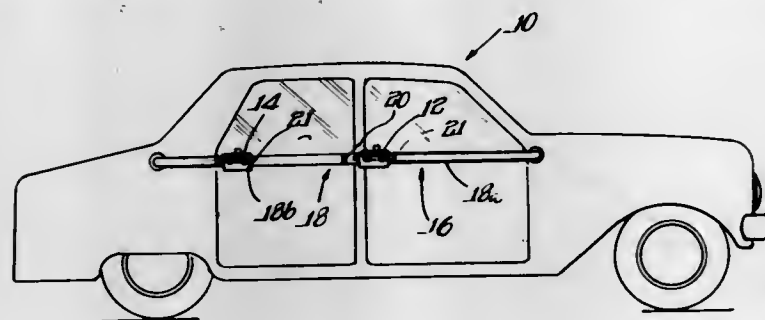


A portable door lock having a toothed latch bar with a hook for engaging the door frame and a blocking member slidable on the latch bar for latching into the teeth to block the door from opening is improved by making the blocking member as a simple, resilient U-shaped band having overlying cross tabs extending across the ends of the U to engage the teeth. Slots are formed in both tabs and in the U-portion for receiving the latch bar, and finger grip regions on each side of the blocker allow it to be squeezed to release the tabs from the teeth.

3,596,962
SIDE BUMPER GUARD FOR AN AUTOMOBILE
 Adelbert F. Hertzell, 5024 Lee Street, Skokie, Ill.
 Filed Oct. 3, 1969, Ser. No. 863,548
 Int. Cl. B60r 19/04

U.S. Cl. 293-1

4 Claims

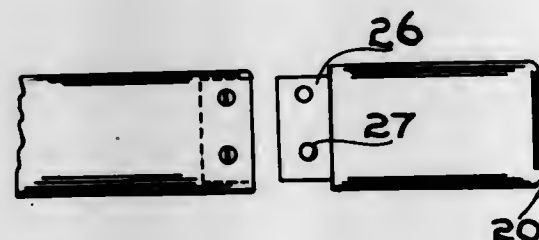


A bumper guard assembly apparatus to be attached to an automobile comprising a bumper guard and means to move the bumper guard in one direction when the apparatus is in use and in an opposite direction when the apparatus is not in use, whereby the same need not be completely detached from the automobile at any time.

3,596,963
BREAKABLE BUMPER EXTENSION
 Francis Lee Phillips, 6909 Sunnyside Way, Valley Station, Ky.
 Filed July 22, 1969, Ser. No. 843,718
 Int. Cl. B60r 19/04

U.S. Cl. 293-76

6 Claims



A breakable elongated bumper extension fabricated of a glass-fiber-reinforced polymer to be mounted on the end of the middle portion of a truck bumper. Upon impact with a guard rail or other object, the extension will break off rather than bend. This prevents a bent bumper from locking the front wheel of the truck. The middle section of the bumper, attached to the projecting frame members of the truck, provides protection against head-on impact. The extension prevents rocks and other objects from being thrown forwardly by the truck's front wheel into the windshield of oncoming automobiles.

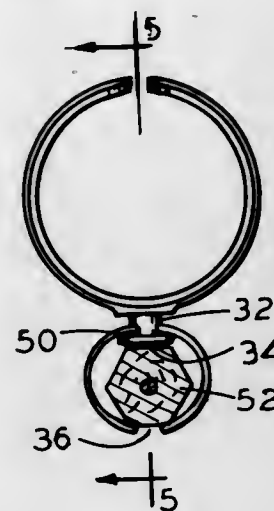
3,596,964
WRITING IMPLEMENT HOLDER
 Joseph R. Zazzara, 302 Albert Road, Syracuse, N.Y.
 Filed Dec. 19, 1968, Ser. No. 785,112
 Int. Cl. B65g 7/12

U.S. Cl. 294-25

1 Claim

Finger writing implement holder comprising a split resilient

finger band having a short stem with a shallow head and an implement-holding split resilient sleeve, having a keyhole-

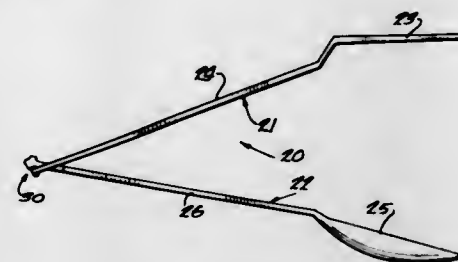


shaped slot extending inwardly from a side edge, the circular aperture of which embraces the stem.

3,596,965
MULTIPURPOSE HAND UTENSIL
 Cecil B. Woofert, Newton, Iowa, assignor to The Vernon Company
 Filed Oct. 22, 1968, Ser. No. 782,500
 Int. Cl. A47j 45/00

U.S. Cl. 294-28

1 Claim

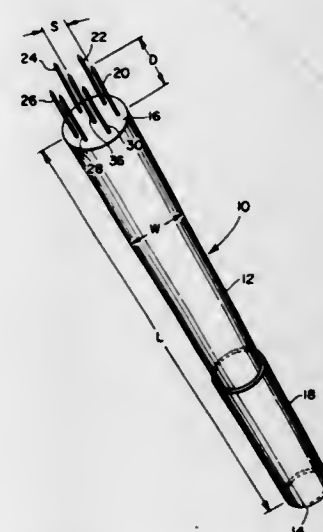


A multipurpose household hand utensil comprising individual, separate complementary members having elongated handles detachably hingedly connected to perform as gripping tongs and separately useable.

3,596,966
WEEDER
 Fred H. Shredl, 7270 Mayberry Drive, Parma, Ohio
 Filed Feb. 19, 1969, Ser. No. 800,574
 Int. Cl. A01k 81/04

U.S. Cl. 294-61

5 Claims



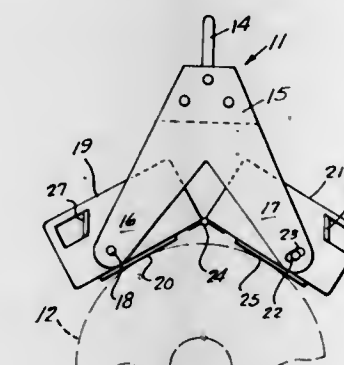
A device for pulling weeds. The device has a handle with a plurality of prongs projecting from one end of the handle.

The prongs engage the weed and break up the ground surrounding the weed as the handle is rotated. The weed becomes entangled in the rotating prongs which are withdrawn from the ground to extract the weed.

3,596,967
LIFTING DEVICE
 Cecil J. Carter, Hobart, Ind., assignor to United States Steel Corporation
 Filed Jan. 31, 1969, Ser. No. 795,564
 Int. Cl. B66c 1/04; B21b 31/06

U.S. Cl. 294-65.5

1 Claim

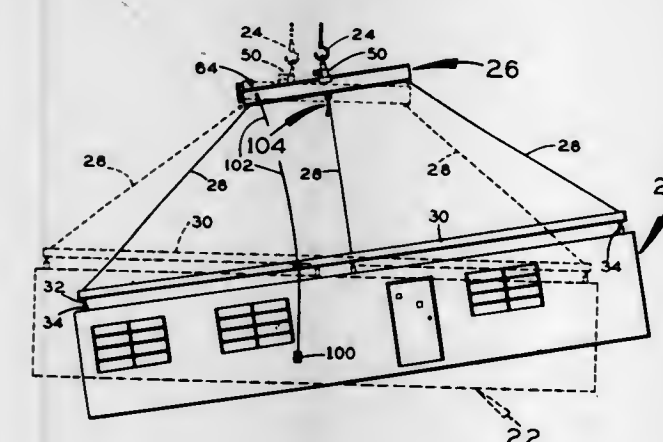


A magnetic lifting device for rolls of strip steel, or the like. The device consists of a frame having a pair of electromagnets pivoted thereto. The electromagnets are hingedly connected at their inner ends so that they can assume a configuration in accordance with the contour of a steel roll or other object of magnetic material being lifted. Thus, the electromagnets can engage either the arcuate periphery of a roll of strip steel, or the flat end of the roll.

3,596,968
LIFTING APPARATUS
 John J. Holm, Hollywood, Fla., assignor to Behring Corporation, Ft. Lauderdale, Fla.
 Filed Jan. 9, 1970, Ser. No. 1,779
 Int. Cl. B66c 1/00

U.S. Cl. 294-67 AA

10 Claims



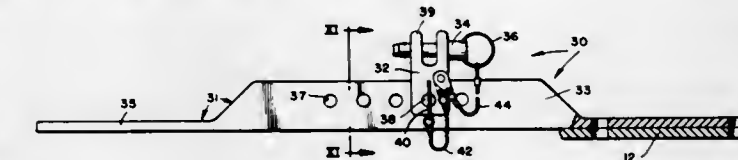
Lifting apparatus for lifting and controlling a three-dimensional load, particularly a module for a modular building. The apparatus includes a lifter mounted on a movable support connected to a frame. The lifter is adapted to be lifted by a crane or other power means. The frame is adapted to be connected to the load as with securing lines. A first drive mechanism is operatively connected to the lifter for moving it relative to the support in first and second opposite directions, and a second drive mechanism is operatively connected to the support for moving the support and the lifter thereon in opposite directions perpendicular to the first and second directions. The drive mechanisms include electrical motors which are controlled by control apparatus operable to actuate the motors to position the lifter at any point in a plane in order to control the angle of the load while lifted.

3,596,969
WEAPON-HANDLING SKID
 Leonard La Rosa, Jr., Ridgecrest, Calif., assignor to the United States of America as represented by the Secretary of the Navy.

Filed Mar. 20, 1969, Ser. No. 808,842
 Int. Cl. B66c 1/10

U.S. Cl. 294-67 DB

5 Claims

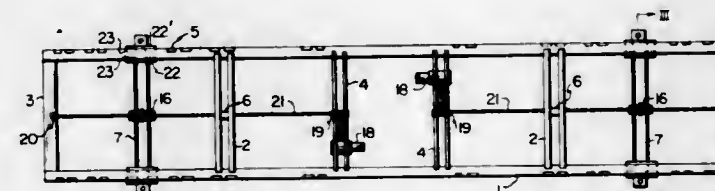


A method and apparatus is provided for the loading of heavy ordnance onto the bomb racks of aircraft. The invention involves the modification of existing bomb carts or skids by the addition of hoisting adapters so that the bomb and skid may be raised together for placement of the bomb and then the skid lowered to the ground or deck. The adapters are adjustably mounted so that the bomb hoist hoisting cables may be attached to the assemblage at or near the center of gravity.

3,596,970
MECHANICAL GRIPPER FRAME UNIT LIFTING DEVICES FOR PARALLEL-WALLED CONTAINERS OR THE LIKE
 Robert Levert; Roger Poupon, and Robert Rousse, all of Paris, France, assignors to Matisa Material Industrial S.A., Crissier, Switzerland
 Filed Apr. 14, 1969, Ser. No. 815,851
 Int. Cl. B66c 1/00

U.S. Cl. 294-67 DA

3 Claims



A mechanical gripper frame unit for devices utilized for lifting parallel-walled containers or the like is disclosed. The novel frame unit or apparatus includes two pairs of rotary locking means disposed thereon for gripping the containers at the upper corners thereof. The longitudinal displacement of the pairs of rotary locking means so as to account for different lengths of containers to be lifted is adjustable by displacing each of the rotary locking mean pairs upon a support frame. When the pairs of rotary locking means have reached their desired spaced-apart distance, the rotary locking mechanism thereof is automatically controlled so as to grip the upper corners of the containers. A particularly novel feature of the instant invention concerns the fact that a common drive element serves for both longitudinally displacing the rotary locking mean pairs and for subsequently and automatically causing rotation of the locking mean pairs at their proper location to effect gripping of the container. In this manner, simplification of the lifting apparatus is obtained as is increased efficiency and safety in the handling of the containers to be lifted.

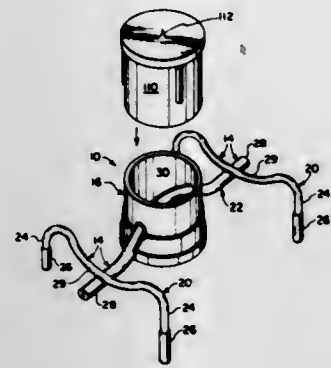
3,596,971
ANCHOR INSERT AND PICKUP UNIT ASSEMBLY FOR A CONCRETE SLAB
 Peter D. Courtois, Des Plaines, and George J. Eriksson, Morton Grove, both of Ill., assignors to Superior Concrete Accessories, Inc., Franklin Park, Ill.
 Filed Jan. 17, 1969, Ser. No. 792,115
 Int. Cl. B66c 1/00

U.S. Cl. 294-89

5 Claims

An anchor insert adapted to be positioned on the foundation surface of a concrete slab form so that when concrete is

poured into the form the insert becomes embedded therein, and a separate pickup unit including a torque stem which, when introduced through a hole in the concrete leading to



the embedded insert and then twisted through an angle of 60°, becomes interlocked with the insert. A bail on the pickup unit enables the latter to be connected to an overhead hoisting mechanism.

3,596,972

TREE CLAMP STRUCTURE

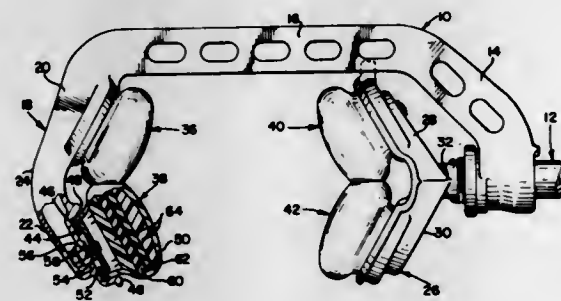
Stuart D. Pool, Wheaton, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Sept. 2, 1969, Ser. No. 854,499

Int. Cl. B25b 5/02

U.S. Cl. 294-103

13 Claims



A tree clamp structure mounted on a boom adapted to be reciprocated to dislodge fruit from a tree. The clamp structure includes fixed and movable jaws having flexible tree-engaging pods thereon. Each pod includes a flexible cap mounted on a jaw to define an airtight chamber containing silicone putty, tire carcass discs, and air to provide a tree-gripping structure for reciprocating a tree without relative movement therebetween.

3,596,973

AUTOMATIC GRAPPLE DEVICE

Adolph Anderson, 238 39th Ave. S., West Richland, and Donald R. Hodgin, 1316 Birch Ave., Richland, both of, Wash.

Filed Aug. 15, 1969, Ser. No. 850,410

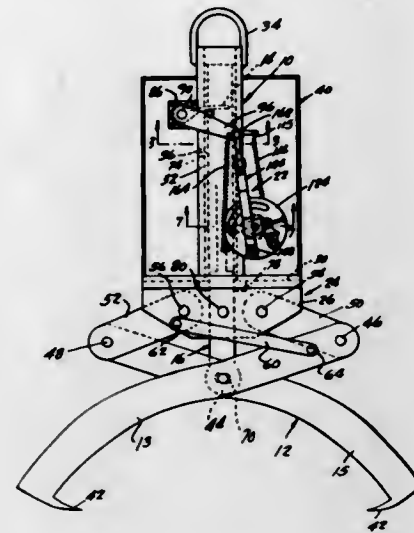
Int. Cl. B25b 5/08

U.S. Cl. 294-110

12 Claims

An automatic grapple for universal application including a support member having a loop for attachment to a hoist, a pair of crossed, barbed tongs pivoted to one another at their crossing point, links connecting one end of each of said tongs to said support member, a ram pivotally connected at one end to the pivot of said tongs, means on said support member defining a path for movement of said ram during closing and opening of said tongs, a trigger extending into said path to be struck by said ram, cooperating latching elements carried by said ram and support member for holding said tongs open,

and link mechanism connecting said trigger to one of said latching elements and operative to move said one latching



3,596,974

AIR CURRENT DEFLECTING DEVICE

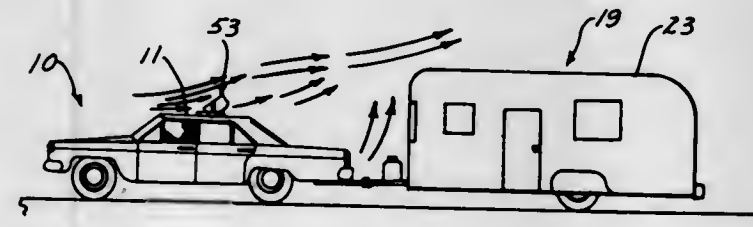
John Q. Adams, Clark, Mo.

Filed Mar. 10, 1969, Ser. No. 805,709

Int. Cl. B62d 37/02

U.S. Cl. 296-1 S

6 Claims



An air current deflecting device for use with a vehicle pulling a trailer or the like. An elongated transparent deflecting shield is pivotally secured to a pair of spaced-apart support members which are detachably secured to the vehicle so as to position the deflecting shield above the roof of the vehicle. The shield includes a face portion having a length approximately equal to the width of the vehicle roof and having wing portions at opposite ends thereof which extend downwardly and rearwardly therefrom. The shield is selectively movable from a position wherein the leading edge of the face portion is positioned below and forwardly of the trailing edge of the face portion so that the inclined face portion will deflect air currents passing over the vehicle roof upwardly and rearwardly above the forward end of the trailer. The lower or leading edge of the shield is positioned above the vehicle roof to permit a certain amount of air to pass therebelow to eliminate the formation of a vacuum pocket rearwardly of the shield means. The shield may also be selectively pivoted to an inoperative position wherein the face portion of the shield is substantially parallel to the roof of the vehicle.

3,596,975

WIND DEFLECTOR FOR AUTOMOBILES

James Stephen, Royal Oak, Mich., assignor to Helm Design & Manufacturing, Inc., Detroit, Mich.

Filed Apr. 23, 1969, Ser. No. 818,581

Int. Cl. B60j 1/20

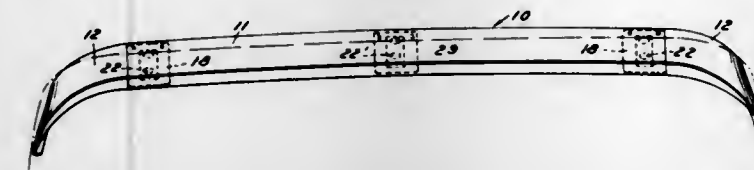
U.S. Cl. 296-1 S

16 Claims

A wind deflector for automobiles comprising a central sheet metal portion having horizontally inwardly extending flanges along the top and bottom edges thereof and die cast end portions telescoped within said flanges. Brackets are fixed to said telescoped portions of said die cast element and

are fastened to the automobile top. An additional bracket is fixed to a member telescoped within said central body por-

pivoted sides providing an end curtain for each side shelter for the vehicle. Space in the unit holds bunks, bedding or the like.



3,596,978

COMBINED A-POST, COWL AND WHEELHOUSE STRUCTURE

Henry W. Wessells, III, Paoli, and Walter S. Eggert, Jr., Huntingdon Valley, both of, Pa., assignors to The Budd Company, Philadelphia, Pa.

Filed July 16, 1969, Ser. No. 842,314

Int. Cl. B62d 21/00

U.S. Cl. 296-28 R

3 Claims

tion intermediate the ends thereof and is also fixed to the automobile top.

3,596,976

VEHICLE CONSTRUCTION FOR USE WITH AERIAL LIFT

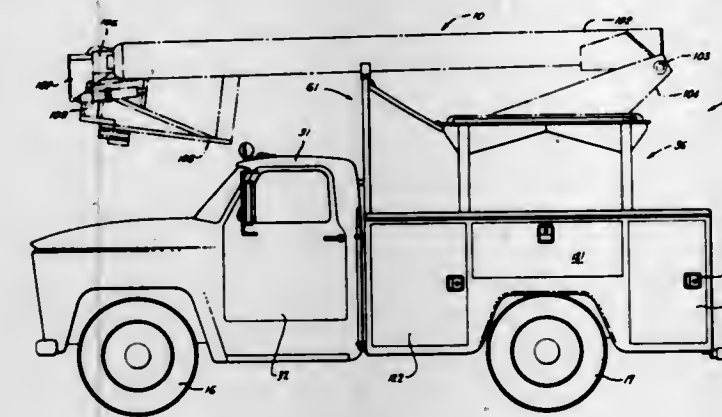
Jay M. Eitel, Atherton; Bertram J. Leigh, Redwood City, and Ferdinand A. Migeot, Oakland, all of, Calif., assignors to General Cable Corporation

Filed May 9, 1969, Ser. No. 823,422

Int. Cl. B66c 23/78

U.S. Cl. 296-24 R

13 Claims



Vehicle construction for use with an aerial lift having a wheeled chassis with a pair of generally parallel, longitudinally extending frame members. A unitary frame assembly is removably mounted on the frame members and is constructed in such a manner that it can be mounted on chassis of different types. The unitary frame assembly includes support pads adapted to be mounted on the frame members, vertical members extending upwardly from the support pads and a mounting ring disposed in a generally horizontal plane mounted on the vertical members. The mounting ring is adapted to have the aerial lift mounted thereon.

A motor vehicle structure which provides for a more shallow A-post structure and a reinforced inner wheelhouse panel for joining to the A-post and transferring loading and shock stresses from the wheels or front end to the A-post. The dash panel, cowl, inner wheel housing and A-post structure forming an open box structure across the front of the passenger compartment.

3,596,979

PLASTIC AUTOMOBILE BODY

Hermann Habitzel, Wolfsburg; Ernst Gallasch, Wolfsburg; Friedrich Jacob, Steimke Ub. Wittingen, and Alfred Patzold, Wolfsburg, all of, Germany, assignors to Messrs. Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed Dec. 6, 1968, Ser. No. 781,889

Claims priority, application Germany, Dec. 7, 1967, P 16 55 650.6

Int. Cl. B62d 29/04

U.S. Cl. 296-31 P

5 Claims

FOLDABLE CAR TOP SHELTER

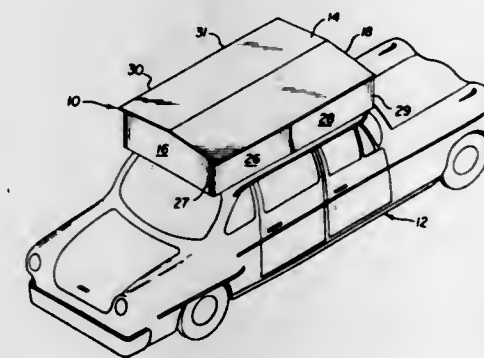
Howard P. Bunker, 6900 West 38th Ave., Wheatridge, Colo.

Filed Aug. 13, 1969, Ser. No. 849,726

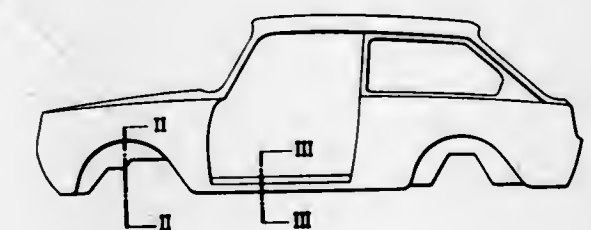
Int. Cl. B60p 3/34

U.S. Cl. 296-27

10 Claims



A foldable car top shelter, having a top and bottom, with a pair of hinged side members on each side carrying rollup curtains pivot outwardly providing side shelter curtains, and a pullout top cover for each side, weather seals with the



An automobile body of synthetic plastic materials of substantially two parts as two large components. The parts are produced by injection moulding and there are flat contacting surfaces for the contacting parts of the body.

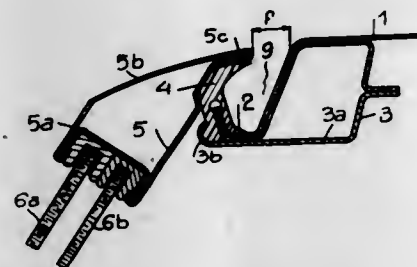
3,596,980

DEVICE FOR EFFECTING A SEAL

Jean G. Cadiou, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France
 Filed Nov. 22, 1968, Ser. No. 778,129
 Claims priority, application France, Nov. 23, 1967, P.V.129,424
 Int. Cl. B60j 7/18

U.S. Cl. 296-154

17 Claims

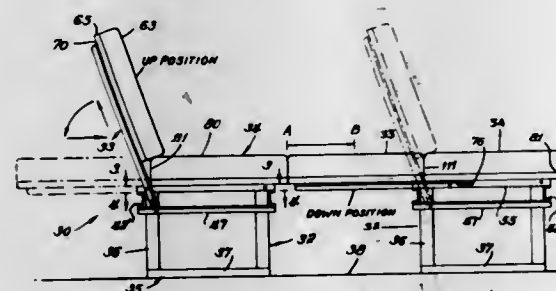


A device ensuring sealing between fixed or movable removable panels and their frame, especially for automobile vehicles, and comprising: a fixed frame element, a movable panel the flanges of which are faired so as to be substantially in alignment with the profile of the frame, and at least one sealing joint fixed on the panel or on the frame in such manner that when the panel comes side by side with its frame there is an interval between the panel flange and the frame, determining the opening of a gutter the bottom of which is constituted by the said joint.

3,596,981
SEAT-BED

Henry J. Koziol, 110 No Yana Drive, Willow Springs, Ill.
 Filed June 23, 1969, Ser. No. 835,500
 Int. Cl. A47c 4/00, 3/00, 17/04
 U.S. Cl. 297-64

5 Claims



A convertible seat-bed particularly well suited for vans, sport vans, campers, remodeled buses, etc., having distinct base, horizontal bench-type seat, and back, the horizontal seat being slideable horizontally, front and back on the base, the back including arms which fit under the seat when the back is placed horizontally on the base. A plurality of the seat beds of this invention, placed in appropriate juxtaposition, provides at least six and up to 12 or more relatively easily achieved combinations for maximum utilization of the seats. A preferred embodiment is conveniently collapsible to provide minimum volume to facilitate shipping, or storage of the unit when not in use.

3,596,982
PATIENT'S CHAIR

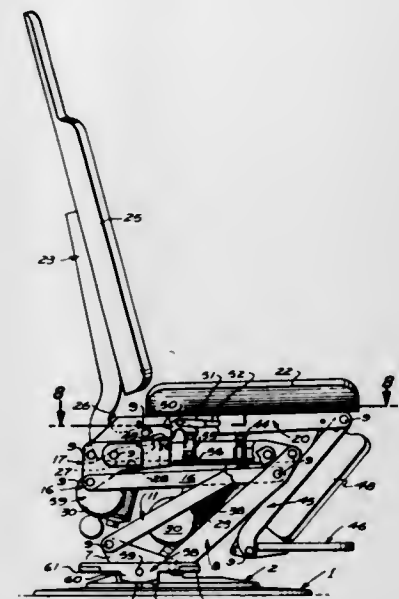
Gunter A. Grams, Costa Mesa, Calif., assignor to Surgical Mechanical Research, Inc., Newport Beach, Calif.
 Filed May 15, 1969, Ser. No. 824,819
 Int. Cl. A47c 1/04

U.S. Cl. 297-71

13 Claims

A chair intended for doctor's patients which is provided with a first electric motor and screw drive power unit, a linkage assembly for raising and lowering the chair, and a second electric motor and screw drive power unit including a linkage

and cam assembly for tilting and horizontally extending the chair; an auxiliary linkage is provided which retracts a



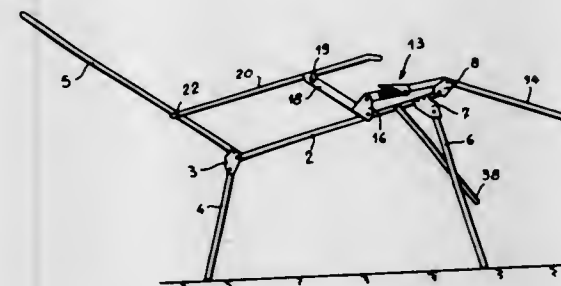
footrest as the chair assumes its lower position to avoid being hit by the patient's or doctor's foot or ankle.

3,596,983

CONVERTIBLE ARMCHAIR

Rene Ramillon, 3, rue Emile Zola, Grenoble, France
 Filed Mar. 21, 1969, Ser. No. 809,172
 Claims priority, application France, Apr. 17, 1968, 49,910
 Int. Cl. A47c 1/02; A61g 15/00
 U.S. Cl. 297-78

7 Claims



A convertible armchair has a framed seat to which the front and back legs, back and footrest are hinged, as well as rods which form a deformable parallelogram with them. An adjustable length telescopic rod is connected to the parallelogram and seat frame to form a second parallelogram with a common side with the first, through hinged gussets and a yoke. The telescopic rod has a cylindrical stop fixed on its male part so as to be guided and received in slots in the female part to set various positions of the back relative to the footrest. A handle is hinged on the female part and has a roller on its lower face arranged to act through a slot in the female part and push down the male part against a spring to release the stop from the slot and move to another slot for another position of the armchair. Additional front legs and a friction system to adjust the effort required may also be provided.

3,596,984

CONVERTIBLE FURNITURE

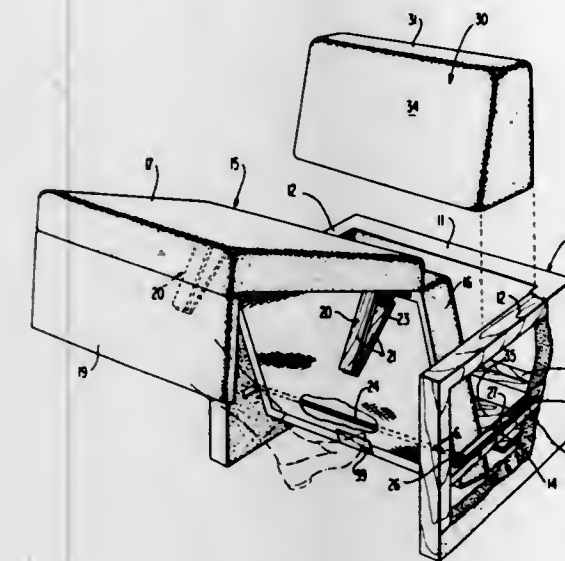
Melvin R. Jones, Baltimore; Victor M. Peruzzi, Forestville, and Joseph G. Peruzzi, Forestville, all of Md., assignors to Victor Stanley, Inc., Dunkirk, Md.
 Filed Apr. 22, 1969, Ser. No. 818,266
 Int. Cl. A47c 13/00

U.S. Cl. 297-105

3 Claims

A convertible seat and bed structure which features simplicity of construction in the absence of complex and costly linkages, ease of operation, and a range of adjustments to

various use positions. The arrangement is such that upholstered surfaces utilized for seating are different from surfaces case it rests on the passenger seat with the baby facing rearwardly. Suitable openings are provided in the baby seat for



utilized for sleeping, and therefore, double-duty surfaces are eliminated and wear is reduced.

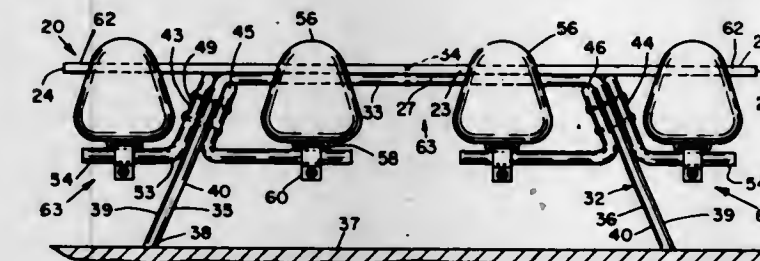
3,596,985

COMBINED TABLE AND CANTILEVERED SEAT ASSEMBLY

Raymond G. Degagne, 37 River St., Graniteville, Mass.
 Filed Apr. 29, 1969, Ser. No. 820,263
 Int. Cl. A41b 41/00

U.S. Cl. 297-157

8 Claims



A preferably polygonal table is supported by longitudinally extending inverted U-shaped legs, the legs being connected into a rigid frame by laterally extending seat support members, each member having a free terminal end extending horizontally outwardly from intermediate of the height of an inclined leg to provide cantilever support for a seat. At least one seat is thus supported from each leg, with each leg sufficiently inclined to avoid unbalanced tilt of the assembly.

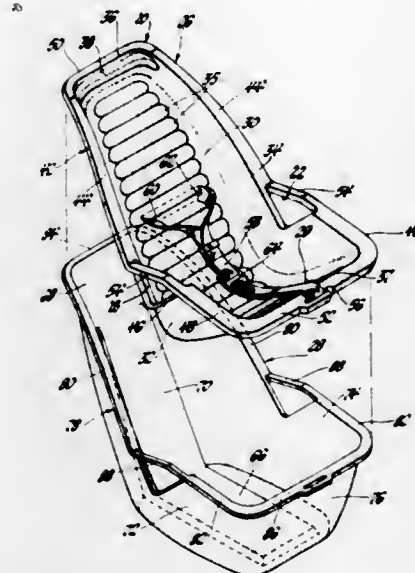
3,596,986
BABY SEAT

La Verne B. Ragsdale, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Mar. 30, 1970, Ser. No. 23,919
 Int. Cl. A47d 1/10

U.S. Cl. 297-183

3 Claims

A baby seat including an outer shell member and an inner shell member formed of a plastic material and fastened together so as to make a rigid unitary member. The baby seat is portable and is adapted to be used in a vehicle, in which



permitting the vehicle seatbelt to serve as a means for holding the baby seat in place.

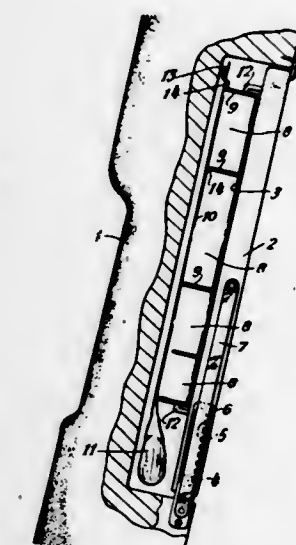
3,596,987

PACKAGING AND SERVING OF FOOD

Anthony A. R. Wilson, Castries, St. Lucia, United Kingdom, assignor to Autair International Airways Limited, London, England
 Filed Mar. 27, 1969, Ser. No. 811,126
 Claims priority, application Great Britain, Apr. 8, 1968, 16,822/68
 Int. Cl. A47c 7/62

U.S. Cl. 297-191

10 Claims



The invention described relates to means whereby prepared meals are made available in hygienic manner in vehicles such as aircraft in which weight, space and personal service are matters of economy. It resides basically in providing storage in the back of a seat accessibly to the next passenger behind, and is therefore concerned with vehicles in which seats are arranged one behind another.

3,596,988

DISPOSABLE COVER FOR CHAIR SEAT

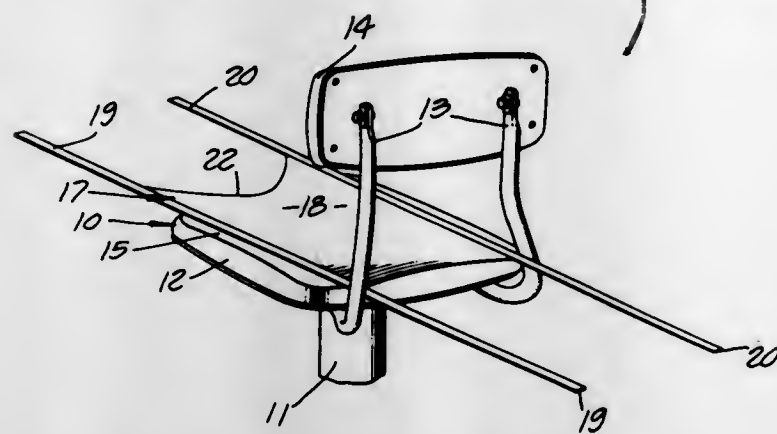
James J. Cowen, 544 North Mission Drive, San Gabriel, Calif.
 Filed June 18, 1970, Ser. No. 47,458
 Int. Cl. A47c 31/10

U.S. Cl. 297-219

2 Claims

A disposable cover for a chair seat is formed of nonwoven fabric material. A central body portion thereof is formed of a single sheet and provided with marginal edges secured to tie strings extending beyond the body portion in both directions. The body portion has a generally V-shaped symmetrical

notch in a forward edge between the marginal tie strings, the notch being constructed to lie adjacent the convex forward



edge of the chair seat to prevent wrinkling of the cover on the surface of the chair seat.

3,596,989 SEAT UNIT

Arthur L. Van Ryn, and Ernest R. Balys, both of Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed May 14, 1969, Ser. No. 824,403

Int. Cl. A47c 31/10

U.S. Cl. 297-219

2 Claims



A seat unit for a folding chair wherein the panlike seat is equipped with a foam pad and fabric seat cover removably secured to the underside of the panlike seat.

3,596,990 ORTHOPEDIC CHAIR

Louis Gottfried, 515 West End Ave., New York, N.Y., and Jacob Berger, 600 West 246th St., New York, N.Y.

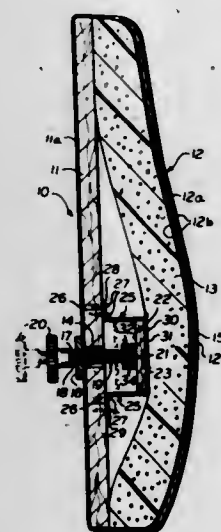
Division of Ser. No. 609,942, Jan. 17, 1967, Pat. No. 3,464,754.

Filed Jan. 2, 1969, Ser. No. 788,547

Int. Cl. A47c 3/00

U.S. Cl. 297-284

6 Claims



The orthopedic chair has a seat including a positioning member and an elastomer layer disposed between a bottom

rigid member and a top layer. A vertically movable bolt means is disposed through an opening in the bottom rigid member for moving a positioning member upwardly thereby causing the elastomer layer to be moved upwardly and producing a curvature in the seat.

3,596,991

CHAIR WITH OCCUPANT-ASSISTING FEATURE

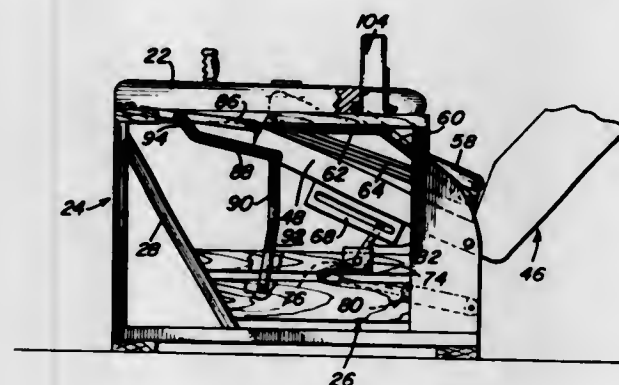
Oliver F. McKee, 9840 West 53rd Ave., Arvada, Colo., and Wayne F. McKee, 2201 Teller St., Lakewood, Colo.

Filed Jan. 14, 1969, Ser. No. 790,981

Int. Cl. A47c 1/031

U.S. Cl. 297-326

15 Claims



An armchair including hydraulically controlled seat and arms whereby a forward and upward pivoting of the arms and seat can be effected so as to raise an occupant from the chair. Alternatively, the seat, in conjunction with a supporting base therefor and the back of the chair, can pivot rearwardly so as to assume a partially reclining position with a footrest, through an appropriate linkage, extending to assume a leg-supporting position.

3,596,992

METHOD FOR RECOVERING SALT FROM A SUBSURFACE EARTH FORMATION

Daniel N. Dietz, Volmerlaan, Netherlands, assignor to Shell Oil Company, New York, N.Y.

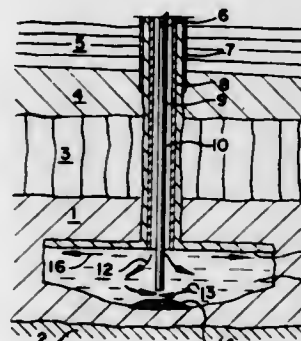
Filed Jan. 14, 1970, Ser. No. 2,765

Claims priority, application Great Britain, July 2, 1969, 33351

Int. Cl. E21b 43/281

U.S. Cl. 299-5

11 Claims



A method for the recovery of salt from a subsurface earth formation containing salt therein by injecting an aqueous liquid followed by an injection of a blanket liquid into a cavity formed in the formation with salt water produced therefrom. The cavity is formed within layers present in the formation which lie below layers containing salt suitable to increase the density of solution present in the cavity and is expanded upwards into these layers. The volume of liquid injected into the cavity and the volume of liquid produced therefrom is measured per unit of time and the difference between these two volumes is determined, the injection rate of the blanket liquid being selectively increased when the difference between the two volumes exceed a predetermined value and reduced when the difference between the two volumes falls below the predetermined value.

3,596,993

METHOD OF EXTRACTING OIL AND BY-PRODUCTS FROM OIL SHALE

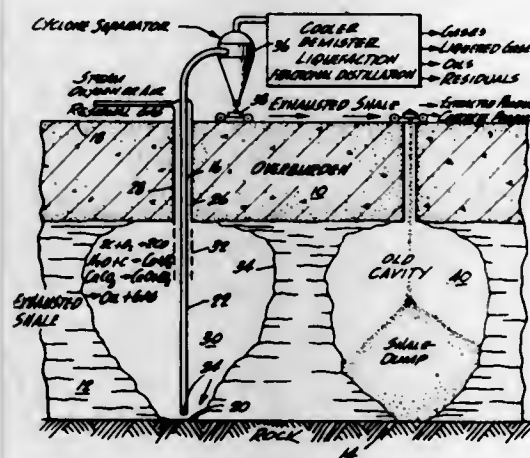
Harold M. Busey, Kennelwick, Wash., assignor to McDonnell Douglas Corporation

Filed Feb. 14, 1969, Ser. No. 799,227

Int. Cl. E21b 43/24

U.S. Cl. 299-5

4 Claims



Oil and by-products are extracted from oil shale by drilling a hole into the shale bed and heating the shale in its bed. Steam and oxygen or air mixtures provide self-sustaining heating that draws oil from the shale in the form of vapor and mist. As the oil is removed, the heat and subsequent water gas reaction changes the hard shale into a whitish, weak structured, friable material. This material falls, of its own weight, to the bottom of the hole, thus exposing new shale for processing. Action of steam with residual carbon in the shale generates hydrogen and adds to the gas flow that carries the oil vapor and mist to the surface, together with the friable material in the form of ash particles. The oil, and any other valuable materials, are separated from the ash before it is either converted to a building block material or dumped into a used shale bed cavity.

3,596,994

MULTIPLE TRENCH DIGGER AND SOIL BAGGER

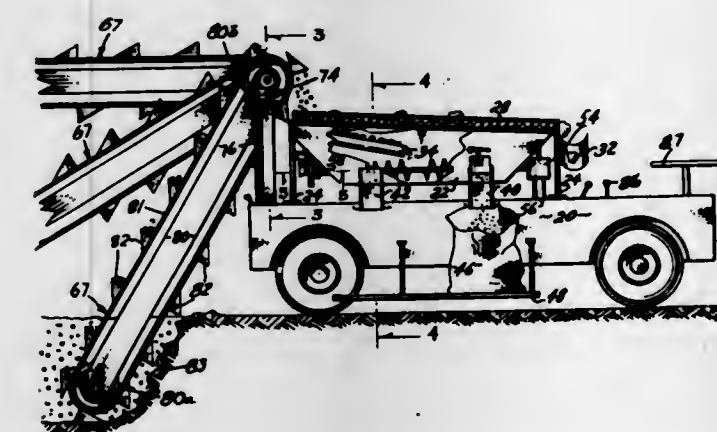
Kenneth S. Garden, 130 West Owens Ave., Las Vegas, Nev.

Filed Dec. 3, 1968, Ser. No. 780,714

Int. Cl. E02f 5/06, 5/10

U.S. Cl. 299-7

4 Claims



An automotive vehicle carrying multiple juxtaposed trench diggers depending rearwardly therefrom for digging a deep trench behind said vehicle as the latter travels, said trench diggers discharging soil excavated from said trench upwardly over and onto a screen-covered power-vibrated hopper carried on said vehicle, from which hopper screened soil freely flows through multiple gate controlled bag filling chutes which are attended by a crew of men walking alongside the vehicle.

3,596,995

CHANNELING APPARATUS AND METHOD

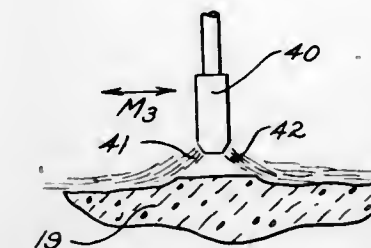
Ernest Marshall Fitzgerald, Norwich, Vt., assignor to Browning Engineering Corporation

Filed May 3, 1968, Ser. No. 726,496

Int. Cl. E21c 37/06

U.S. Cl. 299-14

2 Claims



A jet flame rocket burner for working rock and other spallable mineral material. Channels are formed in rock masses by opposing jets moved over the surface of the rock.

3,596,996

METHOD AND APPARATUS FOR USING A BACK HOE BUCKET AS A FROZEN GROUND RIPPER

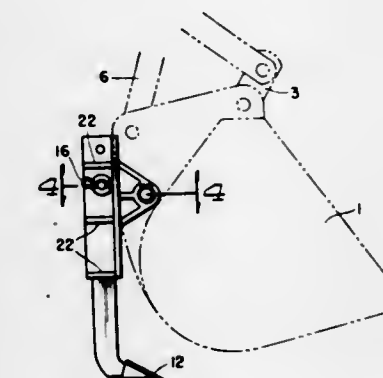
Jack D. Carter, 609 Curdes Ave., Fort Wayne, Ind.

Filed May 16, 1969, Ser. No. 825,162

Int. Cl. E02f 3/76

U.S. Cl. 299-10

8 Claims



A two-piece multiposition ripper attachment for a back hoe is disclosed. In a first position, the attachment is stored out of the way so as to not interfere with normal use of the back hoe. In a second position, the attachment and method is exposed so that the back hoe may be used as a ripper in one orientation and may be used to perform its normal functions in a second orientation.

3,596,997

MACHINE FOR EXCAVATING GALLERIES

Alfred Valantin, Clermont, France, assignor to Charbonnages De France, Paris, France

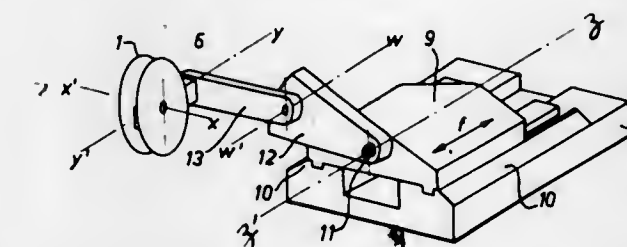
Filed May 13, 1969, Ser. No. 824,140

Claims priority, application France, May 17, 1968, 152,304

Int. Cl. E21c 25/62

U.S. Cl. 299-72

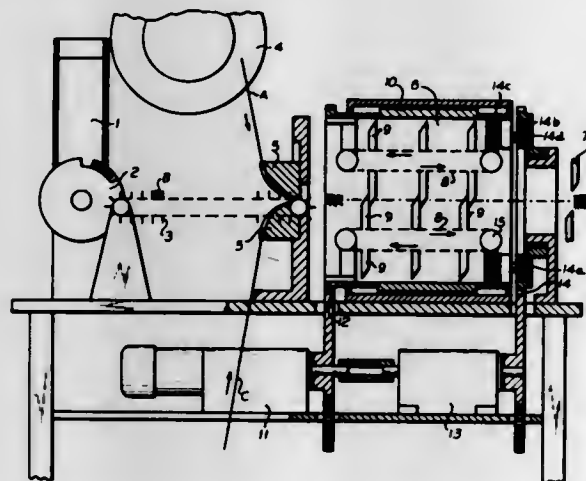
5 Claims



A machine for excavating galleries or levels in mines by means of a cutting head which is arranged in such manner that it cuts out, in the wall to be mined, grooves in which the outlines on a vertical plane are parallel in pairs but always perpendicular to the flat wall and cut this latter along successive flat vertical surfaces.

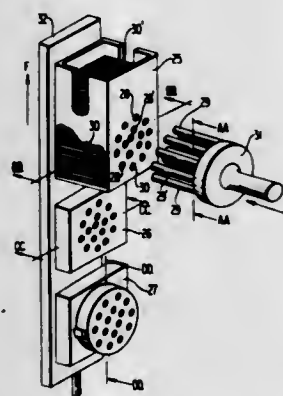
The cutting head is consequently formed by two parallel discs provided with picks driven in rotation by a shaft at right angles to the axis of the gallery and carried by a disc-carrier head which is orientable with respect to a longitudinal axis parallel to the axis of the gallery.

3,596,998
APPARATUS FOR CONTINUOUS MANUFACTURE OF CYLINDRICAL BRUSHES
Alfred Romanowski, Kleinfelchen, and Richard Weiss, Troisdorf, both of Germany, assignors to Dynamit Nobel Aktiengesellschaft
Filed Feb. 27, 1969, Ser. No. 802,826
Claims priority, application Germany, Mar. 2, 1968, P 16 32 368.5
Int. Cl. A46d 9/00
U.S. Cl. 300-2 5 Claims



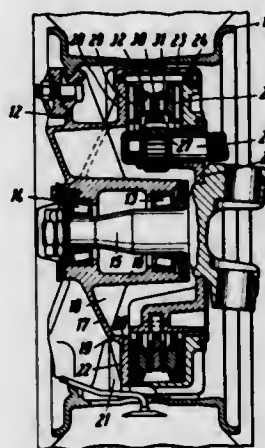
Cylindrical brushes manufactured by the direct twisting of two wires, tensioned parallel to one another, between which bristles are introduced during the twisting operation.

3,596,999
NOVEL BRUSH MACHINERY AND BRUSH CONSTRUCTIONS
John C. Lewis, Jr., Middlebury, Vt., assignor to Tucel Industries, Inc., Middlebury, Vt.
Division of Ser. No. 578,840, Sept. 12, 1966, Pat. No. 3,471,202.
Filed Oct. 25, 1968, Ser. No. 841,160
Int. Cl. A46d 1/08
U.S. Cl. 300-21 5 Claims



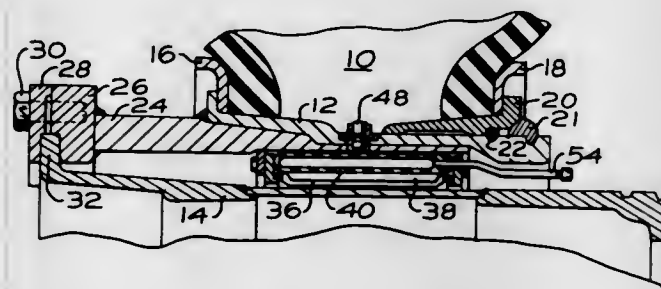
This invention consisting of a new and useful method for making brush and brush-related articles, allows tufted brush components to be manufactured having pretrimmed synthetic filament tufts. The method consists in picking precut filament from its trim end and simultaneously trimming and forming the tuft. This method also allows for complete brush constructions to be manufactured in the same instant of time required for inserting single tufts into similar constructions.

3,597,000
WHEEL WITH DISC BRAKE
Hermann Klau, Av. des Planches 3, Montreux, Switzerland; Karlheinz Kalberlah, Av. des Brayers 1, Clarens, Switzerland; Alfred Cormann, Oststr. 4, Remscheid, Germany, and Werner Guntche, Geschw. Schollstr. 32, Remscheid, Germany
Filed May 2, 1969, Ser. No. 821,265
Claims priority, application Germany, Oct. 15, 1968, P 18 03 076.7
Int. Cl. B60b 1/06
U.S. Cl. 301-6 E 10 Claims



A wheel with disc brake in which the housing of the disc brake is located in an annular space defined to one side of the spokes between the rim and the hub of the wheel and in which the brake housing is so connected to the hub that elastic deformations imparted to the spokes are not transmitted to the brake housing and heat developed in the brake is not directly transmitted to the wheel rim.

3,597,001
TIRE RIM ADAPTER
Raymond S. Morford, and Byrl A. Jedlicka, both of Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed July 8, 1969, Ser. No. 839,845
Int. Cl. B60b 23/00
U.S. Cl. 301-11 8 Claims



An adapter device to connect a tire rim to a tire rim of smaller diameter so that the first tire rim and an inflated tire thereon may be used for test driving a piece of heavy equipment before it is sold. The purpose is to enable a set of test tires to be used repeatedly so that the machine can be sold with new tires which have not been marred during testing. The adapter includes an inflatable tube and drive lugs disposed between the tire rim on the machine and the rim of the test tire.

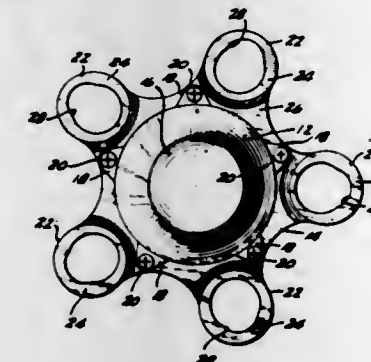
Manufacturers of large earthmoving machinery generally operate machines on a test track prior to delivery to a dealer. If during this final check, the tires are marred or even badly soiled, the dealer or eventual customer may demand a discount. Since large tires often cost thousands of dollars each, this becomes very costly to the manufacturer. Using the same tire repeatedly for test purposes and changing to new tires when the machine is delivered is one solution, but this too creates expense in the form of labor involved in mounting two sets of tires rather than one.

3,597,002
TIRE WHEEL TRIM STRUCTURE
Herbert Buerger, Walton, N.Y., assignor to Del Krome Corp., Walton, N.Y.
Filed Apr. 28, 1969, Ser. No. 819,853
Int. Cl. B60b 7/04; B60c 13/00
U.S. Cl. 301-37 5 Claims



A spring ring is attached to a tire-carrying wheel cover or other annular wheel trim overlying the wheel, and is provided with spring fingers to grip the rim of the wheel. A white wall tire-simulating member is assembled with the ring and cover trim. This member has a portion overlying a portion of the tire, and also has a thickened annular inner edge or bead which fits into an annular channel provided by the ring and trim or cover. This thickened bead and the channel are so shaped that the bead is easily inserted into the channel and has an outwardly facing annular shoulder surface engaging an annular inwardly facing shoulder of the channel, whereby an outward radial pull on said member will cause the shoulder on the channel to hold said member in place against being pulled out. Said inner bead of said member is of triangular shape in radial cross section so that it enters the channel easily and without necessity for squeezing or forcing it into the channel.

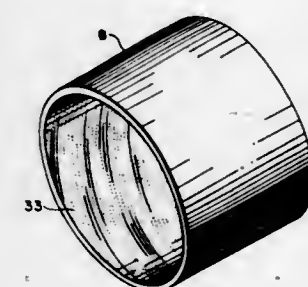
3,597,003
SPINNER HUB CAP
Alex Kraus, 1650 West Rosecrans Ave., Gardena, Calif.
Filed May 1, 1969, Ser. No. 820,860
Int. Cl. B60b 7/04
U.S. Cl. 301-108 S 4 Claims



A spinner hub cap having a substantially frustoconical hollow cover member adapted to receive the hub of an automobile wheel, the screws extending through apertured ears on the cover for fastening a flange to the base of the cover wherein the flange includes a plurality of equally angularly spaced lug bolt receiving apertures, the apertures being defined by two contiguous overlapping circles, each of a different diameter and having a different center located on the

same radian extending from an axis of rotation of the spinner hub cap.

3,597,004
CONDUITS FOR PLASTICS CONVEYING SYSTEMS HAVING PATTERNED INDENTATIONS IN THE INTERNAL SURFACE OF THE CONDUITS
Garland B. Keith, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed May 21, 1968, Ser. No. 730,799
Int. Cl. B65g 53/34
U.S. Cl. 302-64 5 Claims



A device for production of patterned indentations in the internal surface of conduits employed in plastics conveying rollers and with a toothed indenting roller. The device is adapted to fit closely within a pipe, tube, fitting, conduit or the like and to be rotatably driven in such a manner as to produce indentations on its inner surface. The indenting effect is accomplished by means of the toothed roller being pressured into contact with the inner surface. The invention also includes the product thus produced. Such product is characterized by its ability to convey particulate or pelleted plastic material in a pneumatic or other conveying system with little or no tendency to become obstructed by the abrasive removal of portions of plastic material which may have become deposited on its internal surface as the pelleted plastic material passed therethrough.

3,597,005
SULFUR-HYDROCARBON SLURRY PIPELINE TRANSPORTATION CONTAINING AN ASPHALTENIC MATERIAL
Mary Frances Vondrak, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Oct. 30, 1968, Ser. No. 772,008
Int. Cl. B65g 53/04
U.S. Cl. 302-66 6 Claims

An improved method of transporting sulfur-liquid hydrocarbon slurries through pipelines without causing plugging or corrosion of the pipelines.

The invention relates to an improved and novel process of preventing plugging and corrosion of pipelines transporting sulfur in the form of a sulfur-liquid hydrocarbon slurry by addition thereto of a small amount of an aqueous solution and an asphaltenic material.

3,597,006
SULFUR-HYDROCARBON SUPPLY PIPELINE TRANSPORTATION CONTAINING AQUEOUS SOLUTIONS OF AN ORGANIC SULFONATE
Mary Frances Vondrak, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Oct. 30, 1968, Ser. No. 772,009
Int. Cl. B65g 53/04
U.S. Cl. 302-66 6 Claims

An improved method of transporting sulfur-liquid hydrocarbon slurries through pipelines without causing plugging or corrosion of the pipelines by addition thereto of a small amount of an organic sulfonate.

3,597,007 SULFUR-HYDROCARBON SLURRY PIPELINE TRANSPORTATION CONTAINING ORGANIC INHIBITORS

Mary Frances Vondrak, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

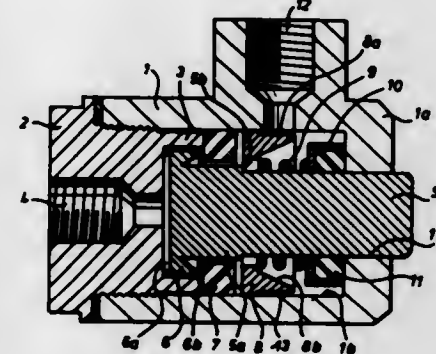
Filed Oct. 30, 1968, Ser. No. 772,010

Int. Cl. B65g 53/04

U.S. Cl. 302-66 10 Claims
An improved method of transporting sulfur-liquid hydrocarbon slurries through pipelines without causing plugging or corrosion of the pipelines.

The invention relates to an improved and novel process of preventing plugging and corrosion of pipelines transporting sulfur in the form of a sulfur-liquid hydrocarbon slurry.

of the piston rod through an end wall of the cylinder, and the annular collar has on its external surface remote from the pistonhead packing a recessed cylindrical portion of the



3,597,008 CONTROL VALVE

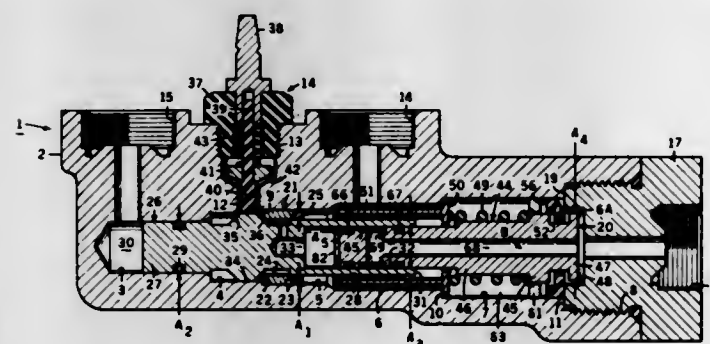
Edward J. Falk, St. Louis, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Oct. 2, 1969, Ser. No. 863,139

Int. Cl. B60t 8/26, 11/34, 17/22

U.S. Cl. 303-6 C

15 Claims



A control valve for use in a dual or split brake system having a switch-operating piston movable from a centered position toward opposed translated positions in response to a predetermined differential between separately supplied pressures acting thereon, and a metering piston movable to effect a metered application through said control valve of one of the supplied fluid pressures. The switch-operating piston and metering piston define a bypass passage subjected to the applied fluid pressure and isolated from the one supplied fluid pressure when the switch-operating piston is in its centered position, said bypass passage being subjected to the one supplied fluid pressure upon the movement of the switch-operating piston to one of its translated positions in order to obviate the metering actuation of the metering piston.

3,597,009 PRESSURE REDUCER DEVICES

Philip Sidney Baldwin, Florence, Italy, assignor to Fiat Societa per Azioni, Turin, Italy and A.G. Racepit, Lucerne, Switzerland, part interest to each

Filed July 9, 1969, Ser. No. 840,348

Claims priority, application Italy, July 11, 1968, 52398A-68
Int. Cl. F16k 17/26

U.S. Cl. 303-6 C

5 Claims

A pressure reducer device, for use in vehicle hydraulic brake systems, has a piston mounted for sliding movement in a cylinder, the pistonhead subdividing the cylinder into high-pressure and low-pressure chambers, communication between which is controlled by a resilient annular packing cooperating with the piston head. This invention concerns the improvement whereby an annular collar is mounted for sliding movement in the cylinder in proximity to the annular pistonhead packing to serve as a stop engaged by one end of a spring located in the high-pressure chamber. The spring bears at its other end against an annular seal for the passage

smaller diameter than the internal diameter of the cylinder and which is disposed opposite an inlet port in the cylinder wall for connection to a master cylinder.

3,597,010 PRESSURE CONTROL VALVE

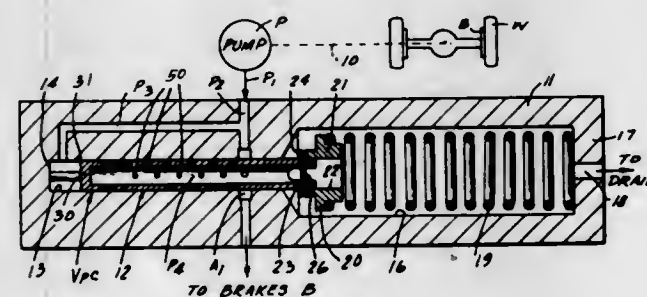
George A. Berman, Detroit, and Graydon J. Cholski, Utica, both of, Mich., assignors to TRW Inc., Cleveland, Ohio

Filed Nov. 21, 1969, Ser. No. 878,665

Int. Cl. B60t 8/06, 13/16

U.S. Cl. 303-10

2 Claims



A pressure-compensating valve for use with a hydraulic skid control brake system wherein a cylindrical bar stock piece is machined to provide a center flow pintle cooperable with an annular scanning annulus, thereby to provide a stepped and partially infinitely variable valve which permits partial or full diameter area sections to freely be sensed in a balanced state relieving any tendency for the pressure-compensating valve to bind or otherwise develop hydraulic imbalance.

3,597,011 SENSING CIRCUIT FOR USE IN VEHICLE BRAKING SYSTEMS

Stanley Clifford, Mount Nod, Coventry, England, assignor to Girling Limited, Birmingham, England

Filed May 13, 1969, Ser. No. 824,200

Claims priority, application Great Britain, May 22, 1968, 24402

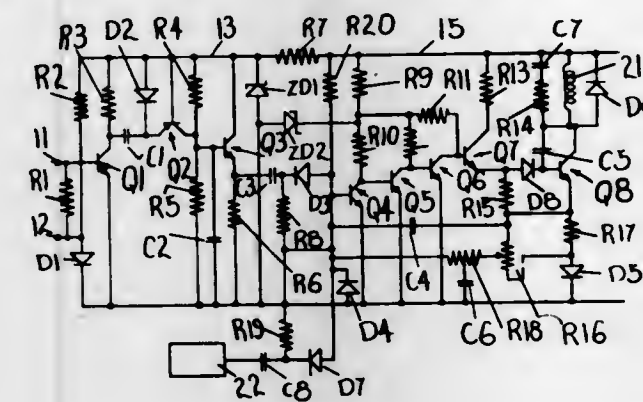
Int. Cl. B60t 8/08

U.S. Cl. 303-21

6 Claims

In a vehicle braking system means is provided for sensing the deceleration of a wheel, and means is also provided whereby the brakes can be released to prevent skidding. The usual arrangement is to release the brakes when the deceleration signal reaches a predetermined magnitude, but in accordance with the invention, a control circuit is used for

partly releasing the brakes at a predetermined deceleration load carried by the spring-supported part, this pressure being signal below the signal at which skidding will start, and then used to adjust the brake control apparatus to provide a brak-



progressively releasing the brakes with increasing deceleration.

3,597,012 LIQUID PRESSURE BRAKING SYSTEMS FOR VEHICLES

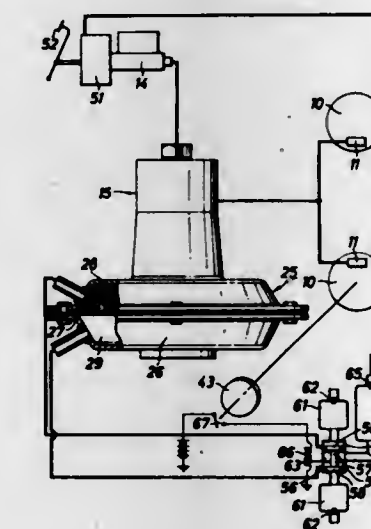
Mervyn B. Packer, and Gordon W. Judge, both of Leamington Spa, England, assignors to Automotive Products Company Limited, Leamington Spa, England

Filed May 1, 1969, Ser. No. 820,917

Claims priority, application Great Britain, May 2, 1968, 20,774/68

Int. Cl. B60t 8/02

U.S. Cl. 303-21 F



A liquid pressure braking system for a vehicle in which a valve normally open to connect motor cylinders operating brakes to a source of liquid pressure, and a plunger movable to vary the volume of the part of the system between the said valve and the motor cylinders, are normally held in positions such that the valve is open and the said volume is a minimum by a fluid pressure servodevice having a movable wall, a skid-sensing device controlling valve means which cause simultaneous changes of fluid pressure on both sides of the movable wall to reverse rapidly the pressure differential across the movable wall and cause rapid closing of the normally open valve and movement of the plunger to increase the volume of the said part of the system when a tendency to skid is sensed.

3,597,013 VARIABLE-LOAD BRAKE CONTROL APPARATUS

Shantilal N. Shah, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

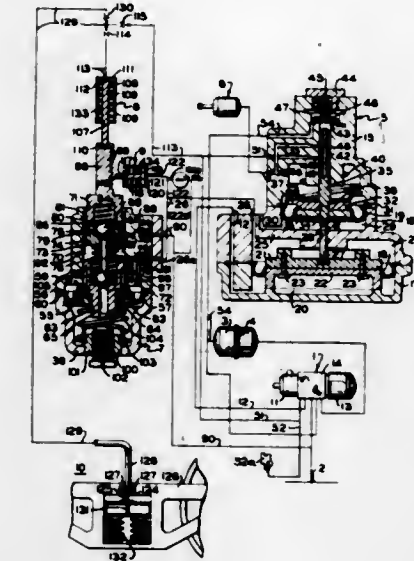
Filed Apr. 3, 1969, Ser. No. 813,030

Int. Cl. B60t 8/18

U.S. Cl. 303-22

15 Claims

A railway car variable load brake control apparatus having a fluidic-jet load-sensing mechanism for interposition between a spring-supported (or sprung) part and an unsprung part of a car truck, the operation of which at the time of effecting a brake release provides a supply of fluid the pressure of which is in accordance with the weight of the



ing force on the car in accordance with the load carried thereon.

3,597,014 CONTROL VALVE

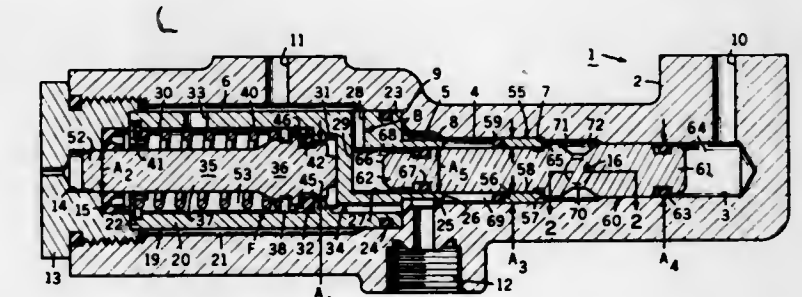
Stanley L. Stokes, Florissant, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Sept. 26, 1969, Ser. No. 861,358

Int. Cl. B60t 11/34, 17/22

U.S. Cl. 303-6 C

24 Claims



A control valve for use in a split braking system with a split master cylinder including a housing having a divider portion therein provided with a flow passage for one of the supplied fluid pressures and a bypass passage connected in bypass relation therewith. A proportioning valve is movable in the divider portion controlling said flow passage to normally establish an applied fluid pressure in a predetermined ratio with the one supplied fluid pressure. A warning or switch operating piston compares the magnitudes of the supplied fluid pressures and in its normal or centered position closes the bypass passage, said switch piston being movable upon the failure of the other of the supplied fluid pressures toward a translated position opening the bypass passage to effect open pressure fluid communication between the one supplied and applied fluid pressures therethrough in bypass relation with the flow passage to obviate the proportioning function of the proportioning valve.

3,597,015 CONTROL VALVE

Stanley L. Stokes, Florissant, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Jan. 26, 1970, Ser. No. 5,468

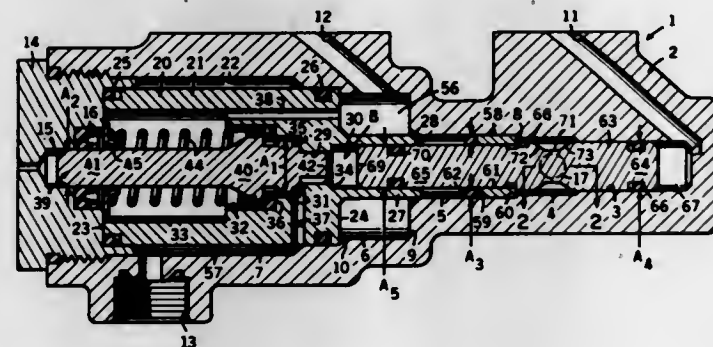
Int. Cl. B60t 8/26, 11/34, 17/22

U.S. Cl. 303-6 C

10 Claims

A control valve for use in a split braking system with a split master cylinder including a housing having a divider member therein provided with a flow passage for one of the supplied fluid pressures. A proportioning member is movable in the divider member controlling the flow passage to normally establish an applied fluid pressure in a predetermined ratio

with the one supplied fluid pressure. The flow passage also includes a branch or bypass portion normally subjected to the applied fluid pressure, and a warning or switch-operating piston has one end slidable in the divider member branch portion normally subjected to the applied fluid pressure and the other end thereof slidable in the housing subjected to the other supplied fluid pressure. A centering piston is subjected to the one supplied fluid pressure and engaged with said housing and switch piston normally maintaining said switch



piston in a centered position, and said switch piston is movable upon the failure of the other supplied fluid pressure toward a translated position opening the branch portion to effect open pressure fluid communication therethrough between the one supplied and applied fluid pressures to obviate the proportioning function of the proportioning member.

This invention relates in general to dual or split braking systems and in particular to a combustion driver warning, proportioning and bypass valve for utilization therein.

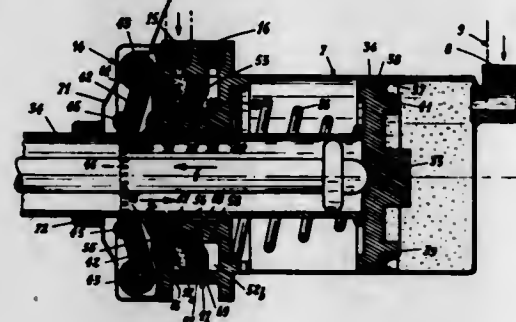
3,597,016 LOCKING SYSTEM FOR COMPRESSED-AIR BRAKES IN MOTOR VEHICLES

Jean Gachot, 179 Avenue de la Division Leclerc, Enghien (Val d'Oise), and Fernand Perales, 87 Rue A.G. Belin, Argenteuil, (Val d'Oise), both of, France

Filed May 15, 1969, Ser. No. 824,830
Claims priority, application France, May 17, 1968, 152,256
Int. Cl. B60 13/36, 17/16

U.S. Cl. 303-89

12 Claims



A locking system for compressed-air brakes of motor vehicles which comprises air-operated locking units for the operating rod of the brake cylinder, characterized in that it comprises two similar circuits for the distribution of air to the locking units and means for delivering air under pressure selectively into either of said two circuits in order to cause respectively the locking or release of the brakes.

The two air distribution circuits aforesaid each comprise a bypass for delivering air under pressure into the brake cylinder so that the system is thus permitted in the release position to serve as an emergency brake during normal running of the vehicle.

3,597,017 DEVICE FOR TENSIONING AN ENDLESS TRACK BELT

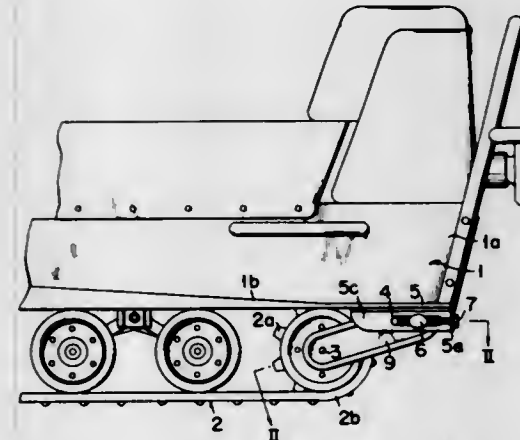
Kenzo Tanaka, and Yutaka Masaoka, both of Shizuoka-ken, Japan, assignors to Yamaka Hatsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-ken, Japan

Filed May 14, 1969, Ser. No. 824,629
Claims priority, application Japan, May 14, 1968, May 18, 1968, 43/39462, 43/40726

Int. Cl. B62m 27/02; B62d 55/30

U.S. Cl. 305-32

5 Claims



A tensioning device comprises a bracket attached to the frame of an endless-belt traction vehicle and provided with a slit extending in the lengthwise direction thereof, a pivoting member adjustably secured to the bracket with its body partly inserted into said slit, and means for setting said pivoting member in place by moving said pivoting member along the length of said slit. Said pivoting member extends in a direction perpendicular to the length of said slit and rotatably supports a rear arm for rotatably bearing the rear axle of a wheel or wheels over which the endless track belt is stretched.

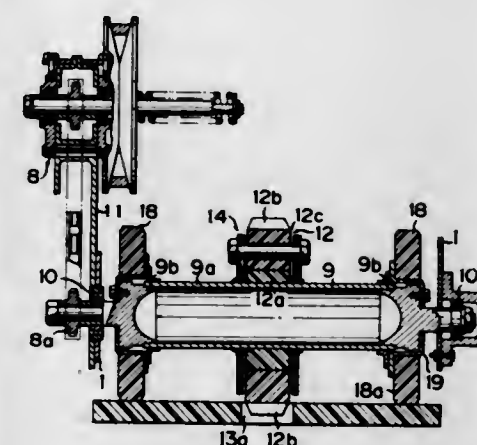
3,597,018 ENDLESS-BELT TRACTION VEHICLE

Yutaka Masaoka, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-ken, Japan

Filed May 8, 1969, Ser. No. 823,060
Claims priority, application Japan, May 9, 1968, 30789/68
Int. Cl. B62m 27/02; B62d 55/12

U.S. Cl. 305-35

5 Claims



At least one of the sprocket wheels provided in an endless-belt traction vehicle involves an outer ring, and an inner ring of natural or synthetic elastomeric resin having an axial bore into which is securely inserted an axle carried on the vehicle body. Said outer ring is attached to the axle by means of fixing members in a manner to be radially movable, though immovable in the rotating direction of the axle.

3,597,019 TRACK LINK FOR AMPHIBIOUS AND CROSS-COUNTRY TRACK-LAYING VEHICLES

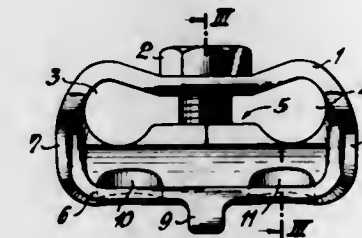
Otto Korner, and Fritz Benninghoff, both of Remscheid, Germany, assignors to Diehl K. G., Remscheid, Germany

Filed Jan. 28, 1969, Ser. No. 794,503
Claims priority, application Germany, Jan. 30, 1968, P 16 80 835.8

U.S. Cl. 305-54

Int. Cl. B62d 55/26

1 Claim



A connector having chain-bolt-receiving eyes for interconnecting successive chain links of the track chain of amphibious and cross-country track-laying vehicles, which includes ladle-shaped plate means for bottom surfaces provided with rib means and having lateral walls extending upwardly to approximately the level of said bolt-receiving eyes.

3,597,020 PRESSURE-LUBRICATED BEARINGS

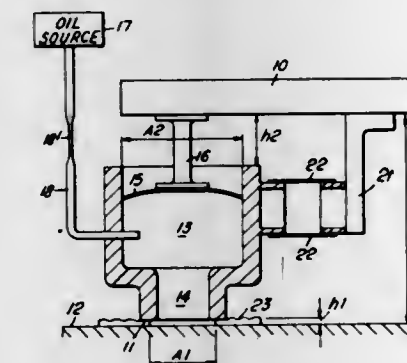
Graham Isaac Thomas, Lennox Row, Edinburgh, Scotland, assignor to Ferranti, Limited, Hollinwood, England

Filed Mar. 7, 1969, Ser. No. 805,167
Claims priority, application Great Britain, Mar. 9, 1968, 11,632/68

U.S. Cl. 308-5 R

Int. Cl. F16c 33/10

6 Claims



A pressure-lubricated bearing to allow a sliding movement of a load over a fixed planar bearing surface while keeping substantially constant the height of the load above that surface over a wide range load weights includes a chamber filled with oil under pressure from a source and sealed at the top by an elastic diaphragm which supports the load. The other end contains a port through which a bearing film of oil escapes between the chamber and the planar surface. An increase in load weight reduces the film thickness; but the resulting increase of the oil pressure in the chamber displaces the diaphragm (and hence the load) upwards to compensate. Similarly with decreases of load weight.

3,597,021 SLIDE BEARING SYSTEMS FOR VARIABLE LOADS

Graham Isaac Thomas, Edinburgh, Scotland, assignor to Ferranti, Limited, Hollinwood, England

Filed Mar. 24, 1969, Ser. No. 809,819
Claims priority, application Great Britain, Mar. 30, 1968, 15,441/68

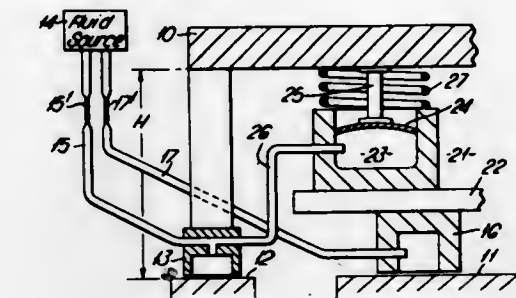
U.S. Cl. 308-5

Int. Cl. F16m 11/00

4 Claims

A bearing system in which a load (such as a worktable) is carried by a main bearing for a sliding movement over a plane surface while maintaining the height of the load above a plane reference surface constant despite variations in the weight of the load. That height is sensed by a reference pres-

sure-lubricated bearing in engagement with the reference surface and the fluid pressure in it is applied to equalize the fluid pressure in an actuator located between the load and



the main bearing so that any change in that height causes the actuator to adjust the distance between the load and the main bearing in a corrective sense.

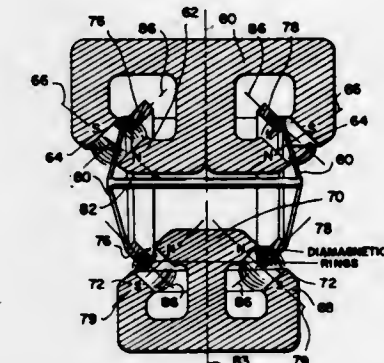
3,597,022 DIAMAGNETIC LEVITATION AND/OR STABILIZING DEVICES

Robert D. Waldron, 5620 N. 69th Pl., Scottsdale, Ariz.

Filed July 22, 1969, Ser. No. 843,458
Int. Cl. F16c 39/06

U.S. Cl. 308-10

11 Claims



Diamagnetic levitation and/or stabilizing devices, wherein diamagnetic members are levitated in relation to permanent magnets. Said magnets in repulsion levitation relative to each other are stabilized along one or more desired axes by means of diamagnetic members disposed about said axes, and in relation to fields of permanent magnets.

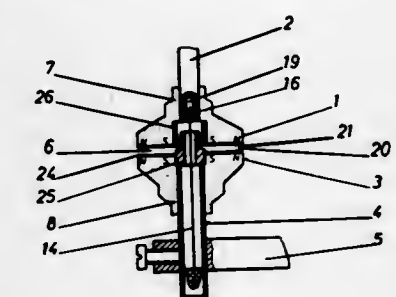
3,597,023 PERMANENT MAGNET BEARING

Max Baermann, 506 Bensberg, Bezirk, Cologne, Germany

Filed Sept. 10, 1969, Ser. No. 856,699
Int. Cl. F16c 39/06

U.S. Cl. 308-10

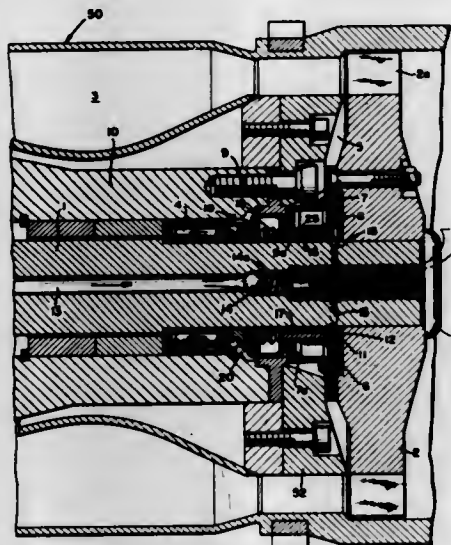
5 Claims



A permanent magnet bearing for use with apparatus of the type having a fixed member and a member rotatable with respect thereto. The bearing comprises a pair of bodies having first and second portions formed integrally with one another. Each first portion includes a pole surface so magnetized to bias said bodies into spaced-apart relationship. Each second portion includes connecting means for securing one of the bodies to the fixed member and the other of the bodies to the rotatable member.

3,597,024
LIQUID RING SEAL
 Dietrich E. Singelmann, Ottobrunn, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft
 Filed Sept. 12, 1969, Ser. No. 857,337
 Int. Cl. F16c 33/76
 U.S. Cl. 308—36.3

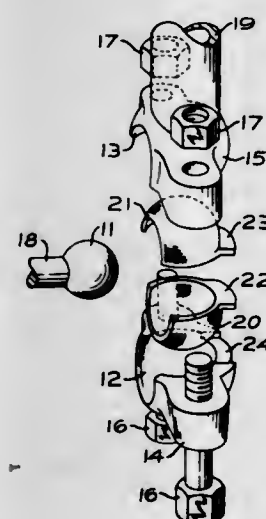
2 Claims



A liquid ring seal particularly suitable for shafts subject to high differential operating pressures across a rotatable element such as a turbine runner such as in a gas turbine includes means for supplying a lubricant through a central bore, through a check valve, and radially outwardly into a return conduction space formed adjacent the turbine runner seal gap. The construction is characterized by the formation of a throttle passage or gap which extends axially from the conduction space into an annular chamber having a ring valve which is located adjacent the shaft-supporting bearing. The ring valve produces a certain backwash or a longer dwell time of the lubricant stream in the zone of the packing directly adjacent the supporting bearing. When a predetermined backwash pressure is reached the valve lifts off its seat and the lubricant stream flows into the bearing. At least one of the throttle passages or control passages are provided for the discharge of the lubricant into the chamber alongside the support bearing.

3,597,025
MULTIPART BEARING LINER
 Reginald K. Ringel, Decatur, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
 Filed May 15, 1969, Ser. No. 824,979
 Int. Cl. F16c 11/06
 U.S. Cl. 308—72

7 Claims

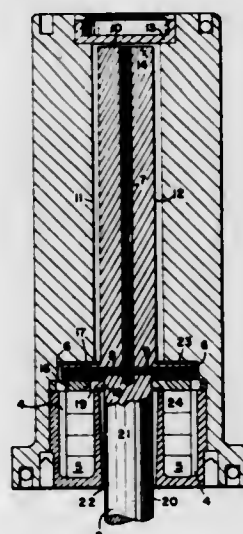


A bearing assembly comprises a multipart, semirigid bearing liner having a tang formed on at least one of the parts

thereof. A recess, formed in the bearing assembly, mounts the tang therein to mechanically anchor the liner in position. In one illustrated embodiment, the recess is formed in a socket member of the bearing assembly whereas in a second embodiment the tang and recess are formed on adjacent parts of the bearing liner.

3,597,026
CENTRIFUGALLY PRESSURIZED LIQUID HYDRODYNAMIC BEARING
 John J. Jarosh, Santa Monica, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.
 Filed Mar. 19, 1970, Ser. No. 21,112
 Int. Cl. F16c 17/10
 U.S. Cl. 308—134.1

5 Claims



In a bearing assembly comprising a block housing a flanged shaft, one of which is rotatable while the other is fixed, a fluid bearing is supplied to all spaces between the moving and fixed surfaces by virtue of centrifugal pressure differential during rotation. The rotatable member is provided with a reservoir for the fluid. During rotation, fluid flows from the reservoir to the space between the block and the outer circumference of the flange and then through a fluid passage in the fixed member to a fluid passage along the central axis of the shaft and the space between the block and the end of the shaft in the block.

3,597,027
THRUST BEARING
 Walter B. Herndon, Ann Arbor, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Feb. 28, 1969, Ser. No. 803,284
 Int. Cl. F16c 17/06
 U.S. Cl. 308—160

9 Claims

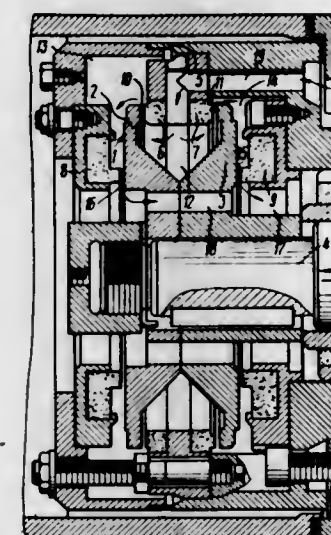


A thrust bearing having a plurality of radially extending lubrication grooves formed on the bearing face thereof, and shallow, radially extending relief sections formed on the other face thereof, directly opposite and wider than the lubrication grooves.

3,597,028
FLUID CONTACT THRUST BEARING OF DOUBLE ACTION

Viktor Vasilievich Ivanov, Krasnoprudnaya ulitsa, 26, kv. 26; Vladimir Karpovich Karakhalan, Stromynka, 23, kv. 131; Viktor Alexandrovich Senatorov, II Novo-Ostankinskaya, 27, kv. 61, Moscow, and Vyacheslav Alexandrovich Tarasov, ulitsa Pavlovskaya, 29, kv. 1, Elektrougli Maskovskoi oblasti, all of, U.S.S.R.
 Filed Aug. 12, 1969, Ser. No. 849,347
 Int. Cl. F16c 17/06
 U.S. Cl. 308—160

2 Claims



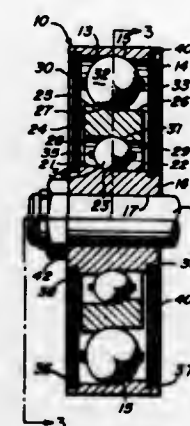
A fluid contact thrust bearing structure of double action, adapted for taking up axial loads in a machine, for example, in a centrifugal pump, comprises a journal plate fixedly secured to the rotary shaft of said machine, with bearing members disposed adjacent the face end surfaces of this journal plate and spaced therefrom. These bearing members are supported on a stationary part of said machine, which stationary part also houses passage means for supplying pressurized working fluid into an annular central chamber of the bearing structure. This central chamber communicated through a pair of annular outlet throttling gaps, defined between said bearing members and the respective adjacent face surfaces of said journal plate, with a pair of oppositely disposed lateral working chambers, which, in turn, communicate with a low-pressure chamber through a pair of outlet annular throttling gaps. A characteristic feature of the herein disclosed bearing structure is the fact that if the journal plate is axially displaced in operation, the axial extent of the inlet throttling gap associated with one of the two working chambers is reduced, and the axial extent of the outlet throttling gap associated with said one working chamber is increased, whereas the axial extent of the inlet throttling gap associated with the other one of said two lateral working chambers is increased, and the axial extent of the outlet throttling gap associated with said other working chamber is reduced; the inlet throttling gaps of the working chambers being spaced greater from the longitudinal axis of said journal plate than the outlet throttling gaps.

3,597,029
PLANETARY BEARING ASSEMBLY
 Elias M. Marcum, 404 Swank Court, Union, Ohio
 Filed Aug. 18, 1969, Ser. No. 850,906
 Int. Cl. F16c 19/00
 U.S. Cl. 308—183

8 Claims

A bearing assembly incorporating at least one planetary

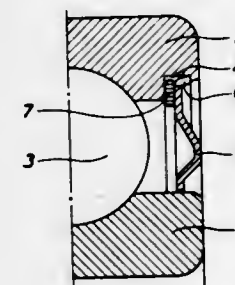
race element between sets of bearings which are radially spaced and differentially sized. A preferred embodiment util-



izes raceways the bearing surfaces of which are equidistantly and successively offset from a common plane of reference.

3,597,030
SEALING DEVICE FOR ROLLING BEARINGS
 Stig Lennart Hallerback, Vastra Frolunda, Sweden, assignor to Aktiebolaget Svenska Kullagerfabriken, Goteborg, Sweden
 Filed Apr. 22, 1969, Ser. No. 818,264
 Int. Cl. F16c 33/78
 U.S. Cl. 308—187.2

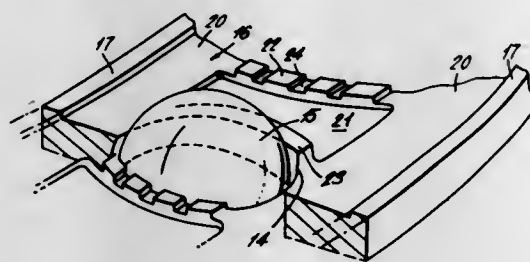
1 Claim



A seal for a rolling bearing consisting of a pair of rings radially spaced apart to define a space for a plurality of rolling elements, one of said rings having an annular groove spaced from one axial end of said ring by a circumferentially extending axial wall section, said groove facing said annular space and having a pair of circumferentially extending, axially spaced confronting radial walls, an annular resilient member mounted on one of the walls of said groove, said seal for sealing at least one side of the annular space comprising a body portion spanning the annular space including a radial wall portion and plurality of circumferentially spaced fingers projecting from said radial wall portion and extending generally transversely thereto, the circular trace of the terminal ends of the fingers in the relaxed state being of a diametral dimension in relation to the diameter of the axial wall section of said one ring so that upon installation of the seal, the fingers are displaced radially in one direction to permit passage of the seal past said axial wall section and deflect in a radial direction opposite said one direction when the seal is aligned with said groove so that the terminal ends of the fingers in the seated position of said seal engage one of the radial walls of said groove and the radial wall portion of said seal presses against the annular resilient member on the other radial wall of said groove.

3,597,031 BEARING

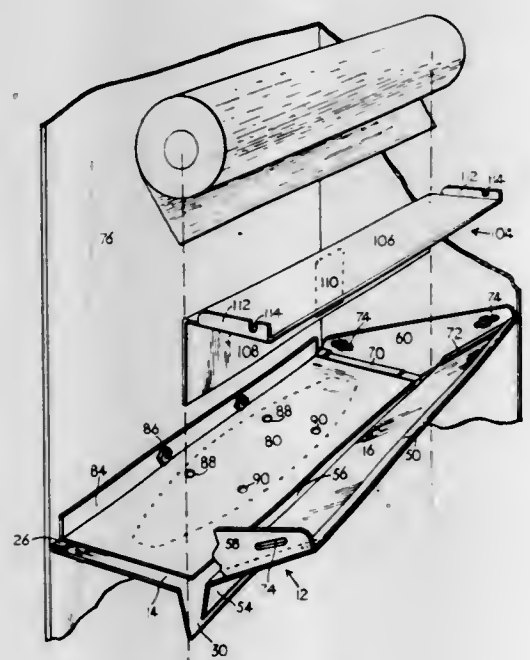
Arthur Bill, Derby, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England
Filed July 31, 1969, Ser. No. 846,370
Claims priority, application Great Britain, Aug. 29, 1968, 41370/68
Int. Cl. F16c 33/66
U.S. Cl. 308-187



The invention concerns a bearing comprising concentric, annular, inner and outer races between which there is concentrically disposed an annular cage having pockets within which are retained rolling elements which are in rolling engagement with the inner and outer races, the radially inner surface of the cage being provided both with at least one journal portion which engages the inner race and with lubricant reservoir means which communicate with the said pockets for the supply of lubricant thereto.

3,597,032 TOWEL DISPENSER

Julius Harangozo, Toronto, Ontario, Canada, assignor to Watrous International Industries Limited, Don Mills, Ontario, Canada
Filed Oct. 20, 1967, Ser. No. 676,917
Claims priority, application Canada, July 24, 1967, 996,160
Int. Cl. B65h 19/02
U.S. Cl. 312-39

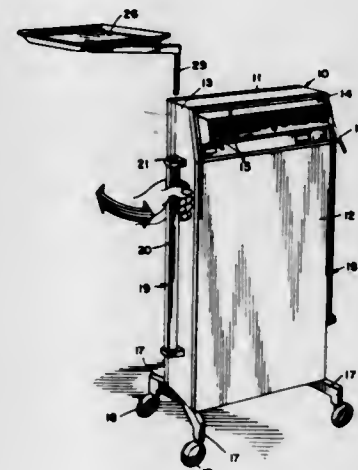


A towel dispenser constructed of two spaced-apart plates inclined downwardly towards each other is supported in a cabinet. The forward plate has a truncated elliptically shaped slot with parallel ends normal to the other plate. A removable adapter plate covers the elliptical slot and a vertical plate is held in one of two positions on the adapter plate. C-shaped towels are dispensed through the elliptical slot when the surrounding plate is in the forward position; when the dispenser is reversed with the adapter plate over the elliptical slot the end of a roll towel supported on the plates is dispensed

between them and when the vertical plate is placed in position single fold or multifold towels resting on the spaced-apart plates may be similarly dispensed depending on the position of the vertical plate.

3,597,033 MOBILE DENTAL CONSOLE

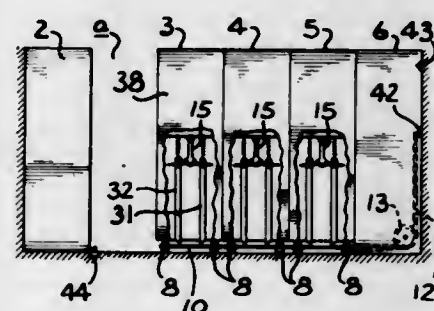
Richard A. Slouka, Carpentersville, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Dec. 20, 1968, Ser. No. 785,675
Int. Cl. A47b 81/00
U.S. Cl. 312-209



A dental console for supporting a plurality of dental instruments, the console being equipped with swivel casters which permit it to be moved about as desired. A pair of handles are provided for moving the console, the handles being mounted upon the console's sidewalls and being constructed and located to facilitate console movement. Such handles also serve as the mounting means for dental trays and other accessories.

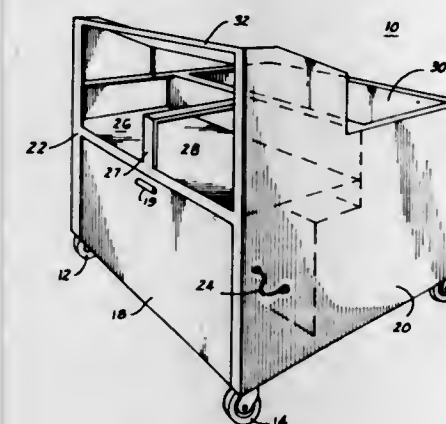
3,597,034 STORAGE SYSTEM

Justin J. Wetzler, 1213 Circle Ave., Forest Park, Ill.
Filed July 14, 1969, Ser. No. 841,383
Int. Cl. A47b 53/00
U.S. Cl. 312-199



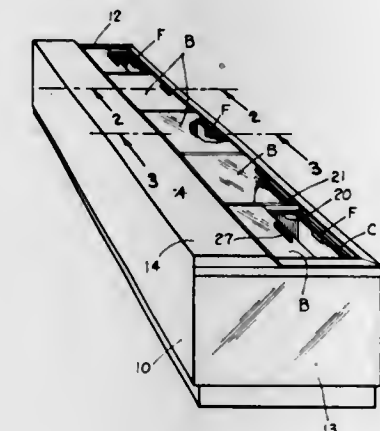
A storage system comprises a series of storage modules movable relative to one another to provide selectively an aisle space therebetween. The modules are selectively power driven through a drive bar that underlies the modules and is movable in opposite directions from a neutral position through a stroke sufficient to form the desired aisle after which a control circuit for the system automatically restores the drive bar to its neutral position.

3,597,035
FLOUR AND BATTER TABLE
George W. Church, Jr., and Ronald A. Miller, both of San Antonio, Tex., assignors to Church's Fried Chicken, Inc., San Antonio, Tex.
Filed Feb. 24, 1969, Ser. No. 801,604
Int. Cl. A97b 00/00; A41j 43/22
U.S. Cl. 312-210.5



Apparatus for economically and efficiently preparing fried food such as fast service fried chicken. The apparatus is characterized by a unitary construction in which flour and batter may be added to the food to be fried so that a substantially continuous cooking operation occurs.

3,597,036
MULTICOMPARTMENT LOCKING ASSEMBLY
Herman L. Buffington, 1100 Partridge Road, Spartanburg, S.C.
Filed Apr. 6, 1970, Ser. No. 25,914
Int. Cl. E05b 65/46; E05c 15/04
U.S. Cl. 312-217

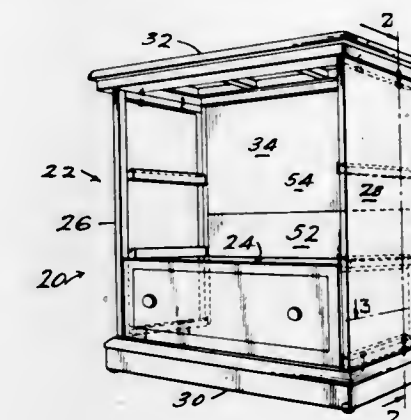


An elongated housing having a plurality of aligned doors capable of sliding in a horizontal position to open and close various compartments of the housing. A locking assembly capable of simultaneously locking all of the doors in the closed position. If desired, some doors can be maintained in the unlocked position while cooperating with an inwardly extending ledge for maintaining the compartment closed.

3,597,037
KNOCKDOWN FURNITURE CONSTRUCTION
Olley C. Lauber, Archbold, Ohio
Filed Sept. 15, 1969, Ser. No. 858,080
Int. Cl. A47i 43/00, 47/00
U.S. Cl. 312-257

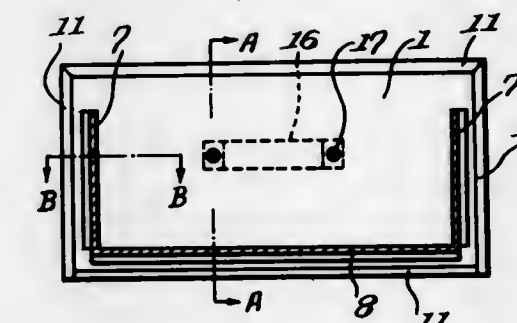
Knockdown furniture construction for a chest of drawers is provided. This includes a chest or cabinet and a plurality of drawers, all of which can be shipped and stored in a flat state and assembled by the consumer. The cabinet includes two sides which are assembled with a base and a top through con-

necting joints. A back is made in two sections which are received in grooves in the sides. Each of the drawers has sides assembled with a front and back through connecting joints and with a drawer bottom held in grooves by the sides



and front and supported through the back by a separate connector. In a preferred form, the connecting joints comprise screws affixed to one component and openings formed in the other component to receive portions of the screws.

3,597,038
STEEL DRAWER
Kokichi Kunishima, Osaka, Japan, assignor to Kabushiki Kaisha Ithoki Kosakusho, Osaka, Japan
Filed Sept. 23, 1969, Ser. No. 860,306
Int. Cl. A47b 88/00
U.S. Cl. 312-330



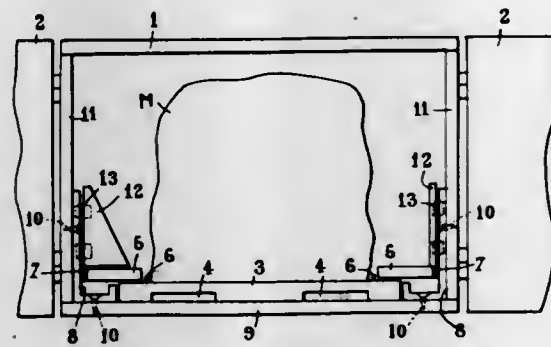
A front and a rear panel board constituting a front wall of a drawer having a backwardly and a forwardly bent flange on their edges, each of which flanges in turn has an inwardly or outwardly extending L-shaped flange. The L-shaped flanges on both lateral flanges of the rear panel board are cut off at their upper portions and the lower flanges are also cut off at their extreme ends. With the front and rear panel boards thus constructed, they are firmly secured to each other at their upper and lateral sides of the panel boards.

3,597,039
CONTAINERS FOR TRANSPORTING GOODS
Dieter Gruber, 31/35 Rue Saint-Ambroise, Paris, France
Filed Jan. 23, 1969, Ser. No. 793,305
Claims priority, application France, Jan. 31, 1968, 138,121
Int. Cl. A47b 97/00

U.S. Cl. 312-352
The present invention relates to containers intended for holding goods during their transport.

The container according to the present invention comprises an internal device for holding against motion one or a plurality of pallets adapted to carry the goods to be transported when said pallet or pallets are laid on the floor of the container, said holding device comprising movable clamping members disposed above the lateral or transverse sides of the floor of said container so as to clamp the corresponding marginal portions of the pallet or pallets against the floor of the container.

The present invention relates also to a device for fastening and holding against motion one or a plurality of pallets inside



a transport container of any type in order to convert same into a pallet-carrier container.

3,597,040

TELESCOPIC SIGHT WITH BIASING SPRING
Hitoshi Gotoh, Suwa-shi, Japan, assignor to Light Optical Works Ltd., Suwa-shi, Nagano-ken, Japan
Filed June 27, 1967, Ser. No. 649,234
Int. Cl. G02b 27/32

U.S. Cl. 350-10

1 Claim



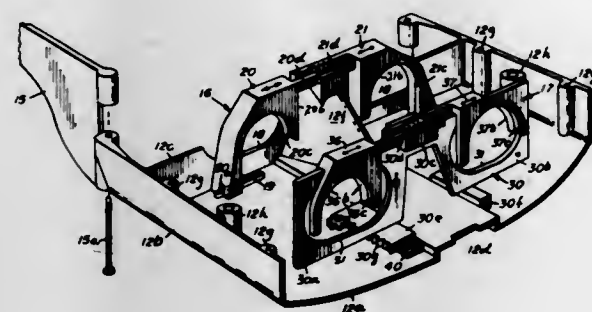
A rifle telescope of an inexpensive, yet extremely flexible, type incorporating means adjusting the position of the target image by transverse movement of collector lens elements while the image is in the inverted condition as received from the objective lens system of the telescope. The image erection lens system is rigidly mounted in the main telescope barrel as is the ocular lens system thereby providing a rifle telescope having substantially all of the critical lenses thereof rigidly, although adjustably mounted in the fixed telescope barrel and only a minimal collector lens system movably mounted.

3,597,041

HEAD SUPPORTED BINOCULAR INSTRUMENT WITH REPLACEABLE LENSES WORN AS GLASSES
Dolph G. Frantz, and William Joseph, both of 3427 Norman Bridge Road, Montgomery, Ala.
Filed Feb. 7, 1969, Ser. No. 797,514
Int. Cl. G02b 7/02

U.S. Cl. 350-72

5 Claims



The binocularlike viewer has a casing that fits the forehead of the wearer and is held on by a pair of temples. There is a removable front transparent shield. The casing has bottom and top halves. The bottom half has formed therein a nose

receiving recess. The rear wall of the casing has spaced apart horizontally elongated apertures for each eye. Mounted on the nose portion adjacent the rear wall is a lens system having the binocular eye pieces and prescription lenses for the wearer all of which are interpupillary adjustable from a control outside the casing. There is mounted in the front for telescopic movement controlled from outside the casing, a framework with a pair of horizontally elongated apertures. This framework has mounted thereon a lens system having the front binocular lenses and replaceable framed lenses for near point vision for people with subnormal vision.

3,597,042

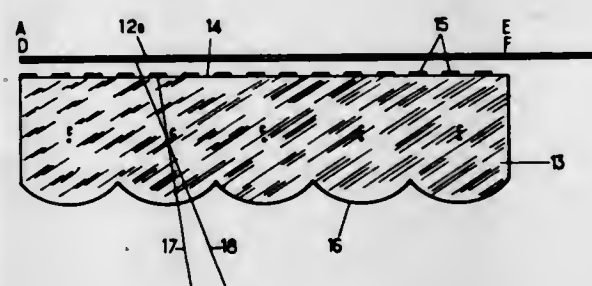
APPARATUS FOR VIEWING PICTURES IN APPARENT 3D EFFECT

Maurice Favre, Paris, France, assignor to CSF Compagnie Generale de Telegraphie Sans Fils, Paris, France
Continuation of application Ser. No. 412,661, Nov. 20, 1964, now abandoned. This application Nov. 5, 1968, Ser. No. 816,131

Int. Cl. G02b 27/22

U.S. Cl. 350-144

2 Claims



Method and device for viewing images, creating a depth sensation by masking a narrow vertical band on the left and right sides of the image, respectively, for the one and the other eye of the observer, by use of filtering devices, such as lateral bands made of complimentary colored material with appropriate spectacles for the viewer, or of purely optical selectors without spectacles as double array of narrow opaque strips or transparent plates bearing prismatic lens gratings. The invention also provides for optical division of the entire picture in vertical narrow strips, horizontal translation in opposite directions of the odd and even strips, and selection for each eye of the two pictures thus created and shifted by usual filtering means including the masking of a narrow vertical band on the left and right sides of the respective images for the respective eyes of the observer.

3,597,043

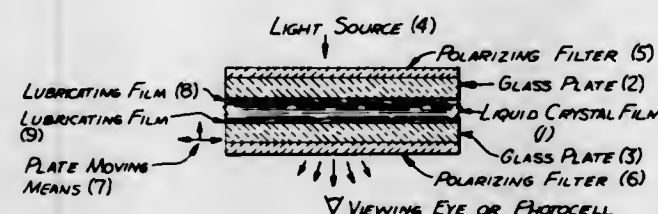
NEMATIC LIQUID CRYSTAL OPTICAL ELEMENTS
John F. Dreyer, Cincinnati, Ohio, assignor to Polacoat Incorporated, Cincinnati, Ohio

Filed May 2, 1969, Ser. No. 821,444

Int. Cl. G02f 1/24

U.S. Cl. 350-149

19 Claims



The production of visible motion patterns in a thin film of a nematic liquid crystal compound by inducing physical movement of the film, the film being formed between support plates at least one of which is transparent or translucent, means being provided to effect movement within the liquid crystal film.

3,597,044

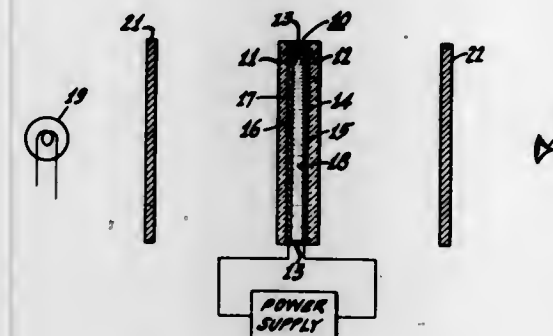
ELECTRO-OPTIC LIGHT MODULATOR
Joseph A. Castellano, North Brunswick, N.J., assignor to RCA Corporation

Filed Sept. 3, 1968, Ser. No. 757,033

Int. Cl. G02f 1/34

U.S. Cl. 350-160

10 Claims



The light modulator is comprised of a nematic liquid crystal composition of p-acyloxybenzylidene anils and means for applying an electric field across the composition.

3,597,045

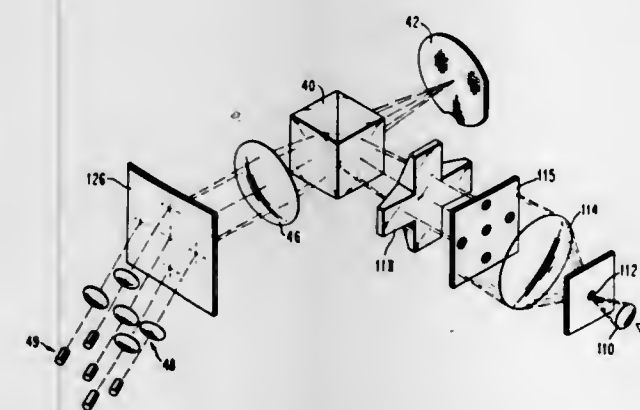
AUTOMATIC WAFER IDENTIFICATION SYSTEM AND METHOD

Einar S. Mathisen, Poughkeepsie, NY, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 30, 1969, Ser. No. 837,765

Int. Cl. G02b 27/38

U.S. Cl. 350-162 SF

9 Claims



A method and system for the identification of semiconductor wafers. A code in the form of selected recognition symbols is inscribed in circuit-free regions or kerf areas of the wafer. In a separate operation, complex spatial filters of the entire set of recognition symbols are formed in spaced locations on a photographic medium. To detect whether a particular symbol has been inscribed in the wafer, the symbols within the wafer are cross-correlated with the complex spatial filters on the medium. The matching of a symbol with the complex spatial filter of that symbol produces a recognition spot of light behind the filter. A photodetector associated with each filter detects the light output when a match occurs.

3,597,046

COATED LIGHT PERMEABLE OPTICAL COMPONENT
Harry E. Smithgall, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc.

Division of Ser. No. 317,352, Oct. 18, 1963, Pat. No. 3,448,667.

Filed Sept. 27, 1968, Ser. No. 763,153

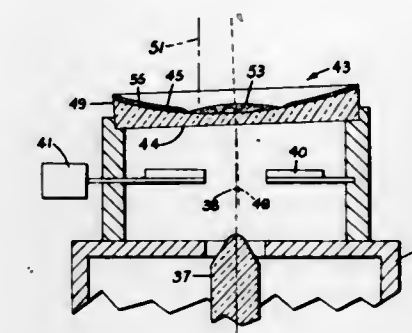
Int. Cl. G02b 1/10

U.S. Cl. 350-164

2 Claims

A coated light permeable refractive medium for use in an optical system to discretely attenuate radiant energy beamed from a controlled light source whereof an area of metallic coating is disposed on at least one surface of the medium by

photosensitive deposition. The light attenuation characteristics of the refractive optical component are formed in



the photosensitive coating by the irradiation pattern of the light source in the system.

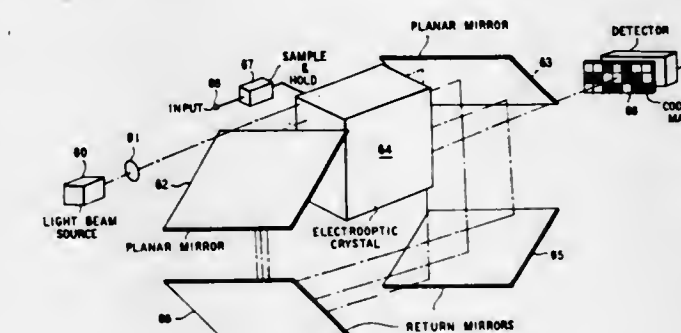
3,597,047

LIGHT BEAM DEFLECTION APPARATUS HAVING ENHANCED DEFLECTION BY MULTIPLE REFLECTION
Robert L. Carbrey, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 13, 1969, Ser. No. 833,115

Int. Cl. G02f 1/26

U.S. Cl. 350-150

12 Claims



The incremental index of refraction change due to the properties of electrooptic material is enhanced by providing multiple reflection of a light beam between mirrors disposed on opposite sides of the electrooptic material, particularly if one of the mirrors is concave and the other convex. A light beam deflector of this construction is disclosed in an analog-to-digital coder and is also well adapted for use in time-division multiplex systems.

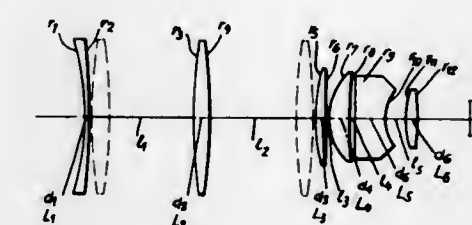
3,597,048

VARIFOCAI OBJECTIVE WITH MOVABLE LENS COMPONENT OF POSITIVE REFRACTIVITY
Ludwig Bertele, Sartenstrasse, Heerbrugg, Switzerland
Continuation-in-part of application Ser. No. 391,528, Aug. 24, 1964, now Patent No. 3,466,113, dated Sept. 9, 1969.
This application Feb. 7, 1969, Ser. No. 797,455

Int. Cl. G02b 15/14

U.S. Cl. 350-184

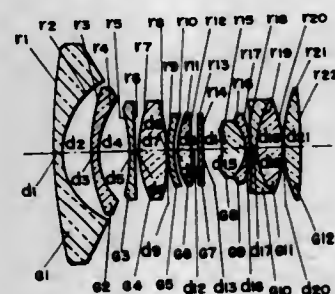
10 Claims



A variable focal length objective of simple physical construction affording a relative aperture of 1:1.4 or greater and an image forming power that meets high requirements. The

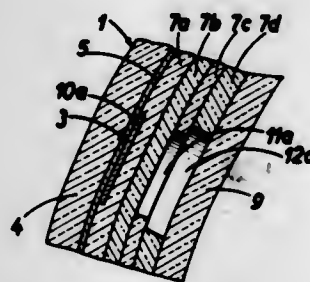
objective comprises at least 6 lens members, the second lens member being displaceably mounted so as to change the focal length. With respect to the side of the longer conjugate, the first lens member of the objective has a dispersing or negative power, the second and third lens members have a positive or collective power, the lens surface of the fourth lens member is convexly formed to such a degree that its radius of curvature is shorter than the radius of curvature of the preceding glass-air surfaces. The first lens member is further shaped in such a fashion that the stronger curved surface thereof exhibits a dispersing or negative power and is curved towards the second lens member. Regardless of the position of the displaceable second lens member the focal length of the first two lens members taken together is always positive.

3,597,049
EXTREME WIDE ANGLE LENS SYSTEM
Toshinobu Ogura, Sakai-shi, Japan, assignor to Minolta Camera Kabushiki Kaisha, Isaka, Japan
Filed Mar. 25, 1969, Ser. No. 810,094
Int. Cl. G02b 13/00, 9/00
U.S. Cl. 350—198 3 Claims



A wide-angle lens system having twelve elements, a focal length of 1.0, a focal aperture of 1:2.8, and a field angle of 180°, and wherein the radii of curvature of the refracting surfaces, the axial separations between consecutive refracting surfaces, the refractive indices of the individual lens elements, and the Abbe numbers for each of the lens elements are specified to correct lateral chromatic aberration.

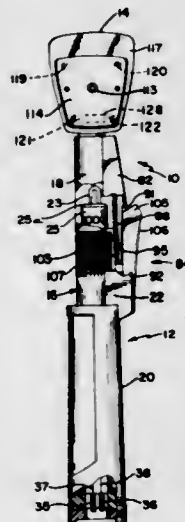
3,597,050
TRANSPARENT ARTICLE HAVING MODIFIED RADIATION-TRANSMITTING PROPERTIES
Emile Plumet, Gilly, Belgium, assignor to Glaverbel, S. A., Watermael Boitsfort, Belgium
Filed Jan. 2, 1968, Ser. No. 695,259
Claims priority, application Luxembourg, Dec. 30, 1966, 52,726
Int. Cl. G02b 1/10
U.S. Cl. 350—276 11 Claims



A method for modifying the radiation-transmitting properties of an article composed of at least one sheet having a substantial degree of transparency to radiation and at least one layer or sheet disposed adjacent the at least one sheet and forming a screen which serves to impart to the article as a whole a reduced degree of transparency to such radiation, the method involving reducing the transparency-attenuating effect of the screen in at least one zone of the article so as to

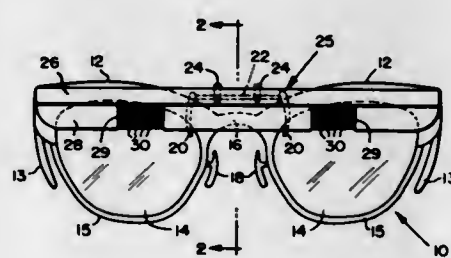
give the article different transparencies at different zones thereof. Articles having a certain degree of transparency to radiation and having different degrees of transparency at different zones thereof.

3,597,051
STREAK RETINOSCOPE ASSEMBLY
Jacob C. Copeland, 2933 North Sheridan, Chicago, Ill., and Walter M. Lewis, 3539 North Kenton, Chicago, Ill.
Filed Oct. 7, 1968, Ser. No. 765,530
Int. Cl. A61b 3/12
U.S. Cl. 351—16 15 Claims



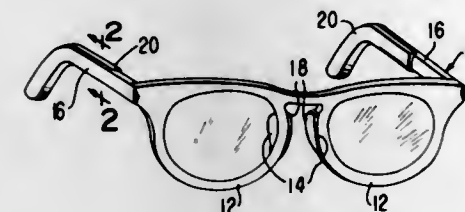
A streak retinoscope assembly comprising a generally tubular handle portion with a head mounted at one end and a unitary lamp and power source capsule telescopically and detachably received in the handle portion. The handle portion also includes latch means for holding the power capsule within the handle portion while permitting unlimited rotational movement of the capsule and limited axial movement of the capsule. Preferably the capsule contains rechargeable battery means and fixed connections within the capsule between the lamp and the battery means.

3,597,052
ANTI GLARE ATTACHMENT FOR SPECTACLES
Paul E. Dittman, 161 Tobey Road, Pittsford, N.Y.
Filed May 22, 1969, Ser. No. 826,954
Int. Cl. G02c 7/16, 9/04
U.S. Cl. 351—45 2 Claims

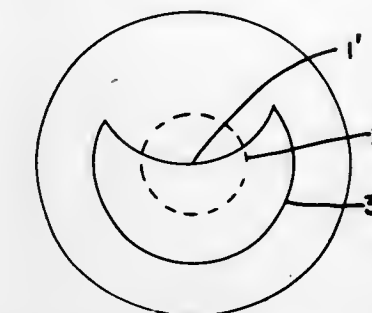


This device comprises an elongate bar and two laterally spaced groups of spaced parallel blades that are vertical when in use. The two groups of blades are disposed in front of two notches in a tinted plastic strip also carried by the bar. The bar may be removably secured on a spectacle frame by spring clips; and the spring clips may be fastened to a shaft pivotally mounted on straps that are secured to the bar; so that the anti-glare device can be swung up out of the way during daylight or swung down in front of the spectacles for use at night or when the sun is low.

3,597,053
SPECTACLE FRAME HAVING HEAD CONFORMABLE PORTIONS
Gary J. Mastman, 5150 Graves St., San Jose, Calif.
Filed June 27, 1969, Ser. No. 837,180
Int. Cl. G02c 1/00
U.S. Cl. 351—41 8 Claims



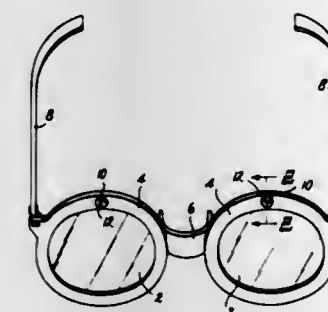
having an embedded high index near vision segment and



producing a vertical gradient focus visual effect.

A spectacle frame having a nose portion and a pair of temples, with the nose portion and the temples having surfaces which normally engage the nose, head and ears when the frame is worn. A material is applied in layers to the surfaces of the nose portion and temples which normally engage the nose, head and ears. The material is of a type which conforms to the nose, head or ears when the material is at a predetermined temperature and when the frame is placed on the wearer. In one embodiment, the material is conformable at ambient temperatures and in another embodiment, the material is thermoplastic and becomes conformable upon being heated to a relatively low temperature above ambient temperatures.

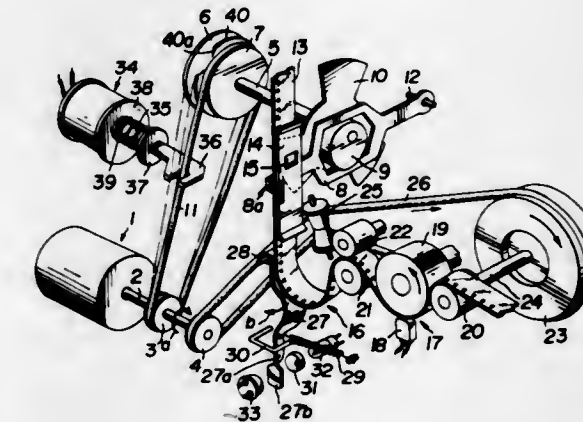
3,597,054
ULTRAVIOLET WARNING SPECTACLES
Peter McGowin Winter, 4927 Jamestown Road, Washington, D.C.
Filed Dec. 17, 1969, Ser. No. 885,675
Int. Cl. G02c 1/00; G01t 1/02
U.S. Cl. 351—158 5 Claims



A pair of spectacle is provided with one or more bodies or chips of material that respond to ultraviolet radiation to produce different visible effects depending upon the ultraviolet intensity. The bodies are mounted outside the normal field of view of the wearer but within the field of his peripheral vision so that the wearer may constantly monitor his exposure to ultraviolet and determine when it approaches a level to which he is unduly sensitive.

3,597,055
MONOCENTRIC BIFOCAL CONTACT LENS
Charles W. Neefe, Box 361, Big Spring, Tex.
Continuation-in-part of application Ser. No. 570,107, July 11, 1966, now Patent No. 3,440,306, dated Apr. 22, 1969. This application Jan. 28, 1969, Ser. No. 794,723
Int. Cl. G02c 7/04, 7/06
U.S. Cl. 351—161 1 Claim
A monocentric simultaneous vision bifocal contact lens

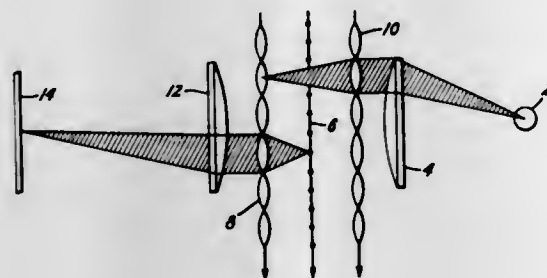
3,597,056
FILM MOVEMENT EQUALIZING DEVICE FOR A MOTION PICTURE SOUND PROJECTOR
Kenji Sasaki, Suwa-shi, Japan, assignor to Sankyo Kogaku Kogyo Kabushiki-Kaisha, Suwa-shi, Nagano-ken, Japan
Filed July 14, 1969, Ser. No. 841,491
Claims priority, application Japan, May 22, 1969, 44/39,788
Int. Cl. G03b 31/02
U.S. Cl. 352—14 7 Claims



A shutter shaft operates film advance means for moving the film past a film gate, and has two pulleys, of different diameters, secured thereto in juxtaposed relation. The pulleys are belt-driven from a small drive pulley on the output shaft of an electric motor, and a solenoid-operated shifter is engaged with the belt to shift the latter between the two differing diameter pulleys. When the belt is engaged with the smaller diameter pulley, the shutter shaft is rotated at 0.5 r.p.m. higher than the average r.p.m. and, when the belt is engaged with the larger diameter pulley, the shutter shaft is rotated at 0.5 r.p.m. lower than the average r.p.m. The motor output shaft contains a drive pulley connected by a belt drive to a flywheel driving a capstan for advancing the film through a sound reproducing section. A film loop is formed between the film gate and the sound reproducing section and a loop size detector is pivotally mounted to engage the film loop. The detector includes an obturator positioned to control the light incident upon a photoelectric transducer in accordance with the size of the film loop. The solenoid operating the belt shifter is controlled by an electric circuit including the photoelectric transducer. In one embodiment, the film may be advanced past a film gate in either a normal direction or a reverse direction, and the loop size detector is conditioned to operate with both directions of film advance, by cam means associated with a shaft controlling a switch which, in turn, controls the direction of operation of the film-driving motor.

3,597,057
CONTINUOUS MOTION PICTURE PROJECTOR
William C. Yager, Blue Bell, Pa., assignor to General Electric Company
Filed Nov. 13, 1968, Ser. No. 775,378
Int. Cl. G03b 41/02
U.S. Cl. 352—81 4 Claims
A projector for producing moving images free of the frame to frame discontinuities of conventional projection systems

comprises a fixed condenser lens and a fixed objective lens for respectively collimating a radiant energy signal and focusing collimated energy at a screen or image receiver. Interposed between these fixed lenses is a plurality of smaller image producers, each comprising elements of similarly arrayed pluralities of nonfixed condenser lenses, objective lenses and sequential photographic image transparencies all of which are moved in registry through the projector. Because several of these individual image producers are within the

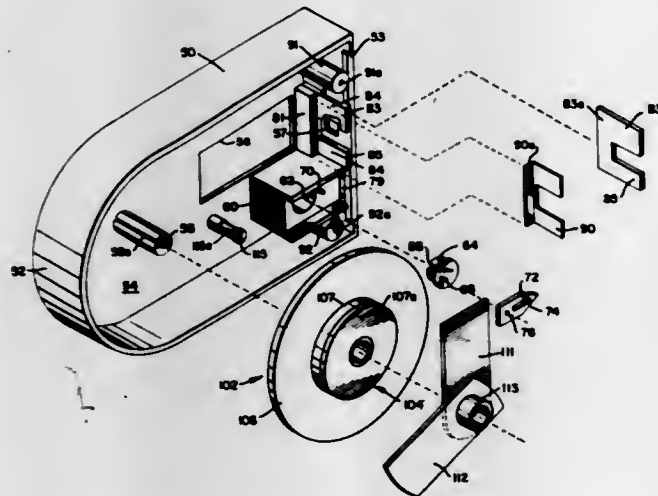


field of view of the fixed lens system at any one time, the final image produced by the fixed objective lens consists of a continuously changing combination of superimposed images from the smaller image producers. A combination of mask and particular geometric arrays of smaller image producers is used in the preferred form of the present invention to hold the number of smaller images combined into the final image constant and thereby to provide a nonvarying degree of illumination in the final image.

3,597,058
CARTRIDGE TYPE MOTION PICTURE PROJECTOR
Joseph T. Nicosia, 13 Hileen Drive, Kings Park, N.Y.
Filed Jan. 22, 1968, Ser. No. 699,549
Int. Cl. G03b 23/02

U.S. Cl. 352-72

12 Claims

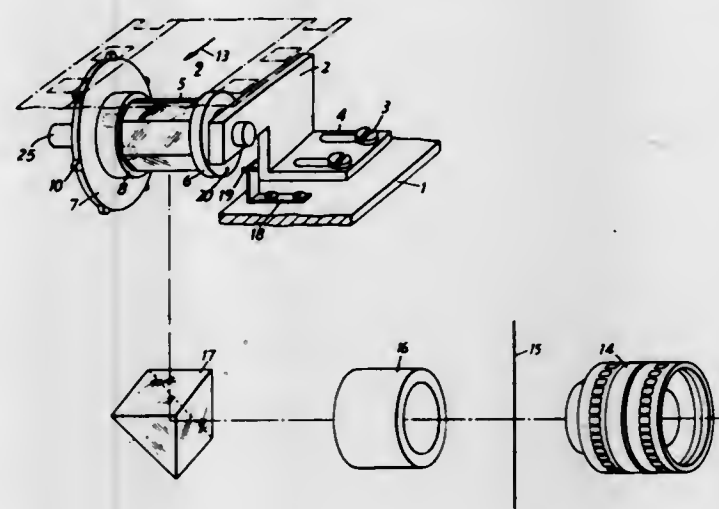


A cartridge type motion picture projector having a lens system, light source and drive motor as part of the projector housing. A cartridge containing the film and film drive mechanism is held to the projector housing with the light source in alignment with the film and the film gate aperture of the cartridge and the output shaft of the drive motor engaging the film drive mechanism of the cartridge. The film drive mechanism is of a simplified form including a pointed member which is shaped and driven to provide both reciprocating motion and a frame-by-frame advancement of the film. The lens system includes a light diffusing member which drops into position in the optical path when the projection is inverted so that it can function as a previewer.

3,597,059
SLOW-MOTION CAMERA
Herbert Gopfert, Dresden, Germany, assignor to VEB Pentacon Dresden Kamera- und Kinowerke, Dresden, Germany
Filed Sept. 13, 1968, Ser. No. 759,625
Int. Cl. G03b 41/08

U.S. Cl. 352-84

3 Claims

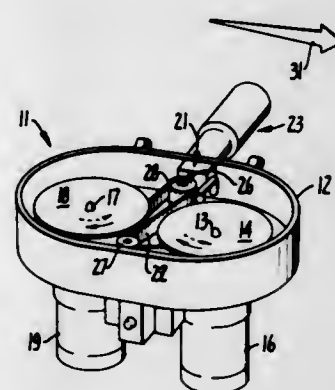


The slow-motion camera has a compensating prism rotatably mounted in a prism holder detachable from the camera housing. The prism is driven by a disengageable coupling from the film drive sprocket which moves in synchronism with the running of the film. When the coupling is disengaged a blocking pin secures the prism against rotation, with its parallel faces transversely of the optical axis.

3,597,060
CAMERA HAVING A HIGH SPEED DRIVE SYSTEM
Don L. Beaman, Sunnyvale, Calif., assignor to Red Lake Laboratories, Santa Clara, Calif.
Filed Sept. 24, 1968, Ser. No. 761,911
Int. Cl. G03b 41/00

U.S. Cl. 352-84

19 Claims



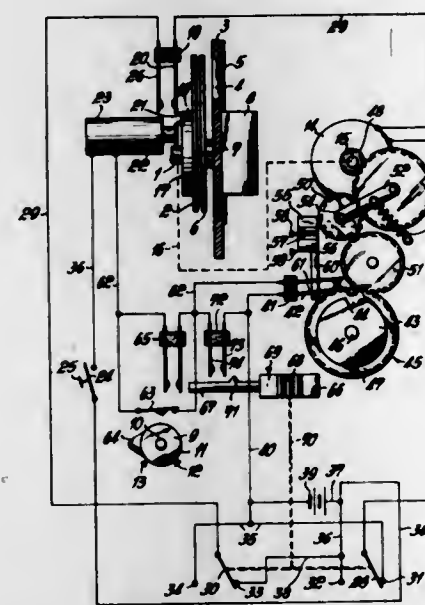
A camera having a high speed drive system particularly suited for streak cameras comprising a supply spindle for holding a supply reel, a takeup spindle for holding a takeup reel, means for directing film from the supply reel through an image receiving position to the takeup reel, with both the takeup reel spindle and supply spindle being equipped with motor drive means, and control means for controlling the motor drive means in response to the difference between a desired preset speed and the actual film speed and positively assuring that the supply motor does not overdrive, said control means also being formed to reverse the takeup mechanism and supply mechanism so that the film can be driven in reverse. Preferably the motors are electric motors and the control means is an electric control circuit formed to compare a signal indicative of the film speed with a reference to drive the takeup motor at the desired speed, and also being formed to drive the supply motor from means sensing the length and tension of the film between the supply reel and the takeup reel, with the supply motor being coupled to run only when the takeup motor runs; the circuit is also

formed for reversal of motor supply power to reverse the direction of the film. In addition, brake means are provided on each reel drive together with means for switching the operativeness of the brakes so that only the brake on the supply reel is active.

3,597,061
ELECTRICALLY OPERATED MOTION PICTURE CAMERA
Albert Stieringer, Calmbach, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart-Untertuerkheim, Germany
Filed Oct. 15, 1969, Ser. No. 866,522
Claims priority, application Germany, Oct. 16, 1968, P 18 03 336.8
Int. Cl. G03b 19/18

U.S. Cl. 352-91

10 Claims



A motion picture camera wherein an adjustable dissolving shutter is driven by a reversible electric motor whose circuit can be completed in response to energization of an electromagnet and wherein the circuit of the electromagnet can be opened by either one of two arresting switches one of which is controlled by an adjusting member for the shutter and the other of which is controlled by a timer mechanism which can be coupled to the motor. The motor can be arrested only when the shutter assumes a position in which it prevents scene light from reaching a film frame, regardless of whether the electromagnet is deenergized in response to opening of a starter switch and/or in response to opening of one of the arresting switches.

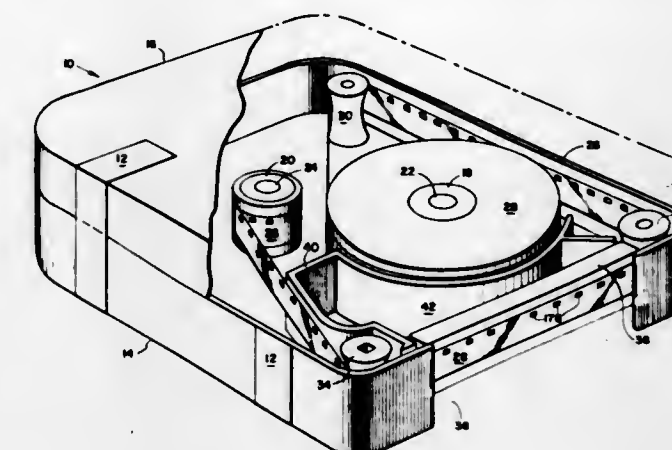
3,597,062
MOTION PICTURE PROCESSING AND PROJECTION SYSTEM EMPLOYING MULTIPURPOSE CASSETTE
Rogers B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Sept. 23, 1968, Ser. No. 761,771
Int. Cl. G03c 11/00

U.S. Cl. 352-130

9 Claims

A motion picture system utilizing cassette having two releasably connected sections. In one section respective ends of a strip of film are permanently attached to reels for reversible transport across a film gate, while the other section contains development fluid. Initially, when the two sections are connected together, the cassette is adapted to be positioned in a camera for exposure purposes. Subsequently, the two sections are separated and mounted independently in a unique projector in which the film is sequentially and simultaneously developed, by passing a loop thereof drawn from the film gate of the first section through the developing fluid contained in the second section, dried and projected through an appropriate optical system. Specially devised features are employed in the projector to release the development fluid from a sealed container into a reservoir section of the developing section of the cassette, to draw the loop of film

from the film gate of the first section and insert the loop into the reservoir of development fluid, to dry the developed film

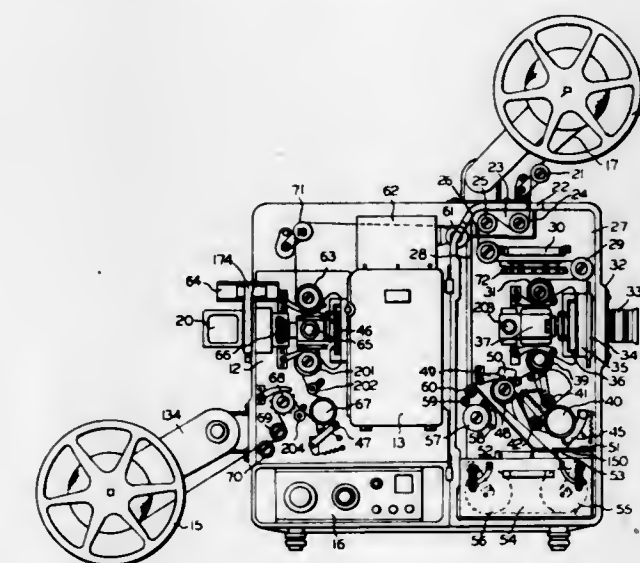


and to subsequently retain the development fluid in a safe manner.

3,597,063
ELECTROPHOTOGRAPHIC MOTION PICTURE APPARATUS
Yoshiki Hayashi, Osaka; Yoshihiko Yamamoto, Nara; Kenichi Hirai, Osaka, and Isao Ota, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan
Filed May 22, 1968, Ser. No. 731,073
Claims priority, application Japan, Sept. 22, 1967, 42/61,355
Int. Cl. G03b 19/18

U.S. Cl. 352-138

7 Claims



An electrophotographic apparatus utilizing a substantially flexible and transparent film which comprises laminations consisting in the following order from the bottom up, a transparent polymer sheet, a transparent conductive layer, a transparent adhesive layer, and an organic photoconductive insulating layer, and which further comprises a magnetic sound track on the back face thereof.

The apparatus has a corona discharge mechanism for applying in the dark a uniform electrostatic charge to the photoconductive top surface of the film; exposure apparatus for intermittently exposing the photoconductive surface of the film to a visible light ray image while simultaneously recording the corresponding sounds on the sound track; developing apparatus for applying in the dark a dispersion type liquid developer to the photoconductive surface of the film so as to produce a visible image on the surface; projection apparatus for intermittently projecting the visible images which are produced and simultaneously reproducing the corresponding sounds which were recorded on the sound track; and a mechanism for rewinding the developed and sound-recorded film for preservation.

3,597,064

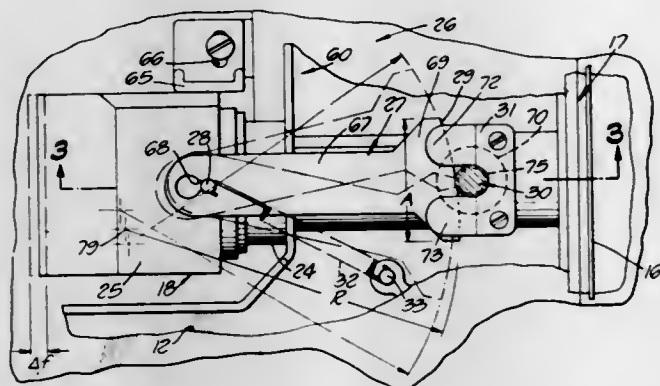
FOCUSING ASSEMBLY FOR PROJECTORS

Guy C. Caraway, Downey, Calif., assignor to Technicolor, Inc., Hollywood, Calif.

Filed Jan. 7, 1970, Ser. No. 1,184

Int. Cl. G03b 3/00

U.S. Cl. 352-140



A focusing assembly for a projector, such as a cartridge loaded projector. The focusing assembly includes a cam device having one end coupled with a lens assembly and has a cam surface on the other end thereof. A shaft which is operated by a knob frictionally engages the cam surface. Rotation of the shaft pivots the cam which in turn causes the lens assembly to move back and forth along the longitudinal axis of the lens. The center point of the radius of the cam surface is offset from the longitudinal axis of the cam. This arrangement requires a substantial degree of rotation of the shaft to obtain full travel of the lens assembly and action in turn enables finer adjustment of focusing.

3,597,065

DEVICE FOR THE AUTOMATIC CONTROL OF AN OBJECTIVE LENS SYSTEM HAVING VARIABLE FOCAL LENGTH

Toma Radulet, Bucharest, Romania, assignor to Comitetul De Stat Pentru Cultura St Arta, Bucharest, Romania

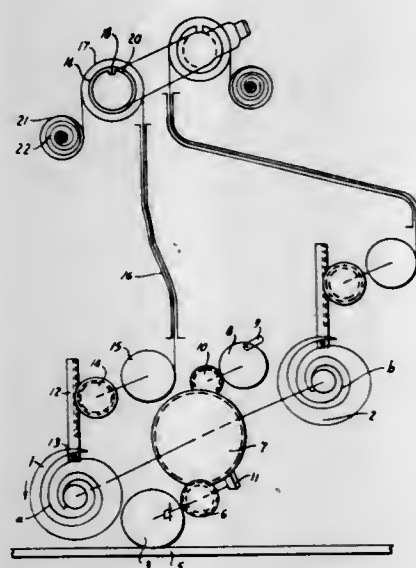
Filed Mar. 6, 1968, Ser. No. 710,830

Claims priority, application Romania, Mar. 11, 1967, 53,291

Int. Cl. G03b 3/00

U.S. Cl. 352-140

12 Claims



A device for automatically controlling and adjusting the focusing mechanism and the mechanism for varying the focal length of an objective lens system of a movie camera mounted on dolly. The device of the invention includes a pair of spiral cams which are operatively connected to one or more wheels of the dolly to the focusing mechanism and the

means mechanism for varying the focal length of the objective lens system respectively.

3,597,066

MOTION PICTURE CAMERA

Theo Wilharm, Endersbach, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart-Untertuerkheim, Germany

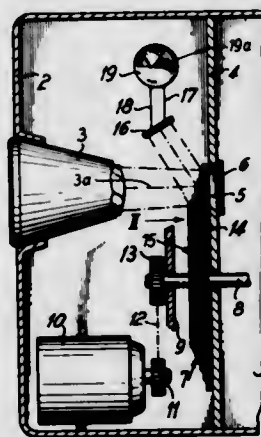
Filed Aug. 2, 1967, Ser. No. 657,906

Claims priority, application Germany, Aug. 27, 1966, B88,666

Int. Cl. G03b 19/18

U.S. Cl. 352-141

15 Claims



The shutter of a motion picture camera has a surface which reflects light against a photosensitive element when the shutter covers the film aperture. That portion of such surface which covers the aperture when the shutter is at rest reflects part of the light onto the photosensitive element and the remainder of the light in another direction. In this way, the amount of light received by the photosensitive element when the shutter is at rest is the same as the average amount of light reaching the photosensitive element when the shutter is in motion. The shutter may be of the rotary or reciprocity type and its light-reflecting surface may be formed by a foil or by a coat of suitable reflecting material.

3,597,067

ONE FRAME FEEDING PROJECTION DEVICE FOR A FILM PROJECTOR

Yasutoshi Okuzawa, Saltama, Japan, assignor to Fuji Photo Film Co., Ltd., Saltama, Japan

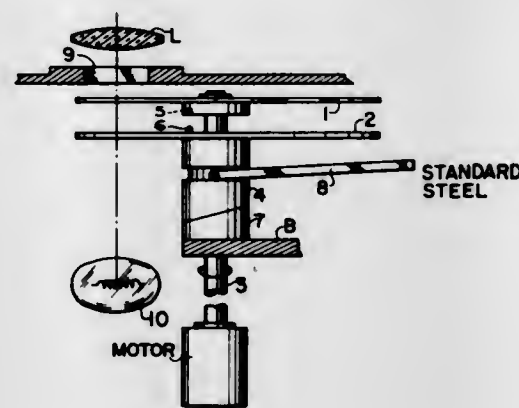
Filed June 17, 1969, Ser. No. 833,910

Claims priority, application Japan, June 25, 1968, 43/53747

Int. Cl. G03b 21/38, 9/16

U.S. Cl. 352-169

8 Claims



A film projection device employs a secondary shutter blade having a single shutter opening which rotates in synchronism with a standard multisector opening blade during manual single frame film feeding.

3,597,068

CINEMATOGRAPHIC CAMERA

Kazuo Masuyama, Nishimiya-shi, Hyogo, and Saichiro Ohashi, Nishimiya-shi, both of Japan, assignors to Fuji Photo Film Co., Ltd., Kamigun, Kanagawa, Japan

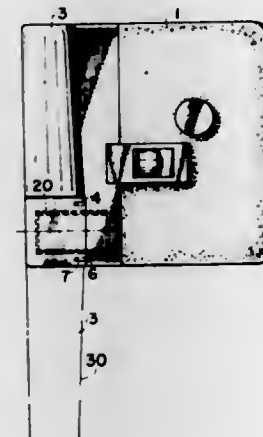
Filed June 18, 1969, Ser. No. 834,256

Claims priority, application Japan, July 27, 1968, 43/53,099

Int. Cl. G03b 17/00

U.S. Cl. 352-243

1 Claim



A grip for a movie camera serves as a lens cover by being rotated 180° about its pivot axis in front of the front face of the camera, with the motor serving as the pivot for rotation of the grip mounted at the front of the camera body.

3,597,069

COLOR TV FILM REPRODUCTION SYSTEM COMPATIBLE WITH DIFFRACTION PROCESS COLOR PROJECTION SYSTEMS

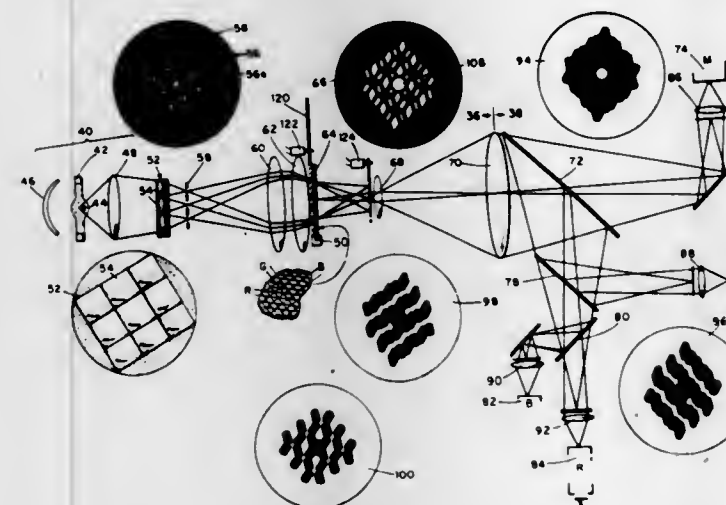
Russell M. Heinonen, Jr., Hudson, Mass., assignor to Technical Operations Incorporated, Burlington, Mass.

Filed Feb. 5, 1969, Ser. No. 796,873

Int. Cl. G03b 21/14; G02b 5/18

U.S. Cl. 353-20

5 Claims



This disclosure depicts improved color television film reproduction systems capable of displaying either conventional color transparency cine film, or alternatively, by a diffraction process, cine records on which color separation information is stored as signals modulating separately detectable spatial carriers. The illustrated system comprises, inter alia, novel methods and apparatus making possible precise, rapid, and facile alignment of the optical systems in the projector and camera stages of the film reproduction system, and apparatus enabling rapid and simple conversion of the reproduction system from a conventional mode wherein color transparency film is used to a diffraction process mode wherein color-encoded monochrome film is used.

3,597,070

SYSTEM FOR INDEXING AND PROJECTING MICROFILM FOR SCANNING

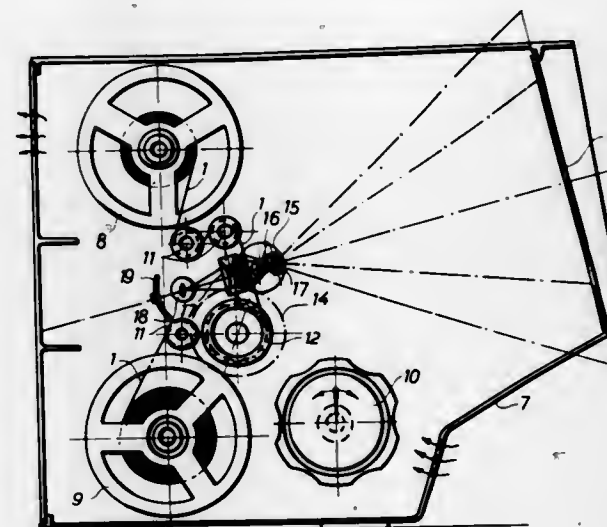
Magne Slettebo, Prestevelen 23, Kirkenes, Norway

Continuation-in-part of application Ser. No. 628,605, Apr. 5, 1967, now abandoned. This application Dec. 22, 1969, Ser. No. 887,423

Int. Cl. G03b 23/12, 41/04

U.S. Cl. 353-26

6 Claims



The invention relates to a device for storing, retracing and the projecting of information on microfilm stored on and movable between two reels, the device being provided with optical "arresting" means making at least the index for the stored information appear in a stationary picture when the film moves continuously, the microfilm being divided longitudinally to provide cue index symbols on one side corresponding to the text identified by the symbols on the opposite side of the microfilm, and the device having a viewing screen provided with openings through which the index symbols may be seen.

3,597,071

DIVERSE-INPUT SYSTEM FOR ELECTROSTATICALLY REPRODUCING AND RECORDING INFORMATION

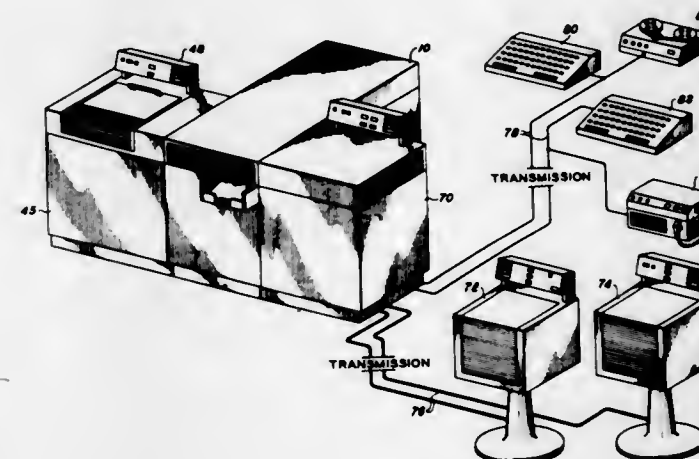
Burton L. Jones, Fairport, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Aug. 30, 1968, Ser. No. 756,598

Int. Cl. G03g 15/00

U.S. Cl. 355-3

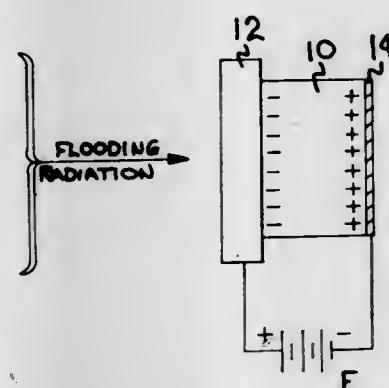
13 Claims



A reproduction system of a single electrostatic processing printer and a plurality of different imaging input devices such as devices which are adapted to produce imaging light rays for the printer from such informational forms as video facsimile signals, microfilm, data processing information, light scanning platens for full size documents, aperture cards,

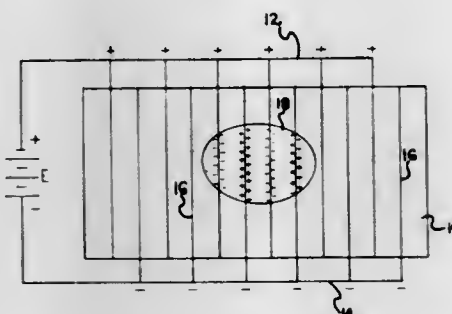
microfiche, etc. An interface connection is provided for the printer and any one or more of the input units. Paper input devices may also be arranged in the system for selectively feeding paper from different sources into the system.

3,597,072
ELECTRODE CONFIGURATION FOR ELECTROPHOTOGRAPHY
Felix H. Brown, East Lansing, and Robert N. Clark, Mason, both of, Mich., assignors to Owens-Illinois, Inc.
Filed Oct. 3, 1968, Ser. No. 764,683
Int. Cl. G03g 15/00
U.S. Cl. 355-3
2 Claims



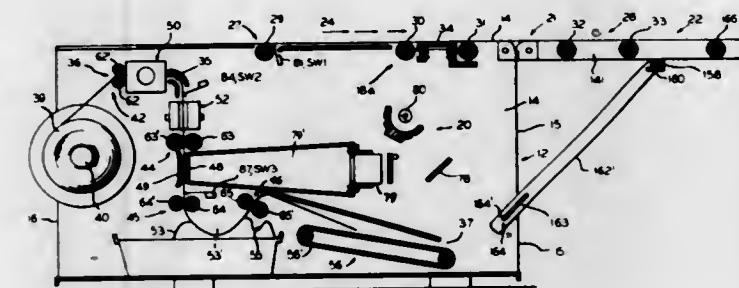
A persistent internal polarization (PIP) electrophotography printing or copying system wherein one electrode is nonremovable and has a discontinuous configuration, such as a wire screen mesh, which is embedded in or attached to the surface of a PIP layer and the other electrode is transparent so that each electrode is capable of simultaneously applying an electric field to the PIP layer, while permitting radiation to reach the PIP layer.

3,597,073
ELECTRODE CONFIGURATION FOR ELECTROPHOTOGRAPHY
John D. Grier, Okemos, Mich., and Owens-Illinois, Inc.
Filed Feb. 28, 1969, Ser. No. 803,353
Int. Cl. G03g 15/00, 15/02
U.S. Cl. 355-3
2 Claims



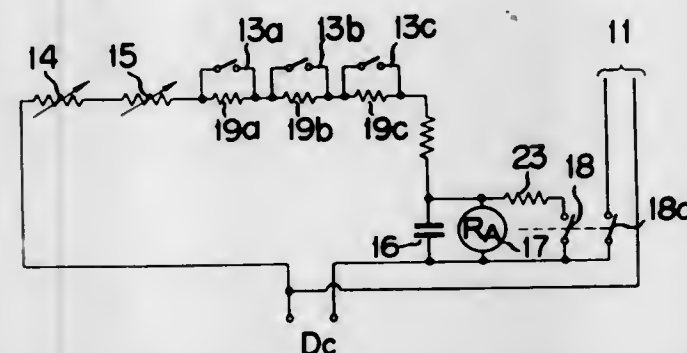
A persistent internal polarization (PIP) electrophotography printing or copying system wherein a pair of opposite polarity electrodes, each including a plurality of elements disposed in spaced array alternating with each other in the same plane, are utilized in combination with a PIP layer such that an electric field may be simultaneously applied to the PIP layer while permitting light radiation to reach the PIP layer. In the specific practice, the pair of electrodes are positioned on top of or embedded in the surface of the PIP layer which is to be toned; that is, the top surface.

3,597,074
COMBINATION SHEET AND BOOK COPY MACHINE
Karl M. Murgas, Lincolnwood; Burton Greenberg, Chicago, and Otto A. Clark, Chicago, all of, Ill., assignors to ICP, Inc., Skokie, Ill.
Filed July 18, 1968, Ser. No. 745,841
Int. Cl. G03b 27/58
U.S. Cl. 355-25
23 Claims



A combination sheet and book copy machine having an original document transport system and a copy paper transport system for reproducing increments of a moving document onto a simultaneously moving length of photosensitive copy paper. The photosensitive copy paper may be individual sheets or a length pulled from a roll supply of copy paper and automatically severed from the roll. Converter means enables the original document transport system to be converted from a book copier to a rapid cycle sheet copier, or from a rapid cycle sheet copier to a book copier. The machine also includes means for reproducing multiple copies of an original document sheet or book.

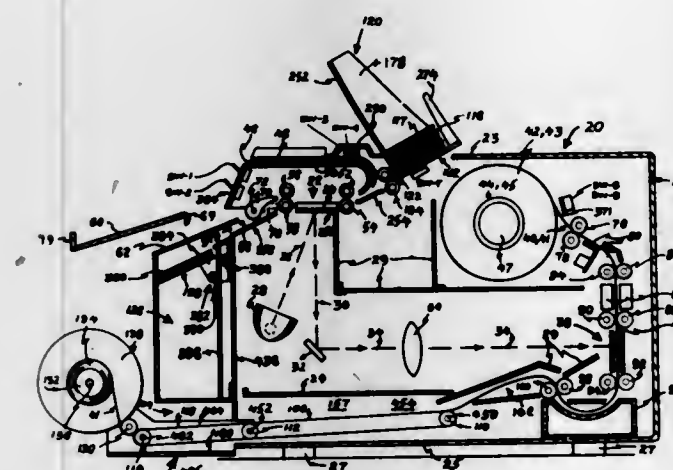
3,597,075
PROCESSING DEVICE FOR USE WITH PHOTOCOPYING MACHINE
Yugoro Kobayashi, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Dec. 11, 1968, Ser. No. 783,051
Claims priority, application Japan, Dec. 15, 1967, 42/80,083
Int. Cl. G03b 27/32
U.S. Cl. 355-27
1 Claim



A processing device for a photocopying machine, wherein a plurality of detecting resistors in a capacitor charging circuit detect the width as well as the length of a photosensitive paper. The charging velocity of the capacitor is controlled in response to the number of detecting resistors actuated by the photosensitive paper. The quantity of processing solution is controlled in response to the charging velocity.

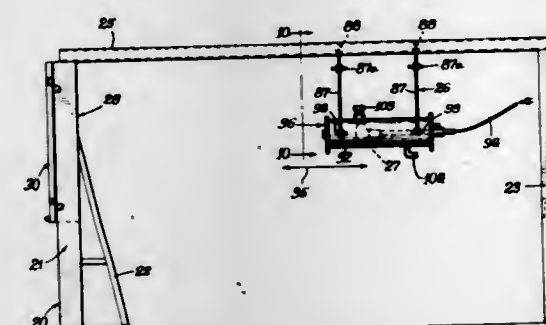
3,597,076
LABEL-MAKING SYSTEM
David W. Hubbard, Stamford, and Andrew W. Rastorguyeff, Norwalk, both of, Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.
Filed Jan. 17, 1969, Ser. No. 791,941
Int. Cl. G03b 27/70
U.S. Cl. 355-29
29 Claims
A deck of tabulating cards having names and addresses printed thereon in legible form is used as a master mailing

list. The cards are passed through a photocopying machine which, in addition to the usual document copying facilities, has equipment for tabulating card handling. The cards are copied automatically in rapid sequence and in overlapping relationship, so that a series of names and addresses is printed on a continuous strip of copy paper with a minimum



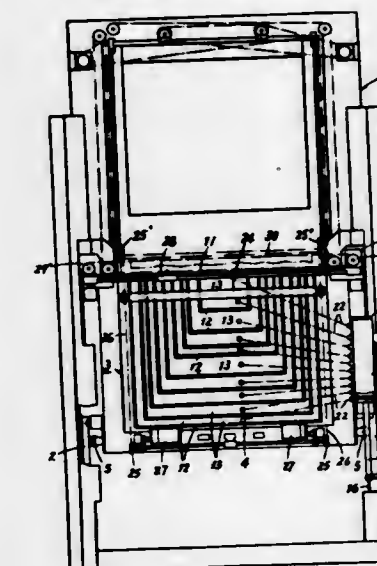
of blank space between. Various aspects of the operation of a conventional photocopying machine are altered to achieve a continuous card copying cycle. A continuous output strip emerges from the photocopying machine, and is subsequently processed by conventional labeling machinery which severs the strip into individual address labels and glues these to respective pieces of mail.

3,597,077
METHOD AND APPARATUS FOR MAKING SCREENED LITHOGRAPHIC AND GRAVURE PLATES
Fred H. Dorn, Cary, Ill., assignor to Acme Building Land Trust (No. 47912), Rolling Meadows, Ill.
Filed Apr. 9, 1969, Ser. No. 814,675
Int. Cl. G03b 27/66
U.S. Cl. 355-71
7 Claims



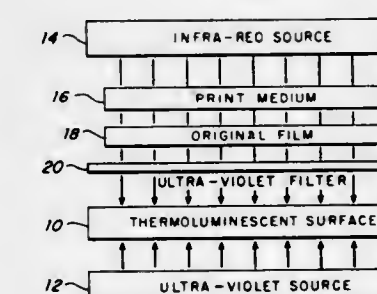
The subject method and apparatus is for making screened lithographic and gravure plates for use in printing. A live film is held in spaced-apart adjustably aligned position relative to a master screen disposed parallel thereto. An exposure lamp is adjustably positioned relative to the film and the master screen on an axial path extending through substantially the center of the film and screen. The exposure lamp is adapted to carry replaceable stops to project the image of the stop being used through the master screen to the live film. The apparatus has no housing—practice of the method and apparatus is in a darkroom.

3,597,078
DEVICE FOR CONTROLLING AUTOMATICALLY THE SUCTION ZONES OF VACUUM BACK IN PHOTOMECHANICAL CAMERA (2)
Yoshio Mlyuchi, Hikone, Japan, assignor to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan
Filed Nov. 18, 1968, Ser. No. 776,438
Claims priority, application Japan, Nov. 30, 1967, 42/76,396
Int. Cl. G03b 27/60
U.S. Cl. 355-73
4 Claims



A vacuum back for a photomechanical camera including apparatus for automatically controlling the suction zones of the vacuum back. The vacuum back has a linear vacuum zone which defines the top of the film regardless of film size. The vacuum back is adapted for unilateral movement relative to its mounting so that various sizes of film may be properly centered with respect to the optical axis of the camera. The vacuum back further has a multiplicity of vacuum zones defining increasingly larger film size vacuum regions on the vacuum back. Each of the multiplicity of vacuum zones is connected to one of a multiplicity of vacuum connections on a cylinder connected to and vertically traveling with the vacuum back, so that movement of the vacuum back for properly centering the film also moves the cylinder with respect to a nonmoving piston therein and automatically applies the vacuum to the desired vacuum region.

3,597,079
IMAGE ENHANCEMENT APPARATUS AND METHOD USING A RADIANT SURFACE WHICH PRODUCES FREE HOLES AND ELECTRONS UPON EXCITEMENT
John Gioacchino Celi, Reading, Mass., assignor to Itek Corporation, Lexington, Mass.
Filed Feb. 28, 1968, Ser. No. 709,079
Int. Cl. G03b 27/76
U.S. Cl. 355-80
24 Claims



Apparatus is disclosed for enhancing photographic images during printing which comprises an infrared light source, an ultraviolet light source, and a thermoluminescent surface. Enhancement is accomplished by exciting the thermolu-

minescent surface with ultraviolet light to generate holes and electrons therein and subsequently passing infrared light through a negative transparency and onto the excited thermoluminescent surface. The infrared light stimulates the thermoluminescent surface to emit actinic light which passes back through the negative and exposes a photosensitive print medium. The negative transparency provides attenuation of both the infrared radiation and the actinic light in direct proportion to the density of the transparency thereby enhancing the contrast of the photographic image in the print.

3,597,080

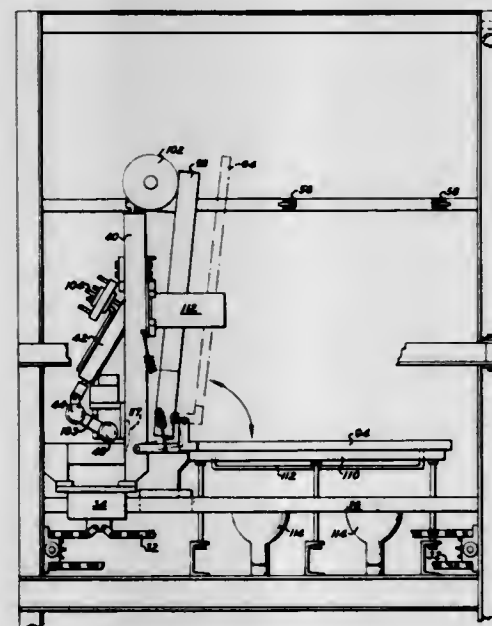
APPARATUS FOR PREPARING A PRINTING PLATE FROM A PHOTOSENSITIVE COMPOSITION

Donald P. Gush, Hyattsville; Manuel C. Uy, Glen Burnie, and Einstein E. Calcedo, Silver Spring, all of, Md., assignors to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of application Ser. No. 674,772, Oct. 12, 1967, now Patent No. 3,520,606. This application Oct. 25, 1968, Ser. No. 770,603
Int. Cl. G03b 27/30

U.S. Cl. 355-85

15 Claims



The disclosed invention is for a photocomposing apparatus and improvements in a method of operating a photocomposing apparatus. The apparatus includes a housing having at one end an actinic light source and at the other end a support adapted to receive thereon a liquid photocurable composition which on exposure to actinic light through an image bearing transparency becomes selectively insolubilized in the exposed portions thereof. The invention is especially useful in preparing a developable printing plate from a liquid photocurable composition.

3,597,081

VACUUM MASKING SYSTEM AND METHOD

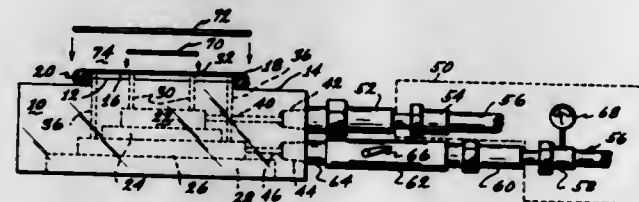
Donald Norman Cason, Oconomowoc, Wis., and Robert Louis Schaefer, Huntington Beach, Calif., assignors to Continental Device Corporation

Filed Nov. 2, 1967, Ser. No. 680,233

Int. Cl. G03b 27/20

U.S. Cl. 355-91

3 Claims



The application discloses a vacuum actuated holding jig for use in the process of manufacturing semiconductor wafer ele-

ments. The jig is a small integral unit having two vacuum chambers therewithin each communicating with different areas on the wafer rubber mounting surface. A wafer may be temporarily held by one set of capillaries while a mask is emplaced thereover and clamped by a second set of capillaries. The first vacuum may then be released. The second vacuum is held by a toggle switch mounted on the jig unit whereby the vacuum secured jig-wafer-mask assembly may be removed from the vacuum system and handled independently for further processing.

3,597,082

UNCOPYABLE PHOTOCROMIC PAPER

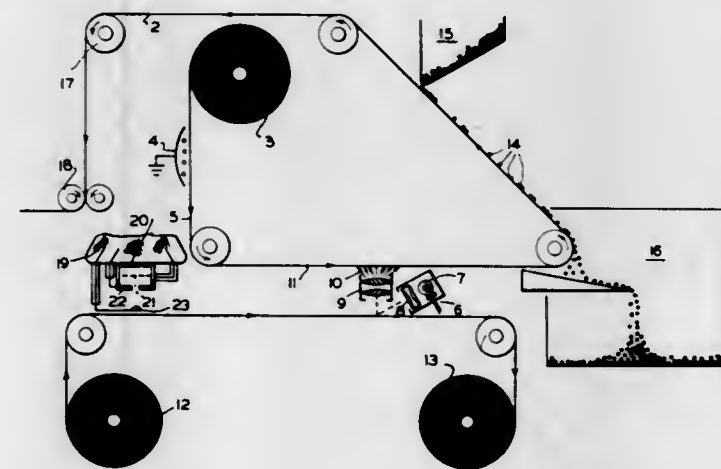
Raymond W. James, Fitchburg; Wyman F. Uhl, Sterling, and Christo Antonio, Princeton, all of, Mass., assignors to Litton Business Systems, Inc.

Filed Feb. 20, 1967, Ser. No. 617,118

Int. Cl. G03g

U.S. Cl. 355-133

5 Claims



A photochromic paper having visible data thereon which, in response to radiation impinging on its surface, temporarily changes color to substantially match the color of the data thereby preventing copying therefrom.

3,597,083

METHOD AND APPARATUS FOR DETECTING REGISTRATION BETWEEN MULTIPLE IMAGES

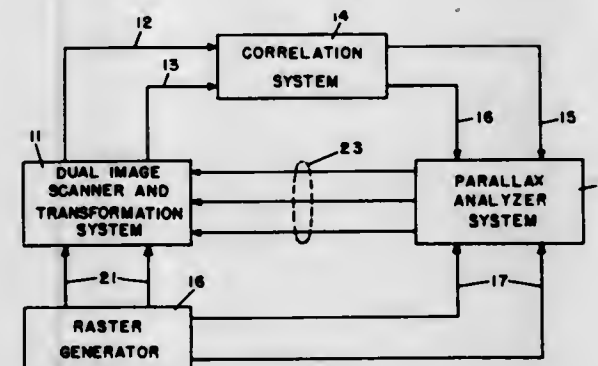
Robert M. Fraser, Lincoln, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Apr. 16, 1969, Ser. No. 816,730

Int. Cl. G01c 11/12

U.S. Cl. 356-2

15 Claims



This disclosure relates to a method and apparatus for the detection of the relative distortion between two patterns. Analog video signals, obtained by synchronously scanning the two patterns, are converted to binary waveforms having level changes corresponding to zero crossings of the respective analog signals. The binary signals are then compared and the intervals of disagreement noted and assigned a plus or

minus sign, depending upon which of the two signals initiated the disagreement. The algebraic sum of the disagreement intervals is shown to be of a magnitude and sign as will indicate the amount and direction of the distortion differences.

3,597,084

DELTA T-BAR SPECTROMETER READOUT DEVICE

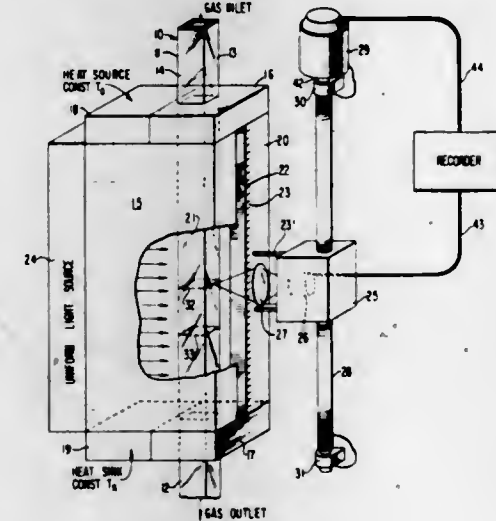
Frank Pagano, Elnora, N.Y., assignor to Aero-Vac Corp., Troy, N.Y.

Filed Feb. 20, 1970, Ser. No. 12,990

Int. Cl. G01n 1/10

U.S. Cl. 356-37

10 Claims



Extreme small percentage portions of an atmosphere are separated by condensation on a transparent, thermally conductive wall held to a known temperature gradient between a higher fixed temperature and a lower fixed temperature. Collection of an illuminated condensation product on this surface is observed by photocell probe by optical means through the transparent surface to provide either a photoelectric signal proportional to the amount of condensate collected or an optically measurable value. Indications of the positions of condensate portions provide product identification by calibrating the positions along the gradient.

3,597,085

FLAME INSPECTING DEVICE

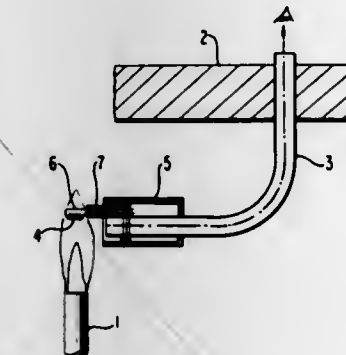
Shigeo Kuwayama, and Motohiko Yagi, both of Odawara-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

Filed Dec. 29, 1969, Ser. No. 888,660

Int. Cl. G01j 5/48

U.S. Cl. 356-44

5 Claims



A transparent ceramic rod for viewing combustion flame carries a ceramic tube at its inner end having higher fire resistance than that of the ceramic rod with the end of the rod recessed therein. The flame is observed from the other end of the rod by the observer.

3,597,086

METHOD AND APPARATUS FOR LASER MICROANALYSIS

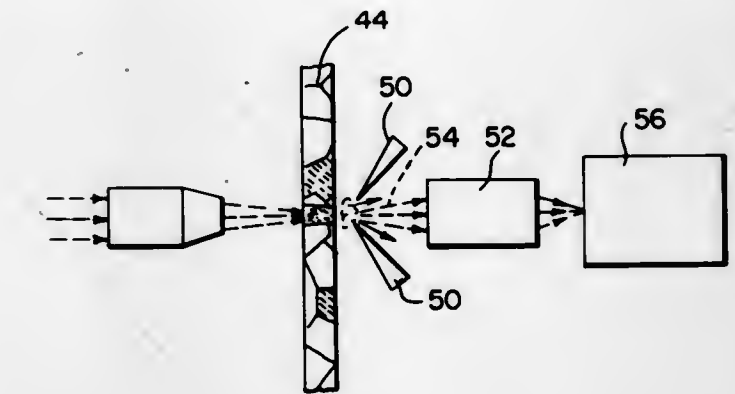
Martti Juhani Mela, Box 13067, Helsinki 13, and Martti Seppo Sulonen, Lielahdentie 2A21, Helsinki 20, both of, Finland

Filed July 28, 1969, Ser. No. 845,437

Claims priority, application Finland; Aug. 8, 1968, 2250/68
Int. Cl. G01j 3/30

U.S. Cl. 356-86

7 Claims



Apparatus for spectrographic analysis. The apparatus includes a laser light generator for producing a stream of laser light, which stream is focused by laser focusing optics on one side of a thin foil sample to be analyzed. Located on the side of the foil opposite the side upon which the laser light is focused are electrodes which can be utilized to assist ionization of the foil sample. Optics for collecting the resulting radiation from the plasma of the sample and directing such radiation to a spectroscope are positioned between the side of the foil facing the electrodes and the spectroscope. Method of utilizing such apparatus including maintaining the thickness of the foil sample so that the stream of laser light focused thereon penetrates the foil.

3,597,087

SAMPLE DEGRADATION DETERMINING METHOD AND APPARATUS

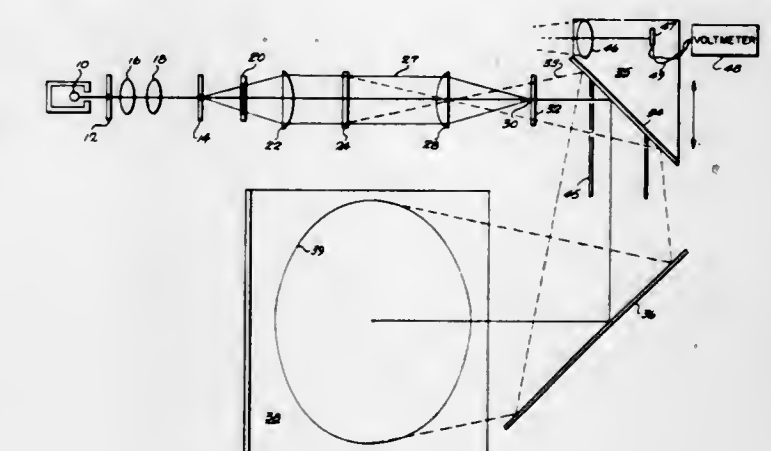
Donald W. Dunlap, Boulder, Colo., assignor to Ball Brothers Research Corporation, Boulder, Colo.

Filed Dec. 31, 1968, Ser. No. 789,038

Int. Cl. G01n 21/26

U.S. Cl. 356-103

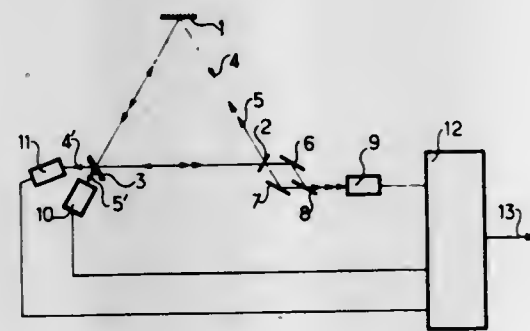
17 Claims



Apparatus and method to monitor light scattered by a sample in the optical path of a light beam, which sample can be degraded by contamination deposits, imperfections, gaseous matter, and the like, which degradation causes scattering of light directed to the sample. A light beam from a simulated point source is focused by an optical element and directed to the sample, after which the image of the source is occulted so that any forward light thereafter is due substantially to unoccluded light scattered by the sample. The scattered light is

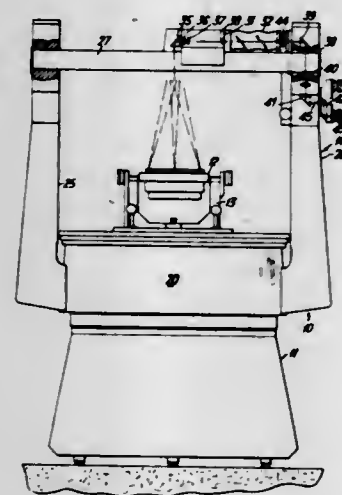
monitored beyond the image visually by an observer, and/or by utilization of photographic or photometric means, so as to provide an indication of the amount of scattered light and hence, an indication of the degree of degrading of a sample.

3,597,088
LASER GYROMETER
Jean-Michel Catherin, Savigny-sur-Orge, France, assignor to Compagnie Generale D'Electricite, Paris, France
Filed May 6, 1969, Ser. No. 822,262
Claims priority, application France, May 6, 1968, 150,745
Int. Cl. G01b 9/02
U.S. Cl. 356-106 5 Claims



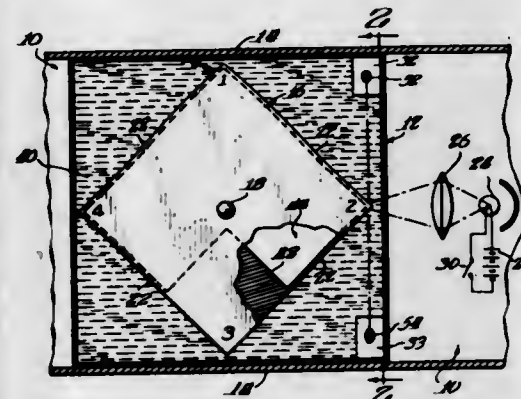
A laser gyrometer which is characterized in that it comprises means for detecting the power of each of the propagating waves, means for detecting the beat frequency of said propagating waves, and an electronic circuit introducing corrections with respect to the signal supplied by said means for detecting the beat frequency from the data furnished by said means for detecting the power of each of the waves.

3,597,089
TEST TABLE FOR A MAGNETIC COMPASS
David Scarth Ritchie, and Stanley James Law, both of Glasgow, Scotland, assignors to Barr & Stroud Limited
Filed May 12, 1969, Ser. No. 823,571
Claims priority, application Great Britain, June 13, 1968, 28,109/68
Int. Cl. G01c 17/38
U.S. Cl. 356-139 7 Claims



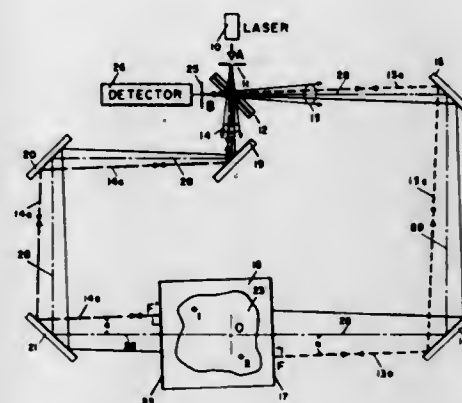
The invention provides a test table for magnetic compasses. Reading errors which occur during a large number of readings necessary in testing accurately a magnetic compass are mitigated by using an optical system which automatically compensates for misalignment of the system with respect to the compass card by mounting the optical system on a head which is temperature compensating to maintain the optical system in fixed relation to the compass test table.

3,597,090
LEVELLING INSTRUMENT USING A REFLECTIVE PENDULUM
David H. Humphrey, G.P.O. Box 2226, San Juan, P.R.
Filed Nov. 21, 1968, Ser. No. 777,790
Int. Cl. G01c 1/10, 9/12, 9/16
U.S. Cl. 356-149 8 Claims



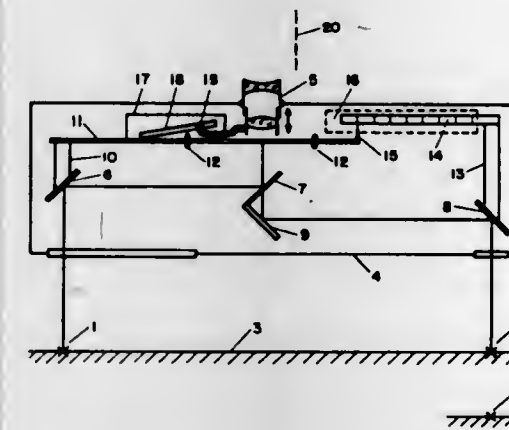
A levelling instrument in which a level condition is indicated by the projection of light beams on a pair of projection screens, the beams being controlled by a pendulum having reflecting surfaces. The movements of the pendulum may be damped by enclosing the pendulum in a chamber filled with damping liquid, and friction on the pivot for the pendulum may be minimized by providing a pendulum having a specific gravity matching that of the liquid fill. Signal means may be provided in place of the projection screens.

3,597,091
INTERFEROMETER
John Kent Bowker, Marblehead, Mass., assignor to Itek Corporation, Lexington, Mass.
Filed Jan. 18, 1968, Ser. No. 698,821
Int. Cl. G01b 9/02
U.S. Cl. 356-106 22 Claims



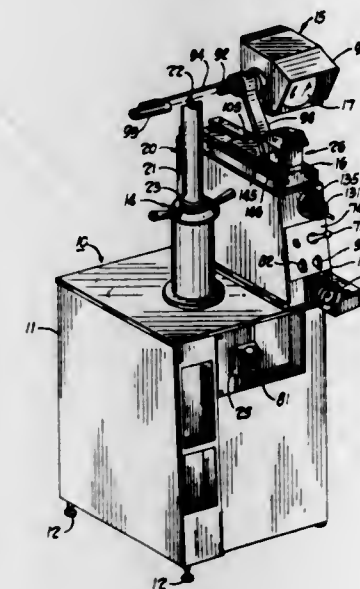
An interferometer with a laser source focused on a pinhole produces monochromatic, coherent light with a spherical wave front. A beam splitter divides the light along light paths which are directed through coupling mirrors to the opposing parallel reflecting surfaces of a movable rigid body stage plate. Reflected energies returning along incident paths normal to the reflecting surfaces are directed back through the beam splitter to an exit pinhole where they are combined and interfere. A photoelectric detector produces an electrical signal in response to the variation of light intensity of the interfering energies. The number of intensity changes, corresponding to the number of interference fringes, is accumulated in a fringe counter which produces a measure of the linear translation of the stage plate with respect to a fiducial indicating a reference point at the optical center of the system, i.e. the center of the light paths. An embodiment is described and illustrated for measuring two coordinates, e.g. a two axes measurement system. In one form a servo system in response to the counts for each axis positions a movable member.

3,597,092
INSTRUMENT FOR MEASURING A PROJECTED DISTANCE
Erik Niss, Lidings, Sweden, assignor to AGA Aktiebolag
Filed Sept. 26, 1969, Ser. No. 861,434
Claims priority, application Sweden, Oct. 9, 1968, 13576/68
Int. Cl. G01b 11/02
U.S. Cl. 356-156 3 Claims



For measuring the projected distance between a pair of points, an optical lens system is arranged with its optical axis parallel to the direction of projection. The axis is deflected in opposite directions towards a pair of deflectors causing perpendicular deflections into directions parallel to the axis. The spacing between the deflectors is adjustable and can be read off from a scale. The lens system is adjustable parallel to the adjustment of the deflectors.

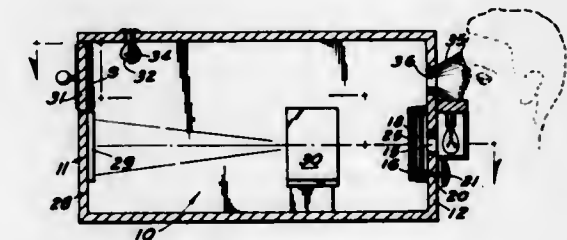
3,597,093
TOOL MEASURING AND INSPECTING APPARATUS
Heinz K. Wolf, Willoughby Hills, Ohio, assignor to The New Britain Machine Company, Cleveland, Ohio
Filed Mar. 24, 1969, Ser. No. 809,621
Int. Cl. G01b 9/08, 11/24
U.S. Cl. 356-165 15 Claims



Tool measuring and inspecting apparatus especially adapted for setting and checking the dimensions of a boring bar and the like, including a vertically movable tool holder assembly for holding a tool in a vertical position, an optical projector assembly for viewing the cutting portion of the tool, means for vertically raising the tool holder assembly from a reference position below the projector assembly and for moving the projector assembly horizontally from a reference position, whereby the projector assembly can be

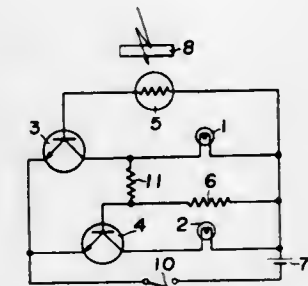
centered on the cutting portion of the tool, and optical linear measuring systems for use in gauging the depth dimension of the tool along its vertical axis between a gauge line and the tool point and in gauging the diameter dimension of the tool along the axis of movement of the projector assembly.

3,597,094
PORTABLE COLOR IDENTIFICATION DEVICE
David G. Goldwasser, 751 Marietta St. N.E., Atlanta, Ga.
Filed Aug. 11, 1967, Ser. No. 660,063
Int. Cl. G01j 3/48, 3/52, 3/46
U.S. Cl. 356-189 2 Claims



A portable color identification device which is used with a light source and visual observation for identifying the color of a given specimen and which includes a color reflecting surface, a plurality of filter means positioned between the light source and the color reflecting surface for filtering out selected wavelengths of the light that is transmitted from the light source, and a plurality of diaphragm means for allowing the passage of light in selective varying amounts from the light source to the color reflecting surface until the color of the reflecting surface matches that of the specimen.

3,597,095
PHOTOGRAPHIC EXPOSURE METER
Yoshio Fukushima, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed May 18, 1967, Ser. No. 639,521
Claims priority, application Japan, June 15, 1966, 41/38223
Int. Cl. G01j 1/44
U.S. Cl. 356-226 7 Claims

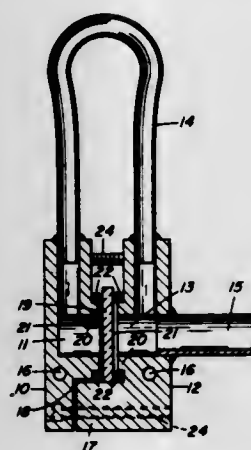


A photographic exposure material wherein the pilot lamps are utilized in conjunction with the amplifiers and whereby the proper exposure is obtained by comparing the brightness of one of the pilot lamps with the brightness of the other pilot lamp.

3,597,096
A CELL FOR THE SPECTROSCOPIC EVALUATION OF SAMPLES INCLUDING A FRUSTRATED INTERNAL REFLECTION PLATE
Herbert Burkhard, Eastchester, N.Y., assignor to American Cynamid Company, Stamford, Conn.
Filed Mar. 25, 1970, Ser. No. 22,418
Int. Cl. G01n 1/10
U.S. Cl. 356-246 16 Claims

An improved cell offering a variety of advantages is provided wherein a multiple internal reflection spectroscopy plate containing a thin layer of finely divided catalyst deposited on each surface is sealably mounted between two rigid heatable body members each of which contains a com-

partment therein which communicates with the catalyst deposited on the plate. Both compartments intercommunicate thereby providing pressure equilibration on each side of the cell. Reactants at the desired pressure and temperature are introduced into the compartments and envelop the catalyst layers. A portion of the spectroscopy plate protrudes from the cell and is bombarded with appropriate radiant energy such as an infrared beam. The beam enters the plate,



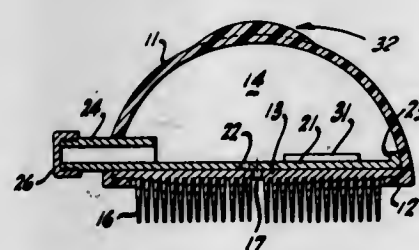
is reflected through the plate and catalyst deposited thereon, and emerges from the plate with substantially all resultant absorption of the radiation attributable to phenomena occurring within the catalyst layer; this occurs because at no time is the beam exposed to the environment of reactants and reaction products in the compartments surrounding the catalyst or to other environments which produce substantial amounts of undesirable background absorption. Various embodiments of the above-described cell are disclosed.

3,597,097
DISPENSING BRUSH WITH HOUSING VALVE CLOSURE
Louis T. Kellis, 540 O'Farrell St., Apt. 405, San Francisco, Calif.

Filed May 21, 1969, Ser. No. 826,531
Int. Cl. A46b 5/02

U.S. Cl. 401-6

9 Claims



A dispensing brush having a substantially rigid brush plate and a resilient housing atop same. A slide bar in the housing extends across the brush plate from engagement with one housing side through an opposite side of the housing with an aperture in the bar offset from an aperture in the brush plate longitudinally of the bar. Squeezing of the housing by pressure against the external end of the slide plate aligns the apertures for dispensing fluid contained in the housing and pressure release causes the resilient housing to force the slide bar back to original position.

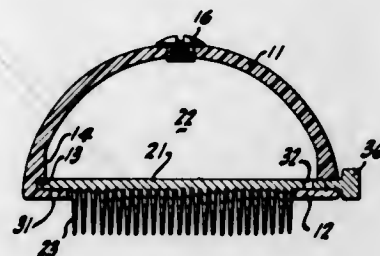
3,597,098
SQUEEZE BRUSH WITH ROTARY DISPENSER
Louis T. Kellis, 540 O'Farrell St., Apt. 405, San Francisco, Calif.

Filed May 21, 1969, Ser. No. 826,591
Int. Cl. A46b 5/02

U.S. Cl. 401-6

A dispensing brush having a flexible housing that may be squeezed to force a fluid or the like therefrom and a rigid floor rotatably mounted in an internal groove about the bot-

tom of the housing upon an internally extending flange thereof for controlled positioning to align openings in the

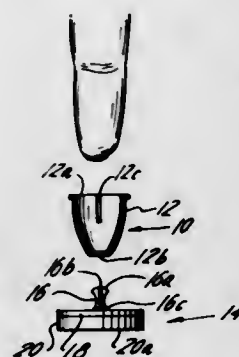


floor and housing flange for dispensing material from the housing.

3,597,099
FINGER-PAINTING DEVICE
William Tollin, and Harriet Tollin, both of 109 Woodlane South, Woodbury, L. I., N.Y.
Filed Mar. 12, 1969, Ser. No. 806,402
Int. Cl. A46b 5/04

U.S. Cl. 401-7

9 Claims

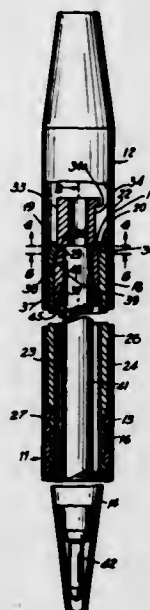


A device for finger painting or finger art. A cap member bearing paint or marking substance is attachable to the tip of the finger of the user. The cap member is flexibly or fixedly secured to a marking member which retains the paint or marking substance.

3,597,100
WRITING IMPLEMENT
Walter C. Ganz, New York, N.Y., assignor to K. C. Pen Co., Inc., Brooklyn, N.Y.
Continuation-in-part of application Ser. No. 846,465, Aug. 31, 1969, now abandoned. This application Apr. 20, 1970, Ser. No. 29,890
Int. Cl. B43k 24/06

U.S. Cl. 401-110

12 Claims



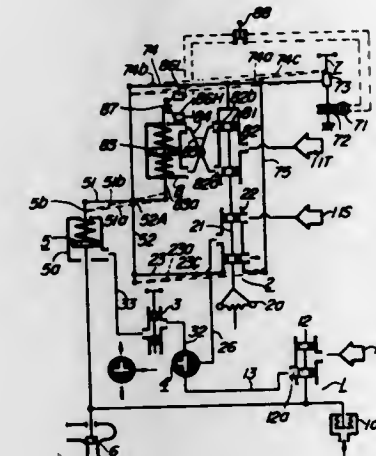
A retractable writing implement comprises a barrel including an integrally threaded upper section, and an upper cap

section rotatably supporting an externally threaded coaxial tubular actuator, which releasably engages the barrel threaded section. A cartridge carrier slideably and rotatably registers with the actuator upper portion. An inner arcuate flange affixed to the cap is spaced from the carrier to delineate a shoulder-terminated path along which is movable a finger affixed to the actuator to opposite ends of the path, and a finger projects from the flange into engagement with a vertical groove in the carrier. The carrier and actuator have complementing end-to-end cylindrical cams. Another embodiment restricts relative rotation of the cap and body by interaction of the cooperating cam surfaces.

3,597,101
AUTOMATIC FOLLOWUP CONTROLLER FOR A TURBINE
Matuto Kikuchi, and Tomoyuki Nakatsuka, both of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed July 9, 1969, Ser. No. 840,223
Claims priority, application Japan, July 10, 1968, 43/47761
Int. Cl. F01b 25/00

U.S. Cl. 415-17

7 Claims



An automatic followup controller for a back pressure type or air bleed back pressure type turbine which can be operated under either of control operation and pressure control operation, in which means is provided for adjusting the setting of speed governor means to follow the actual operating condition during a pressure control operation and for adjusting the setting of pressure governor means to follow the actual operational condition during a speed control operation, so that, when the operational condition is switched from the pressure control operation to the speed control operation, or vice versa, no abrupt change in load or speed on the turbine or a generator connected to the turbine and a smooth conversion of operation can be performed, and selector means is provided in each of passages which supply pressurized hydraulic oil from said pressure governor means and said speed governor means and said speed governor means to a servomotor means which controls a turbine control valve, said selector means being operative to selectively direct pressurized hydraulic oil from either one of said governor means to said servomotor means.

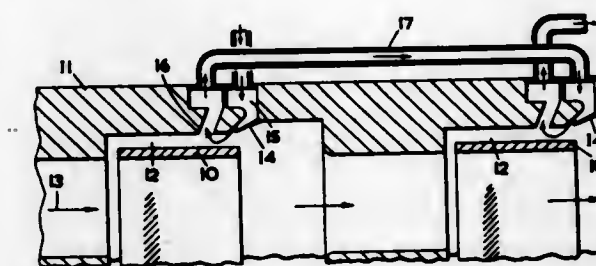
3,597,102
TURBINES
Robert George Unsworth, and Robert Keith Burton, both of Rugby, England, assignors to The English Electric Company Limited, London, England
Filed June 10, 1969, Ser. No. 831,963
Claims priority, application Great Britain, June 10, 1968, Aug. 12, 1968, 27442/68; 38557/68
Int. Cl. F01d 11/00, 5/08

U.S. Cl. 415-112

4 Claims

To prevent leakage of fluid through a clearance passage defined between a turbine rotor and stator, a duct is formed in the stator from which an annular jet of fluid can be directed into the passage. The jet forms a moving curtain of fluid between rotor and stator.

Axially adjacent the duct, a chamber may be formed in the stator, fluid from the curtain being deflected into the chamber and conveyed therefrom to a further duct in order

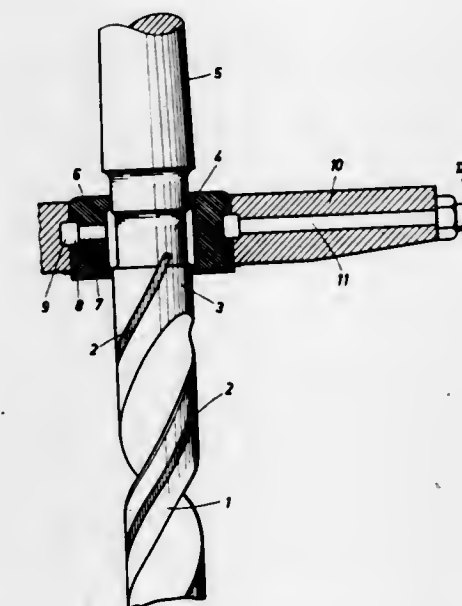


to provide a further moving curtain between rotor and stator. The further moving curtain may be provided in the same clearance passage or in another located downstream therefrom.

3,597,103
CHIP-REMOVING ROTARY TOOLS
Manfred Birk, Ebingen (Wurtt.), Germany, assignor to Firma Gottlieb Guhring, Ebingen, (Wurtt.), Germany
Filed May 1, 1969, Ser. No. 820,741
Claims priority, application Germany, May 15, 1968, P 17 52 365.8
Int. Cl. B23b 51/06

U.S. Cl. 408-59

6 Claims

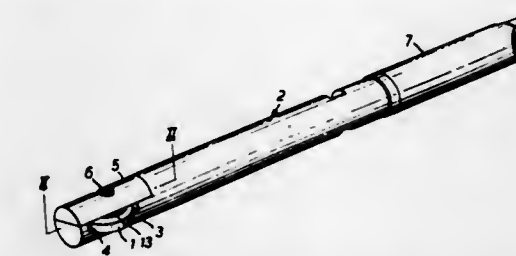


A twist drill or the like is provided with coolant ducts opening into a groove between the shank and fluted portions of the drill. The groove is surrounded by a stationary connector through which coolant is supplied.

3,597,104
REAMING TOOLS
Frederick James Salcumbe, Bromsgrove, England, assignor to Donald Frederick Jones, Bromsgrove, England, a part interest
Filed May 16, 1968, Ser. No. 729,598
Int. Cl. B23d 77/02

U.S. Cl. 408-199

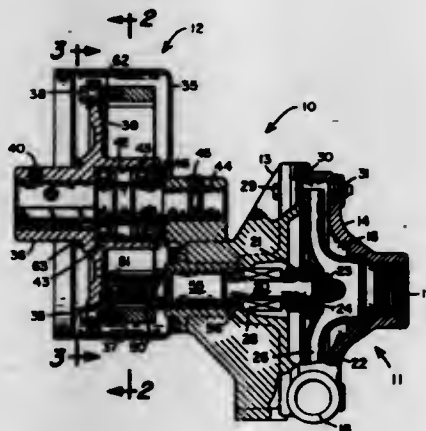
9 Claims



A reaming tool comprising a reaming cutter with opposed cutting edges and a toolholder with a slot or lateral through aperture for the reception of the cutter. The holder has

retaining means which act to retain the cutter within the slot or aperture with a limited degree of float radially of the reaming axis and generally in the plane containing the cutting edges, the float being in the form of guided sliding movement of the cutter within the slot or aperture.

3,597,105
POWER TAKEOFF CENTRIFUGAL PUMP WITH RING AND PINION DRIVE
Harry J. Sadler, St. Paul, and Ramon Pareja, Minneapolis, both of, Minn., assignors to Hypro, Inc., St. Paul, Minn.
Filed Jan. 9, 1970, Ser. No. 1,794
Int. Cl. F01d 15/08, 1/02
U.S. Cl. 415-122 8 Claims

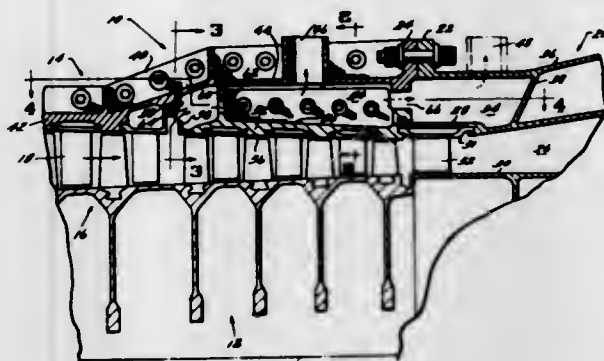


In combination, a centrifugal pump means having an enclosed pumping chamber with an inlet and an outlet, along with an impeller journaled for rotation within the chamber and a drive shaft arranged to provide rotational energy to the impeller; and a power-transmission means coupled to the centrifugal pump for driving the drive shaft, the power-transmission means having an input coupling for direct mounting onto a tractor power takeoff shaft with the input energy being coupled through a ring and pinion to the drive shaft for the pump. The power-transmission means comprises a ring and pinion system with a drive hub member which forms a portion of the input coupling being secured through suitable cushioning means, to the ring gear, the ring gear being fabricated from relatively durable material, and with the pinion gear being fabricated from relatively soft material such as nylon or the like. The pinion is mounted directly on the centrifugal pump drive shaft and provides its rotational energy. The rotating ring gear is coupled to the drive hub in such a way that limited relative arcuate motion may occur between these components within the power-transmission housing, the drive hub having a plurality of arcuate resilient pad-receiving slots formed therein, the ring gear having an outer cylindrical surface with a plurality of lugs secured thereto which are arranged to fit within the arcuate slots formed in the drive hub. The resilient pads have tip portions with a relatively reduced cross section, and a central body or shank portion with an enlarged cross section, these pads extending arcuately laterally on either side of the lugs on the ring gear and thereby adapted to permit limited relative arcuate motion between the drive hub and the ring gear in response to torque loading of the drive shaft.

3,597,106
COMBINATION COMPRESSOR CASING-AIR MANIFOLD STRUCTURE
Bernard Joseph Anderson, Danvers, Mass., assignor to General Electric Company
Filed Oct. 24, 1969, Ser. No. 869,003
Int. Cl. F01b 25/00; F04b 25/24
U.S. Cl. 415-144 6 Claims

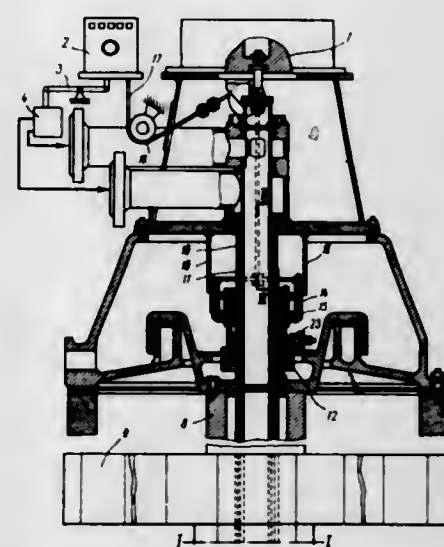
A gas turbine engine compressor casing structure is disclosed which provides a full annular bleed orifice for bleeding compressor stage air to a plenum chamber surrounding the aft stages of the compressor and thence to a full annular chamber adjacent the engine's combustion section. The compressor casing is constructed with an aft section which has an expanded diameter and is connected with the adjacent section of the engine structure by means of a bolted flange. A

separate inner compressor casing is provided to support the latter stage stator vanes and telescopes within the outer casing. A lip is provided the forward end of the inner casing so that when it is assembled with the primary compressor casing, the lip forms in cooperation with the adjacent inner wall



of the forward section of the primary casing an annular bleed orifice in the compressor inner wall. The full annular chamber is defined by an outer wall, an inner wall, and an end wall, and is in communication with the space between the aft section of the primary compressor casing and the inner compressor casing.

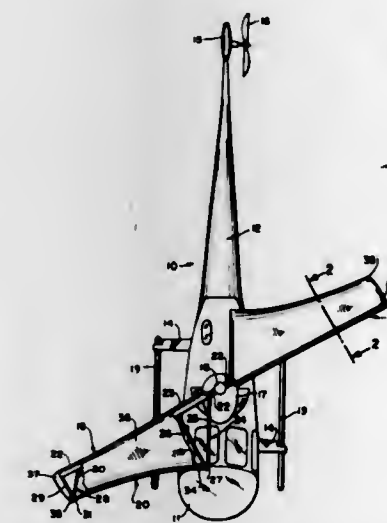
3,597,107
FEEDBACK APPARATUS FOR AN AUTOMATIC SPEED-GOVERNING SYSTEM OF A HYDRAULIC TURBINE
Gleb Stepanovich Schegolev, Sinyavinskaya ulitsa, 12, kv. 29; Semen Abramovich Granovsky, Petrogradskaya Storona, Bolshoi Prospekt, 17, kv. 13; Yan Frantsevich Bozhichka, ulitsa Stankhanovtsev, 9b, kv. 27; Valdimir Sergeevich Belov, ulitsa S. Schedrina, 47, kv. 2, and Matveev-na Dokumentova, Bolsheokhtinsky prospekt, 79, kv. 46, all of Leningrad, U.S.S.R.
Filed Feb. 12, 1969, Ser. No. 798,711
Int. Cl. F01d 7/02
U.S. Cl. 416-31 3 Claims



A feedback apparatus for an automatic speed-governing system of a hydraulic turbine comprises a driving means which includes a control drum external of said turbine and having a cam-shaped control surface. The control drum is operatively connected with the servomotor of the system and is adapted for being linearly displaced relative to the servomotor, yet to be jointly rotated with the servomotor. The driving means comprises an output link and a distributing valve connected to the output link and which is adapted to direct pressurized control fluid into corresponding spaces of the servomotor. The operative connection between the control drum and the servomotor provides for a limited displacement of the control drum axially of said turbine in the course of the joint rotation of the control drum with the servomotor. An abutment system is carried on the turbine and against which the control drum is permanently biased. Also included is a sleeve constituting an intermediary link adjacent the control-drum. A bearing system is provided for supporting the

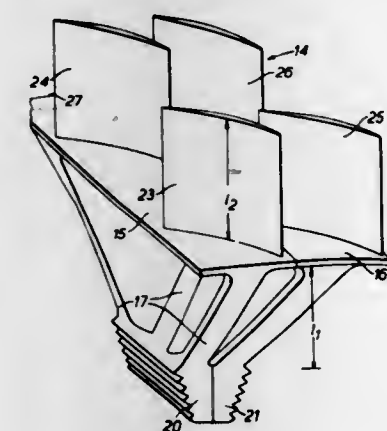
sleeve on the control drum for relative rotation therebetween. The sleeve is disposed for reciprocating motion axially of the turbine.

3,597,108
ROTARY SEMIRIGID AIRFOIL
John E. Mercer, 417 A. Butler Ave.; Thomas E. Sweeney, 61 Overbrook Drive, and S. Weissenburger, Mount Lucas Road, all of Princeton, N.J.
Filed May 28, 1969, Ser. No. 828,576
Int. Cl. B64c 11/26
U.S. Cl. 416-139 13 Claims



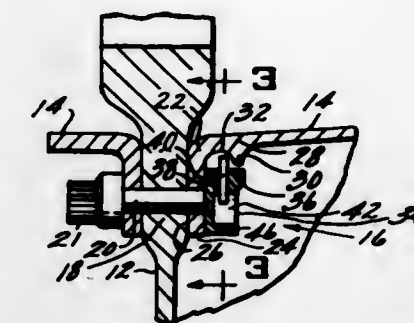
A semirigid airfoil for use with rotary wing airborne vehicles. The airfoil includes a rigid spar defining a leading edge, a cable defining the trailing edge and having a root end thereof secured to a root truss and an opposite end thereof secured to a tip truss. Flexible material forms top and bottom airfoil surfaces. Means are provided for controlling the tension in the trailing edge cable during rotation of the airfoil.

3,597,109
GAS TURBINE ENGINE AXIAL FLOW MULTISTAGE COMPRESSOR
James Alexander Petrie, Littleover, and Kenneth Edward George Bracey, Flinders, both of Derby, England, assignors to Rolls-Royce Limited, Derby, England
Filed May 22, 1969, Ser. No. 826,803
Claims priority, application Great Britain, May 31, 1968, 26169/68
Int. Cl. F01d 5/30
U.S. Cl. 416-198 5 Claims



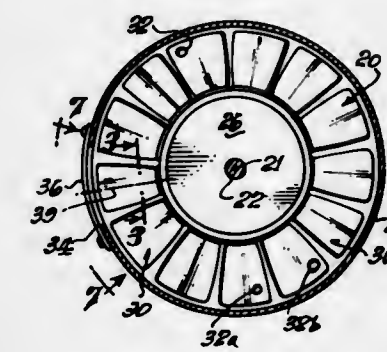
The invention concerns a gas turbine engine axial flow multistage compressor having a rotor member, and a plurality of platform elements each of which has rotor blade members mounted thereon and each of which is itself disposed radially outwardly of and spaced from the rotor member, the plurality of platform elements defining an annular platform member and the axially consecutive annular platform member of different stages of rotor blade members contacting each other to form a drumlike structure.

3,597,110
JOINT CONSTRUCTION
Robert J. Corsmeyer, Cincinnati, Ohio, assignor to General Electric Company
Filed Oct. 23, 1969, Ser. No. 868,723
Int. Cl. F16b 43/00; F01d 25/24
U.S. Cl. 416-198 9 Claims



A joint construction incorporating a coating bolt head-flange structure is disclosed. The flange includes a surface for juxtaposition with a mating flange and a leg extending away from the juncture of the structures to be joined in a direction generally normal to the mated surface of the flange, the leg including a nominally flat surface facing the axis of a bolt hole provided in the flange and further including a recess located adjacent the juncture of the leg with the primary portion of the flange. The bolt head includes a flat located in juxtaposition with the nominally flat surface of the flange leg, a pin projecting from the flat into the recess and movably secured in the bolt head, and means constraining the pin to remain interposed in the recess.

3,597,111
BLADE MOUNT AND STALL CONTROL FOR VANE AXIAL COMPRESSORS
Robert E. Salisbury, Whittier, and John W. Erickson, Huntington Beach, both of Calif., assignors to Preco, Inc., Los Angeles, Calif.
Filed July 18, 1969, Ser. No. 842,983
Int. Cl. F01d 5/30
U.S. Cl. 416-206 6 Claims

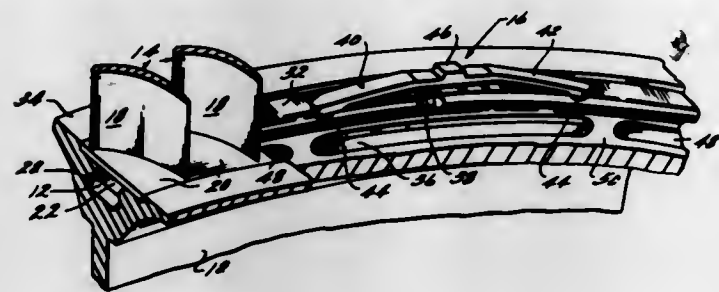


Radial compressor blades are adjustably and releasably mounted on the impeller hub. A set of rigid bayonet formations defines the blade axial position positively at all pitch angles. A set of flexible detent formations defines the pitch angle effectively positively during operation, but yieldably for manual adjustment between discrete values. A positive lock must be released for blade removal. Especially at low pitch angles, the compressor is stabilized against stall by aperturing one or more blades.

3,597,112
COMPRESSOR-BLADE-RETAINING MEANS
Herbert Garten, Marblehead, Mass., assignor to General Electric Company
Filed Feb. 2, 1970, Ser. No. 7,579
Int. Cl. F01d 5/32
U.S. Cl. 416-215 8 Claims

The application describes means for retaining individual bladed members in their circumferential position on a gas

turbine rotor spool. The invention comprises an elongated recess in the inner surface of a blade-root-retaining groove



and a leaf spring disposed in the blind recess, which leaf spring includes a protuberance adapted to extend between the roots of two adjoining compressor blades.

3,597,113

PROCESS AND DEVICE FOR THE AUTOMATIC CONTINUOUS INJECTION OF AN ADJUVANT INTO A FLUID

Georges Dumoulin, Villefranche, and Lucien Manjot, Lyon, both of, France, assignors to Societe Rhodiaceta, Paris, France

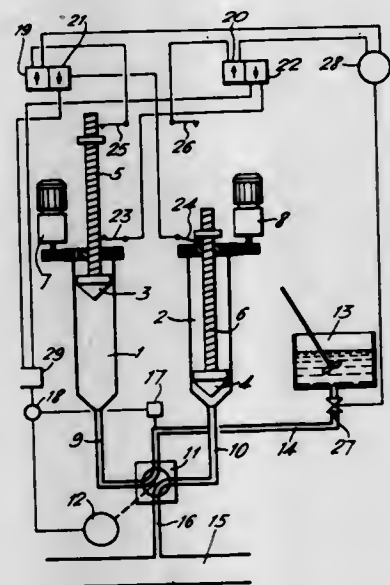
Filed Jan. 23, 1969, Ser. No. 793,278

Claims priority, application France, Jan. 26, 1968, 137,629

Int. Cl. F04b 17/00

U.S. Cl. 417—53

15 Claims



A process of and a device for the automatic continuous injection of an adjuvant into a fluid in which the adjuvant is injected into the fluid by means of a plurality of syringes of which at any one time at least one is feeding adjuvant to the fluid, the individual syringes being operated in alternating filling and discharge phases, and the pressure in each syringe at the end of the filling phase and before the discharge phase begins being equal to or greater than the pressure existing in the zone occupied by the said fluid. In the device a motor is provided for reciprocating the syringe pistons and a commutation device is provided for communicating each syringe orifice in turn and alternately to the fluid and to a source of adjuvant.

3,597,114

PUMP ASSEMBLY WITH UNIFORM OR PROGRAMMED DISCHARGE

Jiri Hrdina, Prague, Czechoslovakia, assignor to Ceskoslovenska akademie veb, Prague, Czechoslovakia

Filed Jan. 29, 1969, Ser. No. 794,930

Claims priority, application Czechoslovakia, Jan. 30, 1968, PV 700-68

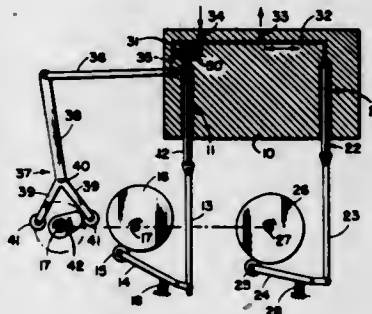
Int. Cl. F04b 3/00, 5/00, 25/10

U.S. Cl. 417—265

1 Claim

A pump assembly comprises a principal or first cylinder with a uniformly reciprocating first piston and a suction line

and a pressure or exit line governed by valve means at the end of each piston stroke, and auxiliary or second cylinder having at most one-half of the capacity of the first cylinder and a uniformly reciprocating second piston cooperating with a connecting line leading into said pressure line. The second piston reciprocates in phase with but adversely to the first



3,597,115

HYDRAULIC PUMP MOUNTING ASSEMBLY

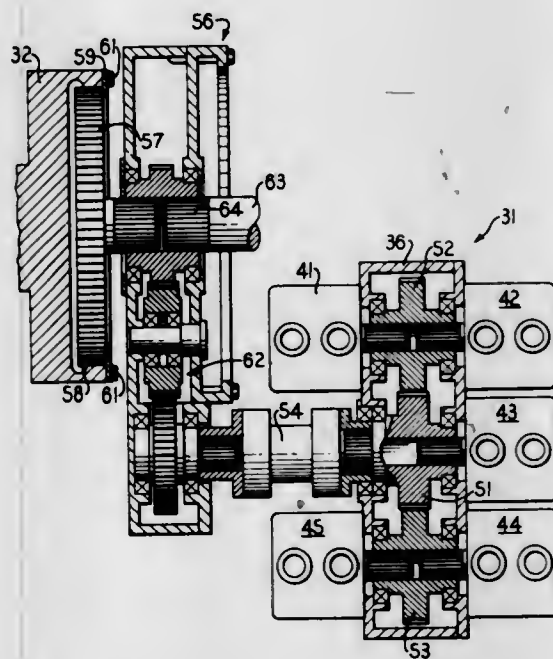
John E. Jass, Peoria; Frank A. Grooss, Morton, and Emil B. Lee, Jr., Morton, all of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 19, 1969, Ser. No. 808,472

Int. Cl. F04b 9/00 F04c 29/04

U.S. Cl. 417—313

3 Claims



A mounting and drive assembly for supporting a plurality of hydraulic pumps in a single location and including gearing through which the pumps may be operated by suitable motor means.

3,597,116

FLUID-POWERED PUMP

Ralph B. Tilney, Clayton, Mo., assignor to Alco Controls Corporation, St. Louis, Mo.

Filed Aug. 7, 1969, Ser. No. 848,148

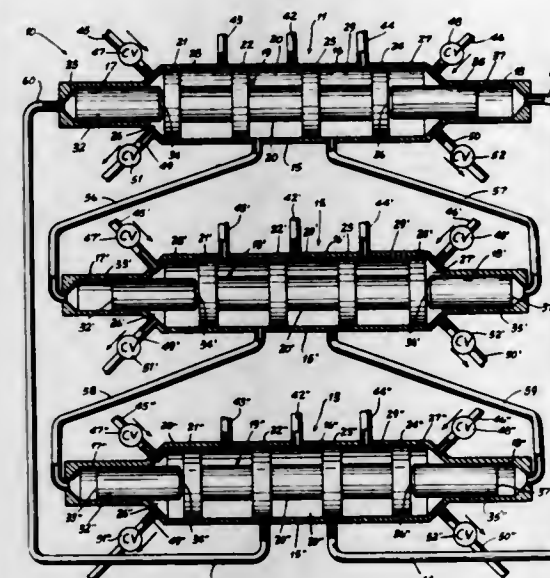
Int. Cl. F04b 17/00

U.S. Cl. 417—344

5 Claims

A fluid-powered pump comprising four-way slide valves with fluid conduits connecting the slide valves in a closed circuit. High- and low-pressure fluid connections to the fluid conduits to cause the slide valves to actuate one another in series in a continuously repeating cycle within the closed cir-

cuit. The slide valves may be used to pump other fluids from the low-pressure supply areas to high-pressure use areas, such as



to pump liquid to the boiler in an absorption-type refrigeration system.

3,597,117

FAN FOR NARROW ENVIRONMENTS

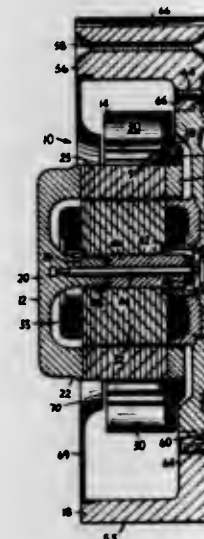
Gunther Zoehfeld, West Hurley, N.Y., assignor to Rotorn Incorporated, Woodstock, N.Y.

Filed Jan. 10, 1969, Ser. No. 790,345

Int. Cl. F04b 17/00, 35/04, 39/06

U.S. Cl. 417—354

1 Claim



A centrifugal fan for narrow environments is described wherein a stator is mounted to a backplate and is surrounded by a cup-shaped rotor carrying a suitable impeller on its outer periphery to provide a centrifugal output from an axial input. The resultant assembly has a small axial length with a high air delivery and can be substantially enclosed in a housing and mounted in a narrow space.

3,597,118

AQUARIUM PUMPS

Erwin Kolfertz, Turnerstrasse 22, Solingen-Merscheld, Germany

Filed Apr. 11, 1969, Ser. No. 815,403

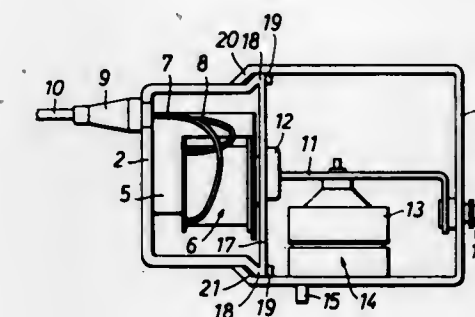
Claims priority, application Germany, May 28, 1968, P 17 03 482.1

Int. Cl. F04b 17/00

U.S. Cl. 417—360

6 Claims

An aquarium pump comprises a pump part and an electrical energizing coil, which operates the pump part, contained in a housing consisting of at least two separable housing parts. The pump part is mounted on one housing part and the energizing coil on the other housing part and they come into



coil fails they can be replaced individually by replacing the appropriate housing part.

3,597,119

SINGLE-CYLINDER ECCENTRIC ACTUATED PUMP

Jean Louis Gratzmuller, 66 Blvd. Maurice Barres, 92 Neuilly-sur-Seine, France

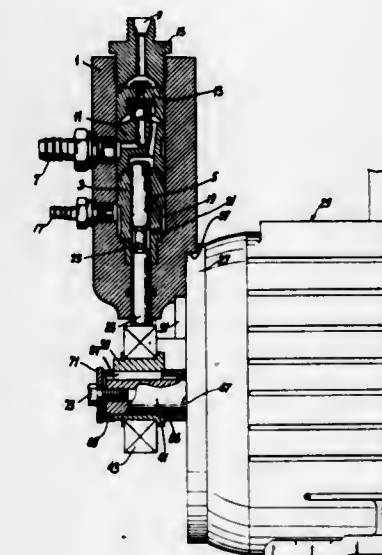
Filed July 23, 1969, Ser. No. 844,001

Claims priority, application France, July 25, 1968, Apr. 10, 1969, June 6, 1969, June 16, 1969, 160529; 69 11087; 69 18648; 19900

Int. Cl. F04b 17/00

U.S. Cl. 417—360

12 Claims



A pump-motor set comprising a reciprocating cylindrical pump for use with an electric motor having a cylindrical flange and a drive shaft projecting centrally of the flange. The pump has a body formed with a cylinder in which a piston slides to move fluid from an inlet to an outlet. The piston has a length such as to protrude from the bottom of the pump body and the latter is mounted directly on the flange of the motor. An eccentric is secured directly to the tip of the motor shaft so as to be in contact with the free end of the piston. Thus, rotation of the shaft causes reciprocation of the piston and operation of the pump.

3,597,120

INJECTOR-RECIRCULATION PUMP

John H. Reed, P.O. Box 321, Kermit, Tex.

Filed May 14, 1969, Ser. No. 824,503

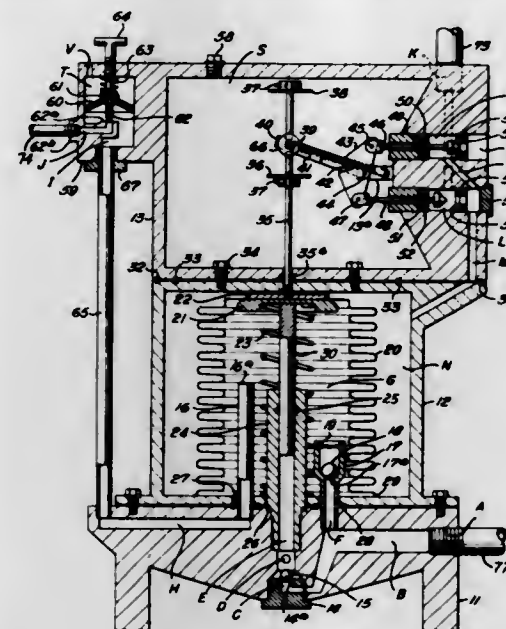
Int. Cl. F04b 43/10, 45/00, 23/04

U.S. Cl. 417—394

4 Claims

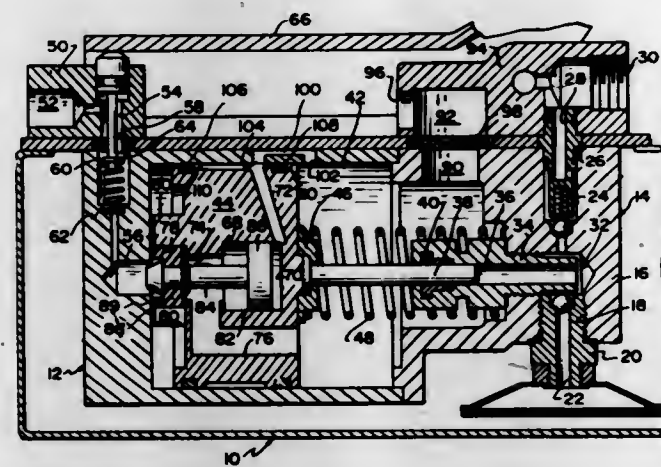
A reciprocating pump for delivering a metered amount of

fluid per stroke to a desired destination while recirculating the balance of the fluid drawn into the pump to the container



from which it is drawn, the pump being operated by a fairly constant, pressurized fluid source.

3,597,121
AIR-DRIVEN HYDRAULIC PUMP
Samuel B. McClocklin, Owatonna, Minn., assignor to Owatonna Tool Company
Filed Jan. 20, 1970, Ser. No. 4,271
Int. Cl. F04b 17/00; F01I 21/02
U.S. Cl. 417-400

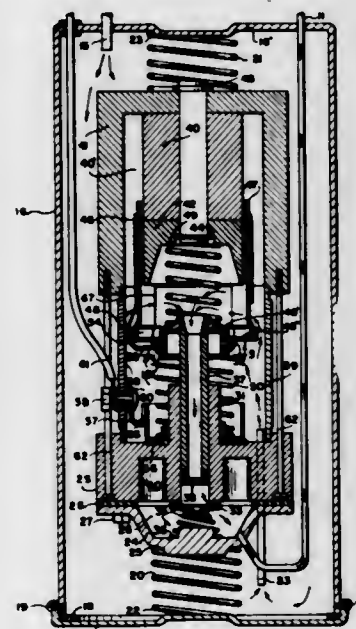


A fluid-actuated hydraulic pump of the type having an air motor driving the pump. The air motor includes a reciprocal piston which is driven in one direction by fluid under pressure and is returned by a spring. A control valve is utilized to control the application of fluid under pressure to the piston and for venting the piston for the spring return. The control means for the control valve are arranged to trap a column of fluid behind a fluid pressure receiving surface of the control valve during the return of the piston by the spring to thereby positively hold the control valve in a position that will vent the piston to exhaust during return by the spring.

3,597,122
OSCILLATORY COMPRESSOR
Guy F. Farmer, 892 Vedado Way, N.E., Atlanta, Ga.
Filed Aug. 21, 1969, Ser. No. 851,806
Int. Cl. F04b 35/05

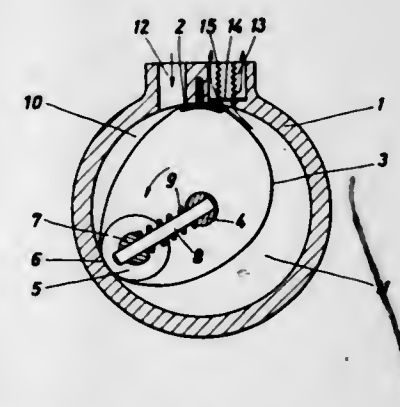
U.S. Cl. 417-417
An oscillatory compressor having a high pressure chamber with a cylinder thereon and an open-ended tubular piston slidably mounted therein with a pressure responsive valve between the cylinder and the high-pressure chamber provid-

ing for passage of compressed fluid from said cylinder to said chamber when the fluid pressure in the cylinder exceeds a predetermined value, and closing the communication therebetween below the predetermined pressure. A pulsating drive for reciprocating the piston including a permanent magnet with poles spaced by an annular airgap and having a movable coil extending into the airgap and drivingly secured to the piston by a free-flow perforated mounting plate providing for unrestricted passage of fluid therethrough from space exterior to the coil and piston into space interiorly



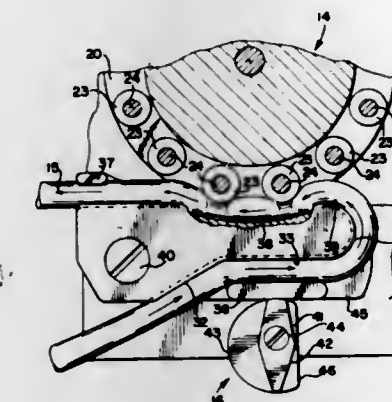
thereof. Energization of the coil is provided through one of a pair of opposed springs supporting the piston and coil in a centered position and comprising a contact brush mounted to engage a conductive spring seat mounted on and insulated from the high pressure chamber. The entire assembly is encased in a sealed container with opposed springs resiliently supporting the compressor assembly therein, with a fluid supply inlet into the container from the fluid system, such as a cooling system and a compressed fluid exhaust or withdrawal outlet from the container extending to the high-pressure chamber of the compressor.

3,597,123
APPARATUS FOR FEEDING AND COMPRESSING GASES AND LIQUIDS
Otto P. Lutz, Bienroder Weg 53, 33 Braunschweig, Germany
Filed June 2, 1969, Ser. No. 829,261
Int. Cl. F04b 43/08, 43/12, 45/06
U.S. Cl. 417-475



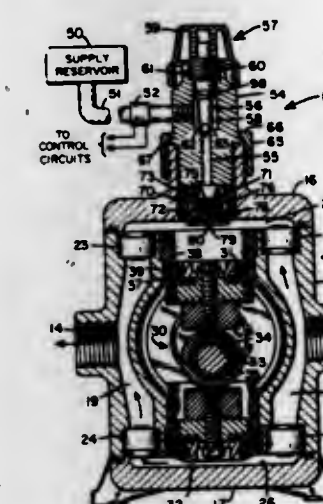
A pump having a cylindrical casing and carrying therewithin a tubular, multilayered strip attached along an axial surface line on the inner surface of the casing wherein the circumference of the strip is less than the inner circumference of the casing. Mounted therewithin for rotation and for urging the strip against the inside of the casing is a roller which is driven along a shaft mounted coaxially in the casing.

3,597,124
PERISTALTIC PUMP
Robert P. Adams, Walden, N.Y., assignor to Cenco Medical Health Supply Corporation, Chicago, Ill.
Filed Sept. 4, 1969, Ser. No. 855,214
Int. Cl. F04b 43/12
U.S. Cl. 417-477



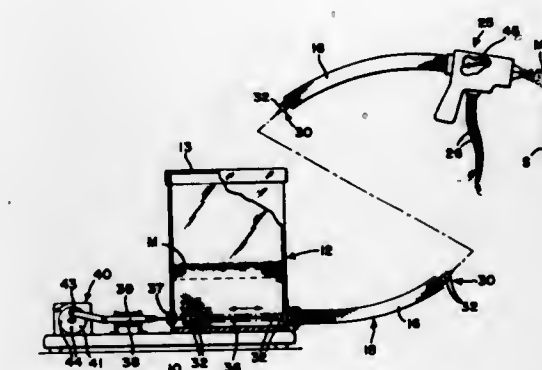
A peristaltic pump having a plurality of rollers mounted on a rotating pump wheel. Compressible tubing is supported by a tube support means which is manually operable to move the tubing into engagement with the rollers on the pumping wheel. Through the novel shape of the tubing support means, the tube may be easily installed and removed and functions to prevent tubing creep during operation.

3,597,125
LIQUID INJECTOR ASSEMBLY FOR PISTON PUMPS
Harry J. Sadler, St. Paul; Ramon Pareja, Minneapolis, and John Leschisin, Minneapolis, all of, Minn., assignors to Hypro, Inc., St. Paul, Minn.
Filed July 1, 1969, Ser. No. 838,195
Int. Cl. F04b 21/02, 41/00
U.S. Cl. 417-503



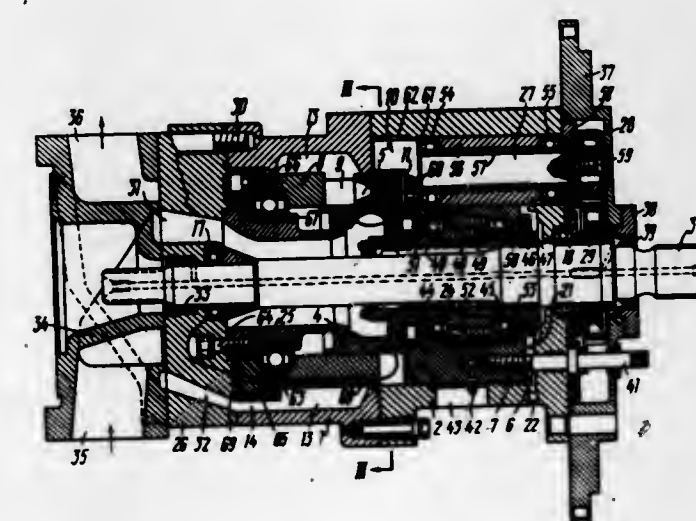
Induction means for use in combination with a positive displacement pump, the pump having a pumping chamber, a reciprocating piston disposed in a cylinder communicating with the chamber, along with inlet and outlet valves for intermittent isolation of the chamber during the pumping strokes, the induction means being arranged in communication with the pumping chamber and being adapted to induce fluid flow into the pumping chamber for discharge through the positive displacement pump structure, the induction means including induction inlet means for coupling the chamber to a supply reservoir, an adjustable control valve having a first orifice and an adjustable valve element cooperating with the orifice, poppet valve means disposed in a second orifice and in communication with the first orifice and arranged to open upon the suction stroke of the pump, and to close upon the pressure stroke, and an injection chamber means having a third orifice in direct communication with the pumping chamber and having baffle means interposed between the third orifice and the injection chamber.

3,597,126
FLEXIBLE TUBE CONVEYOR
Carl L. Brumbaugh, 108 Lowry Drive, West Milton, Ohio
Filed May 13, 1969, Ser. No. 824,150
Int. Cl. F04b 39/10, 43/00
U.S. Cl. 417-555



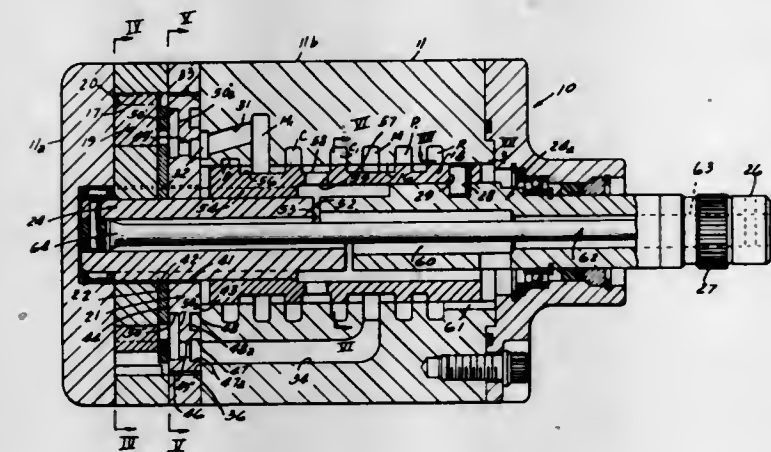
Flocking material is conveyed from a supply container to a portable electrostatic applicator through a flexible tube in which is reciprocated an elongated flexible impeller. The impeller includes a series of semispherical propelling elements mounted on a longitudinally extending flexible rod.

3,597,127
ROTARY-TYPE HYDRAULIC MACHINE
Alexandr Ivanovich Kravtsov, ulitsa Engelsa obschchite IGR, Komnata 28, Ljudinovo, Kaluzhskoi, Oblasti; Viktor Viktorovich Domogatsky, ulitsa Molodezhnaya 5, kv. 60, Ljudinovo, Kaluzhskoi, Oblasti; Sergei Kazimirovich Rushat, ulitsa Semashko, 5, kv. 6, Ljudinovo, Kaluzhskoi, Oblasti; Pavel Nikitovich Mazurov, ulitsa Lenina, 16/9, kv. 6, Ljudinovo, Kaluzhskoi, Oblasti; Vasily Petrovich Kopantsov, ulitsa Vostochnaya, 26-a, kv. 44, Kremenchug; Vladimir Grigorovich Lavrukhin, ulitsa Lenina, 7 kv. 12, Ljudinovo, Kaluzhskoi, Oblasti; Viktor Vladimirovich Gordeev, ulitsa Lenina, 3, kv. 24, Ljudinovo, Kaluzhskoi, Oblasti, and Eedor Anpalievich Dmitriev, ulitsa Kosmonavtov, b, kv. 8, Moscow, all of, U.S.S.R.
Filed Aug. 15, 1969, Ser. No. 850,565
Int. Cl. F01c 21/16
U.S. Cl. 418-20



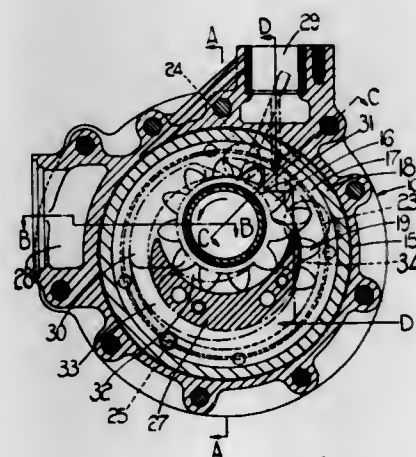
The present invention relates, preferably, the transport machinery, and more particularly it relates to the rotary-type hydraulic machines, used, particularly, in power transmissions of locomotives, tractors, tracks, transport vehicles as well as in the drives of machine tools and other machines.

3,597,128
HYDRAULIC DEVICE HAVING HYDRAULICALLY
BALANCED COMMUTATION
 Fredrick D. Venable, and Raymon L. Goff, both of Lafayette,
 Ind., assignors to TRW Inc., Cleveland, Ohio
 Filed Apr. 10, 1969, Ser. No. 815,161
 Int. Cl. F01c 1/02
 U.S. Cl. 418-61 16 Claims



A hydraulic device including a pair of hypocycloidal gear members arranged for relative rotational and orbital movement to provide alternately expanding and contracting pockets between the teeth thereof and a commutator valve associated with said gear members for directing fluid into and out of said pockets in timed relation with the movement of said gear members. The commutator valve is constructed and arranged so as to be balanced hydraulically in an axial direction by virtue of the pressure of the fluid acting thereon.

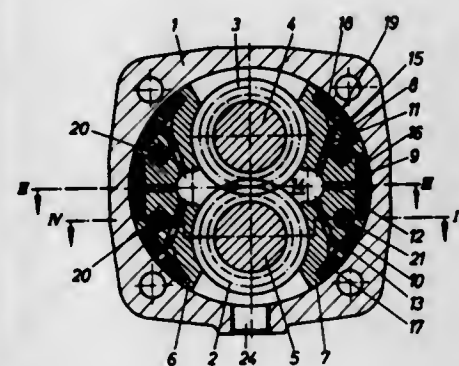
3,597,129
INTERNAL GEAR PUMPS AND MOTORS
 Harold Crowther, Solihull, England, assignor to Joseph Lucas
 (Industries) Limited, Birmingham, England
 Filed July 9, 1969, Ser. No. 840,338
 Claims priority, application Great Britain, July 19, 1968,
 34497/68
 Int. Cl. F04c 27/00; F01c 1/10; F04c 17/06
 U.S. Cl. 418-126 7 Claims



The invention relates to internal gear pumps and motors having a pinion meshed with an internal gear and rotatable in a housing, and in which a crescent-shaped member is disposed between the pinion and the internal gear where these are not interengaged. According to the invention a pair of sideplates are arranged to press against opposite axial end faces of the piston and internal gear, one of the plates being fixed and the other movable by hydraulic pressure. The crescent-shaped member is secured relative to the fixed sideplate and is slidable in the other sideplate. A pair of apertures in each sideplate communicate respectively with high- and low-pressure ports in the housing. A sealing element between the crescent-shaped member and the movable sideplate extends over at least that portion of the crescent-shaped member which is adjacent to the aperture connected

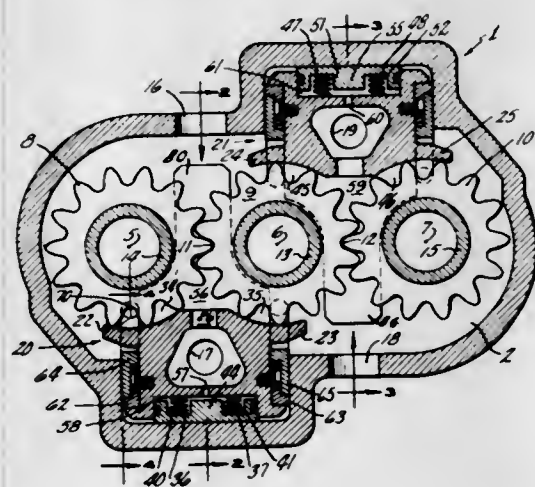
to the high-pressure port. The sideplates may each be formed with a pair of grooves which extend around opposite sides of the crescent-shaped member from the aperture connected to the low-pressure port. Where such grooves are present the sealing element extends only as far as the ends of grooves, since fluid in these is at low pressure. The sealing element is conveniently carried in a recess in the crescent-shaped member. A sealing element may also be fitted between the crescent-shaped member and the sideplate.

3,597,130
HIGH-PRESSURE GEAR PUMP OR GEAR MOTOR WITH
COMPENSATION FOR CLEARANCE AND WEAR
 Otto Eckerle, Am Bergwald 3, and Robert Jung, both of 7502
 Malsch, Germany
 Filed Aug. 18, 1969, Ser. No. 850,857
 Claims priority, application Germany, Aug. 19, 1968, P 17 28
 050.1
 Int. Cl. F01c 19/02; F04c 27/00; F01c 19/08
 U.S. Cl. 418-126 5 Claims



A high-pressure gear pump or gear motor with compensation for clearance and wear, where clearance take-up means enclose the pressure side of the gears both radially and axially and where they are connected by pins. While the pressure compensating means push the take-up means radially against the gears, this pressure is born simultaneously by the gear peripheries and by the gear shafts which are in contact with the face plates forming the lateral portions of the take-up means. Simultaneous contact is assured by providing a small initial clearance between the face plates and shafts which disappears during running in.

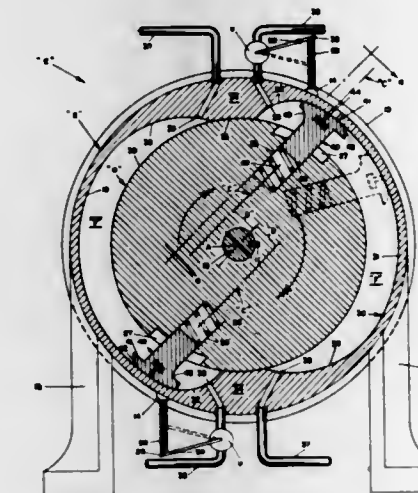
3,597,131
GEAR PUMP WITH TRAVEL LIMITED TIED WEAR
BLOCK
 John J. Schofield, Glastonbury; Charles W. Grennan,
 Newington, and Le Roy A. Dillford, Sinsbury, all of Conn.,
 assignors to Chandler Evans Inc., West Hartford, Conn.
 Filed Sept. 24, 1969, Ser. No. 860,667
 Int. Cl. F01c 19/02, 19/08
 U.S. Cl. 418-126 7 Claims



A three-gear pump for pumping nonabrasive fluids having a center gear and two outer gears intermeshing with the center gear. Two pivotable and movable peripheral tooth-

sealing members having respective arcuate wiping surfaces engage each of the outer gears and the center gear. The sealing members are positioned adjacent the outlets of the pump. The sealing members are capable of only limited movement toward the gears due to respective stop elements integral with the pump housing and respective contact elements integral with the sealing members adapted to engage the stop elements. The sealing members are also pivotable about an axis transverse to the axes of rotation of the gears. As the sealing members wear due to contact with the gear teeth, the contact elements will respectively advance toward the stop elements until they contact one another to transmit the load on the sealing members to the housing.

3,597,132
ROTARY ENGINE
 Bernhardt Stahmer, 1509 Chicago, Omaha, Nebr.
 Filed Aug. 29, 1969, Ser. No. 854,230
 Int. Cl. F01c 19/00; F04c 17/00, 27/00
 U.S. Cl. 418-144 10 Claims

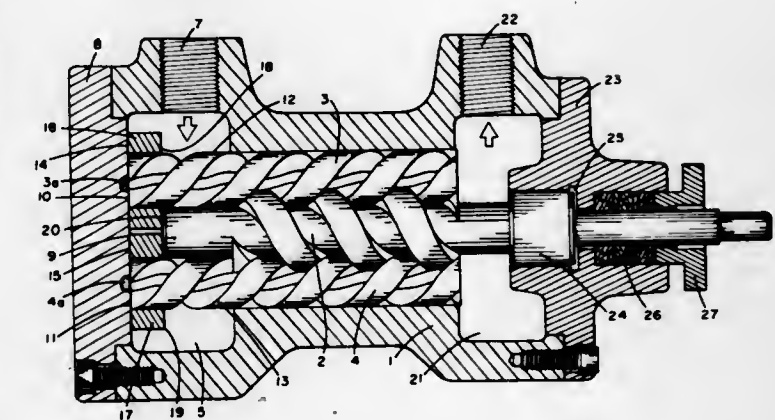


A fluid-driven rotary engine comprising a rotor forwardly rotatable about a central axis and a lobed stator defining an elongated forwardly extending arcuate fluid chamber therebetween which has a fluid inlet port adjacent the stator lobe and a fluid outlet port remotely forwardly of the inlet port. The rotor carries a resiliently depressible vane-like piston that extends from the rotor wall across the fluid chamber, the piston head portion sliding along the stator wall including at the preferably arcuate apex of the stator lobe, the vane-like piston being resiliently depressible along a cavity axis that is decidedly nonradial with respect to the rotor central axis to ensure slidable contact of the piston along the entire stator wall. There are means to introduce steam or other fluid into the fluid chamber through the inlet port during brief intervals when the vane-like piston is forwardly passing the inlet port.

3,597,133
SCREW PUMP WITH THRUST ABSORBER
 Josef Zeltvogel, and Siegfried Gehl, both of Radolfzell, Ger-
 many, assignors to Allweiler AG, Radolfzell, Germany
 Filed Jan. 12, 1970, Ser. No. 2,045
 Claims priority, application Germany, Jan. 15, 1969,
 P 19 01 759.5
 Int. Cl. F01c 1/16 5 Claims

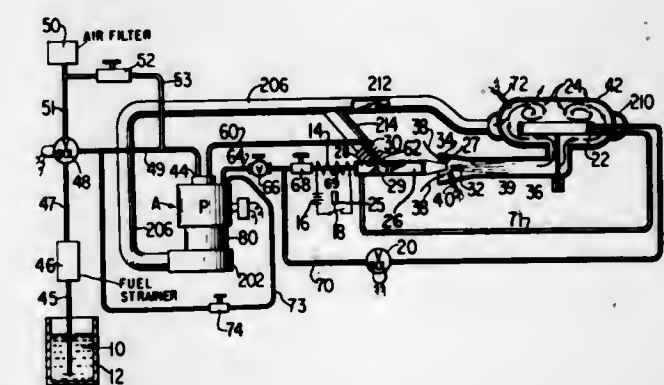
A screw pump having a driving rotor and two driven idler screws, each of which is composed of helical passages which are disposed in intermeshing relationship. Within the suction chamber a collar is mounted upon each driven screw for

bearing contact relationship with the housing and simultaneously for interposition between the driving rotor and the



housing to counteract or absorb the axial thrust developed by the driven screws and the rotor.

3,597,134
LIQUID FUEL BURNING APPARATUS
 Frank W. Bailey, 663 Black Oak Ridge Road, Wayne, N.J.
 Filed Jan. 23, 1969, Ser. No. 793,350
 Int. Cl. F23d 1/44 2 Claims
 U.S. Cl. 431-211

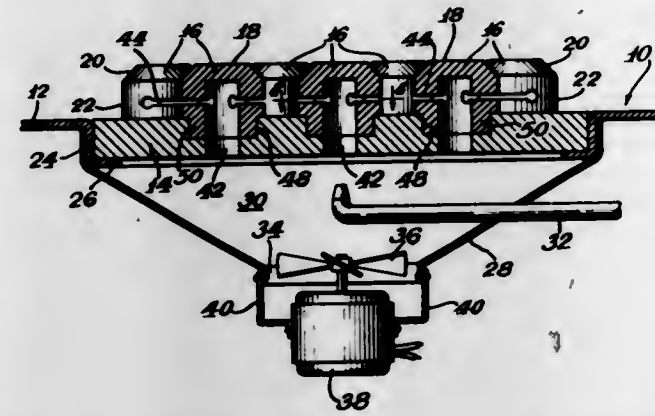


Liquid fuel burning apparatus in which air that is free of fuel is preheated to a temperature above that at which a substantial quantity of the liquid fuel vaporizes, and then the heated air is turbulently and violently mixed with the fuel to break up the fuel mechanically and thermally into finely divided fuel particles in the hot air. To stabilize this mixture to retard agglomeration of the finely divided fuel particles it is abruptly cooled by quenching it by introducing a cooling medium such as atmospheric air to produce a stable aerosol type suspension suitable for flowing through a pipe to a distant gas-type burner to be burned in such burner.

3,597,135
GAS BURNER STRUCTURE
 Esher R. Kweiler, Downers Grove; Robert B. Rosenberg,
 Evergreen Park, and Jaroslav Batorfalvy, Chicago, all of
 Ill., assignors to Institute of Gas Technology
 Filed Apr. 30, 1969, Ser. No. 820,449
 Int. Cl. F23q 7/06 7 Claims

A gas burner for a gas range top. The structure includes a plate portion which is mounted on the range top and a plurality of upright portions which are mounted on the plate portion. A chamber is located below the plate portion. Passageways extend from the chamber and pass outwardly through the upright portions. Means are provided for in-

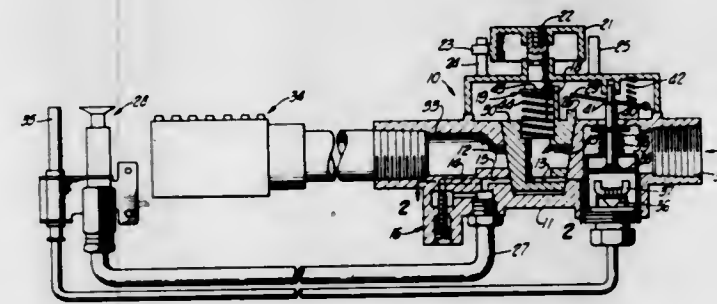
roducing a combustible gas into the chamber and through the passageways. Means are provided for igniting the com-



about 45° F. This burner includes an inner cylindrical combustion chamber, and a concentric outer air chamber spaced from the inner chamber and including a spaced front plate which covers the open front end of the inner chamber. This front plate has a circular orifice therein which allows flame to shoot out of the inner chamber. High-velocity air is blown through the inner chamber and through the gap between the inner and outer chambers, sweeping across the front plates' inside surface, keeping it free of carbon.

3,597,138
FUEL-BURNING APPARATUS
William A. Ray, North Hollywood, Calif., assignor to International Telephone and Telegraph Corp., New York, N.Y.
Filed Apr. 3, 1970, Ser. No. 25,439
Int. Cl. F23q 9/12

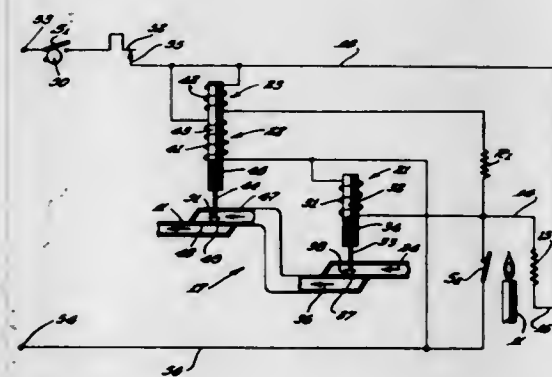
U.S. Cl. 431-54 4 Claims



The invention includes an auxiliary pilot valve for use in a household gas heater control. The auxiliary pilot valve flow is maintained on when the control is turned toward an irreversible safety lock position. A reduced pilot light is produced by the auxiliary flow. The reduced pilot light is small and fails to heat a thermocouple to a high temperature. A safety magnet valve connected from the thermocouple then closes off all gas entry to the control after thermocouple cools.

3,597,139
DUAL COIL GAS BURNER CONTROL CIRCUIT
Alvin J. Elders, Stevensville, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.
Filed July 9, 1969, Ser. No. 840,440
Int. Cl. F23n 5/00

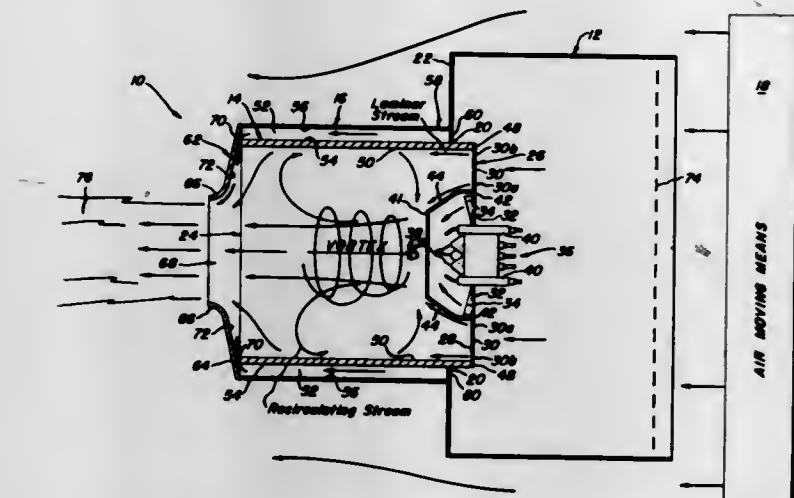
U.S. Cl. 431-66 8 Claims



A fuel control and ignition system for a gaseous fuel burning apparatus such as a clothes dryer which uses an igniter and includes two gas valves in series in the gas fuel line to the burner. Both of the gas valves must be turned on before the burner can ignite. The first valve is controlled by a pair of coils in circuit with the timing switch and thermostat one coil of which is in circuit with a temperature responsive switch and the second valve is controlled by a coil in circuit with the timing switch and thermostat and also the igniter element. The temperature responsive switch is connected in parallel with the coil of the second valve to bypass it until the temperature sensitive switch opens in response to the igniter and burner to allow the second valve to be actuated.

3,597,137
CROP-DRYING OIL BURNER
Donald C. Walker, Munster, Ind., assignor to Standard Oil Company, Chicago, Ill.
Filed Sept. 8, 1969, Ser. No. 855,861
Int. Cl. F23d 15/00

U.S. Cl. 431-351 12 Claims

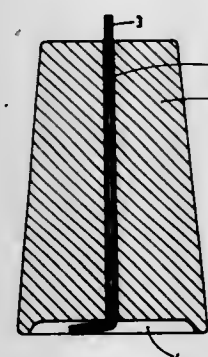


Disclosed is a crop-drying oil burner particularly adapted to be used outdoors when ambient temperatures are below

3,597,136
CANDLE

Kurt Mundt, Treuchtlingen, Germany, assignor to Wilhelm Vollmar Bonner Wachsbleiche und Wachwarenfabrik, Duisdorf, Germany
Filed Oct. 21, 1968, Ser. No. 769,133
Claims priority, application Germany, Oct. 20, 1967, P 16 29 853.6

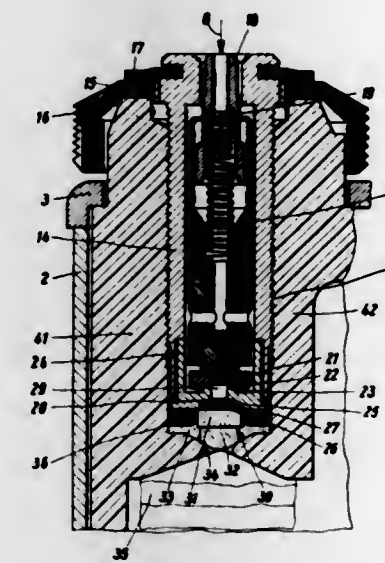
U.S. Cl. 431-290 5 Claims



The specification describes a candle in which the wick is axially displaceable in the wax candle body to adjust the length of that part of the wick which extends above the wax.

3,597,140
GAS LIGHTER
Peter Rabe, Muhlheim am Main, Germany, assignor to Heinrich Maltner GmbH, Offenbach am Main, Germany
Filed July 9, 1969, Ser. No. 840,350
Claims priority, application Germany, July 17, 1968, P 17 82 087.0

U.S. Cl. 431-131 7 Claims



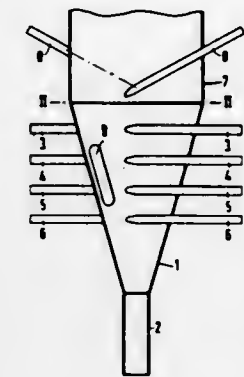
A fuel tank contains liquified gaseous fuel. A burner unit has an inlet and an outlet, the inlet being arranged to receive fuel from the tank. Igniting means serves to ignite fuel issuing in gaseous state from the outlet whereby the burner unit is heated by the resulting flame. Vaporizing means is interposed between and communicates with the fuel tank and the inlet to receive from the former fuel in liquid state and to supply it to the inlet in gaseous state. The vaporizing means defines a plurality of elongated fuel paths each of which is at least in part bounded by an inner heat-exchanging surface which is in heat-exchanging relationship with the burner unit.

3,597,141
BURNER DEVICE FOR FLUIDIC FUELS
Arlbert Fracke, Erlangen, and Eduard Weber, Nurnberg, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed Aug. 5, 1969, Ser. No. 847,642
Claims priority, application Germany, Aug. 7, 1968, P 17 51 839.7

U.S. Cl. 431-173 10 Claims

A burner device for gaseous, liquid or pulverulent fuel comprises a tubular burner structure of a rotationally symmetrical, for example conical or parabolic shape, which tapers from the burner outlet opening toward the much smaller fuel inlet opening. Nozzles for supplying combustion air communicate with the interior of the tapering burner structure in substantially tangential directions respectively and in a plurality of respective planes which extend transver-

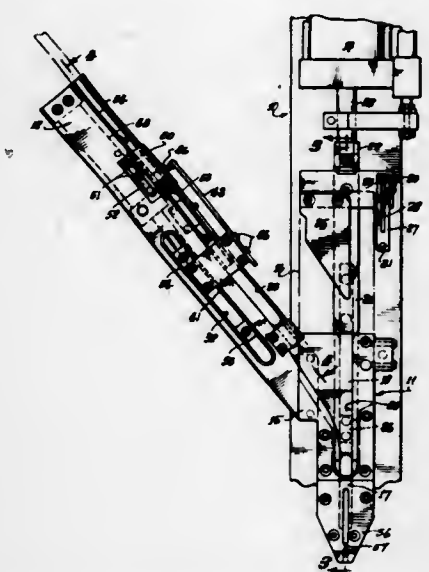
sely to the burner axis and are axially spaced from each other. Preferably a cylindrical combustion chamber structure is coaxially joined with the tubular burner structure at the outlet opening of the latter and is provided with additional combustion-air supply nozzles which are directed tangentially



toward the interior of the combustion chamber. Roughness structures are preferably mounted on the interior wall of the tapering burner structure and may be adjustable as to the height up to which they protrude into the interior of the burner.

3,597,142
AUTOMATIC NAILING MACHINE
Lane Jasper, 165 North Catalina Avenue, Pasadena, Calif.
Filed Aug. 4, 1969, Ser. No. 847,173
Int. Cl. B27f 1/12

U.S. Cl. 227-95 14 Claims



The structure of the present invention incorporates a fixture for holding a pair of wood component parts positioned for joining under a nail-driving ram. A continuous strip of nails feeds nails to a position under the ram which then drives a single nail into the two parts to form a miter-tight locking connection.

CHEMICAL

3,597,143

FIBER DYEING WITH A SULFURIC ACID ESTER OF LEUCO VAT DYE STUFF AND AN ALKALI METAL NITRITE

Joseph Van Diest, Binningen, Switzerland, assignor to Durand & Huguenin A.G., Basel, Switzerland

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,870

Claims priority, application Switzerland, Jan. 5, 1967, 117/67

Int. Cl. D06p 3/82

U.S. Cl. 8—21

12 Claims

Textile fabric, including fabric of mixed cellulose fibers and polyester fibers, are dyed with superior results by means of salt of sulfuric acid ester of leuco vat dye by treating (e.g. padding or printing) the fibrous material with an aqueous preparation which comprises salt of sulfuric acid ester of leuco vat dye and alkali metal nitrite, but is free from acids and acid-yielding compounds, and then developing and fixing the thus-treated fabric by so-called thermo-fixation.

3,597,144

PROCESS FOR CONTINUOUSLY DYEING WOOL FIBERS WITH MORDANT BLACK 11 AND TREATING WITH SODIUM NITRITE

John A. Leddy, Hawthorne, N.Y., assignor to Geigy Chemical Corporation

No Drawing. Continuation-in-part of application Ser. No. 584,684, Oct. 6, 1966. This application Oct. 13, 1969, Ser. No. 866,037

Int. Cl. D06p 5/02

U.S. Cl. 8—74

11 Claims

A process for the continuous dyeing of polyamide fibers comprising applying to said fibers an aqueous solution of a non-cationic chrome dyestuff, a thickener, acid sufficient to adjust the pH of the solution to about 2 to about 5, a trivalent chromium compound, a dyestuff carrier in which the dyestuff is soluble, steam fixing the dyestuff on the fibers and washing the dyed fibers, that is improved by treating the dyed fibers after steam fixing but before washing with an aqueous sodium nitrite solution.

3,597,145

TREATMENT OF A CELLULOSIC-CONTAINING TEXTILE WITH A FLUOROCARBON, AN AMINO-PLAST, AND A SYNTHETIC ACID COPOLYMER, AND TEXTILE OBTAINED THEREFROM

Francis W. Marco, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

No Drawing. Filed Mar. 10, 1967, Ser. No. 622,086

The portion of the term of the patent subsequent to Apr. 9, 1985, has been disclaimed

Int. Cl. D06m 13/08, 13/10, 13/34

U.S. Cl. 8—115.6

16 Claims

A process for imparting oil and water repellency, soil release, and durable press characteristics to a cellulosic-containing textile material and product produced by this process, comprising applying thereto an aminoplast textile resin, a textile resin catalyst, a fluorocarbon, and a synthetic acid copolymer, and curing at a temperature of 100–200° C.

3,597,146

FILMS AND FIBERS HAVING MODIFIED ION AFFINITY AND HYDROPHILICITY PRODUCED THROUGH REACTION OF SUCH SUBSTRATES WITH POLYOXYALKYLENE POLYAZIRIDINES

Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 183,050, Mar. 28, 1962. This application Feb. 25, 1969, Ser. No. 804,361

The portion of the term of the patent subsequent to Jan. 12, 1982, has been disclaimed

Int. Cl. D06m 13/48, 13/18

U.S. Cl. 8—115.7

19 Claims

Antistatic properties can be imparted to synthetic hydrophobic materials, cellulosic materials, and blends of cellulosic materials with synthetic, hydrophobic materials by contacting said materials with a selected polyaziridine compound.

3,597,147

MODIFICATION OF CELLULOSIC TEXTILE MATERIALS WITH PYRIMIDONES

Heinz Bille, Limburgerhof, and Harro Petersen, Frankenthal, Germany, and Martin W. Schwemmer, Urdorf, and Hans Bors, Fallanden, Switzerland, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 21, 1969, Ser. No. 868,221

Claims priority, application Germany, Oct. 24, 1968, P 18 04 806.1

Int. Cl. C07d 51/18; D06m 13/40, 13/52

U.S. Cl. 8—116.3

4 Claims

The use of N¹-monohydroxymethyl and N¹-monoalkoxymethyl derivatives of 5,5-dialkylhexahydropyrimidones which bear an alkyl group in the N³-position and a hydroxyl or alkoxy group in the 4-position as finishing agents for textile material consisting of or containing natural or regenerated cellulose.

3,597,148

REPROCESSING OF TEXTILE MATERIAL

Clifford C. Carroll and William H. Stewart, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

No Drawing. Filed Nov. 4, 1968, Ser. No. 773,277

Int. Cl. D01f

U.S. Cl. 8—137.5

11 Claims

A process for removing a vinyl polymer from textile material which comprises subjecting the textile material to irradiation and subjecting the irradiated material to an alkaline solution.

3,597,149

INHIBITION OF GAS-FUME FADING OF DYED CELLULOSE ACETATE MATERIAL

Kyo Masuda, Suita-shi, and Shizuo Nishino and Yoshiaki Hasegawa, Kyoto, Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, and Melsei Chemical Works, Co., Ltd., Kyoto, Japan

No Drawing. Filed Apr. 29, 1969, Ser. No. 820,327

Int. Cl. D06p 5/02

U.S. Cl. 8—165

10 Claims

A method of improving the color fastness of dyed cellulose acetate material with a specified bis(benzyl-amino) derivative as a gas-fume of fading inhibitor.

AUGUST 3, 1971

CHEMICAL

217

3,597,150

DYEABLE HIGH POLYMER BLEND

Charles Noel Brown, Columbia, S.C., and Andor Schwarcz, Pompton Lakes, N.J., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Feb. 14, 1968, Ser. No. 705,303

Int. Cl. D06p 5/00

U.S. Cl. 8—168

9 Claims

This invention relates to rendering shaped articles or fibers, which contain either a polyolefin or polyester and a minor amount of a pyridine base polymer, dyeable with anionic dyes by contacting such articles or fibers with an anionic surfactant prior to or during the dyeing procedure.

3,597,151

DYEING AND/OR PRINTING ACRYLONITRILE POLYMER TEXTILE MATERIAL

Hans Baumann, Ludwigshafen (Rhine), Hans-Richard Mueller, Fussgoenheim, Palatinate, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 4, 1968, Ser. No. 734,224

Claims priority, application Germany, June 13, 1967, P 16 19 369.4

Int. Cl. D06p 3/70

U.S. Cl. 8—177

4 Claims

A method of dyeing, printing or otherwise coloring acrylonitrile polymers or polyvinylidene dicyanides in which there is added the polymer to be colored a basic dye containing a flavylium cation. The basic dye can be incorporated directly into a solution of the polymer or can be applied to the polymer under conventional conditions for dyeing or printing textile materials with basic dyes.

3,597,152

DE-WATERING OF METAL SURFACES

Richard Elliott Shaw, Windsor, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of abandoned application Ser. No. 462,108, June 7, 1965. This application July 1, 1969, Ser. No. 841,687

Claims priority, application Great Britain, June 10, 1964, 24,085/64

Int. Cl. C23f 15/00

U.S. Cl. 21—217

6 Claims

Metallic surfaces are de-watered and at the same time given a protective coating of oil by treating the surfaces with a composition comprising an unstable emulsion in water of a non-volatile oil containing an oil-soluble surface active agent. Preferably the composition contains at least 50% by weight of water. Preferred proportions of surface active agent lie in the range from 1% to 10% by weight of the oil. Optionally, the oil may also contain a corrosion inhibitor, preferably in a proportion of up to 20% by weight.

3,597,153

RECOVERY OF VANADIUM FROM MAGNETITE

Milton G. M. Atmore, Johannesburg, Transvaal, Republic of South Africa, Ewen T. Pinkney, Avondale, Salisbury, Southern Rhodesia, and Alan L. Guise-Brown, Johannesburg, Transvaal, Republic of South Africa, assignors to Anglo American Corporation of South Africa Limited

Continuation-in-part of application Ser. No. 596,318, Nov. 22, 1966. This application July 30, 1969, Ser. No. 858,555

Int. Cl. C22b 59/00; C01g 31/00

U.S. Cl. 23—16

3 Claims

A method of extracting vanadium from vanadiferous iron ores with reduced kiln ringing-up, comprising comminuting the ore, adding less than 3% by weight of the total mix of sodium sulfate and less than 3% by weight of the total mix of at least one of the substances selected

3,597,154

RECOVERY AND PURIFICATION OF COPPER SULFATE

Harry W. Weber, Jr., Baltimore, Md., Carroll Jerome Wenzke, deceased, late of Peekskill, N.Y., by Winifred R. Wenzke, administratrix, Peekskill, N.Y., and Alice Laverne Hansen, Baltimore, Md., assignors to FMC Corporation, New York, N.Y.

Filed Sept. 20, 1968, Ser. No. 764,024

Int. Cl. C01g 3/10, 3/00, 3/02

U.S. Cl. 23—50

6 Claims

This application discloses a process for recovering cupric sulfate from solutions containing water soluble impurities such as sulfuric acid and sodium sulfate. The cupric sulfate is precipitated by an alkali metal hydroxide or alkaline earth metal hydroxide at a temperature above about 70° C. as dibasic copper sulfate CuSO₄·2Cu(OH)₂. The dibasic copper sulfate precipitate is treated with a stoichiometric amount of sulfuric acid to regenerate cupric sulfate. The cupric sulfate is recovered by cooling the solution to precipitate crystalline cupric sulfate pentahydrate.

3,597,155

CRYSTALLINE MM AND PROCESS FOR MANUFACTURE THEREOF

Edith M. Flanigen, Buffalo, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 218,141, Aug. 20, 1962, which is a continuation-in-part of application Ser. No. 607,136, Jan. 3, 1967.

This application Feb. 14, 1969, Ser. No. 799,485

Int. Cl. C01b 33/28

U.S. Cl. 23—111

4 Claims

A crystalline zeolite having the mordenite crystal structure is treated with an aqueous mineral acid solution to increase the molar SiO₂/Al₂O₃ ratio and the apparent pore diameter while retaining the characteristic crystal structure of the starting material. The product is referred to as "crystalline MM."

3,597,156

DESTRUCTION OF AMMONIUM SALTS IN STRONG HYDROCHLORIC ACID SOLUTIONS

Leon E. Solomon, Sarnia, Ontario, Canada, assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed June 4, 1969, Ser. No. 830,528

Int. Cl. C01b 7/08, 24/00

U.S. Cl. 23—154

6 Claims

A process for reducing the concentration of ammonium chloride in hydrochloric acid comprising dissolving chlorine in the aqueous solution.

3,597,157

DIRECT REDUCTION OF METALLIC OXIDES IN DYNAMIC HYDROGEN ATMOSPHERE

Jerome J. Kanter, Palos Park, Ill., assignor to Crane Co., Chicago, Ill.

Filed Apr. 17, 1968, Ser. No. 722,033

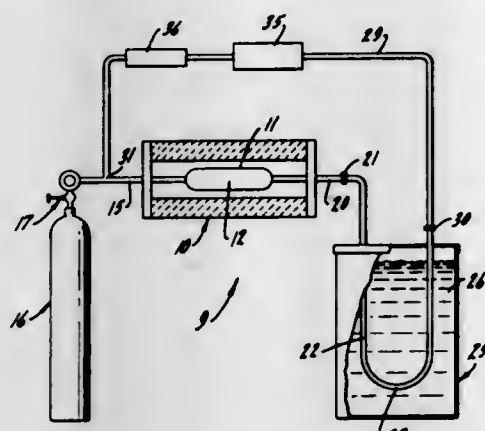
Int. Cl. C01b 6/06; C01f 5/04

U.S. Cl. 23—204R

8 Claims

Process for reducing oxides of metallic elements from Group III and IV of the Periodic Table by reaction with

magnesium in a dynamic hydrogen atmosphere. Magnesium oxide formed during the reaction is carried away

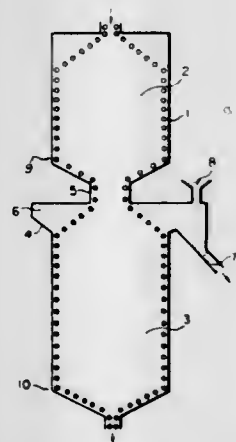


from the reaction zone in the hydrogen gas flow and deposited at a remote location.

3,597,158
METHOD OF MAKING DIAMONDS
Marvin Duane Horton, Provo, Utah, assignor to
Megadiamond Corporation
No Drawing. Filed Jan. 13, 1969, Ser. No. 790,866
Int. Cl. C01b 31/06

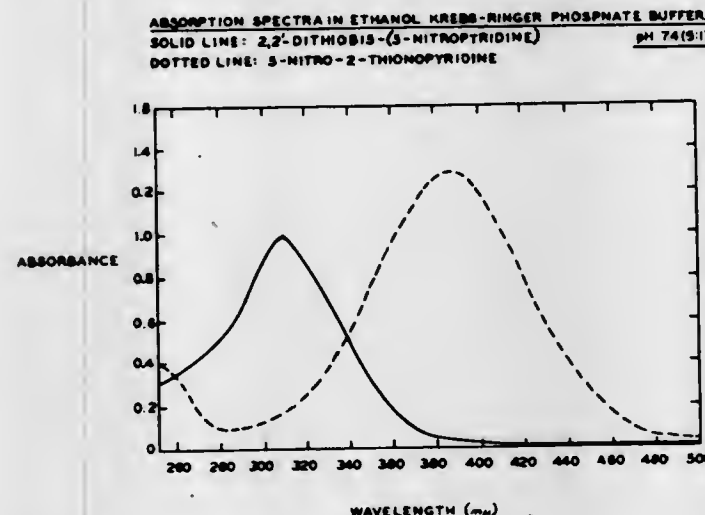
U.S. Cl. 23-209.1 **1 Claim**
Synthetic diamonds are made by mixing a carbonaceous material with an alloy consisting of about 95% nickel and 5% beryllium or 45-96% nickel and 55-4% zirconium, and heating the mixture at a pressure of 50,000-60,000 atmospheres to a temperature of 1200-1350° C.

3,597,159
METHOD OF PREVENTING BLOCKING OF GAS OUTLETS
Keiichi Nakaya, Yasuo Osanai, and Shiro Fukui, Ichihara-shi, and Isami Takakura, Chiba-shi, Japan, assignors to Asahi Glass Co., Ltd., Tokyo, Japan
Filed Feb. 3, 1969, Ser. No. 796,106
Claims priority, application Japan, Feb. 12, 1968, 43/8,363
Int. Cl. C01b 7/02; C01g 49/10; B01d 53/02
U.S. Cl. 23-219 **5 Claims**



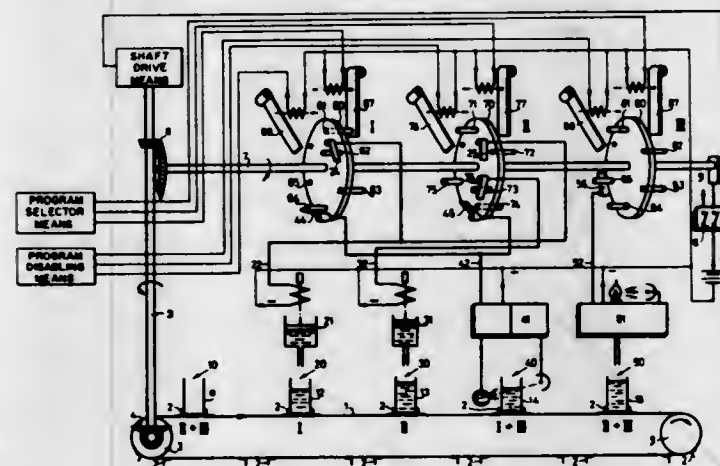
Iron chloride-containing reaction masses are oxidized with an oxygen-containing gas at high temperatures to liberate a chlorine-containing gas which is contacted and quenched with a moving cold granular material at a product gas outlet, whereby the gasified iron chloride in said gas is condensed onto said granular material and, simultaneously, the iron chloride deposit at the gas outlet is scraped away by the abrasion of said granular material.

3,597,160
COLORIMETRIC METHOD FOR DETERMINING THIOLS
Davide R. Grassetti, Berkeley, Calif., assignor to Arequipa Foundation, San Francisco, Calif.
Filed Apr. 2, 1969, Ser. No. 812,839
Int. Cl. C07d 31/48; G01n 31/22
U.S. Cl. 23-230R **6 Claims**



Method of analysis of principal utility in determining the presence of thiols in various samples by selective visualization in thin-layer or paper chromatography, or electrophoresis, but which also adapts itself, when working with organic solutions, to the use of spectrophotometric or simple colorimetric devices. The process is one wherein the reagent chemical 2,2'-dithiobis-(5-nitropyridine) reacts rapidly and irreversibly with the thiol compound to form a thione derivative of the reagent chemical and a disulfide of the thiol compound. The resulting thione manifests a characterizing spectrum having absorption at useful wavelengths, from an analytical standpoint, in both the ultraviolet and the visual ranges.

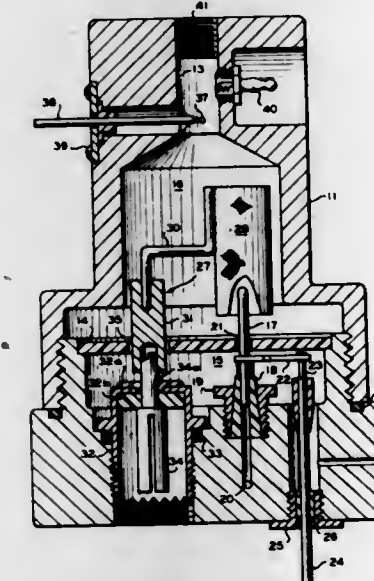
3,597,161
SAMPLE ANALYZING APPARATUS
Rudolf Greiner, Langenthal, Switzerland, assignor to Greiner Electronic AG, Langenthal, Switzerland
Filed Aug. 11, 1969, Ser. No. 848,852
Claims priority, application Switzerland, Dec. 18, 1968, 18,853/68
Int. Cl. G01n 1/00, 1/10
U.S. Cl. 23-253R **10 Claims**



Apparatus for chemically and/or physically analyzing a sample of a given material, such as a liquid, contained in a receptacle, characterized by the provision of a series of analyzing stations each including normally de-energized electrically operable analyzing means, conveyor means for

transporting said receptacle in succession past said stations, respectively, and program establishing means for energizing predetermined ones of said analyzing means during the transport of the receptacle thereby in accordance with a given analyzing program. The program establishing means includes a memory device operable in synchronism with the conveyor means, program input means for storing command instructions in said memory device in accordance with the desired analyzing steps of said program, detector means for sensing the command instructions, and circuit means responsive to the detected command signals for operating the selected analyzing means. In the preferred embodiment, the memory means includes a rotor disk that carries operating pin means that are axially shiftable between passive and active positions relative to said detector means.

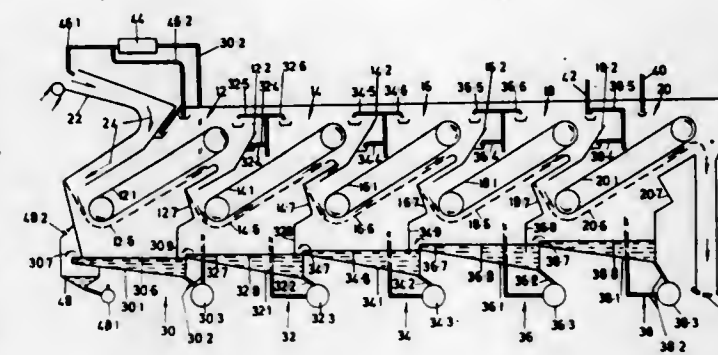
3,597,162
GAS ANALYZER
Marvin E. Reinecke, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Apr. 21, 1969, Ser. No. 817,665
Int. Cl. G01n 31/12
U.S. Cl. 23-254 **6 Claims**



A gas analyzer in which an elongated gas-tight housing is separated into a base compartment and an electrode compartment by a shield. A support and a burner tip extend through the shield into the electrode compartment, the support carrying a collector electrode mounted coaxially with the burner tip. Air under pressure is admitted to the base compartment and passes through concentric openings in the shield surrounding the burner tip and support, thereby preventing column effluents and products of combustion from coating the electrical insulators, thus providing long trouble-free service. The electrical insulators are disposed within the base compartment.

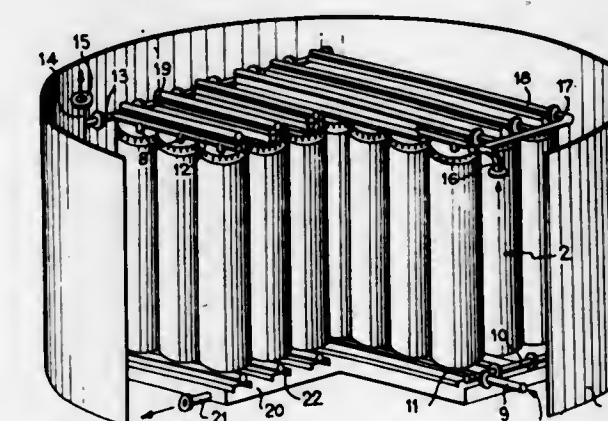
3,597,163
SOLVENT EXTRACTION APPARATUS
Anthonie van Hengel, Westville, Natal, Republic of South Africa, assignor to Hulett's Sugar Corporation Limited, Durban, Natal, Republic of South Africa
Filed Oct. 21, 1969, Ser. No. 868,178
Claims priority, application Republic of South Africa, Oct. 21, 1968, 68/6,802
Int. Cl. B01d 11/02; C13d 1/02
U.S. Cl. 23-270 **3 Claims**
A solvent extraction apparatus in which sub-divided solids are moved through at least two extraction stages,

extracting liquid being circulated independently in each stage, and the extraction liquid being moved from stage



to stage countercurrent relative to the movement of the solids.

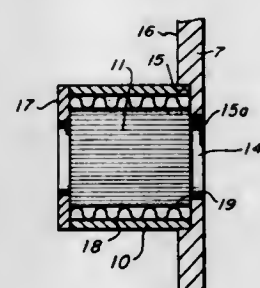
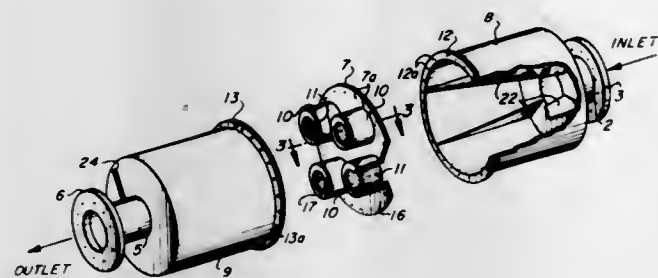
3,597,164
PROCESS AND APPARATUS FOR THE PURIFICATION OF CRYSTALLIZABLE ORGANIC COMPOUNDS
Claude Ab-Der-Halden, Nancy, France, assignor to Proabd S.A., Nancy, France
Filed Sept. 3, 1968, Ser. No. 756,919
Claims priority, application France, Sept. 5, 1967, 119,942; Nov. 29, 1967, 130,114
Int. Cl. B01d 9/04
U.S. Cl. 23-273F **9 Claims**



A process and method for purifying a crystallizable organic compound in the liquid state in a vessel. The process comprises introducing the compound in at least one vessel, solidifying said compound by cooling and then heating it slowly so as to melt the impurities which drain from the remaining product, the latter being progressively purified and collected when it reaches the desired purity. The feature of the invention is that the cooling and heating of said compound to be purified are carried out by causing a heat exchange fluid to flow on the outer wall of said vessel containing said compound, said vessel having for this purpose a large heat transfer surface.

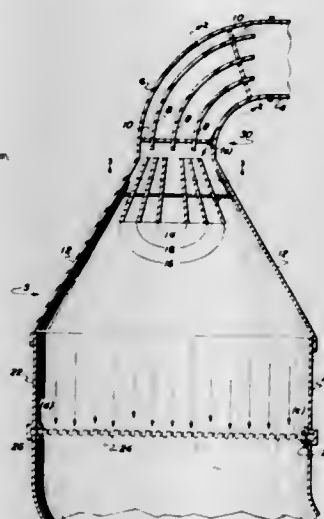
3,597,165
CATALYTIC EXHAUST PURIFIER
Carl D. Keith, Summit, John J. Mooney, Wyckoff, and Kenneth W. Blamble, Murray Hill, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Newark, N.J.
Filed June 18, 1969, Ser. No. 834,376
Int. Cl. B01j 9/04; F01n 3/14
U.S. Cl. 23-288F **2 Claims**
A catalytic purifier for the treatment of internal combustion engine exhausts, designed to eliminate external manifold to separately housed catalyst bodies, has a

catalyst support plate equipped for housing a plurality of ceramic catalyst blocks. It is particularly useful for purify-



ing exhausts of large displacement engines, e.g., those exceeding 400 in.³/cycle.

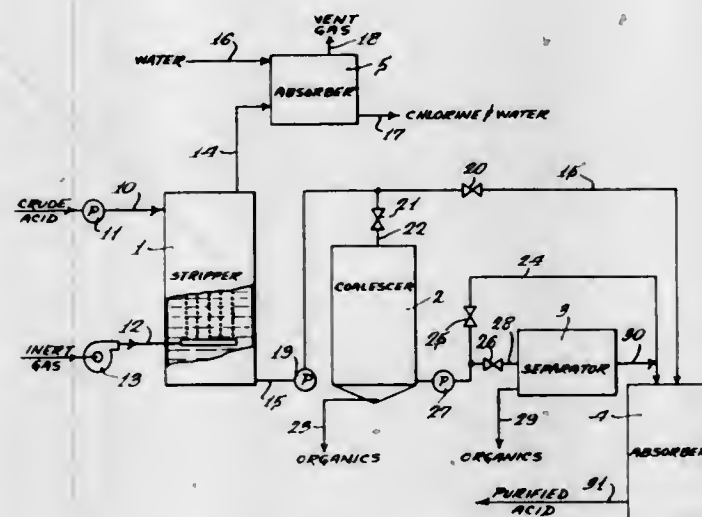
3,597,166
AMMONIA BURNER FLOW DISTRIBUTOR
Jack M. Hochman, Boonton, N.J., assignor to Esso Research and Engineering Company
Filed Dec. 18, 1968, Ser. No. 784,846
Int. Cl. B01j 9/04; C01b 21/28
U.S. Cl. 23-288 4 Claims



Uniform flow to an ammonia burner gauze catalyst is achieved by providing a series of turning vanes and a series of truncated cone guide vanes in communication with the turning vanes. The guide vanes are designed such that the length to diameter ratio of the vanes is small enough so that flow separation is minimized. To alleviate the effects of any small amount of flow separation which may occur in the turning vanes, and guide vanes are positioned so that they are slightly off-center with respect to the turning vanes. The use of the device of the instant invention leads to improved overall ammonia burner efficiency and to the substantial reduction of undesirable side reactions.

3,597,167
REMOVAL OF CHLORINE AND ORGANIC IMPURITIES FROM HYDROCHLORIC ACID
Daniel R. Marks and Charles R. Hanson, Memphis, Tenn., assignors to Velsicol Chemical Corporation, Chicago, Ill.

Filed Mar. 29, 1968, Ser. No. 717,140
Int. Cl. B01d 15/00; C01b 7/08
U.S. Cl. 23-306 13 Claims



A continuous process for the purification of hydrochloric acid contaminated with both chlorine and organic material which comprises charging a stream of the contaminated acid to a stripping zone, simultaneously charging a stream of inert gas to the stripping zone and into contact therein with the contaminated acid to effect the desorptive removal of substantially all of the chlorine contained in the acid, passing the stripped acid effluent from the stripping zone to an adsorption zone and contacting it therein with a solid adsorbent to effect the adsorptive removal of the organic material from the stripped acid, and recovering the acid effluent from the adsorption zone with a substantially reduced quantity of both chlorine and organic material.

3,597,168
RECOVERY OF LARGE GRAINS OF Na₂SO₄ AND (NH₄)₂SO₄ FROM AQUEOUS METHANOL SOLUTIONS
Hans Hoppe, Gunter Döring, Wolfgang Ulrich, Heinz Scherzberg, and Klaus Kaseberg, Sondershausen, Germany, assignors to VEB Kombinat Kali, Sondershausen, Germany

Filed Dec. 11, 1968, Ser. No. 782,868
Int. Cl. B01d 9/02
U.S. Cl. 23-300 3 Claims

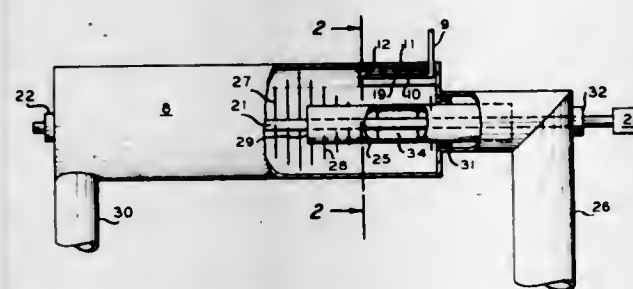
Method of recovering a salt from a saturated aqueous solution thereof in which the aqueous salt solution, optionally containing organic precipitant, is mixed with a more concentrated solution of the organic precipitant and the differential between the organic precipitant concentration in the saturated salt solution and that in the solution mixed therewith is so selected that crystallization of the salt takes place entirely in the metastable range.

3,597,169
PROCESS FOR DEMETHANIZATION OF LIQUID OXYGEN
David W. Savage, Atlanta, Ga., assignor to Esso Research and Engineering Company
No Drawing. Filed Nov. 13, 1968, Ser. No. 775,513
Int. Cl. B01d 15/00 6 Claims

The disclosure is directed to an improved process for the removal of methane from a mixture of methane and oxygen by the use of an X-type zeolite catalyst. The use

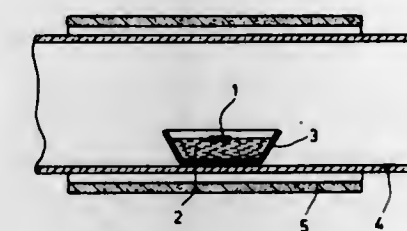
of silver and calcium cation-exchanged forms of synthetic X zeolites result in a much higher capacity for methane removal than was heretofore possible under the prior art.

3,597,170
PELLETIZING OF CARBON BLACK DIRECTLY FROM SMOKE
Robert E. Dollinger, Phillips, Tex., assignor to Phillips Petroleum Company
Filed Sept. 9, 1968, Ser. No. 758,510
Int. Cl. B01j 2/12 10 Claims



A process for producing carbon black pellets in which the smoke from the reactor flows to the pelleting where it is quenched to form a carbon black composition suitable for pelleting, the gases being separated from the carbon black within the pelleting.

3,597,171
METHOD OF CRYSTALLIZATION USING SOLVENT REMOVAL BY REACTION
Wilhelmus Franciscus Knippenberg and Gerrit Verspui, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 19, 1967, Ser. No. 676,511
Claims priority, application Netherlands, Oct. 22, 1966, 6614999
Int. Cl. B01j 17/04 6 Claims



A method of manufacturing crystals of semiconductor materials in which a seed crystal is brought into contact with a molten saturated solution of the semiconductor material while a gas is supplied to the atmosphere above the solution which reacts with solvent at the temperature of the melt to form a volatile compound so that the solvent is extracted from the surface layer and a state of over-saturation is caused in this layer.

3,597,172
ALLOYS HAVING AN ALUMINUM-DIFFUSED SURFACE LAYER
Karl Bungardt, Krefeld, Gottfried Becker, Düsseldorf, and Günter Lehnert, Krefeld, Germany, assignors to Deutsche Edelstahlwerke Aktiengesellschaft, Krefeld, Germany
Filed Jan. 29, 1968, Ser. No. 701,317
Claims priority, application Germany, Jan. 31, 1967, D 52,148
Int. Cl. B32b 15/00 4 Claims

It is known to protect the surface of alloys with a layer of diffused aluminum. It has now been found that the oxi-

dative resistance of certain alloys, namely high temperature steels, nickel based and cobalt based alloys, is improved if the aluminum layer is diffused onto a substrate of nickel.

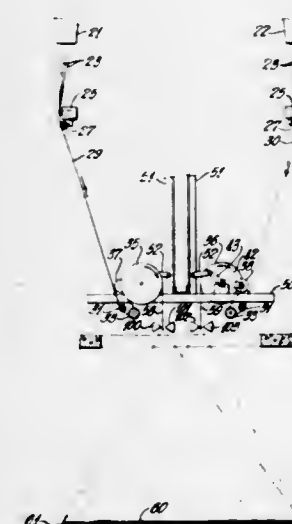
3,597,173
OXIDATIVE TREATMENT OF PETROLEUM DISTILLATE FUELS CONTAINING OLEFINIC UNSATURATED COMPONENTS
Thomas J. Wallace, Elizabeth, N.J., and Norman Friedman, Cleveland, Ohio, assignors to Esso Research and Engineering Company
No Drawing. Filed Jan. 3, 1966, Ser. No. 517,908
Int. Cl. C101 1/22 2 Claims

Petroleum distillate fuels containing olefins and dissolved molecular oxygen are treated with from 0.1 to 1.0 wt. percent of at least one arylhydrazine, preferably the arylhydrazine of a cyclo aliphatic saturated hydrocarbon ketone, after which both the insoluble and soluble gums are separated from the so treated fuels.

3,597,174
FUEL FOR INTERNAL COMBUSTION ENGINES
Henry E. Alquist and Edward R. Morrison, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed July 3, 1968, Ser. No. 742,137
Int. Cl. C101 1/22 6 Claims

Addition of guanidine petroleum sulfonate to hydrocarbon fuels results in an improved fuel composition having reduced tendency to produce carbon deposits when utilized in the operation of an internal combustion engine.

3,597,175
METHOD FOR FORMING UNIFORM BODIES FROM GLASS FIBERS
Richard E. Pitt, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation
Continuation of application Ser. No. 559,459, June 22, 1966. This application Oct. 27, 1969, Ser. No. 869,941
Int. Cl. C03c 25/02 6 Claims



A fibrous body of continuous strands uniformly distributed with respect to each other, the strands having the filaments dispersed in the deposited position of the strand. The body is formed of strands composed of only enough filaments to give each strand sufficient mass to be projected to a predetermined or selected area of a collecting surface at a body forming station. The filaments of each strand are then dispersed after the strand is in place on the collection surface.

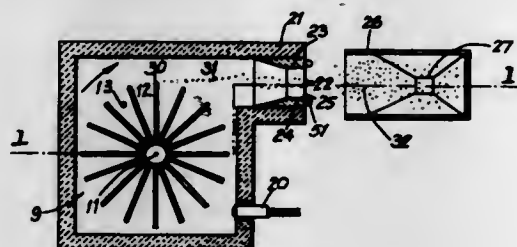
3,597,176 METHOD AND APPARATUS FOR MANUFACTURING BEADS

Emile Plumet, Gilly, Belgium, assignor to Glaverbel S.A., Watermael-Bolfort, Belgium
Continuation-in-part of abandoned application Ser. No. 443,419, Mar. 29, 1965. This application Mar. 7, 1968, Ser. No. 716,688
Claims priority, application Luxembourg, Apr. 21, 1964, 45,925

The portion of the term of the patent subsequent to Mar. 10, 1987, has been disclaimed
Int. Cl. C03b 19/10

U.S. Cl. 65—21

21 Claims



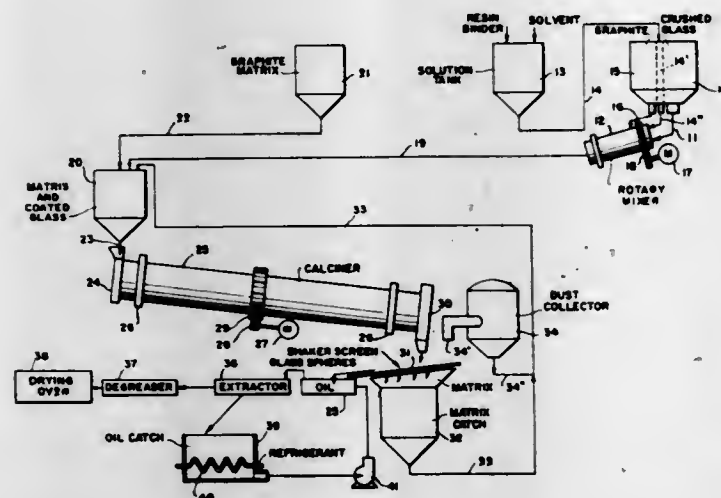
A method and apparatus for producing grains by cutting a thread of molten material with the projecting arms of a rotating member, permitting the molten material segments to spread out and flow outwardly along the arms and to be expelled from the ends of the arms under the influence of centrifugal forces so as to be dispersed into particles, maintaining the material at a temperature above its melting point as it moves along the arms and eventually substantially above its melting point as it travels through space after being expelled therefrom for permitting the particles to spherulize, cooling the particles to solidify them, and collecting the resulting solidified grains.

3,597,177 METHOD OF PRODUCING GLASS BEADS

Charles Davidoff, Manhasset, N.Y., assignor to Potters Bros., Inc., Carlstadt, N.J.
Filed July 19, 1968, Ser. No. 746,133
Int. Cl. C03b 19/10

U.S. Cl. 65—21

19 Claims



A method of producing glass spheres or beads from crushed glass. The method involves applying a resin binder to the surfaces of the glass particles and then applying a coating of a finely divided substance, such as graphite. The thus coated particles are dried and are intermixed with a matrix which has approximately the same specific gravity as the glass and is present in about the same quantity by weight. The intermixture of coated glass and matrix is then subjected to externally applied heat while the mixture

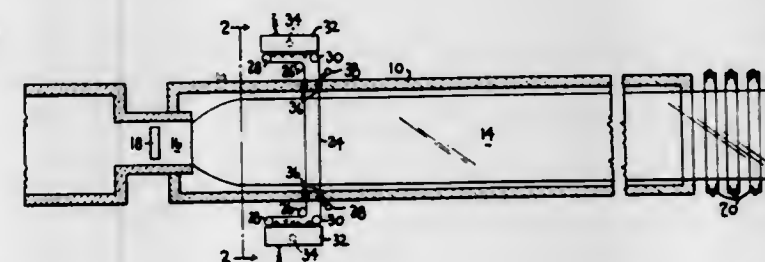
is being conveyed through an elongated rotary calciner. The calciner is effective to raise the mixture to a temperature which preferably is below the ignition point of the matrix but above the softening point of the glass. The mixture is maintained at the selected temperature for a sufficient period of time to cause the glass to soften to such an extent that its surface tension, aided by the rolling motion of the calciner, converts the particles into spherical form. After such spheroidization of the glass has been achieved, the mixture is discharged onto a shaker screen of suitable mesh, adapted to retain the glass spheres on its upper surface but to permit the matrix to pass through its openings into a catch basin. This enables reuse of the matrix with another quantity of coated glass, and it serves to raise the temperature of the latter to a substantial extent before it is introduced into the calciner. When it is desired to stress the glass spheres to obtain beads of greater strength, the spheres are delivered from the shaker screen to an oil bath where they are quenched. If desired, the spheres may then be separated from the oil and dried to a condition ready for shipment or storage. Most of the oil used in the quenching step is recovered and cooled for reuse in the process.

3,597,178 PROCESS AND APPARATUS FOR REMOVING ATMOSPHERIC CONTAMINANTS IN A FLOAT GLASS OPERATION

Robert L. Tilton, Wexford, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Apr. 17, 1969, Ser. No. 817,015
Int. Cl. C03b 18/02

U.S. Cl. 65—27

8 Claims



A continuous belt of a wire mesh material is moved across the width of a float bath from locations outside the float glass bath. Tin sulfide present in the float bath atmosphere condenses onto the mesh material and is carried outside the bath where cooling of the belt occurs. The cooled belt is vibrated outside the bath to remove the condensed tin sulfide particles.

3,597,179 GLASS TREATMENT AND GLASS-CERAMIC ARTICLE THEREFROM

George A. Simmons, Toledo, Ohio, assignor to Owens-Illinois, Inc.
No Drawing. Filed Mar. 30, 1967, Ser. No. 626,940
Int. Cl. C03c 21/00

U.S. Cl. 65—30

13 Claims

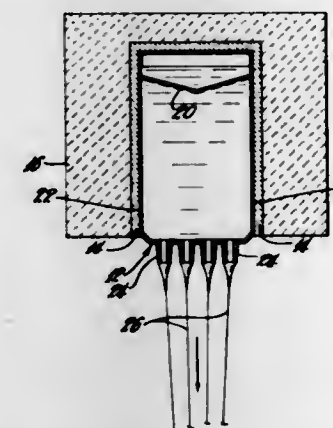
A process of treating an article of glass to provide a glass-ceramic having a high flexural strength which comprises heat treating an article of glass at elevated temperatures, including a nucleation temperature and a subsequent higher temperature that is a maximum of 1650° F. for periods of time sufficient to provide a glass-ceramic article with a compressive layer, followed by a treatment of the article of glass-ceramic with an ion-exchange medium containing a salt of an alkali metal other than lithium at an elevated temperature of at least 200° C. and for a period of time to exchange alkali metal ions of the salt with lithium ions in the glass-ceramic surface,

3,597,180 INSULATING LAYER FOR BUSHING SUPPORTING SYSTEM

Thomas D. Erickson, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation
Filed Aug. 14, 1968, Ser. No. 752,601
Int. Cl. C03b 37/00, 29/00

U.S. Cl. 65—33

4 Claims



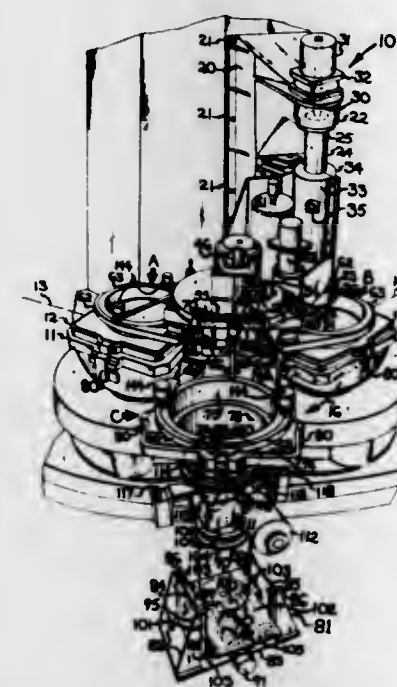
A platinum bushing from which glass fibers are attenuated is supported by a cast ceramic body with an insulating layer therebetween. The insulating layer consists essentially of highly refractory fibers of silica and alumina to which additional alumina is supplied so that when the bushing is heated to an elevated temperature, in excess of 2800° F., the fibrous insulating layer transforms to mullite and is free of any glass. Such an insulating layer has a much longer life than those heretofore employed and does not react with the cast ceramic supporting body as has heretofore occurred.

3,597,181 METHOD AND APPARATUS FOR TRANSFER AND ORIENTING OF GLASS MAKING MOLDS

John R. Prendergast, Columbus, Ohio, assignor to Owens-Illinois, Inc.
Filed Aug. 21, 1968, Ser. No. 754,318
Int. Cl. C03b 9/18

U.S. Cl. 65—71

11 Claims



An apparatus for transferring and orienting the ring portion of a glass forming mold. An apparatus with a

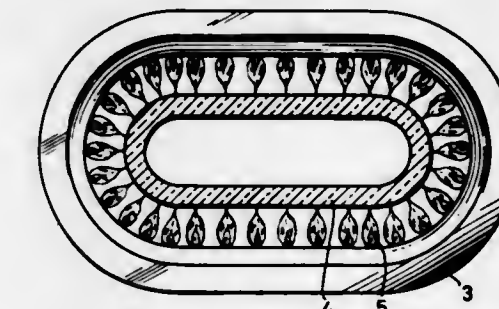
mechanism for disengaging the top ring of a glass article forming mold and translating it to an orienting station. An orienting station capable of rotating the disengaged top mold ring. Mechanism associated with the apparatus for translating the oriented mold ring from the orienting station to a mold. A method of orienting the top ring section of a glass forming mold by grasping the mold ring, disengaging it from the mold, translating the mold ring to an orienting station, orienting the mold ring and returning it to a mold at a location different from the initial pick-up location.

3,597,182 METHOD OF MAKING SMALL GLASS CAPS HAVING A NON-CIRCULAR CROSS SECTION

Otmar Vinz, Landshut, Germany, assignor to JENAer Glaswerk Schott & Gen., Mainz, Germany
Continuation-in-part of application Ser. No. 582,713, Sept. 28, 1966. This application Nov. 17, 1969, Ser. No. 877,527
Claims priority, application Germany, Oct. 28, 1965, J 29,273
Int. Cl. C03b 21/00

U.S. Cl. 65—102

3 Claims



A method of producing glass caps of non-circular cross-section by first forming a glass tube of the desired non-circular cross-section and then heating a restricted peripheral zone of said glass tube, while the same is non-rotatably supported, by flames from a plurality of nozzles of a stationary burner substantially surrounding said glass tube at said peripheral zone, said nozzles being so dimensioned and so arranged to produce equal heating conditions along said entire non-circular peripheral zone, whereby upon removal of the lowermost superfluous material from the glass tube a bottom is formed on the cap.

3,597,183 TRIFLUOROMETHANE-ETHANE AZEOTROPIC COMPOSITION

Kevin P. Murphy, Bernardsville, and Sabatino R. Orfeo, Morris Plains, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
Filed May 15, 1967, Ser. No. 638,420
Int. Cl. F25b 15/00; C09k 3/06

U.S. Cl. 62—114

3 Claims

A low boiling azeotropic mixture, and equivalent mixtures, consisting of trifluoromethane and ethane, useful as refrigerants.

3,597,184 REED SWITCH GAPPING MECHANISM

Edward L. Pittyo, Cedar Grove, N.J., assignor to Federal Tool Engineering Co., Cedar Grove, N.J.
Filed Jan. 2, 1969, Ser. No. 788,565

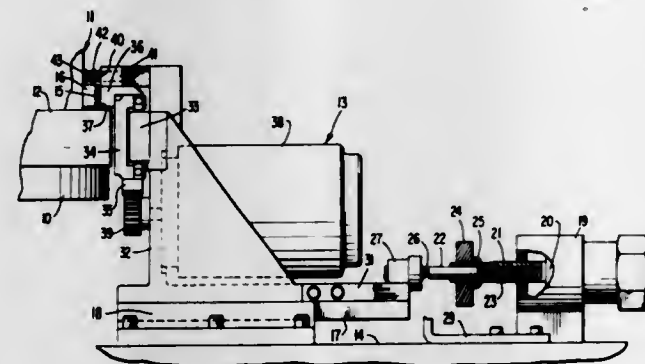
The portion of the term of the patent subsequent to Aug. 12, 1986, has been disclaimed
Int. Cl. C03b 27/02, 29/00

U.S. Cl. 65—154

6 Claims

A mechanism for consistently establishing with great accuracy the gap between the reed elements of magnetic

reed switches as the switches are manufactured step-by-step by an indexable turret apparatus carrying plural seal-



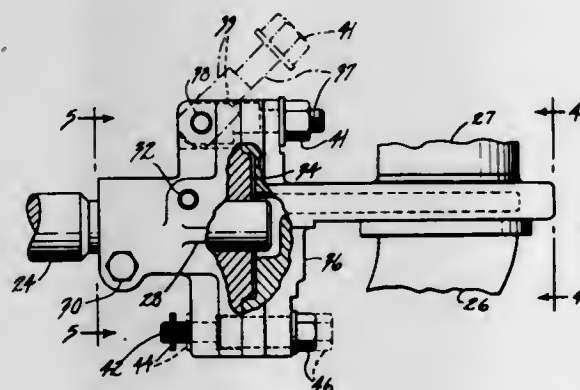
ing heads. The gapping mechanism compensates automatically for thermal expansion or contraction of the turret and associated elements.

3,597,185 SCOOP HOLDER FOR GLASSWARE FORMING MACHINE

Thomas C. Jones, Hartford, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Filed Feb. 19, 1968, Ser. No. 706,394
Int. Cl. C03b 5/34

U.S. Cl. 65—172

2 Claims



A retractable scoop for each individual section of a glassware forming machine is removably mounted on a flanged fitting at the end of a reciprocable piston rod. The fitting has a swing bolt and threaded screw or stud, both of which are received in slots in a scoop holder which carries the scoop itself. The swing bolt carries a nut and the screw can be threaded into the fitting so that both cooperate to releasably clamp the scoop holder to the piston rod.

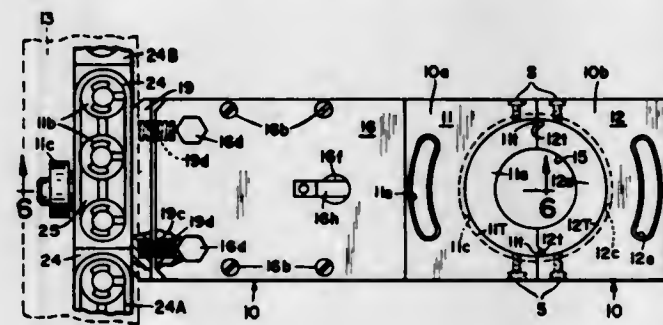
**3,597,186
NECK RING MOLD MECHANISM**
Mijo A. Gossie and Roy N. Sundstrom, Corning, William R. Wisner, Blg Flats, and Edward J. Zak, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Apr. 4, 1969, Ser. No. 813,664
Int. Cl. C03b 9/00

U.S. Cl. 65—240

9 Claims

An axially separable neck ring mold mechanism or orifice plate comprising a pair of complementary and cooperative axially separable male and female neck ring mold halves, and an identical holder and support assembly for each mold half, each holder being resiliently horizontally mounted within the support of the respective assembly for optimum linear alignment of such holders and their associated mold halves with each other, each of the assemblies

including a set of rollers or wheels by which such assemblies can, for example be moved along associated sets of first and second sets of rails or tracks which extend parallel with each other on opposite sides of a selected path



of travel for said mold halves, such mold halves and their associated assemblies carrying a ribbon of molten glass in a glass working machine for forming articles such as containers from the glass ribbon.

3,597,187 APPARATUS FOR HANDLING MOLD CHARGES OF MOLTEN GLASS

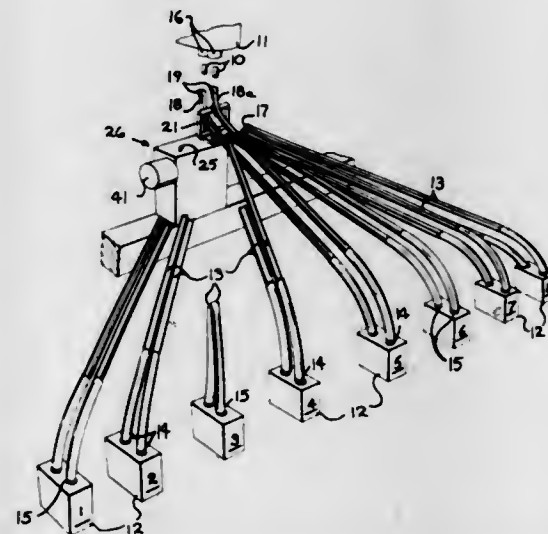
Urban P. Trudeau, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed Nov. 9, 1967, Ser. No. 681,651

Int. Cl. C03b 5/32

U.S. Cl. 65—304

9 Claims



The sequential delivery of plural mold charges or gobs to a plurality of glass forming machines positioned beneath a flow feeder. A single pair of scoops, having their upper, gob-receiving ends in vertical alignment with the double orifices of the flow feeder, are pivoted horizontally under the mechanical control of a cam operated drive mechanism so as to provide a predetermined, timed sequence of delivery of gobs falling from the orifices to the gob guides and deflectors of a plurality of forming machines.

**3,597,188
METHOD OF MAKING HIGH DENSITY IRON POWDER**
Nathan Neumann, Ridgway, Pa., assignor to Domtar Limited, Montreal, Quebec, Canada
No Drawing. Filed Aug. 23, 1968, Ser. No. 754,991
Int. Cl. B22c 9/00

U.S. Cl. 75—5BA

4 Claims

Iron powder of an apparent density of over 3.0 gms./cc. is produced by first shotting molten iron to obtain substantially spherical shot, screening the shot to remove oversize particles as well as very fine particles, sintering the shot in the presence of a decarbonizing agent, grinding the sintered material and again screening to remove particles above a certain size.

**3,597,189
PROCESS FOR THE BENEFICIATION OF TITANIFEROUS ORES**
Hari Narayan Sinha, Surrey Hills, Victoria, and David McBride Waugh, Gladstone, Queensland, Australia, assignors to Commonwealth Scientific and Industrial Research Organization and Murphysores Incorporated Pty. Ltd., Brisbane, Queensland, Australia

Filed Apr. 22, 1968, Ser. No. 723,008

Claims priority, application Australia, May 1, 1967, 21,087/67

Int. Cl. C22b 1/00

U.S. Cl. 75—1

19 Claims

Process for the beneficiation of titaniferous ores wherein the natural ore is oxidized to convert substantially all of the iron values present to the ferric state and the oxidized ore is then deoxidized to convert substantially all of the iron values therein to the ferrous state and the product in which substantially all of the iron values therein are in the ferrous state containing not more than 20% of the metallic iron.

**3,597,190
PROCESS FOR THE CONTINUOUS DIGESTION OF TITANIUM ORE BY MEANS OF HYDROCHLORIC ACID**
Helmut Grohmann and Achim Kulling, Opladen, and Helmut Steinhausen, Odenthal, Germany, assignors to Titangesellschaft m.b.H., Leverkusen, Germany

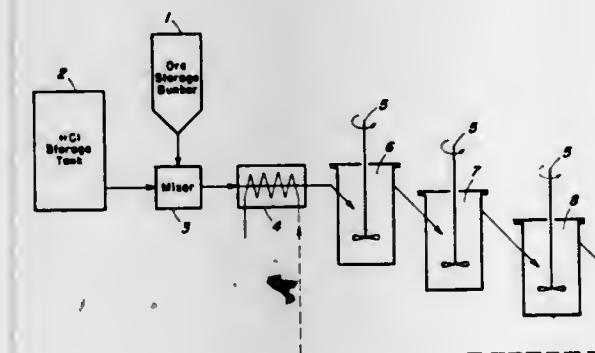
Filed Apr. 14, 1969, Ser. No. 815,921

Claims priority, application Germany, May 11, 1968, P 17 67 449.6

Int. Cl. C01g 23/04

U.S. Cl. 75—1

8 Claims



The invention is concerned with a co-current process for the continuous digestion of titanium ores, especially ilmenite ores, using concentrated hydrochloric acid at elevated temperatures and at atmospheric pressure.

**3,597,191
PROCESS FOR MAKING HIGH QUALITY STEELS**
Günter Altland, Lendringsen, Kreis Iserlohn, Germany, assignor to Gesellschaft für Hüttenwerksanlagen m.b.H., Düsseldorf, and Eisenwerk Rodinghausen, Lendringsen, Kreis Iserlohn, Germany
No Drawing. Filed Nov. 13, 1967, Ser. No. 682,554
Claims priority, application Germany, Nov. 29, 1966, G 48,585

Int. Cl. C21c 5/00

U.S. Cl. 75—46

2 Claims

High quality steel is made by reducing the sulphur and nitrogen contents of a molten charge of iron in an agitator ladle, then refining the melt in an acid process side-blow Bessemer converter and simultaneously agitating the melt in the converter preferably by applying an alternating magnetic field. The quality of the steel then produced approaches that of steel made by the more expensive oxygen blow process.

**3,597,192
PREPARATION OF TANTALUM METAL**
Harley A. Wilhelm, Frederick A. Schmidt, and Roger M. Bergman, Ames, Iowa, assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Dec. 5, 1968, Ser. No. 781,583
Int. Cl. C22b 51/00

U.S. Cl. 75—84

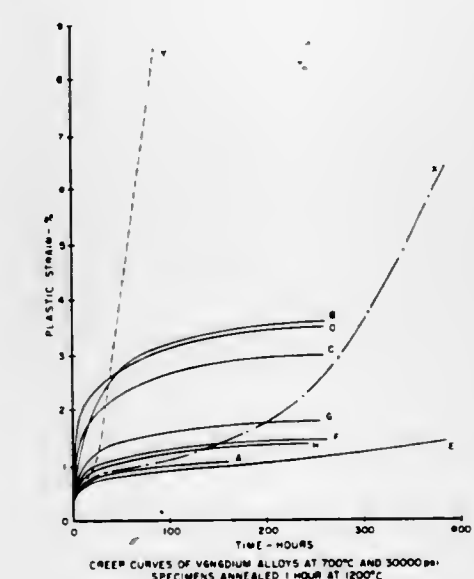
5 Claims

This invention relates to an improved method of preparing high-purity tantalum metal by the aluminothermic reduction of Ta₂O₅. By adding selected alloying agents to the aluminum and tantalum oxide, a massive metal alloy readily separable from the slag is produced upon reduction of the mixture. The high-purity tantalum metal is then recovered by heating the alloy under reduced pressure to a temperature sufficient to boil off the alloying metals.

**3,597,193
VANADIUM BASE ALLOY**
William Pollack, Pittsburgh, and Richard T. Begley, Bridgeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 16, 1967, Ser. No. 623,697
Int. Cl. C22c 33/00

U.S. Cl. 75—134

15 Claims



Solution and precipitation hardened vanadium-base alloys having excellent resistance to creep deformation at elevated temperatures and comprising, by weight, from about 1% to 4% zirconium, from 3% to 20% of at least one element selected from a group consisting of chromium, columbium, tungsten, molybdenum, titanium, iron, nickel, and tantalum, from 0.02 to 0.1% carbon, from 0.01% to 0.05% nitrogen, and oxygen in amounts not in excess of about 0.15%.

**3,597,194
ALLOY FOR BRAZING POWDER**
Ronald Savage, Harrow, Middlesex, England, assignor to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Filed Aug. 13, 1969, Ser. No. 849,880
Claims priority, application Great Britain, Aug. 27, 1968, 40,890/68

Int. Cl. C22c 5/00, 19/00; B23k 1/04

U.S. Cl. 75—134N

8 Claims

Brazing alloy contains nickel, palladium and zirconium in proportions providing characteristics of crushability to powder form and good adhesion for brazing ceramics and metals.

3,597,195 HYDANTOIN-FORMALDEHYDE AS BINDER MATERIAL FOR PHOTOCONDUCTIVE SUBSTANCES

Karel Eugene Verhille, Mortsel, and Lucian Frans Voet, St. Katelijne-Waver, Belgium, assignors to Gevaert-Agfa N.V., Mortsel Mortg, Belgium
No Drawing. Filed Feb. 27, 1968, Ser. No. 708,505
Claims priority, application Great Britain, Feb. 28, 1967, 9,522/67

Int. Cl. G03g 5/00, 7/00
U.S. Cl. 96-1.5 7 Claims
Electro-photographic recording material wherein the photoconductive substance, preferably photoconductive zinc oxide, is dispersed in a binder containing at least 60% by weight of a hydantoin-formaldehyde condensation polymer and characterized by rapid regain of its dark-resistivity so as to be specially adapted for rapid repetitive charging and exposure.

3,597,196 SENSITIZATION OF ORGANIC PHOTOCONDUCTORS WITH CYANINE MEROCYANINE, AND AZOCYANINE DYES

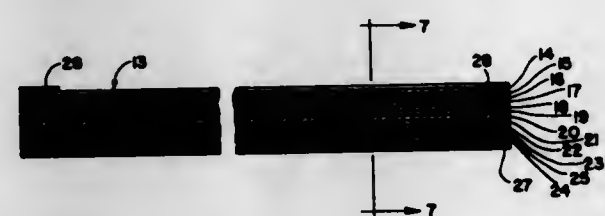
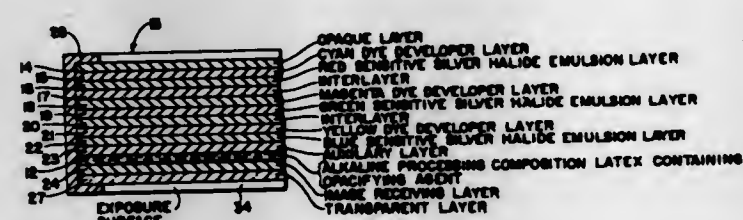
Jean E. Jones and Charles J. Fox, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation-in-part of applications Ser. No. 633,421, Apr. 25, 1967, and Ser. No. 716,000, Mar. 26, 1968. This application July 22, 1968, Ser. No. 746,256
Int. Cl. G03g 5/00, 7/00

U.S. Cl. 96-1.6 38 Claims
Organic photoconductors are sensitized with cyanine, merocyanine or azocyanine dyes which (1) have a cathodic polarographic half-wave potential more positive than -1.0 volt; (2) have an anodic polarographic half-wave potential and a cathodic polarographic half-wave potential which, when added together, give a sum more positive than -0.10 volt; and (3) desensitize negative silver bromide emulsions, containing 99.35 mole percent bromide, more than 0.4 log E at radiation of 365 nm. when incorporated therein at a concentration of 0.2 millimole of dye per mole of silver halide.

3,597,197 DIFFUSION TRANSFER COLOR PROCESS AND ELEMENT UTILIZING A PROCESSING COMPOSITION COMPRISING A COALESCING LATEX DISPERSION

Terry W. Milligan, Belmont, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Oct. 20, 1969, Ser. No. 867,626
Int. Cl. G03c 7/00, 5/54, 1/48

U.S. Cl. 96-3 44 Claims



The present invention relates to a composite photographic diffusion transfer process color film unit which

includes rupturable container means retaining processing composition containing an insoluble polymeric dispersion adapted upon loss of processing composition solvent to coalesce at ambient temperatures for distribution between photosensitive and image receptive elements of the unit.

3,597,198 METHOD AND MATERIALS FOR MAKING COLOR PHOTOGRAPHS FROM COLOR POSITIVE PRINT STOCK

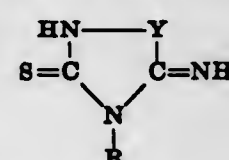
Gerald D. Sadick, Round Hill Lane, Sands Point, N.Y., and Edward Palmonka, 226 Fieldmere St., Elmont, N.Y. 11003
No Drawing. Filed May 2, 1968, Ser. No. 726,248
Int. Cl. G03c 7/02

U.S. Cl. 96-22 2 Claims
A method of developing color positive release stock is described to produce a color positive image. The development process makes it possible to expose the color positive release print stock in a camera directly to an illuminated subject, and then by subjecting the exposed color positive release print stock to the development process, a fixed color balanced color positive image results. The development process involves reducing the sensitivity to reaction of one layer containing metal halide to restrain development action in a reducer developer solution, while increasing the sensitivity to reaction of other layers containing metal halide to accelerate their development action in the reducer developer. A reducer developer containing metal halides to modify the speeds or sensitivity during development is described.

3,597,199 PROCESS FOR CONTROLLING THE DEVELOPMENT OF REVERSIBLE COLOR FILM

Hans Glockner, Pullbach, Karl Kuffner and Herbert Stark, Munich, and Hans Gotthard, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 31, 1969, Ser. No. 873,115
Int. Cl. G03c 5/59, 7/00, 7/16

U.S. Cl. 96-22 7 Claims
Process for controlling the development of multi-layer reversible color film which has components incorporated therein characterized in that the first developer contains an aminomercapto derivative having 1 heterocyclic ring having the following formula:



wherein R is hydrogen or aryl and Y is an atom or atom grouping necessary to complete a 5 or 6 membered ring, or its corresponding tautomer.

3,597,200 COLOR DIFFUSION TRANSFER PROCESSES AND PRODUCTS UTILIZING METAL-COMPLEXED AZOMETHINE DYE-DEVELOPERS

Elbert M. Idelson, Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
No Drawing. Filed June 4, 1969, Ser. No. 830,499
Int. Cl. G03c 5/54, 1/40; C07F 11/00

U.S. Cl. 96-29 13 Claims
Novel metal-complexed azomethine dyes which are also silver halide developing agents, novel non-complexed azomethines useful in the preparation of the same, and novel photographic systems and procedures employing the aforementioned metal complexes to obtain color images, particularly systems and procedures for preparing color images by diffusion transfer.

3,597,201 POSITIVE-WORKING PRESENSITIZED PLANOGRAPHIC PRINTING PLATE

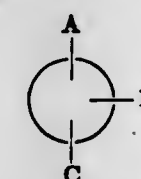
Dorothy J. Beavers and William B. Kendall, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed May 3, 1967, Ser. No. 635,687
The portion of the term of the patent subsequent to Feb. 6, 1985, has been disclaimed
Int. Cl. G03f 7/02

U.S. Cl. 96-33 18 Claims
Positive-working presensitized printing plates comprising a support, a hardened gelatin photographic direct-positive covered grain emulsion and a polyhydroxybenzene developing agent. Optionally, a halogen-accepting compound and a sulfonated compound may be added to the emulsion to increase sensitivity.

3,597,202 PHOTO POLYMERIZATION PROCESS

Edward Cerwinka, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.
No Drawing. Filed Nov. 4, 1968, Ser. No. 773,699
Int. Cl. G03c 1/68

U.S. Cl. 96-35.1 11 Claims
A process for photopolymerizing a normally liquid to normally solid monomer having the grouping $\text{CH}_2=\text{C}$ which comprises subjecting the monomer to electromagnetic radiation so as to produce exposed and unexposed areas in the presence of a catalyst comprising a compound of the formula:

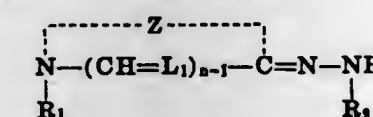


wherein A represents an oxo radical, B represents a diazo radical, C represents a sulfonic acid radical and the circle represents a ring system selected from the group consisting of cyclohexane, cyclohexene, cyclohexadiene, naphthalene, decahydronaphthalene, octahydronaphthalene and hexahydronaphthalene; thereafter contacting the exposed monomer with a reducing agent so as to polymerize the monomer in the exposed areas and subsequently removing the material from the unexposed areas so as to produce a colored negative image corresponding to the photopolymerized polymer.

3,597,203 PREPARATION OF PHOTOGRAPHIC COLOUR IMAGES

Jozef Frans Willems, Wilrijk, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium
No Drawing. Filed July 25, 1968, Ser. No. 747,432
Claims priority, application Great Britain, July 25, 1967, 34,011/67

Int. Cl. G03c 7/00, 1/76, 1/40
U.S. Cl. 96-56.5 7 Claims
Method and materials for forming color images in exposed silver halide emulsion layers by means of a color coupling compound of the formula



wherein:

R_1 represents an alkyl radical, an alkenyl radical, or an aryl radical,
Z represents the non-metallic atoms necessary to complete a 5- or 6-membered heterocyclic nucleus, or such nucleus making part of a fused heterocyclic system,
 L_1 represents a methine group or nitrogen,
n is 1 or 2, and

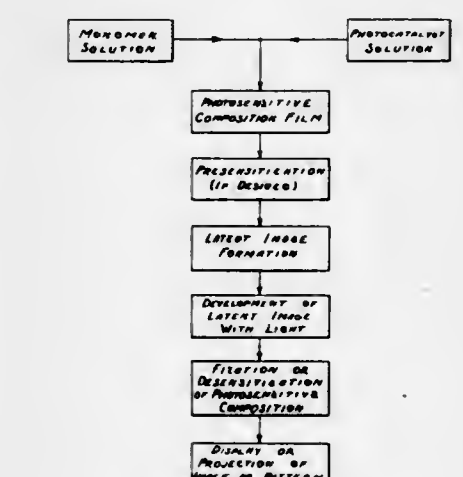
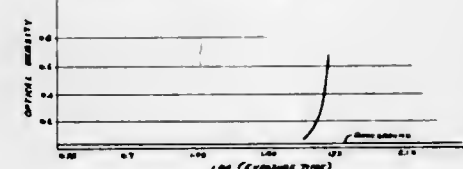
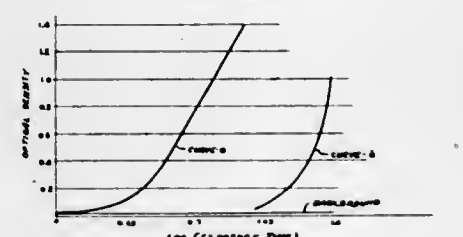
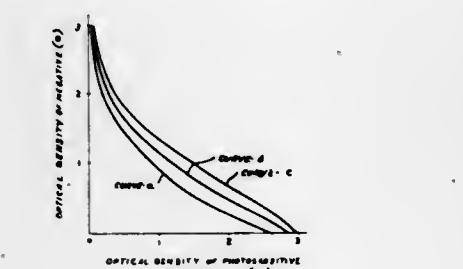
R_2 represents an acyl group or a radical of the formula $-\text{CONH}_2$ or $-\text{SO}_2\text{X}$, wherein X represents hydroxyl, an amino radical, a heterocyclic radical, an alkyl radical, an alkoxy radical, an aryloxy radical, or an aryl radical, developed with a pyrazolidine-3-one

having substituted at the 1-position thereof an aryl group free of substitutions at its p-position. Both of the color coupling compound and the developing agent defined above can be provided in a photographic material in effective contact with the silver halide of a light sensitive silver halide emulsion layer.

3,597,204 METHOD OF PROVIDING INDUCTION PHOTOGRAPHY AND PRODUCT

John B. Rust, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Oct. 3, 1966, Ser. No. 583,653
Int. Cl. G03c 5/00

U.S. Cl. 96-45.2 10 Claims



Improvement in the method of utilizing the induction period of photopolymer chemistry and improving the photographic speed of photopolymerizable compositions by the production of latent imaging in the induction period and effecting polymerization thereof in the photopolymerizable composition.

3,597,205

IMAGE REPRODUCTION WITH MERCUROSUS HALIDE

Gordon N. Flannagan, Fair Haven, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 2, 1967, Ser. No. 679,983

Int. Cl. G03c 5/38

U.S. Cl. 96—48

2 Claims

A process for preparing a light-sensitive element by precipitating mercurous iodide substantially free of mercuric ions from stoichiometric amounts of mercurous nitrate in a nitric acid solution and potassium iodide, conditioning the resulting mercurous iodide and coating it on a support. The precipitation occurs in the presence of aqueous polyvinyl alcohol or inert gelatin.

3,597,206

PHOTOGRAPHIC BINDER OF VINYL POLYMER OF ANTHRANILATE UNITS

Joseph S. Yudelson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,278

Int. Cl. G03c 5/24

U.S. Cl. 96—48

16 Claims

Light-sensitive palladium compounds when carried in a polymeric binder having recurring vinyl anthranilate units exhibit improved photographic properties.

3,597,207

DISULFIDES IN REVERSAL PHOTOGRAPHIC PROCESSES

Arthur D. Kuh, Penfield, and Charleton C. Bard, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,355

Int. Cl. G03c 5/24, 5/50

U.S. Cl. 96—65

26 Claims

Stable early-stage processing solutions, e.g., prebaths, containing bis(loweralkylcarbonamidophenyl) disulfides, e.g., bis[o-(N-ethyl)acetamidophenyl]disulfide, promote desirable dye density in highlight areas during color development in reversal color processing.

3,597,208

PROCESS FOR PRODUCING PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENTS

Fumihiko Nishio, Nobuo Tsuji, and Azusa Ohashi, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan

No Drawing. Filed Mar. 8, 1967, Ser. No. 621,422

Claims priority, application Japan, Mar. 9, 1966, 41/14,485

Int. Cl. G03c 1/76, 3/00

U.S. Cl. 96—67

10 Claims

The susceptibility of the surface of a photographic light sensitive element to humidity can be decreased and the adhesion of the photographic light sensitive element to itself or to other surfaces can be completely prevented by applying to the surface of the photographic light sensitive element an organic solvent solution containing at least one member selected from the group consisting of a styrene-maleic anhydride copolymer, a partial half-ester copolymer thereof, and complete half-ester copolymer thereof and drying it.

3,597,209

PROCESS FOR PREPARING SILVER HALIDE EMULSIONS COMPRISING THE ADDITION OF EXCESS CHLORIDE ION

Robert Chapman Countryman, Pittsford, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 25, 1968, Ser. No. 700,358

Int. Cl. G03c 1/02, 1/28

U.S. Cl. 96—94

8 Claims

Radiation-sensitive emulsions and elements particularly suitable for use in high intensity oscillographs are prepared by adding to a colloid-silver halide emulsion of the developing-out type or direct-writing type, a large amount of a water soluble chloride salt of the order of about 160 mole percent based on the silver halides after digestion and prior to coating the emulsion on a support.

3,597,210

DIRECT WRITING SILVER HALIDE EMULSIONS CONTAINING DITHIOCARBAMATES

John Howard Bigelow, Rochester, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 23, 1968, Ser. No. 707,409

Int. Cl. G03c 1/02

U.S. Cl. 96—94

8 Claims

Light-developable, direct-writing emulsions are prepared by precipitating the silver halide grains in the presence of a lead ion and then incorporating with the grains after the precipitation a dithiocarbamate, said emulsion being free from polyvalent metal salt halogen acceptors, e.g., stannous chloride.

3,597,211

PHOTOGRAPHY

James F. Betts, Euclid, and Victor P. Petro, Brecksville, Ohio, assignors to Horizons Incorporated, a Division of Horizons Research Incorporated

No Drawing. Filed Oct. 18, 1968, Ser. No. 768,895

Int. Cl. G03c 1/72

U.S. Cl. 96—88

5 Claims

Photosensitive compositions comprising a mixture of at least one Schiff's base and at least one activator for the Schiff's base in such amounts and such proportions that a visible or developable latent image is produced when the composition is exposed to a pattern of radiation of the proper wavelength. The Schiff's base and activator materials are preferably dissolved in or dispersed in or supported in or on a binder support or carrier which may be a synthetic resin polymer or paper or cloth or other suitable carrier.

3,597,212

PHOTOSENSITIVE ELEMENTS AND PROCESS

Frank G. Webster and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 30, 1968, Ser. No. 772,020

Int. Cl. G03c 1/52; B41m 5/00

U.S. Cl. 96—90

16 Claims

Photosensitive elements and a process of photographic reproduction are described employing a photosensitive composition comprising a heterocyclic nitrogen compound and a ketomethylene compound or a reactive cyclic ammonium quaternary salt which on exposure to actinic radiation react to form a dye.

3,597,213

FOG REDUCTION IN PHOTOGRAPHIC SILVER HALIDE EMULSIONS

Fritz Dersch and Giacomo Luciani, Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y.
No Drawing. Filed Feb. 12, 1968, Ser. No. 704,518

Int. Cl. G03c 1/34

U.S. Cl. 96—109

10 Claims

Photographic elements having thereon a silver halide emulsion layer, and containing in said layer or an adjacent layer, a 2,2'-(p,p-biphenylene)-3,3',5,5'-tetrasubstituted bistetrazolium salt as a fog reducing agent.

3,597,214

SULFURIC ACID ESTERS OF BUTYNE-1,2-DIOL-POLY-ALKYLENE OXIDE CONDENSATES AS ANTI-FOGGANT IN SILVER HALIDE EMULSIONS

E. Scudder Mackey and Fritz Dersch, Binghamton, N.Y., and Robert E. Leary, Somerville, N.J., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Jan. 12, 1968, Ser. No. 697,304

Int. Cl. G03c 1/34

U.S. Cl. 96—109

8 Claims

A photographic element having incorporated in the light-sensitive silver halide emulsion layer or in a colloid layer contiguous therewith a sulfuric acid ester of a condensation product of an alkylene oxide with a butynediol.

3,597,215

PHOTOGRAPHIC SILVER HALIDE AND A POLY(VINYL ALCOHOL) BINDING AGENT

Edward P. Abel and Louis M. Minsk, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

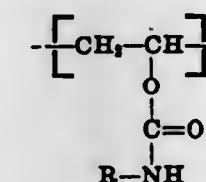
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,846

Int. Cl. G03c 1/04

U.S. Cl. 96—114

9 Claims

Polymers comprising about 5 to about 30 mole percent of recurring units having the formula:



where R is hydrogen or methyl are particularly effective in improving the covering power and sensitometric properties of photographic silver halide materials.

3,597,216

HIGH TEMPERATURE PHOTORESIST OF CROSS-LINKED POLY(2,6-DIMETHYL-1,4-PHENYLENE OXIDE)

Frank Berardinelli, Millington, N.J., and Jay Gervasi, Greensboro, N.C., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Sept. 24, 1969, Ser. No. 860,803

Int. Cl. C08f 1/16, 1/60; G03c 1/68

U.S. Cl. 96—115P

4 Claims

Poly (2,6-dimethyl-1,4-phenylene oxide) is used as a photoresist in the preparation of letterpress plates requiring the use of etchants under drastic conditions, such as sulfuric acid at temperatures of 140–150° C. The resist is applied to the plate from a solution in a chlorinated ethylene, preferably trichloroethylene and containing a peroxide such as t-butylperbenzoate, a cross-linking agent, e.g., the diacrylate of bis-hydroxyethyl terephthalate and thioxanthene-9-one as preferred sensitizer. The resist is particularly effective as applied to plates composed of Celcon, an acetal copolymer.

3,597,217

COMBINATION HALFTONE SCREEN AND EMULSION POSITIONING PLATE

Erns. E. Schumacher, 3113 Postfach, 6 Frankfurt am Main, Germany

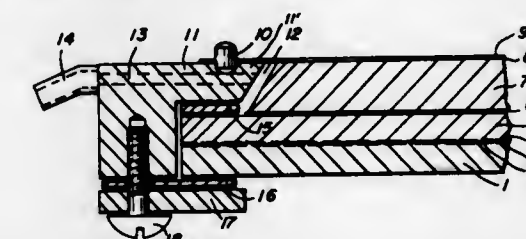
Filed Oct. 24, 1968, Ser. No. 770,301

Claims priority, application Germany, Oct. 24, 1967, P 15 97 787.4

Int. Cl. G03f 5/00

U.S. Cl. 96—116

14 Claims



A combination halftone screen and emulsion carrier plate whereby an independent photosensitive emulsion is accurately positioned in precisely spaced and parallel relation with the halftone screen grid.

3,597,218

METHOD FOR PREPARATION OF FEED

Selko Matsuo, 9-30 Yanagi-machi, Nise-shi, Kagoshima-ken, Japan

No Drawing. Filed Sept. 4, 1968, Ser. No. 757,501

Claims priority, application Japan, Sept. 6, 1967, 42/57,671

Int. Cl. A23k 1/00

U.S. Cl. 99—9

3 Claims

A method of preparing an animal feed from bagasse which comprises culturing a cellulose-decomposing microorganism, a nitrate-forming microorganism, a starch-hydrolyzing and proteolytic microorganism, and a lignin-decomposing microorganism together in a medium consisting of wheat bran and rice bran to obtain a composite inoculum, inoculating bagasse with said inoculum and culturing it for 24 hours.

3,597,219

CHILLPROOFING OF BEVERAGES USING INSOLUBLE POLYMER-ENZYME PRODUCT

Bernard S. Wildt, Kirkwood, and David C. Boyce, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,352

Int. Cl. C12h 1/04; A23l 1/02

U.S. Cl. 99—48

30 Claims

Improved process for chillproofing of beverages, especially malt beverages, using insoluble polymer-enzyme products. Permits removal of enzyme, reuse and attendant economies and also provides improved chillproofing stability, clarity, and taste in the beverage treated; beverages chillproofed in this manner.

3,597,220

CHILLPROOFING OF BEVERAGES USING INSOLUBLE BASIC POLYMER-ENZYME PRODUCT

Bernard W. Weinrich, St. Charles, John H. Johnson and Bernard S. Wildt, Kirkwood, and David C. Boyce, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,369

Int. Cl. A23l 1/02; C12h 1/04

U.S. Cl. 99—48

35 Claims

Improved process for chillproofing of beverages, especially malt beverages, using insoluble basic polymer-enzyme products, whereby the activity-pH profile and substrate-binding character of normally inactive or non-optimally active enzymes can be optimized for performance at the pH range of the beverage. Permits removal of enzymatically-active agents, reuse and attendant eco-

nomics, and also provides improved chillproofing stability, clarity, and taste in the beverage treated; beverages chillproofed in this manner.

3,597,221 CHILLPROOFING OF BEVERAGES USING BASIC POLYMER PRODUCTS

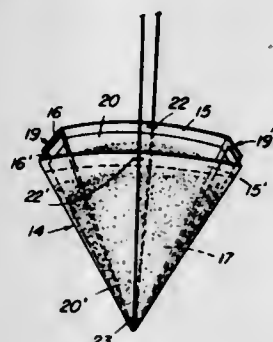
Kurt A. Ladenburg, St. Louis, Bernard W. Weinrich, St. Charles, and John H. Johnson, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 27, 1968, Ser. No. 763,383
Int. Cl. A23i 1/02; C12h 1/04

U.S. Cl. 99—48 19 Claims
Improved process for chillproofing of beverages, especially malt beverages, using insoluble basic polymer products, wherein components of said beverages which lead to chill-haze and oxidative instability upon aging are removed from the beverage through a process of specific sorption while leaving flavor components in said treated beverage. Provides improved chillproofing stability, color, clarity and taste in the beverage treated; beverages chillproofed in this manner.

3,597,222 INFUSION PACKET

Thaddeus John Kalembe, 1336 River Ave.,
Point Pleasant, N.J. 08742
Filed Mar. 22, 1968, Ser. No. 715,375
Int. Cl. A23f 3/00

U.S. Cl. 99—77.1 8 Claims



An infusion packet having two oppositely disposed, rigidly separated pockets of tea or the like joined together by two tapering end portions which form a narrow, triangular shaped porous cup.

3,597,223 METHOD FOR PREPARING UNBROWNED BREAD LOAVES IN SLICED FORM

Albert J. Gordon, Studio City, Calif., assignor to Gordon Bread Company, Inc.
Filed June 30, 1969, Ser. No. 837,394
Int. Cl. A21d 8/06

U.S. Cl. 99—90R 5 Claims
A method for preparing substantially unbrowned sliced bread loaves, intended for later browning by the consumer, wherein proofed loaves of the bread dough are heated for at least thirty minutes to an internal dough temperature of 190–200° F., whereupon heating is discontinued and the loaves are sliced to toast-sized pieces.

3,597,224 UPGRADED FLOUR FOR USE IN CAKE PREPARATION

Norman B. Howard and James B. Martin, Hamilton, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Jan. 24, 1969, Ser. No. 793,880
Int. Cl. A21d 2/00, 2/28

U.S. Cl. 99—93 5 Claims
Monostearin sodium sulfoacetate or propylene glycol monostearate sodium sulfoacetate, in solid ground form,

is admixed with lower quality flour to produce a novel upgraded flour composition. The upgraded flour composition is utilized to produce cakes characterized by desirable volume, texture and eating qualities.

3,597,225 GALLATE-CONTAINING LIQUID SHORTENING FOR USE IN CAKE PREPARATION AND CAKE MIX CONTAINING THE SAME

Donald H. Hughes, Green Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,252
Int. Cl. A23d 5/00; A21d 13/08

U.S. Cl. 99—94 7 Claims
Alkyl gallate high temperature batter stabilizers are used in combination with liquid glyceride oil shortenings and alpha-phase crystal-tending emulsifiers as ingredients in cake preparation to provide cakes of improved volume, texture, and eating quality. A cake mix containing these ingredients provides these same benefits.

3,597,226 KOJYL ACYLATE CONTAINING LIQUID SHORTENING FOR USE IN CAKE PREPARATION AND CAKE MIX CONTAINING THE SAME

Donald H. Hughes, Green Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,253
Int. Cl. A23d 5/00; A21d 13/08

U.S. Cl. 99—94 8 Claims
Kojyl acylate high temperature batter stabilizers are used in combination with liquid glyceride oil shortenings and alpha-phase crystal-tending emulsifiers as ingredients in cake preparation to provide cakes of improved volume, texture, and eating quality. A cake mix containing these ingredients provides these same benefits.

3,597,227 NOVEL AMYLOSE COATINGS FOR DEEP FRIED POTATO PRODUCTS

Daniel G. Murray, Muscatine, Iowa, and Nicholas G. Marotta, Green Brook, and Richard M. Boettger, Morristown, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of applications Ser. No. 412,818, and Ser. No. 412,843, both Nov. 20, 1964.
This application Apr. 3, 1968, Ser. No. 718,356
Int. Cl. A23i 1/12

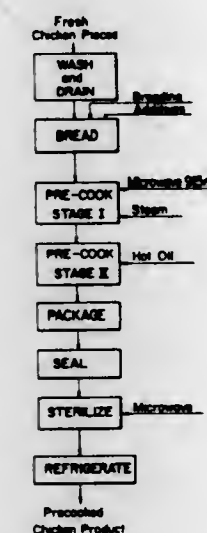
U.S. Cl. 99—100 4 Claims
A process for preparing deep fried potato products, including potato chips, french fried potatoes, and specialty products which are all characterized by their improved quality and the products thus produced; said process comprising the coating of such potato products, prior to the deep frying thereof in a hot cooking oil, with an aqueous dispersion of a high amylose starch or the amylose fraction resulting from the separation of whole starch into its amylose and amylopectin components.

3,597,228 METHOD OF PREPARING PRECOOKED POULTRY PIECES

Morris R. Jeppson, Danville, and Charles J. Rogers, Sunol, Calif., assignors to Cryodry Corporation, San Ramon, Calif.
Filed June 30, 1967, Ser. No. 650,499
Int. Cl. A22c 21/00; A23b 1/00

U.S. Cl. 99—107 16 Claims
A precooked food product which can be stored under refrigeration and prepared for serving by a brief reheating is prepared from poultry by a combination of micro-

wave, steam and oil cooking. The poultry may be breaded prior to the microwave treatment to prepare a fried



chicken type of product or may be packaged in a reheatable container with any of various sauces.

3,597,229 BUTTERLIKE MARGARINE

Aart Mijnders, Ridderkerk, and Herbert Willem Lincklaen Westenberg, Vlaardingen, Netherlands, assignors to Lever Brothers Company, New York, N.Y.
No Drawing. Filed Dec. 29, 1967, Ser. No. 694,381
Int. Cl. A23d 3/00

U.S. Cl. 99—122R 6 Claims
Margarine having butterlike properties prepared from a fat blend comprising an olein fraction melting at 30–36° C. of a rapidly crystallizing hydrogenated animal or vegetable fat.

3,597,230 PLASTIC SHORTENING HAVING A HIGHLY STABLE BETA-PRIME CRYSTALLINE PHASE

Edward E. Colby, Cincinnati, and Cornelius H. Japikse, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Filed Aug. 19, 1968, Ser. No. 753,437
Int. Cl. A23d 5/00

U.S. Cl. 99—122 7 Claims
A hardstock composition comprising two components combined in certain proportions provides improved beta-prime-phase stability in plastic shortening. The hardstock components are a beta-prime-tending C₁₄₋₂₀ hardstock containing at least a minimum amount of C₂₀₋₂₂ fatty acids and a beta-prime-tending C₁₄₋₁₈ hardstock containing at least a minimum amount of C₁₆₋₁₈ fatty acids.

3,597,231 DEHYDRATED PUMPKIN MIX

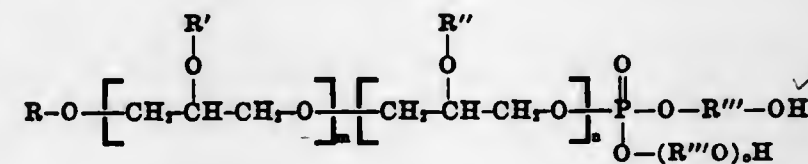
Frederic J. Kane, 1029 Ridge Ave.,
Philadelphia, Pa. 19123
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,789
Int. Cl. A23g 3/00; A23i 1/14

U.S. Cl. 99—139 1 Claim
A dehydrated pumpkin mix comprising dehydrated pumpkin flour, dehydrated milk having a percentage by weight as compared to the weight of the pumpkin flour of approximately sixty-two percent, and dehydrated egg having a percentage by weight as compared to the weight of the pumpkin flour of approximately thirty-seven percent.

3,597,232 STARCH-CONTAINING FOOD COMPOSITIONS WITH FATTY ACYL POLYPHOSPHATE GEL MODIFIERS

Ralph B. Fearing, Bardonia, and John C. Sourby, Hawthorne, N.Y., assignors to Stauffer Chemical Company
No Drawing. Filed Apr. 24, 1968, Ser. No. 723,926
Int. Cl. A23i 1/14, 1/00

U.S. Cl. 99—139 1 Claim
A phosphate food additive composition for combining with foodstuff containing at least starch and water having the formula:



wherein R can be hydrogen or a long chain fatty acyl group having between 7 and 50 carbon atoms and R' can be hydrogen or a long chain fatty acyl group having from 7 to 50 carbon atoms, R'' can be hydrogen or a long chain fatty acyl group having from 7 to 50 carbon atoms, R''' is an alkylene group having at least 2 carbon atoms but less than 10, but when R'' is a hydrogen atom at least R or R' must be a fatty acyl group, m can be an integer between 1 and 10, n can be an integer between 1 and 10, o can be an integer between 1 and 10.

3,597,233 NON-FAT TOPPING COMPOSITIONS

Bernard A. Patterson, 4040 N. LeClaire Ave.,
Chicago, Ill. 60614
No Drawing. Filed Feb. 13, 1969, Ser. No. 799,091
Int. Cl. A23i 1/00, 1/14

U.S. Cl. 99—139 5 Claims
A temperature stable, non-fat emulsion having improved whipping properties and comprising a mixture of a sugar, a non-ionic emulsifying composition containing a glyceride ester in which at least 90% of the ester groups present are long chain monoester groups with a polyoxyethylene sorbitan stearate.

3,597,234 NOVEL SUBSTITUTED TETRAZOLE AND USE THEREOF

William L. Garbrecht, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Original application Apr. 14, 1967, Ser. No. 630,832, now Patent No. 3,515,727, dated June 2, 1970. Divided and this application Sept. 9, 1969, Ser. No. 870,152
Int. Cl. A23i 1/26; A23k 1/00

U.S. Cl. 99—141A 5 Claims
5-(3-hydroxyphenoxy)-1H-tetrazole is prepared via reaction of resorcinol monoacetate with cyanogen bromide in the presence of triethylamine and sodium azide, followed by hydrolysis under basic conditions. The product, or a nontoxic, physiologically acceptable salt thereof, is used as a sugar substitute for sweetening caloric or noncaloric materials and for the control of viruses.

3,597,235 PRESERVATION OF HARVESTED PRODUCE WITH OXYGEN-FREE ENZYMOCIDAL AND BACTERICIDAL GASES

Amihud Kramer, Silver Spring, Md., assignor to Food Technology Corporation, South Reston, Va.
No Drawing. Filed May 9, 1968, Ser. No. 728,315
Int. Cl. A23i 3/00

U.S. Cl. 99—154 10 Claims
There is provided a process for the preservation of raw and fresh biological harvested produce which com-

prises the steps of subjecting the produce to a sub-atmospheric pressure for a period of time at least sufficient to substantially evacuate the gaseous oxygen content from the tissue structure thereof; subsequently exposing the substantially oxygen-free produce to an enzymocidal gas for a time period at least sufficient to substantially deactivate the deteriorative oxidative enzyme content within the produce; and simultaneously with or subsequent to the exposure to an enzymocidal gas, also exposing the produce to a bactericidal gas for a period of time at least sufficient to sterilize the produce. The so-treated produce is rendered substantially biostatic and preserved against normal bacterial and enzymatic deterioration and spoilage on sustained storage.

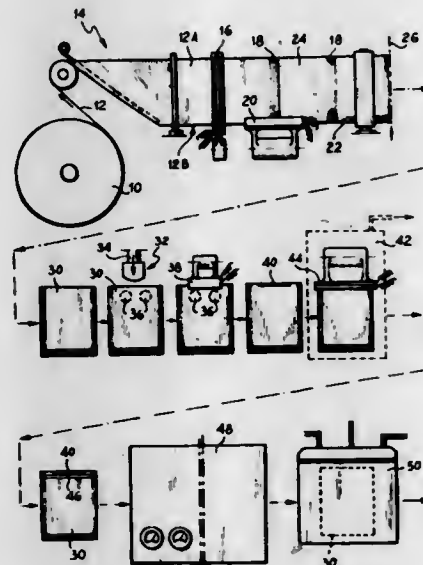
3,597,236 PROCESS FOR PRESERVING THE COLOR OF FRESH MEAT

Ervin W. Hopkins, Hinsdale, and Kunio Sato, Chicago, Ill., assignors to Armour and Company, Chicago, Ill.
No Drawing. Filed Aug. 8, 1967, Ser. No. 659,011
Int. Cl. A23b 1/00

U.S. Cl. 99—157 6 Claims
An agent for preserving the color of meat comprising ascorbic acid and a chemical selected from the group consisting of para-aminobenzoic acid, meta-aminobenzoic acid, isonicotinic acid and N-ethylnicotinamide.

3,597,237 METHOD FOR PACKAGING FOOD PRODUCTS IN FLEXIBLE CONTAINERS

Giovanni Nughes, Monza, Italy, assignor to Star Stabilimento Alimentare S.p.A., Agrate Brianza, Milan, Italy
Filed Jan. 31, 1969, Ser. No. 795,469
Claims priority, application Italy, Oct. 28, 1968, 53,661/68
Int. Cl. B65b 9/02, 31/02
U.S. Cl. 99—171 7 Claims

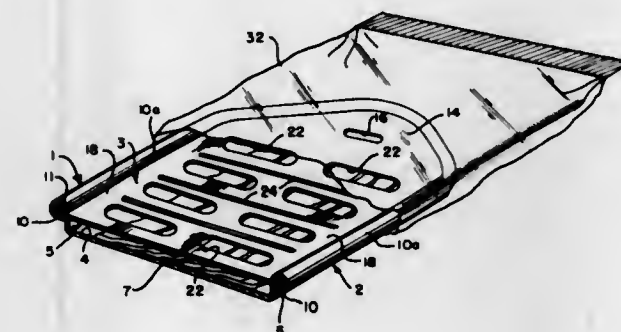


Method of packaging a foodstuff in a sterilizable container of the envelope-type made of a flexible laminate comprising an inner, heat-sealable polypropylene layer, wherein all sides of the envelope are fluid tight sealed by a twin-bar heat-sealing system, and wherein the closing side of the filled envelope is twin-bar sealed in vacuum by a heat impulse after the side has been clamped flat between its sealing bars in cool condition of the latter. The method also include stitch-sealing the lips of the envelope

on its closing side after filling, preparatory to the heat impulse sealing, as well as sterilizing the sealed package and chromatographically testing it for leakage.

3,597,238 PRE-COOKED FOOD PACKAGE

Edward W. Scharre, Louisville, Ky., assignor to Anaconda Aluminum Company
Filed May 14, 1969, Ser. No. 824,596
Int. Cl. B65b 25/06
U.S. Cl. 99—174 5 Claims



A package for containing pre-cooked foodstuffs and the like is disclosed consisting generally of a metal foil pan and lid, the lid having a plurality of vent openings and being strengthened by a series of embossed ribs extending transversely across the surface thereof, the construction being such that the pan and lid together support the food contents in an upright manner when the package is inserted into a toaster. The exterior of said package is coated with a dielectric insulating composition and the entire package is disposed within a hermetically sealed outer wrapping.

3,597,239 METHOD OF MANUFACTURING FROZEN OIL-BLANCHED DICED POTATOES SUITABLE FOR PREPARING HASH BROWN POTATOES

Frederick H. Vahlsing, Jr., Allentown, N.J., assignor to Vahlsing, Inc.
No Drawing. Filed Sept. 25, 1967, Ser. No. 670,407
Int. Cl. A23b 7/06
U.S. Cl. 99—193 2 Claims

Frozen oil-blanched diced potatoes are made by cutting pre-cooked, pre-fried, frozen potato pieces of relatively large size into smaller-sized segments to eliminate agglomeration problems in the manufacturing process and to enhance the taste and appearance qualities of the product when reheated or fried for consumption.

3,597,240 ENHANCED DIPOLAR EFFECTS IN MICROWAVE PROCESSING

Thomas R. Foltz, Jr., Clarendon Hills, Ill., assignor to Armour and Company, Chicago, Ill.
No Drawing. Filed May 28, 1969, Ser. No. 828,708
Int. Cl. A23i 3/32
U.S. Cl. 99—221 9 Claims

A process for creating sterilization temperatures in particulate materials through the use of microwave heating. A lossy liquid is added to the material before subjecting it to microwave heating, whereby the resultant change in the loss characteristics of the particulate material allows the production of sterilization temperatures with the application of microwave energy.

3,597,241 METALLO-CERAMIC COMPOSITIONS, HAVING AT LEAST THREE COMPONENTS, FOR THE PRODUCTION OF PROTECTIVE COATINGS FOR FERROUS AND NON-FERROUS METALLIC SURFACES

Glancarlo Perugini, Merano, Italy, assignor to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Filed Nov. 23, 1966, Ser. No. 596,400
Claims priority, application Italy, Nov. 29, 1965, 26,449/65
Int. Cl. C23c 7/00

U.S. Cl. 106—1 13 Claims
A process for protecting ferrous and non-ferrous metals against high temperature and acting as a thermal barrier, anti-oxidant barrier and/or electro-insulating barrier. The composition used and coatings produced are also shown. The composition illustrated contains 15 to 60% Cr, 10 to 50% Ni and 10 to 40% of a ceramic oxide having a melting point $\geq 1900^\circ\text{C}$.

3,597,242 FLAME RETARDANT CELLULOSE ACETATE ARTICLES

Joseph Di Pietro, Alma, Mich., and Willard C. Brinegar, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 538,955, Mar. 31, 1966. This application Aug. 25, 1969, Ser. No. 852,903
Int. Cl. C09d 5/18

U.S. Cl. 106—15 14 Claims
A composition comprising cellulose acetate, a halogenated paraffin and a synergistic agent selected from the group consisting of phenyl phosphates, 2,5-dimethyl-2,5-di(5-butyl-5-peroxy)hexane, t-butyl-hydroperoxide, nitroso benzene and phenyl hydrazine.

3,597,243 FLAME RETARDANT CELLULOSE ACETATE ARTICLES

Willard C. Brinegar, Charlotte, N.C., and Joseph Di Pietro, Alma, Mich., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 538,968, Mar. 31, 1966. This application Aug. 25, 1969, Ser. No. 852,902
Int. Cl. C09d 5/18

U.S. Cl. 106—15 10 Claims
A composition comprising cellulose acetate, a halogenated alkyl phosphate, a second additive selected from the group consisting of halogenated paraffins, dicumyl peroxide, di(t-butyl) peroxide, t-butyl-hydroperoxide, 2,5-dimethyl-2,5-di(t-butyl-5-peroxy) hexane, phenyl hydrazine, nitrobenzene, nitrosobenzene and 2,2'-azodiisobutyronitrile, and a third additive selected from the group consisting of diphenyl disulfides, phenyl phosphates and p-nitrosobenzoyl ethyl lactate.

3,597,244 WATER-FAST INKS AND METHOD FOR MAKING SAME

Abraham Fookson, Silver Spring, Md., and Henry Peper, Pacific Palisades, and Daniel W. Seregely, Los Angeles, Calif., assignors to The Gillette Company, Boston, Mass.
No Drawing. Continuation of application Ser. No. 719,833, Apr. 9, 1968. This application June 19, 1970, Ser. No. 48,933
Int. Cl. C09d 11/00

U.S. Cl. 106—22 2 Claims
A water-fast ink solution for use in ballpoint pens, said solution containing a water-insoluble resin in a solvent therefor and a water-insoluble dye salt which is formed

in situ by the reaction of a sulfonic acid dye with a basic dye and/or an acid salt of a basic dye, the acid being either a mineral acid or a carboxylic acid. A method for producing such a water-fast ink solution for ballpoint pens which comprises dissolving a water-insoluble resin in a solvent therefor and dissolving a sulfonic acid dye, at least one basic dye, and, optionally, an acid in the resulting solution and heating and stirring the mixture. If the acid is present, there is formed an acid salt of the basic dye which subsequently reacts with the sulfonic acid dye to form a water-insoluble dye, said water-insoluble dye being soluble in the resin solvent and preferably also in the resin when in the molten state. In the alternative, the acid salt of the basic dye can be added directly to the resin solution in conjunction with the sulfonic acid dye rather than adding an acid and a basic dye separately.

3,597,245 PHOSPHATE OPTICAL GLASS WITH POSITIVE ANOMALOUS PARTIAL DISPERSION

Heinz Bromer, Hermannstein, Kreis Wetzlar, and Norbert Meinert and Johann Spincle, Wetzlar, Germany, assignors to Ernst Letz G.m.b.H., Wetzlar, Germany
No Drawing. Continuation of application Ser. No. 768,915, Oct. 18, 1968. This application May 12, 1970, Ser. No. 37,414
Claims priority, application Germany, Oct. 28, 1967, P 15 96 888.4
Int. Cl. C03c 3/00

U.S. Cl. 106—470 6 Claims
Novel optical glasses are disclosed which possess a positive anomalous partial dispersion and which are resistant to chemical influences, for example from the atmosphere; to such a degree that lenses manufactured from these glasses can be employed as front lenses in optical systems, such as photographic objectives. According to the invention the glasses are melted from a batch composition consisting essentially of:

5–20% by weight of the metaphosphates of the alkaline elements; 50–75% by weight of a constituent selected from a group consisting of the metaphosphates of the alkaline earth elements magnesium, calcium, strontium and barium; 2–15% by weight of titanium dioxide; and 2–15% of the oxide of beryllium.

3,597,246 GLASS COMPOSITION

Robert M. McMarlin, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed Mar. 31, 1967, Ser. No. 627,460
Int. Cl. C03c 3/04, 13/00
U.S. Cl. 106—50 18 Claims
A glass composition is formed from only three constituents—silica, alumina, and beryllia. The fibers formed from said composition, on conventional production equipment, exhibit improved modulus, tensile strength and density over formerly available textile filaments, and show particular utility in reinforcement of plastic laminates where high strength to weight ratios are desired and imperative, for example, in nose cones, rocket motor cases and submarines.

3,597,247 ALUMINA REFRACTORIES

Daniel E. Reardon, Margate, N.J., assignor to Dresser Industries, Inc., Dallas, Tex.
No Drawing. Filed Mar. 3, 1970, Ser. No. 16,241
Int. Cl. C04b 35/10, 35/46, 35/48
U.S. Cl. 106—57 7 Claims
Fired refractory comprising TiO_2 , ZrO_2 and the remainder Al_2O_3 .

3,597,248

NOVEL GUANIDINE SILICATES, COMPOSITIONS AND USES

Paul C. Yates, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Application Mar. 25, 1968, Ser. No. 715,556, now Patent No. 3,475,375, dated Oct. 28, 1969, which is a continuation-in-part of application Ser. No. 648,216, June 23, 1967. Divided and this application Aug. 6, 1969, Ser. No. 871,104

Int. Cl. C04b 19/04; C09d 1/04
U.S. Cl. 106—74

7 Claims

The present invention relates to compositions of matter containing as an essential ingredient, stable, non-crystalline guanidine silicates having a molar ratio of guanidinium ions to silicate ions of from 1.5 to 0.65. These compositions are characterized by the fact that they are amorphous and soluble in water, giving aqueous solutions which may be highly concentrated. The dried or dissolved materials are used as adhesives, binders, and film-forming agents. These guanidine silicates are prepared by bringing together a source of guanidinium ions and colloidal silica under closely controlled reaction conditions. Close process control is necessary to produce the novel amorphous compounds of this invention.

3,597,249

METHOD OF PRODUCING COMPOSITES OF INORGANIC BINDERS AND FIBERS FROM AQUEOUS SLURRIES

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglass Corporation

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,480

Int. Cl. C04b 31/04, 31/08
U.S. Cl. 106—85

13 Claims

An improved method of producing fiber reinforced inorganic cementitious composites from aqueous slurries, as for example light weight insulation materials comprising asbestos fibers bonded together by a calcium silicate crystalline binder. The inorganic cementitious material is first grown upon the fibers and the fibers separated leaving the cementitious material bonded to the surface of the fibers. The cement coating fibers are then mixed into another slurry, with or without additional cementitious materials and/or fibers, and the cement coated fibers used for at least a nucleus for growing binder crystals during the hardening of the cementitious materials of the slurry.

3,597,250

COMPOSITION FOR PRODUCING PEARLESCENT EFFECTS IN COSMETIC PRODUCTS

Robert D. Rands, Jr., and Douglas W. Chapman, Greendale, Mo., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,614

Int. Cl. C09c 1/00
U.S. Cl. 106—291

9 Claims

Bismuth oxychloride is deposited, preferably epitaxially, on thin mica platelets to produce a pearlescent pigment particularly useful in cosmetic products. The pigment is produced by adding a base to an aqueous suspension of mica containing a soluble bismuth salt and an excess of chloride ions to precipitate bismuth oxychloride on the surface of the mica platelets. Preferably a solution of the bismuth and a solution of the base are simultaneously added to the mica suspension at rates such that the suspension always contains an excess of the soluble bismuth

salt. The resulting products are characterized by their low density, ease of suspension, and by the unusual translucency of the pearly effect which they impart to various cosmetic compositions.

3,597,251

CALCIUM CARBONATE PRODUCT

Daniel Kaufman, Grosse Ile, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich.

No Drawing. Filed Nov. 19, 1968, Ser. No. 777,181

Int. Cl. C09c 1/02
U.S. Cl. 106—306

14 Claims

Preparation of an aqueous calcium carbonate slurry characterized by high stability, high solids content, and low viscosity by incorporating in such slurry about 0.05 to 0.5% by weight of either substantially pure zinc oxide or zirconium oxide or mixture of both.

3,597,252

METHOD FOR PRODUCING GLASS COMPOSITIONS

Hubert Schröder, Wiesbaden, and Georg Glemmeroth, Mainz-Mombach, Germany, assignors to JENAer Glaswerk Schott & Gen., Mainz, Germany

No Drawing. Filed May 4, 1967, Ser. No. 637,051

Claims priority, application Germany, May 7, 1966, J 30,783

Int. Cl. C03c 3/04; C03b 1/00
U.S. Cl. 106—52

7 Claims

There are disclosed SiO₂ containing glasses characterized by high melting points and low thermal expansion coefficients and a process for preparing them utilizing temperatures substantially lower than heretofore operable with SiO₂ containing glass compositions. The process involves employing the SiO₂ or another principal component of the glass in the form of a liquid organic compound, as for instance, in the form of its alcoholate. The liquid component or components are mixed together and/or with any non-liquid components, hydrolyzed and gelled. The resulting mass is then subjected to the action of heat to form a completely homogeneous oxidic molded glass body characterized by the aforementioned properties.

3,597,253

PRODUCTION OF FINELY DIVIDED ORGANICALLY MODIFIED WATER INSOLUBLE ALKALINE EARTH METAL AND EARTH METAL SILICATES

Helmuth Beschke, Frankfurt am Main, Hans Pfeiffer, Neu Isenburg, Wilhelm Berndt, Frankfurt am Main, Peter Nauroth, Wesseling Bezirk Cologne, Horst Ferch, Bruchkobel, and Edith Eisenmenger, Offenbach am Main, Germany, assignors to Deutsche Gold- und Silber-Schmelzanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Jan. 17, 1968, Ser. No. 698,410

Claims priority, application Germany, Jan. 17, 1967, D 52,029

Int. Cl. C09c 3/00
U.S. Cl. 106—288B

5 Claims

Production of organically modified finely divided alkaline earth metal and earth metal silicates and silicas by wet precipitation of such silicates and silicas from alkaline metal silicate solutions with aqueous solutions of alkaline

earth metal or earth metal salts or acids, preferably at temperatures between about 10 and 90° C. in the presence of water soluble reactive organic polymeric materials, for instance, polymers containing the reactive amino, hydroxyl, carboxyl, amide or keto groups. The thus obtained modified silicates and silicas can be further modified by effecting reactions with the reactive groups of the bound polymers in the silicates and silicas.

3,597,254

BLUE DYE MIXTURES

Fritz Graser, Ludwigshafen, and Guenther Riedel, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 2, 1968, Ser. No. 764,629
Claims priority, application Germany, Oct. 3, 1967, P 16 44 482.9

Int. Cl. C07c 97/12; C08h 17/66; C101 1/12
U.S. Cl. 106—288Q

3 Claims

Blue dye mixtures which are outstandingly suitable for coloring mineral oils and gasolines and which comprise at least three different 1,4-diaminoanthraquinone derivatives whose amino groups bear hydrocarbon radicals and hydrocarbon radicals containing ether groups as substituents.

3,597,255

CARBON DIOXIDE TREATMENT OF SILICEOUS PIGMENT

Frank E. Toonder, Wadsworth, Ohio, assignor to PPG Industries Inc., Pittsburgh, Pa.

No Drawing. Filed Oct. 2, 1968, Ser. No. 764,619
Int. Cl. C09c 3/00

U.S. Cl. 106—309

20 Claims

The viscosity of aged aqueous slurries of siliceous pigments is maintained at low values by contacting the siliceous pigment with gas containing at least 1 percent carbon dioxide prior to forming the slurry. The carbon dioxide may be introduced to the pigment either as a gas or as a solid.

3,597,256

SUEDE-LIKE SHEET MATERIAL OF AN ACRYLO-NITRILE/BUTADIENE POLYMER CONTAINING AN ADDITIVE

Charles A. Young, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 18, 1968, Ser. No. 737,825
Int. Cl. B44c 1/20, 1/00

U.S. Cl. 117—8

13 Claims

An improved supple, synthetic, microporous vapor permeable suede sheet material of a non-woven synthetic flexible fibrous web that is impregnated with a polymeric binder of butadiene and acrylonitrile and the polymeric binder contains about 0.1-20 parts of additive per 100 parts of binder where the additive is either a hydrocarbon oil or a silicone oil.

3,597,257

METHOD OF COATING ARTICLES WITH A FILM-FORMING MATERIAL

James L. Dunn, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed July 2, 1968, Ser. No. 741,939

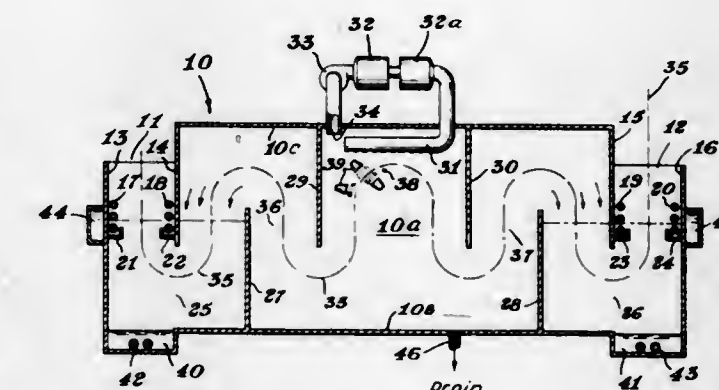
Int. Cl. B44d 1/48

U.S. Cl. 117—47

1 Claim

The present invention concerns a process for coating a surface with a film-forming material dissolved or dispersed in a chlorinated solvent, which comprises (1) raising the temperature of the surface while the surface

passes through a first zone containing the saturated vapors of said solvent, applying said film forming-material in a second zone and removing the solvent from said film by maintaining said surface having said film in said second zone in immediate contact with air or other inert gas having a solvent relative humidity preferably less than 50%, and during which period the surface temperature



is raised above the boiling point of the solvent, introducing the surface into a third zone containing saturated vapors of said solvent and finally withdrawing the surface coated with the film to the ambient atmosphere, withdrawing the solvent laden air from said second zone, removing the solvent therefrom and returning said air to said second zone.

3,597,258

METHOD OF SCREENING A CATHODE-RAY TUBE

Howard G. Lange, Arlington Heights, and Song Whan So, Chicago, Ill., assignors to Zenith Radio Corporation

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,458

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5

4 Claims

The image area or screen of a color cathode-ray tube receives by electrophotographic deposition deposits of various phosphor materials arranged thereover in a regular interlaced pattern. Thereafter, the screen area is recharged to develop an electric field for holding the phosphor deposits in place. Next, a fixer, comprising a carrier liquid and a resinous binder partially in solution and partially in suspension, is applied to the screen. The fixer has a high electrical volume resistivity to the end that the charge on the coated area is retained, causing the electric field to resist the tendency of mechanical forces incident to the application of the fixer to displace the individual phosphor deposits from their assigned positions.

3,597,259

METHOD OF MAKING HIGH RESOLUTION IMAGE DEVICES

Eugene Wainer, Shaker Heights, Ohio, assignor to Horizons Incorporated, a division of Horizons Research Incorporated

No Drawing. Filed May 21, 1969, Ser. No. 826,704

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5C

6 Claims

The preparation of phosphors such as those based on zinc sulfide and/or cadmium sulfide in the form of very fine particles which include not only the sulfide but also the activator and mineralizer required to make this an active material and the deposition of such an active material from a clear solution containing the phosphor, mineralizer and dopant necessary to complete an active material, into the pores of a suitable substrate, thereby producing the essential element for a high resolution information retrieval transducer.

3,597,260

PASSIVATION OF METALS

Marnell A. Segura, Baton Rouge, La., assignor to Esso Research and Engineering Company
No Drawing. Filed Nov. 1, 1966, Ser. No. 591,124
Int. Cl. B44d 1/44; C23f 9/02; B32f 15/08

U.S. Cl. 117—62.2 10 Claims
A process for passivating chemically active ferrous metals, especially powdered metals and porous, compacted forms of metals as resultant from direct iron ore reduction processes. The exterior surface of the metal, or metal substrate, is contacted with a liquid containing specific types of dimetallo substituted organo silane diols to form films. The films are then cured by reaction with moisture and carbon dioxide. The resinous material which is formed, of specified character, is impervious to moisture, corrosive gases, fumes and impurities.

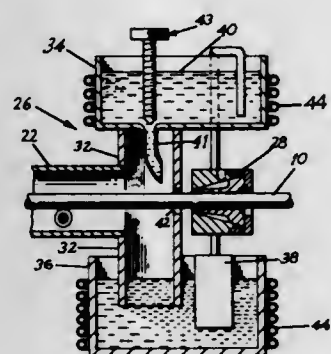
3,597,261

METHOD OF COATING COPPER PLATED STRANDS WITH ZINC

Kenneth G. Coburn, Middletown, Ohio, Ralph E. Evans, Denver, Colo., and Marvin B. Pierson, Middletown, Ohio, assignors to Aranco Steel Corporation, Middletown, Ohio

Continuation-in-part of application Ser. No. 616,680, Feb. 16, 1967. This application Dec. 12, 1968, Ser. No. 783,266

Int. Cl. B05c 11/06; C23c 1/02
U.S. Cl. 117—71 3 Claims



A method and apparatus for continuously applying a molten coating metal to a strand-like article. The method includes the steps of cleaning the surface of the strand and preparing it to receive the molten metal, and then supplying an excess of molten metal to the moving strand. The apparatus has a coating chamber through which the strand passes in a horizontal direction. The chamber has substantially un-restricted entry and exit openings, and includes a reservoir and passage means for supplying an excess of the coating metal to the moving strand.

3,597,262

PRODUCTION OF WOOD-SYNTHETIC RESIN COMBINATIONS

Erich Bader, Hanau, and Hubert Koert, Gross-Auhelm, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed June 18, 1968, Ser. No. 737,820
Claims priority, application Germany, June 20, 1967, D 53,378

Int. Cl. B27k 3/00; B44d 1/14, 1/26
U.S. Cl. 117—73 6 Claims
In the production of wood-synthetic resin combinations by impregnation of wood with a liquid polymerizable composition and curing the polymerizable composition taken up by the wood, the impregnated wood is coated prior to curing with an aqueous or alcoholic solution of a film forming substance having hydrophilic groups and which substance is insoluble in the impregnating composition.

3,597,263

WATER LEAK DETECTORS

Allan R. Bancroft and Allan H. Dombra, Deep River, Ontario, Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
No Drawing. Filed July 21, 1967, Ser. No. 654,986
Claims priority, application Canada, July 29, 1966, 966,739

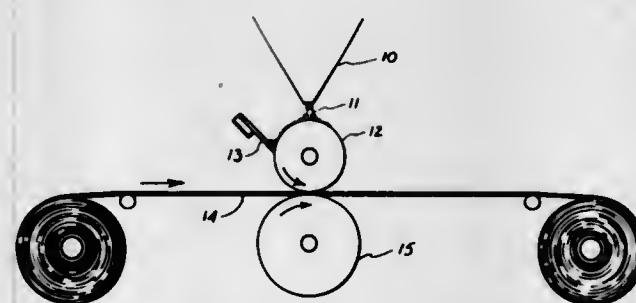
Int. Cl. G01m 3/04
U.S. Cl. 117—94 35 Claims
Water leaks from containers or conduits are detected by chemical indicators. These may accumulate water at the leak source to give a clearly discernible colour change. Such indicator may be provided in the form of a non-corrosive easily removable paint or a non-corrosive adhesive tape with or without a protective transparent cover so as to facilitate direct application to a metal surface. The indicator can comprise (a) a carrier and a strontium chromate/silver sulphate couple as the active indicator, or (b) a carrier and a potassium ferrocyanide/ferric sulphate-inert brightener couple as the active indicator, or (c) a carrier and a potassium ferrocyanide/cupric sulphate-inert brightener couple as the active indicator. There may also be present an adhesive component, a fugitive dispersing component and a water miscibility improving component.

3,597,264

REMOISTENABLE HOT MELT ADHESIVE ARTICLES

Julius Sirota, South Plainfield, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 620,709, Mar. 6, 1967. This application Feb. 2, 1970, Ser. No. 7,508

Int. Cl. C09j 7/04
U.S. Cl. 117—122S 3 Claims



Flexible web substrates coated on at least one surface, or part thereof, with a remoistenable hot melt adhesive composition containing as the primary ingredient thereof, polyvinyl acetate which has been hydrolyzed by means of an acid hydrolysis technique to the extent that from about 50 to 85% of its original number of acetate groups are converted into hydroxyl groups. Remoistenable hot melt adhesives containing the latter hydrolysis products are ideally suited for use in the manufacture of envelopes, stamps, gummed tapes and wallpaper, etc.

3,597,265

FIBER LUBRICANTS

Kenneth T. Mecklenborg and Kenneth H. Pettengill, Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio

No Drawing. Filed May 6, 1968, Ser. No. 727,028
Int. Cl. C03c 25/02

U.S. Cl. 117—126GR 2 Claims
Fiber lubricants which comprise partially amidated polyalkylenimines are provided. Exemplary of the lubricant compounds disclosed is the reaction product of a mixture of C₂ to about C₁₈ fatty acids with a polyethylenimine having a molecular weight of about 1200. The reaction product has a residual amine value of from about 300 to 400.

3,597,266

ELECTROLESS NICKEL PLATING

Gary Leibowitz, Woodbridge, and Richard L. Mullaney, Jr., Bristol, Conn., assignors to Enthone, Incorporated, West Haven, Conn.
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,865
Int. Cl. B44d 1/14, 1/092

U.S. Cl. 117—130E 2 Claims
High stability, autocatalytic electroless nickel plating bath comprising an aqueous solution containing about 0.08–0.16 mole/liter nickel ions, about 0.19–0.38 mole/liter hypophosphite ions, and essentially about 0.35–3.68 mole/liter ammonium ions, about 0.09–1.07 mole/liter acetate ions and about 0.007–0.14 mole/liter citrate ions, the solution having a pH in the range of about 7.0 to about 9.5. The ammonium ions complex palladium ions introduced into the plating bath by "drag out" from the activator solution to form a soluble ammonium-palladium complex, which inhibits reduction of palladium ions to zero valent catalytic palladium by the hypophosphite of the bath. By the removal of potential catalyst sites from the bath or by rendering the potential sites relatively catalytically inactive, random deposition of the nickel and premature loss of the bath is avoided.

3,597,267

BATH AND PROCESS FOR CHEMICAL METAL PLATING

Glenn O. Mallory, Jr., Inglewood, and Donald W. Baudrand, Temple City, Calif., assignors to Allied Research Products, Inc.

No Drawing. Continuation-in-part of application Ser. No. 468,921, July 1, 1965, and a continuation of application Ser. No. 661,218, Aug. 17, 1967. This application Feb. 26, 1969, Ser. No. 804,369
Int. Cl. C23c 3/02

U.S. Cl. 117—130 2 Claims
A bath and process for the electroless (chemical) plating of nickel, cobalt, iron and chromium on other materials such as metals and plastics. The bath utilizes a reducing agent to which is added a nickel, cobalt, iron or chromium coordination compound as the source of the plating metal. Other constituents also normally added to the bath are complexing agents and buffering agents. Utilization of metal-coordination compounds as the starting plating material source greatly enhances the operating characteristics of the bath and makes possible the plating of materials heretofore not susceptible to electroless plating.

3,597,268

METHOD OF IMPARTING SOIL RESISTANCE TO SYNTHETIC TEXTILE MATERIALS AND THE RESULTING MATERIALS

Thomas L. Smith, Cary, N.C., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Aug. 13, 1969, Ser. No. 849,922
Int. Cl. B32b 27/02; D06m 15/66

U.S. Cl. 117—138.8 8 Claims
Fibers and fabrics based on polypropylene are given improved resistance to deposition of oily soil during laundering by addition to the surface thereof a partially crosslinked reaction product of a specified poly(aminosiloxane) and a polyfunctional carboxylic acid.

3,597,269

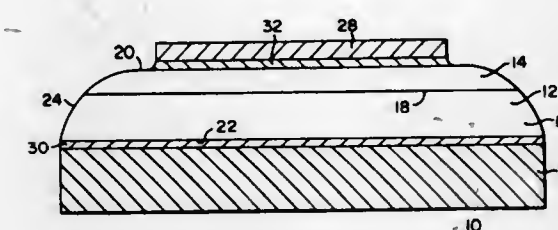
SURFACE STABILIZATION OF SEMICONDUCTOR POWER DEVICES AND ARTICLE

Hung C. Chang, Monroeville, and John W. Ostroski, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1969, Ser. No. 862,418
Int. Cl. B44d 1/18; H01l 3/00

U.S. Cl. 117—213 12 Claims
Exposed surfaces of a body of semiconductor material having a portion of a PN junction exposed therein are

etched and then cleaned with either a solution of iodine or a solution of iodine and iodine pentoxide. Immediately prior to depositing a dielectric film of silicon dioxide-silicon nitride to overlie the cleaned exposed PN junctions,



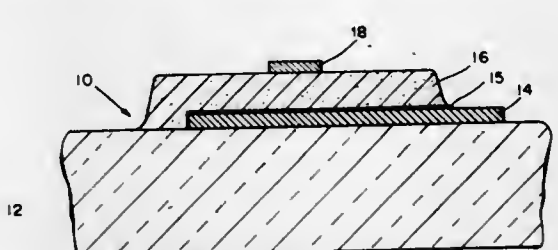
adsorbed iodine is removed from the body by hydrogen gas. A resinous protective coating material is applied to the dielectric film to afford mechanical and electrical protection.

3,597,270

INVERTED SOLID STATE DIODE

John A. Scott-Monck, Redondo Beach, and Arthur J. Learn, West Concord, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Aug. 15, 1968, Ser. No. 752,939
Int. Cl. B44d 1/18; C23c 13/04
U.S. Cl. 117—217 8 Claims



This invention relates to a method of producing an inverted thin film solid state device, i.e., a solid state device in which a semiconductive film is deposited on a high work functional metal. The inverted solid state device is produced by applying a film of high work function metal to a surface and then cooling the metal below room temperature while a thin film of sulfur is deposited on the surface of the metal. A thin layer of cadmium sulfide is deposited on the sulfur to prevent evaporation, the temperature is raised, and the deposition of the cadmium sulfide is completed. Deposition of a thin film of low work function metal on the cadmium sulfide completes the inverted solid state device.

3,597,271

METHOD OF PRODUCING AIR STABLE ALKALINE-EARTH METAL OXIDE WHILE AVOIDING EUTECTIC MELTING

John M. Cawley, Oakhurst, Robert G. Young, Nutley, and Albert W. Walno, Livingston, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

No Drawing. Filed July 9, 1969, Ser. No. 840,453
Int. Cl. B44d 1/02; C23c; C23d

U.S. Cl. 117—224 7 Claims
The method of producing air stabilized alkaline-earth metal oxide emission material by means of a two-step heating process of mixed alkaline-earth metal carbonate, by which the eutectic melting stage of the carbonate-oxide mixture is avoided. Alkaline-earth metal carbonate is heated to a temperature which is below the eutectic melting temperature for alkaline-earth carbonate-oxide mixtures. The heating is continued until all of the alkaline-earth metal carbonate is converted to alkaline earth metal oxide. The alkaline-earth metal oxide is then heated from about 1300° C. to about 1750° C. for a predetermined time to render the oxide air stable.

3,597,272 ELECTROPHOTOGRAPHIC ELEMENT AND PROCESS

Eugene P. Gramza and Frederick A. Stahly, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,386
Int. Cl. B44c 1/00; G03g 5/00

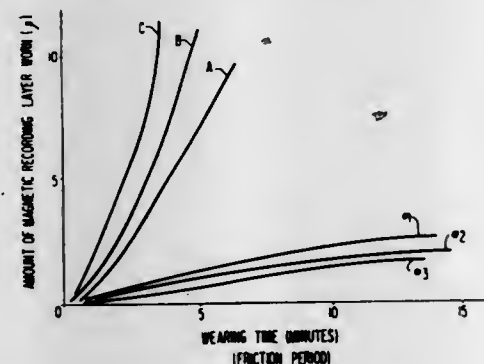
U.S. Cl. 117-218 6 Claims
An imbibition procedure is disclosed as a means for forming an electrically conductive layer on a suitable support. The conductive layer is formed by imbibing a binder-free solution of volatile solvent and a metal-containing semiconductor into an electrically insulating polymeric subcoating carried on a support and evaporating the solvent. The conductive layers are useful in electrophotographic elements.

3,597,273 MAGNETIC RECORDING MEDIUM

Goro Akashi and Yasuyuki Yamada, Odawara-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 12, 1969, Ser. No. 798,642
Claims priority, application Japan, Feb. 12, 1968, 43/8,705

Int. Cl. H01f 10/02 4 Claims
U.S. Cl. 117-235

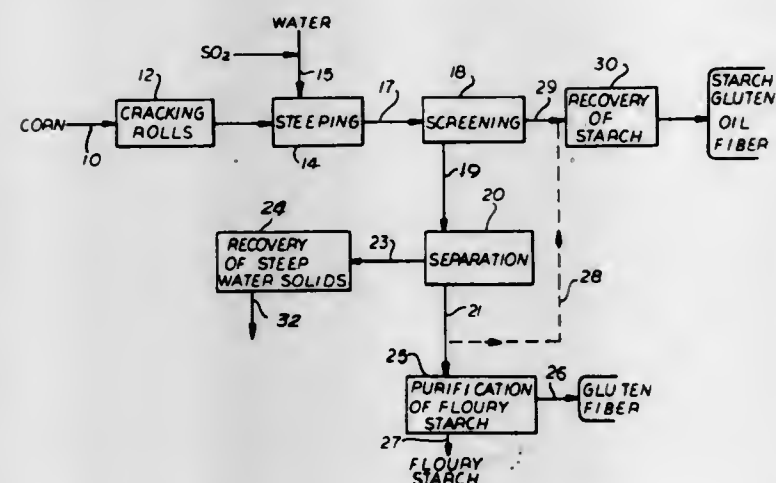


In a magnetic recording medium, there is provided a magnetizable layer comprising magnetizable particles dispersed in a binder, said binder comprising a copolymer of vinyl chloride and vinyl acetate, an epoxy resin and a polyisocyanate.

3,597,274 STARCH MANUFACTURE FROM CORN

Donald Lee Gillenwater, Gerald Bernard Pfundstein, and Allen Ross Harvey, Muscatine, Iowa, assignors to Grain Processing Corporation, Muscatine, Iowa

Filed Mar. 2, 1970, Ser. No. 15,571
Int. Cl. C131 1/02 5 Claims
U.S. Cl. 127-68



Starch is manufactured from corn by a process wherein corn kernels are first subject to cracking so as to fracture

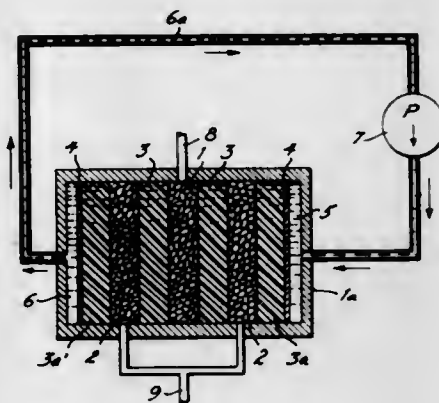
the hulls, the cracked corn is then steeped in an aqueous sulfur dioxide solution, a floury starch product is then separated from the steeped slurry, and further starch is recovered from the steeped material from which the said floury starch product has been removed.

3,597,275 PROCESS OF OPERATING FUEL CELL

August Winsel and Ralf Wendtland, Kelkheim, Taunus, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin and Erlangen, and Varta Aktiengesellschaft, Hagen, Westphalia, Germany

Filed July 13, 1966, Ser. No. 564,938
Claims priority, application Germany, July 15, 1965, S 98,219; Nov. 26, 1965, S 100,613; Dec. 10, 1965, S 100,880

Int. Cl. H01m 27/00 7 Claims
U.S. Cl. 136-86



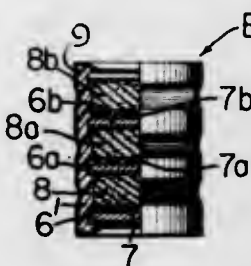
An electrolysis or fuel cell which includes a plurality of porous electrochemical reactive electrodes positioned alternately with porous electrically non-conductive diaphragms; the pores of the diaphragms at the faces adjoining the electrodes have a median radius smaller than that of the pores at the faces of the electrodes. A special electrode for use in a fuel cell battery is also disclosed as well as a process for the operation of the electrolysis or fuel cell. The fuel or electrolysis cell does not require separate gas chambers for each cell of the gases.

3,597,276 BATTERIES WITH FLAT CELLS

Jean Firmin Jammet, Poltiers, France, assignor to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France

Filed Dec. 26, 1968, Ser. No. 786,989
Claims priority, application France, Dec. 28, 1967, 134,172

Int. Cl. H01m 21/00 4 Claims
U.S. Cl. 136-111



Electrochemical generators or batteries using stacked so-called flat cells in a tubular main sheath whose inner profile is shaped to maintain the cells of the stack and components in place and to insure intercell sealing are

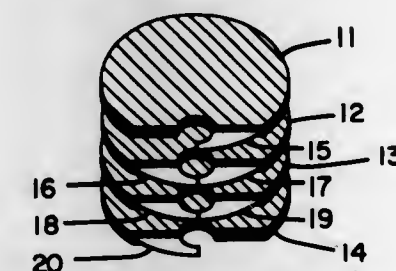
disclosed. The tubular sheath in turn is covered by an extensible second or outer sheath of plastic material which first is stretched to permit mounting in it of the main sheath and then allowed to contract. This effects application of compressive forces to the first sheath and its stacked cells, both laterally and axially. As a further feature, the outer plastic sheath is further treated prior to insertion into it of the main sheath to cause its subsequent further shrinkage as by application thereto of an appropriate solvent serving as a deplastifying agent which, upon evaporation creates the further shrinkage. The compression effect on the inner sheath and contents of the contraction of the outer plastic sheath as a result of release of stretch and its further contractive shrinkage as a result of evaporation of solvent is distributed uniformly providing more certain and regular insulation and internal sealing of the cells of the stack in the main tubular sheath.

3,597,277 ELECTRODE SET FOR GALVANIC CELLS

Siegfried Dickfeldt, Berliner Str. 70, Hagen, Germany, and Karl Steffens, Vaehele Muehlenbrinkstr. 34, Hagen-Vorhalle, Germany

Continuation-in-part of application Ser. No. 665,039, Sept. 1, 1967. This application Oct. 8, 1969, Ser. No. 864,718

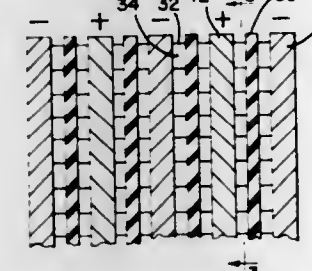
Int. Cl. H01m 5/00 4 Claims
U.S. Cl. 136-1134R



The flat-plate like electrodes in a battery, and particularly those in alkaline button cells, are formed in sets with plates having identical geometry and being stacked above one another and the interconnection between adjacent electrode plates of the same set being made within the confines of the structure defined by the stack of plates. Two sets of opposite polarity electrodes made in this fashion can be meshed together with suitable separator and electrolyte material in between to form a completed battery.

3,597,278 ELECTROLYTIC CELL COMPRISING MEANS FOR CREATING A MAGNETIC FIELD WITHIN THE CELL

Joe W. Von Brimer, 3177 S. Highland Drive, Las Vegas, Nev. 89102
Filed Nov. 15, 1968, Ser. No. 776,120
Int. Cl. H01m 11/00, 15/00 8 Claims
U.S. Cl. 136-136

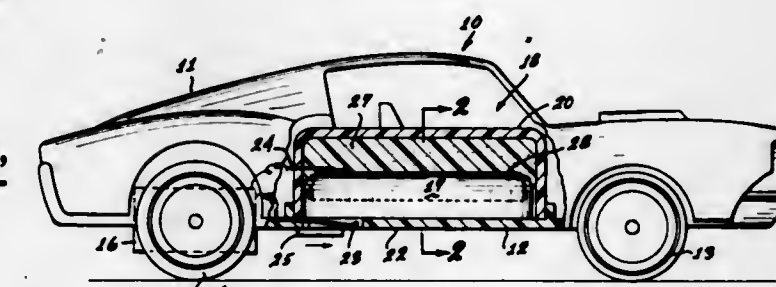


An electrolytic cell comprising a positive electrode and a negative electrode, an electrolyte in association with said electrodes, and means for creating a magnetic field

within the cell for circulating the electrolyte when current is flowing between the electrodes. One disclosed form includes permanent magnets extending between the plates forming the cell electrodes, to establish lines of flux extending generally parallel to the plates and serving to maintain the plates in a spaced apart relation.

3,597,279 TOY WITH BATTERY HOLDER

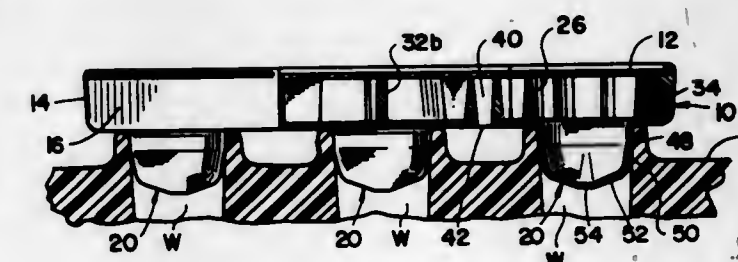
Harvey W. La Branche, Palos Verdes Peninsula, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Mar. 24, 1969, Ser. No. 809,855
Int. Cl. H01m 1/04 8 Claims
U.S. Cl. 136-173



In an electric toy, game, novelty or amusement device utilizing a miniature self-contained rechargeable or extended life battery or cell as its source of power, an energy absorbing material is disposed adjacent to the battery or cell to prevent damage to the device or access to the electrolyte in the event of a swelling or separating of the battery or cell.

3,597,280 MULTIPLE VENT PLUG ASSEMBLY

Roy Erving Hennen, Mequon, Wis., assignor to Globe-Union Inc., Milwaukee, Wis.
Filed Aug. 29, 1968, Ser. No. 756,129
Int. Cl. H01m 1/06 10 Claims
U.S. Cl. 136-177

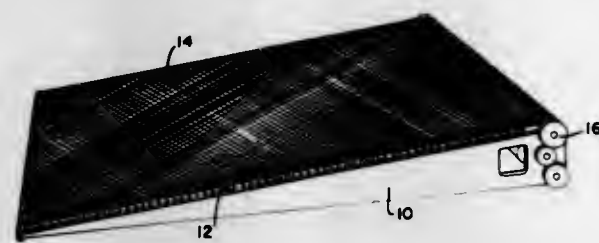


A multiple vent plug assembly for electrical storage batteries which includes a body composed of a base, preferably an integral, unitary structure, having peripheral walls and a cover with lateral partitions inside the body dividing it into a plurality of separate chambers. A plurality of hollow vent plugs, located on the bottom of the base and each provided with a vent opening into the battery cell, open into the chambers. Each chamber is provided with an outlet for venting to atmosphere through the base. The internal construction of the chamber and configuration of the vent outlet are such that the flow of gases passing upward through the vent plugs, through the chambers and out through the vent outlets is sufficiently obstructed to prevent the inadvertent discharge of the electrolyte to atmosphere and the leakage of liquid electrolyte through the outlets when the battery is partially tipped or completely inverted.

3,597,281
RECOVERY OF RADIATION DAMAGED SOLAR CELLS THROUGH THERMAL ANNEALING
 James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Pao-Hsien Fang, Washington, D.C., and George Meszaros and William G. Gdula, Glenn Dale, Md.
 Original application Oct. 21, 1966, Ser. No. 588,634.
 Divided and this application May 2, 1969, Ser. No. 843,251

Int. Cl. H01v 1/00
 U.S. Cl. 136—206

2 Claims

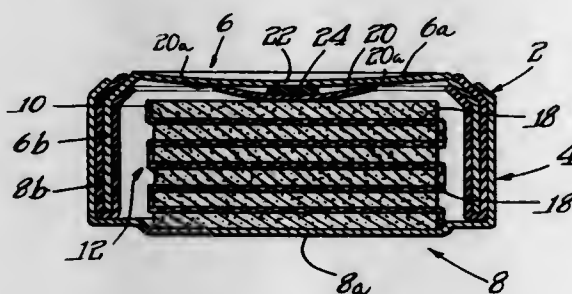


Apparatus for use onboard spacecraft to thermally anneal defects from solar cells. In one embodiment the "greenhouse effect" is employed to heat the cells to the desired annealing temperatures.

3,597,282
RECHARGEABLE SEALED SECONDARY BATTERY OF THE BUTTON TYPE
 Vincent P. Farley, Jr., Nixon, N.J., assignor to Gulton Industries, Inc., Metuchen, N.J.
 Filed July 9, 1969, Ser. No. 840,153
 Int. Cl. H01m 1/06

U.S. Cl. 136—178

5 Claims



A rechargeable button type battery formed by two casing halves insulated one from the other with a battery plate assembly positioned between the casing halves. A gas vent is provided through one of the preferably outwardly flexible portions of one of the casing halves. A sealing member is positioned in the casing and overlying the gas vent to seal off the vent during normal operation of the battery. A spring carries said sealing member and applies mechanical pressure against the battery plate assembly forcing the same against the other casing half. When the battery is overcharged, gases generated within the battery casing exert force on the inner surface of the flexible casing half to expand the same away from the sealing member to vent the casing.

3,597,283
PHOSPHATING SOLUTIONS FOR USE ON FERROUS METAL AND ZINC SURFACES
 Charles T. Snee, Willoughby, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
 No Drawing. Filed Oct. 8, 1969, Ser. No. 864,875
 Int. Cl. C23f 7/10

U.S. Cl. 148—6.15Z

16 Claims

Aqueous phosphating solutions containing phosphate ion, zinc ion, nickel, cobalt or copper ion, magnesium ion, nitrite ion and one or both of fluoride and chloride ions are useful for producing microcrystalline phosphate coatings on both ferrous metal and zinc (e.g.,

galvanized) surfaces, especially when their use is preceded by a titanium phosphate treatment. The resulting coatings improve adhesion of siccative organic coatings to the metal.

3,597,284
METHOD FOR OPERATING CHEMICAL PROCESSING SOLUTIONS
 James F. Leland, Detroit, William S. Russell, Warren, and James G. Mabarak, Grosse Pointe, Mich., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
 Filed July 3, 1967, Ser. No. 650,844
 The portion of the term of the patent subsequent to Dec. 2, 1986, has been disclaimed
 Int. Cl. C23c 1/10; C23f 7/00

U.S. Cl. 148—6.16

5 Claims

A process for maintaining the optimum concentrations of coating and accelerating components in a metal treating bath wherein variations in the chemical consumption of these components is determined by measuring the coating rate of the treating solutions and then adjusting the addition of a replenishing material to compensate for changes in the chemical consumption of the coating and accelerating components. The coating rate is measured in a separate coating cell using a test specimen and the rate at which coating of the test specimen is effected is correlated to the actual rate at which coating of the metal surface being treated is effected. In this manner, destructive testing of the actual metal surfaces being treated is eliminated. The coating rate cell used is a box-like structure having means for positioning the test specimen within the cell. Means are provided for introducing the coating solution into the cell and distributing it so as to obtain a substantially uniform solution flow over the surfaces of the test specimen.

3,597,285
FLUX FOR USE IN SOLDERING OF STAINLESS STEELS

Lester Aronberg, Chicago, Ill., assignor to Lake Chemical Co., Chicago, Ill.

No Drawing. Filed May 2, 1969, Ser. No. 821,482
 Int. Cl. C23c 1/12

U.S. Cl. 148—26

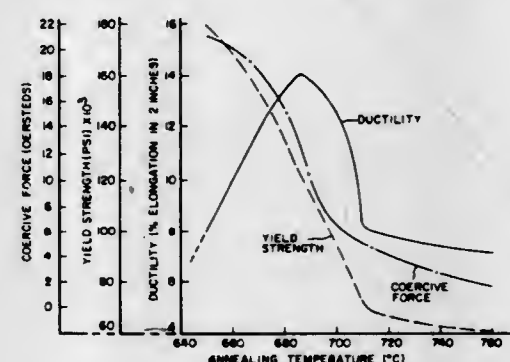
16 Claims

Fluxes for use in soldering stainless steels comprising compositions containing a major proportion of orthophosphoric acid and a minor proportion of (a) finely divided metallic copper, or (b) a copper salt, such as copper phosphate, which is soluble in orthophosphoric acid, advantageously in admixture with various supplemental materials.

3,597,286
METHOD OF TREATING A HIGH STRENGTH HIGH DUCTILITY IRON-COBALT ALLOY
 Donald R. Thornburg, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Feb. 23, 1968, Ser. No. 707,775
 Int. Cl. H01f 1/16

U.S. Cl. 148—120

7 Claims



Cold rolled iron-cobalt-vanadium soft magnetic alloy strip is annealed under carefully controlled conditions

to produce a partially recrystallized grain structure; the alloy strip then having good strength and high ductility coupled with good magnetic properties as evidenced by a magnetic induction (B_{250}) of more than 22,000 gauss.

3,597,287
LOW CAPACITANCE FIELD EFFECT TRANSISTOR
 Ronald L. Koepp, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.
 Original application Nov. 16, 1965, Ser. No. 508,027, now Patent No. 3,443,172, dated May 6, 1969. Divided and this application Aug. 27, 1968, Ser. No. 775,215
 Int. Cl. H01l 7/34

U.S. Cl. 148—187

14 Claims

A method of making a field effect transistor by

- removing a portion of material from a first type conductivity semiconductor substrate to form a continuous groove in the first surface of the substrate,
- diffusing an impurity into the first surface at selected areas to form, beneath and extending to the surface, an opposite type conductivity region of desired thickness contiguous with the surface of the groove and extending in a channel configuration across the surface area surrounded by the groove,
- forming a layer of silicon dioxide on the first surface extending down into said groove and forming a thick layer of structural material over the silicon dioxide layer,
- removing portions of the semiconductor material to form a second surface having a plane which intersects the silicon dioxide layer at the bottom of the groove,
- diffusing an impurity into the second surface at selected areas thereof to form an opposite conductivity channel extending parallel to the first channel configuration and terminating on both ends at the positions where the plane of the second surface intersects the silicon dioxide layer.

3,597,288
EXPLOSIVE CONTAINING NITROCELLULOSE COATED WITH AN ALKYLATED DIPHENYL AMINE AND PREPARATION THEREOF
 Frederic C. Merriam, Danvers, Mass., assignor to USM Corporation, Boston, Mass.
 No Drawing. Filed May 15, 1969, Ser. No. 825,033
 Int. Cl. C06b 19/02

U.S. Cl. 149—11

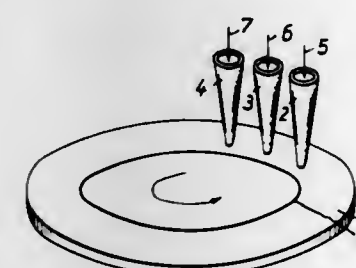
11 Claims

Nitrocellulose explosive charges are provided with improved moisture resistance by treatment with an alkylated diphenyl amine.

3,597,289
METHOD OF ETCHING A SEMICONDUCTOR BODY
 Günter Köhl, Königstein, Taunus, and Werner Heldrich, Frankfurt am Main, Sossenheim, Germany, assignors to Licentia Patent-Verwaltungs G.m.b.H., Frankfurt am Main, Germany
 Filed Jan. 19, 1967, Ser. No. 610,375
 Int. Cl. H01l 7/50; C23f 17/00

U.S. Cl. 156—17

7 Claims



A semiconductor body is etched by applying a continuous stream of etching fluid, a continuous stream of rins-

ing fluid, and a continuous stream of gas to the semiconductor body from three spaced nozzles while the semiconductor body is repeatedly moved past the nozzles.

3,597,290
METHOD FOR CHEMICALLY DISSOLVING METAL
 Akira Naito, Tokyo, Yukiya Masuda, Urawa-shi, Shigeo Osawa, Tokyo, Ryoza Kato, Iruma-gun, Saitama-ken, and Kazuo Motegi, Tokyo, Japan, assignors to Mitsubishi Edogawa Kagaku Kabushiki Kaisha, Tokyo, Japan
 No Drawing. Filed Mar. 25, 1968, Ser. No. 715,580
 Int. Cl. C23f 1/02; H05k 3/06; C09k 3/00

U.S. Cl. 156—18

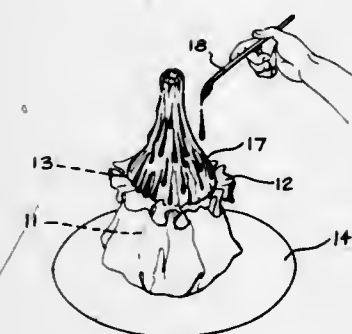
6 Claims

The present invention provides a new and improved method for chemically dissolving metal, especially, copper. According to the invention, a solution containing acid, hydrogen peroxide and saturated lower aliphatic alcohol is used for dissolving metal, especially copper. Moreover, if either or both of a catalytic amount of a metal ion, which has lower oxidation potential than that of copper, and a nitrogen compound comprising a bonding group to metal is added to said solution, the present invention is more effectively performed.

3,597,291
DECORATING PROCESS
 Jean S. Swearingen, Rte. 2, Box 445B, Fayetteville, N.C. 28301
 Filed Sept. 22, 1967, Ser. No. 669,757
 Int. Cl. F23d 3/16

U.S. Cl. 156—172

4 Claims



In abstract, a preferred embodiment of this invention is a method of decorating bottles, jars, lamps and similar articles with a coating resembling dripped candle wax. The method includes the brushing on of a base coat of melted wax followed by the dripping of a multiplicity of melted colored waxes to give the desired effect.

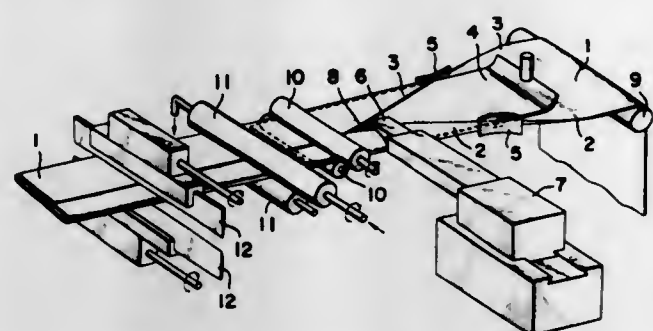
3,597,292
PROCESS FOR EFFECTING A BOND BETWEEN SYNTHETIC RESIN FIBER FABRICS AND AN APPARATUS THEREFOR
 Shigekazu Takeda, Tokyo, Japan, assignor of a fractional part interest to Iwao Niwa, Kanagawa-ken, Japan
 Filed June 28, 1967, Ser. No. 649,556
 Claims priority, application Japan, July 4, 1966, 41/43,431; Sept. 8, 1966, 41/59,594
 Int. Cl. B29d 23/10

U.S. Cl. 156—203

6 Claims

A process for binding the opposing brim portions of a thermoplastic resin fiber fabric to make the fabric into a cylindrical one which will subsequently be used mainly for the preparation of bags therefrom, or the brim portions of two or more of the fabrics to make a single larger fabric of the original ones, characterized in that the bonding is effected by using as a binder the same resin in a

molten state as the fabric and the assembly is immediately cooled, while pressing the brim positions together. The

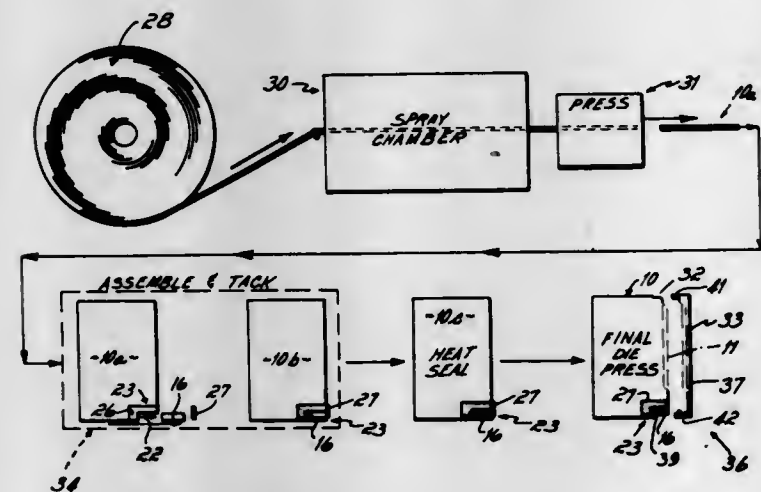


apparatus comprises feed means for the molten binder, cooling means and means for pressing the brim portions together.

3,597,293
METHOD OF MAKING LAMINATED MOLDED RESINOUS PRINTING PLATES
John A. Willett, Wellesley, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Continuation-in-part of application Ser. No. 573,636, Aug. 19, 1966. This application Oct. 8, 1969, Ser. No. 864,857
Int. Cl. B29c 19/00

U.S. Cl. 156-245 3 Claims
Printing plates exhibiting minimal thermal shrinkage are made by molding a laminar printing plate blank against a matrix. The working face (the top lamination) contains carbon black or a conductive substance, and is substantially thinner than the supporting lamination usually formed of the same resin but containing no conductive substance. Molding preferably takes place in a chamber at reduced atmospheric pressure. Heating is accomplished by high frequency electric current. Since only the face can be heated in the dielectric field and the thicker base remains cool, shrinkage is greatly reduced.

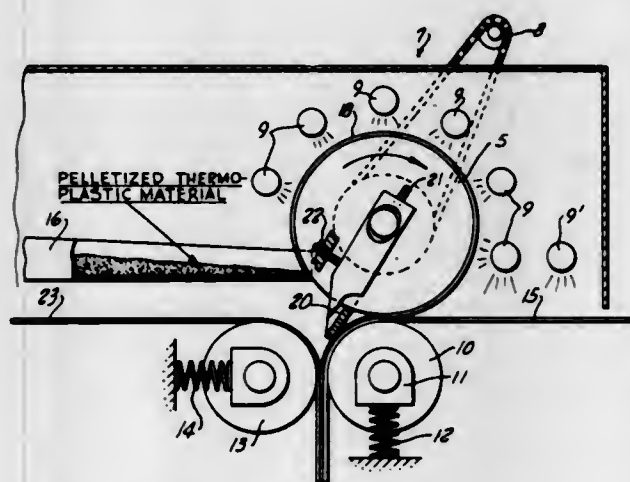
3,597,294
METHOD OF CARD MANUFACTURE
Daniel J. Bandenburg and Paul A. Robert, Cincinnati, Ohio, assignors to OK Partnership, Cincinnati, Ohio
Filed May 19, 1969, Ser. No. 825,545
Int. Cl. B32b 31/00
U.S. Cl. 156-267 14 Claims



The method of manufacturing edge notchable cards having ferromagnetic implants for use in automatic data retrieval apparatus. The cards are first died out to form a generally rectangular card blank having a notched out corner with two coined bands along its edges. A ferromagnetic chip is inserted in the notch and is tacked in place by a loop of heat sealable tape which partially covers the chip and lies in the coined areas. The tape is

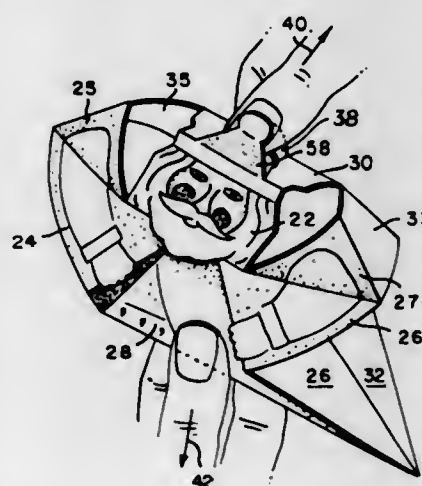
then heat sealed to firmly bond it to the chip and card. The card is then died again with a portion of the chip, front card edge and rear card edge being removed and the entire coding edge formed including spaced teeth and a locking notch. The coding edge of the card is then impregnated with a polyester resin.

3,597,295
MACHINE FOR COATING TRAVELING SUBSTRATE WITH THERMOPLASTIC MATERIAL
David A. Tenquist and Vernon K. Quarve, Minneapolis, Minn., assignors to Possis Machine Corporation, Minneapolis, Minn.
Filed Feb. 3, 1969, Ser. No. 795,885
Int. Cl. B29b 3/02
U.S. Cl. 156-501 2 Claims



A heated drum constrained to rotate about a horizontal axis has thermoplastic material in the solid state fed to an upwardly traveling portion of its surface, whereupon the thermoplastic material is converted into a hot melt which adheres to the drum surface. A roller below the drum supports a substrate web and presses the same against the coated underside of the drum just ahead of a scraper blade which removes the material from the drum. A second roller presses a backing sheet against the freshly coated substrate as the latter travels over its supporting roller.

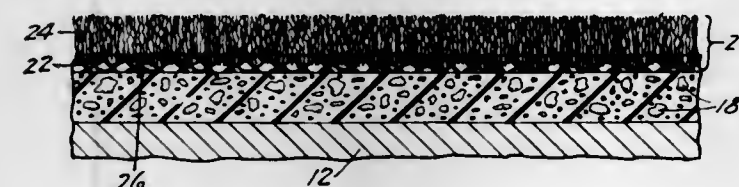
3,597,296
COLLAPSIBLE DECORATIVE PUPPET
Harold Lewis, 125 McClenaghan Mill Road, Wynnewood, Pa. 19096
Filed June 15, 1967, Ser. No. 646,391
Int. Cl. A63h 3/08, 3/10
U.S. Cl. 161-14 6 Claims



A decorative puppet having a collapsible front and rear panel. The panels are connected together so that the puppet has a pair of stable positions. The front panel also

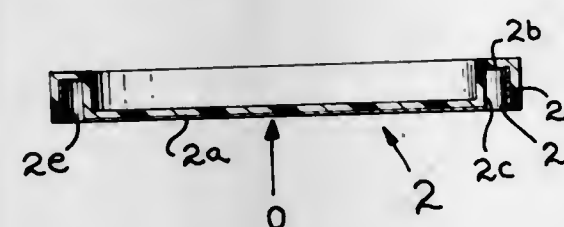
includes portions which are covered in a first of the stable positions. The puppet is elevated in height when placed in the other of the stable positions. The covered portions are exposed when the puppet is in the elevated position.

3,597,297
SYNTHETIC TURF MATERIAL AND METHOD OF MAKING SAME
Theodore Buchholtz, Maplewood Village, Timothy B. Jensen, Richfield, and William H. Penney, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed June 25, 1968, Ser. No. 739,788
Int. Cl. A41g 1/00
U.S. Cl. 161-21 10 Claims



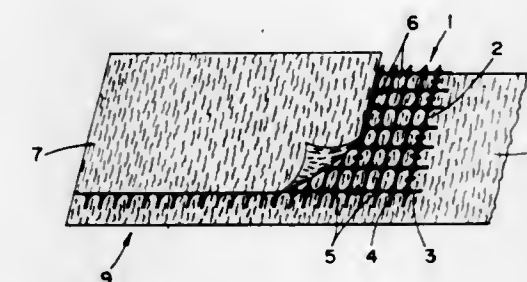
Turf-like surfacing formed from soft elastomeric base layer adhered to rigid substrate formed from 100% solids polyurethane having Shore A2 hardness of between 5 and 404 and containing 15 to 75% by volume of voids, the major portion of which are in the 1/16 to 1/4 diameter range and top surface of tough pile fabric adhered by means of adhesive which penetrates the back of said fabric and embeds the lower portion of the fibers therein, the base layer providing both viscous and elastic response to compression and being capable of slow recovery from indentation over a 2- to 20-second period.

3,597,298
THERMOFORMED PLASTIC CLOSURE AND METHOD OF MAKING SAME
Edward J. Stengle, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed May 13, 1968, Ser. No. 728,454
Int. Cl. B37b 1/04
U.S. Cl. 161-42 13 Claims



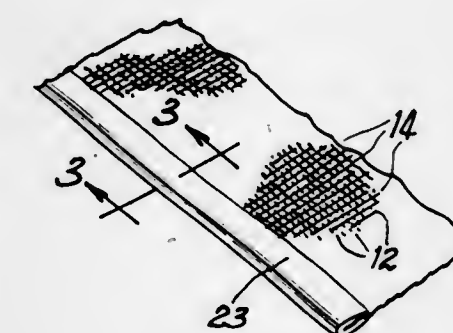
This invention relates to an improved closure for glass, paper, or plastic containers which can be economically produced by thermoforming operations upon a sheet of thermoplastic material. In accordance with the method of this invention, an annular band or film of an adhesive-forming material is applied to an annular surface of a thermoforming mold. The application of a thermoplastic sheet to the thermoforming mold concurrently results in the formation of the desired closure configuration and the transfer of the annular band of adhesive-forming material to the finished closure.

3,597,299
DISPOSABLE WASHCLOTH
Gordon D. Thomas and Jerome L. Schworer, Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed July 3, 1968, Ser. No. 742,306
Int. Cl. B32b 23/02
U.S. Cl. 161-57 7 Claims



A disposable washcloth having utility as a facecloth and characterized by a plurality of desirable physical properties for body washing including a degree of surface roughness. The roughness is occasioned by a structure which includes a scrim having creped threads bonded over their length between and to creped cellulose wadding layers; the creped threads of the scrim carry a thermoplastic adhesive and in the product such adhesive is present to some extent in the wadding layers as relatively rigid nuggets, protuberances or the like aiding in crepe retention and imparting to the outer cellulose layers the rugosity or roughness desired. The process of formation includes hot, and preferably dry, creping the composite of cellulose layers and adhesively treated scrim to provide a fine crepe in the product as a whole. This crepe is retained by the set thermoplastic adhesive at temperatures common to washcloth use.

3,597,300
ELASTIC FABRIC
Samuel E. Miller, Wilmette, Ill., assignor to Quick Service Textiles, Inc., Chicago, Ill.
Filed Nov. 21, 1968, Ser. No. 777,678
Int. Cl. D03d 15/08
U.S. Cl. 161-77 1 Claim



Longitudinally stretchable textile fabric comprising comparatively rigid weft threads having a tendency to present sharp ends at the selvage or to become dislodged laterally. The warp threads are elastic. The ends of the weft are sealed with a narrow band of an elastomer having at least the same degree of stretch as the warp. In accordance with the method strips are formed from wider fabric without ravelling by first coating the whole width with a resin or the like to bind the warp and weft, then slitting into strips of the required width and treating the edges as aforesaid. Optionally the resinous or other binder may be removed following the edge treatment.

3,597,301 TREATMENT OF FIBROUS REINFORCING ELEMENTS

John R. Le Blanc, Wilbraham, Edward Lavin, Longmeadow, Albert H. Markhart, Wilbraham, and Irving Serlin, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,840
Int. Cl. B32b 5/16, 17/10; C08j 1/36

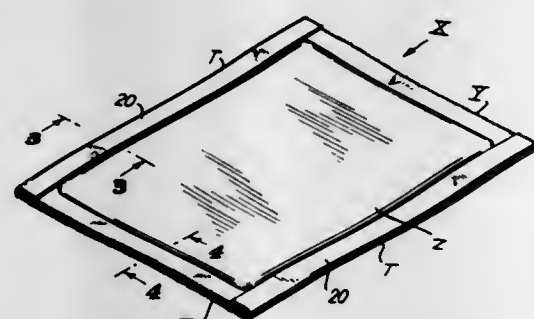
U.S. Cl. 161—93 10 Claims
Disclosed herein are specially treated fibrous reinforcing elements which are adapted for use as the reinforcing element in fibre reinforced resin composites. The treated fibrous reinforcing elements provide resin impregnated fiber reinforced structures which exhibit improved thermal stability and prolonged useful life at elevated temperatures. In the practice of the present invention the fibrous reinforcing element is treated with a compound selected from the group consisting of boric acid, phosphoric acid, sulfuric acid and their acid derivatives and esters and salts of the foregoing acids.

3,597,302 LAMINATED PAPER PROTECTOR STRUCTURE

George Gerard, Point Pleasant, N.J., assignor to Jiffy Manufacturing Co., Hillside, N.J.

Filed Oct. 19, 1967, Ser. No. 676,575
Int. Cl. B32b 3/04; B65d 65/38, 65/44

U.S. Cl. 161—105 4 Claims



The disclosure sets forth a laminated paper structure having a fibrous filler enclosed between a plurality, and desirably two, sheets of a relatively strong paper stock, between which paper waste or fibrous materials are inserted to give a cushioned effect. The paper waste or fibrous material may be held in position by means of a flexible thermoplastic adhesive material of resinous nature, such as thermoplastic polymeric resinous adhesive, or less preferably glue, asphalt or similar adhesive materials, which is desirably applied to one or both of the inside faces of the envelope, package or laminated sheet. The side of the enclosure may also be provided with relatively thin soft sheets of tissue or light weight paper which will prevent abrasion and protect the contents of the envelope or the materials which are to be covered by the laminated papers for protection purposes.

3,597,303 RADIAL-PLY PNEUMATIC TIRE COVER

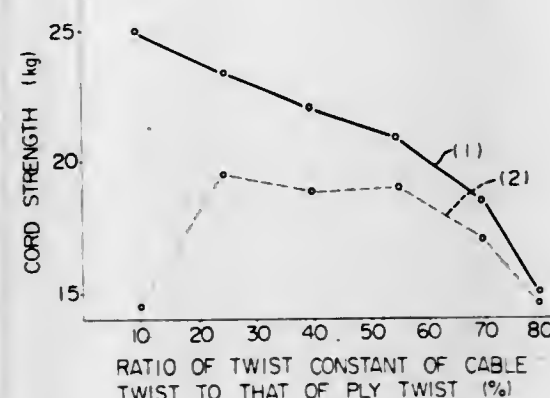
Hiroshi Tanaka, Nishinomiya, Japan, assignor to Kuraray Co., Ltd., Kurashiki, Japan

Filed July 22, 1968, Ser. No. 746,432
Claims priority, application Japan, July 28, 1967, 42/48,516

Int. Cl. B29h 9/04, 17/28; B60c 9/04, 11/00
U.S. Cl. 161—144 4 Claims

Improved radial-ply pneumatic tire cover having the breaker, characterized: (i) that the said cords are made of yarns from polyvinyl alcohol containing not more than 2 mol percent of 1,2-glycol linkage and of a degree of

polymerization of not less than 1,200, the cords being formed by twisting the said yarns which have a tenacity of at least 8 g./d., an elongation of 4-10%, and an initial



modulus of at least 150 g./d., and (ii) the said twisting being performed to such a degree that the twist constant of the ply twist ranges 300-1,200, and that of the cable twist is 25-70% of the twist constant of the ply twist.

3,597,304 DYEING OF CELLULOSIC FIBERS WITH CATIONIC DYE AND MONTMORILLONITE CLAY AND RESULTING PRODUCT

William S. Baldwin, Minneapolis, and James L. Keen, New Brighton, Minn., assignors to General Mills, Inc.

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,548
Int. Cl. D21h 3/80

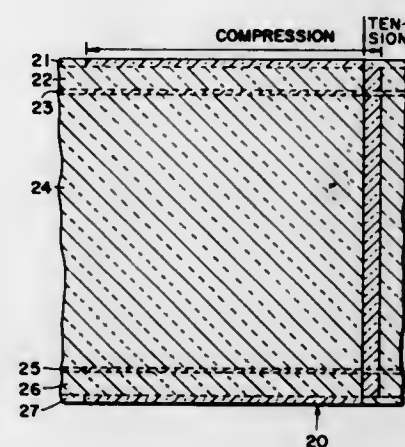
U.S. Cl. 162—162 13 Claims
Cellulosic fibers are dyed by treatment with an aqueous solution of a cationic dye such as Methyl Violet and an alkali metal or acid montmorillonite clay, such as bentonite. The bentonite clay increases the retention of the cationic dye onto the fibers.

3,597,305 SUBSURFACE FORTIFIED GLASS OR GLASS-CERAMIC LAMINATES

James W. Giffen, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed June 6, 1968, Ser. No. 735,115
Int. Cl. B32b 7/02, 17/06

U.S. Cl. 161—165 5 Claims



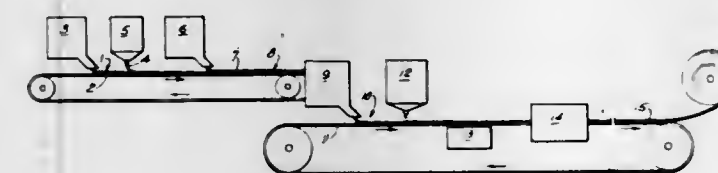
This invention relates to high strength glass, glass-ceramic, or glass and glass-ceramic laminates having subsurface fortification whereby a crack resulting from the fracture of an outer compressively stressed layer of the laminate is prevented from propagating throughout the entire cross section of the laminate by a subsurface fortification comprising at least one internal compressively stressed layer.

3,597,306 NONWOVEN FABRIC FORMED PREDOMINANTLY OF SHORT LENGTH CELLULOSE FIBERS

Frederick K. Mesek and John S. Andrews, Downers Grove, and Frank J. Fillwalk, Oak Lawn, Ill., assignors to Johnson & Johnson

Filed Feb. 9, 1968, Ser. No. 704,422
Int. Cl. B32b 5/16

U.S. Cl. 161—170 6 Claims



Through bonded nonwoven fabrics are disclosed which, based on the weight of fibrous material, consist of at least 80% by weight of cellulosic fibrous material of less than textile length. Of this short length cellulosic fibrous material, at least 15% and up to 50% by weight is particulate in nature. The fabrics have a minimum wet tensile strength of 0.61 pound per inch width, a minimum dry tensile strength of 1.35 pounds per inch width and a maximum stiffness of 7.0 cm.

3,597,307 SUPPLE SHEET MATERIAL AND METHOD OF PRODUCING SAME

Pieter Paulusma, Arnhem, Netherlands, assignor to Algemene Kunstzijde Unie N.V., Arnhem, Netherlands

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,404
Claims priority, application Netherlands, Feb. 9, 1968, 6801826

Int. Cl. D04h 1/04, 3/14
U.S. Cl. 161—170 8 Claims

A supple sheet material suitable as a base material for the manufacture of artificial leather comprising a nonwoven condensed web formed from fibers of substantially hydrophilic material, e.g., polyvinyl alcohol, and a polymer filler which has substantially no adhesion to the fibers, e.g., polyurethane. The filler is homogeneously distributed throughout the web and coheres at spaces between the fibers and the sheet material has a density of at least 0.5 gram per cubic centimeter at a total filler content of not more than 30% by weight, based on the weight of the sheet material. Also a method for producing this sheet material is disclosed.

3,597,308 METHOD FOR DISPOSAL OF REFUSE AND RECOVERY OF BY-PRODUCTS

Frederick J. Brooks, San Rafael, Calif., assignor to Astrotronic Research, Ltd., North Vancouver, British Columbia, Canada

Filed Feb. 23, 1968, Ser. No. 707,810
Int. Cl. D21b 1/08, 1/32; D21c 5/02

U.S. Cl. 162—4 8 Claims

Refuse is immersed and agitated in water in a tank to segregate components by specific gravity. Light and heavy components are separately removed from the tank and separately processed. Medium weight components are primarily paper and fiber pulp stock. Such stock is purified, then processed into pulp board in a mill. Water drained from the mill is filtered and recycled. Combustible refuse is used as fuel to burn contaminated refuse and to produce steam from some of the water. The steam is used to clean certain components, to purify pulp stock, and to form "potable" water by condensation. Sludge

settling from the tank, the filter and the burner is used for fertilizer. Many other useful by-products are recovered.

3,597,309 METHOD OF RECOVERING FIBROUS MATERIAL FROM A SCRAP OF A SHEET-LIKE FIBROUS STRUCTURE CONTAINING A POLYVINYL ALCOHOL RESIN BINDER TREATED WITH TITANIC ACID

Tadao Ashikaga and Shosuke Higashimori, Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Japan

No Drawing. Filed Aug. 26, 1969, Ser. No. 853,190
Claims priority, application Japan, Aug. 30, 1968, 43/62,530

Int. Cl. D21c 5/02 9 Claims

A method of recovering fibrous material from a scrap of a sheet-like fibrous structure containing a polyvinyl alcohol binder treated with titanic acid, which comprises treating a sheet-like fibrous structure selected from papers and non-woven fabrics which have been formed by employing as binder a polyvinyl alcohol resin soluble in water of not over 95° C. and in which the polyvinyl alcohol resin binder has been treated with titanic acid, with an aqueous solution of a mineral acid containing hydrogen peroxide.

3,597,310 METHOD OF PRODUCING HIGH YIELD PULP BY DISC REFINING AT pH OF 12 TO 14

Yutichiro Sumi, Tokyo, Yukio Sawaguchi, Tokorozawa, and Makoto Nagata, Masayoshi Ninomiya, and Tadayoshi Nomura, Tokyo, Japan, assignors to The Kokusaku Pulp Industry Co., Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of applications Ser. No. 633,067, Apr. 24, 1967, and Ser. No. 795,237, Jan. 31, 1969. This application Mar. 26, 1970, Ser. No. 23,064

Claims priority, application Japan, Apr. 25, 1966, 41/26,232; Jan. 3, 1967, 42/1,308; Dec. 11, 1967, 42/79,078

Int. Cl. D21b 1/16 3 Claims

Bonding between the fibers in fiber bundles of high yield pulp produced by hot defibration becomes weakened and disrupted without causing any longitudinal splitting or transversal breaking of fibers, when the material is impregnated with an aqueous alkaline medium having a pH of from 12 to 14 and the impregnated material is subjected to compressive stress substantially perpendicular to the common direction of the fiber axes in the bundles and simultaneously to shearing stress substantially in that direction, said shearing stress being sufficient at least to loosen the bond between the fibers of the bundle. The treated material may thereafter be subjected to a conventional beater or refiner treatment so as to fibrillate the individual fibers completely, if necessary, and strong paper containing no fiber bundles can be made from the so treated material.

3,597,311 SEALING OF PAPER RIBBON PROJECTING EDGE PORTIONS ON WOODPULP INSULATED CONDUCTORS

Ludwik Jachimowicz, Elizabeth, Jerzy A. Olszewski, Bayonne, and Edwin W. Reasoner, Morristown, N.J., assignors to General Cable Corporation, New York, N.Y.

Filed May 16, 1968, Ser. No. 729,600
Int. Cl. D21d 3/00

U.S. Cl. 162—106 11 Claims
Apparatus and process wherein an electrical conductor is passed through a cylindrical mold immersed in a tank of woodpulp, and the pulp is squeezed to remove excess water and to leave a ribbon of paper with the

conductor imbedded therein. The conductor is located off center in the pulp mass so that a greater width of paper ribbon projects from one side of the conductor than from the other. Water is applied to one paper ribbon or projecting edge to refoam some of the surface fibers of the paper so that they are held against the seam of the paper ribbon with a helical conformation during the wrapping operation, thus providing means for holding the seam closed. The projecting edge portions are then wrapped circumferentially and the longer edge portion overlaps the shorter edge portion. The finished insulation, therefore, has only one seam.

3,597,312 SYNTHETIC FIBROUS FILLER AND PAPER CONTAINING THE FILLER

Harry F. Kohne, Jr., Glenwood, and Frederick L. Kurrle, Laurel, Md., and Felipe S. Li, Old Bridge, N.J., assignors to Westvaco Corporation, New York, N.Y.
No Drawing. Filed May 7, 1969, Ser. No. 822,730
Int. Cl. C08f 45/02; D21h 5/12

U.S. Cl. 162—146 10 Claims
Synthetic, organic fibrous filler comprising blushed, fibrous polystyrene having high opacity as represented by scattering coefficients of at least about 0.25. The opaque, fibrous polystyrene is suitable for use as filler material in the manufacture of paper.

3,597,313 POLYALDEHYDE CROSSLINKED ALIPHATIC ALCOHOL RESINS AND A PROCESS OF MAKING TEMPORARY WET STRENGTH PAPER AND PAPER MADE THEREFROM

Laurence Lyman Williams, Stamford, and Anthony Thomas Coscia, South Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,798
Int. Cl. D21h 3/44; C08f 27/18

U.S. Cl. 162—167 10 Claims
Wet-strength resins are provided which afford temporary wet strength to paper products. The resins are cationic polymers of unsaturated aliphatic alcohols reacted with polyaldehydes. They are prepared, for example, by cyanamide modification of polyvinyl alcohol polymers, followed by glyoxal cross-linking; or by copolymerization of vinyl acetate and diallyldimethylammonium chloride, followed by hydrolysis and glyoxal cross-linking. These resins are adsorbed on paper-making fibers in aqueous suspension during the paper-making process and impart temporary wet strength to resulting paper products such as tissue, paper towels and the like.

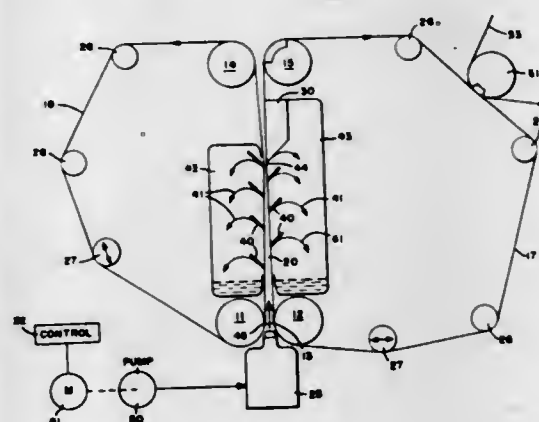
3,597,314 METHOD OF IMPROVING THE DRAINAGE OF CELLULOSE FIBER SUSPENSIONS WITH POLYMERS OF N-VINYL-N-METHYL-FORM- AMIDE

Karlheinz Laube, Effretikon, Dieter Ulmschneider, Frankfurt am Main, and Ehrenfried Nischwitz, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Nov. 27, 1968, Ser. No. 779,591
Claims priority, application Germany, Nov. 29, 1967, F 54,153

Int. Cl. D21d 3/00; D21h 3/40 5 Claims
Dewatering of aqueous cellulose fiber suspension in the formation of paper is improved by adding to the suspension from 0.05 to 4% of a water soluble polymer consisting essentially of units derived from N-vinyl-N-methyl-formamide, such as N-vinyl-N-methyl formamide, having 60–100% of the formic acid radicals of the polymer split off by acid hydrolysis.

3,597,315
VERTICAL TWIN-WIRE PAPER MACHINE
Willard C. Notbohm and Paul M. Schaffrath, Watertown, N.Y., assignors to The Black Clawson Company, Hamilton, Ohio
Filed Oct. 30, 1968, Ser. No. 771,888
The portion of the term of the patent subsequent to May 11, 1988, has been disclaimed
Int. Cl. D21f 1/00

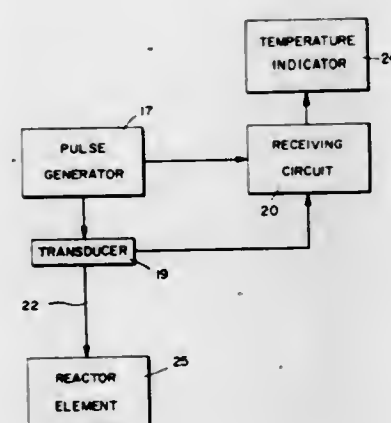
U.S. Cl. 162—203 7 Claims



In a two-wire vertical paper machine, the opposed upwardly traveling reaches of the two wires are guided in converging relation to define a forming zone of predetermined dimensions, and a stock jet is discharged upwardly into this forming zone at a velocity sufficiently higher than wire speed to assure an upwardly directed pressure head on the liquid component of the stock substantially throughout the forming zone. The dimensions and direction of the stock jet are controlled such that the jet passes freely into the forming zone in spaced relation to each of the wires to impinge on the wires above the mouth of the forming zone defined between a pair of breast rolls.

3,597,316
NUCLEAR REACTOR THERMOMETRY
Lawrence C. Lynnworth, Waltham, Mass., assignor to Panametrics, Inc., New York, N.Y.
Filed Mar. 18, 1968, Ser. No. 713,889
Int. Cl. G21c 17/10

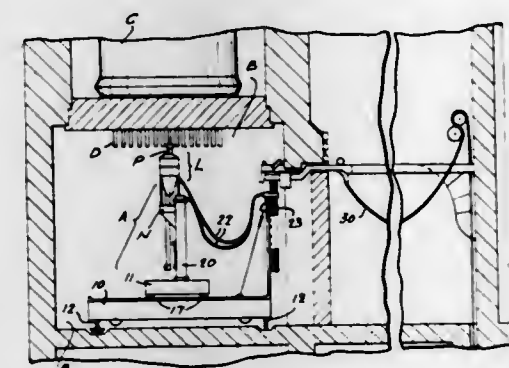
U.S. Cl. 176—19 13 Claims



A system for measuring temperature inside a liquid cooled nuclear reactor by measuring the propagation of pulses of ultrasonic energy transmitted along elements of the reactor itself. The ultrasonic pulses may be transmitted along the cladding of the fuel elements, through the fissionable material or through the spacer wires surrounding each element. Since the propagation of the ultrasonic waves in a medium is a function of the temperature of the medium, this measured propagation indicates the temperature.

3,597,317
NUCLEAR REACTOR FUELLING MACHINE
Peter Isaac, Cooksville, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Apr. 15, 1968, Ser. No. 721,409
Int. Cl. G21c 19/20

U.S. Cl. 176—30 13 Claims



For inserting and extracting fuel aggregates into and from reactor fuel channels, the machine comprises a barrel for housing such a fuel aggregate and a free piston in the barrel adapted to be coupled to the fuel aggregate and to be reciprocated to displace the fuel aggregate into and out of the barrel. Displacement of the piston within the barrel is achieved by admitting pressure fluid at either end of the barrel. To indicate the position of the piston and thereby of the fuel aggregate within the barrel, a tape is attached at one end to the piston and at its other end is wound on a reel, the rotational position of which is sensed by a potentiometer. The tape is kept tensioned by a torque generating device which acts on the reel and includes a spring tape having an inherent coiling tendency.

3,597,318
PRODUCTION OF DOUBLE STRANDED
HIBONUCLEIC ACID
Elisabeth Sinclair Sutherland, Iver Heath, and Christine Joy Bessell, Stoke Poges, England, assignors to Glaxo Laboratories Limited, Greenford, England
No Drawing. Continuation-in-part of application Ser. No. 602,494, Dec. 19, 1966. This application Nov. 17, 1969, Ser. No. 877,519
Claims priority, application Great Britain, Dec. 19, 1966, 54,972/65
Int. Cl. C12d 13/06

U.S. Cl. 195—28 7 Claims
An antiviral substance active against both DNA and RNA viruses is produced by culturing a strain of *Penicillium chrysogenum* on a nutrient medium therefor, rupturing the cultured cells, fractionating the cell contents and recovering at least one double-stranded ribonucleic acid having a molecular weight of about 200,000 or greater.

3,597,319
PROCESS FOR THE PRODUCTION OF
HELLEBRIGENIN
Otto Isaac, Bruchkobel, Germany, assignor to Deutsche Gold- und Silber-Schmelzanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed July 9, 1968, Ser. No. 743,298
Claims priority, application Germany, July 20, 1967, D 53,639
Int. Cl. C12d 13/00

U.S. Cl. 195—32 6 Claims
Hellebrigenin is produced from hellebrin or desgluco-hellebrin by treatment with a cellulase derived from *As-*

pergillus niger, followed, if desired, by chromatographic purification.

3,597,320
FERMENTATIVE ACETYLATION OF
STEROIDAL β -OLS
Stephen Kraychy, Northbrook, and Seth S. Mizuba, Morton Grove, Ill., assignors to G. D. Searle & Co., Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 575,246, Aug. 26, 1966. This application Dec. 11, 1968, Ser. No. 783,127
Int. Cl. C07c 167/28

U.S. Cl. 195—51 12 Claims
A process for acetylating steroidal β -ols by fermentation with *Penicillium A.T.C.C. 16501* or *Spicaria 20152* or 20153 is disclosed.

3,597,321
DIAGNOSTIC COMPOSITION FOR THE
DIFFERENTIATION OF STAPHYLOCOCCI
Donald Paul Kronish, Rockaway, and Metka Prevorsek, Morristown, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.
No Drawing. Filed Apr. 17, 1969, Ser. No. 817,188
Int. Cl. C12k 1/06

U.S. Cl. 195—103.5 16 Claims
A diagnostic composition, and its use in the differentiation of staphylococci, is described. The composition comprises the combination of a bibulous material to which there has been applied two separate diagnostic agents, one of which detects mannitol fermentation and the other of which detects coagulase production. The agent which detects mannitol fermentation is a composition comprising (1) a nutrient capable of supporting the growth of microorganisms, or a combination of such nutrients, (2) D-mannitol, (3) a chemical indicator which changes color as mannitol is fermented to acid degradation products and, optionally, (4) sodium chloride and/or a thickener. The agent which detects coagulase production is a suitable coagulable material which is substantially free of glucose.

The diagnostic agents can be applied to the bibulous material as two separate zones, each zone preferably being separated by a zone of an inert, hydrophobic barrier. In the alternative, the bibulous material can be impregnated with the agent which detects mannitol fermentation, following which the agent which detects coagulase production can be superimposed thereon.

Growing organisms suspended in saline and incubated in contact with the diagnostic composition can be differentiated in a period of from about 4 to about 6 hours.

3,597,322
SUBSTRATE COMPOSITION FOR AMYLASE ASSAY
Arthur L. Babson, Morristown, N.J., assignor to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.
No Drawing. Continuation-in-part of application Ser. No. 521,814, Jan. 20, 1966. This application Oct. 28, 1968, Ser. No. 771,354
Int. Cl. G01n 31/14

U.S. Cl. 195—103.5 9 Claims
A soluble substrate for use in assaying amylase activity in such media as body fluids, plant extracts, and the like, is prepared by coupling in an aqueous alkaline solution a reactive dye with a starch or starch fraction, such as amylose or amylopectin and subjecting the product obtained to a gel filtration or dialysis treatment to remove all unreacted dye. A solution of the dyed substrate obtained is then buffered to a pH of from about 6.5 to about 7.8 and chloride ion for activation of the amylase is added.

Alternately, the substrate may be preserved by lyophilization and reconstituted with water at the time the assay is conducted. The assay is conducted by incubating an aqueous solution of the buffered chloride ion containing soluble substrate with a relatively small fluid sample under controlled time and temperature conditions; precipitating out the undigested dye substrate and any protein matter present in the fluid sample by the addition of alcohol or a solution of tannic acid in alcohol at a controlled pH and temperature; and measuring the optical density of the remaining clear supernatant liquid for the determination of amylase activity.

3,597,323

METHOD OF PURIFYING L-ASPARAGINASE

Joseph Roberts, Dallas, Tex., assignor to J. K. and Susie L. Wadley Research Institute and Blood Bank, Dallas, Tex.

No Drawing. Filed June 7, 1968, Ser. No. 735,195
Int. Cl. C07g 7/02

U.S. Cl. 195—66 17 Claims
A method of purifying L-Asparaginase from a mixture containing a ruptured microbial organism which yields L-Asparaginase by adding to the mixture a sufficient quantity of a water-miscible organic solvent, such as ethanol, to precipitate the cell walls of the organism and other undesirable constituents present in the mixture without precipitating the L-Asparaginase. The supernatant is then separated from the precipitated residue and the L-Asparaginase precipitated from the supernatant by adding more of the water-miscible organic solvent. The precipitate containing the L-Asparaginase is then separated from the supernatant, suspended in a suitable buffer, such as a potassium phosphate solution and chromatographically separated from the other constituents which precipitate with the L-Asparaginase. The chromatographic separation is preferably effected by sequentially eluting the L-Asparaginase from two columns, one of which contains an anion exchange resin and the other of which contains a cation exchange resin. The L-Asparaginase solution eluted from the first column is preferably collected, concentrated by the addition of the solution of a sufficient quantity of a water-miscible organic solvent, such as ethanol, and resuspended in a suitable buffer before admission to the second column.

Any residual endotoxin and pyrogen contained in the eluted L-Asparaginase containing solution from the second column are removed by admixture of a buffered solution (pH 6.8–6.9) containing re-concentrated L-Asparaginase with activated charcoal. The activated charcoal is then removed by filtration.

3,597,324

PREPARATION OF THE ANTIBIOTIC RIFAMYCIN SV

Giancarlo Lancini, Pavia, and Carlo Hengeller, Naples, Italy, assignors to Lepetit S.p.A.—Gruppo per la Ricerca Scientifica e la Produzione Chimica Farmaceutica, Milan, Italy

No Drawing. Filed July 12, 1968, Ser. No. 744,327
Claims priority, application Italy, July 13, 1967,
18,343/67

Int. Cl. C07d 9/00

U.S. Cl. 195—80 2 Claims
A process is described for preparing directly the antibiotic rifamycin SV by fermenting new mutants of strains of *Streptomyces mediterranei*.

Said antibiotic was up to now obtained through chemical transformations, starting from other rifamycins, such as rifamycin B.

3,597,325
PRODUCTION OF 3-(2-NITRO-3-CHLOROPHENYL)-4-CHLORO-PYRROLE

Kei Arima and Gakuzo Tamura, Tokyo, and Hiroshi Imanaka and Masanobu Kousaka, Ibaraki, Japan, and Akio Fukuda, Princeton, N.J., assignors to Fujisawa Pharmaceutical Co., Ltd.

No Drawing. Continuation-in-part of application Ser. No. 649,745, June 28, 1967, which is a continuation-in-part of application Ser. No. 440,747, Mar. 18, 1965. This application Aug. 12, 1968, Ser. No. 751,705
Claims priority, application Japan, Mar. 25, 1964,
39/16,338; June 12, 1964, 39/33,177
Int. Cl. C12d 9/20

U.S. Cl. 195—96 7 Claims

A method for the production of 3-(2-nitro-3-chlorophenyl)-4-chloro-pyrrole which comprises the cultivation of certain *Pseudomonas* strains under aerobic conditions followed by separation of the compound from the broth. The compound is an antibiotic and is particularly effective against *Candida* and *Tricophyton* genera.

3,597,326

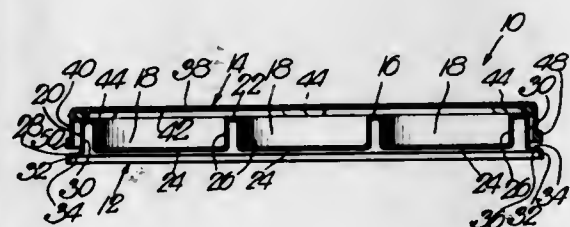
MULTI-DISH LABORATORY UNIT

John Liner, Barkwood Drive, Woodbridge, Conn. 06525
Filed July 26, 1968, Ser. No. 747,935

Int. Cl. C12b 1/00

U.S. Cl. 195—139

10 Claims



Plastic multi-dish tray with removable plastic cover having spaced supports with which closed cover rests on top of tray with clearance between tray and cover for atmospheric exposure of multi-dishes, with tray and cover being of transparent plastic and having also circumferential depending base and cover skirts with similar clearance between them when cover closed, and base and cover skirts having at their respective bottoms vertically-spaced circumferential lips with outer coplanar surfaces for sticking of tape to seal the multi-dishes from the atmosphere.

3,597,327

PROCESS FOR PYROLYZING A SOLID OR LIQUID HYDROCARBONACEOUS FUEL IN A FLUIDIZED BED

Arthur M. Squires, 245 W. 104th St.,
New York, N.Y. 10025

Continuation-in-part of application Ser. No. 561,551,
June 29, 1966. This application Apr. 2, 1969, Ser.
No. 812,786

Int. Cl. C01b 49/22

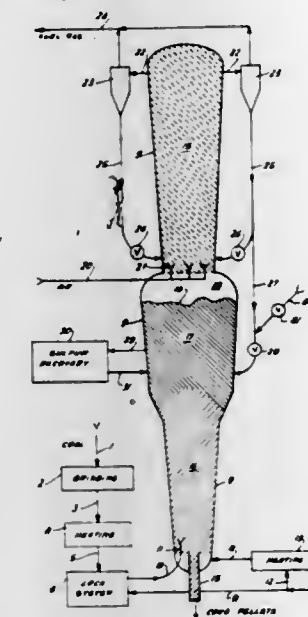
U.S. Cl. 201—12

12 Claims

A solid or liquid hydrocarbonaceous fuel, such as bituminous coal or residual oil, is charged to a lower zone of a fluidized bed, this zone comprising coke pellets, wherein the fuel is carbonized or cracked (i.e., pyrolyzed) to form gaseous products and a fresh coke accreting upon the pellets. The gaseous products fluidize a superposed, contiguous, upper zone of the fluidized bed, comprising a solid of smaller size and being fluidized at lower velocity. The velocity of the lower zone is sufficient to prevent the smaller solid from penetrating deeply into the zone. Heat is supplied to the lower zone by heat conduction from the upper zone. The heat is either generated within the upper zone (e.g., by combustion or other chemical reaction or by supply of a hot solid to the upper zone and withdrawal

of solid therefrom) or supplied thereto by indirect heat exchange from a heating medium. Alternatively, if the fuel carbonization or cracking is conducted in an atmosphere of hydrogen at a sufficiently high partial pressure,

discharged at a reduced temperature. The evaporation is effected by distributing the feed liquid over a plurality of parallel, closely spaced and substantially vertical surfaces upon which the liquid flows downwardly in falling



so that the reaction of the fuel is exothermic, heat is withdrawn from the lower zone by heat conduction to the upper zone, and the heat is removed from the upper zone, e.g., by indirect heat exchange to a cooling medium.

3,597,328

COMBINED PLANT INSTALLATION FOR PRODUCING ELECTRICAL POWER AND FRESH WATER FROM BRINE

Thomas Michels, Maisons-Laffitte, France, assignor to Compagnie Electro-Mecanique, Paris, France
Filed Nov. 7, 1968, Ser. No. 774,098

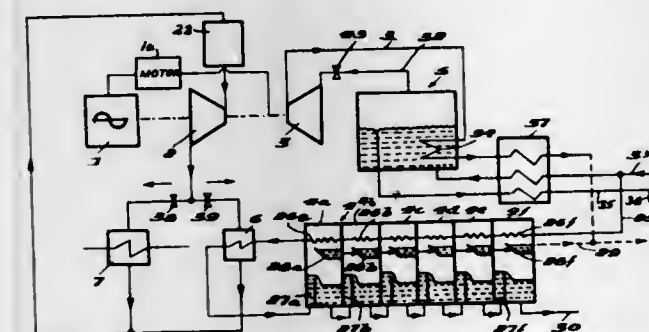
Claims priority, application France, Nov. 15, 1967,

128,266

Int. Cl. B01d 3/06, 3/10

U.S. Cl. 202—173

14 Claims



Combined installation for the production of fresh water and electricity comprises an electrical generator unit which produces electric power from heat energy such as a steam turbine. The turbine also drives the compressor unit of a compression-evaporator producing fresh water from brine and the heat rejected by the electrical generator unit is utilized in an evaporator-distiller likewise producing fresh water from brine supplied to it.

3,597,329

THIN FALLING FILM, WATER FLASHING DISTILLATION SYSTEM

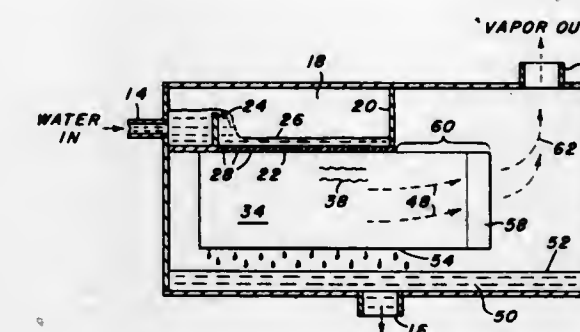
Melvin H. Brown, Leechburg, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Mar. 7, 1969, Ser. No. 805,229

Int. Cl. B01d 3/06

U.S. Cl. 203—11

7 Claims

A liquid such as water enters a chamber maintained at a pressure below its saturation pressure so that a portion of the feed liquid is flash evaporated and a portion



film-wise manner. Vapor is formed in the spaces between the vertical surfaces and is removed in a direction substantially transverse to the downward falling film flow. The vapor so produced exhibits a very low entrainment level.

3,597,330

RECOVERY OF EPSILON-CAPROLACTONE AND ALKANE DICARBOXYLIC ACID BY ACID TREATMENT AND VACUUM DISTILLATION

Anton Wegerich, Limburgerhof, Pfalz, Otto-Alfred Grosskinsky, Ludwigshafen (Rhine), Siegfried Winderl, Heidelberg, and Gerhard Blum, Limburgerhof, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Apr. 24, 1968, Ser. No. 723,937
Claims priority, application Germany, Apr. 27, 1967,
P 16 18 143.4

Int. Cl. B01d 3/34

U.S. Cl. 203—29

4 Claims

The recovery of epsilon caprolactone and of alkane dicarboxylic acids from mixtures such as are obtained in the individual washing steps of the process for oxidation of cyclohexane with air at elevated temperature and at superatmospheric pressure and containing substantially monocarboxylic acids, dicarboxylic acids and epsilon-hydroxycaproic acid (if desired after part of the adipic acid present has been separated) by removing water (if present) and the major portion of the monocarboxylic acids (if present) by distillation, adding 1 to 30% by weight of phosphoric acid or a compound forming the same or boric acid, heating the mixture obtained under subatmospheric pressure at 180° to 250° C., distilling off the volatile components, condensing the individual fractions and rectifying and/or crystallizing the fractions. Distillation temperatures above 150° C. are avoided. Epsilon caprolactone is useful for the production of caprolactam, a starting material for the production of fibers.

3,597,331

PROCESS FOR THE RECOVERY OF ADIPONITRILE FROM AN ELECTROLYTIC HYDRODIMERIZATION BY DIRECTLY DISTILLING THE CATHOLYTE EMULSION

Shinsaku Ogawa and Shoichiro Kumazaki, Yokohama-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Nov. 7, 1967, Ser. No. 681,203

Claims priority, application Japan, Nov. 16, 1966,
41/75,086

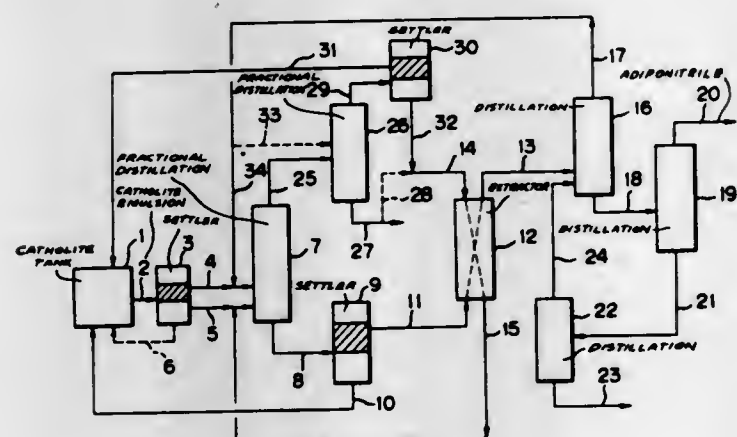
Int. Cl. B02k 1/00; C07c 121/20

U.S. Cl. 203—43

20 Claims

The recovery of adiponitrile from a catholyte emulsion used in the electrolytic hydrodimerization of acrylonitrile which has an oil phase, a continuous aqueous phase, and a supporting electrolyte salt by distilling a

mixture of the oil phase and aqueous phase from the catholyte emulsion to thereby distill off acrylonitrile and water, separating the remaining distillation bottom into an oil phase and aqueous phase and recovering adiponitrile from the separated oil phase. The catholyte emulsion may be directly subjected to the distillation treatment or may first be separated into an oil phase and aqueous phase with the separated oil phase and a portion of the aqueous phase distilled together. The adiponitrile is preferably recovered from the oil phase by distilling off the



lower boiling components, and most preferably subjected to an aqueous extraction to remove supporting electrolyte salt prior to this distillation. The adiponitrile may be further purified utilizing a rectifying tower with the bottoms from this tower being recycled through a stripper back to the distillation of the lower boiling components. The distillate from the initial distillation of the oil phase and aqueous phase mixture may be recycled directly or after further treatment including, for example, a propionitrile rectification or such rectification followed by phase separation by cooling.

3,597,332

ELECTROLYTIC RECORDING SYSTEMS

Robert D. Richards, Chatham Township, N.J., assignor to Muirhead Limited, Beckenham, Kent, England
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,430
Claims priority, application Great Britain, Nov. 6, 1967, 50,368/67

Int. Cl. B41m 5/20

U.S. Cl. 204—2

13 Claims

The invention provides a process of electrolytic recording in which an electric current is passed between an anode containing metallic silver and an inert cathode through a porous web impregnated with an electrolytic conducting disclosure to precipitate metallic silver in such web and in which said anode also contains a second metal selected from magnesium, manganese, zinc, cadmium, nickel and aluminium and/or said solution a soluble salt of said second metal.

3,597,333

PROCESS FOR SIMULTANEOUSLY ELECTROPLATING DISCRETE AREAS OF AN INSULATIVE SUBSTRATE

Frank W. Kulesza, 3 Grant Road,
Winchester, Mass. 01890

Filed Aug. 21, 1969, Ser. No. 851,816

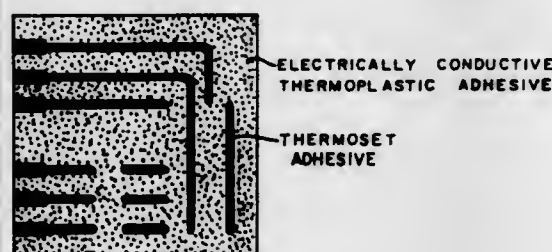
Int. Cl. C23b 5/48

U.S. Cl. 204—15

5 Claims

The process permits the simultaneous electroplating of a plurality of discrete areas of a substrate that is either a non-conductor or a poor electrical conductor. In the process, an electrically conductive thermosetting adhesive

in the uncured state is deposited upon the discrete areas to be plated and the adhesive is then cured to cause it to become infusible and insoluble. An electrically conductive thermoplastic adhesive is spread upon the substrate to provide an electrical path from each discrete area to a common terminal. The electrically conductive areas that are not to be plated are covered with a plating resist.



The substrate is then immersed in a plating bath with one of the electrodes connected to the common terminal and the exposed electrically conductive areas are simultaneously electroplated to the desired thickness of plate. Subsequently, the plating resist is removed to uncover the thermoplastic adhesive and the thermoplastic adhesive is dissolved with a solvent which does not affect the thermoset adhesive.

3,597,334

ELECTROPLATED VINYL CHLORIDE GRAFT COPOLYMER

Gunther Bernhardt, Hangelar, Robert Buning, Ilse-Ursula Nebel, and Egon Bierwirth, Oberlar, and Werner Trautvetter, Spich, Germany, assignors to Dynamit Nobel AG, Troisdorf, Bezirk Cologne, Germany

No Drawing. Continuation-in-part of application Ser. No. 754,454, Aug. 21, 1968. This application Oct. 3, 1968, Ser. No. 764,971

Int. Cl. C23b 5/60

U.S. Cl. 204—20

5 Claims

An electroplated product comprising a graft copolymer of vinyl chloride on a conjugated diene backbone. The copolymer is first sensitized with stannous chloride, then chemically plated with metal and then electroplated.

3,597,335

METHOD FOR MANUFACTURING LOGICAL DEVICES

John Humpage and David C. Stapleton, Ilford, England, assignors to The Plessey Company Limited, Ilford, England

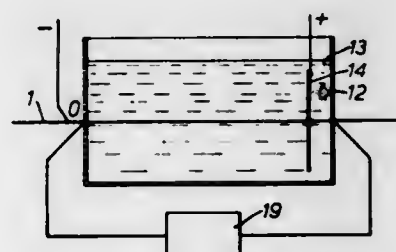
Filed Dec. 15, 1967, Ser. No. 690,963

Claims priority, application Great Britain, Dec. 24, 1966, 57,867/66

Int. Cl. C23b 5/58, 5/32; B01k 3/00

U.S. Cl. 204—28

7 Claims



A method of depositing a thin magnetic layer on a wire for constructing a logical device such as a memory matrix. The method comprises electrodepositing the layer in

a continuous process under conditions which give a uniform deposit and it may employ a superimposed alternating current to give a preferred direction of magnetisation in the deposited layer.

3,597,336

ELECTROPLATING PLASTICS

James A. Shotton, Bartlesville, Okla., and Jimmy S. Dew, Texas City, Tex., assignors to Phillips Petroleum Company

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,262

Int. Cl. C23b 5/64

U.S. Cl. 204—30

10 Claims

Electroplating of a moldable plastic, with or without an inert filler therein, is achieved by conditioning a pre-formed article of said plastic by a combination treatment consisting of an acid chromate etch and a persulfate treatment. The resulting conditioned article is thereafter plated by preplating with an electrolessly platable metal followed by electroplating the preplated article with a final finish to obtain a metal-plated plastic product.

3,597,337

BIPOLAR CELLS FOR THE ELECTROLYTIC PRODUCTION OF HALOGENATES

Milan M. Jaksic, Branslav Nikolich, and Dusan M. Karanovic, Belgrade, Yugoslavia, assignors to Institut Za Hemijska, Tehnoloska i Metalurška Istraživanja, Belgrade, Yugoslavia

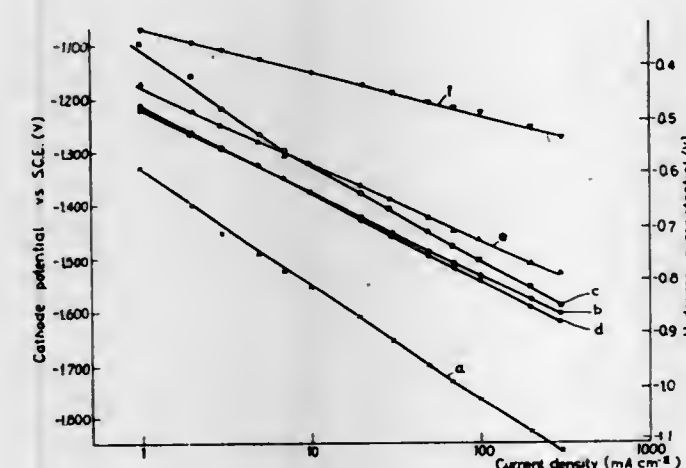
Filed June 12, 1968, Ser. No. 736,503

Claims priority, application Yugoslavia, Dec. 16, 1967, P 2,457/67

Int. Cl. B01k 1/00, 3/06; C01b 11/26

U.S. Cl. 204—45

2 Claims



To improve bipolar cells for the electrolytic production of halogenates, a metal such as chromium and molybdenum is deposited on the cathode surfaces of the graphite electrodes of the cells whereby there results a reduction in required cell voltage and power consumption.

3,597,338

METHOD AND ELECTROLYTE FOR ANODIC OXIDATION COATING OF ALUMINUM

Shin Matsuyama and Takekuni Kobayashi, Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha Minamiku, Osaka, Japan

No Drawing. Filed July 15, 1969, Ser. No. 842,030

Claims priority, application Japan, Jan. 17, 1969, 44/3,522

Int. Cl. C23b 9/02

U.S. Cl. 204—58

6 Claims

In the anodic oxidation coating of aluminum and its alloys an electrolyte is employed comprising an aqueous

3,597,339

PROCESS FOR ANODIZING ALUMINUM AND ITS ALLOYS

Frederick S. Newman, Canoga Park, John R. Thorne, Hidden Hills, and John T. Hartman, Reseda, Calif., assignors to Scionics of California, Inc.

Filed Sept. 9, 1968, Ser. No. 758,258

Int. Cl. C23b 9/02; B01k 3/00

U.S. Cl. 204—58

12 Claims

An anodizing system uses both positive and negative current pulses. Such pulses are adjustable to achieve different adjusted values of positive and negative currents. These values are sensed and used to maintain automatically such values. The ratio of negative current to positive current is preferably greater than 3% for the production of relatively thick, dyeable, hard anodized coatings and conventional (normal) anodic coatings of light shades of integral colors using a simple sulfuric acid bath which may be maintained at relatively high temperatures. Current may be applied at nearly full current density initially without burning. In some cases, additional means may be provided to increase the throwing power by eliminating the negative current and using means such as capacitors or inductors to prolong the decay of the positive pulses, preferably such that the then composite positive pulses are maintained above a zero value. These composite positive pulses are maintained in a ratio and wave shape which yields both good "throwing" power and high quality, even coatings, and produces the anodic coatings at relatively high current densities.

3,597,340

RECOVERY OF LITHIUM AS LiOH.H₂O FROM AQUEOUS CHLORIDE BRINES CONTAINING LITHIUM CHLORIDE AND SODIUM CHLORIDE

Sammy C. Honeycutt and Ricardo O. Bach, Gastonia, N.C., assignors to Lithium Corporation of America, New York, N.Y.

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,666

Int. Cl. C01d 1/06

U.S. Cl. 204—98

5 Claims

Recovery of lithium as LiOH.H₂O from aqueous chloride feed brines containing LiCl and NaCl by electrolyzing said brines in a diaphragm cell, separating the solids from the electrolyzed brine, said solids comprising predominantly LiOH.H₂O, and recrystallizing said LiOH.H₂O to effect purification thereof.

3,597,341

SELECTIVE ADDITION OF THIOLS TO ALLYLIC ISOCYANATES AND ISOTHIOCYANATES

Alexis A. Oswald, Mountainside, N.J., assignor to Esso Research and Engineering Company

No Drawing. Filed Sept. 11, 1968, Ser. No. 759,200

Int. Cl. B01j 1/10; C07c 119/04, 161/04

U.S. Cl. 204—158

11 Claims

Thiols can be added to the olefinic bond of allyl isocyanates and isothiocyanates to form the corresponding anti-Markovnikov type adducts. The resulting products are useful as pesticides, especially as post-emergence herbicides, and as polymer intermediates.

3,597,342

METHOD FOR THE DRY CHLORINATION OF POLYVINYL CHLORIDE USING A LIQUID SWELLING AGENT

Mario De Vita, Matera, Pietro Pece, Macchia di Ferrandina, and Attilio Palvarini and Pietro Vaccari, Milan, Italy, assignors to Pozzi Ferrandina S.p.A. Ferrandina, Matera, Italy

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,531
Claims priority, application Italy, Apr. 1, 1967, 14,459/67

Int. Cl. C08d 1/00; C08f 3/22

U.S. Cl. 204—159.18

7 Claims

A method for preparing superchlorinate polyvinyl chloride is disclosed, in which the chlorination stage is performed by chlorinating a dry admixture of polyvinyl chloride and a fluid chlorination medium. Said fluid chlorination medium is a nonsolvent swelling agent for the starting polymer, and activation energy by UV irradiation is used to promote the chlorination reaction. Typical chlorination media are chlorinated hydrocarbons of the aliphatic series and mixtures thereof.

3,597,343

PHOTOPOLYMERIZATION OF ETHYLENICALLY UNSATURATED COMPOUNDS THROUGH THE USE OF NOVEL AZOLE PHOTOINITIATORS

Gerard Albert Delzenne, 's-Gravenwezel, and Urbain Leopold Laridon, Wilrijk, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium

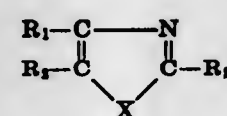
No Drawing. Filed Nov. 21, 1967, Ser. No. 684,611
Claims priority, application Great Britain, Dec. 8, 1966, 55,095/66

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.23

9 Claims

A process for photopolymerization of ethylenically unsaturated organic compounds is described which comprises irradiating a composition including a photopolymerizable ethylenically unsaturated organic compound and as a photopolymerization initiator an azole compound having the formula:



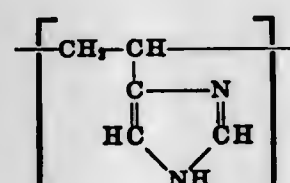
wherein:

X is oxygen, sulphur, —NH— or a —NR— group, wherein R is an alkyl group of 1 to 4 carbon atoms, or benzyl,

each of R₁ and R₂ (same or different) is hydrogen, halogen, an alkyl group of 1 to 4 carbon atoms, or a phenyl group, and

R₃ is hydrogen, halogen, an alkyl group of 1 to 4 carbon atoms, a phenyl group, a naphthyl group or a styryl group;

or an azole compound which comprises an imidazole group incorporated in a polymer comprising recurring units of the formula:



3,597,344

HIGH ENERGY RADIATION TREATMENT OF TALL OIL

Forrest N. Case, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed May 10, 1968, Ser. No. 728,333

Int. Cl. B01j 1/10

U.S. Cl. 204—161HE

4 Claims

Highly energetic radiation has been found effective to reduce the Gardner color index of fatty acids derived from tall oil as well as other vegetable or animal sources. Additionally, the rate of crystallization of rosin acids is considerably inhibited by highly energized radiation.

3,597,345

OXYGEN DETECTION APPARATUS

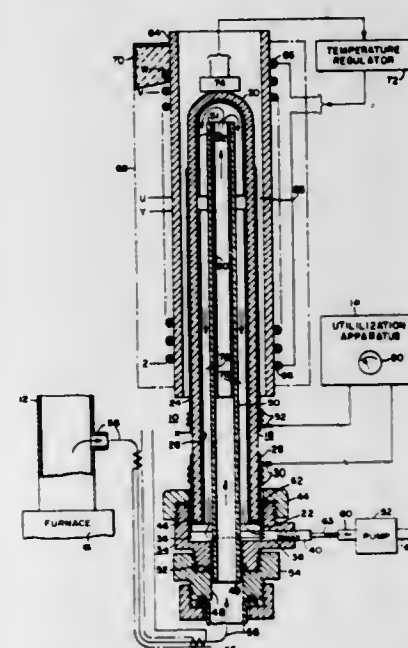
William M. Hickam, Pittsburgh, and John F. Zamaria, Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 18, 1968, Ser. No. 776,637

Int. Cl. G01n 27/46

U.S. Cl. 204—195

12 Claims



An oxygen detection system is shown including an oxygen sensor having a differential oxygen pressure responsive electrolyte cell and a catalytic agent for catalytically burning a residual fuel in sample gases before the gases reach the effective detection zone of the cell. The effective detecting zone occurs where two electrodes contact directly opposite sides of an electrolyte wall. A heater arrangement heats the regions of the detection zone and the catalytic agent to an effective operating temperature. The cell includes a tubular electrolyte member having respective open and closed opposite ends. A gas entry tube extends into the bore of the electrolyte member thereby forming a concentric space therebetween. The inner surface of the entry tube and the inner surface of the closed end of the electrolyte member are comprised of a catalytic agent, so that sample gas entering the entry tube and doubling back through the space between the entry tube and the electrolyte member is exposed to an extensive area of heated catalytic agent before it reaches the effective detection zone. The detection system further includes a differential pressure pump connected to the sensor outlet through a capillary restriction, the inlet of the sensor being connected to a subatmospheric source of gas being sampled. The capillary restriction provides substantially constant gas flow rate.

3,597,346

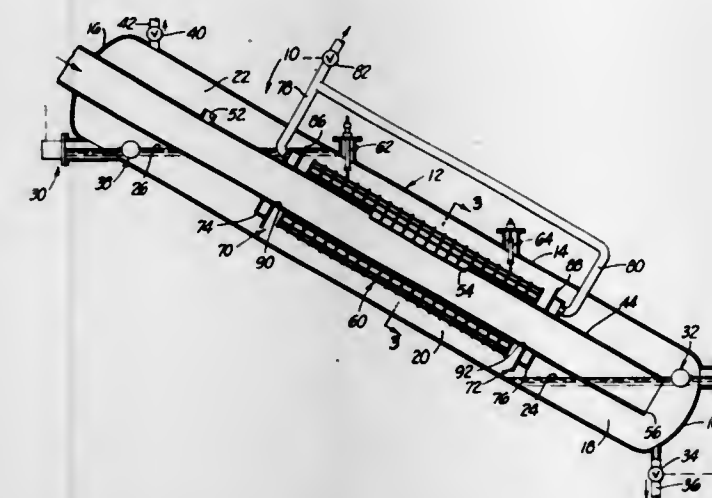
INCLINED, ELECTRIC WET-OIL TREATER

Logan C. Waterman, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.
Filed May 7, 1969, Ser. No. 822,604

Int. Cl. B03c 5/02

U.S. Cl. 204—302

8 Claims



An inclined electric treater for water-in-oil dispersions. The treater includes: an inclined elongated container providing a water zone at its lower end, an elongated oil zone intermediate its ends and a gas zone at its upper end; a wet-oil inlet tube in and extending axially of the container and provided with a port for discharging wet oil into the annulus between the inlet tube and the container; a foraminous cylindrical electrode in the annulus between the inlet tube and the container and encircling the inlet tube so that there are electric fields between the electrode and the inlet tube as well as between the electrode and the container; and upper and lower annular dry-oil collectors encircling and carried by the inlet tube respectively adjacent the upper and lower ends of and within the oil zone, the two collectors facing each other and providing annular dry-oil outlets bounded by and encircling the inlet tube.

3,597,347

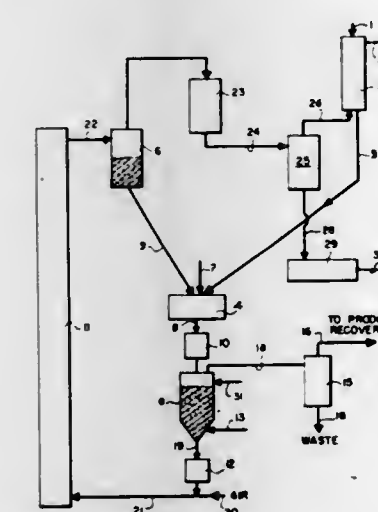
PROCESS FOR RETORTING CARBONACEOUS MATERIAL

Rex. T. Ellington, Jr., Tulsa, Okla., assignor to The Oil Shale Corporation, New York, N.Y.
Filed Dec. 6, 1968, Ser. No. 781,769

Int. Cl. C10b 53/06

U.S. Cl. 208—11

9 Claims



An improved process for retorting carbonaceous material, such as oil shale, where the heat of pyrolysis is supplied by mixing hot spent shale ash with raw shale

feed. Shale particles lose their strength progressively above about 500° F. so crushing of the feed to minimum 1/8 inch size does not take place until after mixing or retorting. Cold shale feed fines are added to the mixed hot shale ash and larger shale feed before retorting.

3,597,348

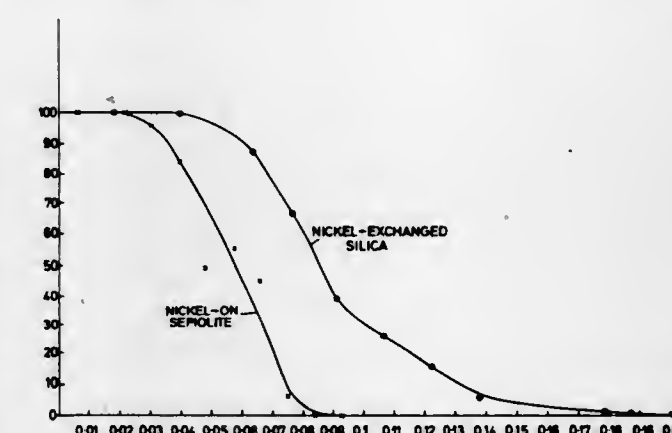
HYDROGENATION OR HYDROCRACKING WITH A NICKEL ON SILICA CATALYSTS

Kenneth Hugh Bourne, Knaphill, Woking, Christopher John Leonard Metcalfe, Sunbury, and Alan Richard Thornhill, Epsom, England, assignors to The British Petroleum Company Limited, London, England
Continuation of application Ser. No. 553,546, May 27, 1966. This application May 14, 1969, Ser. No. 859,530
Claims priority, application Great Britain, Jan. 12, 1966, 1,432/66

Int. Cl. C07c 5/02; C10g 13/02

U.S. Cl. 208—110

12 Claims



This invention relates to a process for the hydrogenation or hydrocracking of hydrocarbons using a Group VIII metal on a silica support prepared by an ion-exchange technique. The ion-exchange catalysts used in accordance with this invention are prepared by first exchanging hydrogen atoms on a dried silica support with alkaline cations, and then exchanging the alkaline cations with cations of a metal of Group VIII of the Periodic Table.

3,597,349

CATALYTIC COMPOSITION COMPRISING A PARTICULATE MIXTURE OF ULTRASTABLE ALUMINOSILICATE - CONTAINING SILICA-ALUMINA AND CATION-EXCHANGED Y-TYPE MOLECULAR SIEVES AND PROCESSES EMPLOYING SAME

Ralph J. Bertolacini, Chesterton, Harry M. Brennan, Hammond, and Louis C. Gutberlet, Crown Point, Ind., assignors to Standard Oil Company, Chicago, Ill.
No Drawing. Continuation-in-part of abandoned application Ser. No. 672,005, Oct. 2, 1967. This application Oct. 29, 1969, Ser. No. 872,400

Int. Cl. C10g 13/02

U.S. Cl. 208—111

28 Claims

The catalytic composition comprises a physical particulate mixture of a component (A) and a component (B). Component (A) comprises an amorphous silica-alumina support having dispersed uniformly through the matrix thereof an ultrastable, large-pore crystalline aluminosilicate material and having impregnated thereon a metal of Group VI-A, preferably molybdenum, and a metal of Group VIII, preferably cobalt; component (B) comprises Y-type molecular sieves which have been cation-exchanged with a Group VIII metal, preferably nickel. The processes are hydrocarbon-conversion processes employing this catalytic composition, particularly, a process for hydrocracking nitrogen-contaminated petroleum hydrocarbon fluids.

3,597,350

GEL FILTRATION PROCESS

Helmut Determann, Frankfurt am Main, and Theodor Wieland, Mainz, Germany, assignors to Pharmacia Fine Chemicals AB, Uppsala, Sweden
No Drawing. Continuation-in-part of application Ser. No. 750,003, Aug. 5, 1968. This application Nov. 12, 1968, Ser. No. 775,185

Int. Cl. B01d 15/08

U.S. Cl. 210—31 6 Claims
A gel filtration separating medium of grains of regenerated cellulose and a method of preparation are provided. The grains of regenerated cellulose contain water or a highly aqueous liquid, contain 2 to 25 gms. of cellulose per deciliter of grain volume, and have pore sizes mainly in the range of from 2 to 200 millimicrons.

3,597,351

PURIFICATION OF AQUEOUS MEDIA BY REMOVAL OF PHENOLIC AND METAL CONTAMINANTS THEREFROM

Kurt Landenburg, St. Louis, Bernard W. Weinrich, St. Charles, and John H. Johnson, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 27, 1968, Ser. No. 763,351

Int. Cl. C02b 1/46

U.S. Cl. 210—32 12 Claims
Process for sorption removal and optional recovery of phenolic and/or metal contamination from aqueous media broadly. Provides purified effluent streams and recovery of potentially valuable components. Process involves specific sorption of said contaminants on insoluble basic polymer products, followed by removal from aqueous media as by filtration, and permits subsequent recovery of sorbed components by elution if desired. Process has diverse utility, including treatment of beverages to improve quality, treatment of leather industry waste for sorption including optional recovery for reuse of tannins, treatment of papermill waste water for sorption of tannins, et cetera, with concurrent alleviation of waste-disposal problems where such exist.

3,597,352

SCALE INHIBITORS

James R. Stanford and Paul G. Vogelsang, Jr., Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Nov. 2, 1967, Ser. No. 680,028

Int. Cl. C09k 3/00; E21b 31/00

U.S. Cl. 252—8.55 10 Claims
Phosphated surface active hydroxy amines obtained by reacting polyphosphoric acid and/or phosphorus pentoxide with surface active hydroxyamines, e.g., C₈ to C₁₈ amines, with or without one or more hydroxy hydrocarbons, with or without neutralization, are used as scale inhibitors in brines, especially in oil wells, where calcium and barium salts are present.

3,597,353

4,5,6,7-TETRAHYDRO-BENZOTRIAZOLE AS METAL DEACTIVATOR

Donald Richard Randell, Stockport, Ernest Alfred Cox, Davyhulme, Urmston, and Alan Atkinson, Eaton, near Congleton, England, assignors to Gelgy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed July 16, 1968, Ser. No. 745,116
Claims priority, application Great Britain, July 21, 1967, 33,535/67

Int. Cl. C08f 45/70; C10m 1/32

U.S. Cl. 252—50 17 Claims
The production of 4,5,6,7-tetrahydro-benzotriazole from benzotriazole by catalytic hydrogenation and the use of the tetrahydrobenzotriazole as corrosion-inhibiting agent in novel compositions containing the same in mixture with functional materials, especially mineral oil, and varnishes and lacquers based on white spirits, are described.

3,597,354

PIEZOELECTRIC CERAMIC COMPOSITIONS

Masamitsu Nishida, Osaka-shi, and Hiromu Ouchi, Toyonaka-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

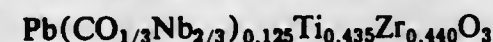
Filed Aug. 21, 1967, Ser. No. 662,036

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252—62.9 2 Claims
Piezoelectric ceramic compositions are provided which are characterized by high stability with temperature and time in resonant frequency and by high electromechanical coupling coefficients and high dielectric constants or by high electromechanical coupling coefficients and high mechanical quality factors. These ceramic compositions are ternary systems, in solid solution form, of the type formula



Optimal ternary compounds are within the area ABCDEF of FIG. 2 of the accompanying drawings; very best compounds are defined by AGHIF. An especially good material consists of the solid solution of the formula



3,597,355

HEAT TRANSFER PROCESS

Howard L. Hsu, Hickory Hills, Ill., assignor to Liquid Carbonic Corporation, Chicago, Ill.

No Drawing. Filed Oct. 16, 1969, Ser. No. 867,089

Int. Cl. C09k 3/00

U.S. Cl. 252—73 4 Claims
Liquid heat transfer process employing monocyclic terpenes as the heat-exchange medium. Particularly useful for low temperature heat-exchange operations.

3,597,356

SPECULAR ELECTROLYTIC IRON CONTAINING FLUORESCENT PARAMAGNETIC PIGMENTS FOR FLAW DETECTION

David Dierstein, Glenside, and David P. Mason, Dresher, Pa., assignors to Testing Systems, Inc., Glenside, Pa.
No Drawing. Continuation-in-part of application Ser. No. 770,422, Oct. 24, 1968, which is a continuation-in-part of application Ser. No. 484,436, Sept. 1, 1965. This application Jan. 7, 1970, Ser. No. 1,300

Int. Cl. H01f 1/28; G01n 27/82; C09k 1/02

U.S. Cl. 252—62.52 5 Claims
A fluorescent paramagnetic pigment consisting essentially of finely divided specular electrolytic iron powder coated with a fluorescent material consisting of a daylight fluorescent dyestuff in a resinous base, with the weight ratio of daylight fluorescent material to the electrolytic iron being between 1 to 1 and 1 to 100. A crack detector composition comprising a uniform dispersion of the aforesaid fluorescent paramagnetic pigment in a liquid vehicle. The method for forming the aforesaid fluorescent paramagnetic pigment which comprises uniformly mixing a solution of the fluorescent material and finely divided specular electrolytic iron powder, removing the solvent for the fluorescent material so as to deposit the fluorescent material on the electrolytic iron powder by evaporation with the weight ratio of the fluorescent material to the electrolytic iron being as aforesaid.

3,597,357

METHOD OF MAKING STRONTIUM-FERRITE MAGNETS AND THE PRODUCTS SO PRODUCED

Alexander W. Cocharde, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 19, 1968, Ser. No. 714,191

Int. Cl. C04b 32/26

U.S. Cl. 252—62.63 24 Claims
A process is described for the production of strontium ferrite magnets employing hematite and celestite as the

starting materials. Data is included on the magnetic characteristics and the hysteresis properties of the finished material.

3,597,358

TRACTION DRIVE TRANSMISSION CONTAINING ADAMANTANE COMPOUNDS AS LUBRICANT

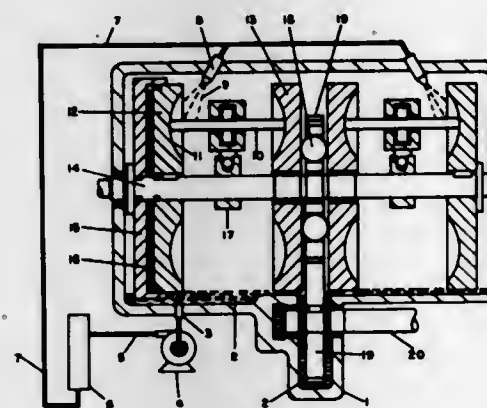
Irl N. Duling, West Chester, and David S. Gates, Swarthmore, Pa., Robert E. Moore, Wilmington, Del., and Frederick P. Glazier, Philadelphia, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Nov. 1, 1967, Ser. No. 679,801

Int. Cl. C09k 3/00; F16h 15/08

U.S. Cl. 252—73

7 Claims



A hydrocarbon base stock, useful as a lubricant for a traction drive transmission, comprises at least one C₁₂—C₄₀ saturated adamantane compound, containing no elements other than carbon, hydrogen, fluorine, and oxygen, and where said oxygen is combined in an ether or an ester linkage.

3,597,359

FUNCTIONAL FLUID COMPOSITIONS

Terrill D. Smith, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 22, 1968, Ser. No. 715,175

Int. Cl. C23f 11/12; C09k 3/00; C10m 3/40

U.S. Cl. 252—78 17 Claims
Compositions of the class which exhibit the ability to inhibit and control damage to mechanical members in contact with said compositions by the incorporation of a perfluorinated alkylene ether-containing compound having a degree of polymerization of from 1 to 50 into a class of base stocks representative of which are esters and amides of phosphorus, o-silicates and polysilicones. The compositions have many uses, among which are their use as hydraulic fluids.

3,597,360

SURGICAL SCRUB

Galen F. Collins, Bristol, Tenn., and Fred S. Barr and Charles F. Bullock, Bristol, Va., assignors to The S. E. Massengill Company, Bristol, Tenn.

No Drawing. Filed May 2, 1968, Ser. No. 726,215

Int. Cl. C11d 3/48, 3/50

U.S. Cl. 252—106 3 Claims
Various chemical disinfectants can reduce bacterial colonization for a brief period of time. However even bisphenols of the hexachlorophene type and iodine when incorporated in scrubs remove only part of the transient bacteria. Other transient bacteria, along with resident bacteria, remain and multiply within a few hours, so that the bacterial flora builds back up. For hospital workers, it would, therefore, be desirable to have a more effective scrub product. The scrub contemplated herein is effective over a longer period than those now known.

3,597,361

METHOD OF PREPARING AGGLOMERATED DETERGENT COMPOSITION

Clark A. Sumner, Downey, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

Filed May 21, 1969, Ser. No. 826,341

Int. Cl. C11d 1/12

U.S. Cl. 252—161 13 Claims
A method of producing agglomerates of dry detergent ingredients by charging particulate detergent ingredients into an agglomeration zone and maintaining a continuously falling curtain of said ingredients in said zone, contacting said particulate material in said falling curtain with a sodium salt of alkyl aryl sulfonic acid to agglomerate said particulate material, maintaining a tumbling bed of agglomerating ingredients at the base of said falling curtain and withdrawing agglomerated material from said agglomeration zone, said sodium salt of alkyl aryl sulfonic acid being prepared in situ by merging sprays of liquid caustic soda and alkyl aryl sulfonic acid.

3,597,362

GENERATION OF LIGHT BY THE REACTION OF ESTERS OF OXALIC-TYPE ACIDS

Laszlo Joseph Bollyky, Stamford, and Michael McKay Rauhut, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 491,896, Sept. 30, 1965. This application Feb. 28, 1967, Ser. No. 619,140

Int. Cl. C09k 3/00

U.S. Cl. 252—186 7 Claims
This invention relates to a process for obtaining chemiluminescent light by reacting an oxalic-type ester with a hydroperoxide in the presence of a solvent and a fluorescent compound, and to compositions incorporating part or all of these materials for the process, and to articles incorporating such compositions.

3,597,363

MODIFIED URANIUM ACTIVATED BARIUM PYROPHOSPHATE PHOSPHORS

Frank J. Avella, Flushing, N.Y., assignor to General Telephone & Electronics Laboratories Incorporated
No Drawing. Continuation-in-part of application Ser. No. 683,478, Nov. 16, 1967. This application Apr. 7, 1969, Ser. No. 814,171

Int. Cl. C09k 1/30

U.S. Cl. 252—301.1 11 Claims
Uranium activated barium pyrophosphate phosphors are disclosed in which magnesium, cadmium, calcium, strontium or zinc are substituted for part of the barium. These phosphors emit green light when excited by ultraviolet radiation, X-rays, cathode rays or ion bombardment and may be used for color correction in low, medium and high pressure mercury discharge lamps, in cathode ray tube screens and in devices for detecting and measuring the intensity of ion and X-ray radiation.

3,597,364

OPTICAL BRIGHTENING AND NEW COMPOSITIONS OF MATTER

Ichiro Okubo and Michihiro Tsujimoto, Tokyo, Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

No Drawing. Continuation of application Ser. No. 772,873, June 14, 1968, which is a division of application Ser. No. 550,957, May 18, 1966, now Patent No. 3,400,124, which in turn is a continuation-in-part of applications Ser. No. 220,904, Aug. 31, 1962, now Patent No. 3,262,929, and Ser. No. 502,414, Oct. 22, 1965, now Patent No. 3,347,694. This application July 17, 1969, Ser. No. 847,512

Int. Cl. D06l 3/12

U.S. Cl. 252—301.2W 6 Claims
Optical brightening compositions and brightened products are disclosed involving the use of 2-styrylnaphthox-

azole and various styryl-substituted derivatives. The compositions are especially directed to improving fibers, fabrics, and the like.

3,597,365 PHOSPHOR

Harold Francis Ward, London, England, assignor to British Lighting Industries Limited, London, England
Filed Feb. 28, 1968, Ser. No. 709,064
Claims priority, application Great Britain, May 10, 1967, 21,676/67

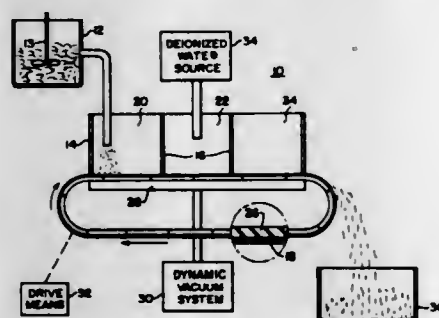
Int. Cl. C09k 1/04; C22b 59/00
U.S. Cl. 252—301.4 13 Claims

A phosphor is produced by heating together trivalent cerium oxide and aluminium oxide to produce cerous aluminium oxide having the β -alumina crystal structure. For the production of a cerous manganese aluminium oxide phosphor, divalent manganese oxide may be included in the initial mixture or may be heated in admixture with the cerous aluminium oxide. In all cases any one or more of the oxides may be replaced at least partially by a compound which yields the oxide under the heating conditions.

3,597,366 HALOPHOSPHATE PHOSPHOR PROCESS

Eugene A. Graff, Cedar Grove, and Gilbert P. Mortensen, Livingston, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 30, 1968, Ser. No. 787,978
Int. Cl. C09k 1/36

U.S. Cl. 252—301.4P 2 Claims



A method of processing halophosphate phosphor to improve the performance of a fluorescent lamp which incorporates the phosphor. The phosphor is acid washed and then separated from the washing solution by utilizing a dynamic vacuum in conjunction with a filter. Rinsing of the phosphor is similarly conducted until the pH of the rinse water is above a predetermined value to insure that substantially all acid is removed. This provides the dual beneficial effect of speeding up the phosphor processing and improving the performance of the lamps which incorporate the phosphor.

3,597,367 COORDINATION CATALYSTS FOR ALPHA-OLEFIN POLYMERIZATION

David Apotheker, Wilmington, Arthur L. Barney, Deerpark, Wilmington, and Nicolas Brodoway, Claymont, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,553
Int. Cl. C08f 15/04, 15/40

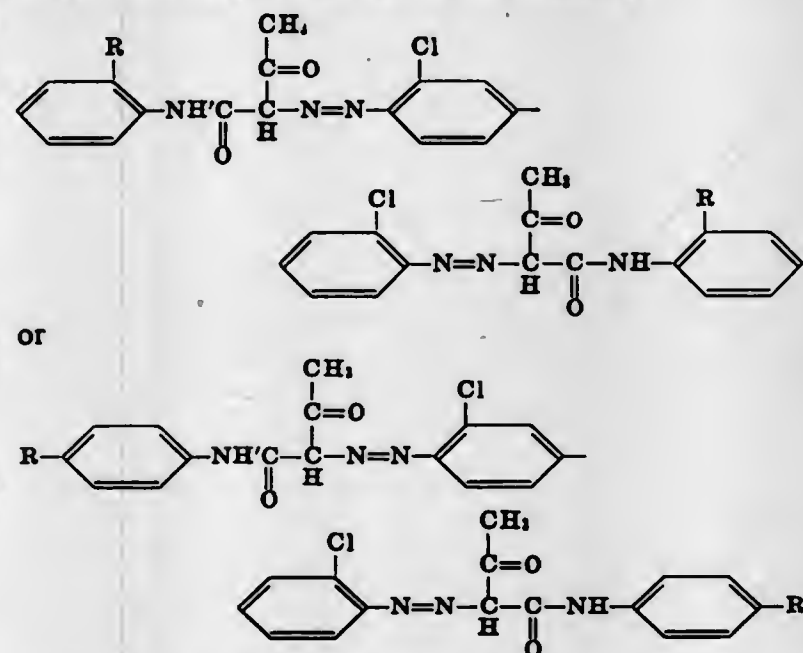
U.S. Cl. 252—429 7 Claims
A catalyst system particularly useful in alpha-olefin copolymerization is prepared by the admixture of an ether complex of aluminum borohydride; selected organic-soluble halovanadium compounds such as vanadium oxytrichloride; and a selected Lewis acid, such as aluminum trichloride or aluminum trichloride. Solubility of the aluminum trichloride can be enhanced by pretreatment with an

alkyl halide, such as 1-iodoethane. The catalyst may be formed separately or in situ in the polymerization reaction mixture.

3,597,368 LIQUID DEVELOPER FOR ELECTROPHOTOGRAPHY CONTAINING YELLOW PIGMENT

Satoru Honjo, Yasuo Tamai, Masaya Yamamoto, and Hisatake Omo, Asaka-shi, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan
No Drawing. Filed Aug. 12, 1968, Ser. No. 751,703
Claims priority, application Japan, Aug. 11, 1967, 42/51,600

Int. Cl. G03g 9/04 9 Claims
U.S. Cl. 252—62.1
A liquid developer for developing a latent electrostatic image containing at least one of the following:



wherein R is OCH₃, OC₂H₅ or OC₃H₇.

3,597,369 POLYETHERS WHICH ARE COPOLYMERS BASED ON TETRAMETHYLETHYLENE OXIDE AND PROCESS OF MAKING SAME

George Edward Foll, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Feb. 16, 1966, Ser. No. 527,758
Claims priority, application Great Britain, Mar. 8, 1965, 9,735/65; July 28, 1965, 32,266/65; Dec. 9, 1965, 52,335/65

Int. Cl. C08g 23/06 17 Claims
U.S. Cl. 260—2
Thermoplastic polyethers of improved thermal stability and elevated melting point are obtained by copolymerizing 25% to 75% by weight of tetramethylethylene oxide with from 75% to 25% by weight of a cyclic 1,2-epoxide such as cyclohexene 1,2-epoxide and/or 4-vinyl cyclohexene-1,2-epoxide, an epihalohydrin, a butene-2-oxide or a 1-methyl or 1,1-dimethyl derivative thereof, or a mixture of a cyclic 1,2-epoxide with an epihalohydrin and/or 1,2-dialkylethylene oxide.

3,597,370 HOLLOW BODIES OF COPOLYMERS OF VINYL CHLORIDE AND ETHYLENE

Herbert Bartl, Cologne-Stammheim, Ernst Willi Müller, Leverkusen, and Frank Wingler, Cologne-Kalk, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 11, 1967, Ser. No. 652,434
Claims priority, application Germany, Aug. 17, 1966, F 49,964

Int. Cl. B01v 13/02; C08v 1/26 4 Claims
U.S. Cl. 260—2.5
Copolymers of vinyl chloride and ethylene together with the optional presence of propylene in the form of

hollow bodies having a bulk density of 0.005 to 0.5 g./cm.³ and a diameter of 0.01 to 2 mm. and process of producing by blowing, said bodies being useful as packing material and insulating material.

3,597,371 POLYURETHANE FOAMS BASED ON ALKYLENE OXIDE ADDUCTS OF ALKYLENE-BIS-PHENYLENE DIAMINES

J. W. Britain, New Martinsville, W. Va., assignor to Mobay Chemical Company, Pittsburgh, Pa.
No Drawing. Continuation of application Ser. No. 613,087, Feb. 1, 1967, which is a continuation-in-part of application Ser. No. 452,898, May 3, 1965, which in turn is a continuation-in-part of application Ser. No. 54,546, Sept. 7, 1960. This application June 5, 1969, Ser. No. 833,875
Int. Cl. C08g 22/08, 22/44

U.S. Cl. 260—2.5AQ 6 Claims
Polyurethane foams made by reacting an organic polyisocyanate in the presence of a blowing agent with an alkylene oxide adduct of alkylene-bis-phenylene diamines.

3,597,372 PRODUCTS AND PROCESS FOR PRODUCTION OF THE SAME

Paul M. Cook, Atherton, Calif., assignor to Raychem Corporation, Redwood City, Calif.
No Drawing. Filed Oct. 31, 1960, Ser. No. 65,953
Int. Cl. C29c 13/00

U.S. Cl. 260—4 35 Claims
1. An article of manufacture composed of an organic polymeric composition comprising a cross-linked elastomeric component having incorporated therewith and substantially uniformly distributed therein an organic, normally solid heat-flowable constituent having a softening temperature above about 140° F., said heat-flowable constituent being present in an amount sufficient to hold said elastomeric component in a stretched, elastically deformed condition, said article being elastomeric and having a Young's modulus determined in accordance with ASTM D-638 in the range of from about 50 to about 3000 p.s.i. at storage temperatures and at the softening temperature of said heat-flowable constituent and being in a dimensionally heat-unstable condition capable of altering its physical form upon application of heat alone to soften said heat-flowable constituent, said article upon application of such heat assuming a dimensionally heat-stable condition, the article in its altered, heat-stable form being elastomeric and having a Young's modulus determined in accordance with ASTM D-638 in the range of from about 50 to about 3000 p.s.i.

3,597,373 COATING COMPOSITION OF A MIXTURE OF A VINYL CHLORIDE-ACETATE COPOLYMER WITH A MIXTURE OF ACRYLIC RESINS AND ONE-HALF SECOND CELLULOSE ACETATE BUTYRATE

Robert M. Bregoff, 10818 Kane St., Whittier, Calif. 90604, and Harvey J. Golumbic, 1517 Sunrise Lane, Fullerton, Calif. 92633
No Drawing. Continuation of application Ser. No. 654,376, July 19, 1967. This application Jan. 5, 1970, Ser. No. 502
Int. Cl. C08f 37/18; C09d 3/76; D06p 1/76

U.S. Cl. 260—17R 6 Claims
A coating composition for use on porous and non-porous substrates is composed of a vinyl chloride-acetate copolymer, acrylic resins, plasticizers, stabilizers, antioxidants and pigments or dyes in solution in a solvent.

The acrylic resins are methyl methacrylate acidic copolymer of medium molecular weight and an acidic number of from 12 to 15 in about equal parts with n-butyl methacrylate. The plasticizers are polymerized castor oil and modified methyl acetyl ricinolate in a ratio of about 1.3 parts by weight to 1 part by weight of the vinyl chloride copolymer. The solvent content is varied to suit the particular method of coating. In most applications, coatings on vinyls and leather, for example, one-half second cellulose acetate butyrate is used to block plasticizer migration to the surface of the coating or film.

3,597,374 COATING PROCESS FOR FIBROUS SUBSTRATES

Leo E. Nagan, Mercer Island, Wash., assignor to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed Sept. 28, 1966, Ser. No. 582,496
Int. Cl. C08f 29/30

U.S. Cl. 260—17.4 2 Claims
A coating composition for paper and similar substances which comprises an aqueous solution of starch, a water-soluble cationic polymer and a water-soluble acrolein polymer.

3,597,375 ADHESIVE COMPOSITION FROM LIGNOSULFONATE PHENOLASTS

Charles H. Ludwig and Albert W. Stout, Bellingham, Wash., assignors to Georgia-Pacific Corporation, Portland, Ore.
No Drawing. Filed July 30, 1969, Ser. No. 846,217
Int. Cl. C08g 5/18, 37/14

U.S. Cl. 260—17.5 12 Claims
An adhesive resin composition prepared by prereacting lignosulfonate with phenol under alkaline conditions and subsequently reacting the lignosulfonate-phenol product with formaldehyde under alkaline conditions.

3,597,376 ALCOHOL SOLUBLE POLYAMIDE RESINS AND METHOD OF PREPARING THE SAME

Hiroji Tashiro, Tokyo, Japan, assignor to Ajinomoto Co., Inc., and Toka Shikiso Chemical Industry Co., Ltd., both of Tokyo, Japan
No Drawing. Continuation-in-part of application Ser. No. 636,594, May 6, 1967. This application Mar. 4, 1968, Ser. No. 709,938
Claims priority, application Japan, May 16, 1966, 41/30,666

Int. Cl. C08g 20/26 11 Claims
U.S. Cl. 260—18N
Polyamide resins soluble in lower alkanols and having relatively high softening points are obtained by condensing a dimerized fatty acid, a diamine and a spiroacetal dicarboxylic acid or its alkyl ester in the presence of a molecular-weight controlling agent. The resins are good binders for printing inks.

3,597,377 BUTYL RUBBER ADHESIVE AND CAULKING COMPOSITIONS

Anthony J. Berejka, Cranford, and Anthony Lagani, Jr., Newark, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed May 6, 1968, Ser. No. 727,002
Int. Cl. C08d 9/12

U.S. Cl. 260—27 5 Claims
An adhesive sealant base comprising butyl rubber and a tackifier is prepared by heat treating in the presence of (1) a halogenated phenol aldehyde resin or (2) a phenol aldehyde resin in conjunction with a halide containing activator.

3,597,378
POLYAMIDE WAXES IN ASPHALT AND BITUMEN
 Richard Kubiak, Cincinnati, and William P. Enlow, Reading, Ohio, assignors to Carlisle Chemical Works, Inc., Reading, Ohio
 No Drawing. Filed Aug. 29, 1968, Ser. No. 756,319
 Int. Cl. C08g 51/52

U.S. Cl. 260—28 **6 Claims**
 A bituminous product, preferably asphalt, is prepared having as a flow point stabilizer a high melting synthetic wax or resinous amide which is either (1) the condensation product of (a) $\text{HOOCR}_1\text{COOH} + (\text{b}) \text{R}_2\text{COOH} + (\text{c}) \text{R}_3\text{NHR}_4\text{NHR}_5$ or (2) $\text{R}_2\text{COOH} + \text{R}_3\text{NHR}_4\text{NHR}_5$, where R_1 is aliphatic hydrocarbon of 1 to 34 carbon atoms, R_2 is aliphatic hydrocarbon or haloalkyl of at least seven carbon atoms, R_3 is hydrogen or lower alkyl, R_4 is aliphatic hydrocarbon of 2 to 10 carbon atoms, R_5 is alkyl of at least 19 carbon atoms. The molar ratio of (b) to (a) can be from

$$\frac{1(b)-6(b)}{(a)}$$

The acid groups of (a)+(b) equal the amine groups of (c).

The preferred amide products for use in the invention come within product (1) and are made from reactants (a) $\text{HOOC}(\text{CH}_2)_m\text{COOH} + (\text{b}) \text{CH}_2(\text{CH}_2)_o\text{COOH}$ or $\text{CH}_2(\text{CH}_2)_o(\text{CH}=\text{CH})_p\text{COOH} + (\text{c}) \text{H}_2\text{N}(\text{CH}_2)_n\text{NH}_2$, where n is 2 to 10, m is 4 to 20, o is 6 to 22 and p is 1 to 3.

3,597,379
ADHESIVE COMPOSITION OF PHENOL-FORMALDEHYDE RESIN AND RUBBER LATICES
 Robert J. Van Valkenburg, Lincoln, Nebr., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 No Drawing. Filed Apr. 15, 1968, Ser. No. 721,146
 Int. Cl. C08g 5/06

U.S. Cl. 260—29.3 **3 Claims**
 Rubber is reinforced with a cord bonded to the rubber with an adhesive containing a phenol/formaldehyde resin and certain rubber latices present in certain amounts to produce an all-purpose adhesive useful in a one-step bonding system.

3,597,380
MODIFIED METHYLOLATED ALIPHATIC CARBAMATE PERMANENT PRESS TEXTILE RESIN
 Angelo Joseph Bertini and Morris Stephen Edmondson, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.
 No Drawing. Filed July 25, 1968, Ser. No. 747,492
 Int. Cl. C08g 9/30

U.S. Cl. 260—29.4 **3 Claims**
 Preparing a textile treating resin by reacting melamine with an aqueous solution of a methylolated aliphatic carbamate having free formaldehyde therein whereby reducing the free formaldehyde content. Suitable carbamates are methylolated alkyl, hydroxyalkyl and alkoxyalkyl carbamates. The pH ranges from 3.5 to 7.5 depending upon the specific carbamate used and the ratio of free formaldehyde to melamine is generally from about 6:1 to 9:1.

3,597,381
COLOR STABILIZED AQUEOUS DISPERSIONS OF IMINATED VINYL ADDITION POLYMERS AND PROCESS FOR PREPARING SAME
 Robert A. Ripley, Ottawa, Ontario, Canada, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Continuation-in-part of application Ser. No. 637,084, May 9, 1967. This application Jan. 21, 1970, Ser. No. 4,780
 Int. Cl. C08f 37/00, 37/14

U.S. Cl. 260—29.6HN **13 Claims**
 Aqueous dispersions of iminated vinyl addition polymers containing small amounts of an ammonia derivative

compound, such as hydroxylamine hydrochloride, hydrazines, semicarbazides, and their derivatives, exhibit improved color stability.

3,597,382
CARBOXYL-CONTAINING ETHYLENE COPOLYMERS
 George N. Foster, Hillsborough Township, N.J., assignor to Union Carbide Corporation
 No Drawing. Filed Oct. 30, 1967, Ser. No. 679,207
 Int. Cl. C08f 45/44; C08k 1/44

U.S. Cl. 260—32.6 **16 Claims**
 The slip properties of both carboxyl containing ethylene polymers containing from about 2 to 25% by weight of an α , β -ethylenically unsaturated carboxylic acid and alkali metal, alkaline earth, or zinc salts, of these copolymers have been improved by incorporating therein from about 0.02 to 1.0% by weight of secondary fatty acid amides containing from about 20 to 24 carbon atoms and in which the nitrogen atom is substituted with a saturated hydrocarbon radical having from 14 to 26 carbon atoms.

3,597,383
PROCESS FOR MAKING A GRANULAR, DRY POLYESTER RESIN MOLDING COMPOSITION AND THE PRODUCT PRODUCED THEREBY
 Robert James Shrontz, Perrysburg, Ohio, assignor to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed Feb. 10, 1969, Ser. No. 798,137
 Int. Cl. C08g 51/04, 51/34

U.S. Cl. 260—32.8 **8 Claims**
 A process for making a granular polyester resin molding composition comprising mixing two different unsaturated polyester resins in an inert organic liquid dispersing medium in the presence of a finely divided particulate mineral filler and a peroxide catalyst and removing the liquid medium.

3,597,384
ACRYLIC VARNISH
 Václav Kugler, Richard Chromček, Karel Kliment, Jaroslava Otoupalová, Vladimír Stoy, and Miroslav Štol, Prague, Czechoslovakia, assignors to Československá Akademie Věd, Prague, Czechoslovakia
 No Drawing. Filed May 14, 1968, Ser. No. 728,912
 Int. Cl. C08f 29/50

U.S. Cl. 260—32.6 **7 Claims**
 Films which are fully transparent and prevent fogging of windows and the like are prepared from varnishes mainly consisting of polymers of ethyleneglycol monomethacrylate or acrylate and may contain the corresponding polymeric acrylates or methacrylates of diethyleneglycol or polyethyleneglycol, together with minor amounts of hydrophobic acrylic resins or nitrocellulose. The liquid medium of the varnish should contain a small amount of a high boiling solvent and enough volatile solvent to dissolve the resinous ingredients.

3,597,385
PROCESS FOR THE MANUFACTURE OF SELF-EXTINGUISHING, NON-GLOWING, FILLER-CONTAINING RUBBER BLENDS
 Klaus Komorniczky, Turnich-Balkhausen, Franz-Josef Dany, Hurth, near Cologne, and Joachim Kandler and Hans-Peter Ben, Lechenich, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany
 No Drawing. Filed Nov. 26, 1969, Ser. No. 880,437
 Claims priority, application Germany, Dec. 4, 1968, P 18 12 521.8
 Int. Cl. C08c 11/24; C08f 45/30

U.S. Cl. 260—33.8 **8 Claims**
 Production of self-extinguishing, non-glowing, filler-containing rubber blends which are capable of being

vulcanized, by incorporating a flameproofing agent into the filler-containing rubber blend. The flameproofing agent is a ternary mixture consisting of pulverulent red phosphorus, ammonium bromide and a chlorinated paraffin.

3,597,386
FURFURYL ALCOHOL COMPOSITIONS
 Leon de Brabander, Wilmington, Del., assignor to Haver Industries, Inc., Wilmington, Del.
 No Drawing. Filed Apr. 25, 1968, Ser. No. 724,230
 Int. Cl. C08g 9/24

U.S. Cl. 260—37 **23 Claims**
 The addition of a small amount of a mono-olefin polymer, preferably polypropylene, to a filled furfuryl alcohol resin containing a latent sulfonic acid salt catalyst dissolved in water reduces the amount of cracking of the product and improves the chemical resistance. Furthermore, the addition of a small amount of mono-olefin polymer to this mixture further improves the workability of the mixture and further improves the product. The preferred latent catalyst mixture contains ammonium benzene sulfonate and ammonium p-toluenesulfonate dissolved in water. With asbestos filler, a mono-olefin polymer addition also improves furfuryl alcohol resins containing dry catalysts.

3,597,387
STABILIZED OXYMETHYLENE POLYMERS
 Leon Starr, Plainfield, and David Jon Runyon, Brick Township, Ocean County, N.J., assignors to Celanese Corporation, New York, N.Y.
 No Drawing. Filed Sept. 15, 1969, Ser. No. 858,146
 Int. Cl. C08g 51/08, 51/60

U.S. Cl. 260—37AL **12 Claims**
 Pigmented oxymethylene polymers are stabilized by a novel stabilizer which comprises a phosphine or phosphine oxide, an oxymethylene polymer antioxidant, a metal oxide and a modified fatty acid polyamide. This unique stabilizer need only be used in very limited quantities to impart an improvement in thermal stability. A preferred composition comprises (A) a tertiary phosphine oxide, (B) a phenolic antioxidant, (C) an alkaline earth metal oxide and (D) a modified fatty acid polyamide. On molding these novel compositions, there are no mold deposits.

3,597,388
POLYCHLOROPRENE FOR SURFACE COATING COMPOSITIONS
 Klaus Hoehne, Leverkusen, and Georg Freudenberg, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
 No Drawing. Continuation-in-part of application Ser. No. 486,216, Sept. 9, 1965. This application Nov. 3, 1967, Ser. No. 680,345
 Int. Cl. C08f 45/04; C08k 1/06

U.S. Cl. 260—41R **4 Claims**
 Masticated storage stable compositions comprising a polychloroprene of medium crystallization tendency having specified hardness and Mooney viscosity, a polychloroprene of strong crystallization tendency having specified hardness and Mooney viscosity, magnesium oxide and zinc oxide, process for preparing the same and paint and surface coating, including the same.

3,597,389
MOISTURE RESISTANT DENTAL RESTORATIVE COMPOSITIONS
 Charles W. Taylor, East Oakdale Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 No Drawing. Filed Mar. 15, 1968, Ser. No. 713,318
 Int. Cl. C08f 43/04

U.S. Cl. 260—41 **4 Claims**
 Dental compositions are provided of inorganic particulate material as filler, tertiary aromatic amine as poten-

tial accelerator and, as vehicles or binders, methacrylate esters of aromatic or unsaturated lower aliphatic diacid hemiesters with di- or tri-primary diols or triols. Polymerization is initiated in these combinations by free radical generating catalysts to give products which have relatively low sensitivity to moisture and are usefully employed in dental cavities as fillings.

3,597,390
STABILIZED HIGH TEMPERATURE THERMOPLASTICS
 Gerald W. Miller, Pittsburgh, Pa., assignor to Mobay Chemical Company, Pittsburgh, Pa.
 No Drawing. Filed Mar. 18, 1968, Ser. No. 714,026
 Int. Cl. C08f 45/58; C08g 51/58; C09k 3/28

U.S. Cl. 260—45.7 **11 Claims**
 Self-extinguishing thermoplastics stabilized against thermal degradation with a stabilizing amount of a tris-(halophenyl)phosphite, a tris-(halo-alkylphenyl)phosphite, a tris-(halonaphthyl)phosphite, a tris-(halo-alkylnaphthyl)phosphite, a tris-(halo-alkylphenyl)phosphine, a tris-(halonaphthyl)phosphine, a tris-(halo-alkylnaphthyl)phosphine, a poly(halo-phenylphosphite) a poly(halonaphthylphosphite), a poly(halo-alkylnaphthylphosphite), a poly(halo-alkylphenylphosphite) and mixtures thereof.

3,597,391
AROMATIC POLYAMIDE IMINES, NOVEL N-ARYL SUBSTITUTED - POLYBENZIMIDAZOLES DERIVED THEREFROM, AND PROCESS FOR PREPARATION THEREOF
 Shigeyoshi Hara, Moriya Uchida, and Masao Senoo, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan
 No Drawing. Filed Sept. 6, 1968, Ser. No. 758,113
 Claims priority, application Japan, Sept. 11, 1967, 42/58,253; Sept. 16, 1967, 42/59,277; Oct. 19, 1967, 42/67,420, 42/67,421
 Int. Cl. C08g 53/02, 33/06

U.S. Cl. 260—47 **22 Claims**
 A process for preparing a polyamide imine and a heat-stable polybenzimidazole which comprises reacting an aromatic triamine such as 2,4'-diaminodiphenylamine wherein two amino groups are attached to ortho-positions of an aromatic ring, or an aromatic tetramine such as N,N'-bis-(2-aminophenyl)-p-phenylenediamine wherein each two amino groups are attached to ortho positions of each separate aromatic ring, with an aromatic dicarboxylic halide to form a polyamide imine which is soluble in a normal organic solvent, and heating or chemically treating said polyamide imine to convert it into a heat stable polybenzimidazole.

3,597,392
FUNCTIONALLY SUBSTITUTED HIGHLY ORDERED AZO-AROMATIC POLYIMIDES
 Hartwig Bach and Helmuth E. Hinderer, Durham, N.C., assignors to Monsanto Company, St. Louis, Mo.
 No Drawing. Filed Jan. 21, 1969, Ser. No. 792,824
 Int. Cl. C08g 20/32

U.S. Cl. 260—47CP **6 Claims**
 A class of ordered fiber and film-forming aromatic polyamide acids and corresponding polyimides derived from certain symmetrical aromatic azo diamines bearing acid, hydroxyl or mercapto substituents or derivatives hydrolyzable to such substituents have been found to possess excellent thermal, and mechanical properties useful in fibers, films and other shaped articles.

3,597,393

FUNCTIONALLY SUBSTITUTED HIGHLY ORDERED AZO-AROMATIC POLYAMIDES
Hartwig C. Bach and Helmut E. Hinderer, Durham, N.C., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,770
Int. Cl. C08g 20/20, 20/30, 20/32

U.S. Cl. 260—47CP

4 Claims

A class of ordered fiber and film forming aromatic polyamides derived from certain substituted symmetrical aromatic azo diamines has been found to possess excellent thermal, mechanical and electrical properties useful in the manufacture of fibers, films and other shaped articles.

3,597,394

BRANCHING OR CROSSLINKING OF POLYCARBONATES

Herbert L. Rawlings, New Martinsville, W. Va., assignor to Mobay Chemical Company, Pittsburgh, Pa.
No Drawing. Filed Oct. 16, 1969, Ser. No. 867,065
Int. Cl. C08g 17/13

U.S. Cl. 260—47XA

5 Claims

Polycarbonates are branched or crosslinked by the addition of the cyclic trimer of phosphonitric chloride.

3,597,395

MOLECULAR COMPLEXES OF POLYMERIC CYCLIC CARBAMATES WITH SULFATES, SULFONATES AND SULFONAMIDES

Wilhelm E. Wallis, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Application Aug. 19, 1966, Ser. No. 573,488, which is a continuation-in-part of application Ser. No. 12,254, Mar. 2, 1960. Divided and this application Feb. 4, 1969, Ser. No. 796,594
Int. Cl. C08f 7/12

U.S. Cl. 260—47

1 Claim

Complex obtained by mixing a polyvinyl lactam with an organic sulfur compound, characteristically a sulfate, sulfonate, or sulfonamide.

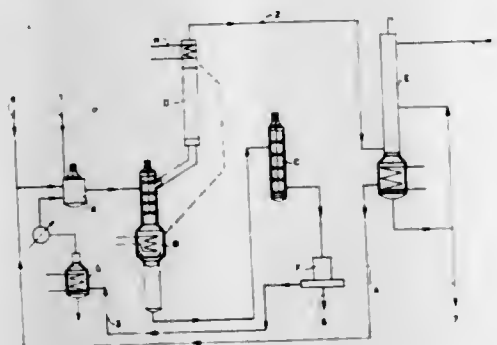
3,597,396

STABILIZATION OF POLYOXYMETHYLENES
Jacob Ackermann, Pierino Radici, and Giorgio Anessi, Milan, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy

Filed July 25, 1968, Ser. No. 747,732
Claims priority, application Italy, Aug. 1, 1967, 19,064/67
Int. Cl. C08g 1/24

U.S. Cl. 260—67

7 Claims



Monomeric formaldehyde evolving during stabilization of a polyoxymethylene by means of a reagent blocking the terminal groups of the latter is recovered by carrying out the stabilization reaction in an inert, water-immiscible solvent, at boiling temperature of the mixture, the boiling point of the solvent being lower than that of the reagent, and the boiling temperature of the mixture being in excess of the temperature at which formaldehyde would polymerize; the evolved vapours are rectified to recover formaldehyde.

3,597,397

PROCESS FOR THE PREPARATION OF OXYMETHYLENE COPOLYMERS

Catherine S. H. Chen, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.
Continuation of application Ser. No. 704,862, Feb. 12, 1968. This application Sept. 23, 1969, Ser. No. 861,228
Int. Cl. C08g 1/16

U.S. Cl. 260—67

4 Claims

Oxymethylene copolymers are prepared by reacting trioxane with a comonomer such as ethylene oxide in the presence of methylene chloride and a polymerization catalyst comprising boron fluoride. These copolymers can be used in a variety of applications such as film production, molding articles and the like.

3,597,398

SPANDEX POLYMERS OF POLYMERIC DIOLS, FUNCTIONALLY ALIPHATIC DIISOCYANATES AND NON-HINDERED FUNCTIONALLY ALIPHATIC DIAMINES

Burns Davis and Charles J. Kibler, Kingsport, Tenn., and James G. Smith, Waterloo, Ontario, Canada, assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation-in-part of applications Ser. No. 378,950 and Ser. No. 379,002, both filed June 29, 1964. This application Mar. 18, 1968, Ser. No. 713,967
Int. Cl. C08g 22/04

U.S. Cl. 260—77.5AM

18 Claims

Elastomeric spandex fibers of segmented urea/urethane/ether copolymers wherein the ether portion is derived from a poly(tetramethylene) glycol or a copolymer thereof which may include 1,2-cyclohexylenedimethylenoxy (called OBN) repeat units, the urethane portion is derived from a functionally aliphatic non-hindered hydrocarbon diisocyanate, the urea portion is derived by chain-extension from water and/or a functionally aliphatic non-hindered hydrocarbon diamine, said segmented copolymer having from 2 to 8 percent by weight of urea segments whereby the segmented copolymer can be dissolved in normally useful solvents for spinning spandex fibers and solutions can be obtained which possess substantially constant viscosity, are stable against gelation and can be spun into textile fibers. When chain-extension is only 70 to 98 percent completed before spinning, the fibers spun can be improved by treatment with a water medium such as steam or humidity in the atmosphere. When OBN is present as a repeat unit in the copolymer glycol the low temperature properties of the spandex fibers are enhanced.

3,597,399

PROCESS FOR RETARDING THE HARDENING OF EPOXIDE RESINS UTILIZING SULFO COMPOUNDS AND RETARDING COMPOSITIONS

Edgar Lieske, Dusseldorf, and Erwin Wehrlich, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany
No Drawing. Filed Apr. 22, 1969, Ser. No. 818,421
Claims priority, application Switzerland, Apr. 29, 1968, 6,341/68; Germany, Feb. 1, 1969, P 19 04 934.4
Int. Cl. C08g 30/12

U.S. Cl. 260—77.5

11 Claims

A process for retarding the hardening of an epoxide resin at elevated temperature which comprises admixing a retarding amount of a sulfo compound having the formula



wherein X represents a member selected from the group consisting of lower alkoxy, hydroxyl and chlorine, n represents an integer selected from the group consisting of 0 and 1 and R represents a member selected from the group consisting of NH_2 — and organic radicals, to a hardenable mixture of (1) a hardenable epoxide compound containing more than one epoxide group in the

3,597,403

NOVEL CATALYSTS FOR THE RING-OPENING POLYMERIZATION OF UNSATURATED ALICYCLIC COMPOUNDS

Ellert A. Ofstead, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Oct. 27, 1969, Ser. No. 869,909
Int. Cl. C08f 7/02, 15/04

U.S. Cl. 260—88.2

8 Claims

There is disclosed a process for the ring-opening polymerization of certain unsaturated alicyclic compounds which comprises subjecting said unsaturated alicyclic compounds to a catalyst system comprising (A) at least one compound selected from a group consisting of alkylaluminum dihalides, alkylaluminum sesquihalides and aluminum halides, (B) at least one compound selected from the group consisting of molecular oxygen, chlorine, bromine, iodine and cyanogen halides, and (C) at least one transition metal compound selected from the group consisting of tungsten and molybdenum carbonyl complex compounds corresponding to the formula $M(CO)_nR$ where M is tungsten and molybdenum and R is an unsaturated hydrocarbon compound having at least two non-conjugated carbon-to-carbon double bonds and wherein R is attached to the transition metal by coordination through two carbon-to-carbon double bonds.

3,597,404

CATALYTIC PROCESS FOR PREPARING TRI-AZINES AND NITRILE POLYMERS

William E. Emerson and Edwin Dorfman, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 570,183, Aug. 4, 1966, which is a continuation-in-part of application Ser. No. 441,331, Mar. 19, 1965, both now abandoned. This application May 1, 1967, Ser. No. 634,848
Int. Cl. C08f 3/14

U.S. Cl. 260—88.7

7 Claims

This invention (A) relates to a process for preparing triazines, nitrile polymers, and cross-linked polymers or copolymers by (1) condensing a nitrile in the presence of or (2) contacting a polymer or copolymer with a metal oxide catalyst selected from the Periodic Table Groups I-B, II-A, II-B, III, IV, V, VII-B, and VIII, preferably Groups I-B, II-A, II-B, III, IV-A, and V-A such as silver oxide, mercuric oxide, cupric oxide, cadmium oxide, the oxides of lead, antimony oxide, barium oxide, thallium oxide, and zinc oxide, the nitrile typically being perfluorobutyronitrile, difluoroacetonitrile, difluorochloroacetonitrile, perfluoroglutaronitrile, perfluorosuccinonitrile, benzonitrile, trifluoroacetonitrile, pentafluoropropionitrile, perfluoromalononitrile, bromotetrafluoropropionitrile, trichloroacetonitrile, bromooctafluorovaleronitrile, perfluorooctanonitrile, bromohexafluorobutyronitrile, and the like; and (B) relates to the nitrile polymers and cross-linked polymers or copolymers produced by the above process and/or such compounds containing the above-identified catalysts.

3,597,405

POLYTETRAFLUOROETHYLENE POWDER AND METHOD FOR MAKING THE SAME

Yutaka Kometani, Takarazuka-shi, Shun Kozuma, Osaka, and Takeshi Suzuki, Takeaki Nakajima, and Chuzo Okuno, Osaka-fu, Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Apr. 17, 1967, Ser. No. 631,442
Claims priority, application Japan, Apr. 21, 1966, 41/25,567
Int. Cl. C08f 1/84, 3/24, 45/04

U.S. Cl. 260—92.1

4 Claims

A process for the preparation of agglomerated polytetrafluoroethylene powder of good powder flow properties,

molecule and (2) an organic polycarboxylic acid anhydride epoxide resin hardener, said hardenable mixture being maintained at a temperature sufficient to cause an epoxide resin hardening reaction. The compositions containing the sulfo compounds delay the hardening of the hardenable epoxide resin mixture for varying times depending on the amount of retarding compound utilized as well as the hardenable epoxide resin and the temperature.

3,597,400

SYNTHETIC LINEAR TRANSPARENT POLYAMIDES

Yoshikazu Kashiro, Ryouzo Takada, Takaya Yasumoto, and Masakazu Inoue, Nagoya-shi, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan
Filed June 30, 1969, Ser. No. 837,618

Claims priority, application Japan, July 2, 1968, 43/45,619
Int. Cl. C08g 20/20

U.S. Cl. 260—78R

2 Claims

Synthetic linear polyamide consisting essentially of a polycondensate from substantially equimolar amounts of a diamine component consisting of bis(4-aminocyclohexyl)methane and hexamethylene diamine, and a dicarboxylic component consisting of terephthalic acid and isophthalic acid, the composition ratio of the diamine component and the dicarboxylic acid component being within a specific range and said polyamide having a relative viscosity η_{rel} , measured in a solution of 1 g. of the polyamide in 100 cc. of 98% concentrated sulfuric acid at 25°C., of at least 1.9, and process for preparation thereof.

3,597,401

LACTAM POLYMERIZATION WITH THIOLACTONE INITIATORS

James E. McGrath, Somerville, and Markus Matzner, Edison, N.J., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Dec. 8, 1969, Ser. No. 883,359
Int. Cl. C08g 20/18

U.S. Cl. 260—78

10 Claims

Thiolactones are utilized as polymerization initiators or activators with alkaline catalysts in the anionic polymerization of lactam monomers so as to provide for a rapid polymerization process. The polymers thus obtained have good physical properties and good color.

3,597,402

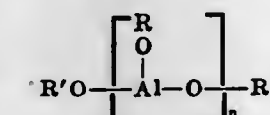
POLYMERIZATION OF CYCLIC ALKYLENE EPISULFIDES WITH CATALYST SYSTEMS OF A POLYMERIC ALUMINUM ALCOHOLATE AND AN ORGANOMETALLIC

Hideo Tomomatsu, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Apr. 4, 1969, Ser. No. 813,721
Int. Cl. C08g 23/06, 25/00

U.S. Cl. 260—79

16 Claims

High molecular weight polymers are obtained from the polymerization of cyclic ethylene and propylene episulfides and the co-polymerization of cyclic ethylene and propylene oxides with cyclic ethylene and propylene episulfides employing a binary catalyst system of an organometallic compound of dialkyl zinc or trialkyl aluminum and a polymeric aluminum alcoholate having the formula:



Cyclic alkylene episulfides employed are those containing sulfur-carbon rings consisting of one sulfur atom in a ring with two or three carbon atoms. The polyepisulfides and co-polymers of episulfides are useful in the elastomer field.

having particle diameters ranging 100–5,000 microns and an angle of repose of not greater than 45°.

3,597,406

POLYMERS OF HYDROCARBON SUBSTITUTED 1,5-CYCLOOCTADIENES AND METHODS FOR THEIR POLYMERIZATION

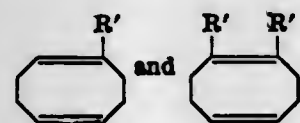
Nissim Calderon, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Continuation-in-part of application Ser. No. 785,032, Dec. 10, 1968, which is a continuation of application Ser. No. 477,035, Aug. 3, 1965, which in turn is a continuation-in-part of application Ser. No. 448,872, Apr. 16, 1965. This application Apr. 30, 1969, Ser. No. 820,632

Int. Cl. C08f 7/02

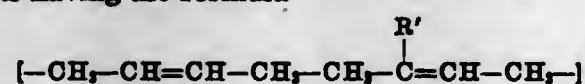
U.S. Cl. 260—93.1

8 Claims

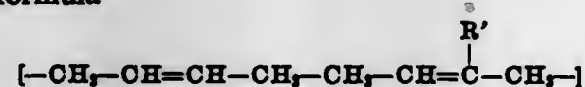
There is disclosed a method for the ring opening polymerization of hydrocarbon substituted cyclooctadienes of the formula



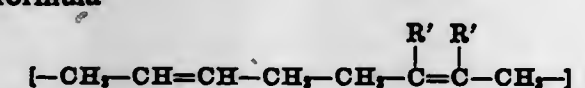
wherein R' is an alkyl, aryl, aralkyl, alkaryl, cycloalkyl or bicycloalkyl radical which comprises polymerizing these hydrocarbon substituted 1,5-cyclooctadienes in the presence of a catalyst system comprising (A) at least one organometallic compound wherein the metal is selected from the group consisting of Ia, IIa, IIb and IIIa of the Periodic Table of Elements, (B) at least one transition metal salt selected from the group consisting of tungsten and molybdenum halides and (C) at least one compound of the general formula R—Y—H wherein Y is oxygen; H is hydrogen and R is a radical selected from the group consisting of (1) hydrogen, (2) alkyl, (3) aryl, (4) arylalkyl, (5) alkaryl, (6) alkenyl, and (7) radicals of (2) through (6) wherein at least one hydrogen of the radical R may be substituted by at least one hydroxyl OH group. Polymers consisting of repeating units having the formula



or the formula



or the formula



wherein R' is a methyl, ethyl, propyl or butyl radical, are also disclosed.

3,597,407

DIENE POLYMERIZATION WITH ORGANOMETAL AND IRON COMPLEX

Henry L. Hsieh, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Original application Dec. 7, 1964, Ser. No. 416,607, now Patent No. 3,475,395, dated Oct. 28, 1969. Divided and this application June 11, 1969, Ser. No. 832,444

Int. Cl. C08d 3/06

U.S. Cl. 260—94.3

10 Claims

Polymers of conjugated dienes are prepared by contacting the monomer system with a catalyst which forms on mixing (1) a compound selected from the group consisting of certain organozinc and organoaluminum compounds and (2) the reaction product of an iron salt with an N,N-dimethylamide of a fatty acid.

**3,597,408
CONTINUOUS CHLORINATION OF
POLYETHYLENE**

Hans-Georg Trieschmann, Hambach, Gerhard Zeitler, Hessheim, Pfalz, Lothar Reuter and Heiner Dickhauser, Ludwigshafen (Rhine), and Helmut Pfannmueller, Limbergerhof, Pfalz Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 26, 1968, Ser. No. 755,396
Claims priority, application Germany, Aug. 29, 1967, P 17 20 296.9

Int. Cl. C08f 27/03

U.S. Cl. 260—94.9

7 Claims

A continuous process for the chlorination of relatively coarse particled high pressure polyethylene as a suspension of 2–6 mm. particles in a liquid chlorohydrocarbon with withdrawal of the chlorinated polyethylene as a solution in the chlorohydrocarbon.

3,597,409

PROCESS FOR RECOVERING IMMUNOGLOBULIN A AND IMMUNOGLOBULIN M

Charles Benedict Breuer, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 25, 1970, Ser. No. 40,399

Int. Cl. C07g 7/00

U.S. Cl. 260—112B

6 Claims

This disclosure describes a multistep process for recovering an immunoglobulin A enriched preparation and an immunoglobulin M enriched preparation from human blood protein fractions, said preparations being useful for the prophylaxis and therapy of certain infectious diseases.

3,597,410

PROCESS FOR RETARDING THE HARDENING OF EPOXIDE RESINS USING A BARBITURIC RETARDER AND RETARDING COMPOSITIONS

Edgar Lieske, Dusseldorf, and Erwin Weinrich, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

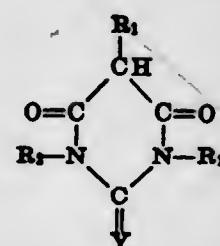
No Drawing. Filed Apr. 22, 1969, Ser. No. 818,422
Claims priority, application Switzerland, Apr. 29, 1968, 6,342/68; Germany, Feb. 1, 1969, P 19 04 936.6

Int. Cl. C08g 30/10

U.S. Cl. 260—77.5R

9 Claims

A process for retarding the hardening of an epoxide resin at elevated temperatures which comprises admixing a retarding amount of a barbituric compound having the formula



wherein Y is a member selected from the group consisting of O and S, R₂ represents members selected from the group consisting of hydrogen and alkyl having from 1 to 8 carbon atoms, phenyl, and halogen and nitro substituted derivatives thereof, and R₁ represents members selected from the group consisting of hydrogen, nitro and nitroso, to a hardenable mixture of (1) a hardenable epoxide compound containing more than one epoxide group in the molecule and (2) an organic polycarboxylic acid anhydride epoxide resin hardener, said hardenable mixture being maintained at a temperature sufficient to cause an epoxide resin hardening reaction. The compositions containing the barbituric compounds delay the hardening of the hardenable epoxide resin mixture for varying times depending on the amount of retarding compound utilized as well as the hardenable epoxide resin and the temperature.

3,597,411

HARDENABLE EPOXIDE RESIN COMPOSITIONS CONTAINING NITROPHENOLIC HARDENING RETARDANTS AND PROCESS FOR RETARDING THE HARDENING OF EPOXIDE RESIN COMPOSITIONS

Erwin Weinrich and Manfred Budnowski, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf, Germany

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,420
Claims priority, application Switzerland, Apr. 25, 1968, 6,173/68; Germany, Feb. 1, 1969, P 19 04 935.5

Int. Cl. C08g 30/10

U.S. Cl. 260—47EC

8 Claims

A process for retarding the hardening of an epoxide resin at elevated temperatures which comprises admixing a retarding amount of an aromatic acidic phenolic compound having at least one acidic phenolic hydroxyl and at least two nitro groups in the molecule to a hardenable mixture of (1) a hardenable epoxide compound containing more than one epoxide group in the molecule and (2) an organic polycarboxylic acid anhydride epoxide resin hardener, said hardenable mixture being maintained at a temperature sufficient to cause an epoxide resin hardening reaction. The compositions containing the aromatic acidic phenolic compound delay the hardening of the hardenable epoxide resin mixture for varying times depending on the amount of retarding compound utilized as well as the hardenable epoxide resin and the temperature.

3,597,412

BASIC TRIAZOLE CONTAINING MONO-AZO DYESTUFFS

Reinhard Mohr and Johann Ostermeier, Offenbach am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

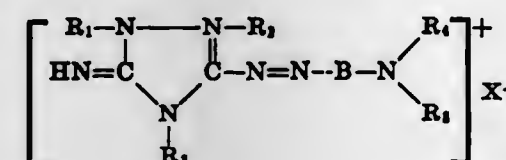
No Drawing. Continuation-in-part of application Ser. No. 522,057, Jan. 21, 1966. This application Jan. 8, 1969, Ser. No. 789,963

Int. Cl. C09b 29/06; D06p 1/02

U.S. Cl. 260—146

7 Claims

Basic azo dyestuffs of the formula:



wherein R₁ is aryl, R₂ and R₃ are alkyl or aralkyl, R₄ and R₅ are unsubstituted or substituted alkyl or aralkyl or are joined together to form a ring, B is a divalent benzene or naphthalene radical and X⁻ is an anion.

3,597,413

CYANOALKOXYBENZENE DIAZONIUM COMPOUNDS

Michael F. Mizianty, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.

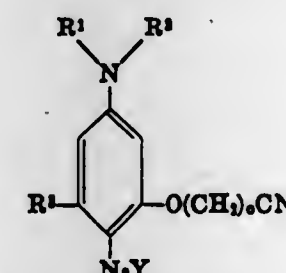
No Drawing. Filed June 18, 1968, Ser. No. 737,854

Int. Cl. C07c 113/04; G03c 1/52

U.S. Cl. 260—141

3 Claims

A high-speed diazo-type reproduction material suitable for both one-component and two-component diazo-type reproduction processes comprising a diazonium salt of the formula



wherein R¹ and R² are selected from alkyl, aralkyl, and the atoms necessary to form a heterocyclic ring with the amino nitrogen atom; R³ is selected from hydrogen, alkoxy, and halogen; n is an integer of up to 4; and Y is an anion.

Such diazonium salts are especially suited in two-component diazo reproduction processes utilizing ammonia development.

3,597,414

PROCESS FOR THE REDUCTION OF NITROBENZENE-3,4-DICARBOXYLIC ACID TO AZO AND AZOXY COMPOUNDS

Max Gruffaz and Bernard Rollet, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Oct. 30, 1967, Ser. No. 679,237

Claims priority, application France, Nov. 8, 1966, 82,938

Int. Cl. C07d 27/00

U.S. Cl. 260—143

6 Claims

Azobenzene-3,3',4,4'-tetracarboxylic acid and azoxybenzene-3,3',4,4'-tetracarboxylic acid are made by reducing nitrobenzene-3,4-dicarboxylic acid with aluminium in an aqueous alkali metal hydroxide solution.

3,597,415

ERYTHROMYCIN AMIDES AND PROCESS FOR PREPARING SAME

Anthony A. Sinkula, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

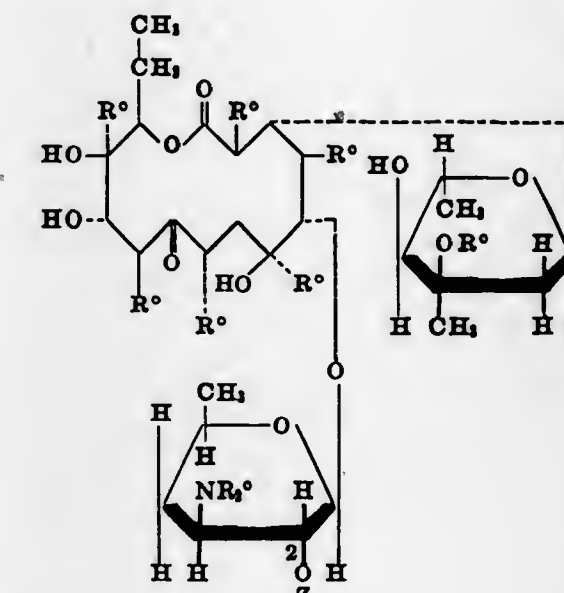
No Drawing. Filed May 14, 1969, Ser. No. 824,679

Int. Cl. C07c 129/18

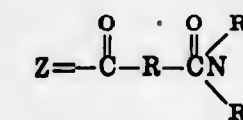
U.S. Cl. 260—210E

14 Claims

Erythromycin amides having the following formula:



wherein



R' = CH₃

R = the radical obtained by the removal of the two carboxyl groups from a dicarboxylic acid which can be dehydrated to an inner anhydride

R' and R'' = H, alkyl of from 1 to 20 carbon atoms, inclusive, and isomeric forms thereof, cycloalkyl of 3 to 8 carbon atoms, inclusive, and aralkyl of not more than 12 carbon atoms

Erythromycin amides are superior tasting erythromycin compounds possessing erythromycin antibacterial activities and the same uses as erythromycin.

3,597,416
SOIL ANTI-REDEPOSITION AGENTS, THEIR USE AND DETERGENT COMPOSITIONS CONTAINING SAME

Francis L. Diehl, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed May 31, 1968, Ser. No. 735,497

Int. Cl. C08b 13/02, 15/02

U.S. Cl. 260—212 8 Claims

A process for the prevention of redeposition of soil during the laundering process by the use of anti-redeposition agents, e.g., an inoic combination of dodecyltrimethylphosphonium chloride and sodium carboxymethylcellulose, and detergent compositions containing said anti-redeposition agents are disclosed.

3,597,417
PROCESS FOR THE PREPARATION OF FATTY ACID ESTERS OF SUGAR GLYCOSIDES

David V. Myhre, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed July 23, 1968, Ser. No. 746,764

Int. Cl. C07c 69/32

U.S. Cl. 260—234 7 Claims

A preferably solvent-free process for the preparation of long chain fatty acid ester ($C_{10}-C_{22}$) of sugar glycosides is disclosed. The sugar glycoside esters have utility as additives in culinary mixes.

3,597,418
SPIRO[3 α ,5 α -CYCLO-5 α -ANDROSTANE-7,1'-CYCLOPROPANES], THEIR 3 β -HYDROXY- Δ^5 AND 3-KETO- Δ^4 -COUNTERPARTS, AND THE 19-NOR ANALOGUES OF THE FOREGOING

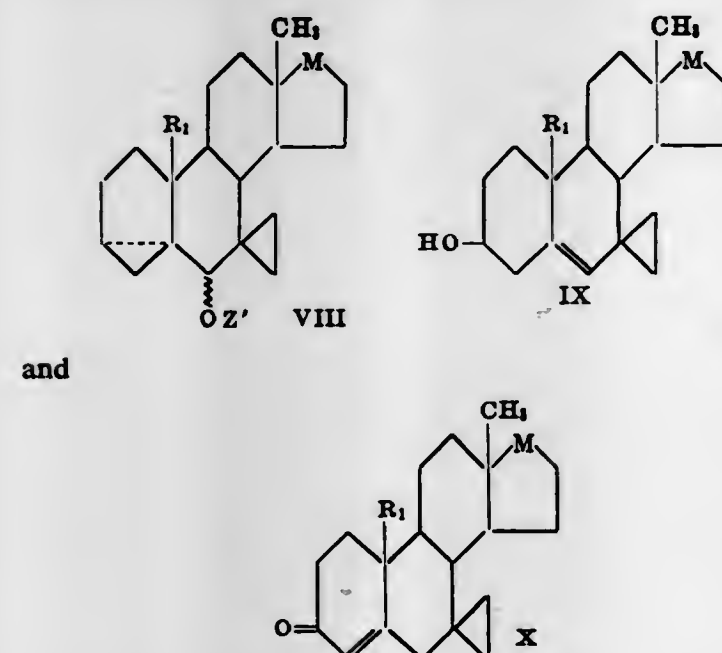
J. Allan Campbell and John C. Babcock, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed July 29, 1969, Ser. No. 845,891

Int. Cl. C07c 173/10

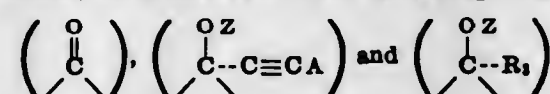
U.S. Cl. 260—239.5 13 Claims

This invention relates to novel spiro[3 α ,5 α -cyclo-5 α -androstane-7,1'-cyclopropanes], their 3 β -hydroxy- Δ^5 , and 3-keto- Δ^4 -counterparts, and the 19-nor analogues of the foregoing, embraced by the formulae:



wherein f is a generic expression denoting α - and β -bonds and mixtures thereof; R_1 is selected from the group consisting of hydrogen and methyl; Z' is selected from the group consisting of hydrogen, alkyl of from one through twelve carbon atoms, and the acyl radical of a hydrocar-

bon carboxylic acid containing from one through twelve carbon atoms; M is selected from the group consisting of



wherein A is selected from the group consisting of hydrogen, alkyl of from one through four carbon atoms, chlorine, bromine and trifluoromethyl, R_2 is selected from the group consisting of hydrogen, alkyl of from one through twelve carbon atoms and alkenyl of from two through twelve carbon atoms, and Z is selected from the group consisting of hydrogen and the acyl radical of a hydrocarbon carboxylic acid containing from one through twelve carbon atoms. The compounds of Formula VIII have anabolic, androgenic, anti-fertility, cholesterol mobilizing, erthropoietic, estrogenic and antihormonal activities. The compounds of Formulae IX and X have cholesterol and triglyceride suppressing, estrogenic, antiestrogenic and erythropoietic properties. The aforesaid compounds (VIII, IX and X) are consequently useful in treating mammals, including humans, and birds in those conditions where the foregoing properties make the new compounds valuable in medical and veterinary practice.

3,597,419
ALKYLIDENEDIOXY-PROGESTERONE COMPOUND

Klaus Prezewowsky, Hermann Steinbeck, and Rudolf Wlebert, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,075

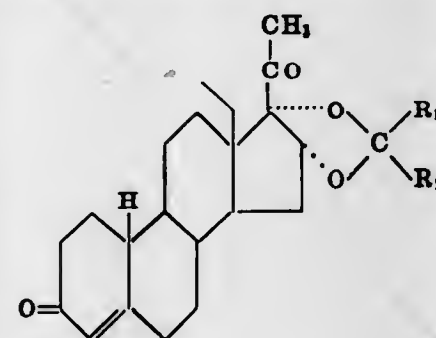
Claims priority, application Germany, Feb. 29, 1968,

P 16 68 688.7

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55 9 Claims

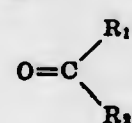
A 16 α ,17-alkylidenedioxy-18-methyl-19-nor-progesterone compound having the formula



wherein R_1 and R_2 are the same or different and are hydrogen, alkyl having 1 to 4 carbon atoms, aralkyl, phenyl or substituted phenyl. The compounds have a high progestational action and in particular an action of protracted duration.

The compounds are made by condensing either:

- 16 α ,17-dihydroxy-18-methyl-19-nor-4-pregnene-3,20-dione or
- 16 α ,17-dihydroxy-3-alkoxy-18-methyl-19-nor-1,3,5(10)-pregnatriene-20-one with a carbonyl compound of the formula



wherein R_1 and R_2 are the same or different and are hydrogen or alkyl having 1 to 4 carbon atoms and wherein R_1 and R_2 may also be aralkyl or phenyl or substituted phenyl in case the starting material is the compound at (a), which process in case that the starting material (b) is used is followed by further steps to convert the 1,3,5(10)-pregnatriene-20-one to a 4-pregnene-3,20-dione.

3,597,420
TERTIARY-AMINO-LOWER-ALKOXY-9-BENZYLIDENE-XANTHENES AND THIOXANTHENES

Sydney Archer, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

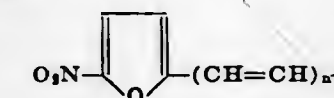
No Drawing. Continuation of applications Ser. No. 698,399, Jan. 17, 1968, Ser. No. 615,058, Feb. 10, 1967, and Ser. No. 355,475, Mar. 27, 1964. This application Feb. 17, 1969, Ser. No. 799,915

Int. Cl. C07d 7/46, 65/16

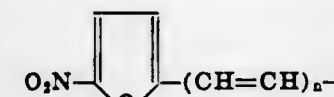
U.S. Cl. 260—240TC 8 Claims

Lower-tertiary-amino-lower-alkoxy substituted xanthenes and thioxanthenes bearing in the 9-position a secondary or tertiary carbinol group, a benzylidene group or a benzyl group are prepared from the appropriate hydroxy substituted 9-xanthenones or 9-thioxanthenones. They have useful pharmacological properties, e.g., as anti-inflammatory, anti-secretory and anti-ulcerogenic agents.

wherein R_1 and R_2 are each members selected from the group consisting of hydrogen, halogen, alkyl, alkoxy, nitro, amino, acylamino, carboxyalkyl, carboxamido, hydroxymethyl, O-acylated hydroxymethyl, O-alkylated hydroxymethyl and



wherein n is 0 or 1, with at least one of said R_1 and R_2 always being



3,597,421
Cephalosporin Sulfoxides

J. Allan Webber, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Jan. 21, 1969, Ser. No. 792,815

Int. Cl. C07d 99/24

U.S. Cl. 260—243 5 Claims

A number of novel 3-functionalizedmethyl cephalosporin sulfoxides which are useful intermediates in the preparation of cephalosporin antibiotics are disclosed and claimed. These novel sulfoxides are obtained by the oxidation of the corresponding cephalosporin compounds.

3,597,422
PYRAZINOISINDOLES AND A METHOD FOR THEIR PREPARATION

Martin Winn, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Apr. 10, 1969, Ser. No. 815,212

Int. Cl. C07d 51/72

U.S. Cl. 260—268TR 3 Claims

Potassium amide in liquid ammonia effects a novel ring contraction with 2,5-benzodiazocines to yield isoindoline and isoindoles.

3,597,423
5-NITROFURYL-2-s-TRIAZOLO-[4,3-a]-PYRIDINE DERIVATIVES

Fritz Wiedemann, Mannheim-Waldhof, Max Thiel, Mannheim, Kurt Stach, Mannheim-Waldhof, and Wolfgang Voemel, Mannheim, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschränkter Haftung, Mannheim-Waldhof, Germany

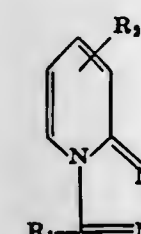
No Drawing. Filed Aug. 8, 1967, Ser. No. 659,038

Claims priority, application Germany, Aug. 31, 1966, B 88,700, B 88,701, B 88,702; Apr. 20, 1967, B 92,146; Apr. 22, B 92,194

Int. Cl. C07d 31/42

U.S. Cl. 260—240 11 Claims

Novel compounds useful as chemo-therapeutic agents because of their outstanding effectiveness against a wide range of micro-organisms, such as, *Staphylococcus aureus*, *Escherichia coli*, *Proteus mirabilis*, *Pseudomonas aeruginosa* and *Streptococcus pyogenes* are disclosed. The compounds are 5-nitrofuryl-2-s-triazolo-[4,3-a]pyridine derivatives having the following structural formula:



3,597,424
GOLD-YELLOW TO RED-YELLOW CATIONIC DYES AND THEIR PREPARATION

Frank Ray Hunter, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 7, 1968, Ser. No. 774,184

Int. Cl. C07d 27/38

U.S. Cl. 260—240.8 6 Claims

A process for preparing gold-yellow to red-yellow cationic dyes by condensing 1,3,3-trimethyl-2-methylene indoline-omega-aldehyde with a tetrahydroquinoxaline in an alcoholic solvent in the presence of a mineral acid catalyst, and the dyes derived therefrom.

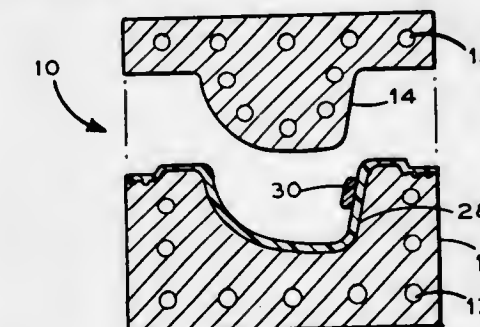
3,597,425
PLASTIC MOLDING PROCESS

Alfred Shaines, Fanwood, N.J., assignor to American Standard Inc., New York, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,934

Int. Cl. B29c 9/00; B29d 9/08; B29g 1/00

U.S. Cl. 264—246 8 Claims



An improved dual compression molding process which includes the step of placing at least one heated preform of dissimilar thermo-setting resin on a nearly vertical surface of a partially cured base molding. A feature of the described process is that one or more preforms of resin can be distributed anywhere on the surface of the partially cured base molding which is to be coated therewith.

3,597,426
UNSYMMETRICAL DISUBSTITUTED PERTHIOCYANATES

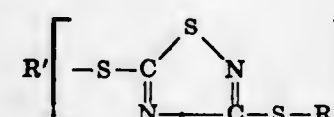
Raymond Seltzer, New York, N.Y., assignor to M & T Chemicals Inc., New York, N.Y.

No Drawing. Filed Oct. 2, 1968, Ser. No. 764,626

Int. Cl. C07d 55/50, 91/60

U.S. Cl. 260—248CS 3 Claims

This invention relates to novel compositions and to a process for preparing a compound comprising recurring units of the formula



in which R is different from R' and each is selected from the group consisting of alkyl, activated aryl, aralkyl, activated alkaryl, alkenyl in which the double bond is not attached on the alpha carbon atoms, and heterocyclic groups, and n is an integer 1-3.

3,597,427

1,2-DIHYDROPYRIDO[3,4-e]-as-TRIAZINES

Benjamin Arthur Lewis, Suffern, and Robert Gordon Shepherd, South Nyack, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Jan. 13, 1969, Ser. No. 790,833

Int. Cl. C07d 55/10

U.S. Cl. 260-248AS 6 Claims

This disclosure describes compounds of the class of 3-substituted-pyrido[3,4-e]-as-triazines and 1,3-disubstituted-1,2-dihydropyrido[3,4e]-as-triazines useful as antibacterial, antifungal, analgesic and antiinflammatory agents.

3,597,428

SPRAY-DRYING SALTS OF HEXAMETHYLENE TETRAMINE

Ingenuin A. Hechenbleikner, Cincinnati, Ohio, assignor to Carlisle Chemical Works, Inc., Reading, Ohio

Filed May 1, 1969, Ser. No. 820,984

Int. Cl. C07d 55/60

U.S. Cl. 260-248.5 14 Claims

Hexamethylene tetramine salts are prepared by spray drying aqueous solutions of hexamethylene tetramine and acids.

3,597,429

DERIVATIVES OF TETRAZOLYL ALKANOIC ACIDS

Shin Hayao, Elkhart, and Wallace Glenn Strycker, Goshen, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Feb. 15, 1968, Ser. No. 705,632

Int. Cl. C07d 55/56, 57/00

U.S. Cl. 260-268PH 7 Claims

A series of derivatives of ω -(5-substituted-2-tetrazolyl) alkanolic acids that is useful as anti-inflammatory agents. These compounds are prepared by reacting a tetrazolyl acyl halide with a suitable amine or a tetrazole with an appropriate haloalkyl amide or ester.

3,597,430

9-AMINO-9-AMINOALKYL DERIVATIVES OF ACRIDAN

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Feb. 26, 1969, Ser. No. 802,653

Int. Cl. C07d 37/22

U.S. Cl. 260-279 6 Claims

9-amino-9-aminoalkyl derivatives of acridan optionally substituted by chlorine, trifluoromethyl or methylthio have neuroleptic and antidepressant activity. The compounds are generally prepared by reaction of a 9-aminoalkyl acridinium acid addition salt with an amine such as ammonia, a lower alkyl amine, benzylamine, phenethylamine, 1-phenyl-2-aminopropane or 2-phenylcyclopropylamine. The acridinium salts are obtained from the corresponding 9-hydroxy-9-aminoalkylacridans by treatment with a mineral acid.

3,597,431

1-(4'-SUBSTITUTED-PHENYL)-2-(PHENYL LOWER ALKYL)-1,2,3,4-TETRAHYDROISOQUINOLINES

John Anthony Coppola, Suffern, N.Y., Rolf Paul, River Vale, N.J., and Elliott Cohen, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 758,588, Sept. 9, 1968. This application July 23, 1969, Ser. No. 844,157

Int. Cl. C07d 35/10

U.S. Cl. 260-288 10 Claims

This disclosure describes compounds of the class of substituted 1-phenyl-1,2,3,4-tetrahydroisoquinolines useful as antifertility and hypocholesteremic agents.

3,597,432

4-PIPERIDINOMETHYL - 3,4-DIHYDRO-1-BENZO-THIEPIN-5(2H)-ONES

Richard J. Mohrbacher, Fort Washington, and Vasken Paragamian, Dresher, Pa., assignors to McNeil Laboratories, Incorporated

No Drawing. This application is a division of Ser. No. 753,018, Aug. 12, 1968, now Patent No. 3,505,355, which is a continuation-in-part of applications Ser. No. 635,389, May 2, 1967, and Ser. No. 462,403, June 8, 1965, both now abandoned. This application July 22, 1969, Ser. No. 870,931

Int. Cl. C07d 29/34

U.S. Cl. 260-293.4E 2 Claims

The compounds are of the class of dihydrobenzothiepin-5(2H)-ones, useful for their respective pharmacological properties, such as hypotensive, vasopressor or antiinflammatory activity, depending upon the type of derivative considered.

3,597,433

10,11-DIHYDRO-5,10-(IMINOMETHANO)-5H-DIBENZO[a,d]CYCLOHEPTENE AND DERIVATIVES THEREOF

Thomas A. Dobson and Martin A. Davis, Montreal, Quebec, Canada, assignors to Ayerst, McKenna and Harrison Limited, Ville St. Laurent, Quebec, Canada

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,723

Int. Cl. C07d 33/10

U.S. Cl. 260-286R 5 Claims

There are disclosed herein 10,11-dihydro-5,10-(iminomethano)-5H-dibenzo[a,d]cycloheptene and its corresponding 12-methyl, 12-ethyl, 12-propyl, 12-butyl, 12-cyclopropylmethyl, 12-benzyl, 12-phenethyl, 12-trimethoxybenzyl, 12-dimethylaminoethyl, 12-diethylaminoethyl, 12-dimethylaminopropyl, 12-diisopropylaminopropyl, 12-pyrrolidinoethyl, 12-piperidinoethyl, 12-(4'-methylpiperazinoethyl), 12-(4'-phenylpiperazinoethyl) and 12-morpholinoethyl derivatives and their hydrochloride salts, as well as the corresponding 13-ketones used as intermediates in the preparation of the above compounds. The compounds have anticonvulsant activity substantially free from ataxic side-effects, and methods for their preparation and use are also disclosed.

3,597,434

BIS- β,β -DI-CYANOVINYLETETRA-HYDROQUINOLINE COMPOUNDS

Max A. Weaver, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

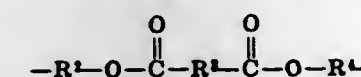
No Drawing. Filed Oct. 17, 1967, Ser. No. 675,799

Int. Cl. C07d 33/10

U.S. Cl. 260-287R 4 Claims

Compounds having two β,β -di-cyanovinylene-1,2,3,4-tetrahydroquinoline moieties linked together via the ring

nitrogen atom of each tetrahydroquinoline moiety by a diester group having the formula



wherein R² and R⁴ each is alkylene and R³ is alkylene or an unsubstituted or substituted phenylene group.

3,597,435

SUBSTITUTED PHENOXYMETHYLDIOXOLANES

William J. Houllhan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Apr. 28, 1969, Ser. No. 819,955

Int. Cl. C07d 31/28

U.S. Cl. 260-297R 6 Claims

Substituted phenoxy-methyl-dioxolanes, e.g., 2-(4-nitrophenyl)-4-(4-chlorophenoxy-methyl)-1,3-dioxolane, useful as tranquilizers.

3,597,436

8,9-DEHYDRO-13-AZA ESTRONES

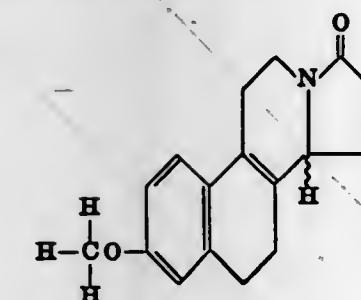
Henderikus Obias Huisman, de Savornin Lohmanlaan 20, and Willem Nico Speckamp, Fidellolaan 79, both of Amstelveen, Netherlands

No Drawing. Filed Mar. 5, 1969, Ser. No. 804,705

Int. Cl. C07d 101/00

U.S. Cl. 260-289AZ 2 Claims

The specification discloses the 3-methyl ether of 8,9-dehydro-13-aza-estrone having the formula



which is useful as an antifertility agent in mammals and methods and intermediates for synthesizing that compound. Such intermediates include N[2-(6-methoxy-1,2,3,4-tetrahydronaphthylidene)-ethyl]succinimide and 1-carbomethoxy-3,3-bis-benzylcarbamatepropane.

3,597,437

STABILIZED POLYMERIZABLE HETEROCYCLIC NITROGEN COMPOUNDS

Robert E. Reusser, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed June 13, 1968, Ser. No. 736,601

Int. Cl. C07d 31/20

U.S. Cl. 260-290 8 Claims

Polymerizable heterocyclic nitrogen compounds are stabilized so as to inhibit coloration and prolific polymerization by admixing therewith a hydrocarbyl-substituted hydroxyphenylalkyl ether.

3,597,438

REDUCTIVE AMINATION OF ALDEHYDES WITH RHODIUM CATALYSTS

Loren D. Brake, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 6, 1968, Ser. No. 727,012

Int. Cl. C07c 85/08; C07d 31/02

U.S. Cl. 260-296R 8 Claims

Reductive amination of aldehydes in the presence of a rhodium catalyst is conducted at temperatures of from 0° to 125° C. Rhodium catalysts are particularly directive toward secondary amines.

3,597,439

2-AMINO BENZOTHAZOLE PHOSPHATES AND PHOSPHONATES

Llewellyn W. Fancher, Orinda, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

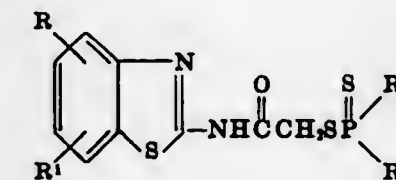
No Drawing. Filed June 30, 1969, Ser. No. 837,880

Int. Cl. C07d 91/46

U.S. Cl. 260-305

Compounds of the formula

7 Claims



in which R and R¹ are hydrogen or halogen, R² is alkoxy, and R³ is alkoxy or alkyl, and their use as insecticides.

3,597,440

SALTS OF ISOPERTHIOCYANIC ACID

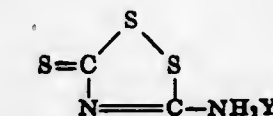
Raymond Seltzer, New York, N.Y., and William J. Considine, Somerset, N.J., assignors to M&T Chemicals Inc., New York, N.Y.

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,916

Int. Cl. C07d 91/04

U.S. Cl. 260-306.8R 1 Claim

This invention relates to salts of isopertthiocyanic acid of the formula



wherein Y is an acid. Such salts may be used in the control of bacteria, fungi, and marine organisms.

3,597,441

CYANETHYLATION OF 5,5-DIMETHYLHYDANTOIN

Johannes Wollner, Kapellen, Kreis Moers, and Hans-Albrecht Meyer-Stoll, Neukirchen-Vluyn, Germany, assignors to Rheinpreussen Aktiengesellschaft für Bergbau und Chemie, Homberg (Lower Rhine), Germany

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,548

Claims priority, application Germany, Feb. 14, 1967, R 45,274

Int. Cl. C07d 49/32

U.S. Cl. 260-309.5 6 Claims

3-cyanethyl-5,5-dimethylhydantoin or 1,3-dicyanethyl-5,5-dimethylhydantoin are produced by reacting 5,5-dimethylhydantoin and acrylonitrile in an aqueous medium at about 50-150° C. and a pH of about 7-9.5. The compounds produced are useful as intermediates in the pharmaceutical and polymer arts.

3,597,442

METHOD FOR THE PREPARATION OF 2-ARYLBENZIMIDAZOLES

Ronald J. McCaully, Malvern, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Oct. 31, 1968, Ser. No. 772,399

Int. Cl. C07d 49/38

U.S. Cl. 260-309.2 3 Claims

The disclosure describes a method for the direct conversion of o-aminobenzophenone oximes into 2-arylbenzimidazoles. The conversion is carried out by warming a solution of an appropriately substituted o-aminobenzophenone oxime in trifluoroacetic acid on a steam bath for two to eighteen hours. Evaporation of the excess trifluoroacetic acid, and treatment of the residue with ether affords a trifluoroacetate salt of the substituted benzimidazole. Conventional methods may be used to convert the salt to the free base. The products are useful as anthelmintics.

3,597,443
METHOD FOR THE PRODUCTION OF ETHYLENE UREA
 Milton Crowther, Salisbury, N.C., assignor to Proctor Chemical Company, Inc., Salisbury, N.C.
 No Drawing. Filed Apr. 8, 1968, Ser. No. 719,735
 Int. Cl. C07d 49/34

U.S. Cl. 260—309.7 **7 Claims**
 Ethylene urea substantially free of water-insoluble by-products such as occur in conventional commercial ethylene urea is made by adding about 1 to 10% formaldehyde or an equivalent aldehyde donor to the reaction mass of urea and ethylene diamine as the mass cools down from maximum reaction temperature around 270° C. and before it reaches 200° C. The product is useful in forming formaldehyde adducts used in crease-proofing of textiles.

3,597,444
METHOD OF SYNTHESIZING SELENOUREAS FROM THIOUREAS
 Daniel L. Klayman, Chevy Chase, and Robert J. Shine, West Hyattsville, Md., assignors to the United States of America as represented by the Secretary of the Army
 No Drawing. Filed Apr. 2, 1969, Ser. No. 812,872
 Int. Cl. C07d 49/34

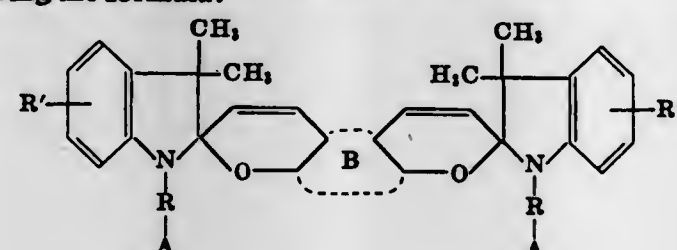
U.S. Cl. 260—309.7 **4 Claims**
 This invention relates to the preparation of selenoureas having either aliphatic or aromatic substituents by displacement of the thiomethyl moiety from S-methylthiopseudoureas by hydroselenide ions in solutions having a pH of 8 to 9. This method provides yields of substituted selenoureas in the range of 60–70 percent. Selenoureas are useful in synthesizing a wide variety of seleno substituted compounds, for example the seleno substituted steroids of U.S. Pat. No. 3,372,173.

3,597,445
1H-ISOINDOLE INTERMEDIATES
 William J. Houlihan, Mountain Lakes, and Marcel K. Eberle, Madison, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
 No Drawing. Filed June 19, 1968, Ser. No. 738,121
 Int. Cl. C07d 27/36

U.S. Cl. 260—326.1 **2 Claims**
 Process for preparing 5-hydroxy-5-aryl-2,3-dihydro-5H-imidazo[2,1-a]isoindoles, e.g., 5-(p-chlorophenyl)-5-hydroxy-2,3-dihydro-5H-imidazo[2,1-a]isoindole. An appropriately substituted 3-aryl phthalimidine is treated with triethyloxonium borontetrafluoride to provide an intermediate 3-ethoxy-1H-isoindole which is converted to the final product by treatment with ethylenimine hydrotetrafluoroborate and contacting the resulting product with air or oxygen. These compounds are useful as psychic energizers and anorectics.

3,597,446
BIFUNCTIONAL PHOTOCHROMIC COMPOUNDS OF THE INDOLINO-SPIROPYRAN TYPE
 Albert Lucien Poot, Kontich, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium
 No Drawing. Filed Sept. 11, 1969, Ser. No. 857,225
 Claims priority, application Great Britain, Oct. 3, 1968, 46,947/68
 Int. Cl. C07d 27/38

U.S. Cl. 260—326.11 **5 Claims**
 Bifunctional photochromic compounds which are reversibly colored upon exposure to ultraviolet radiation having the formula:



wherein:

B represents phenyl, diphenyl, diphenylmethylene, diphenylcarbonyl, diphenylsulphone, wherein the phenyl groups may be substituted by nitro, chlorine or bromine, R represents a straight or branched chain alkylene group having 1 to 11 carbon atoms, A represents hydrogen or hydroxyl, and R' represents hydrogen, when A is hydroxyl or is hydroxyl when A is hydrogen,

are described. These compounds being photochromic are useful in glasses, etc., and in the preparation of polymers.

3,597,447
PROCESS FOR PRODUCING 1-ALKYL (OR ALKENYL)-2-AMINOALKYLPYRROLIDINES AND INTERMEDIATES THEREFOR
 Yoshio Kashiwara, Osaka, Shoji Fukuzawa, Kyoto, Toshio Imamura, Osaka, Minoru Kakehi, Kobe, and Masayuki Watanabe, Aichi, Japan, assignors to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de France, Paris, France
 No Drawing. Filed Feb. 11, 1969, Ser. No. 798,446
 Claims priority, application Japan, Feb. 16, 1968, 43/9,683
 Int. Cl. C07d 27/52

U.S. Cl. 260—326.85 **5 Claims**
 By the process of this invention, high purity 1-alkyl (or alkenyl)-2-aminoalkylpyrrolidines are produced. Such high purity aminoalkylpyrrolidines are particularly useful in the preparation of benzamides employed in the treatment of mammals for emesis and nervous disorders. In addition, such pyrrolidines may be used in the production of pyrrolidylquinolines and pyrrolidylquinazolines useful as anti-inflammatory agents when administered to mammals.

3,597,448
2-ARYLBENZO(b)THIOPHEN-3(2H)-ONE-1,1-DIOXIDES AND 2-ARYLNAPHTHO(2,3-b)THIOPHEN-3(2H)-ONE-1,1-DIOXIDES
 Joseph G. Lombardino, Niantic, Conn., assignor to Pfizer Inc., New York, N.Y.
 No Drawing. Original application May 2, 1967, Ser. No. 635,406, now Patent No. 3,502,717, dated Mar. 24, 1970. Divided and this application Dec. 17, 1969, Ser. No. 885,954
 Int. Cl. C07d 63/22

U.S. Cl. 260—330.5 **9 Claims**
 The preparation of novel 2-arylbendo(b)thiophen-3(2H)-one-1,1-dioxides and 2-arylnaphtho(2,3-b)thiophen-3(2H)-one-1,1-dioxides and their use as anti-inflammatory agents in the treatment of arthritic disorders.

3,597,449
STABLE GLYCOLIDE AND LACTIDE COMPOSITION
 David Anthony Deprospero and Edward Emil Schmitt, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed Nov. 16, 1967, Ser. No. 683,480
 Int. Cl. C07d 15/10, 15/16

U.S. Cl. 260—340.2 **2 Claims**
 A composition comprising pure or impure solid glycolide or lactide immersed in tertiary amyl alcohol and/or tertiary butyl alcohol which is essentially anhydrous and free from glycolide or lactide reactive impurities. Glycolide and lactide may be recrystallized from the composition to produce high yields of substantially pure glycolide or substantially pure lactide following storage of the composition for periods up to about three months.

3,597,450
PREPARATION OF GLYCOLIDE POLYMERIZABLE INTO POLYGLYCOLIC ACID OF CONSISTENTLY HIGH MOLECULAR WEIGHT
 Edward Emil Schmitt, Norwalk, Conn., Rocco Albert Polistina, Port Chester, N.Y., and Martin Epstein and David Anthony DeProspero, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 615,931, Feb. 14, 1967. This application Nov. 5, 1969, Ser. No. 874,403
 Int. Cl. C07d 15/12, 15/16

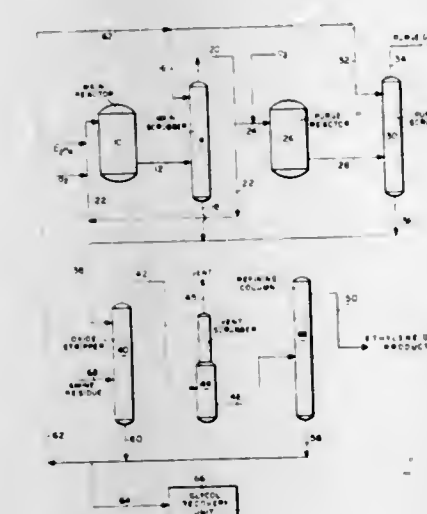
U.S. Cl. 260—340.2 **10 Claims**
 Whereas recrystallization alone, or sublimation alone, of impure glycolide does not, in the majority of cases, render glycolide sufficiently pure to permit its polymerization into polyglycolic acid of the high molecular weight variety required for use as an absorbable surgical suture or ligature, it is surprisingly found that when impure glycolide is subjected to the dual sequential steps of recrystallization and sublimation, the glycolide produced is sufficiently pure to produce consistently high molecular weight polyglycolic acid, provided the sublimation step follows the recrystallization step.

3,597,451
PROCESS FOR THE PREPARATION OF (±) CIS-1,2-EPOXYPROPYL-PHOSPHONIC ACID AND DERIVATIVES
 Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
 No Drawing. Filed May 15, 1968, Ser. No. 729,423
 Int. Cl. C07d 1/20, 1/22

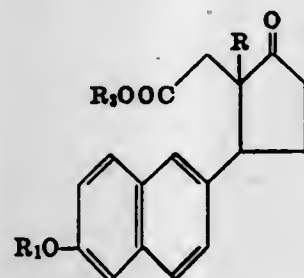
U.S. Cl. 260—348 **3 Claims**
 A process for the preparation of (±) (cis-1,2-epoxypropyl)-phosphonic acids, esters or salts thereof which comprises eliminating or extruding carbon dioxide and halogen from a (4,4-dihalo-6-methyl-1,3,5-trioxan-2-yl)-phosphonic acid or esters or salts thereof. The 1,2-epoxypropyl phosphonic acids or salts thereof are active anti-bacterial agents.

3,597,452
TREATMENT OF ETHYLENE OXIDE PROCESS CYCLE WATER WITH AN AMINE RESIDUE
 George J. Laemmle, Port Arthur, and James A. Jean-sonne, Port Neches, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.
 Filed Feb. 19, 1968, Ser. No. 706,395
 Int. Cl. C07d 14

U.S. Cl. 260—348.5 **2 Claims**



wherein R is methyl, are produced by cyclizing a naphthalene derivative of the formula:



wherein R is methyl and R₁ and R₂ are hydrogen or lower alkyl, with pyridine hydrochloride. This process produces greatly increased yields and minimizes the production of by-products. The cyclopentaophenanthrene derivative is obtained in a substantially pure state.

3,597,455 PROCESS FOR MANUFACTURE OF STERILE LECITHIN

Arnold Arons, Highland Park, Lewis Cowen, North Plainfield, and Friedrich Dursch, Freehold, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed May 29, 1969, Ser. No. 829,130
Int. Cl. C07f 9/02; A23j 7/00

U.S. Cl. 260—403 10 Claims
Sterile lecithin is obtained by subjecting a solution of lecithin in a non-aqueous solvent to a sterile filtration followed by lyophilization of the filtrate.

3,597,456
METHOD FOR PREPARING STERILE LECITHIN
Charles Riffkin, Highland Park, and Rudolfo Cilento, North Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed May 20, 1969, Ser. No. 826,258
Int. Cl. A23j 7/00; C07f 9/02

U.S. Cl. 260—403 9 Claims
The presence of from 0.1 to 5% by weight of a salt of an oxy acid of sulfur wherein the apparent oxidation state of the sulfur is not greater than +4 prevents color degradation during the sterilization of lecithin.

3,597,457
FLUOROALKYLAMIDOALKYLENE-SILOXANES
Thomas Alexander Robinson, Kilwinning, and James Jack, Troon, Scotland, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,882
Claims priority, application Great Britain, Mar. 15, 1967, 12,173/67

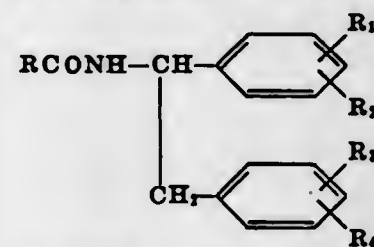
Int. Cl. C07f 7/10, 7/18
U.S. Cl. 260—404 17 Claims
Siloxanes useful as anti-foaming agents and for surface treatment of glass, textiles, etc., are provided which are the hydrolysis products of silanes of the formula



where Y is hydrogen, chlorine and fluorine, attached to the perfluoro-alkylene group R₁, R is hydrogen or alkyl, R' is a divalent hydrocarbyl group free from aliphatic unsaturation, R'' is a hydrolyzable group, R''' is a hydrocarbyl or hydrolyzable group and R'' is hydrocarbyl.

3,597,458
SUBSTITUTED N-1,2-DIPHENYLETHYL FATTY
AMIDES AS CHOLESTEREMICS
Yasushi Nakamura, Ibaragi-shi, Michio Kimura, Minoo-shi, Yoshio Suzuki, Amagasaki-shi, Noritaka Hamma, Nishinomiya-shi, Toshitsugu Fukumaru, Kyoto, Shunji Aono, Toyonaka-shi, and Hideaki Fukushima, Nishinomiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan
Continuation-in-part of application Ser. No. 794,038, Jan. 27, 1969. This application Apr. 25, 1969, Ser. No. 819,351
Claims priority, application Japan, Jan. 30, 1968, 43/5,910
Int. Cl. C09f 7/00

U.S. Cl. 260—404 42 Claims
Novel amide compounds having antiatherosclerosis actions which are represented by the formula:



wherein R represents a C₁₅—C₂₅, straight chain or branched-chain, natural or synthetic, saturated or unsaturated aliphatic group having or not having hydroxyl group; R₁, R₂, R₃ and R₄ represent individually a hydrogen atom, a lower alkyl group, a lower alkoxy group or a halogen atom but cannot be hydrogen atoms at the same time.

The above-mentioned amide compounds can be used as drugs. They can be used by adding them to food-stuff additives such as butter and the like for preventing the deposition of cholesterol onto the walls of blood vessels.

3,597,459
NEW ORGANO-METALLIC PEROXIDIC DERIVATIVES OF MOLYBDENUM AND TUNGSTEN AND THEIR PROCESS OF MANUFACTURE
Hubert Mimoun, Paris, Irénée Sere de Roch, Ruell-Malmaison, Lucien Sajus, Croissy-sur-Seine, and Pierre Menguy, L'Etang-la-Ville, France, assignors to Institut Français du Pétrole des Carburants et Lubrifiants, Ruell-Malmaison, France
No Drawing. Filed Feb. 2, 1968, Ser. No. 702,536
Claims priority, application France, Feb. 7, 1967, 94,063

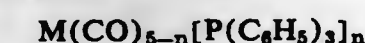
Int. Cl. C07f 11/00; C07d 1/08
U.S. Cl. 260—429 9 Claims
Organo-metallic peroxidic derivatives of molybdenum and tungsten having the formula H₂MO₆nA wherein M is molybdenum or tungsten, A is a carboxylic amide or a phosphoramidate and n is 1 or 2. These compounds are prepared by reacting diperoxomolybdic acid or diperoxotungstic acid with said amide A. They are useful as epoxidation agents for olefinic double bonds, either as reactants per se or in small amounts as catalysts used together with hydroperoxides, hydrogen peroxide or oxygen in combination with a 9,10-dihydroxyanthracene.

3,597,460
TRANSITION METAL COMPLEXES
David Thomas Thompson, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,688
Claims priority, application Great Britain, Apr. 17, 1967, 17,527/67

Int. Cl. C07f 15/00, 11/00, 15/06
U.S. Cl. 260—429 9 Claims
A process for preparing polynuclear transition metal complexes which comprises contacting a first transition metal complex which contains one or more hydrocarbon ligands with a second transition metal complex which

contains one or more ligands which contain or consist of a hydrogen atom or atoms capable of reacting with a hydrocarbons ligand of the first complex to liberate a free hydrocarbon and form the polynuclear product.

3,597,461
HYDRIDE AND CARBONYL TRIPHENYLPHOSPHINE DERIVATIVES OF RUTHENIUM AND OSMIUM
Francis L'Eplattenier and Fausto Calderazzo, Geneva, Switzerland, assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Aug. 13, 1968, Ser. No. 752,159
Int. Cl. C07f 15/00; C01g 55/00; B01j 1/10
U.S. Cl. 260—429 4 Claims
Pentacoordinate complexes of ruthenium and osmium of the general formula

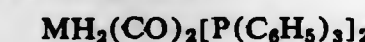


M=Ru, Os,
n=1,2,

are prepared by reacting the corresponding pentacarbonyls with triphenylphosphine. Also dihydrido compounds of formula MH₂(CO)₂[P(C₆H₅)₃]₂ (M=Ru, Os) are described. These dihydrido derivatives can be produced by reacting the corresponding tricarbonylbis (triphenylphosphine) compounds, M(CO)₃[P(C₆H₅)₃]₂, with hydrogen. Also the preparation of OsH₂(CO)₃P(C₆H₅)₃ from Os(CO)₄P(C₆H₅)₃ and hydrogen is disclosed in the present invention. The tetracarbonyl compounds



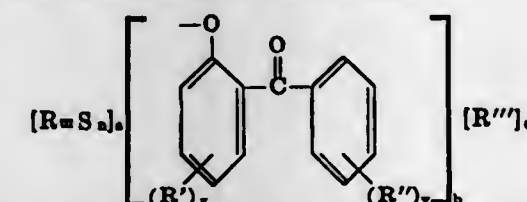
and the dihydrido compounds



are new chemical compounds. The compounds have utility as hydrogenation catalysts.

3,597,462
ORGANOTIN PHENOLATES
Toshio Seki, Osaka-shi, Kozaburo Suzuki, Kobe-shi, and Takashi Matsuzaki, Osaka-shi, Japan, assignors to Nitto Kasei Co., Ltd., Osaka, Japan
No Drawing. Application June 16, 1967, Ser. No. 646,465, which is a continuation-in-part of application Ser. No. 567,823, July 26, 1966, now Patent No. 3,498,947. Divided and this application June 24, 1969, Ser. No. 851,519
Claims priority, application Japan, July 26, 1965, 40/44,846

Int. Cl. C07f 7/22; C08f 45/62
U.S. Cl. 260—429.7 8 Claims
Organotin compounds of the formula



prepared by the reaction of an aromatic hydroxy carbonyl compound and an organotin oxide or alkoxide may be used as stabilizers for synthetic resins.

3,597,463
PROCESS FOR PREPARING ALKYLTHIOMETHYL
SILANES
Donald J. Peterson, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Original application Mar. 13, 1967, Ser. No. 622,419, now Patent No. 3,502,731, dated Mar. 24, 1970. Divided and this application Jan. 19, 1970, Ser. No. 4,025

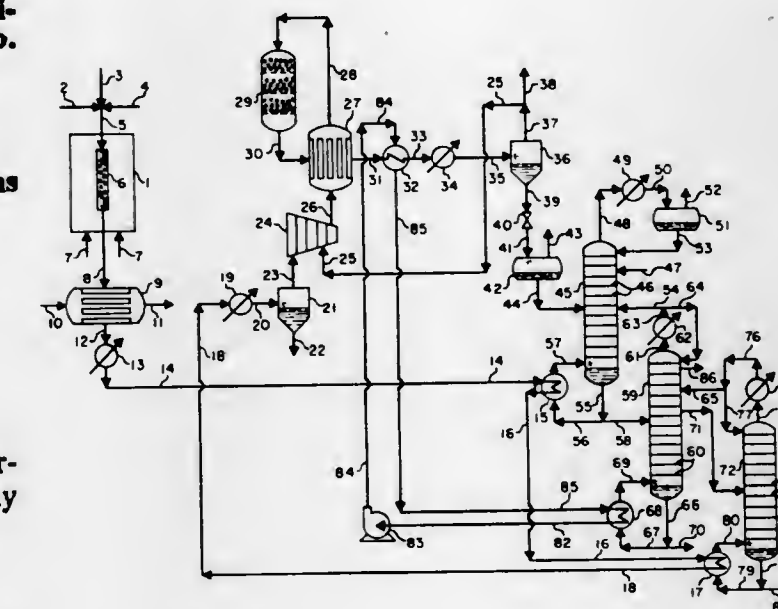
Int. Cl. C07f 7/02
U.S. Cl. 260—448.2E 4 Claims
(1) Alkylthiomethylmetal compounds prepared by reacting alkyl methyl sulfides with potent metalating agents,

e.g., a complex between alkyl lithium compounds and alkylenediamines; alkyl- or phenylsodium; or alkyl- or phenylpotassium; (2) the reactions of the alkylthiomethylmetal compounds with mono-, di-, and trihalo and pseudohaloalkyl- and arylsilanes, and (3) new compounds produced thereby containing silicon and sulfur. The organo-silicon and sulfur containing compounds are useful in the synthesis of carbon substituted organosulfur derivatives.

3,597,464
PROCESS FOR THE PRODUCTION OF ALUMINUM
ALKYL COMPOUNDS
Kurt Zosel, Oberhausen, Germany, assignor to Studiengesellschaft Kohle m.b.H., Mulheim (Ruhr), Germany
Continuation of abandoned application Ser. No. 436,176, Mar. 1, 1965. This application May 19, 1969, Ser. No. 828,427
Claims priority, application Austria, Mar. 6, 1964, A 1,977/64
Int. Cl. C07f 5/06

U.S. Cl. 260—448A 24 Claims
A process for the separation of mixtures of aluminum trialkyls having alkyl groups of different chain lengths to produce a fraction having alkyl groups of more uniform chain length which comprises contacting the mixture with an inert gas which is under supercritical conditions of temperature and pressure and inert to aluminum trialkyls under the process conditions thereby taking up at least part of the mixture in the supercritical gas and recovering from the gas aluminum trialkyl taken up thereby.

3,597,465
PRODUCTION OF SYNTHETIC METHANOL
Maxim Karafian, Cold Spring Harbor, Dinshaw D. Mehta, New York, and Saverio A. Sama, Thornwood, N.Y., assignors to Chemical Construction Corporation, New York, N.Y.
Filed Mar. 4, 1968, Ser. No. 710,068
Int. Cl. C07c 29/16
U.S. Cl. 260—449.5 5 Claims

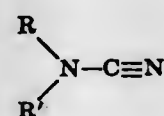


An integrated methanol synthesis process is provided in which the reboilers of the distillation units in the methanol purification section are heated in an improved manner, to effectively recover heat and utilize this heat to reboil and vaporize the methanol distillation column bottoms. In one aspect of the invention, crude methanol synthesis gas produced at elevated temperature by the catalytic steam reforming of a fluid hydrocarbon is passed through one or more distillation column reboilers, to cool

the synthesis gas by useful heat exchange which reboils the distillation column bottoms. In another embodiment of the invention, hot converted synthesis gas from the catalytic methanol synthesis converter is cooled by heat exchange with a circulating fluid, which is thereby heated. The heated fluid is circulated through a distillation column reboiler, to provide a heating effect which reboils the distillation column bottoms. The cooled fluid is recirculated for further heat exchange with converted gas.

3,597,466
PREPARATION OF AROMATIC ISOCYANATES
Eric Smith, Madison, Conn., assignor to
Olin Mathieson Chemical Corporation
No Drawing. Filed Nov. 21, 1968, Ser. No. 777,867
Int. Cl. C07c 119/04

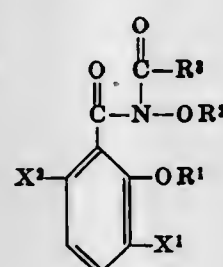
U.S. Cl. 260—453P 16 Claims
The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprising a halide of a noble metal and a cyanamide compound of the formula:



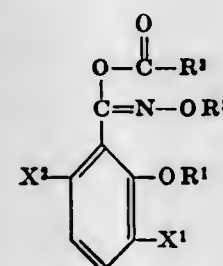
where R and R' are independently selected from the group consisting of hydrogen, and alkyl, aryl, etc. Preferred cyanamide compounds include alkyl, dialkyl, aryl, diaryl, aralkyl, and diaralkyl cyanamides. The noble metal halide is preferably a halide of palladium, rhodium, iridium, rhenium, platinum, and mixtures thereof. The catalyst system may also include molybdenum trioxide or another metal oxide.

3,597,467
N-(HYDROCARBYLOXYCARBONYL AND HYDROCARBYLTHIOCARBONYL) BENZOHYDROXAMIC ESTERS.
Sidney B. Richter and Eugene F. Barnas, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
No Drawing. Filed Nov. 26, 1968, Ser. No. 779,247
Int. Cl. C07c 101/66, 154/00, 155/02

U.S. Cl. 260—455 4 Claims
This invention discloses new chemical compositions of matter and more particularly new compounds selected from the group consisting of



and their isomeric form



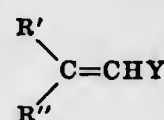
wherein X¹ and X² are halogen; R¹ and R² are alkyl, and R³ is selected from the group consisting of alkyl, alkenyl, alkoxy and alkylthio. The compounds of the above description are useful as acaricides.

3,597,468
COLORED AMINE REACTED POLYMERS
Gregorie Kalopissis and Andre Viout, Paris, France, assignors to L'Oreal, Paris, France
No Drawing. Filed Sept. 2, 1966, Ser. No. 576,811
Claims priority, application Luxembourg, Sept. 6, 1965, 49,441; Jan. 10, 1966, 50,228; June 14, 1966, 51,325; June 16, 1966, 51,345
Int. Cl. C07c 107/06, 121/66

U.S. Cl. 260—465D 2 Claims
Hair coloring polymers having anhydride or acid halide groups, which have reacted with dyes having extra nuclear amine and/or hydroxyl groups.

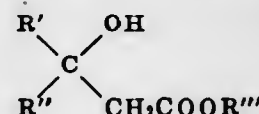
3,597,469
CYCLOALKYL UNSATURATED ESTERS
William A. Bradwell, Rensselaer, N.Y., assignor to
GAF Corporation, New York, N.Y.
No Drawing. Filed July 29, 1968, Ser. No. 754,525
Int. Cl. C07c 61/16, 69/74

U.S. Cl. 260—468P 3 Claims
Novel cycloalkyl unsaturated esters, alcohols and aldehydes useful as agricultural chemicals and as intermediates in the production of other useful materials comprising compounds of the formula:



wherein R' is a cycloalkyl radical; R'' is selected from lower alkyl, phenyl, and cycloalkyl radicals; and Y is selected from the group of CH₂OH, CHO and COOR''' wherein R''' is selected from hydrogen and alkyl.

Novel intermediates produced during the preparation of such compounds comprise compounds of the formula:



wherein R', R'' and R''' are as designated above.

3,597,470
PURIFICATION OF BIS(2-HYDROXYETHYL) TEREPHTHALATE
Enrique R. Witt and Bobby J. Bland, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Filed Jan. 24, 1968, Ser. No. 700,042
Int. Cl. C07c 69/82

U.S. Cl. 260—475PR 3 Claims
A process for the purification of bis(2-hydroxyethyl) terephthalate comprising contacting a solution of the terephthalate with sodium borohydride or diborane followed by crystallization of the terephthalate from solution.

3,597,471
PROCESS FOR MAKING BIS(HYDROXYALKYL) TEREPHTHALATES

Michael Anthony Saplenza, Hendersonville, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 24, 1968, Ser. No. 723,932
Int. Cl. C07c 69/82

U.S. Cl. 260—475P 4 Claims
In a continuous process of manufacturing bis-hydroxyalkyl terephthalates where a dialkyl terephthalate, an alkylene glycol and an ester exchange catalyst—the salt of a metal and a weak acid such as zinc acetate are added to an ester exchange process, the improvement of adding the acid which is the corresponding acid of the catalyst having the same anion as the salt of the catalyst, such as acetic acid, to allow the process of preparing bis-

hydroxyalkyl terephthalate, e.g., bis (2-hydroxyethyl) terephthalate, to continue smoothly by inhibiting the formation of catalyst precipitates which would form, plug the ester exchange unit and cause column cycling.

3,597,472
INDANYL-N-METHYLCARBAMIC ACID ESTERS
Rudolf Heiss, Altenfurt, Nuremberg, Wolfgang Behrenz, Cologne-Stammheim, and Ingeborg Hammann, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 31, 1967, Ser. No. 642,301
Claims priority, application Germany, June 18, 1966, F 49,503
Int. Cl. C07c 125/06

U.S. Cl. 260—479 5 Claims
1-(mono and di-methyl)-7-(unsubstituted and methyl or chloro substituted)-indan-4-yl-N-methyl carbamic acid esters which possess pesticidal, especially acaricidal and insecticidal, properties and which may be produced by conventional methods.

3,597,473
METHOD OF PURIFYING ETHYLENEGOL METHACRYLATE
Richard Chromeczek, Otto Wichterle, Iva Gavrilo, and Jiri Vacik, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie ved, Prague, Czechoslovakia
No Drawing. Filed May 14, 1968, Ser. No. 728,890
Claims priority, application Czechoslovakia, May 18, 1967, 3,603/67
Int. Cl. C07c 69/54

U.S. Cl. 260—486R 5 Claims
If ethyleneglycol monomethacrylate is contaminated with ethyleneglycol dimethacrylate, the diester can be removed largely by crystallization of the monoester from a normally liquid solvent medium at a temperature below the melting point of the diester, typically -20° to -50° C. If the crude material contains much ethyleneglycol, the esters may be separated from the glycol by dissolving the mixture in water and salting the esters out as an organic phase which may be further purified by distillation or by low-temperature crystallization.

3,597,474
AMINOALKYLENE SULFONIC ACID CONTAINING PHENOLS
Stanley M. Bloom, Waban, and Paul S. Huyffer, Lynnfield, Mass., assignors to Polaroid Corporation, Cambridge, Mass.
No Drawing. Original application July 24, 1967, Ser. No. 655,309, now Patent No. 3,459,548, dated Aug. 5, 1969. Divided and this application Sept. 16, 1968, Ser. No. 810,403
Int. Cl. C07c 143/52, 143/64

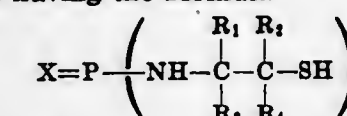
U.S. Cl. 260—507R 8 Claims
This invention relates to novel immobile reducing agents of the p-aminophenol type which may be defined as zwitterionic (inner) salts of p-aminophenols containing an anchoring or immobilizing moiety.

3,597,475
PURIFICATION OF p-THIONYLAMINO BENZOYL CHLORIDE
Josef Pkl, Glassboro, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,058
Int. Cl. C07c 51/58, 53/00

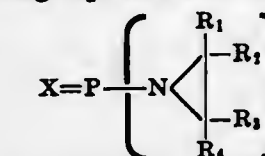
U.S. Cl. 260—544 4 Claims
Purification of crude p-thionylaminobenzoyl chloride with chlorofluorinated hydrocarbon solvents and preparation of high purity p-aminobenzoyl chloride hydrochloride therefrom by treatment with hydrogen chloride.

3,597,476
PROCESS FOR PREPARING TRIS (2-MERCAPTOETHYLAMINO) PHOSPHINE OXIDES AND SULFIDES
Stephen Paul Edwards and Preston Houston Franke, Jr., Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Dec. 4, 1968, Ser. No. 781,246
Int. Cl. C07f 9/22

U.S. Cl. 260—551 6 Claims
Compounds having the formula



wherein X is oxygen or sulfur and R₁, R₂, R₃ and R₄ are hydrogen or lower alkyl, are prepared in the novel reaction comprising reacting by contacting H₂S and a compound of the formula



in the presence of a catalytic amount of an alkali metal hydrosulfide. The compounds are new curing agents for epoxy resins, and the cured resins thus produced are fire-retardant.

3,597,477
PROCESS FOR PREPARATION OF SUBSTITUTED UREAS
Martin L. Weakley, Pryor, Okla., assignor to Nipak, Inc., Dallas, Tex.
Filed Apr. 13, 1966, Ser. No. 542,364
Int. Cl. C07c 127/00

U.S. Cl. 260—553 6 Claims
A process for producing alkyl substituted ureas, such as tetramethyl urea, by the reaction of an alkyl substituted carbamyl chloride, such as dimethylcarbamyl chloride, with an alkyl amine, such as dimethylamine, in which the reactants are heated to a vapor state; and continuously removing normally liquid urea product and unreacted carbamyl chloride by cooling.

3,597,478
PREPARATION OF TETRAMETHYLUREA
Martin L. Weakley, Pryor, Okla., assignor to Nipak, Inc., Dallas, Tex.
No Drawing. Filed Sept. 14, 1967, Ser. No. 671,915
Int. Cl. C07c 127/00

U.S. Cl. 260—553 7 Claims
A method for the preparation of high purity tetramethylurea comprising reacting dimethylamine with N,N-dimethylcarbamyl chloride, treating the crude reaction product with a suitable base, such as lime, to form a calcium chloride precipitate; filtering the treated product to remove the precipitate; and distilling the clarified liquid at or below atmospheric pressure, with or without the injection of an inert gas, to remove materials boiling outside the range of tetramethylurea. A further fractional distillation may also be carried out to remove traces of water, dimethylamine and materials boiling above and below tetramethylurea.

3,597,479
SUBSTITUTED ANILINO BENZYL ALCOHOLS
Stephen T. Ross and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.
No Drawing. Original application May 5, 1967, Ser. No. 636,259. Divided and this application Feb. 5, 1970, Ser. No. 9,054
Int. Cl. C07c 143/80

U.S. Cl. 260—556 2 Claims
2-(substituted anilino)-benzyl alcohols, the substituents being chlorine and N,N-diloweralkylsulfamoyl, are use-

ful as antipyretic and anti-inflammatory agents. The compounds are generally prepared by reduction of the corresponding N-(substituted phenyl)-anthranilic acids.

3,597,480
(N-TRIHALOMETHYLTHIO-N-TRIFLUORO-METHYL-AMINO)-BENZAMIDES

Hans Scheinpfug, Leverkusen, Engelbert Kühle, Bergisch Gladbach, Erich Klauke, Cologne-Flittard, Paul-Ernst Frohberger, Leverkusen, and Ferdinand Grewe, Burscheid, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation-in-part of application Ser. No. 666,918, Sept. 11, 1967. This application Feb. 10, 1970, Ser. No. 10,299

Claims priority, application Germany, Sept. 15, 1966, F 50,206

Int. Cl. C07c 103/32

U.S. Cl. 260—558 15 Claims
(N - trihalomethylthio-N-trifluoromethyl-amino)-benz-amides which possess fungicidal properties and which may be produced by reacting the corresponding fluoro-carbonyl - N - trihalomethylthio - N - trifluoromethyl-anilines, in the presence of an acid-binding agent, with amines.

3,597,481
HETEROGENEOUS CATALYST FOR THE LIQUID PHASE HYDROLYSIS OF NITRILES TO AMIDES
Ben A. Tefertiller and Clarence E. Habermann, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 16, 1969, Ser. No. 791,807

Int. Cl. C07c 97/02

U.S. Cl. 260—561 9 Claims
Combinations consisting essentially of 10 to 90% by weight of oxides of copper, silver, zinc or cadmium and 10 to 90% by weight of oxides of chromium or molybdenum are used to catalyze the liquid phase conversion of nitriles to amides.

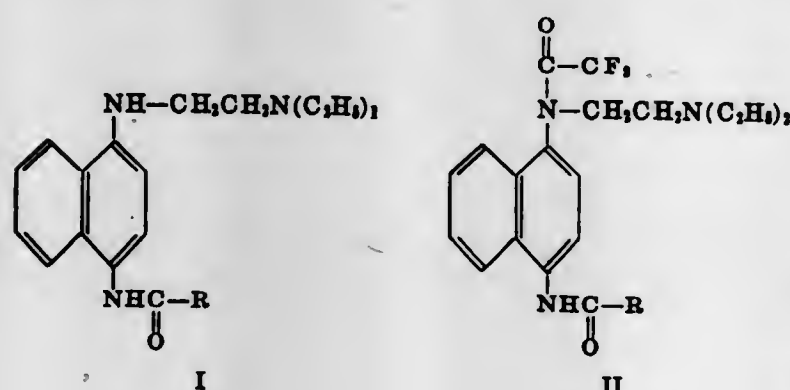
3,597,482
AMINONAPHTHYLAMIDE COMPOUNDS AND MEANS FOR THEIR PRODUCTION

Leslie M. Werber, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,846

Int. Cl. C07c 103/33

U.S. Cl. 260—562 4 Claims
Aminonaphthylamide compounds in the form of free bases (I) and acid salts are provided by hydrolyzing the corresponding N-(1-naphthyl) - 2,2,2 - trifluoroacetamide (II) where R is a phenyl, cyclohexyl, furyl or thienyl radical or a C₁ to C₁₇ hydrocarbon radical, R being optionally substituted by lower alkyl, lower alkoxy, halo, nitro, phenyl or phenoxy. The products are pharmacologically active. In particular, they have antiparasitic properties and are useful schistosomacides.



3,597,483
PRODUCTION OF 1,2-DIAMINES
Erich Haarer and Hubert Corr, Ludwigshafen (Rhine), and Siegfried Winderl, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,686
Claims priority, application Germany, Apr. 13, 1967, P 15 93 775.4
Int. Cl. C07c 85/02

U.S. Cl. 260—563 13 Claims
An improved process for the production of 1,2-diamines by reaction of 1,2-epoxides with ammonia, primary amines or secondary amines in the presence of water, hydrogen and hydrogenation catalysts at elevated temperature and superatmospheric pressure wherein the improvement comprises using a supported hydrogenation catalyst having a large internal surface area. The products are suitable as complex-forming substances for heavy metal ions.

3,597,484
PRODUCTION OF OLEFINICALLY UNSATURATED OXO COMPOUNDS

Herbert Mueller, Frankenthal, Pfalz, and Harald Koehl and Horst Pommer, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,794
Claims priority, application Germany, Mar. 6, 1967, P 12 75 050.4-42
Int. Cl. C07c 49/20

U.S. Cl. 260—593 9 Claims
The production of gamma-delta or delta-epsilon olefinically unsaturated oxo compounds (aldehydes or ketones) by heating 5,6-dihydro-4H-pyrans under a pressure of 10 to 300 atmospheres with a small amount of water at 280° to 350° C.

3,597,485
PROCESS FOR THE PRODUCTION OF POLY-FUNCTIONAL AROMATIC ALDEHYDES
William F. Brill, Montgomery Township, N.J., assignor to Princeton Chemical Research Inc., Princeton, N.J.
No Drawing. Filed Oct. 16, 1968, Ser. No. 768,160
Int. Cl. C07c 47/52

U.S. Cl. 260—599 6 Claims
Process for the selective production of aromatic aldehydes in high yield by subjecting the corresponding alkyl benzene to a vapor phase oxidation in the presence of a tungsten-molybdenum oxide catalyst wherein the tungsten to molybdenum ratio varies between 1:1 and 20:1.

3,597,486
PROCESS FOR MAKING CYCLOPROPYLMETHYL CHLORIDE

Jay Lyman Bishop, Summit, N.J., assignor to Ciba Corporation
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,822
Int. Cl. C07c 19/00, 23/04

U.S. Cl. 260—648R 3 Claims
1-bromo-3,4-dichlorobutane or its homologs are reacted with metals to yield cyclopropylmethyl chloride or its homologs, which are valuable intermediates or drugs.

3,597,487
CHAIN GROWTH OF ORGANO-MAGNESIUM COMPOUNDS

Lawrence H. Shepherd, Jr., Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,267
Int. Cl. C07f 3/02

U.S. Cl. 260—665R 23 Claims
Hydrocarbyl magnesium compounds (e.g., RMgX, R₂Mg) undergo a chain growth reaction with ethylene

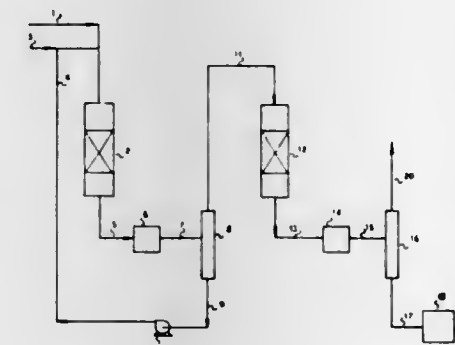
or other normally gaseous monoolefins provided the reaction is performed in an essentially non-complexing solvent—i.e., a solvent which is weakly basic relative to the hydrocarbyl magnesium reactant. Such solvents include paraffinic hydrocarbons, cycloparaffinic hydrocarbons, aromatic hydrocarbons, and ethers having a basicity less than that of diethyl ether (e.g., diisopropyl ether).

3,597,488
PROCESS FOR MAKING GRIGNARD REAGENTS
Lawrence H. Shepherd, Jr., Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,272
Int. Cl. C07f 3/02

U.S. Cl. 260—665G 17 Claims
Alpha-olefins undergo an addition reaction with organo-magnesium halides in the absence of a catalyst provided the organomagnesium halide is a secondary alkyl, tertiary alkyl, or 2-alkenyl magnesium compound. By conducting this reaction in an ether reaction medium having a basicity equal to or greater than that of diethyl ether the intermolecular addition does not proceed to any appreciable extent beyond the addition of one unit of the olefinic hydrocarbon per hydrocarbyl group in the initial organo-magnesium reactant. Thus, the process proceeds quite cleanly to essentially pure higher molecular organo-magnesium compounds.

3,597,489
MANUFACTURE OF NAPHTHENIC HYDROCARBONS BY HYDROGENATION OF THE CORRESPONDING AROMATIC HYDROCARBONS
Quang Dang Vu, Paris, and Robert Odello, Montesson, France, assignors to Institut Français du Pétrole, des Carburants et Lubrifiants, Malmaison, Hauts-de-Seine, France
Filed Feb. 24, 1969, Ser. No. 801,333
Claims priority, application France, Feb. 29, 1968, 141,903
Int. Cl. C07c 5/10

U.S. Cl. 260—667 7 Claims



For producing cyclohexane or methylcyclohexane from benzene or toluene respectively, a process is provided comprising introducing all of the aromatic hydrocarbon into a first zone in the form of a liquid mixture containing:

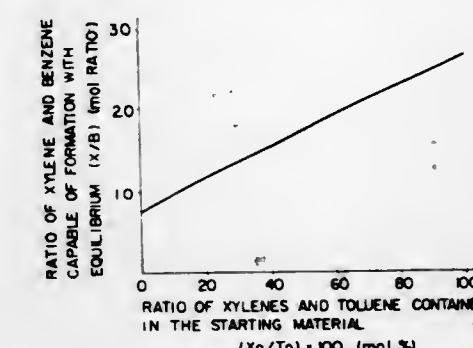
- said aromatic hydrocarbon and
- a recycle liquid fraction of the products resulting from the first hydrogenation zone; passing molecular hydrogen into said first zone and conducting the hydrogenation in said first zone at between 140 and 300° C. and at a pressure of between 10 and 70 kg./cm.² in contact with a fixed bed hydrogenation catalyst;

cooling resultant gaseous effluent from said first zone to a temperature between 140 and 200° C., to condense 30 to 75% by weight of the hydrocarbon vapors contained therein; separating the resulting liquid and vapor phases;

recycling at least a part of said resulting liquid phase to said first zone as said recycle liquid fraction, and passing at least a part of said resulting vapor phase through a following second hydrogenation zone and conducting the hydrogenation in said second zone in the gas phase at a temperature between 140 and 300° C. and at a pressure between 10 and 70 kg./cm.², in contact with a fixed bed of hydrogenation catalyst.

3,597,490
PROCESS FOR CONVERTING TOLUENE TO BENZENE AND XYLENES
Seiya Otani, Takao Iwamura, and Shotaro Hayashi, Ohtsu-shi, and Daisuke Ogawa, Kyoto, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Chuo-ku, Tokyo, Japan
Filed May 27, 1968, Ser. No. 732,376
Claims priority, application Japan, May 31, 1967, 42/34,227; Sept. 2, 1967, 42/56,117
Int. Cl. C07c 3/00, 3/58, 15/08

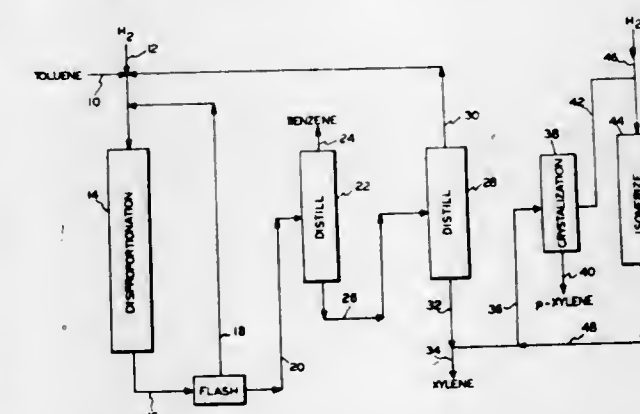
U.S. Cl. 260—672 1 Claim



In the conversion of toluene to benzene and xylenes by contacting toluene with a disproportionation catalyst at a temperature of from 300 to 650° C. under a pressure of from 1 to 100 atmospheres in the presence of hydrogen, an improvement which comprises contacting toluene with said catalyst in the presence of 0.5 to 50 mol percent based on the toluene of a C₉ aromatic hydrocarbon, e.g., recycle of trimethylbenzenes. Likewise, unwanted C₈ isomer m-xylene may be supplied along with the feed toluene.

3,597,491
ALKYL TRANSFER OF ALKYL AROMATICS WITH GROUP VI-B METALS ON TYPE Y ZEOLITES
Stephen M. Kovach and Ronald A. Kmecak, Ashland, Ky., assignors to Ashland Oil & Refining Company, Houston, Tex.
Filed Dec. 19, 1968, Ser. No. 785,128
Int. Cl. B01j 11/06; C07c 3/58, 15/08

U.S. Cl. 260—672R 9 Claims



A process for the alkyl transfer of alkyl aromatics including contacting an alkyl aromatic feed material, such as toluene, with a catalyst comprising a Group VI-B

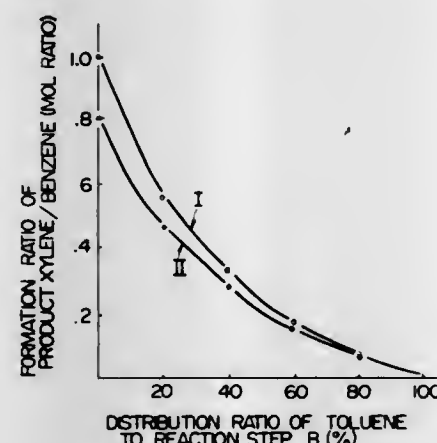
metal, such as chromium, molybdenum, tungsten, deposited on a Type Y zeolite base at a temperature of about 700 to 1100° F., a pressure of about 0 to 2000 p.s.i.g., and a liquid hourly space velocity of about 0.1 to 10, and in the presence of hydrogen introduced at a rate of about 1 to 10 moles hydrogen per mole of hydrocarbon feed. Promoters selected from Group I, Group II, Group IV, and the Rare Earth metals of the Periodic System may be added to the catalyst. Deactivated catalyst may be periodically rejuvenated by discontinuing the introduction of aromatic feed material and purging with hydrogen and the catalyst can be reactivated by calcination in an atmosphere such as air. Where toluene is the feed, the alkyl transfer product may be distilled to separate benzene, toluene and xylenes, the toluene may be recycled to the alkyl transfer step, the xylenes may be crystallized to separate para-xylene from the remaining xylenes, the mother liquor from the crystallization step may thereafter be isomerized to readjust the para-xylene content and the product of the isomerization may be recycled to the crystallization zone.

3,597,492 PROCESS FOR CONVERTING TOLUENE TO BENZENE AND XYLENE

Seyi Otani, Takao Iwamura, Shotaro Hayashi, Daisuke Ogawa, and Masazumi Kanaoka, Ohtsu-shi, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Chuo-ku, Tokyo, Japan

Filed Apr. 21, 1969, Ser. No. 817,802
Claims priority, application Japan, Apr. 27, 1968, 43/28,232

Int. Cl. C07c 3/00, 3/58, 15/08
U.S. Cl. 260—672 4 Claims



Process for preparing benzene and xylene from toluene, which comprises carrying out disproportionation (A) and demethylation (B) of toluene in parallel while recycling a part of hydrocarbons of not less than 9 carbon atoms separated and recovered from products of said reactions (A) and (B), to reaction step (A) and/or reaction step (B).

3,597,493 CONVERSION OF HYDROCARBONS

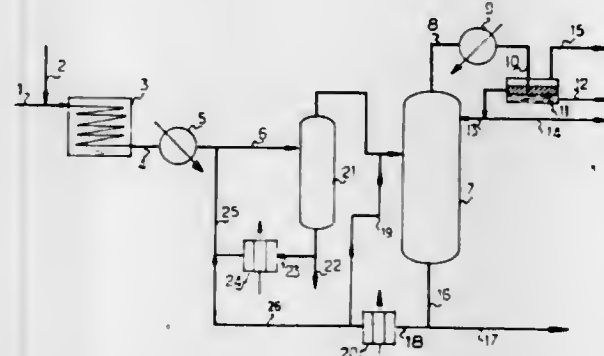
Vincent J. Frillette, Yardley, and Mae K. Rubin, Bala Cynwyd, Pa., assignors to Mobil Oil Corporation
No Drawing. Continuation of application Ser. No. 494,228, Oct. 8, 1965, which is a continuation of application Ser. No. 142,778, Oct. 4, 1961. This application Jan. 15, 1968, Ser. No. 697,610

U.S. Cl. 260—666 14 Claims
Acid mordenite, a crystalline aluminosilicate having a ratio of silicon atoms to aluminum atoms of about 5 to 1 can be used as a catalyst for various hydrocarbon conversion processes, including isomerization of naphthenes.

3,597,494 STEAM-CRACKING OF HYDROCARBONS

Francois Bigache, Chatou, and Michel Lemee, Asnieres, France, assignors to Institut Francals du Petrole des Carburants et Lubrifiants
Filed Sept. 4, 1968, Ser. No. 855,134
Claims priority, application France, Sept. 4, 1968, 165,110

Int. Cl. C07c 3/30; C10g 9/36
U.S. Cl. 260—683R 6 Claims



In order to eliminate the deposit of hard materials, such as coke, during the fractionation of products derived from the steam-cracking of hydrocarbons to produce olefins, there is provided a process wherein a mixture of steam with a hydrocarbon feedstock of the naphtha to gas oil range inclusive is heated up to about 500–1200° C., the resulting gaseous cracked product is admixed successively with a first relatively cool stream of recycled liquid hydrocarbons and a second relatively cool stream of recycled hydrocarbons so as to subject the cracked product to a first decrease of temperature down to about 195–230° C. and condense a part thereof, the resulting liquid fraction is separated from the gaseous, uncondensed fraction in a first fractionation zone, a portion of the said liquid fraction, after passage through a first indirect heat exchange zone to lower its temperature, is used as first recycled liquid hydrocarbon stream, the gaseous fraction withdrawn from the first fractionation zone is admixed with a third, relatively cool stream of recycled liquid hydrocarbon, in order to further lower the temperature of this gaseous fraction down to about 140–190° C. and condense another portion thereof, the resulting gaseous fraction is separated from the resulting liquid fraction in a second fractionation zone, a portion of the latter liquid fraction after passage through a second indirect heat exchange zone to lower its temperature, is used as the second and third recycled hydrocarbon streams, and the gaseous fraction of the second fractionation zone is withdrawn, said fraction containing the desired olefins.

3,597,495 THERMOSETTING COATINGS COMPRISING HYDROXY-FUNCTIONAL POLYURETHANE INTERPOLYMERS

Kazys Sekmakas, Chicago, and Joseph E. Gaske, Bridgeview, Ill., assignors to De Soto, Inc., Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 583,092, Sept. 29, 1966, now Patent No. 3,450,791. This application July 1, 1968, Ser. No. 741,300

U.S. Cl. 260—850 16 Claims
Thermosetting solution coatings are provided by providing in organic solvent medium an hydroxy-functional polyurethane resin in admixture with a heat-hardening aminoplast resin. The polyurethane resin is typically formed by reacting an unsaturated hydroxy-functional polyester resin with a small proportion of organic diisocyanate with the hydroxy-functionality being in excess

in order to provide an hydroxy-functional polyurethane. This polyurethane is then copolymerized with a small proportion of lipophilic monoethylenically unsaturated monomer. The coatings combine unusual hardness with unusual flexibility.

3,597,496 PREPARATION OF CROSS-LINKED ACRYLONITRILE POLYMERS

Roland Dagon and Camille Nordmann, Fribourg, Switzerland, assignors to Lonza Ltd., Gampel, Valais, Switzerland
No Drawing. Filed May 24, 1968, Ser. No. 731,701
Claims priority, application Switzerland, May 25, 1967, 7,378/67

Int. Cl. C08f 27/18; C08g 37/32 7 Claims
U.S. Cl. 260—851
Cross-linked spinnable homopolymers and copolymers of acrylonitrile containing at least 80 percent by weight acrylonitrile and the balance being unsaturated copolymerizable monomers, are prepared by polymerization with a small amount of a cross-linking agent containing an aldehyde group in a reaction medium of nitric acid containing at least 50 percent HNO₃.

3,597,497 POLYETHYLENE OXIDE AS AN ANTIFOAMING AGENT FOR POLYAMIDES, POLYESTERS, POLYESTERAMIDES, POLYCARBONATES AND POLYUREAS

Koji Ohno, Kurashiki, and Koichi Kawamura, Tamashima, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Japan
No Drawing. Filed Sept. 2, 1966, Ser. No. 576,855
Claims priority, application Japan, Sept. 7, 1965, 40/54,801

Int. Cl. C08g 41/04, 49/04 3 Claims
U.S. Cl. 260—857
A method of producing viscous high molecular weight materials through a heating reaction associated with the removal of volatile materials, the process being characterized in that the heating reaction is effected under the coexistence of an organic polyether material having a molecular weight not less than 10,000. Such organic materials are present in an amount of from 0.01 to 100,000 p.p.m., said organic material being one which, when added in an amount of more than two percent by weight based on the viscous high molecular weight material being produced, can cause a phase separation.

3,597,498 REINFORCED POLYMERS CONTAINING A MATRIX OF PVC OR ABS WITH A CARRIER OF STYRENE-ACRYLONITRILE REINFORCED WITH ANY OF A POLYCARBONATE, NYLON 66 OR POLYOXYMETHYLENE

Donald I. Christensen, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed June 19, 1968, Ser. No. 738,111

Int. Cl. C08g 41/04 14 Claims
Disclosed herein are matrix polymers and copolymers reinforced with in situ formed polymeric fibers of high softening point. These fibers are introduced into the matrix polymer by means of a polymeric carrier having a high heat stability and a low flow temperature relative to the matrix polymer. Compositions formed thereby can be molded into articles having increased resistance to deformation under load at high temperatures. The matrix resin may be either polyvinyl chloride or an acrylonitrile-butadiene-styrene resin. The carrier polymer is exemplified by a styrene-acrylonitrile interpolymer reinforced with any of polycarbonate, nylon 66, or polyoxymethylene.

3,597,499 PRODUCTION OF MOLDING MATERIAL BASED ON POLYPROPYLENE AND HAVING IMPROVED IMPACT STRENGTH AT LOW TEMPERATURES

Guenther Daumiller, Ziegelhausen, Herbert Naarmann and Karl Wissroth, Ludwigshafen (Rhine), Ernst-Guenther Kastning, deceased, late of Assenheim, Pfalz, Germany, by Marie-Louise Hermine Kastning, heiress-at-law and representative of minor heirs, Assenheim, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Aug. 30, 1968, Ser. No. 758,184
Claims priority, application Germany, Sept. 5, 1967, P 16 69 721.5

Int. Cl. C08f 47/12, 29/12 2 Claims
U.S. Cl. 260—876
A process for the production of polypropylene-based molding materials having improved impact strength at low temperatures. In this process a polypropylene having a relatively high fraction soluble in heptane is kneaded at elevated temperature with relatively small amounts of an elastomeric polymer containing polymerized units of a 1,3-diene with the addition of free radical-forming catalysts.

3,597,500 MOLECULAR COMPLEXES OF CARBOXYLIC ACIDS WITH POLYMERIC CYCLIC CARBAMATES

Wilhelm Walles, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Application Aug. 19, 1966, Ser. No. 573,488, now Patent No. 3,449,339, dated June 10, 1969, which is a continuation-in-part of application Ser. No. 12,254, Mar. 2, 1960. Divided and this application Feb. 4, 1969, Ser. No. 796,593

Int. Cl. C08f 7/12, 27/00 1 Claim
U.S. Cl. 260—895
Complex obtained by mixing a polyvinyl or poly (substituted vinyl) oxazolidinone or oxazinidinone (with certain optional substituents upon the heterocyclic ring) with benzoic acid, salicylic acid, coal acid, p-vinylbenzoic acid, poly-p-vinylbenzoic acid, 2,4-dichlorophenoxyacetic acid, phenoxyacetic acid, or 2,4,5-trichlorophenoxyacetic acid; manifesting uses similar to those of the said acids when not in complex form, but with improved physical properties such as solubility.

3,597,501 ACRYLIC SYNTHETIC FIBERS HAVING NOVEL STRUCTURE

Hiroshi Aotani, Masaharu Shimamura, and Zenzi Izumi, Iyo-gun, Masamitsu Tanimura, Ohtsu-shi, and Toyotaro Harada, Iyo-gun, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Chuo-ku, Tokyo, Japan
Filed Apr. 22, 1968, Ser. No. 723,338
Claims priority, application Japan, Apr. 24, 1967, 42/25,818

Int. Cl. C08f 15/22, 29/56 6 Claims
U.S. Cl. 260—898
Acrylic fibers containing at least 85 mole percent of acrylonitrile and having a unique structure represented by an X-ray diffraction interference intensity ratio

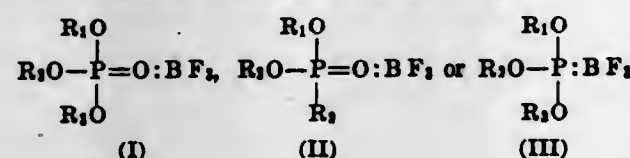
Meridian interference intensity at $2\theta=21^\circ$
Equator line interference intensity at $2\theta=17^\circ$

of 0.30 to 0.70 have a durable wool-like waxy and soft feeling. These fibers are produced by heterogeneously copolymerizing acrylonitrile with an acrylate having a long-chain alkyl group with 10–18 carbon atoms in a solvent which dissolves the acrylonitrile but does not dissolve the acrylate, and spinning the resulting solution; or spinning a blend of the said solution and a solution of an ordinary acrylonitrile copolymer. The acrylate should be present in an amount of 2–10 mole percent in the acrylic fiber.

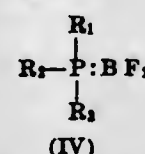
3,597,502

BF₃ COMPLEXES WITH PHOSPHONATES
 Robert William McAda, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Sept. 11, 1968, Ser. No. 759,235
 Int. Cl. C07f 5/02; C07g 3/00; C08b 19/04
 U.S. Cl. 260-922 3 Claims

New compounds of the general formula



and the known compound



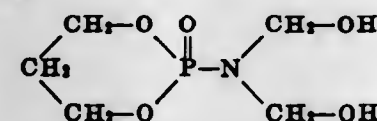
wherein R₁, R₂ and R₃ are each aryl, alkaryl, aralkyl, alkyl or haloalkyl of 1 to about 8 carbon atoms, are useful as new latent catalysts in the oxyalkylation reaction between a vicinal alkylene oxide and a hydroxy-containing organic compound.

3,597,503

CYCLIC PHOSPHOROAMIDATES AND PROCESS FOR MAKING SAME

Bruce N. Wilson, Niagara Falls, and Raymond R. Hinderlenn, Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
 No Drawing. Filed Dec. 6, 1967, Ser. No. 688,371
 Int. Cl. C07d 105/04; C08g 22/44
 U.S. Cl. 260-937 13 Claims

The invention includes new cyclic phosphoroamidates, new compositions thereof, and a new process for the making of the new cyclic phosphoroamidates. A typical novel cyclic phosphoroamidate of this invention is a compound of the formula:

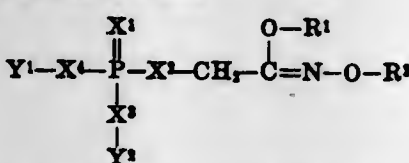


which is an effective fire retardant for various compositions such as polyurethane foam, for example. A compound of this illustrative formula may be prepared by reacting the di-functional amine precursor of the compound, with formaldehyde. The above illustrative compound also may be employed as an intermediate in the production of other compounds and/or compositions described in the specification.

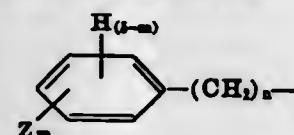
3,597,504

ALKOXYIMINO PHOSPHATES

Sidney B. Richter, Chicago, and Ephraim H. Kaplan, Skokie, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
 No Drawing. Filed Aug. 29, 1968, Ser. No. 756,325
 Int. Cl. A01n 9/36; C07f 9/08
 U.S. Cl. 260-944 6 Claims



wherein Y¹ and Y² are independently selected from the group consisting of alkyl, alkenyl and



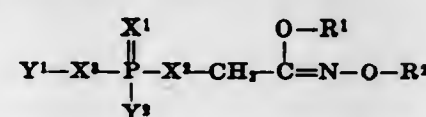
wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino, m is an integer from 0 to 5, and n is an integer from 0 to 3; R¹ and R² are alkyl; and X¹, X², X³ and X⁴ are independently selected from the group consisting of oxygen and sulfur. This invention also discloses insecticidal and acaricidal compositions comprising an inert carrier, and as an essential active ingredient, in a quantity toxic to insects and acarids, a compound of the above description; and further a method of destroying insects and acarids which comprises applying to said insects and acarids and aforesaid insecticidal and acaricidal composition.

3,597,505

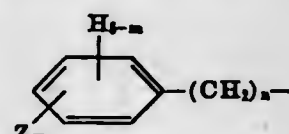
ALKOXYIMINO PHOSPHONATES

Sidney B. Richter, Chicago, and Ephraim H. Kaplan, Skokie, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
 No Drawing. Filed Aug. 29, 1968, Ser. No. 759,255
 Int. Cl. A01n 9/36; C07f 9/40
 U.S. Cl. 260-944 7 Claims

Compounds of the formula



wherein Y¹ and Y² are independently selected from the group consisting of alkyl, alkenyl and



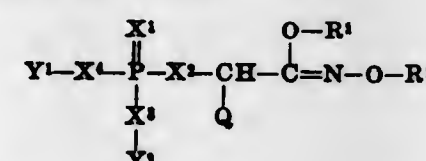
wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino, m is an integer from 0 to 5, and n is an integer from 0 to 3; R¹ and R² are alkyl; and X¹, X² and X³ are independently selected from the group consisting of oxygen and sulfur. This invention also discloses insecticidal and acaricidal compositions comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to insects and acarids, a compound of the above description; and further a method of destroying insects and acarids which comprises applying to said insects and acarids an aforesaid insecticidal and acaricidal composition.

3,597,506

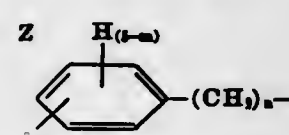
O(S)-(1-HYDROCARBYL-2-ALKOXYIMINO-2-ALKOXYETHYL PHOSPHATES

Sidney B. Richter, Chicago, and Ephraim H. Kaplan, Skokie, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
 No Drawing. Filed Sept. 6, 1968, Ser. No. 758,118
 Int. Cl. C07f 9/08, 9/16; A01n 9/36
 U.S. Cl. 260-944 6 Claims

Compounds of the formula



wherein R¹ and Y² are independently selected from the group consisting of alkyl, alkenyl and

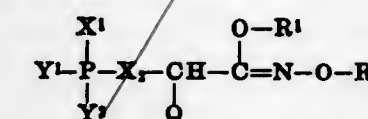


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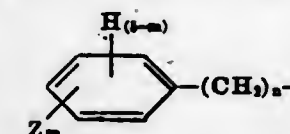
ALKOXYIMINO PHOSPHINATES

Sidney B. Richter, Skokie, and Ephraim H. Kaplan, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
 No Drawing. Filed Oct. 7, 1968, Ser. No. 765,617
 Int. Cl. C07f 9/32; A01n 9/36
 U.S. Cl. 260-944 6 Claims

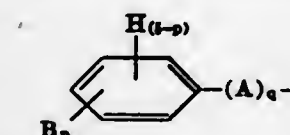
Compounds of the formula



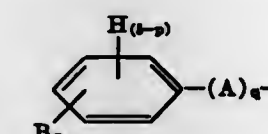
wherein Y¹ and Y² are independently selected from the group consisting of alkyl, alkenyl and



wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, m is an integer from 0 to 5, and n is an integer from 0 to 3; Q is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio and



wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, m is an integer from 0 to 5, and n is an integer from 0 to 3; Q is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio and



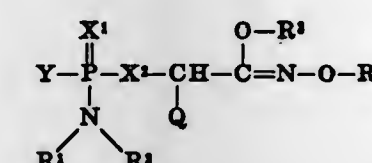
wherein B is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, p is an integer from 0 to 5, A is selected from the group consisting of oxygen, sulfur, alkylene, alkyleneoxy and alkyleneethio, and q is an integer from 0 to 1; X¹, X², X³ and X⁴ are independently selected from the group consisting of oxygen and sulfur; and R¹ and R² are alkyl. This invention also discloses insecticidal and acaricidal compositions comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to insects and acarids, a compound of the above description; and further, a method of destroying insects and acarids which comprises applying to said insects and acarids an aforesaid insecticidal and acaricidal composition.

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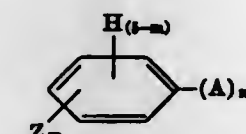
O(S)-(1-HYDROCARBYL-2-ALKOXY IMINO-2-ALKOXY)-O(S)-HYDROCARBYL PHOSPHOR-AMIDATES

Sidney B. Richter, Chicago, and Ephraim H. Kaplan, Skokie, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
 No Drawing. Filed Sept. 18, 1968, Ser. No. 760,722
 Int. Cl. C07f 9/24; A01n 9/36
 U.S. Cl. 260-944 6 Claims

Compounds of the formula



wherein Y and Q are independently selected from the group consisting of alkyl, alkenyl, alkoxy, alkenyloxy, alkylthio and



wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino, m is an integer from 0 to 5, A is selected from the group consisting of oxygen, sulfur, alkylene, alkyleneoxy and alkenethio, and n is an integer from 0 to 1; R¹ and R² are independently selected from the group consisting of hydrogen and alkyl; R³ and R⁴ are alkyl; and X¹ and X² are independently selected from the group consisting of oxygen and sulfur. This invention also discloses insecticidal and acaricidal compositions comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to insects and acarids, a compound of the above description; and further, a method of destroying insects and acarids which comprises applying to said insects and acarids an aforesaid insecticidal and acaricidal composition.

3,597,509

POLYETHERS CONTAINING PHOSPHORUS AND ALCOHOLIC HYDROXY GROUPS AND THEIR PRODUCTION

Hans-Eberhard Praetzel, Bensberg-Frankenfort, and Herbert Jenkner, Cologne-Deutz, Germany, assignors to Chemische Fabrik Kalk G.m.b.H., Cologne-Kalk, Germany
 No Drawing. Continuation-in-part of application Ser. No. 515,165, Dec. 20, 1965. This application June 22, 1967, Ser. No. 647,961
 Claims priority, application Germany, Dec. 24, 1964, C 34,742; June 23, 1966, C 39,428
 Int. Cl. C07f 9/30; C08g 23/10, 33/16
 U.S. Cl. 260-953 4 Claims

Process for the production of phosphorus and alcoholic hydroxy group containing polyethers by reacting (a) white phosphorus with about stoichiometric quantities of alkali metal hydroxide, aldehydes and water in the presence of alcohols and (b) after removal of the more volatile components reacting the reaction product which essentially consists of alkali metal salts of bis-(hydroxyalkane) phosphinic acid with epoxy compounds, at least 2 mol of epoxy compound being used per g-atom of phosphorus in the reaction product and the polyethers produced thereby. According to a variation of the process the reaction product of (a) is treated with a water free mineral acid before

removal of the volatile components and the free bis-(hydroxyalkane)-phosphinic acid is reacted with the epoxy compound rather than its alkali metal salt. The polyether products are useful as components of polyurethane resins.

3,597,510

PREPARATION OF ALLYLPHOSPHONIC ACID AND ESTERS AND SALTS THEREOF

Peter I. Pollak, Scotch Plains, and Harry L. Slates, Florham Park, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed May 15, 1968, Ser. No. 729,390

Int. Cl. C07F 9/40; A61k 22/00

U.S. Cl. 260—989

4 Claims

Propenylphosphonic acid and esters and salts thereof are prepared by transitional metal catalyzed double bond isomerization of the corresponding allylphosphonic acid or allylphosphonate. These compounds are useful intermediates in the synthesis of antibiotics active (±)- (cis-1,2-epoxypropyl)phosphonic acid and its salts.

3,597,511

PROCESS FOR MAKING BIS-ALKYLENE PYROPHOSPHATES

Robert S. Olson, Lafayette, Guy H. Harris, Concord, and Robert D. Wilcox, Palo Alto, Calif., assignors to The Dow Chemical Company, Midland, Mich.

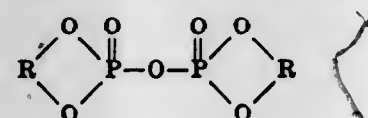
No Drawing. Filed Feb. 7, 1968, Ser. No. 703,542

Int. Cl. C07d 105/04; C08f 45/58; A01n 9/36

U.S. Cl. 260—980

9 Claims

Cyclic pyrophosphate compounds, herein referred to as bis-alkylene pyrophosphates, are produced directly by a simple, one-step process whereby phosphorus pentoxide is reacted with 2 molar equivalents of an alkylene oxide. Representative alkylene oxides are ethylene oxide, 1,2-butylene oxide, 2,3-octylene oxide and epihalohydrin. The bis-alkylene pyrophosphates so produced have the general formula



In the above as well as succeeding formulas, R represents a vicinal alkylene or substituted alkylene group. Among other applications, these bis-alkylene pyrophosphates have utility as pesticides and as additives for use in the preparation of flame-resistant polyurethane foams.

3,597,512

GRAIN SIZE CONTROL IN REFRACTORY CARBIDES USING HOT PLASTIC STRAINING AND RECRYSTALLIZATION ANNEALING

Joseph M. Tobin and Leonard R. Fleischer, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 29, 1968, Ser. No. 717,323

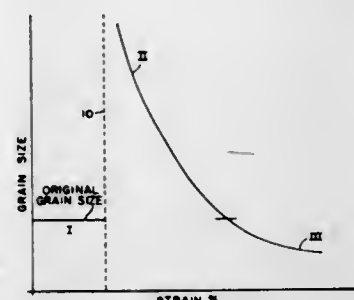
Int. Cl. C04b 35/36

U.S. Cl. 264—29

9 Claims

A method of controlling the grain size of a refractory metal carbide body comprising recrystallized crystallites of the carbide of a metal of Groups IV-B and V-B of the Periodic Table wherein a body of one or more refractory metal carbides selected from the carbides of the group consisting of Ti, Zr, Hf, V, Nb, and Ta is as an elevated temperature between a point of from about one-half of the melting point of the carbide to a point just below the solidus temperature; and while holding the temperature substantially constant subjecting the carbide to a mechanical strain in an amount equal to at least the critical strain necessary for causing recrystallization of the carbide; removing the stress and annealing the

strained body at an elevated temperature in the range of from the straining temperature but not exceeding the solidus temperature (the temperature at which a liquid phase



is formed) for a period of time sufficient to cause complete recrystallization of the carbide, whereby the desired recrystallized grain size varies inversely with the amount of strain applied to the carbide.

3,597,513

METHOD OF CONSTRUCTING A BUILDING

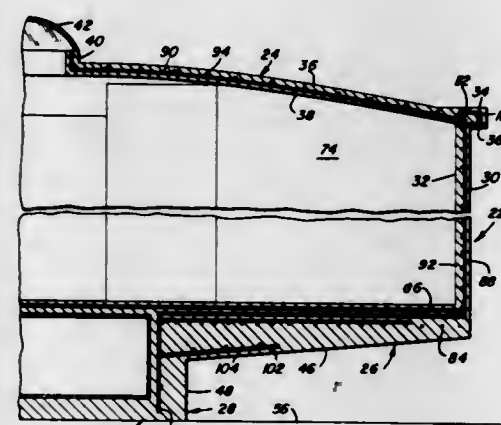
Ricardo J. Nevarez Ocampo, Mexico City, Mexico, assignor to Joseph Abelow, Miami Beach, Fla.

Original application Nov. 2, 1967, Ser. No. 680,103, now Patent No. 3,436,052, dated Apr. 1, 1969. Divided and this application Mar. 28, 1969, Ser. No. 811,476

Int. Cl. E04b 1/16; E04g 11/04

U.S. Cl. 264—32

2 Claims



A method of constructing a monolithic building of cementitious material in which a mold is supported from the ground surface with a portion thereof open to the ground surface and pouring a complete building in one pour of fluent cementitious material. The mold is vibrated to reduce void spaces, reinforcing rods are employed and partition walls are formed during the single pour.

3,597,514

METHOD FOR PRODUCING POROUS SHEETS, PARTICULARLY DIAPHRAGMS, OF ASBESTOS FREE OF BONDING AGENTS

Philipp Jager, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,086

Claims priority, application Germany, Mar. 18, 1967, S 108,908

Int. Cl. C04b 43/04

U.S. Cl. 264—43

2 Claims

Described is a method of producing porous asbestos sheets and asbestos diaphragms free of bonding agents.

The method is characterized in that asbestos fibers are ended containers joined end-to-end from a thermoplastics first pretreated with alkaline lyes and are subsequently material, introducing a filling into the containers while tempered at temperatures of 300 to 700° C.

3,597,515

PLASTIC EXTRUSION PROCESS IN CHILL ROLL CASTING OF FILM FOR IMPROVED FLATNESS

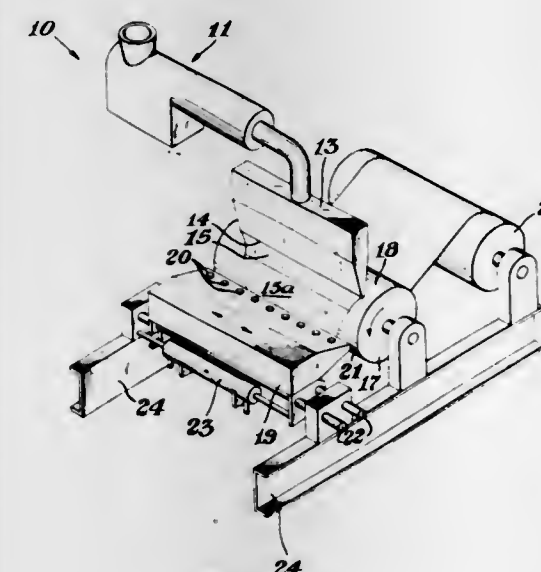
Almar T. Widiger, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 22, 1969, Ser. No. 793,143

Int. Cl. B29d 7/02, 7/08

U.S. Cl. 264—89

5 Claims



In chill roll casting of plastic film, improved flatness is obtained by oscillating the intensity of a flat stream of gas which is applied transverse to the direction of extrusion. By adjustment of the air stream, thick or thin spots may be reduced and distributed across the film.

3,597,516

METHOD OF PRODUCING FILLED MOULDED CONTAINERS

Norman Frederick Harwood, Bognor Regis, Sussex, England, assignor to Regis Machinery (Sussex) Limited, Sussex, England

Filed Sept. 26, 1968, Ser. No. 762,679

Claims priority, application Great Britain, Sept. 27, 1967, 44,065/67

Int. Cl. B29c 17/07

U.S. Cl. 264—96

8 Claims

A method of, and apparatus for, producing filled moulded containers by blow-moulding a ribbon of open-



they are still part of the ribbon and thereafter sealing the containers in their end regions.

3,597,517

METHOD OF MAKING PLASTIC BELLOWS

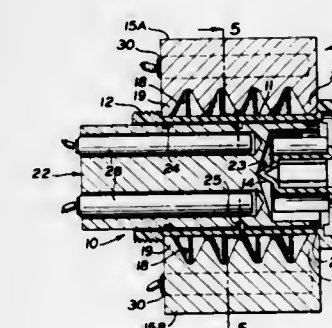
Edward M. Smith, Mansfield, Ohio, assignor to The Gorman-Rupp Company, Mansfield, Ohio

Continuation-in-part of application Ser. No. 793,368, Jan. 23, 1969. This application June 9, 1970, Ser. No. 44,801

Int. Cl. B29c 17/07

U.S. Cl. 264—97

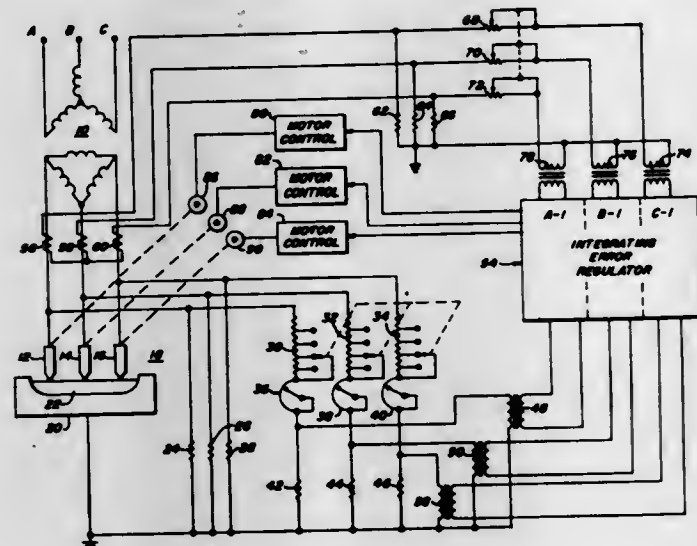
17 Claims



A method of forming a cylindrical bellows out of substantially inelastic plastic material of the polypropylene type by first injection molding a substantially cylindrical tube having certain required end configurations and then, while maintaining the tube at a softening temperature substantially below its melting temperature, applying high fluid pressure within the tube to stretch-mold convolutions and effect molecular orientation therein producing long-lived axial flexibility with minimal radial variation.

ELECTRICAL

3,597,518
ELECTRIC ARC FURNACE CONTROL
 Roland W. Roberts, Pittsburgh, Pa., assignor to Robicon Corporation, Pittsburgh, Pa.
 Filed Feb. 27, 1970, Ser. No. 15,035
 Int. Cl. H05b 7/12; F27d 1/110
 U.S. Cl. 13-13 9 Claims

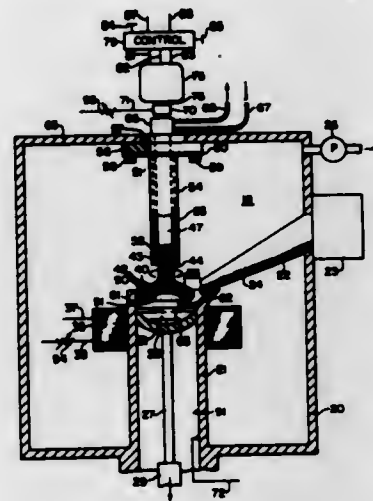


A control system for electric arc furnaces incorporating proportional plus integral control characteristics. The system, which is designed to maintain constant arc impedance, develops an output voltage proportional to input impedance error and then adds a second voltage which increases with time at a rate proportional to the impedance error magnitude. When the combined voltages for a furnace electrode exceed a preset level, the drive motor for that electrode is actuated to move the electrode upwardly or downwardly to maintain the desired arc impedance. In this way, the system will respond quickly to large impedance errors, is insensitive to short term impedance fluctuations, and at the same time has a very high sensitivity to continuing small errors.

3,597,519
MAGNETIC-FIELD-ROTATING-ELECTRODE ELECTRIC ARC FURNACE APPARATUS AND METHODS
 George A. Kemeny, Export, and Ronald R. Akers, Trafford, both of, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Feb. 5, 1970, Ser. No. 8 982
 Int. Cl. H05b 7/08
 U.S. Cl. 13-18 22 Claims

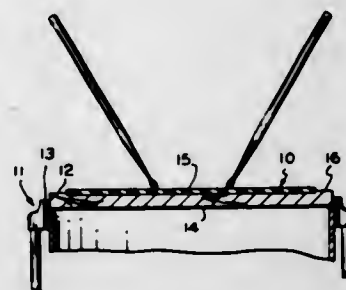
Magnetic field generating means sets up a field within a mold having at least partially electrically conductive material therein to form a melt, the field lines extending through at least a portion of the mold. A rotating electrode has at least the portion thereof which forms the arcing surface rotating in a predetermined plane with respect to the surface of the melt, and an arc takes place between electrode and melt. Where the mold is composed of electrically conductive material, the magnetic field stirs the melt by interaction with current filaments extending from the instant point of arc attachment on the melt to the wall of the mold. The magnetic field focuses the arc between electrode and melt, renders the arc uninfluenced by stray magnetic fields and spurious discharges, assists in preventing glow discharges at reduced pressures, and by creating a magnetic field barrier between the arcing surface of the electrode and the wall of the mold inhibits the arc from striking to the mold. Embodiments include magnetic field generating means mounted adjacent the

wall of the mold, or adjacent the wall of a larger furnace enclosure, or on the electrode. A still further embodiment em-



plays a rotating electrode with magnetic field generating means within the electrode.

3,597,520
DRUM PRACTICE PAD
 Henry S. Andrews, 1121 S.E. Lincoln Street, Portland, Oreg.
 Filed June 19, 1969, Ser. No. 834,751
 Int. Cl. G10d 13/00
 U.S. Cl. 84-411 1 Claim



A drum practice pad having a solid base portion of relatively hard material into which a circular pad of soft gum rubber is recessed to a depth approximately equal to one-half of the thickness of said rubber, said base portion being of a diameter to permit it to fit on a head of a drum inside the rim thereof but without touching the rim, thereby to permit said base to be supported on the head of the drum or independently on a drum stand or other support. A drummer may practice with drumsticks on that side of the base portion into which said rubber pad is recessed or with drum brushes on the opposite side.

3,597,521
TERMINAL-CAP AND TERMINAL CONNECTOR CONSTRUCTION FOR HIGH VOLTAGE TERMINAL BUSHINGS
 Charles W. Tragesser, Murrysburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Nov. 26, 1969, Ser. No. 880,140
 Int. Cl. H01b 17/26
 U.S. Cl. 174-12 BH 10 Claims

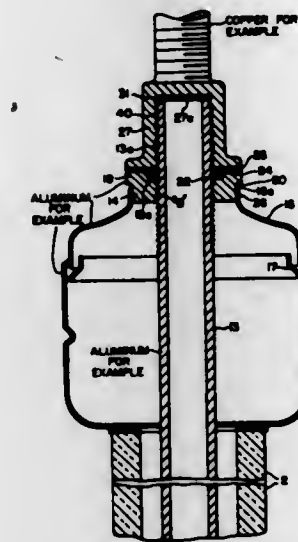
An improved flexible diaphragm construction is provided for a high voltage terminal bushing in which the weld location between the inner periphery of the flexible diaphragm is at the upper outside extremity thereof, between the diaphragm and the thimble. In order to remove the diaphragm from the lead, an improved sealing gasket construction is provided, wherein a sealing gasket is placed in the thimble groove first, and at least one stop gasket is used

AUGUST 8, 1971

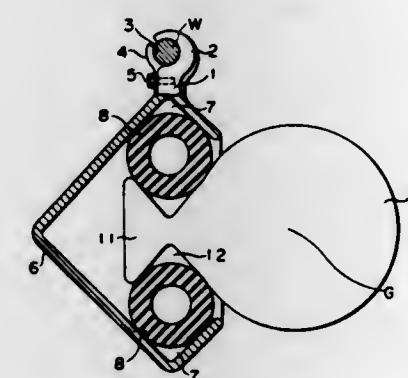
ELECTRICAL

283

to compress the sealing gasket. This also enables a separation between the thimble, when it is made of aluminum, from the copper terminal connector for electrolysis reasons. Additionally, the electrical transition joint between the aluminum and the copper, where these materials are used, is completely sealed from the atmosphere by such a gasketed construction.



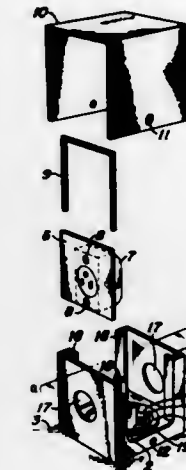
3,597,522
VIBRATION DAMPER FOR CONDUCTORS
 Masashi Kobayashi, Kawasaki, Japan, assignor to Asahi Denki Kabushiki Kaisha, Kawasaki, Japan
 Filed Oct. 22, 1969, Ser. No. 868,400
 Int. Cl. H02g 7/14
 U.S. Cl. 174-42 6 Claims



In a damper comprising a conductor-grasping element and a weight, said element providing a box-shaped housing so that a portion of said weight can be introduced into it, whereby elastic or resilient bodies having suitable shapes are disposed between the spaces defined by the inner surface of said box-shaped housing and outer periphery of that portion of said weight within said housing so that said weight is held resiliently by said housing through said elastic or resilient bodies.

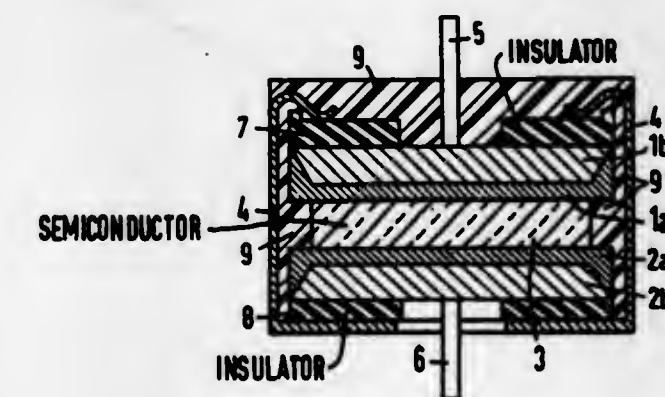
3,597,523
FLOOR-MOUNTED OUTLET BOXES
 Kenneth E. Guritz, 570 Emerald Harbor Drive, Sarasota, Fla.
 Filed Feb. 17, 1970, Ser. No. 11,969
 Int. Cl. H02g 3/10
 U.S. Cl. 174-48 5 Claims

A floor-mounted electrical or communication service outlet box which employs different threaded couplings for mounting the box over hard and soft floor surface (e.g., tile versus carpeting). Additionally, the receptacles are mounted



arrangements facilitate the installation and removal of the receptacles.

3,597,524
SEMICONDUCTOR DEVICE WITH A GAS AND MOISTURE-TIGHT HOUSING
 Horst Schreiner, Nurnberg, and Heinrich Hassler, Wendelstein, both of, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Munich, Germany
 Filed Sept. 22, 1969, Ser. No. 859,794
 Claims priority, application Germany, Sept. 21, 1968, P 17 89 014.1
 Int. Cl. H01l 9/04
 U.S. Cl. 174-52 PE 2 Claims



A semiconductor device has a semiconductor member and a housing, the latter having portions disposed adjacent the member. Each portion is formed of porous sinter metal and has at least two regions of respectively different space-filling factors. The housing has a plastic portion contiguous to and partially penetrating the regions whereby the interior of the housing is sealed against the ingress of moisture and gas.

3,597,525

BIAS LEVEL REDUCTION OF INCOHERENT HOLOGRAMS

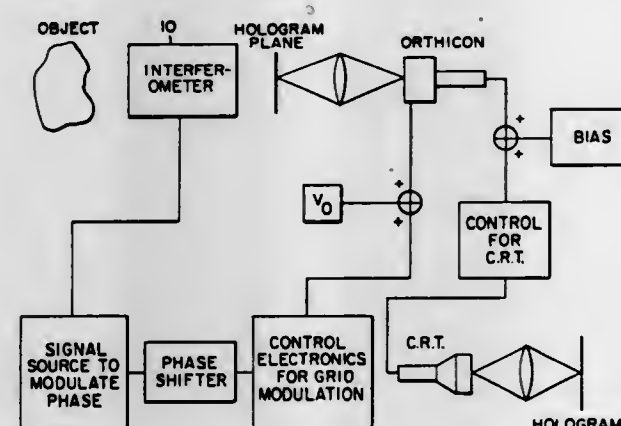
Adam Kozma, London, England, assignor to The Battelle Developments Corporation, Columbus, Ohio

Filed Mar. 10, 1967, Ser. No. 622,252

Int. Cl. H04n 9/54

U.S. Cl. 178-6.5

12 Claims



Methods and apparatus for reducing the bias level that is present in holograms made with spatially incoherent light by temporally phase-modulating the light in one path of an interferometer.

3,597,526

FLUSH BOX FOR PLUG RECEPTACLES

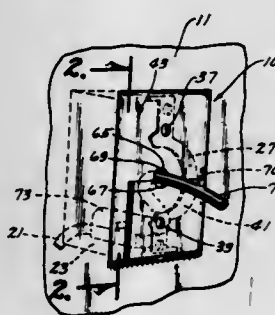
Daniel J. Boatwright, 2616 62nd St., and Lloyd T. Hatcher, 2729 59th St., both of Des Moines, Iowa

Filed Oct. 13, 1969, Ser. No. 865,914

Int. Cl. H02g 3/14

U.S. Cl. 174-66

8 Claims



A flush box for plug receptacles, comprising a box means including an open face at one side thereof. A cover element is mounted on the open face of the box means and comprises a plate element having a door element pivotally mounted therein. The door element cooperates with the plate element to form the external peripheral shape of the cover element. The plate element and door element each have a semicircular access opening formed therein opposite to each other and complementary therewith so as to define a circular access opening when the door element is in its closed position. A flexible conduit extends through the circular access opening into the box means and has a first plug element secured thereto which matingly engages a second plug element in the box means. The first plug element is smaller in size than the door element to permit the first plug element to be easily inserted into the box means or withdrawn therefrom when the door element is in its open position. Means is also provided to yieldably maintain the door in its open position. The cover element also includes means to maintain the door element in its proper closed position.

3,597,527

UNIVERSAL POWER CABLE JOINT

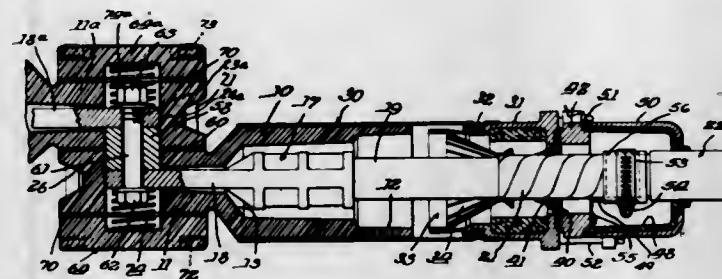
George E. Lusk, Downers Grove, Ill., assignor to G & W Electric Specialty Company, Blue Island, Ill.

Filed July 7, 1969, Ser. No. 839,251

Int. Cl. H02g 15/02, 15/08; H01b 17/26

U.S. Cl. 174-73 R

11 Claims



The cable joint of the invention is modular in concept since any joint configuration can be constructed from identical components. The basic module includes a tubular housing of plastic material having a passage extending through the same and which terminates at its forward end in a junction pad. The prepared end of the power cable is provided with a metal connector having a forwardly projecting tang and which extends through the passage of reduced size and into a transverse opening formed in the junction pad.

3,597,528

ELECTRICAL CONNECTOR FOR INSULATING AN ELECTRICAL WIRE JOINT

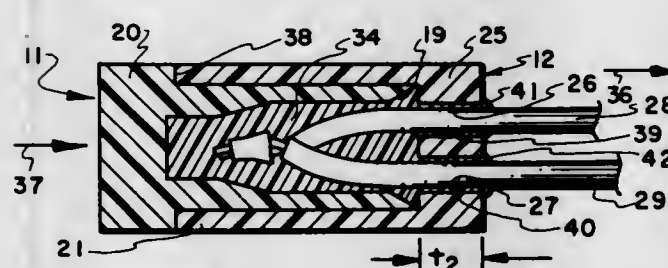
Charles S. Penfield, Camarillo, and Roy Wilson, Jr., Santa Paula, both of, Calif., assignors to Plastic Irrigation Products Company, Oxnard, Calif.

Filed Oct. 27, 1969, Ser. No. 869,735

Int. Cl. H02g 15/08

U.S. Cl. 174-87

5 Claims



An electrical connector capable of being used in a process for insulating a wire joint, includes a plastic plug having a tubular insert section and a plastic casing with an open end sized to receive the tubular insert section and a closed end defining a plurality of ports. A plurality of electrical wires are insulated by plastic tubes that extend through corresponding ports to define a series of passages.

Plastic bonding agent is captivated within a space defined by the plug and casing to encapsulate bared electrical wire ends held together at a joint inside the casing. Another portion of the plastic bonding agent is extruded entirely throughout the annular passages in order to bond the casing and plastic tubes together.

3,597,529

SYSTEM FOR THE CORRECTION OF DIFFERENTIAL PHASE DISTORTION IN A COLOR TELEVISION SIGNAL

Terry J. Hickman, North Syracuse, N.Y., assignor to General Electric Company

Filed Oct. 3, 1968, Ser. No. 764,735

Int. Cl. H04n 9/02

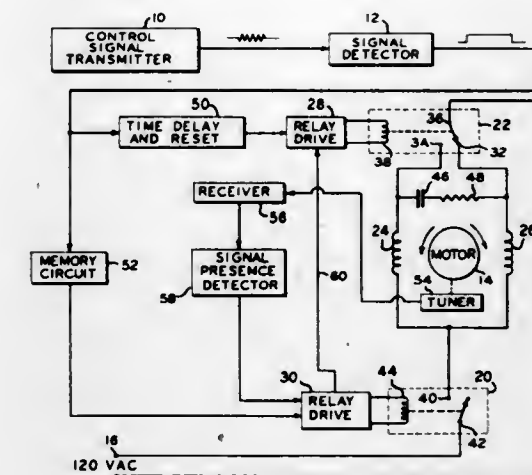
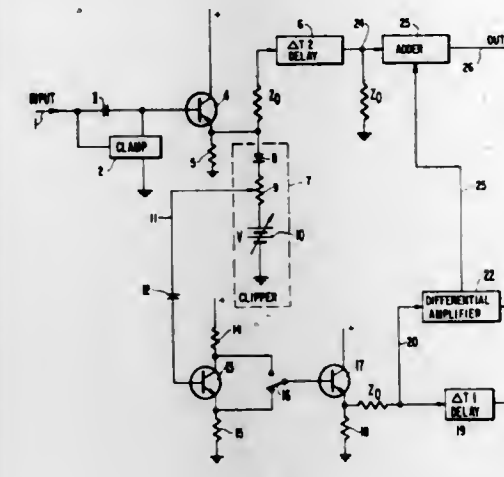
U.S. Cl. 178-5.4

5 Claims

A system for the correction of differential phase distortion in a color television signal in which an active filter is used to process the chroma components of a clipped portion of the video signal to generate a correction signal. The correction

signal is added to the main video signal in quadrature to change differential phase with minimal change of frequency

signal and picture carrier indicate a new station has been tuned in. A memory circuit charged during the detector out-



response and differential gain. The polarity and amount of correction can be varied.

put pulse is operative upon pulse termination to assure the original station is vacated at the start of search.

3,597,530

ARRANGEMENT FOR PRODUCING PAL-COLOR TELEVISION TEST SIGNALS

Waldemar Hartwich, Toppensdt, Germany, assignor to U. S. Philips Corporation, New York, N.Y.

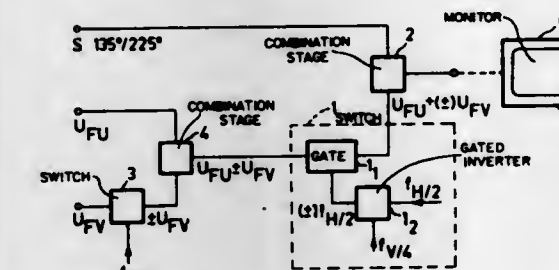
Filed Oct. 28, 1968, Ser. No. 771,148

Claims priority, application Germany, Oct. 26, 1967, P 15 37 299.3

Int. Cl. H04n 9/16, 9/38

U.S. Cl. 178-5.4 P

2 Claims



METHOD AND APPARATUS FOR THE PRODUCTION OF SCREEN-PRINTING FORMS WITH A PATTERN HAVING A MOTIF REPEATED AT LEAST IN THE DIRECTION OF THE LINE

Ferdinand A. De Vos, Amsterdam, and Jan H. Ter Steege, Abcoude, both of, Netherlands, assignors to Werkspoor-Amsterdam N.V., Amsterdam, Netherlands

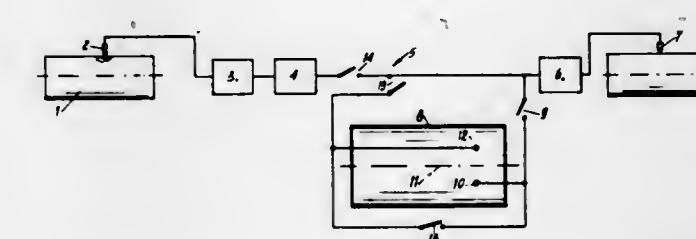
Filed Nov. 14, 1968, Ser. No. 775,783

Claims priority, application Netherlands, Dec. 1, 1967, 67.16367

Int. Cl. H04n 1/06, 1/28, 5/76

U.S. Cl. 178-6.6 B

3 Claims



A test circuit for a PAL-TV receiver features a source of PAL-test signals which are gated every other line. From frame to frame the gated lines are alternated between the odd and even numbered lines. The resultant signals are applied to the receiver where any misadjustment errors result in the "Venetian Blind" effect.

Scanning means scans a pattern area and the analog output signal thereof is converted to digital form. This digital signal is employed for causing an engraving means to produce a first pattern area on a screen printing form and is also employed through the intermediary of a writing means to provide output information on a magnetic storage means. Readout means associated with a storage means utilizes this output information to cause the engraving means to repeat the first pattern area on the screen printing form and the readout means is interconnected with the writing means to reproduce the output information on the storage means so that the pattern area can be reproduced a plurality of times on the screen-printing form.

3,597,531

BIDIRECTIONAL SIGNAL SEEKING REMOTE CONTROL SYSTEM

Joseph Vincent De Marinis, Batavia; Paul Eshelman Le Fevre, Pavilion, and Joseph Edward Thomas, Batavia, all of, N.Y., assignors to Sylvania Electric Products Inc.

Filed Jan. 19, 1970, Ser. No. 3,611

Int. Cl. H04n 5/44; H04b 1/16

U.S. Cl. 178-5.8 R

18 Claims

A single frequency remote control system employing long and short pulses to effect bidirectional rotation of a motor driving a signal seeking UHF television tuner. The system includes an ultrasonic tone transmitter, a receiving transducer, and a signal detector for producing a pulse of duration corresponding to that of the transmitted and received tone. A time delay circuit is coupled to the detector output for actuating a direction control relay in response to a pulse of predetermined duration. Termination of the detector output pulse actuates a second relay to energize the motor windings and thereby cause rotation of the tuner drive shaft in the direction selected by pulse duration. This search mode is sustained by a logic circuit until the presence of both a sync

CHARACTER GENERATION

Gordon Hughes, Manchester, England, assignor to International Computers Limited, London, England

Filed Aug. 21, 1968, Ser. No. 754,230

Claims priority, application Great Britain, Aug. 26, 1967, 39357/67

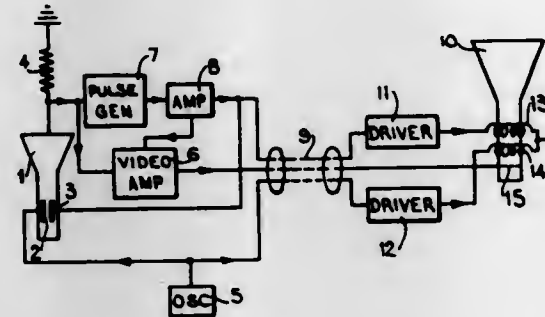
Int. Cl. H04n 5/14, 5/38

U.S. Cl. 178-6.8

6 Claims

A system for high-speed scanning of graphical symbols in which a line is scanned by a first waveform at a first speed and upon the scan passing over the leading or trailing edge of a symbol, an output is developed and applied to a pulse generator. The pulse generator produces a substantially rectangular pulse whenever the scan passes a leading or trail-

ing edge of a symbol portion, while the pulses are integrated by an appropriate amplifier. The integrated pulses form a second triangular-shaped waveform which is combined with the first scanning waveform such that the scan speed of the first waveform is temporarily reduced below normal scan



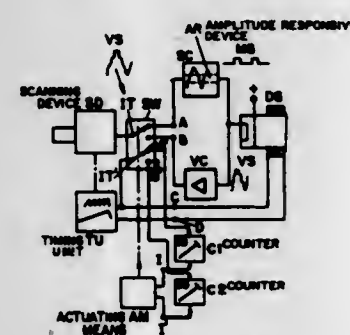
speed and is temporarily increased above normal scan speed before reaching and remaining at a normal speed. The combined scanning waveform is then transmitted to a display device along with the first waveform and appropriate control signals such that the symbol scanned may be remotely displayed.

3,597,534
SYSTEM FOR DISPLAYING THE DISTRIBUTION OF THERMAL RADIATION FROM AN OBJECT
Carl-Erik Granqvist, Lidings, and Nils Arvid Norman Bjork, Taby, both of Sweden, assignors to AGA Aktiebolag, Lidings, Sweden

Filed Apr. 7, 1969, Ser. No. 813,836
Claims priority, application Sweden, Apr. 11, 1968, 4991/68
Int. Cl. H04n 7/18

U.S. Cl. 178-6.8

2 Claims



An infrared scanning device creates a video signal representing the strength of infrared radiation from successively scanned points of an object. A modified signal, for instance, indicating when the radiation strength is within a predetermined range, is derived, and the video signal and the modified signal are applied to a reproducing device of the cathode-ray type alternatively so as to be displayed on separate portions of the image target.

3,597,535
TELEVISION APPARATUS FOR RECORDING AND TRANSMITTING READINGS FROM WEATHER INSTRUMENTS

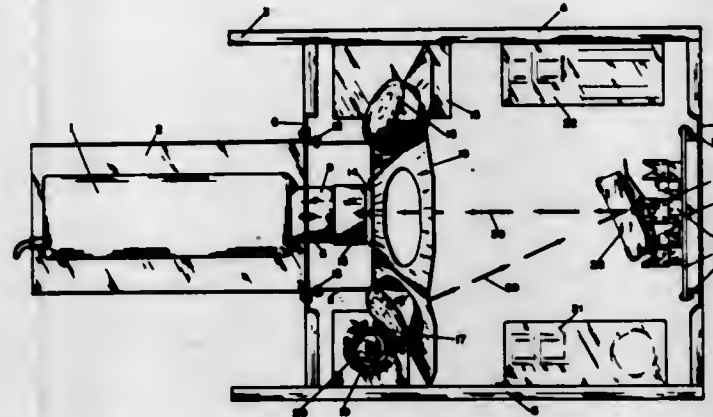
Theodore Bruger, Box 336, Sudbury, Ontario, Canada
Filed Nov. 19, 1968, Ser. No. 777,074
Int. Cl. H04n 5/24

U.S. Cl. 178-7.1

6 Claims

An apparatus for recording and transmitting readings from various weather-indicating instruments which can be received on a specific channel of a home television set in a

particular community. The television camera which is stationary and is centrally positioned with respect to the various

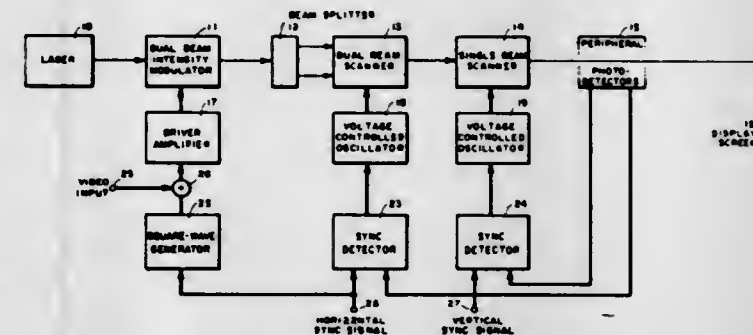


weather-indicating instruments utilizes a reflector for obtaining or picking up the image from the instruments.

3,597,536
DUAL BEAM LASER DISPLAY DEVICE EMPLOYING POLYGONAL MIRROR
Vernon J. Fowler, East Meadow, N.Y., assignor to General Telephone & Electronics Laboratories Incorporated
Filed May 10, 1968, Ser. No. 728,218
Int. Cl. H04n 3/08

U.S. Cl. 178-7.3 D

16 Claims

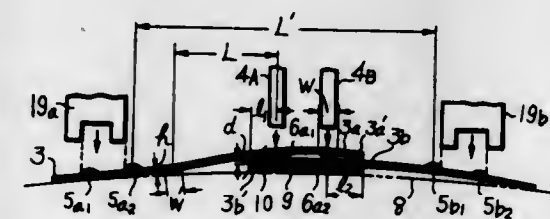


A display system utilizing modulated and steered laser beams to scan a display screen is described. The system is capable of operating with the video and deflection signals of conventional color television signals. A dual-beam intensity modulator at the output of each laser is used to resolve the beam therefrom into first and second components. The components are alternately modulated with the video information and spatially separated. These components are directed, at appropriate angles, to a rotating mirror-type horizontal beam scanner which causes the components to alternately scan in a horizontal plane. A vertical beam scanner is positioned at the output of the horizontal scanner. The components alternately emerging from the vertical beam scanner are directed to and raster scan the display screen.

3,597,537
IMPLOSION-RESISTANT CATHODE-RAY TUBE UTILIZING A METAL BAND
Mikio Kudo, and Kunio Tsuboi, both of Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed June 2, 1969, Ser. No. 829,500
Int. Cl. H04n 5/645

U.S. Cl. 178-7.8

10 Claims



A cathode-ray tube having a metal band wrapped therearound, the ends of the metal band being welded together. The metal band has projections which are available

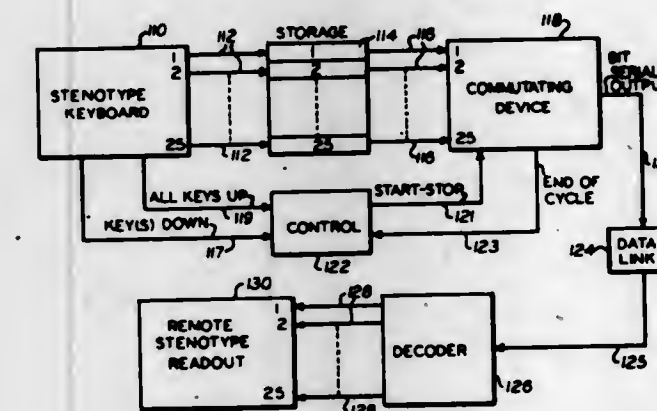
for tensioning the metal band lapped end portions which are electrically welded to each other for securing the tensioned band on the tube, at least one of the lapped end portions has projections which extend therefrom to define a restricted region of contact with another of the lapped end portions at which the welding is effected, and at least one of the extending projections is adapted to engage the tube surface so as to space the outermost of the lapped end portions from the end portion overlapped thereby except at the restricted region of contact.

3,597,538
MEANS FOR TRANSMITTING STENOTYPE PRODUCED INPUT

Zvi Binenbaum, 736 Crown St., Brooklyn, N.Y.
Filed Apr. 23, 1969, Ser. No. 818,696
Int. Cl. B41t 3/26; H04l 13/08, 17/00

U.S. Cl. 178-17.5

5 Claims



Apparatus is provided for the real time communication of data generated by a Stenotype keyboard, a type of data typically represented by the simultaneous actuation of one or more keys. The key actuations are recorded by storage devices, and commutation equipment is activated once for each stenographic character to sample the storage devices sequentially and transmit the information in bit serial form over a data link. The commutating device is started by a control circuit primed when one or more keys are depressed, and subsequently actuated when all such keys are released. At the conclusion of a single commutation cycle, the control circuit stops the commutating device. At the other end of the data link is a decoder which converts the bit serial data transmission back into a form which can be understood by a Stenotype readout device at a remote location.

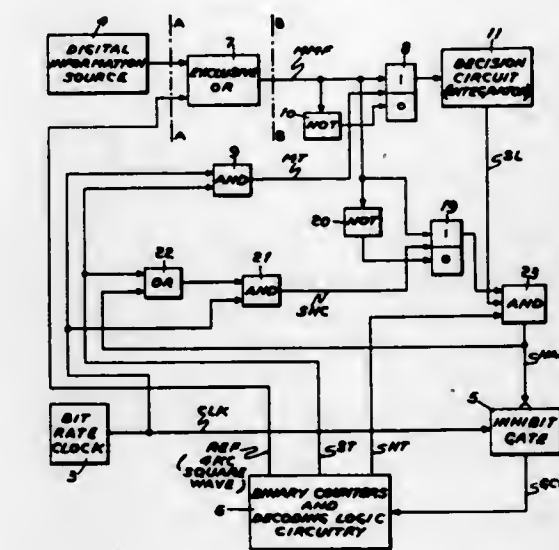
3,597,539
FRAME SYNCHRONIZATION SYSTEM
James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Dec. 4, 1968, Ser. No. 781,181
Int. Cl. H04l 7/08

U.S. Cl. 178-69.5 R

10 Claims

A binary information signal having a given bit rate and a local binary synchronization reference signal are applied to a digital comparison circuit, the output signal thereof indicating a match for mismatch between the binary conditions of successive adjacent bits of the information signal and the reference signal. A flip-flop samples the output of the comparison circuit. A decision circuit responds to the samples from the flip-flop to produce binary "0" when the decision level is exceeded and binary "1" when the decision level is not exceeded. An AND gate coupled to the decision circuit and the comparison circuit provides an output signal only when the comparison circuit indicates a mismatch and the decision circuit produces binary "1" during halt time. This

output signal is applied to an INHIBIT gate disposed between a bit rate clock and binary counters to change the counting



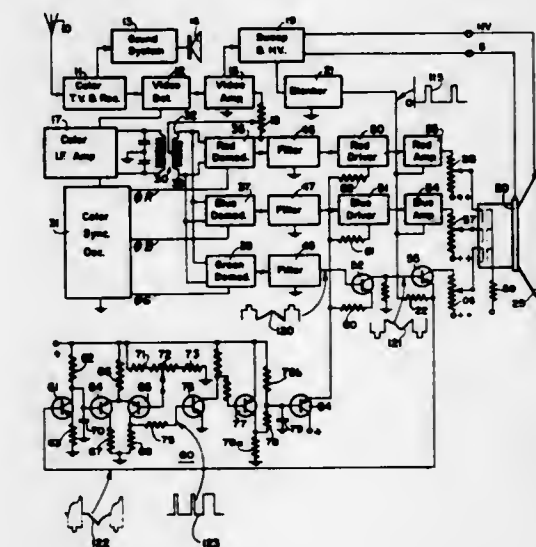
of the counters to achieve synchronization in less time than required by prior art frame synchronization systems.

3,597,540
AUTOMATIC BRIGHTNESS CONTROL RESPONSIVE TO BLACK LEVEL OF VIDEO SIGNAL
Ernest C. MacIntyre, Jr., Woodridge, Ill., assignor to Motorola Inc., Franklin Park, Ill.

Filed Apr. 1, 1969, Ser. No. 811,809
Int. Cl. H04n 5/58

U.S. Cl. 178-7.3 R

7 Claims



An automatic brightness control circuit in a color television receiver using direct demodulation of the color and brightness signals derives a brightness control voltage by comparing a reference signal, which is indicative of the cutoff or black-level condition of the cathode-ray tube, with the video signals supplied to the base of an NPN transistor output amplifier for the green output channel of the receiver. In one embodiment this is accomplished by the use of a differential clipper which is used to compare a reference voltage indicative of the desired black level with a voltage derived from the emitter of the green final amplifier stage during the scanning interval to provide pulses to an integrating circuit, the output of which is used to vary the DC operating level of the green, blue and red driver amplifiers in a closed-loop control system.

3,597,541

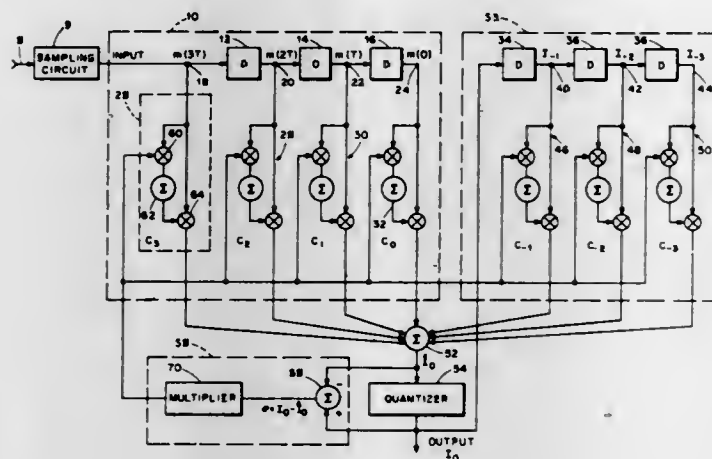
DECISION-DIRECTED ADAPTED EQUALIZER CIRCUIT
John G. Proakis, Waltham; Dennis J. Gooding, Acton, Mass., and James H. Miller, Kenmore, N.Y., assignors to Sylvania Electric Products Inc.

Filed Dec. 23, 1969, Ser. No. 887,653

Int. Cl. H041 17/16, 25/52

U.S. Cl. 178-88

4 Claims



A decision-directed adaptive equalizer circuit employs first and second tapped delay line filters including circuitry to adjust the gain at each tap to a predetermined value. The first tapped delay line filter contains a received signal having intersymbol interference, and the second tapped delay line filter contains decision signals on previously received symbols. A summation circuit combines the output signals from the first and second tapped delay lines to form an estimate signal of the symbol stored in the last section of the first tapped delay line filter. A quantizer circuit quantizes the estimate signal and directs it to a feedback circuit which compares the quantized and unquantized estimate signals to generate an error signal. The error signal is employed to adjust the gain at each tap of the first and second delay line filters.

3,597,542

SOUND LEVEL EXPOSURE INDICATOR

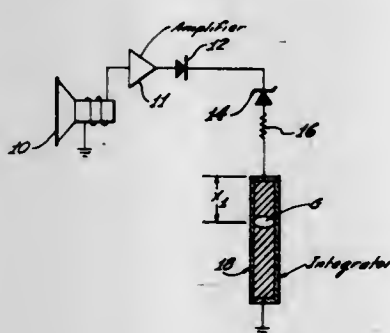
William E. Thornton, 5131 Lancelot St., San Antonio, Tex., and Mack J. Preslar, Chapel Hill, N.C., assignors to said Preslar to said Thornton

Filed Sept. 13, 1967, Ser. No. 670,516

Int. Cl. G01h 3/12

U.S. Cl. 179-1 N

4 Claims



An extremely simple electrical indicator is provided for sensing noise levels and durations, and for providing an indication of the noise level of an environment, insofar as the possibility of ear damage to personnel within the environment is concerned. The indicator includes a microphone for converting the environmental noise into electrical signals, a diode for rectifying the electrical signal from the microphone, and an integrator for integrating the rectified signals on a time base. A threshold device is interposed between the diode and the integrator so that only rectified signals above a predetermined "safe" threshold are actually introduced to the integrator.

3,597,543

CODE GENERATOR FOR FEEDING DATA INTO A TELEPHONE CHANNEL

Rainer Mallebrein, Singen, Hohentwilk, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm/Danube, Germany

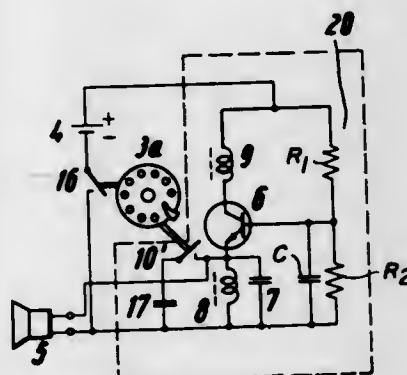
Filed Oct. 20, 1967, Ser. No. 676,884

Claims priority, application Germany, Oct. 20, 1966, T 32323

Int. Cl. H04m 11/06

U.S. Cl. 179-2 DP

5 Claims



A portable code generator for feeding data into computers via a telephone channel and including different audio frequency oscillators actuated to deliver pulses via a dial or a keyboard, the oscillations being transmitted into a telephone instrument via a speaker attached to the mouthpiece of the telephone and then being fed to the computer.

3,597,544

DATA SWITCHING SYSTEM

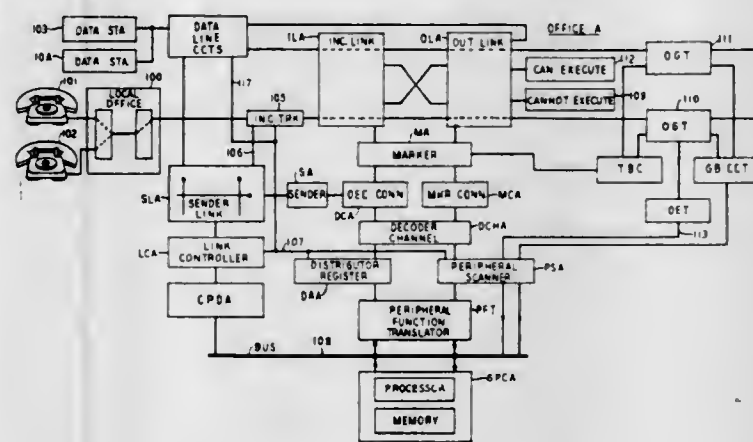
James B. Kennedy, Bexley, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 17, 1969, Ser. No. 816,997

Int. Cl. H04m 11/00; H04q 3/42

U.S. Cl. 179-2

10 Claims



A switching network for data stations is disclosed. Data stations are served by switching centers capable of interconnecting the data stations via wide band facilities. Connections between selected data stations can be "ordered up" from any conventional telephone station not associated with the data stations. The customer desiring to interconnect data stations originates a telephone call which, as it progresses through the network, prepares each switching center for interconnecting the selected data stations.

3,597,545

TELEPHONE-ANSWERING MACHINES WITH UPRIGHT HEAD POSITIONING

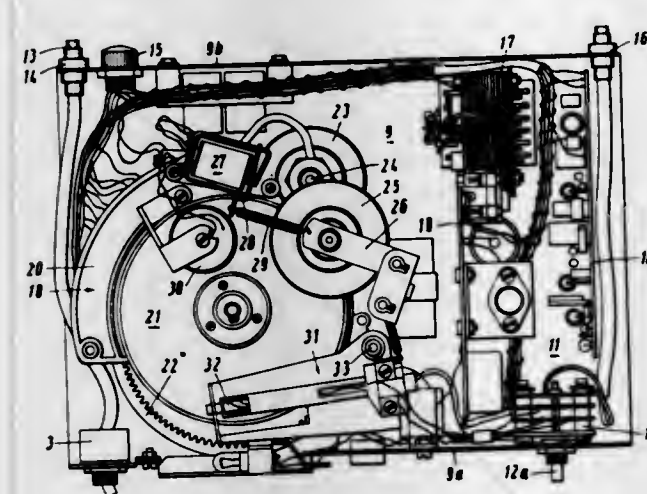
Willy Muller, 8702 Zollikon, Zurich, Switzerland; Bruno Wurm, Dachau-Rothschwaige, Germany, and Hermann Haag, Dachau, Germany, assignors to said Wurm and said Haag to said Muller.

Filed Nov. 13, 1968, Ser. No. 775,488

Int. Cl. G11b 21/08, 21/24; H04m 1/64

U.S. Cl. 179-6 R

12 Claims



The specification describes a telephone-answering machine, not adapted to record a call, in which the disc carrying the magnetic recording material, a disc for indicating the elapse of available recording time, and other rotary parts are mounted in a single cast frame which in turn is mounted on a chassis.

3,597,546

ACOUSTICAL COUPLING SYSTEM FOR DATA COMMUNICATION EQUIPMENT

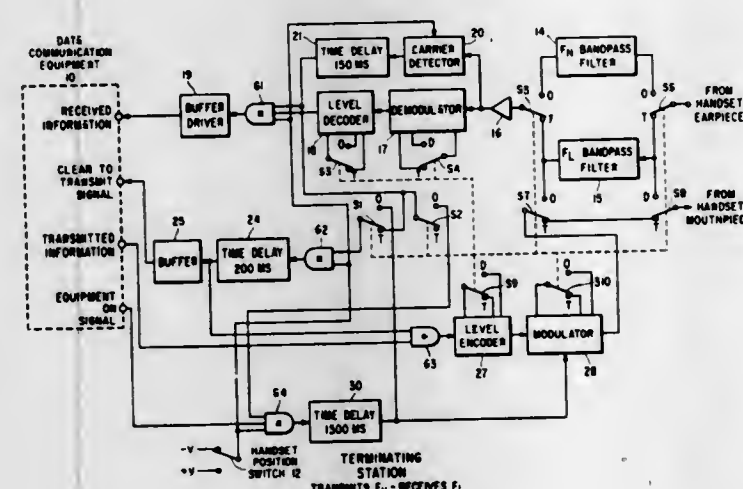
Scott R. Zehr, Fisher, Ill., assignor to The Magnavox Company, Fort Wayne, Ind.

Filed Sept. 11, 1967, Ser. No. 666,904

Int. Cl. H04m 11/06

U.S. Cl. 179-2

3 Claims



An acoustical coupling system is connected to data communication equipment to provide acoustical coupling to an ordinary telephone handset. The coupling system has a modulator and a demodulator. Gating means are provided to render the modulator and demodulator operative when the telephone handset is positioned for acoustical coupling to the system.

3,597,547

APPARATUS FOR SYNCHRONIZING A PCM-RECEIVER AND A TRANSMITTER

Johan Nils Roll, Stockholm, Sweden, assignor to Telefonaktienbolaget L. M. Ericsson, Stockholm, Sweden

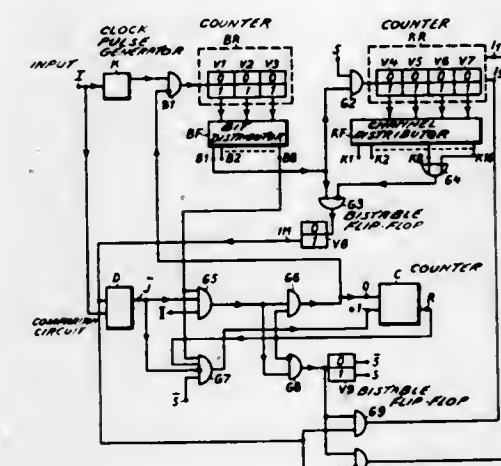
Filed Feb. 6, 1969, Ser. No. 797,127

Claims priority, application Sweden, Feb. 20, 1968, 2,185/68

Int. Cl. H04j 3/06

U.S. Cl. 179-15 BS

1 Claim



A method for synchronizing the receiver and the transmitter in a PCM-receiver system wherein binary information is transmitted within cyclically occurring channels. The last bit of each of the channels form a synchronization pattern, which is regular but has at least one irregularity which occurs within a predetermined channel. By first using the regular part of the synchronization pattern for synchronizing the bit distributors of the transmitter and the receiver and then the irregularity for synchronizing the channel distributors a very fast two stage synchronization process is obtained.

3,597,548

TIME DIVISION MULTIPLEX SWITCHING SYSTEM

James Walter Drinnan, and John Richard Francis, both of Liverpool, England, assignors to Automatic Telephone and Electric Company, Limited

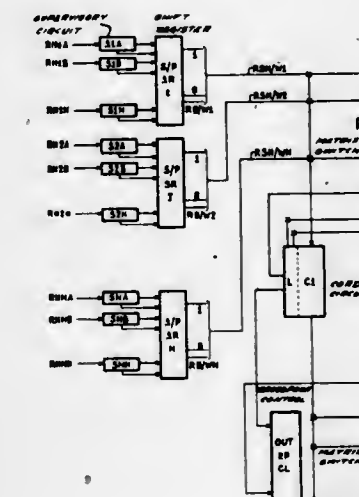
Filed Mar. 18, 1969, Ser. No. 808,107

Claims priority, application Great Britain, Mar. 19, 1968, 13299/68

Int. Cl. H04j 3/00

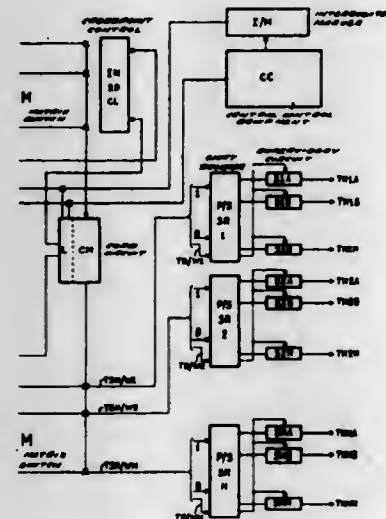
U.S. Cl. 179-15 AT

11 Claims



In a pulse code modulation time division multiplex telephone system, the receive junction highways, each comprising 24 channels, are organized in groups of 8 with respect to a receive superhighway. Each receive junction highway handles speech and channel condition information in serial form for 12 originating-go and 12 terminating-return channels which are interleaved. Eight shift registers are located between the 8 junction highways and a receive superhighway and the channels are processed so that the information for each is presented to the superhighway in parallel form in ap-

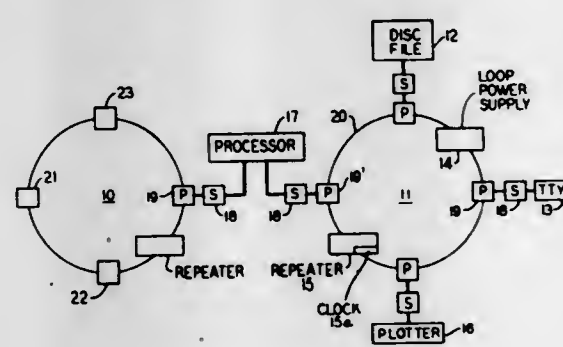
propriate time slots. Thus a 96-bit frame embraces all the originating-go channels of a superhighway. Cord circuits having 96 32-bit storage locations are provided intermediate several receive and transmit superhighways to which all cord circuits have access over input and output cross-point arrays. Each storage location of a cord circuit provides storage for speech and signalling information for the control of the input



and output cross-points to provide displacement compensation for the two junction channels used for the two directions of transmission. The exchange is organized on a superframe basis, eight frames constituting a superframe. Access to registers is obtained directly from the cord circuits and each of the latter is provided with scanning logic arranged to connect itself over input cross-points to successive superhighways in successive superframe periods.

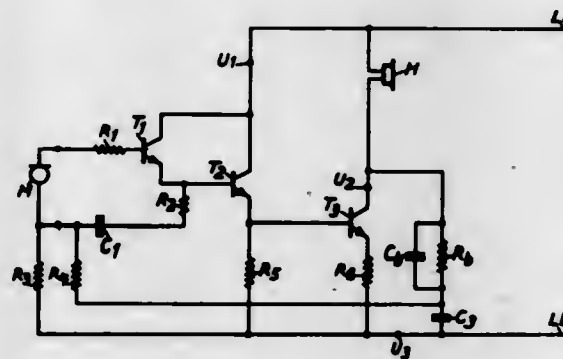
3,597,549
HIGH SPEED DATA COMMUNICATION SYSTEM
Wayne D. Farmer, Madison Township, Middlesex County, and Edmund E. Newhall, Rumson, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 17, 1969, Ser. No. 842,581
Int. Cl. H04j 3/08
U.S. Cl. 179-15 AL 19 Claims



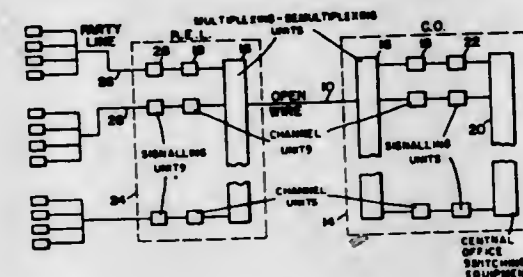
A common continuously closed loop transmission line links all stations in a multistation network, and continuous bipolar bit signal is maintained thereon for providing station clock recovery. A station transmits by overwriting the loop signal with the station outgoing message, and an end-of-message code on the loop is followed by a binary ONE bit. A station wishing to transmit, and recognizing the latter code, converts the ONE to a ZERO to signify to down-line stations that it has seized control; and it immediately transmits its message followed by the end-of-message code plus a ONE. Control of the loop is thus similarly passed around the loop to utilize every time slot as long as any station wants to transmit.

3,597,550
BALANCED TELEPHONE INSTRUMENT CIRCUIT
Olaf Sternbeck, Persikogatan 64, Vallingby, Sweden
Filed Dec. 26, 1968, Ser. No. 786,994
Claims priority, application Sweden, Jan. 18, 1968, 661/68
Int. Cl. H04m 1/58
U.S. Cl. 179-81 A 1 Claim



A balanced telephone circuit includes a microphone connected to the input of a transistor amplifier means having two same-phased outputs and a common output. One of the two same-phased outputs is connected to a first wire of a subscriber's line. The telephone receiver is connected across the first wire of the subscriber's line and the other of the same-phased outputs. An artificial load is connected across the other of the same-phased outputs and the second wire of the subscriber's line which is connected to the common output.

3,597,551
IN-BAND SIGNALLING APPARATUS
Knut Arneberg, Larkollen, Norway; James R. Gibbens, San Rafael, and Klaus E. Funke, San Francisco, Calif., assignors to Lynch Communication Systems, Inc., San Francisco, Calif.
Filed May 29, 1969, Ser. No. 829,003
Int. Cl. H04h 1/08; H04m 1/50
U.S. Cl. 179-84 VF 11 Claims

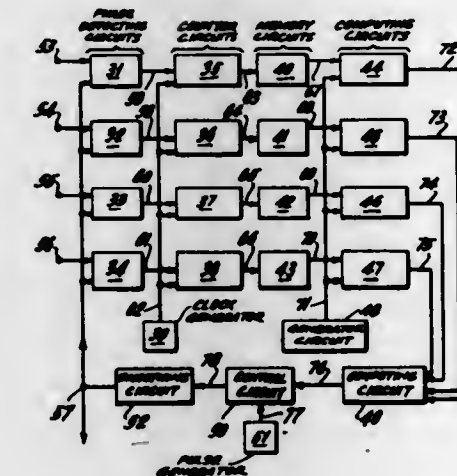


Improved in-band signalling apparatus useful in the conversion of O-type frequency division multiplexing equipment for the multiplexing of rural subscriber lines is disclosed. Specifically, a ring-signal-to-voice-frequency-signal converter is described which is fully transistorized for battery operation from the 48-volt battery supply of the telephone system and contains no circuit dependent on external AC power for operation. Furthermore, there is provision for transient-free frequency switching, and the circuit is suitable for use in small fully enclosed spaces. Local generation of the ringing signal is provided to obtain complete separation of the ring detection circuit from the subscriber line.

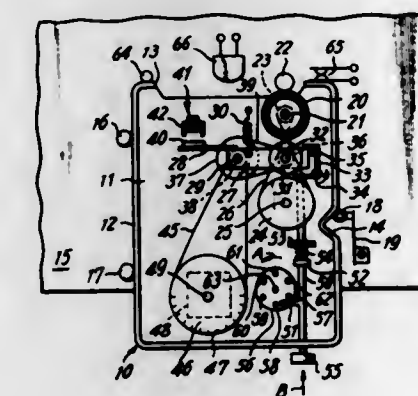
3,597,552
SYSTEM SYNCHRONIZATION SYSTEM FOR A TIME DIVISION COMMUNICATION SYSTEM EMPLOYING DIGITAL CONTROL
Hirokazu Goto, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Oct. 24, 1969, Ser. No. 869,306
Claims priority, application Japan, Oct. 25, 1968, 43/78113
Int. Cl. H04j 3/06
U.S. Cl. 179-15 BS 8 Claims

A synchronization system for use in a time-division communication system makes almost exclusive use of digital cir-

uits. Those circuits include means for detecting the phase differences between incoming clock signals from other stations and a reference clock signal of a particular station, and



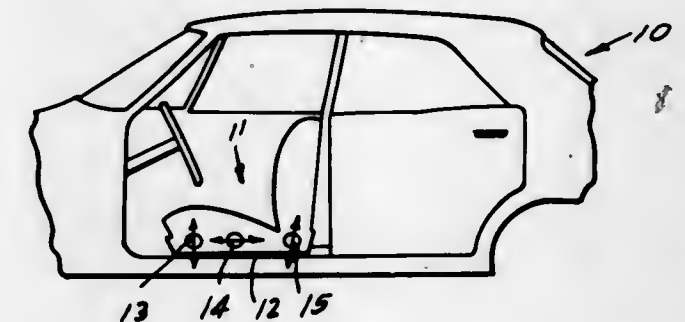
3,597,553
AUTOMATIC TUNING APPARATUS FOR A COMBINATION RADIO AND TAPE PLAYER UNIT
Itsuki Ban, 829, Higashi-Ozumimachi, Nerima-ku, Tokyo-to, Japan
Filed Oct. 27, 1969, Ser. No. 869,808
Claims priority, application Japan, Oct. 29, 1968, 43/78286
Int. Cl. G11b 31/00; H04b 1/32; H03j 3/00
U.S. Cl. 179-100.11 5 Claims



An automatic tuning apparatus for a radio receiver in combination with a magnetic tape player comprising a first rotary member rotatable at high speed by rotational force of a magnetic tape drive including a capstan, a second rotary member rotatable at low speed in the direction reverse to the first rotary member by the magnetic tape drive, a swing lever with an idler wheel selectively abutting against the first and second rotary members for rotation, a tuning element such as a variable condenser for varying the radio receiving frequency and provided with an operating shaft rotatable with rotation of the idler shaft, and means for swingably controlling the swing lever.

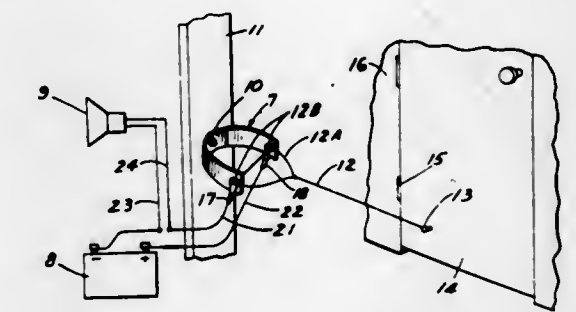
The operating shaft of the tuning element is initially rotated at high speed when the idler wheel abuts against the first rotary member and then rotated at low speed when the idler wheel abuts against the second rotary member. Rotation of the operating shaft is automatically prevented when the idler wheel is away from the second lever at a position where the radio receiver is tuned to a broadcasting radio wave.

3,597,554
MEMORY AND CONTROL DEVICE
Burton L. Siegal, Skokie, Ill., assignor to Peter C. Granata, Jr., Chicago, Ill. and Edward Andrychowski, Jr., Franklin Park, Ill., part interest to each
Filed Aug. 14, 1969, Ser. No. 850,157
Int. Cl. H01h 3/32
U.S. Cl. 200-52 6 Claims



The memory and control device comprises means for positioning a power seat to preset positions and selectively repositioning it to such preset positions and also providing manual control of the seat to place the seat in any position. The present system utilizes a different motor for each of the directions of actuation for the seat and provides mechanical means for establishing the preset positions.

3,597,555
SWITCH ACTUATED BY A PULL CORD
John K. Gould, 13520 Farley Ave., Detroit, Mich.
Filed May 4, 1970, Ser. No. 34,339
Int. Cl. 200 161; H01h 3/02
U.S. Cl. 200-61.93 5 Claims

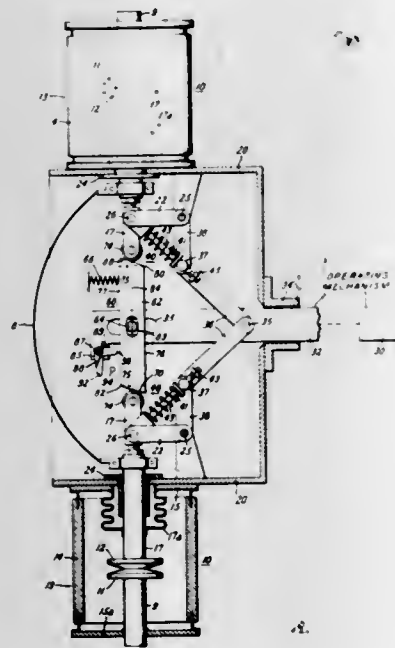


A switch for closing any low voltage electric circuit is disclosed. The invention resides in the provision of an elongated, flexible, dielectric element having a conductive wire, a terminal at either end, means at the median to attach it to a support member such as a wall, and a shaped nonconductive pull cord secured to its ends, and arranged to bring the terminals together to make electrical contact to close the circuit when tension is put on the pull cord.

3,597,556
VACUUM-TYPE CIRCUIT BREAKER WITH FORCE-SUPPLEMENTING MEANS FOR INCREASING CURRENT-CARRYING ABILITIES
William T. Sharp, Philadelphia, and Claude H. Archer, Gradyville, both of Pa., assignors to General Electric Company
Filed Jan. 16, 1970, Ser. No. 3,457
Int. Cl. H01h 33/66
U.S. Cl. 200-144 B 11 Claims

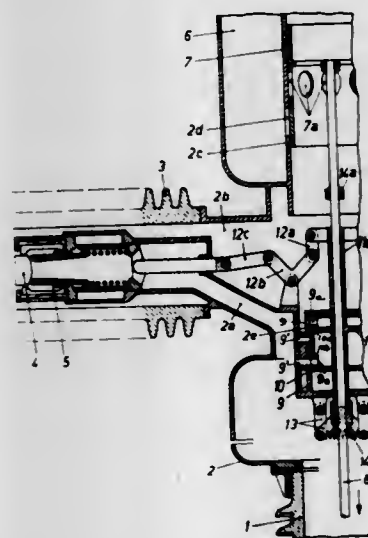
Discloses a vacuum-type circuit breaker in which a wipe mechanism is interposed between the contact rod of the circuit breaker and the operating mechanism that supplies force for closing and opening the circuit breaker. The wipe mechanism comprises a wipe spring through which contact-closing force is transmitted from the operating mechanism to the contact rod during closing. Latching means comprising a

cam mechanism operable when the contact rod is near closed position is provided for exerting a supplemental closing force on the contact rod that is transmitted to the contact rod via a force-transmitting path that effectively bypasses the wipe



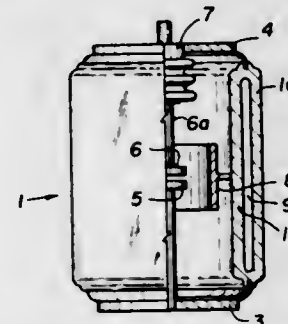
spring. During opening, the latching means is disabled by the operating mechanism before the wipe mechanism allows an effective opening force to be transmitted from the operating mechanism to the contact rod.

3,597,557
COMPRESSED GAS ACTUATED ELECTRICAL SWITCH WITH SLEEVE VALVES
Dieter Floessel, Fislisbach, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Bad, Switzerland
Filed Feb. 12, 1970, Ser. No. 10,852
Claims priority, application Switzerland, Feb. 18, 1969, 2,412/69
Int. Cl. H01h 33/54, 33/83
U.S. Cl. 200—148 R



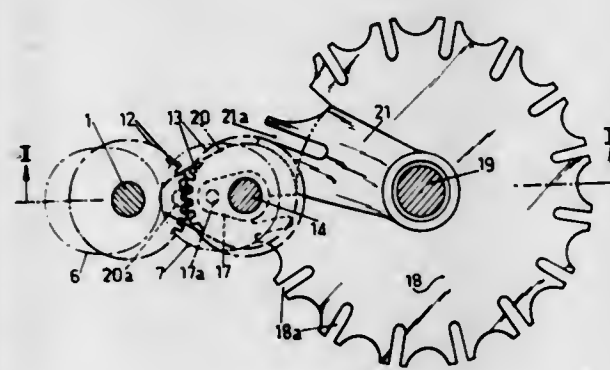
An electrical circuit breaker of the gas blast type includes a double-acting cylinder having the piston element connected to one of the contact members for opening and closing the circuit through the breaker respectively each time the piston is actuated in one direction or the other by successive opening operations of a gas blast valve which functions to deliver high-pressure gas to the circuit breaker contacts and also to one or the other of inlet ports located at opposite ends of the cylinder. The cylinder includes a reversing sleeve valve actuated by movement of the piston in one direction so as to ready the cylinder for piston movement in the opposite direction the next time that the blast valve is opened.

3,597,558
MULTIPLE-WALLED ARC-QUENCHING CHAMBER FOR VACUUM SWITCHING DEVICES
Alfred G. H. Gotsch, Berlin-Kopenick; Heinz Hanisch, Berlin-Friedrichshagen, and Ernst Freund, Berlin-Friedrichshagen, all of Germany, assignors to Institut Prüf-feld Für Elektrische Hochleistungstechnik, Berlin-Lichten-berg, Germany
Filed May 8, 1969, Ser. No. 822,939
Int. Cl. H01h 33/66
U.S. Cl. 200—144 B



The insulating portion of the housing of an arc-quenching chamber is created in the form of a double-wall cylinder. To reduce the permeability of the chamber to gas, the hollow space between the walls is filled with gas at a pressure which is higher than that in the evacuated chamber but lower than the atmospheric pressure.

3,597,559
GENEVA GEAR SECTORS MOUNTED ON A COMMON SHAFT FOR THE STEPWISE ROTATION OF THE SWITCHING CONTACTS OF ROTARY SWITCHES
Gerardus A. van Riemsdijk, Nijmegen, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabrieken N. V., Netherlands
Filed Feb. 11, 1970, Ser. No. 10,438
Int. Cl. H01h 3/44, 3/40
U.S. Cl. 200—153 PA

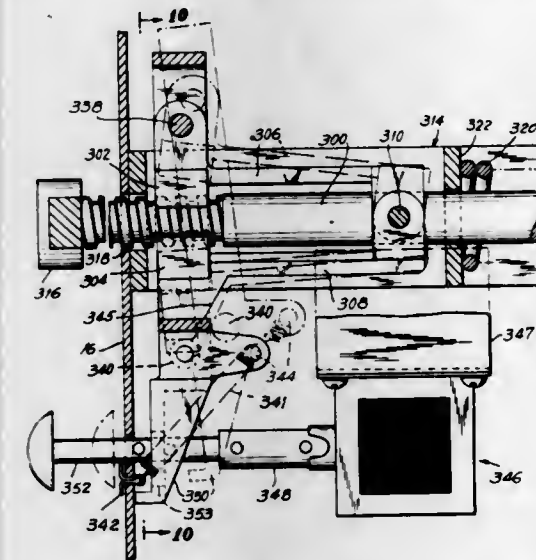


A driving mechanism for the stepwise rotation of the switching contacts of a rotary switch through angles of different magnitudes by means of different maltese crosses and driving members cooperating with said crosses, said driving members being driven by a common shaft through sets of cooperating normal toothed wheels and cooperating elliptical-toothed wheels said sets of cooperating toothed wheels having equal mean transmission ratios.

3,597,560
ELECTRIC SWITCH WITH RELEASABLE SCREW-THREADED SPRING CHARGING MEANS
Alexander R. Norden, New York, N.Y., assignor to Empire Switchboard Co. Inc., Brooklyn, N.Y.
Continuation-in-part of application Ser. No. 599,904, Dec. 7, 1966, now Patent No. 3,496,319, dated Feb. 17, 1970. This application July 22, 1969, Ser. No. 843,613
Int. Cl. H01h 3/30, 21/40, 3/40
U.S. Cl. 200—153 SC

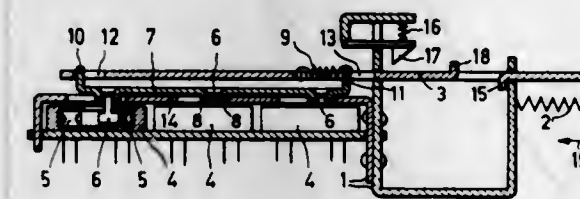
A normally manually operable electric switch is provided with stored energy mechanism which can be remotely con-

trolled to open the switch without interfering with the direct manual operation to open or close the switch. The stored energy mechanism consists of a threaded rod portion and releasable screw-threaded means engaging said rod portion and allowing a spring to be compressed; upon release of the



releasable screw-threaded means, the spring discharges. The stored energy mechanism is manually operable to render it potentially operable to open the switch automatically by remote control and provision is made to render said mechanism inoperable when said remote control is not desired.

3,597,561
PUSHBUTTON DEPRESSIBLE TO ACTUATED POSITION AGAINST THE FORCE OF ONE BIASING MEANS, AND DEPRESSIBLE TO LATCHED POSITION AGAINST THE FORCE OF TWO BIASING MEANS
Friedrich Louzil, and Gustave Mrazek, both of Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 5, 1969, Ser. No. 796,787
Claims priority, application Austria, Feb. 8, 1968, A1208/68
Int. Cl. H01h 13/62, 13/50
U.S. Cl. 200—159 R

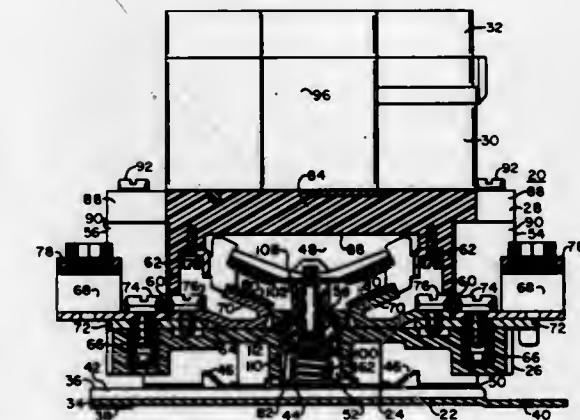


A pushbutton switching unit for switching ON and OFF various operating functions in a tape recorder and playback apparatus which has a button member which is depressed to actuate the switching function. Partial depression of the button will actuate the switching function and release of the button will return the switching mechanism to their rest position. Movement of the pushbutton beyond the initial switching position will result in the operator encountering a certain amount of resistance to further movement of the button beyond the switching position. Application of additional force will overcome the additional resistance and the button and switching mechanism will then be moved into a locked position in which the switching mechanism will remain in the actuated position.

3,597,562
MOVABLE CONTACT STRUCTURE FOR AN ELECTRIC SWITCH
Merlin Y. Turnbull, Brookfield, Wis., assignor to Square D Company, Park Ridge, Ill.
Filed July 23, 1969, Ser. No. 844,151
Int. Cl. H01h 3/02

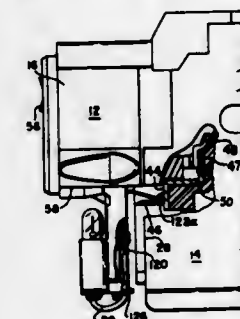
U.S. Cl. 200—166 BC
A movable contact structure having a movable contact member carried on a movable contact carrier by a spring biased rotatable plunger. The contact member has a channel-

like cross section and is formed of at least two laminated metals each having different deflection and conductive characteristics so that the weight of the contact member may be reduced and provide a maximum conductive ability commensurate with its resistance to bending. An end of the plunger extends through a notched opening in the contact member so that when the plunger is rotated to one position



the contact member may be separated from the carrier and when the plunger is rotated to a second position, a pin on the end of the plunger engages the material of the contact member to maintain the contact member on the end of the plunger. The plunger also includes a portion that acts as a piston in a bore of the contact carrier to reduce the bounce which occurs when the movable contact surfaces on the contact member initially engage the stationary contacts.

3,597,563
PILOT LIGHT ATTACHMENT FOR AN ELECTRIC SWITCH
James P. Schmiedel, Brown Deer, and Don J. Arneberg, Milwaukee, both of Wis., assignors to Square D Company, Park Ridge, Ill.
Filed Feb. 6, 1970, Ser. No. 9,159
Int. Cl. H01h 9/18
U.S. Cl. 200—167 A



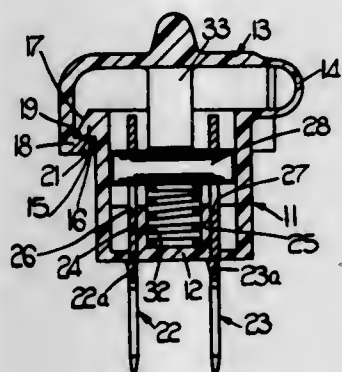
A pilot light attachment which may be installed on an electric switch without tools. The attachment is particularly suited for use with a manually operated motor-starter-type switch and includes a pair of springlike members that supply the force for maintaining the switch and attachment assembled and an electric connection between the switch and attachment. The portion of the attachment supporting the bulb is connected to the switch by a three-point suspension which spaces the attachment from the current-carrying parts of the switch to provide the switch current-carrying parts with a maximum convective cooling.

3,597,564
ELECTRICAL SWITCH HAVING INTEGRAL OPERATING MEMBER AND BODY
Keith Lewis, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Sept. 17, 1969, Ser. No. 858,686
Claims priority, application Great Britain, Sept. 30, 1968, 46,269/68
Int. Cl. H01h 9/02

U.S. Cl. 200—168 C
An electrical switch includes a body carrying fixed contacts. A movable contact is engageable with the fixed con-

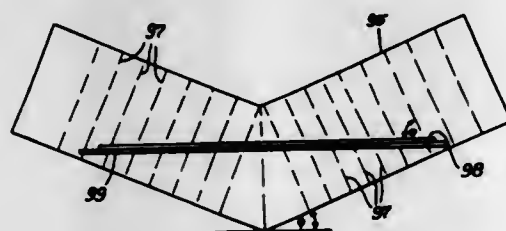
1 Claim

tacts, and an operating member is movable relative to the body to move the movable contact. The operating member and the body are molded integrally with one another, and are interconnected by a flexible neck integral with the body and



3,597,565
WAVEGUIDE APPLICATOR AND METHOD
Ray M. Johnson, Danville, Calif., assignor to Cryodry Corporation, San Ramon, Calif.
Filed Apr. 17, 1969, Ser. No. 817,097
Int. Cl. H05b 9/06, 5/00
U.S. Cl. 219-10.55

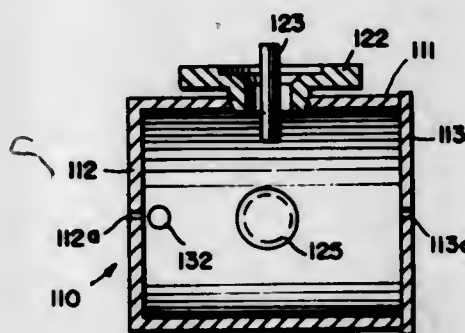
43 Claims



A source of microwave energy excites a waveguide applicator which includes an input waveguide elbow, an output waveguide elbow and an elongated waveguide heating chamber coupled between the two elbows. Each of the elbows and the chamber are transversely defined by a pair of opposing broad walls and a pair of opposing sidewalls. The broad walls in the heating chamber of the applicator, excited in the TE_{10} mode, generate an electric field which decreases its angle of incidence with the material being treated as the electric field intensity decreases. This uniformly heats the material along its width. In a preferred embodiment, the top and bottom broad walls in the heating chamber are inclined symmetrically upwardly about the longitudinal center plane of the chamber so that the cross section of the heating chamber has a slight V-shape, and the angle of incidence of the electric field vector decreases away from the center of the chamber and toward the sidewalls. The material to be heated enters and exits the applicator through reject filters coupled to slots provided in the broad walls of the input and output elbows respectively. The reject filters prevent the escape of microwave energy through the entrance and exit locations without absorbing power. A water load is provided in the applicator downstream of the exit slot to absorb excess energy under varying loads; and means are provided to circulate air through the chamber to carry away moisture or cooking gases. A slot extends longitudinally along the center of the bottom broad wall. The slight V-shape of the heating chamber forms a natural trough for carrying fats, oils, etc. from the material being heated through the bottom slot under gravity flow.

3,597,566
RESONANT CAVITY MICROWAVE APPLICATOR
Ray M. Johnson, Danville, and Franklin J. Smith, Diablo, both of, Calif., assignors to Cryodry Corporation, San Ramon, Calif.
Filed Aug. 22, 1969, Ser. No. 852,374
Int. Cl. H05b 9/06, 5/00
U.S. Cl. 219-10.55

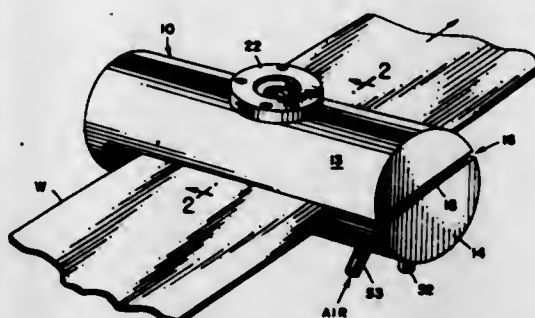
6 Claims



A resonant cavity, defined by a cylindrical sidewall and first and second transverse end plate members, is excited in the TM_{010} mode by a source of microwave energy to generate an electric field with lines extending generally parallel to the axis of the sidewall of the cavity. The intensity of the electric field increases in a radial direction of the cavity from a minimum at the sidewall to a maximum along the axis. A thin, continuous slot is provided in the sidewall and end plates so that a filament can be inserted into the cavity in an axial disposition and then moved lengthwise along the axis of the cavity for drying. Air is preferably circulated through the cavity for carrying away moisture and for cooling the sidewalls of the cavity. An adjustable stub, mounted for radial movement in the cavity, tunes the resonant frequency of the cavity to match the frequency of the source. A coupling probe is located on one of the end plates; and the tuning stub is adjusted to maximize power coupled to the probe for tuning.

3,597,567
MICROWAVE APPLICATOR FOR HEATING CONTINUOUS WEB
Ray M. Johnson, 118 Verde Mesa, Danville, Calif.
Filed Sept. 24, 1969, Ser. No. 860,657
Int. Cl. H05b 9/06, 5/00
U.S. Cl. 219-10.55

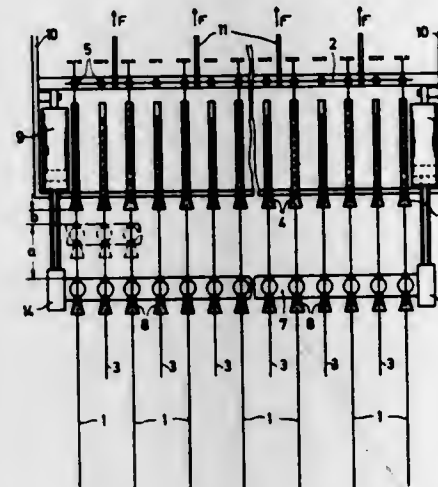
5 Claims



A resonant cavity in the form of a right circular cylinder is excited in the TM_{010} mode by a source of microwave energy to generate an electric field with lines extending generally parallel to the axis of the cylindrical sidewall of the cavity. A pair of aligned slots are formed at diametrically opposite locations in the cavity sidewall for passing the web through the applicator in a plane which passes through the axis of the sidewall. The intensity of the electric field within the applicator increases in a radial direction of the cavity from a minimum at the sidewall to a maximum along the axis. Thus, the electric field, at its greatest intensity, extends parallel to the plane of the web for maximum coupling of energy to the web. Air is circulated through the applicator for carrying away moisture and for cooling the sidewalls of the cavity. An adjustable stub, mounted for radial movement in the cavity, tunes the resonant frequency of the cavity to match the frequency of the source.

3,597,568
REINFORCING STEEL MATS
Hans Rach, Buttgen near Neuss, Germany, assignor to Bau-Stahlwerke GmbH, Düsseldorf-Oberkassel, Germany
Filed Mar. 20, 1968, Ser. No. 714,568
Claims priority, application Germany, Mar. 27, 1967, B 91 749 Ib/7d
Int. Cl. B23k 1/102
U.S. Cl. 219-56

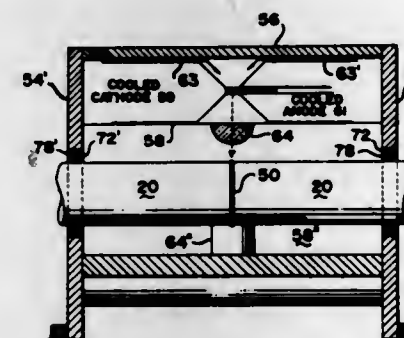
7 Claims



In the fabrication of concrete reinforcing steel mats, comprised of spaced parallel longitudinal bars intersected by spaced parallel crossbars, by means of an array of spot-welding electrodes, with a single crossbar being simultaneously welded by said electrodes to the prealigned longitudinal bars and with the partially welded mat structure being advanced, by distances equal to the crossbar spacing distance, by intermittent feeding means operative upon a crossbar in the position of and upon welding, means are provided to withdraw certain of the longitudinal bars from the welding and feeding process during a predetermined initial stage of the welding cycle of a complete mat structure, to result in a final mat with the number of longitudinal bars across the width of the mat varying for different longitudinal sections of said mat, to adapt the mats to varying load distribution in the final concrete structure and to thereby reduce the metal consumption to a minimum. The object is achieved essentially by initially aligning the leading ends of all the horizontal bars ahead of the welding electrodes, as viewed in the feeding direction, and temporarily withdrawing certain of the longitudinal bars from the welding position by means of a displaceably mounted clamping beam carrying spaced releasable discrete clamping devices for selectively securing any of said bars to said beam.

3,597,569
RADIANT ENERGY GENERATOR AND SHIELD FOR SAME
Howard L. Gerber, Park Forest, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Division of Ser. No. 450,391, Apr. 23, 1965.
Filed Oct. 3, 1969, Ser. No. 863,521
Int. Cl. H05b 1/00
U.S. Cl. 219-68

13 Claims

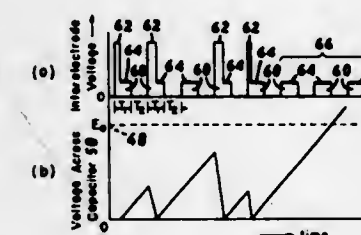


A radiant energy generator, including a plurality of reflectors, each having a parabolic or circularly arcuate cross sec-

tion, circumferentially spaced from a center point is described. A radiant energy source is positioned within each reflector and a lens is provided for each source. Radiant energy is concentrated in an area equidistant from the center point. A radiant energy shield comprising a pair of solenoid actuated split rings is positioned near the ends of the reflectors. In one position the split rings allow readily the positioning of a tube through the center point, and in another, address the tube to prevent longitudinal leakage of radiation.

3,597,570
DEVICE FOR DETECTING SUSTAINED ARCING ACROSS ELECTROSPARK MACHINING GAPS
Nagao Saito, Kazuhiko Kobayashi, and Susumu Niwa, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed May 22, 1969, Ser. No. 826,837
Claims priority, application Japan, May 27, 1968, 35,838
Int. Cl. B23p 1/08
U.S. Cl. 219-69 P

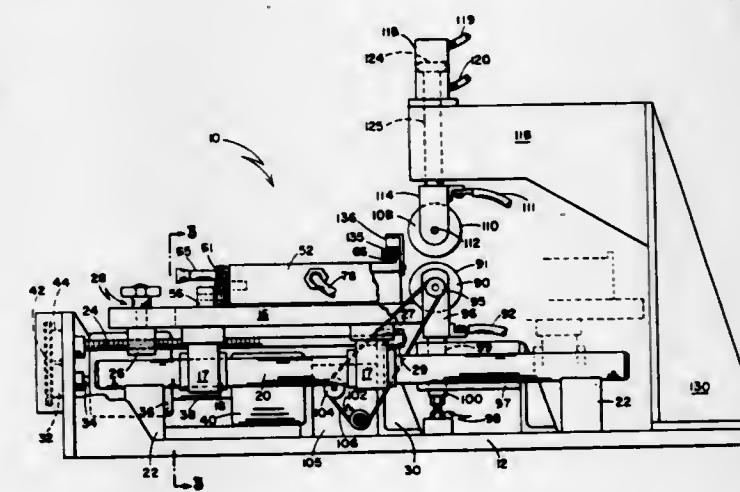
5 Claims



Each time a voltage across the machining gap due to each of applied pulses exceeds a predetermined above-arc magnitude, a timing capacitor is fully discharged by a shorting transistor triggered by a gap-coupled Zener diode. When the voltage is below the predetermined magnitude for a predetermined number of pulses, the capacitor is progressively charged until the voltage across the capacitor exceeds a predetermined magnitude and actuates an instrument for indicating that abnormal discharges are being effected across the gap.

3,597,571
WELDING METHOD AND APPARATUS
Thomas Alan McGill, Hamilton, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Sept. 9, 1968, Ser. No. 758,465
Int. Cl. B23k 1/106
U.S. Cl. 219-81

7 Claims

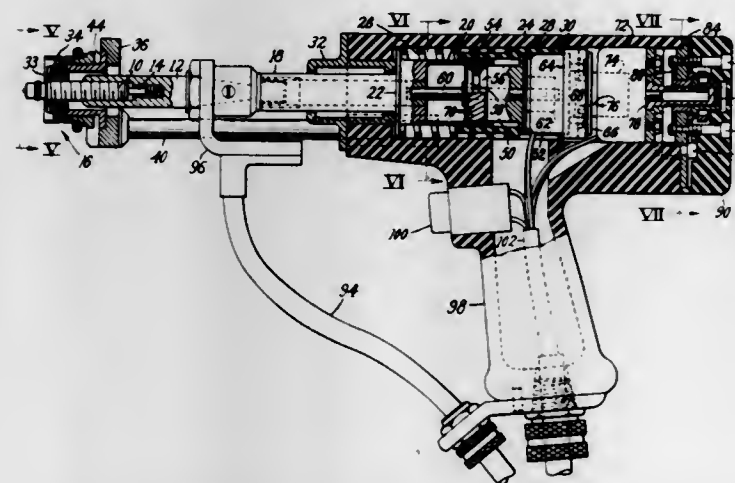


Welding sheets of 0.0015 inch thick stainless steel razor blade stock together by overlapping two ends of two sheets

0.0040 inch, inserting the overlapped ends between the peripheral welding surfaces of two adjacent copper-tungsten alloy welding rollers, forming a spot weld under pressure by applying a 1000 ampere, 60 cycle current at 3.8 volts to the rollers for 8 cycles, advancing the overlap longitudinally between the rollers for a distance about one-third the average length of the spot weld, and repeating this process until the entire overlap is welded.

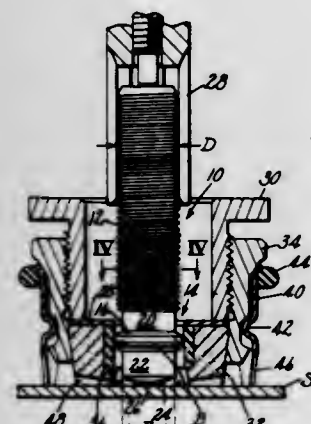
3,597,572
STUD WELDING GUNS
Donald H. Ettinger, Royal Oak, Mich.; Herbert F. Rondeau, Winchester, and Hans F. Schaefer, Jr., Rockport, Mass., assignors to Warren Fastener Corporation, Mount Clemens, Mich.

Filed Jan. 23, 1970, Ser. No. 5,274
Int. Cl. B23k 9/20
U.S. Cl. 219-98 13 Claims



A stud-welding gun that provides a clutch and an actuator which permit a reliable means for welding studs of various lengths. The clutch is of expansible friction type and includes a solenoid-operated means for axially compressing an elastomeric gripping member which locks a stud-gripping collet mechanism and the clutch in a fixed axial relationship.

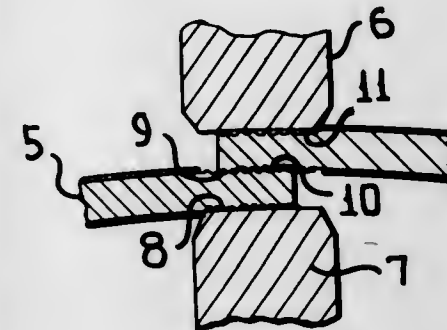
3,597,573
WELDING STUD AND FERRULE-STUD ASSEMBLIES
Donald H. Ettinger, Royal Oak, assignor to Warren Fastener Corporation, Clemens, Mich.
Filed Jan. 2, 1970, Ser. No. 194
Int. Cl. B23k 9/20
U.S. Cl. 219-99 6 Claims



An arc weldable stud is adapted to be initially inserted into predetermined gas-sealing relation within a semipermanent ferrule associated with the holding collet of a welding gun whereupon the weldable end of the stud, retractable axially in the ferrule and having a diameter permitting subsequent relative withdrawal of the gun from the welded stud, may be

simultaneously applied by the gun with the ferrule to a work surface. The welding head of the stud has a belt of larger diameter than the remainder of the head but approximately equal to the clearance hole for the stem of the stud.

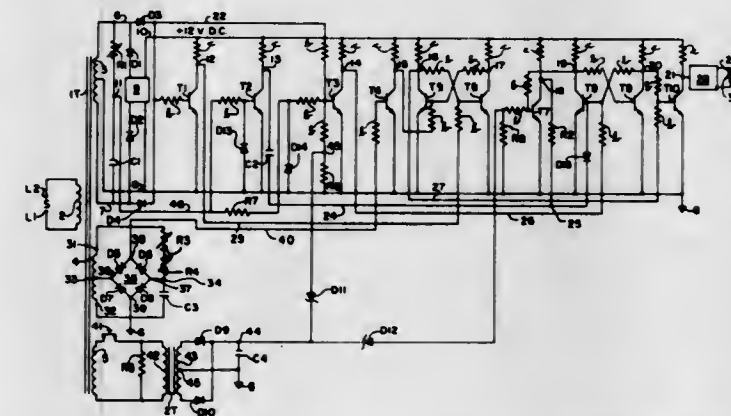
3,597,574
SURFACE TREATMENT FOR WELDING
Paul M. Erlandson, Palos Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Feb. 5, 1969, Ser. No. 796,799
Int. Cl. B23k 11/02
U.S. Cl. 219-105 7 Claims



This disclosure relates to electrical resistance welding and more particularly to the surface treatment of metal members along the faying and electrode engageable surfaces thereof. The faying surfaces are embossed or formed by a high energy rate method so as to be of a uniform finish whereby there will be a predetermined resistance between engaged faying surfaces thereby providing for a better control on the power required for forming a weld and the resultant metal weld.

3,597,575
SOLID STATE HEAT CONTROL AND INITIATING CIRCUIT FOR A RESISTANCE WELDER CONTROL
James J. Eckl, Milwaukee, Wis., and James T. Griffin, Scottsdale, Ariz., assignors to Square D Company, Park Ridge, Ill.

Division of Ser. No. 732,676, May 28, 1968.
Filed Apr. 13, 1970, Ser. No. 27,933
Int. Cl. B23k 11/24
U.S. Cl. 219-108 7 Claims

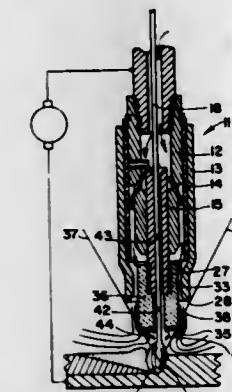


A solid state control for a resistance welder which will prevent false tripping of a solid-state logic memory in response to bounce of the contacts of an initiating switch which initiates and terminates welding current flow and a heat control circuit that will provide equal opposite polarity half cycles of welding current flow under varying ambient temperature conditions.

ERRATUM
For Class 219-130 see:
Patent No. 3,596,786

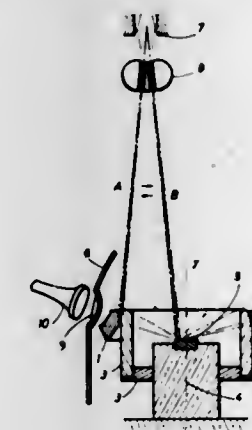
3,597,576
SPATTER AND HEAT SHIELD FOR WELDING GUN
Arthur A. Bernard, Beecher, and Richard A. Bernard, Flossmoor, both of, Ill., assignors to Dover Corporation, New York, N.Y.

Filed July 15, 1969, Ser. No. 841,848
Int. Cl. B23k 9/06
U.S. Cl. 214-130 13 Claims



A heat and spatter shield for an arc-welding gun of the type used for applying gas-shielded consumable-electrode arc-welding processes. A shield element insulated from the welding current circuit is attachable to the arc-welding gun so as to be disposed at the downstream end of the current contact tip and extend beyond the downstream opening of the gas nozzle so as to shield the downstream opening of the gas nozzle from metal spatter ejected from the welding operation and from direct heat radiation from the welding arc. At least the core of the shield element is composed of a heat-resistant nonelectrically conductive material. The shield element is disposed in the gas stream and arranged to provide an airfoil effect contributing to formation of the proper flow configuration of the shielding gas. Cylindrical and spherical-type shield elements are disclosed. Various means are disclosed for attaching the shield element to the arc-welding gun.

3,597,577
X-RAY EXAMINATION OF WELDS
Jean Claude Eugene Guittet, Veurey-Voroize, and Jean Claude Richard, Sassenage, both of, France, assignors to Societe dit: Societe Industrielle De Combustible Nucleaire, Annecy, France
Filed Sept. 4, 1968, Ser. No. 757,360
Claims priority, application France, Sept. 7, 1967, 120,341
Int. Cl. B23k 15/00
U.S. Cl. 219-121 EB 6 Claims

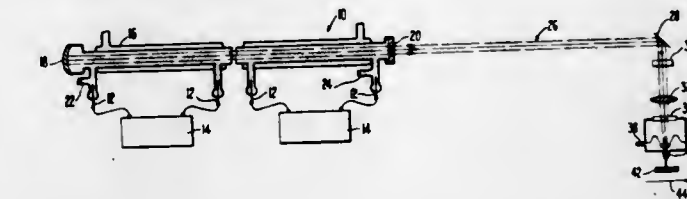


The welding seam between two metal parts which are being or have been electron beam welded in a vacuum enclosure are examined by means of X-rays generated within said enclosure by electron bombardment of an anticathode or target located inside said enclosure. The electron beam used for bombarding the target may be generated by the same gun as

that used for the welding, deflection means being provided for deflecting said beam from the welding site to the X-ray target and vice versa. Alternately, at least two separate electron guns may be provided, one being used to generate the electron beam for bombarding the X-ray target, and the other or others for the welding.

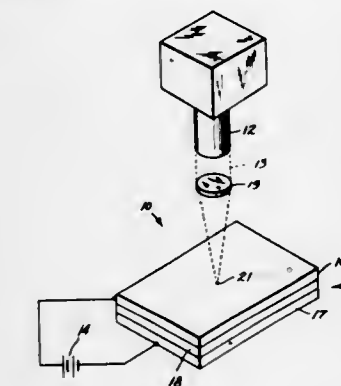
3,597,578
THERMAL CUTTING APPARATUS AND METHOD
Arthur Basil Joseph Sullivan, Letchworth, and Peter Thomas Houldcroft, Heathfield, Royston, both of, England, assignors to National Research Development Corporation, London, England

Filed Mar. 13, 1968, Ser. No. 712,782
Claims priority, application Great Britain, Mar. 16, 1967, July 31, 1967, Dec. 5, 1967, 35,021/67; 55,346/67; 12,447/67
Int. Cl. B23k 27/00
U.S. Cl. 219-121 L 9 Claims



A workpiece is cut or gouged by moving a concentrated laser beam along its surface and directing on to the moving region of the workpiece, at which the laser beam is concentrated, a gas which produces an exothermic reaction at the heated workpiece and sweeps away the products of combustion. In apparatus for supplying a gas to a workpiece the gas is led into a tube and nozzle surrounding the laser beam and is directed at the workpiece through the same nozzle.

3,597,579
METHOD OF TRIMMING CAPACITORS
Robert Miller Lumley, Greensboro, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed June 25, 1970, Ser. No. 49,588
Int. Cl. B23k 9/00
U.S. Cl. 219-121 L 10 Claims

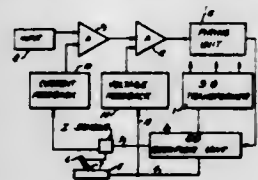


A method of trimming a capacitor wherein radiant energy is applied to an electrode to adjust the electrode area while an electrical potential is applied across the electrodes of the capacitor to inhibit the formation of electrical shorts.

3,597,580
CONTROLLED RECTIFIER ARC WELDING SUPPLY HAVING IMPROVED POSITIVE FIRING CHARACTERISTICS
James B. Stearns, Elm Grove, and Robert W. Wendelburg, Milwaukee, both of, Wis., assignors to Chemetron Corporation, Chicago, Ill.
Filed Apr. 25, 1969, Ser. No. 819,175
Int. Cl. B23k 9/10
U.S. Cl. 219-135 7 Claims

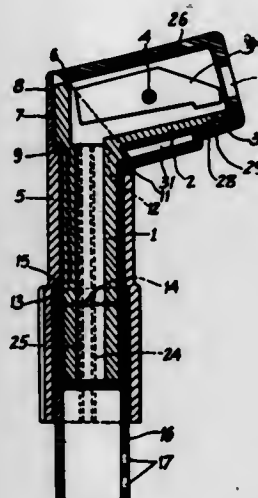
A three phase transformer and a full wave rectifier unit including silicon controlled power rectifiers. A feedback control system includes a pair of separate and cascaded summing

differential amplifiers to control the firing circuits for the related pairs of rectifiers. Each firing circuit includes a unijunction transistor oscillator having a gate circuit including a small trim potentiometer for adjusting the pulse time. A



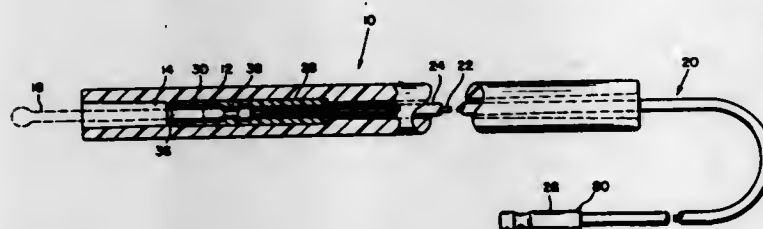
capacitor in series with a resistor is connected in parallel with the oscillator to a bridge rectifier. A silicon controlled rectifier in series with a resistor is connected across the capacitor to form a firing pulse for the related pair of power rectifiers.

3,597,581
ARC-WELDING ELECTRODE HOLDER
Lalo Chiche, 13, rue de la Coussaye, 95, Enghien-les-Bains, Val d'Oise, France
Filed Apr. 17, 1970, Ser. No.
Claims priority, application France, Apr. 25, 1969, 691,3220
Int. Cl. B23k 9/28
U.S. Cl. 219-140 5 Claims



The electrode holder according to this invention comprises a one-piece cap designed for fitting by snap action to the head of the conducting member of the electrode holder by simply slipping said cap over said head, without any risk of untimely releasing said cap. This cap consists preferably of an element molded from thermosetting polymerized synthetic, insulating and heat-resisting material, which has embedded therein one portion of a spring blade having its free end adapted, when the cap is fitted in position, automatically to engage and lock a retaining shoulder formed on the surface of the conducting member.

3,597,582
ELECTRODE RETAINING CHUCK HANDLE ASSEMBLY WITH ADAPTER UNIT
John P. Goode, Rochester; John J. Saell, Rochester, and James P. Slormo, Spencerport, all of, N.Y., assignors to Sybron Corporation, Rochester, N.Y.
Filed Jan. 8, 1969, Ser. No. 789,686
Int. Cl. A61b 17/36; B23k 9/28; A61b 17/40
U.S. Cl. 219-144 3 Claims



An electrosurgical chuck handle assembly with an adapter unit is disclosed. The chuck handle assembly is designed to

provide a means for retaining the electrode used for cutting or coagulating and is held firmly with provisions for changing the electrode. The chuck handle assembly is constructed of materials having sufficient heat distorting properties to allow the handle to distort whenever the assembly is sterilized by heating, thereby rendering the handle ineffective for further reuse. The distortion feature helps eliminate open circuits in the assembly which occur from repeated heat sterilizing.

Also disclosed is an adapter unit for receiving the terminal plug of the chuck handle assembly and electrically connecting the terminal plug to an existing electrosurgical unit. The adapter unit contains novel locking means whereby the terminal plug is retained within the adapter unit in an electrical contact position thereby preventing inadvertent disconnection from the electrosurgical unit.

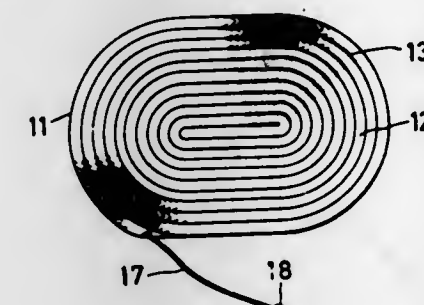
3,597,583
CONSUMABLE WELDING ELECTRODE
Hans Joachim Hulsewig, Dusseldorf, Germany, assignor to Duria-Werk Karl Kempf G.m.b.H., Neuss, Rhine, Germany
Filed Aug. 19, 1969, Ser. No. 831,262
Claims priority, application Germany, Sept. 12, 1968, P 17 58 989.8
Int. Cl. B23k 35/22
U.S. Cl. 219-146 8 Claims



A consumable welding electrode for making welded joints which are resistant to rusting, acid attack and heat comprises a core rod which contains alloy-producing components and a sheath which contains both alloy-producing components and flux-producing components. The proportions of the alloy-producing components in the sheath and those in the core rod are such that when the electrode is used, the core rod and the sheath deposit alloys which have substantially the same compositions. To achieve this effect, the proportions of the alloy components in the sheath must be adjusted relative to those in the core rod to allow for the fact that the sheath is consumed more rapidly than the core rod as it is made of powdered components whereas the core rod is of solid metal. With the constituents of the core rod and of the sheath adjusted in this way, the weld produced by the electrode will have a uniform composition so that no underalloyed corrosion-sensitive spots can occur.

3,597,584
WELDING WIRE FOR THE ELECTRIC ARC WELDING IN AIR
Karel Ter Haar, Christiaan Utrecht, Netherlands, assignor to U. S. Phillips Corporation, New York, N.Y.
Filed July 28, 1969, Ser. No. 845,552
Claims priority, application Netherlands, July 31, 1968, 6810908
Int. Cl. B23k 35/22
U.S. Cl. 219-146 3 Claims
Welding electrode having an iron containing casing and a core containing calcium fluoride, titanium dioxide and potash feldspar.

3,597,585
TUBE MAT
Masaichi Ohno, 336, Hamaderashowacho 3-cho, Sakai, Osaka Prefecture, Japan
Filed Aug. 25, 1969, Ser. No. 852,583
Int. Cl. H05b 1/00
U.S. Cl. 219-201 10 Claims



A mat made of a ropelike member coiled in a flat plane. The rope has incorporated therein a resistance heating wire which is supplied with electricity in order to heat the mat.

3,597,586
MOUNTING APPARATUS FOR ANTI-CONDENSATION MIRROR
Stephen M. Rebovich, 8754 Rose St., Bellflower, Calif.
Filed Apr. 3, 1969, Ser. No. 812,991
Int. Cl. H05b 1/00
U.S. Cl. 219-219 2 Claims

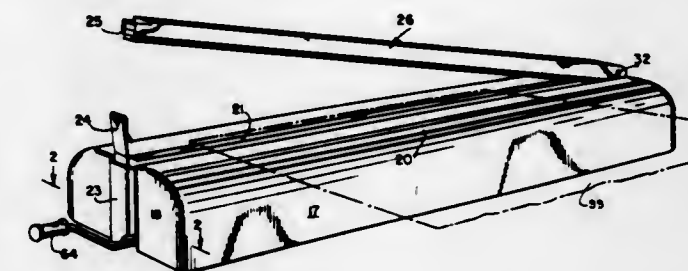


Mounting apparatus for an anticondensation mirror of the type which includes an electrically energized heating pad mounted against the back of the mirror for heating the mirror sufficiently to prevent water vapor condensation, the mounting apparatus comprising a bracket carried by the mirror and characterized by a downwardly and rearwardly inclined inner surface engageable with a plate adapted for mounting on a wall or the like. The inclined surface of the bracket tends to urge the mirror in tightly seated relation against the wall. Moreover, the plate is integral with a conventional junction box whereby the load carrying capacity of the plate is increased. One embodiment includes a continuous extruded molding which not only defines the bracket, but also provides a perimetrical continuous channel within which the margins of the mirror components are securely held.

3,597,587
SEALING DEVICE FOR PLASTIC SHEET MATERIAL
Frank M. Baum, 410 N. Milwaukee Ave., Chicago, Ill.
Filed July 30, 1970, Ser. No. 59,477
Int. Cl. H05b 1/00
U.S. Cl. 219-243 6 Claims

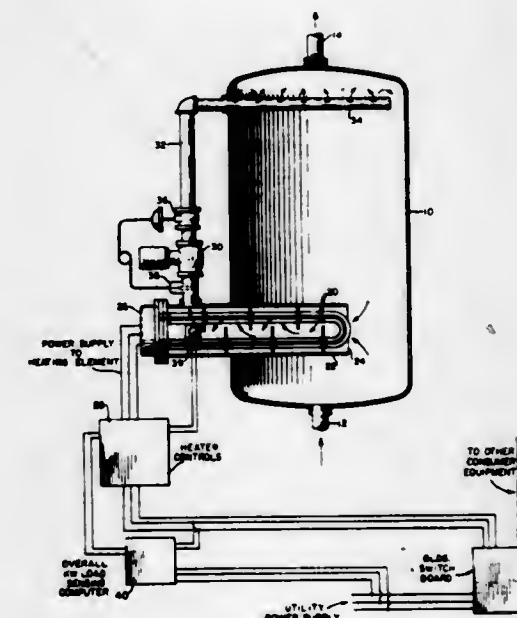
A heat sealing device for thermoplastic sheet material is provided with a pivoted pressure bar for pressing two or

more layers of thin sheet plastic momentarily against a heated metallic blade. The means for effecting momentary contact includes a crank controlled over center type of spring mounting for a hot steel blade, the mounting normally having stable positions where the steel blade is out of contact



with the plastic material to be heat sealed. The crank is so arranged that crank operation will effect quick movement of said steel blade against the plastic for sealing purposes. The arrangement is such that excessively long application of a hot steel blade for heat sealing is averted.

3,597,588
BUILDING SERVICE WATER HEATING SYSTEM
Robert F. Kirschner, Stoughton, Mass.; John A. Clark, Jr., East Stroudsburg, Pa., and Lemuel J. Morgan, Stroudsburg, Pa., assignors to The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.
Filed May 25, 1970, Ser. No. 39,982
Int. Cl. H05b 3/78
U.S. Cl. 219-314 8 Claims



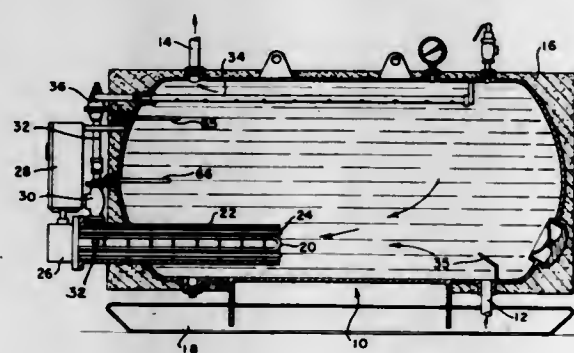
A building service power consumption rate-monitored electric water heating system featuring provision, in functional combination, a water storage tank; a multistep wired electric immersion heater in heat exchange association with a shroud arranged at its inner end in fluid flow communication with the interior of the tank and at its outer end with the intake of a pump, the pump being arranged to discharge through a distributor conduit back into the tank, thereby providing a circulating flow. A heated water takeoff connection is located at the top of the tank, and a cold water inlet connection is located in the lower level of the tank. An electric power supply monitoring mechanism to limit the entire building power consumption rate to a prescribed maximum is provided, to make power available in suitable increments to the water heater only when total power consumption will not exceed the prescribed maximum. Means for regulating rate of flow output of the pump is provided to be automatically responsive to temperature changes in the water as delivered by the pump by means of a water temperature sensor, and the system is so arranged as to adjust the circulating flow rate in accordance with that required to permit the heater to raise the water temperature.

to a prescribed temperature the water being delivered by the pump. Thus, the water moving in heat exchange relation with the heater is drawn from the body of the tank and delivered into the region of the heated water takeoff connection at the prescribed temperature. The pump output flow rate control means may comprise a valve which is operative to regulate the water circulation rate so as to approach a uniform temperature throughout the body of the storage tank. As an alternative to the use of a pump throttling valve arrangement, a variable speed pump may be employed under control of a water temperature sensor located in the conduit leading away from the pump.

3,597,589
POWER CONSUMPTION RATE MONITORED
ELECTRIC WATER-HEATING SYSTEM
Lemuel J. Morgan, Stroudsburg, Pa., assignor to The Patter-
son-Kelly Co., Inc., East Stroudsburg, Pa.
Filed June 26, 1969, Ser. No. 836,903
Int. Cl. F24h 1/20

U.S. Cl. 219-321

11 Claims



A power consumption rate-monitored electric water-heating system featuring provision, in functional combination; a water storage tank; an electric immersion heater device shrouded and extending into the lower portion of the tank; the heater shroud being open at its inner end and in communication at its outer end with the intake of a pump which is arranged to discharge through a distributor conduit into the uppermost level of the tank; a heated water takeoff connection located at the top of the tank; a cold water inlet connection located at the bottom of the tank; a waterflow-rate-regulating valve in the line between the shroud and the distributor conduit; and an electric power supply monitoring mechanism operative to limit the power consumption rate during normal periods to a prescribed maximum which is much less than the total power which may be consumed by the heating device so as to limit the total power consumption of "offpeak" periods when the power price rate is lowest. The waterflow-regulating valve is arranged to be automatically responsive to temperature changes.

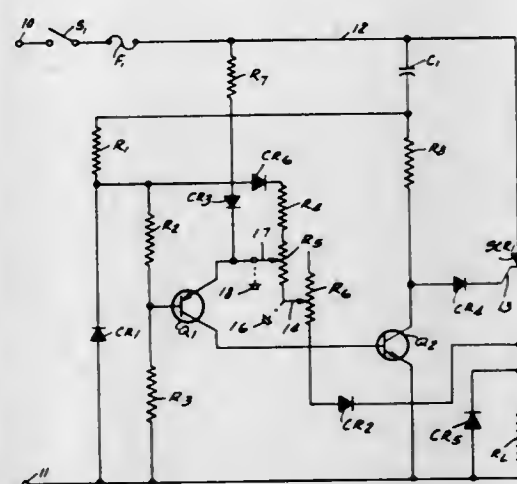
3,597,590
ELECTRIC BLANKET CONTROL
Bobby R. Fleming, Bay Springs, Miss., assignor to Northern
Electric Company, Chicago, Ill.
Filed Feb. 12, 1969, Ser. No. 798,722
Int. Cl. H05b 1/02

U.S. Cl. 219-501

6 Claims

An electronic control for an electric blanket or other heated device in which the heating element of the blanket senses the ambient temperature and the other elements of the control are separated from the heating element so that the components of the control are less susceptible to sensing change in ambient temperature near the blanket. The electronic control circuit controls current to the heating element of the blanket by gating an SCR at the zero crossings of the applied voltage so as to prevent radiofrequency interference which would occur if the SCR were switched at other than the zero crossings. Unidirectional current means is connected

in a bridge circuit which controls the gating of the SCR so that the temperature coefficients of the components in the

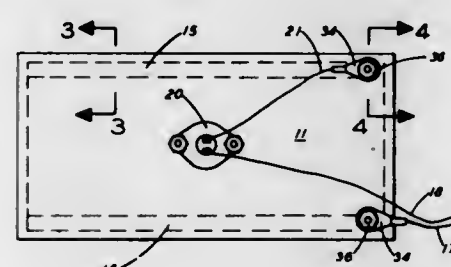


two legs of the bridge circuit are balanced enhancing temperature compensation.

3,597,591
BONDED FLEXIBLE HEATER STRUCTURE WITH AN
ELECTRIC SEMICONDUCTIVE LAYER SEALED
THEREIN
David L. Van Derlip, San Francisco, Calif., assignor to Delta
Control, Inc., San Francisco, Calif.
Filed Sept. 25, 1969, Ser. No. 860,990
Int. Cl. H05b 3/36

U.S. Cl. 219-528

1 Claim



A bonded aluminum-semiconductive heater structure and process for preparing the same wherein a flexible, planar, semiconductive heating element, enclosed within chemically etched insulating layers of a perfluorocarbon copolymer, is bonded to the surface of an aluminum article through a similar copolymer film both surfaces of which have been rendered adherable by exposure to the action of an electrical discharge.

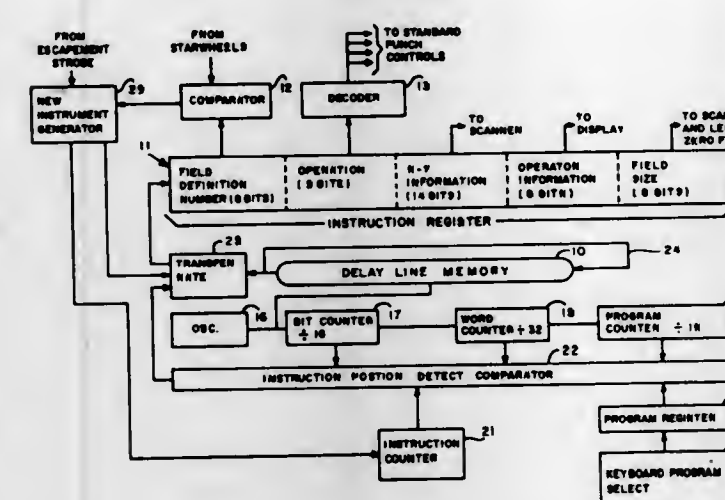
3,597,592
INFORMATION ENTRY SYSTEM
Kenneth E. Graves, San Jose; John C. Vincer, Campbell, and
Clarence G. McCune, Balboa, all of, Calif., assignors to
California Computer Products, Inc., Anaheim, Calif.
Filed Mar. 22, 1967, Ser. No. 625,112
Int. Cl. G06k 1/02, 1/18

U.S. Cl. 235-61.1 R

16 Claims

A system for use in expanding the information entry capabilities of a standard key puncher. The desired programs are punched in standard formats on cards and the standard card reader is used to store these programs in a memory unit. Provision is made for permitting an operator to enter key-stroke information at random. This information is stored in the memory until the completion of any preceding automatic

punch operation for permitting the entry of optical scanning information in the memory to be retrieved in accordance with a pulse to influence directly an electrical circuit which includes a digital counter for the pulses, preferably by closing a

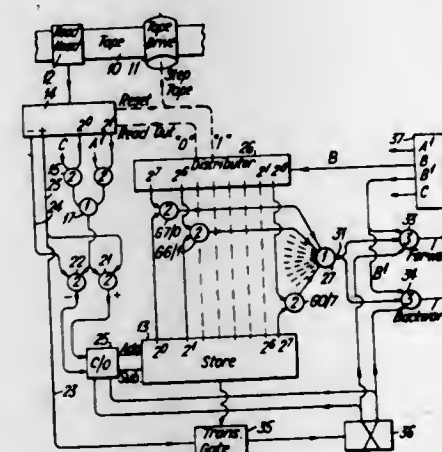


with the program instructions and for performing automatic "accumulator"

3,597,593
DATA CONVERSION APPARATUS
Arthur Owen Stanesby; John Young Condie Montgomery,
and Donald Ferguson Walker, all of Edinburgh, Scotland,
assignors to Terrant, Limited
Filed May 29, 1967, Ser. No. 641,777
Claims priority, application England, June 4, 1966, 24997/66
Int. Cl. G06k 7/06; G06q 7/00; H01J 9/18; H04q 9/02
U.S. Cl. 235-61.6

3,597,595
RESETTING AND MOUNTING APPARATUS FOR
COUNTING MECHANISMS
Alfred Zielke, Peine, Germany, assignor to ELMAG Elektro-
Mechanik GmbH, Peine, Germany
Filed May 5, 1969, Ser. No. 821,809
Claims priority, application Germany, May 6, 1968, P 17 74
222.2
Int. Cl. G06c 27/00, 5/02, 15/42
U.S. Cl. 235-117

9 Claims



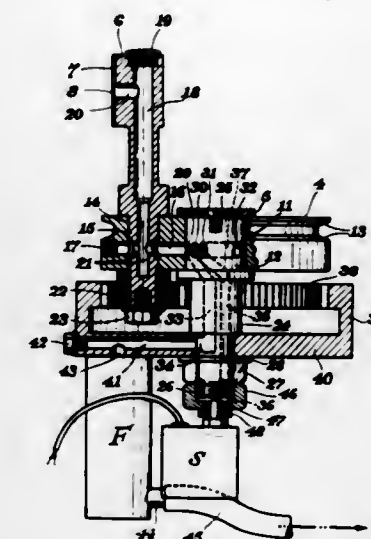
Apparatus for periodically varying in response to acceleration-representing signals from a computer the number of pulses held in a store to represent the velocity of a machine tool, and after each such variation distributing evenly over a fixed time period tool-control pulses equal in number to the number held in the store.

3,597,594
SHEET COUNTING APPARATUS
Peter Steward Evans, St. Albans, England, assignor to De La
Rue Instruments, Limited, London, England
Filed Oct. 2, 1968, Ser. No. 764,491
Claims priority, application Great Britain, Oct. 12, 1967,
46617/67
Int. Cl. G06m 9/02

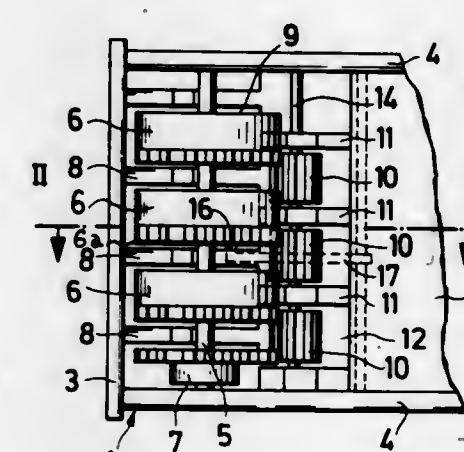
U.S. Cl. 235-92 SB

1 Claim

The invention relates to apparatus for counting a stack of sheets of paper of the kind including a rotary member or grip provided with suction ports for gripping said sheets one at a time and arranged to deflect said sheets one by one on rotation of said member, and means comprising a pressure-sensitive device for counting suction pulses created by the application of suction to said sheets, the pressure-sensitive device comprises a pressure-deformable element adapted on receipt



pair of electrical contacts in said circuit whereby the digital counter is advanced.



Apparatus for mounting, aligning, and resetting digit rollers in a counting mechanism. The digit rollers are held in a casing and are selectively engageable by transfer pinions. Each digit roller has a resetting cam that is selectively engageable by a resetting finger connected to a resetting lever. A spacing rib is connected to the casing and formed between each adjacent pair of digit rollers so that the casing is divided into independent chambers. Each chamber holds a single digit roller so that lateral displacement of one of the digit rollers does not cause lateral displacement of other digit rollers. A curved bottom surface underlies the circumference of each digit roller and provides a means of holding the digit roller during assembly.

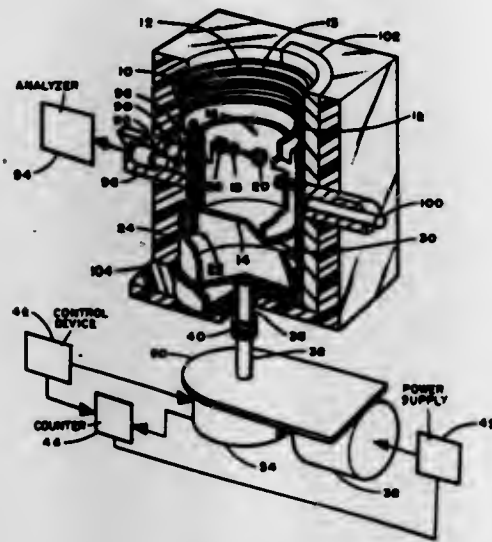
3,597,596
ANALYSIS OF LARGE QUANTITIES OF MATERIALS
James L. Lawless, Denver, and Otis H. Willoughby, Boulder,
both of, Colo., assignors to the United States of America as
represented by the United States Atomic Energy Commission.
Filed Feb. 7, 1969, Ser. No. 797,509
Int. Cl. G01n 23/10

U.S. Cl. 250-43.5 MR

4 Claims

An apparatus and method for measuring radiation from bulk quantities of materials such as waste materials or ash to

determine quantities of radiochemical substances included therein comprising a container for the materials, radiation detection means radially arranged about the container, a



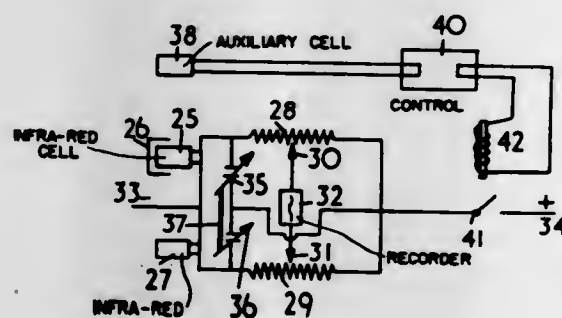
device for producing rotation and translation relative to the container and radiation detection means and means for compensating for material density changes.

3,597,597
METHOD AND APPARATUS FOR MONITORING THE PROGRESS OF RIMMING OF A STEEL INGOT
Robert Alfred Pirlet, Angleur, Liege; Roland Holper, Cointe, and Leon Jean Philippe, Liege, all of, Belgium, assignors to Centre National De Recherches Metallurgiques, Brussels, Belgium

Filed May 24, 1968, Ser. No. 731,749
Claims priority, application Luxembourg, May 29, 1967, 53,768

Int. Cl. G01J 5/00
U.S. Cl. 250—83.3 H

10 Claims



A physical and/or chemical parameter, the development of which is connected with that of the rimming of an ingot, is measured while the major part of the gases issuing from the ingot in the course of the rimming process escape freely, practically without being disturbed, and while the molten steel has free access to the oxygen of the surrounding atmosphere. The curve representing the variation with time of the value measured is plotted, from which it is possible to obtain indications regarding the development of rimming.

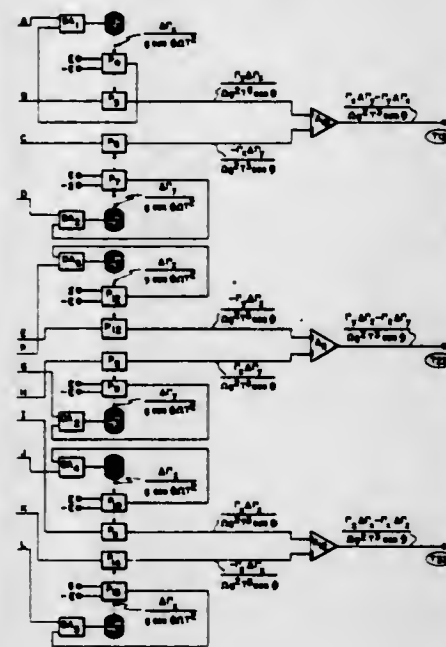
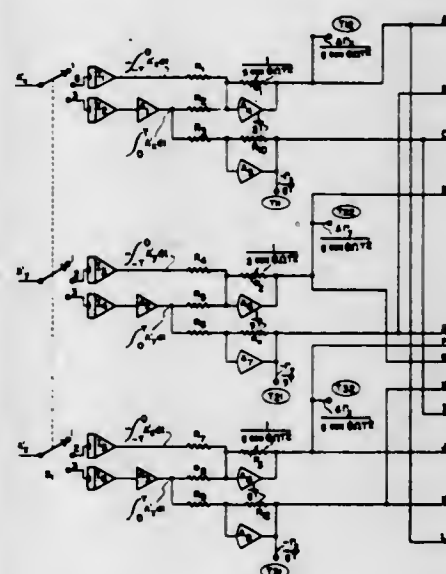
3,597,598
METHOD AND MEANS FOR TRANSFORMING THE ACCELERATION SIGNALS GENERATED BY ACCELEROMETERS IN A FIRST COORDINATE SYSTEM INTO ACCELERATION SIGNALS IN A SECOND COORDINATE SYSTEM

Donald F. McAllister, Rolling Hills, and Frank M. Pelteson, Santa Ana, both of, Calif., assignors to North American Rockwell Corporation

Filed Dec. 14, 1964, Ser. No. 417,905
Int. Cl. G06f 15/50; G06g 7/78

U.S. Cl. 235—150.25

4 Claims



A method and means for transforming the acceleration signals generated by orthogonally disposed accelerometers mounted upon an untorqued inertial gyro platform into acceleration signals which are useful in another coordinate system, for example, an earth base latitude and longitude coordinate system.

3,597,599
DIGITALIZED TONE GENERATOR
William J. Melvin, Costa Mesa, Calif., assignor to Collins Radio Company, Cedar Rapids, Iowa

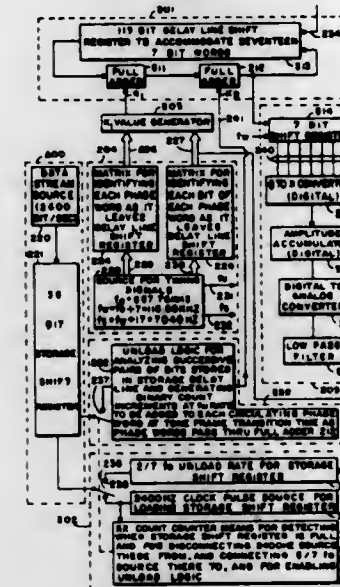
Filed June 16, 1969, Ser. No. 833,460
Int. Cl. G06f 3/00

U.S. Cl. 235—154

44 Claims

A digitalized tone generator comprising a circulating loop containing, in series arrangement, a digitalized delay line means such as a shift register of N stages, and first and second full adders. A binary word of N bits circulates around the loop at a rate f , and is incremented by a value K_1 in said first full adder each circulation thereof to form a repeated sequence of 2^N binary words when $K_1=1$, each sequence

representing a complete cycle of the tone being generated, and each binary word representing a unique phase angle of the cycle. At time intervals T_d , where $(1/T_d) \gg f$, a variable value K_2 can be added to the circulating word in said second



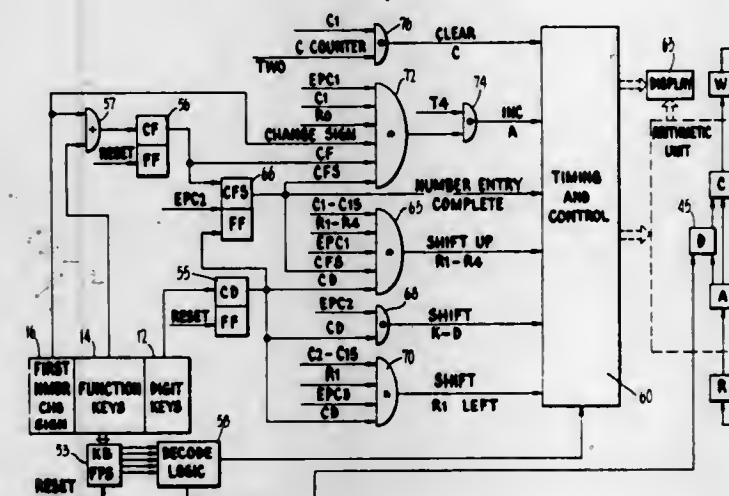
full adder to effectively change the phase thereof by desired increments. A library of such time-synchronous, phase-shifted tones is generated by applying multiplexing techniques to the above structure and making K_2 equal to different values.

3,597,600
ELECTRONIC DESK TOP CALCULATOR HAVING A DUAL FUNCTION KEYBOARD LOGIC MEANS
Carl E. Herendeen, Danville, and Robert A. Ragen, Hayward, both of, Calif., assignors to The Singer Company

Filed May 5, 1969, Ser. No. 821,590
Int. Cl. G06f 7/48

U.S. Cl. 235—156

10 Claims



An electronic desk top calculator is disclosed which has a plurality of digit keys for entering numeric data into a storage portion and a plurality of function keys for specifying data handling operations to be performed on entered numeric data. One of the function keys is coupled to a dual function logic circuit which is controlled by a single key. When this single key is actuated after the actuation of one or more digit keys, the circuit acts as an entry circuit and produces a signal which indicates that entry of a number is complete. When this single key is actuated after the actuation of a function key, including itself, the circuit acts as a change sign circuit and produces a signal for incrementing the sign bit of the number in an entry register.

3,597,601
ARRANGEMENT FOR GENERATING THE DERIVATIVE OF STEPPED VOLTAGE FUNCTION

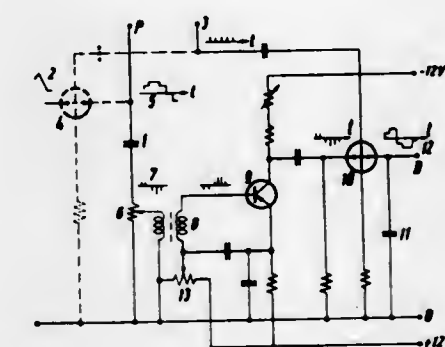
Herbert Bähring, Nieder-Ramstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Filed Jan. 30, 1969, Ser. No. 795,156
Claims priority, application Germany, Jan. 30, 1968, P 16 38 025.9

U.S. Cl. 235—183

Int. Cl. G06g 7/18

7 Claims

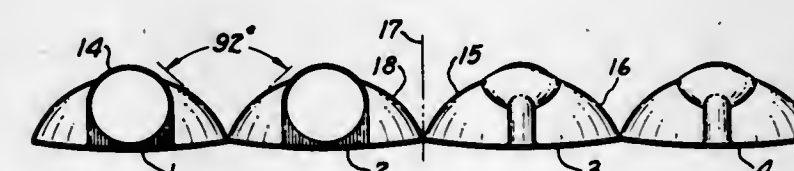


A first sampling circuit samples an input voltage function at arbitrary time intervals. The sampling pulse has a short duration compared to the interval between successive samplings. The sample values are stored until the arrival of the next sample value. A resistor connected in series with a capacitor provides during each sampling a pulse-shaped voltage that is transferred to a second capacitor by means of a second sampling circuit working synchronously with the first. The transfer of charges is such that there appears across the latter capacitor a stepped voltage that is the derivative of the input voltage function.

3,597,602
PHOTOFLASH REFLECTOR SUITABLE FOR FLASHCUBE
Richard D. Divoky, Mayfield Hts.; Peter H. Malmquist, East Cleveland, and Robert M. Anderson, Pepper Pike, all of, Ohio, assignors to General Electric Company

Filed Dec. 16, 1968, Ser. No. 784,068
Int. Cl. G03b 15/02

10 Claims



A photoflash lamp-reflector module particularly suitable for use in a four-sided photoflash array such as a flashcube. The reflector is formed in the shape of a parabola having curved winged portions whose tangents form an angle of more than 45° with respect to the optical axis of the reflector. Due to the curvature of the winged portions, a series of reflectors may be arranged in a back-to-back relationship with each other to form a flashcube assembly without any interference or distortion occurring between the winged portions of adjacent reflectors. In a preferred embodiment, the reflector is formed at its innermost region with a transversely extending channel-shaped recessed area for snugly accommodating a minor portion of the circumferential extent of a tubular flashlamp throughout substantially its full length.

3,597,603

PHOTOGRAPHIC FLASHLAMP UNIT

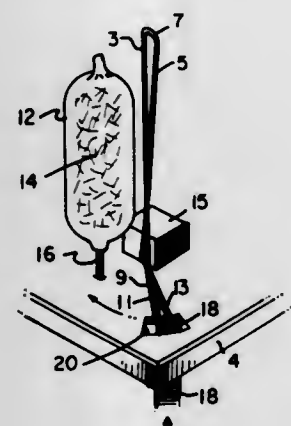
Thomas B. McDonough, Allenwood, Pa., assignor to Sylvania Electric Products Inc.

Filed Dec. 19, 1968, Ser. No. 785,097

Int. Cl. G03b 15/02

U.S. Cl. 240—1.3

4 Claims



A multilamp photographic flash unit, the lamps of which are of the percussive primer type, having self-contained elements in the form of a folded torsion spring for firing the lamps. The folded torsion spring is formed in the shape of a hairpin having first and second segments joined by a light. One of the segments has a striker member thereon for firing the lamps. The spring is cocked by crossing the segments over one another and thereafter restraining the striker in the biased condition.

3,597,604

PHOTOGRAPHIC FLASHLAMP UNIT

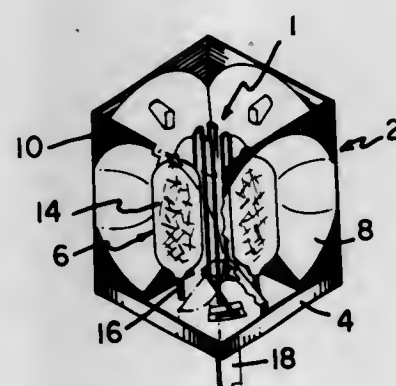
John W. Shaffer, Williamsport, Pa., assignor to Sylvania Electric Products, Inc.

Filed Dec. 19, 1968, Ser. No. 785,098

Int. Cl. G03b 15/02

U.S. Cl. 240—1.3

5 Claims



A multilamp photographic flash unit, the lamps of which are of percussive primer type, having self-contained elements in the form of a folded torsion spring for firing the lamps. The tip of the stationary end of the spring is shaped to function as a catch to hold the striker formed on the movable end thereof while the spring is in a cocked position.

3,597,605

SYSTEM FOR ILLUMINATING A LARGE MICROFILM COPY BOARD

John R. Kane, Piffard, and Daniel Harvey Robbins, Rochester, both of, N.Y., assignors to Itek Corporation, Lexington, Mass.

Filed June 2, 1969, Ser. No. 829,410

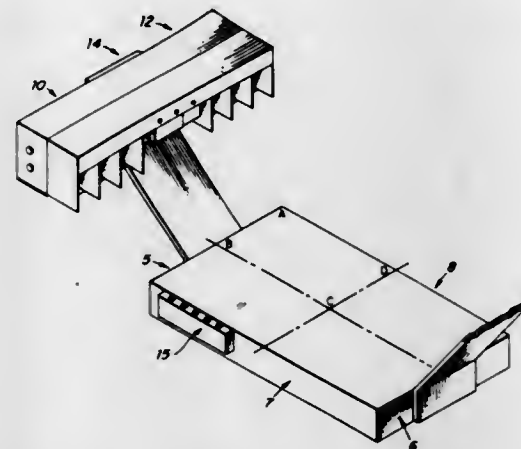
Int. Cl. F21v 33/00

U.S. Cl. 240—2 P

18 Claims

A copy board illumination system to control the light distribution at various portions of the copy board. A lighting fix-

ture is provided in an elevated position above each of the two ends of the copy board. Each fixture is divided into three zones along the length of the fixture. The two end zones each have a plurality of vertical baffles which control the distribution of illumination between each edge of the copy board and the center of the copy board. The center zone illuminates the



center of the copy board and has vertical baffling which is slidable along the length of the fixture and controls the illumination on the center of the copy board. A horizontally slidable baffle is provided beneath each of the three zones and controls the distribution of illumination between the end and center of the copy board.

ERRATUM

For Class 240—7 see:
Patent No. 3,596,837

3,597,606

WARNING-LIGHT HOUSING

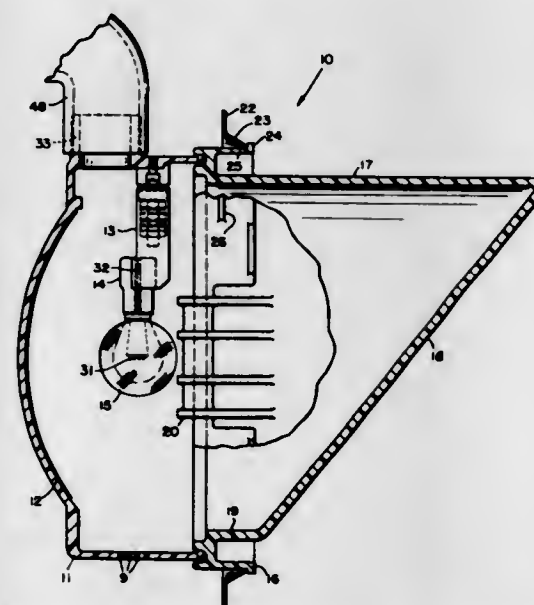
Karl W. Abendroth, Rochester, N.Y., assignor to General Signal Corporation

Filed Dec. 3, 1969, Ser. No. 788,825

Int. Cl. F21v 13/04

U.S. Cl. 240—41.3

10 Claims



A warning-light housing of unitized construction having an integral reflector and lens. A receptacle is mounted to the housing and the receptacle, lens, and reflector are each in a fixed predetermined position relative to the other. The reflector surface has distributed random irregularities for uniform dispersion of light.

ERRATA

For Classes 250—43 and 250—83 see:
Patent Nos. 3,597,596 and 3,597,597

3,597,607

ELECTRON PROBE EMPLOYING THREE SECONDARY EMISSION DETECTORS WHOSE OUTPUTS ARE COMBINED TO MINIMIZE ERROR

Alistair John Campbell, and Andrew D. G. Stewart, both of Cambridge, England, assignors to Cambridge Instrument Company, London, England

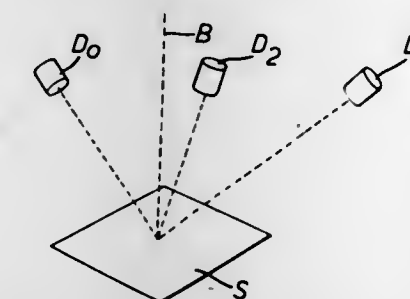
Filed Feb. 16, 1968, Ser. No. 706,001

Claims priority, application Great Britain, Feb. 16, 1967, 7463/67

Int. Cl. G01t 1/16

U.S. Cl. 250—49.5 PE

11 Claims



In electron beam apparatus in which an electron beam is caused to impinge on a specimen surface and the backscattered electrons are detected and used to produce an image-giving information about the surface, instead of using a single detector, which cannot distinguish between changes in signal due to material and changes due to topography, and instead of using two detectors which can eliminate changes due to material but only show topographical features in certain directions, it is proposed to use at least three detectors, symmetrically arranged, and to combine their signals in such a way as to allow observation of topography without regard to angular position or with regard to a direction of apparent illumination that is variable at will.

3,597,608

METHOD AND APPARATUS FOR ADJUSTING ELECTRON BEAM IN ELECTRON MICROSCOPE

Ernst Gutter, Oberkochen, Germany, assignor to Carl Zeiss-Stiftung d.b.a. Carl Zeiss, Heidenheim on the Brenz, Wuerttemberg, Germany

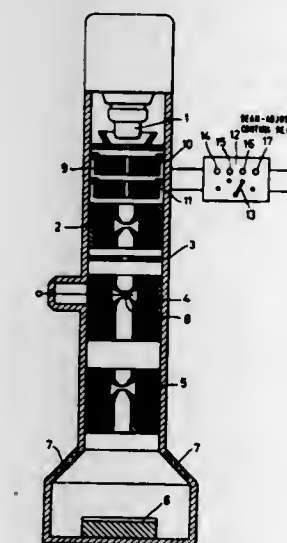
Filed Feb. 14, 1969, Ser. No. 799,349

Claims priority, application Austria, Feb. 23, 1968, A 1737/68

Int. Cl. H01j 37/26

U.S. Cl. 250—49.5 A

14 Claims



In an electron beam microscope wherein the beam is laterally adjusted to a desired position, in which it visibly impinges on an image screen, by adjusting the intensity and polarity of the unidirectional magnetic field of each of several electromagnetic deflecting units arranged at different sides of the beam, adjustment of the beam is facilitated by temporarily generating alternating magnetic fields in all but

one of said units for laterally wobbling the beam while adjusting the unidirectional magnetic field of the latter unit so that the wobbling beam periodically momentarily assumes its aforesaid adjusted position. Thereafter, alternating magnetic fields are generated in all but one of the remaining unadjusted units which are successively adjusted by means of their unidirectional magnetic fields in the above manner until all but one of the units is adjusted. The unidirectional magnetic field of the latter unit is then adjusted to complete the adjustment of the position of the beam.

3,597,609

METHOD OF IMAGE FOCUSING IN PARTICLE-BEAM APPARATUS COMPRISING CHANGING THE BEAM INCIDENCE ANGLE AT 10 TO 15 HERTZ

Klaus Anger, Dieter Braun, and Fred Fox, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Berlin, Germany

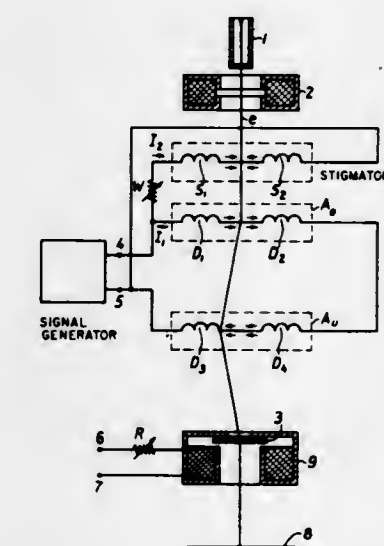
Filed Aug. 28, 1969, Ser. No. 853,654

Claims priority, application Switzerland, Sept. 2, 1968, 13147/68

Int. Cl. H01j 37/26

U.S. Cl. 250—49.5 A

2 Claims



A method of focusing the image of a beam-transmissive specimen formed by the electrooptical lens system in a particle-beam apparatus equipped with beam deflectors including imaging the specimen on an image plane and varying the direction of incidence of the beam upon the specimen periodically by electrically exciting the beam deflectors at a frequency of from 10 to 15 Hz. The image is observed and the excitation of at least one of the lenses comprising the lens system is adjusted to focus the image while the direction of the beam is varied.

3,597,610

INTENSIFICATION SCREEN FOR RADIOGRAPHIC FILM

Raymond Marius Augustin Bayol, Vincennes, France, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 25, 1968, Ser. No. 724,256

Claims priority, application France, Feb. 22, 1968, 140896

Int. Cl. G01n 21/34

U.S. Cl. 250—65

10 Claims

A layer comprising particles of a low melting point metal alloy of lead, bismuth, tin and cadmium and a binder is provided as an intensification screen. Good intensification without fog is obtained using particles of alloys, such as Wood metal, which melt lower than 80° C.

3,597,611

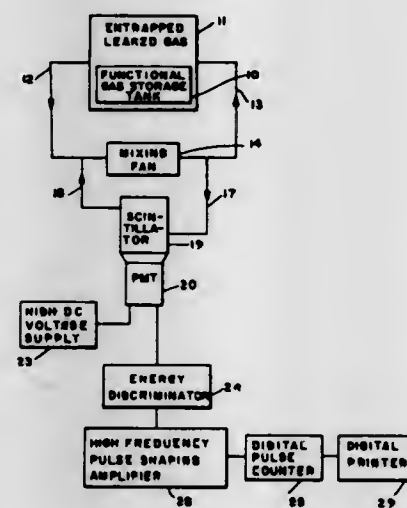
METHOD AND APPARATUS FOR DETECTING GAS LEAKS USING RADIOACTIVE TECHNIQUES

Randall W. Harman, San Clemente; Roger J. Rusch, Dana Point, and James F. Wakeman, Manhattan Beach, all of Calif., assignors to TRW, Inc., Redondo Beach, Calif.
Filed June 20, 1967, Ser. No. 647,488

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5

8 Claims



A gas leak detector for use where a trace of radioactive gas is mixed with a functional gas, the leak rate of which is to be determined, and including means to cause the flow of a portion of an entrapped volume of leaked gas into the vicinity of a radiation detector in which radiation energy is converted into voltage pulses, and means to determine the count rate of change of the pulses in consecutive time periods and from which the leakage rate of the functional gas is determined.

3,597,612

POWER-PULSE MONITORING PROBE

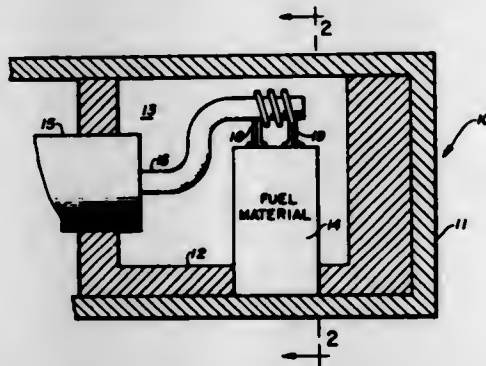
Leo R. Boyd, San Jose, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Jan. 27, 1969, Ser. No. 793,944

Int. Cl. G01t 3/04

U.S. Cl. 250-83.1

8 Claims



An apparatus for monitoring total energy variations in a nuclear reactor and comprises, in one embodiment, a heat sink, a mass of fissionable material in thermal contact with said heat sink and a thermocouple in electrical and thermal contact with said mass of fissionable material. In order to compensate for gamma radiation a further improvement is provided in another embodiment by adding a mass of material having the same gamma absorption characteristics as said mass of fissionable material, said gamma absorbing material

being electrically insulated from said heat sink, and a second thermocouple in electrical and thermal contact with said gamma absorbing material and in electrical series opposing connection with said first thermocouple. The disclosed device is used to measure the transient power variations and evaluate the Doppler effect for controlling reactor stability, or to measure transient power variation in fast or thermal reactors to obtain data for monitoring the reactor operation.

3,597,613

METHOD OF MEASURING BORON CONCENTRATION IN WATER BY NEUTRON ABSORPTION

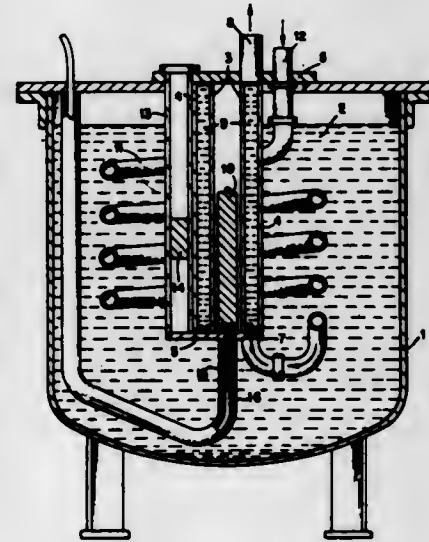
Venkatesan Rajagopal, Monroeville, Pa., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 19, 1969, Ser. No. 851,174

Int. Cl. G01t 3/00

U.S. Cl. 250-83.1

4 Claims



A method and apparatus for determining boron concentration in water. The principle of neutron absorption is used with an electronic arrangement for determining the time required to count a predetermined number of nonabsorbed neutrons. The time to reach the same number of counts with no boron present is subtracted. The remaining time is found to vary directly and linearly with boron concentration.

3,597,614

CADMIUM PHOSPHIDE PHOTOCONDUCTIVE INFRARED DETECTOR

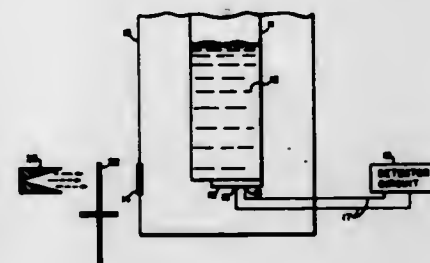
Stephen G. Bishop, Arlington, Va.; William J. Moore, Greenbelt, Md., and Edward M. Swiggard, Alexandria, Va., assignors to the United States of America as represented by the Secretary of the Navy

Filed June 25, 1970, Ser. No. 49,702

Int. Cl. G01j 5/20, 5/28

U.S. Cl. 250-83.3 H

3 Claims



A cadmium phosphide photoconductive detector is provided having a 2.1 micron peak in photoconductive sensitivity and a 0.6 eV energy gap at 77° K. It may be compensated with various known impurities to lower the free carrier concentration.

3,597,615

DETERMINING THE CONTENT OF CHEMICAL ELEMENTS OR ISOTOPES THEREOF IN A SPECIMEN BY UTILIZING THE EFFECT OF RECOILLESS RESONANCE ABSORPTION OR SCATTERING OF GAMMA RAYS

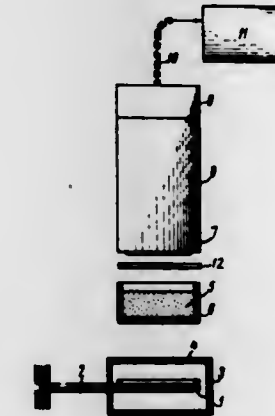
Anatoly Vasilievich Dolenko, 4 ul. Oktjabrskogopolya 1, kv. 5; Boris Grigorievich Eglazarov, ul. Kuusinen, 7, kv. 179; Lev Mikhailovich Isakov, Novaya Bodraya ul. 5, kv. 71; Vitaly Iosifovich Goldansky, Voroblovskoe shosse, 2-b, kv. 49; Evgeny Fredovich Makarov, Trubnikovskiy per. 11, kv. 3, and Veniamin Alexandrovich Trukhtanov, Kremenchugskaya ul. 8, kv. 12, all of Moscow, U.S.S.R.

Filed Feb. 28, 1967, Ser. No. 619,290

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3

6 Claims



An arrangement and process for determining the content of chemical elements, isotopes or compounds thereof in a specimen comprising the measurement during irradiation of the specimen with gamma-rays of a quantity that is proportional to the content of the element, isotope or compound in the specimen.

3,597,616

INFRARED MEASUREMENT TECHNIQUE

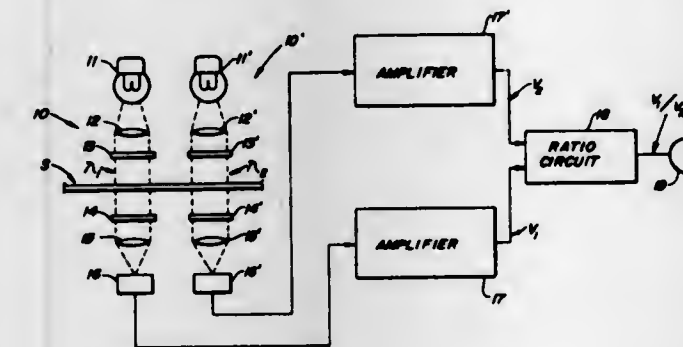
Donald C. Brunton, and Carl R. Soltesz, both of Columbus, Ohio, assignors to Brun Sensor Systems, Inc., Columbus, Ohio

Filed May 7, 1969, Ser. No. 822,597

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3 D

8 Claims



Measurement of moisture content or other property of a product or substance is accomplished through determination of the relative degree of transmission of two beams of radiation directed through a test quantity of the substance. The two beams of radiation are of wavelengths in the infrared spectrum with the specific wavelengths not selected on the basis of exhibiting characteristic absorption by the particular substance property to be determined but which wavelengths are selected on the basis that they exhibit a wavelength and property dependent scattering characteristic for this substance. Determination of the relative scattering of transmission of the two beams of radiation, one of which is of wavelength to exhibit less scattering at relatively lower percent inclusion of the particular property in a given mass of the substance, results in a ratio which is indicative of the included percentage of the property under test.

3,597,617

INFRARED THERMOGRAPH HAVING AN AUTOMATIC BRIGHTNESS CONTROL

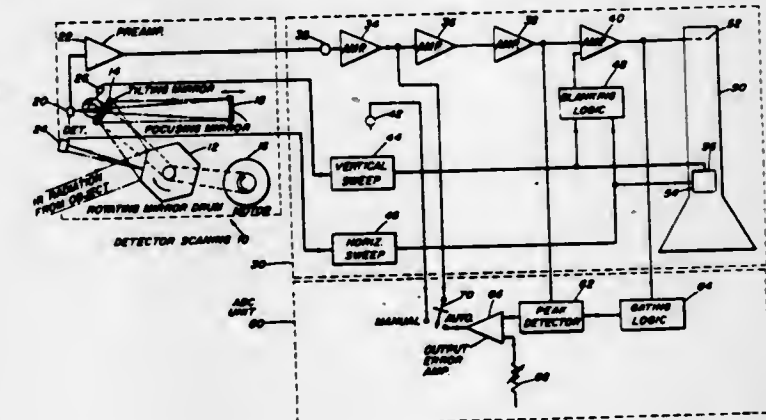
Robert E. Passaro, Stamford, Conn., assignor to Barnes Engineering Company, Stamford, Conn.

Filed July 30, 1969, Ser. No. 846,109

Int. Cl. G01n 21/34

U.S. Cl. 250-833 HP

7 Claims



An infrared detector is scanned over a field of view generating an infrared video signal based on the intensity of the infrared radiation appearing in the field of view, which signal is utilized to provide a thermal image of the field of view. After sufficient amplification, the infrared video signal is fed to a peak detector which derives a signal based on the maximum or minimum signal level in the infrared video signal which is coupled to an error amplifier and reinserted in the processing channel for controlling the brightness of the scene to be displayed.

3,597,618

GROUND BASE TARGET FOR TESTING ELECTROOPTICAL SENSORS IN THE INFRARED AND VISIBLE RANGE

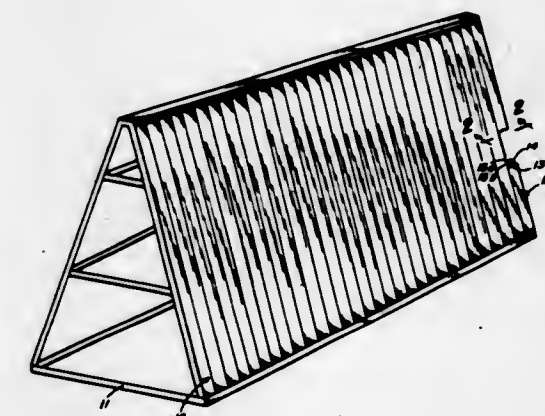
Robert J. Jordan; Ronald N. Phillips, and Robert R. Shatzer, all of Lexington Park, Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Aug. 15, 1969, Ser. No. 850,499

Int. Cl. G21h 3/00

U.S. Cl. 250-84

10 Claims



An array of bars of aluminum sheet material of triangular cross section to be used as a target for testing infrared or television equipment. The three sides of each bar are painted white, black and alternating black and white stripes with one side heated so as to provide an IR source. In addition, each bar is rotatable about its longitudinal axis so that the target provides for a broad range of light and temperature contrasts.

3,597,619

AUTOMATIC DRAFTING-DIGITIZING APPARATUS

Charles H. Little, Cleveland; Waldo H. Klever, Cleveland Heights, and Eugene L. Wiemeis, Cleveland Heights, all of Ohio, assignors to Universal Drafting Machine Corporation, Bedford Heights, Ohio

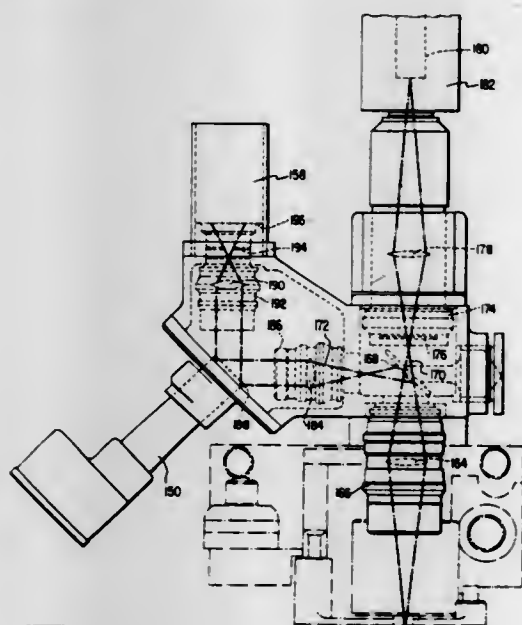
Division of Ser. No. 516,059, Dec. 23, 1965, abandoned, which is a continuation-in-part of Ser. No. 262,590, Mar. 4, 1963, abandoned.

Filed Dec. 4, 1968, Ser. No. 198,530

Int. Cl. G05b 1/00

U.S. Cl. 250-202

11 Claims



There is disclosed hereinafter a drafting-digitizing machine for automatically scribing information on sheetlike articles and for digitizing lines, curves, and the like that are scribed on or in sheetlike articles. The machine includes a support assembly for supporting the sheetlike articles and for supporting a scribing-scanning head. The head is provided with scribing tools and a photoelectric scanning assembly. In addition, the head is moved automatically by motive powered assemblies under the control of a computer having a plurality of digital input assemblies associated with it for providing a plurality of output signals. Output devices disclosed for producing records concerning the operation of said scribing-scanning head, and an additional output member is provided whereon a TV picture of a line, curve, or the like on a sheetlike article may be observed by the machine operator.

3,597,620

PATTERN CORRELATION OPTICAL TRACKER UTILIZING CIRCULAR NUTATIONAL SCANNING

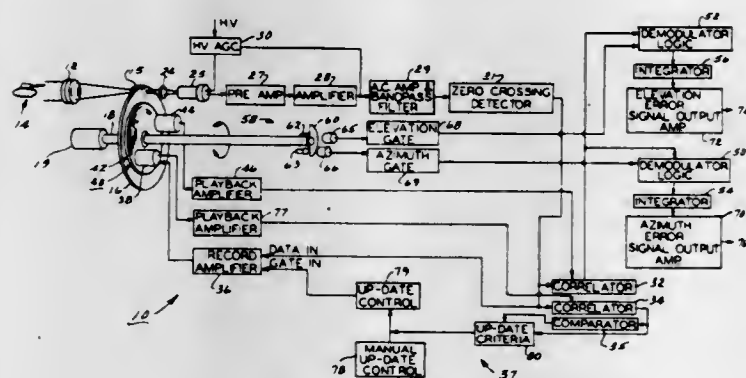
William H. Wellman, Boxborough, Mass., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Aug. 29, 1969, Ser. No. 854,205

Int. Cl. G01j 1/20; G01d 5/36; H01j 39/12

U.S. Cl. 250-203

26 Claims



A pattern correlation optical tracker having a rotatable reticle with apertures arranged in a predetermined pattern

eccentric with respect to the axis of the rotation of the reticle to effect a circular nutational scanning of a target scene. Circuit means including a photo detector for receiving the light passing through the reticle and converting it to an electric signal or waveform. A waveform corresponding to a selected reference scene is stored in a memory magnetic disc rotating synchronously with the reticle, and the signature waveform of a current scene is continuously correlated with a time-shifted memory reference waveform taken from the memory disc at a location 180° displaced from the recording location thereof to produce a desired correlation-with-nutation signal having modulations and from which orthogonal error signals are derived. Synchronous demodulation of this signal produces the orthogonal elevation and azimuth error signals which can be used to maintain the tracker on the target scene, or to indicate the magnitude and direction of scene displacement. Current and reference scene signal patterns are compared to provide automatic updating of the memory reference scene upon the occurrence of scene changes resulting in decorrelation equal to or greater than a preset threshold magnitude.

3,597,621

SPECIAL THERMAL ELECTRIC POWER GENERATING UNIT USING PRESSURIZED HOT AIR TOGETHER WITH SUPERHEATED STEAM

Kitchi Yamada, 15-12, 1-Chome, Jingumae, Shiburja-ku, Tokyo, Japan

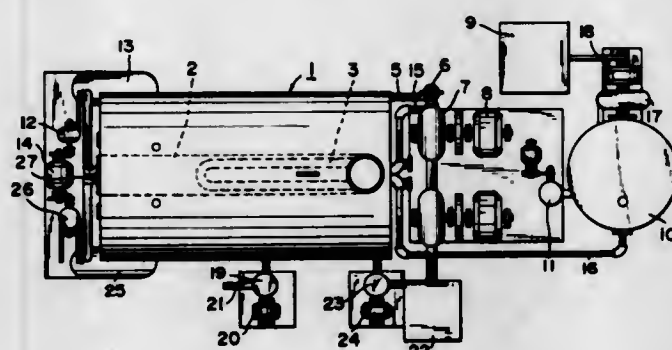
Filed Oct. 31, 1968, Ser. No. 772,239

Claims priority, application Japan, Dec. 1, 1967, 42 76761

Int. Cl. F02c 7/00

U.S. Cl. 290-2

3 Claims



A thermal electric power generating unit using pressurized hot air together with superheated steam, which is useful for storing superfluous electric energy of thermal power plants in the form of compressed air during an offpeak load period and to regenerate electric power by using the thus stored compressed air during succeeding peak load periods. The unit comprises a means for producing compressed air, a boiler to produce superheated steam, a blind drum to heat the compressed air, an injection nozzle to simultaneously inject said superheated steam and the pressurized hot air from said blind drum, a gas turbine to be driven by gaseous mixture jets from said nozzle, and an electric generator driven by said gas turbine.

3,597,622

ELECTRICAL SWITCHES FOR USE IN STARTER MOTORS FOR I.C. ENGINES

Ronald Wilson, 13 Chelmsley Lane, Marston Green, Birmingham, England

Filed Apr. 14, 1970, Ser. No. 28,317

Claims priority, application Great Britain, May 27, 1969, 26636

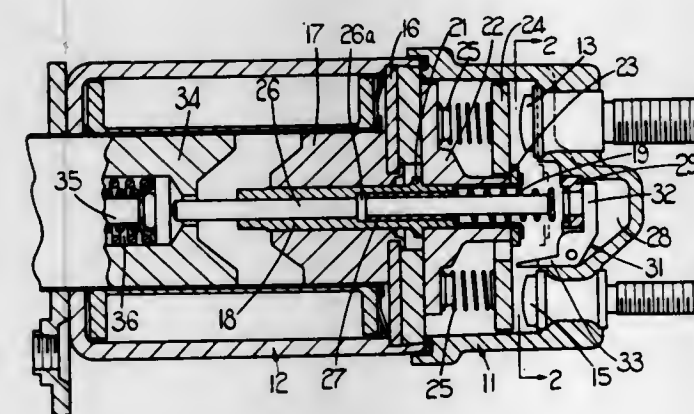
Int. Cl. F02n 11/00

U.S. Cl. 290-38

3 Claims

An electrical switch is for use in an internal combustion engine starting mechanism of the kind including a starter motor, a pinion driven by the starter motor and engageable with a toothed wheel on the engine, and a solenoid for moving the pinion into engagement with the toothed wheel, the solenoid including an armature having an inner part for moving the pinion and an outer part coupled to the inner part. A switch

of this kind includes a housing and first, second and third fixed contacts secured in the housing in spaced relationship and lying in a common plane. A movable carrier is mounted for movement in a direction at right angles to the plane of the fixed contacts and a conductive bridging piece is resiliently mounted on the carrier and is urged to lie in a plane parallel with the plane of the fixed contacts. A sleeve slidably mounted in the housing is engaged at one end with the carrier and projects at its other end from the housing for engagement with the outer part of the armature. A push rod is slidable within the sleeve and projects at one end from the sleeve for engagement by the inner part of the armature, resilient means urging the sleeve and the push rod outwardly. A movable latch member is movable by the push rod and is resiliently urged to a position wherein it projects above the plane of the fixed contacts to prevent the bridging piece engaging the third fixed contact during movement of the carrier



towards the fixed contacts. The arrangement is such that in use upon energization of the solenoid the outer part of the armature moves the carrier through the sleeve towards the fixed contacts, the bridging piece engaging the latch member and thus being tilted relative to the carrier during further movement of the carrier. The bridging piece in its tilted condition engages the first and second fixed contacts to complete a first circuit of the starter motor and the latch member is then moved by the push rod when the pinion of the starter motor is fully engaged with the toothed wheel of the engine to permit the bridging piece to return to its original position with respect to the carrier so as to engage the third fixed contact to complete a second circuit of the starter motor. The second circuit when completed causes energization of the starter motor at a full torque value while completion of the first circuit causes energization of the starter motor at a reduced torque value.

3,597,623

POWER PLANT AND GENERATING UNIT

Carlo Gilardi, 24, via Carlo Boni, Milan, Italy, assignor to Masa S.R.L., Milan, Italy

Filed Jan. 24, 1969, Ser. No. 793,649

Claims priority, application Italy, Jan. 27, 1968, 12075A/68

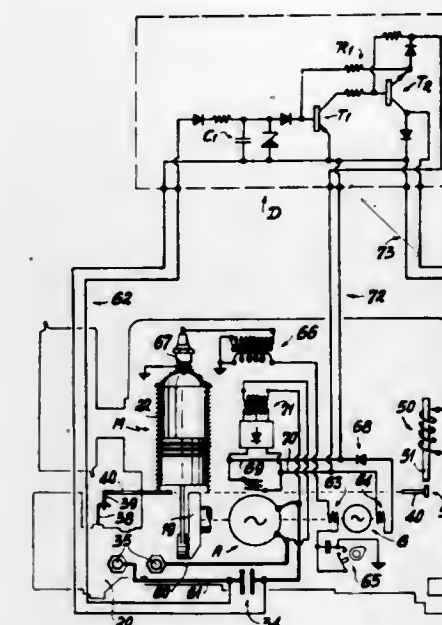
Int. Cl. H02p 9/04

U.S. Cl. 290-40

5 Claims

An electric generating set adapted for supplying current to an intermittently current consuming device such as an arc welder device. The set comprises an internal combustion motor, a speed governor to govern said motor at a given service

speed, a generator driven by the motor and having a power output, and output sensing and actuator devices influencing



said speed governor and set the motor at a lower idle speed when no current is withdrawn from the generator.

3,597,624

OPTICAL RAMAN OSCILLATOR EMPLOYING COLLOIDAL SUSPENSION OR EMULSION

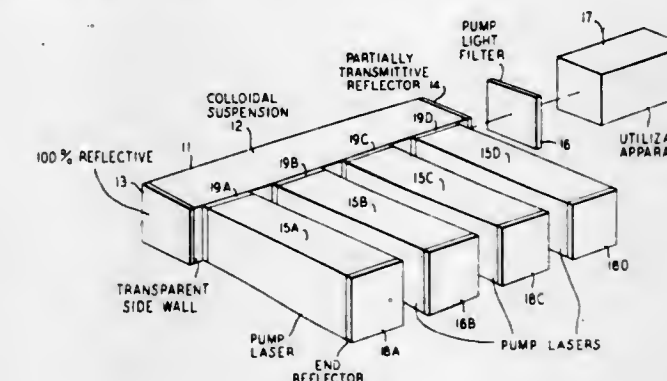
Daniel Weiner, Hazlet, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 30, 1969, Ser. No. 795,311

Int. Cl. H03f 7/20

U.S. Cl. 307-88.3

4 Claims



A coherent optical Raman oscillator is disclosed in which the tendency to filament formation is reduced without proportionally impairing stimulated Raman scattering strength by employing a colloidal suspension or emulsion of Raman-active particles in an inactive medium or of colloidal-size inactive particles in a Raman-active medium. Other bodies of size smaller than a wavelength of Raman-scattered light may also be used.

3,597,625

NEURISTOR ELEMENT EMPLOYING BULK EFFECT SEMICONDUCTOR DEVICES

Hisayoshi Yanai; Toshiaki Ikoma; Takayuki Sugeta; Yasuo Matsukura, and Kunichi Ohta, all of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Oct. 29, 1968, Ser. No. 771,492

Claims priority, application Japan, Oct. 31, 1967, 42/70120

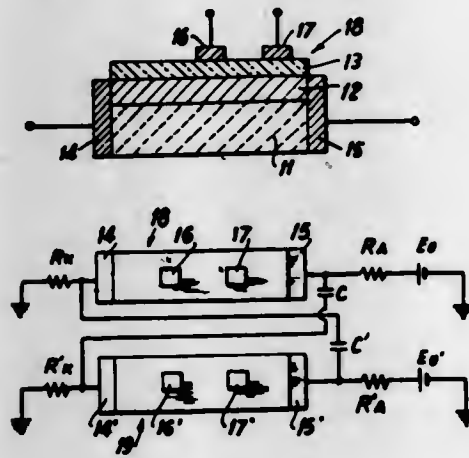
Int. Cl. H03k 19/08

U.S. Cl. 307-201

2 Claims

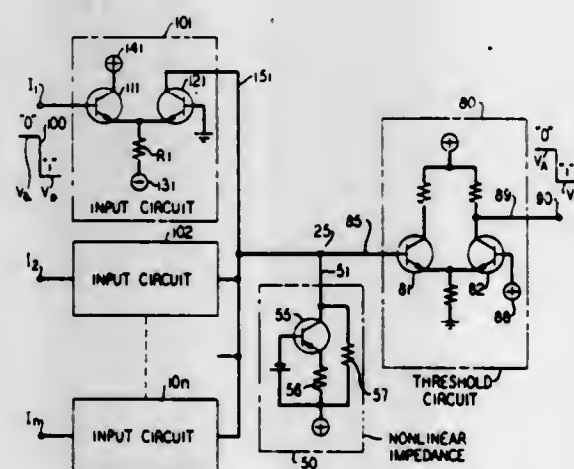
A neuristor element is described which is formed of a pair of Gunn effect elements using bulk negative resistance effect materials capable of forming high electric field layers in the elements upon the application of electric field intensities of

preselected values within the materials. The elements are so coupled to one another that the initiation of a high electric field layer in one of them acts to inhibit the formation of such layer in the other element by effectively lowering the



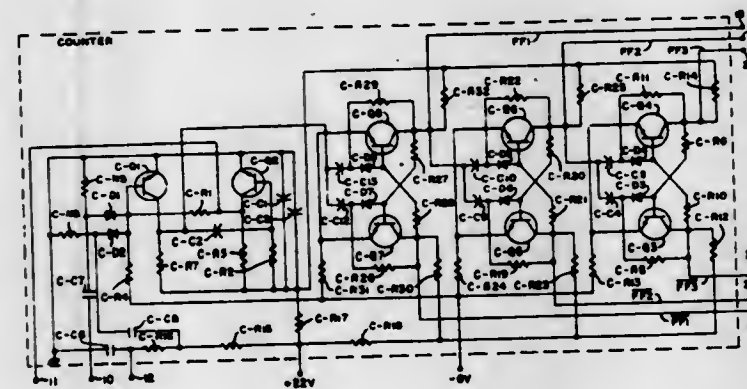
electric field intensity in the other element well below the threshold level necessary to form such high electric field layers. Several embodiments are described with one using capacitive coupling and another resistive or direct coupling.

3,597,626
THRESHOLD LOGIC GATE
John D. Heightley, Basking Ridge, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Apr. 1, 1969, Ser. No. 811,730
Int. Cl. H03k 19/22
U.S. Cl. 307-203
2 Claims

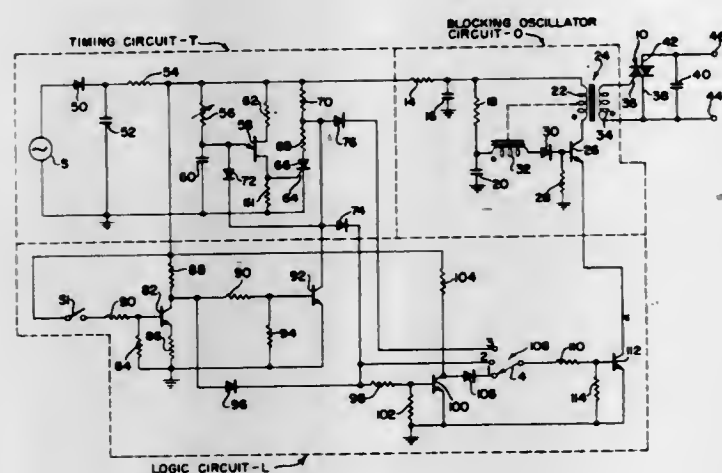


The dichotomy presented in threshold logic gates by the desirability of a large gap or unit step near the threshold point, coupled with the desirability of a small overall signal swing on the threshold element for a large fan-in, is minimized by replacing the usual linear summing resistor with a nonlinear variable impedance element, such as a field effect transistor in one illustrative embodiment, having a low impedance below the gate threshold and a high impedance in the gap.

3,597,627
BINARY COUNTER AND LOGIC GATES FOR PROVIDING TRAFFIC FLOW CONDITION FOR TWO SUCCESSIVE BINARY COUNTS
Philip Cane, Brooklyn, N.Y., assignor to The Marbellite Company, Inc., Brooklyn, N.Y.
Continuation of application Ser. No. 532,520, Feb. 21, 1966.
This application Apr. 29, 1970, Ser. No. 31,823
Int. Cl. H03k 21/00, 23/08
U.S. Cl. 307-220
3 Claims

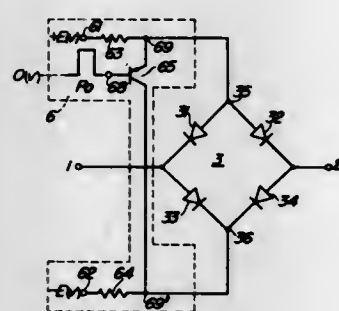


ing a first, second, and control electrode, and exhibiting the characteristic of presenting a low impedance to current flow from the voltage source to the load when a forward biasing signal is applied to the control electrode; and, circuit means for applying a forward biasing signal to the control electrode of the electronic control means. The circuit means includes a transformer having a primary and a secondary winding wherein the secondary winding is connected between the first and control electrode of the electronic control means; first



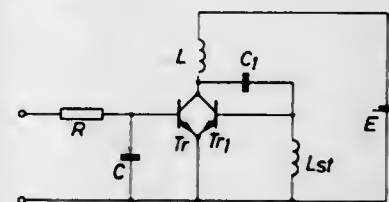
and second actuatable switching means for, when both are actuated, completing a circuit between the primary winding and a power supply source for energizing the primary winding; means for periodically, and at a given frequency, actuating the first actuatable switching means; switch means having a first and a second condition; and, circuit means being responsive to the condition of the switch means for actuating the second actuatable switching means at a predetermined period of time after the switch means is switched from the first condition to the second condition.

3,597,633
DIODE BRIDGE TYPE ELECTRONIC SWITCH
Chikafusa Hirano, Kodaira-shi, and Norio Yokozawa, Fuchushi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 5, 1968, Ser. No. 719,025
Claims priority, application Japan, Apr. 7, 1967, 42/28639
Int. Cl. H03k 17/74
U.S. Cl. 307—257 10 Claims



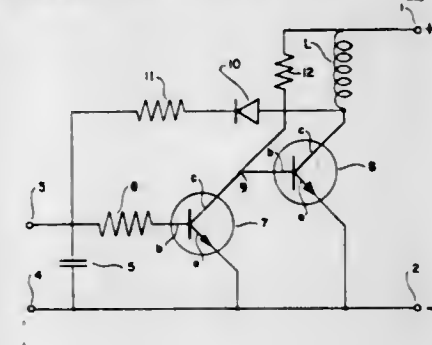
A diode bridge type electronic switch in which an electronic switch controlled by a control signal is provided between a first and a second control terminal of said diode bridge type electronic switch and fixed biases with different polarities are provided between a connection point of said electronic switch and said first control terminal and a connection point of said electronic switch and said second control terminal.

3,597,634
TWO OR MORE TRANSISTOR DEVICE TO ENERGIZE A DRIVING COIL
Hans Flaig, Schramberg-Sulgen, Wurttemberg, Germany, assignor to Gerbruder Junghans Gesellschaft Mit Beschränkter Haftung, Schramberg, Wurttemberg, Germany
Filed Mar. 7, 1968, Ser. No. 711,267
Claims priority, application Germany, Mar. 9, 1967, J 33 175
Int. Cl. H03k 1/18
U.S. Cl. 307—266 2 Claims



A switching circuit for energizing a magnetic oscillating driving system for a time-keeping device, comprising driving coil means for controlling the magnetic oscillating driving system, switching means controlled by impulses of a constant frequency, said switching means including at least one transistor responsive to the impulses of constant frequency, said switching means energizing said driving coil means, a delay network connected to the input of the switching means for delaying the response of said switching means to the impulses of constant frequency whereby the switching means provides output pulses of narrower widths than the width of the impulses of constant frequency, said switching means consisting of an additional transistor connected in parallel across the output of the transistor responsive to the impulses of constant frequency, and control coil means responsive to the magnetic system for controlling the additional transistor in accordance with the movement of the magnetic system.

3,597,635
TRIGGER CIRCUIT
Michael Reich, Stuttgart-Wangen, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 5, 1969, Ser. No. 804,411
Claims priority, application Germany, Apr. 27, 1968, P 17 63 283.6
Int. Cl. H03k 3/284
U.S. Cl. 307—282 1 Claim

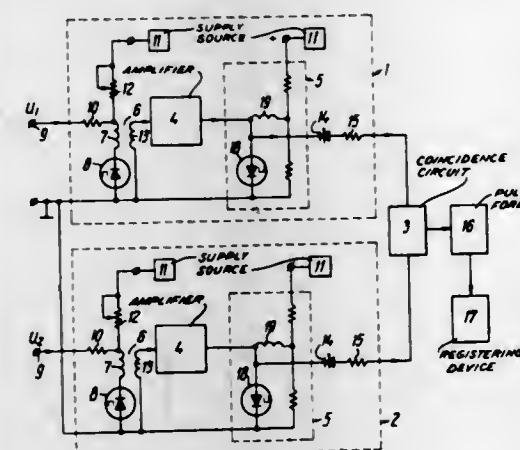


A trigger circuit includes a two stage amplifier having a positive feedback path through a diode, so that the circuit is positively switched. The circuit has particular applicability to control of inductive loads.

3,597,636
INDICATOR OF ZERO PHASE ANGLE BETWEEN TWO VOLTAGES
Svyatoslav Anatolievich Kravchenko, Kirovsky prospekt 65, kv. 29, Leningrad, U.S.S.R.
Filed June 21, 1968, Ser. No. 738,869
Int. Cl. H03k 5/20
U.S. Cl. 307—232 5 Claims

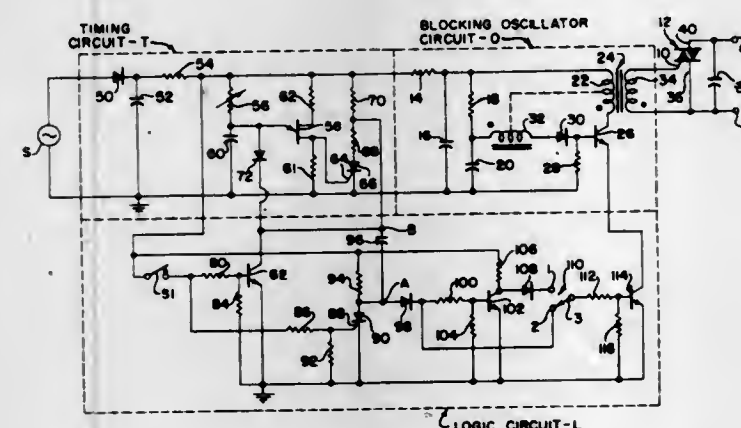
A phase angle difference sensing circuit for sensing a zero phase angle between two voltage signals comprises two channels, each of the two channels having a respective input and output, each of the voltage signals being applied to a respec-

tive input of the two channels, two pulse transformers, each of the pulse transformers being connected in a respective channel and forming the input of the respective channel, a first pair of tunnel diodes, each of the first pair of tunnel diodes being connected in series with a respective primary winding of the two pulse transformers, a pair of auxiliary DC voltage sources, a pair of adjustable resistors, respective one of the pairs of DC voltage sources and adjustable resistors



being connected in series and in series with respective primary windings of the two pulse transformers, a pair of pulse amplifiers, each of the pair of pulse amplifiers being connected to respective secondary windings of the two pulse transformers, a two-input coincidence circuit, the outputs of the two channels being connected to respective inputs of the two-input coincidence circuits, a pulse former, the pulse former being connected to the output of the coincidence circuit, and a registering device connected to the pulse former.

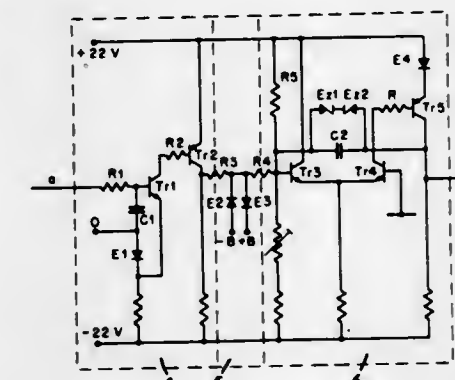
3,597,637
STATIC OFF-DELAY SWITCHING CIRCUIT
James J. Vandemore, Geneseo, Ill., and Donald E. Henry, Davenport, Iowa, assignors to Gulf & Western Industries, New York, N.Y.
Filed Sept. 27, 1968, Ser. No. 812,488
Int. Cl. H03k 17/26
U.S. Cl. 307—252 B 8 Claims



There is provided an off-delay switching circuit for switching an alternating-voltage supply source across a load at a predetermined period of time after an input signal changes from a first level to a second level, comprising a first electronic control means, such as a triac, having a first, second, and control electrode, and exhibiting the characteristic of presenting a low impedance to current flow from the voltage source to the load when a forward biasing signal is applied to the control electrode; and, circuit means for applying a forward biasing signal to the control electrode of the electronic control means. The circuit means includes first and second actuatable switching means for, when both are actuated, applying a forward biasing signal to the control

means; means for periodically, and at a given frequency, actuating the first actuatable switching means; first circuit means responsive to the input signal for developing an output signal at a predetermined time after the input signal changes from the first level to the second level; and, a second electronic control means having a first, second, and control electrode, and exhibiting the characteristics of providing a low impedance to the flow of current between the first and second electrodes from a voltage source coupled across the first and second electrodes upon application of the first level input signal to the control electrode and maintaining the low impedance upon application of the second level input signal to the control electrode until the output signal developed by the first circuit means is applied to the first electrode. The first electrode of the second electronic control means is coupled to the second actuatable switching means to thereby actuate the first electronic control means at a predetermined time after the input signal changes from a first level to a second level.

3,597,638
MULTIPHASE WAVEFORM GENERATOR
Arne Jensen, Havnberg, Als, Denmark, assignor to Panfoss A/S, Nordbog, Denmark
Filed Aug. 26, 1968, Ser. No. 755,190
Claims priority, application Germany, Aug. 29, 1967, D 53954
Int. Cl. H03k 5/00
U.S. Cl. 307—261 11 Claims



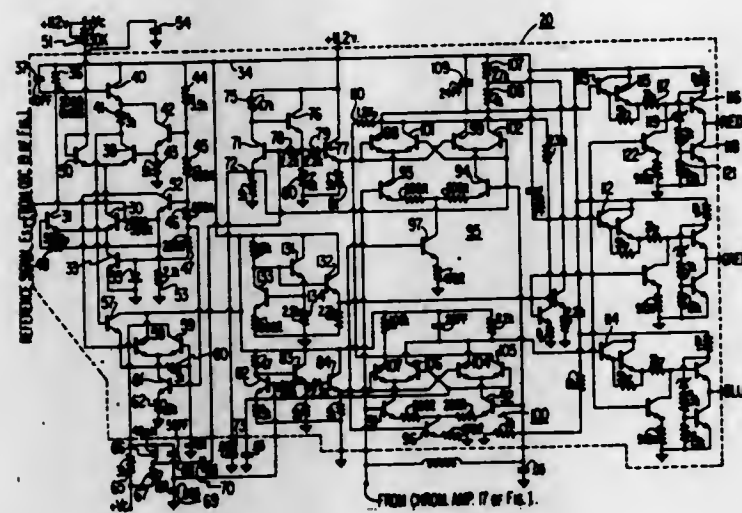
An electrical three-phase generator and motor control circuit. The generator is made of three alike wave-generating units in cascade each generating a respective trapezoidal wave corresponding to a respective phase of the generator. Each unit comprises a small detector in series with a control circuit varying the amplitude of the wave proportionately to a control voltage representative of and corresponding to variations of voltage from voltage sources and applied to a motor and an integrating circuit consisting of an integrating amplifier and an integrating capacitor and a double limiter in parallel therewith. The control voltage is developed by a voltage divider across the motor control circuit.

3,597,639
PHASE SHIFT CIRCUITS
Leopold Albert Harwood, Somerville, N.J., assignor to RCA Corporation
Filed Dec. 11, 1969, Ser. No. 884,227
Int. Cl. H03k 1/12
U.S. Cl. 307—262 16 Claims

A signal is applied to an input of a differential amplifier including two active devices. The amplifier is biased so that each active device has approximately an equal current flowing therethrough.

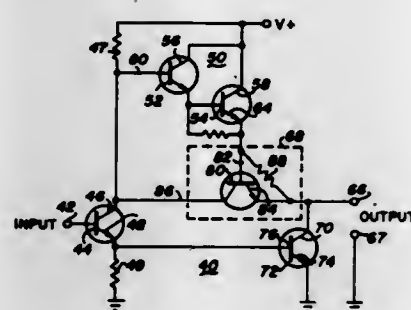
A portion of the signal developed at the output of the first device is applied to an impedance coupled to the output of the second active device. This impedance therefore has current flow due to said signal developed at the output of said first device, and due to the signal of a different phase developed at the output of the second active device. A variable impedance path is also coupled to the output of said second device and serves to control the magnitude of current through said resistor due to the signal developed at the out-

put of said second active device. This control enables the phase of the vector sum of the two signals to vary in ac-



cordance with the magnitude of the signal as controlled by the variable impedance means.

3,597,640
SHORT CIRCUIT PROTECTION MEANS FOR SEMICONDUCTIVE CIRCUIT APPARATUS
James J. Kubinec, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed Apr. 10, 1969, Ser. No. 815,120
Int. Cl. H01L 19/00
U.S. Cl. 307-303 7 Claims

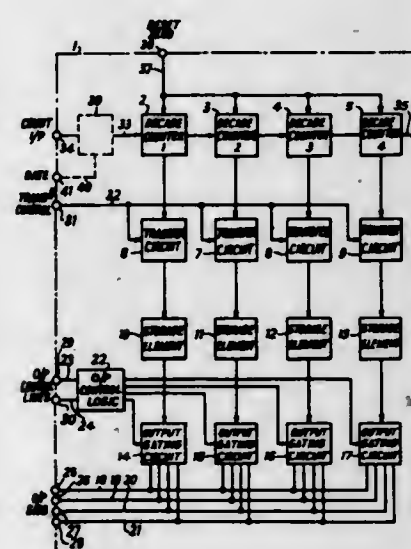


A novel emitter debiasing integrated circuit transistor configuration for providing improved short circuit protection in the output stages of logic apparatus and the like. The spreading resistance of a semiconductor device is incorporated into the output current path of the output stage and the emitter and collector of the device are appropriately connected to shunt the load current through an alternative resistive path in the circuit should the current flow through the spreading resistance exceed a predetermined value which is determined by the emitter debiasing potential of the semiconductor device.

3,597,641
INTEGRATED CIRCUIT CHIPS
Neville Leigh Ayres, Leatherhead Surrey, England, assignor to AMF International Limited, London, England
Filed May 19, 1969, Ser. No. 825,799
Claims priority, application Great Britain, May 17, 1968, 23576/68
Int. Cl. H03k 21/12
U.S. Cl. 307-303 9 Claims

The present invention provides an integrated circuit package having a plurality of package connection electrodes and containing a semiconductor chip, the semiconductor chip having formed thereon a first chain of n first count to X circuit elements each having an individual output, an input terminal to the chain connected to a first of said connection electrodes, a reset terminal for the chain connected to a second of said connection electrodes, said first chain being arranged to divide by X^n , a plurality of storage count to X

circuit elements associated one with each of said n first count to X circuit elements, each said storage count to X circuit elements having an individual input and an individual output, a plurality of transfer gate circuit elements interposed one between the individual output of each said first count to X circuit element and the individual input of its associated storage count to X circuit element, each said transfer gate having a control input terminal for a signal to transfer the content of its respective first count to X circuit element to its associated storage count to X circuit element and the input



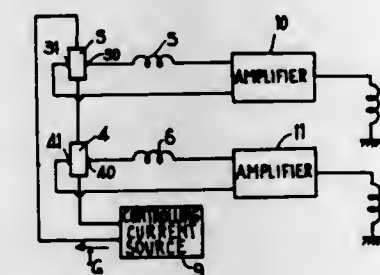
terminals of all said transfer gates being connected to a third of said connection electrodes, and a plurality of output gate circuit elements associated one with each said storage count to X circuit element and connected to the output thereof, each said output gate circuit element having an output connected to a first group of said connection electrodes and a control input terminal operatively connected to a second group of said connection electrodes so that the content of each said storage count to X circuit element may be made selectively available at said second group of connection electrodes.

3,597,642
ELECTROSTRICTIVELY DRIVEN TUNING FORK
Kikuo Kurino, Suwa-shi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Dec. 10, 1969, Ser. No. 883,730
Claims priority, application Japan, Dec. 13, 1968, 43/91113
Int. Cl. H01v 7/00
U.S. Cl. 310-8.2 2 Claims



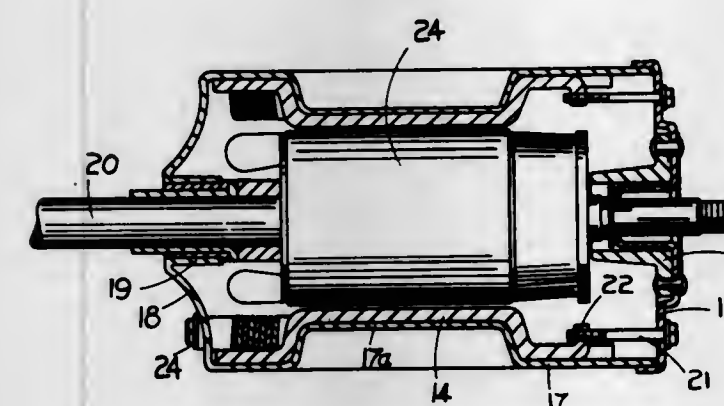
An electrostrictively driven tuning fork having tines of nonuniform thickness and at least one electrostrictive element fixed to the thicker root portion of said tines.

3,597,643
TACHOMETER NEGATIVE FEEDBACK DEVICE FOR A HALL EFFECT DC MOTOR
Marc Bregeault, and Bernard Grancoin, both of Paris, France, assignors to Thomson-CSF
Filed Feb. 11, 1970, Ser. No. 10,398
Claims priority, application France, Feb. 17, 1969, 69/03853
Int. Cl. H02k
U.S. Cl. 310-10 9 Claims



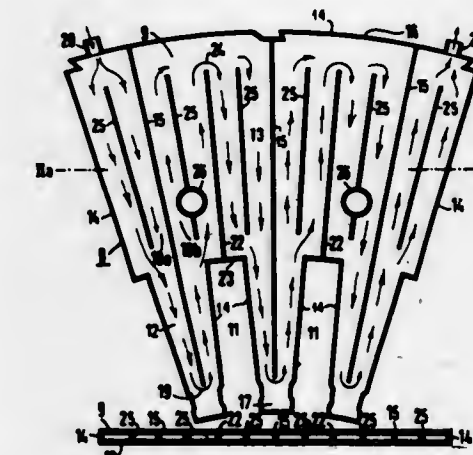
A tachometer negative feedback device, for a Hall effect DC motor having a resolver whose stator carries two Hall generators and whose rotor has p pairs of poles of permanent magnetization, and a motor element, whose stator carries two windings respectively supplied by these Hall generators and whose rotor is similar to that of the resolver and coupled to it. This device comprises two auxiliary coils, respectively associated with the Hall generators and located on the stator of the resolver, at the same predetermined angular distance from their associated Hall generators, to within a multiple of π/p . Each coil is connected in series with its associated Hall generator.

3,597,644
DYNAMO ELECTRIC MACHINES AND YOKE ASSEMBLIES THEREFOR
Kenneth Preece, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Sept. 3, 1969, Ser. No. 854,849
Claims priority, application Great Britain, Sept. 13, 1968, Jan. 14, 1969, 43577/68; 2193/69
Int. Cl. H02k
U.S. Cl. 310-40 1 Claim



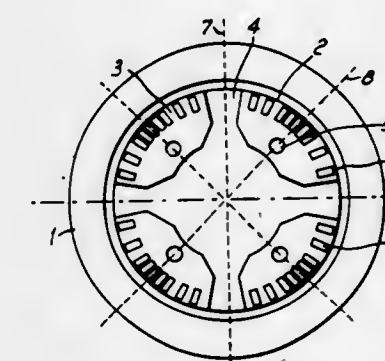
In a dynamo electric machine, the poles of the machine are recessed on their outer faces and are contained within a casing which is deformed into the recesses to thicken the poles. Some of the poles have tags for receiving bolts holding in position an end bracket defining one bearing for the rotor assembly. The poles may be in two portions, with the two portions defining a space for receiving the stator winding of the dynamo electric machine.

3,597,645
LIQUID COOLING SYSTEM FOR STACKS OF STATOR LAMINATIONS OF ELECTRICAL MACHINERY
Heinrich Duffert, and Werner Flach, both of Mulheim, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed June 25, 1969, Ser. No. 836,299
Claims priority, application Germany, June 26, 1968, P 17 63 579.9
Int. Cl. H02k 9/19
U.S. Cl. 310-54 6 Claims



Radially extending cooling slots are provided between adjacent ones of a plurality of stack portions intermediate the end pressure plates of an electrical machine at least in the vicinity of the end pressure plates. Each of a plurality of liquid chamber sections is positioned in a corresponding one of the cooling slots in close thermal contact with each of the corresponding adjacent stack portions. Each of the sections is substantially a sector of an annulus adapted to form an annulus with others of the sections. Each of the sections has teeth formed therein in its area closer to the axis of the annulus. Cooling liquid is supplied to and removed from a plurality of cooling paths formed in each of the sections including the teeth thereof.

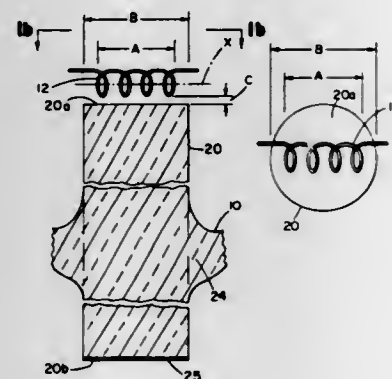
3,597,646
DYNAMOELECTRIC MACHINES
Peter John Lawrenson, 11 Cookridge Ave., Leeds 16, Yorkshire, England
Continuation-in-part of application Ser. No. 633,103, Apr. 27, 1966. This application Jan. 26, 1970, Ser. No. 5,599
Int. Cl. H02k 17/42
U.S. Cl. 310-166 12 Claims



A reluctance motor has a rotor constructed of separate segments of magnetic material and a squirrel cage winding, the conductor bars of which are arranged so that the cross section of conductive material decreases from a maximum in the central regions of the segments to a minimum in the vicinity of the ends of the segments. For example there may be no bars in the gaps and wider bars or bars spaced more closely together in the central regions. Shallow central channels with at least the vestiges of separate slots may be provided, the slots serving to maintain the value of the direct axis leakage reactance of the rotor winding. Towards the segment ends the slot shapes may be varied to reduce leakage

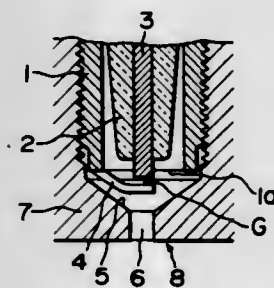
reactance and increase the resistance. In addition, the segments may be provided with tips extending circumferentially outwardly. Also, holes may be provided close to the bases of the winding slots to cause saturation of the magnetic material between the holes and the slots. Yet again flux barriers may be provided beneath the winding slots.

3,597,647
FILAMENT RADIATION SOURCE
Michael L. Rishton, Reading, Mass., assignor to Dyonics, Inc., Woburn, Mass.
Filed Oct. 23, 1969, Ser. No. 868,727
Int. Cl. H01j 5/16
U.S. Cl. 313-110 15 Claims



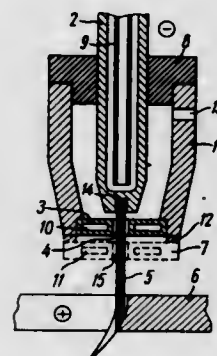
Filament radiation source in which an elongated collector-emitter rod protrudes through the bulb envelope, with a collector face immediately adjacent the filament inside the envelope and an emitting face spaced substantially beyond the envelope wall. Deposit of filament substance on the collecting face is avoided in light source applications by use of the halogen cycle. The source is shown mounted by the rigid rod for simple, accurate positioning, interfacing at a cool region with fiber optic light pipes. Axisymmetric relation of the collector emitter to the remainder of the bulb enables fitting into small cylindrical housings. Side mounting of the rod enables multiple rods to be employed.

3,597,648
COMBINATION OF SPARK PLUG AND COMBUSTION CHAMBER HAVING CONNECTED CONICAL AND CYLINDRICAL SECTIONS
Masao Shibagaki, Asa-gun, and Ikuo Ogasawara, Nagoya, both of, Japan, assignors to Toyo Kogyo Co., Ltd., Aki-Gun and NGK Spark Plug Co. Ltd., Nagoya, Japan
Filed Nov. 28, 1967, Ser. No. 686,166
Claims priority, application Japan, Dec. 2, 1966, 41/109731
Int. Cl. H01t 13/54; F02b 53/00
U.S. Cl. 313-143 2 Claims



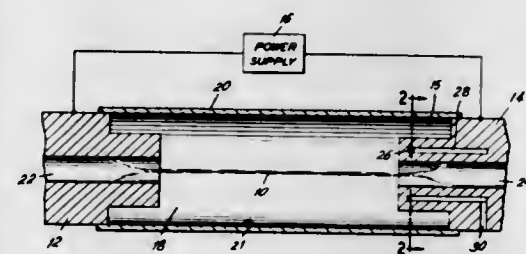
A spark plug for use in a rotary engine, having an outer electrode projected from the lower end surface of the metal shell of the spark plug along and spaced apart from an inverted conical surface of an ignition opening of the rotary engine to locate a spark discharge gap near a combustion chamber.

3,597,649
DEVICE FOR PLASMA-ARC TREATMENT OF MATERIALS
David Grigorievich Bykhovsky, Konjushenny pereulok, 1/6, kv. 18, and Alexandr Yakovlevich Medvedev, ulitsa Kalyaeva, 3, kv. 4, both of Leningrad, U.S.S.R.
Filed Feb. 11, 1969, Ser. No. 798,348
Claims priority, application U.S.S.R., Feb. 15, 1968, 1,218,055
Int. Cl. H01j 17/04 3 Claims



A device for plasma-arc treatment of materials in active media wherein the cathode is made of hafnium which extends the service life of the cathode.

3,597,650
ARC RADIATION SOURCES
John E. Anderson, Katonah, and Richard C. Eschenbach, Somers, both of, N.Y., assignors to Union Carbide Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 652,384, June 12, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 461,874, June 7, 1965, now abandoned. This application Sept. 23, 1969, Ser. No. 865,230
Int. Cl. H01j 7/24 4 Claims

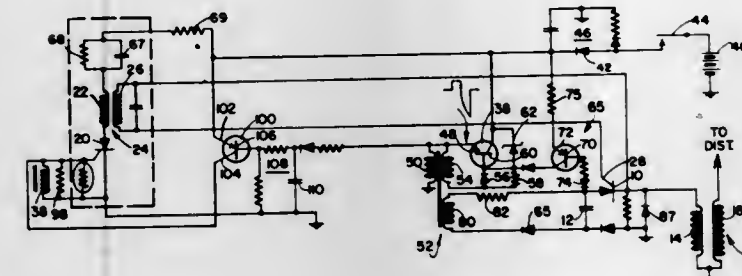


A high pressure arc radiation torch provided with spaced tubular electrodes having axially aligned gas exit passages; an envelope of transparent material surrounding said electrodes in concentric relation and providing a pressurized gas chamber; one of said tubular electrodes extending into said chamber to form a relatively thin annular region substantially cylindrical in cross section between the outer surface of said tubular electrode and the inner surface of said chamber, and means for feeding gas into said annular region under conditions to provide strong swirl within the chamber resulting in a highly constricted arc column of substantial length.

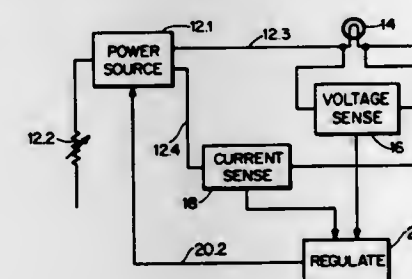
3,597,651
CIRCUIT TO PREVENT ENGINE REVERSAL IN A CAPACITOR DISCHARGE IGNITION SYSTEM
Arthur G. Hufton, Elk Grove Village, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Aug. 22, 1969, Ser. No. 852,312
Int. Cl. H05b 37/02 7 Claims

A resistive element is connected across a variable reluctance pickup used for generating a potential to initially

charge and subsequently discharge the capacitor of an ignition system, thereby shunting a portion of the generated potential to ground. With the ignition system being energized but not operating, a transistor conducts to apply a bias potential to the pickup, to modulate the partially shunted



3,597,652
APPARATUS FOR MAINTAINING THE TEMPERATURE AND OPERATING A CALIBRATED LAMP IN A CONSTANT RESISTANCE MODE
Percival T. Gates, Jr., Weston, Mass., assignor to EG&G, Inc., Bedford, Mass.
Filed Jan. 14, 1969, Ser. No. 790,984
Int. Cl. H05b 41/16, 41/24 8 Claims

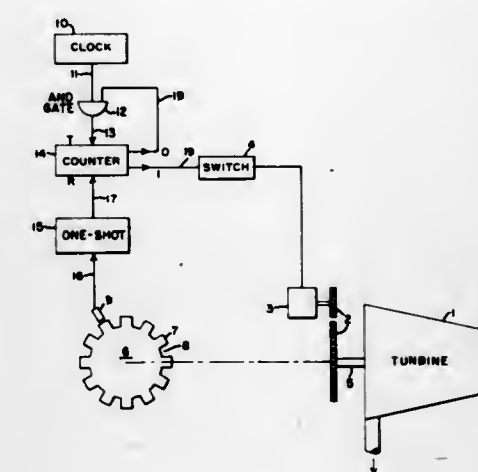


The resistance of an incandescent lamp filament, subject to ambient variations, is determined by sensing the current and voltage of the lamp filament. Since the resistance is a known function of the temperature of the filament, changes in the temperature of the filament are sensed to provide an output correction signal to a power supply which adjusts the input parameters of the lamp to maintain filament temperature constant.

3,597,653
DIGITAL LOW SPEED SWITCH
James H. Moore, Scotia, and Ernest J. Schirmer, II, Highland, both of, N.Y., assignors to General Electric Company
Filed Apr. 17, 1970, Ser. No. 29,531
Int. Cl. H02p 6 Claims

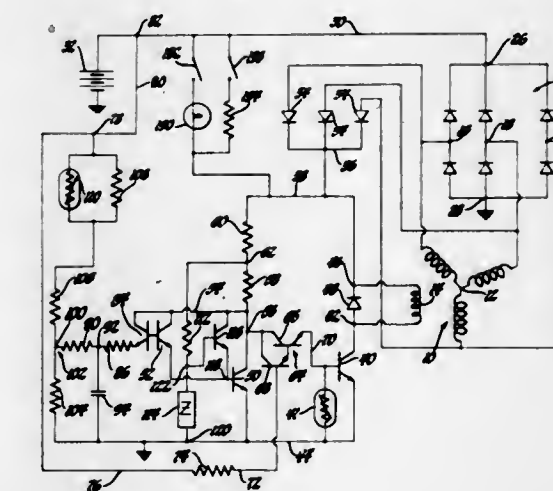
A low speed indicator for detecting very low speeds of a rotating shaft has digital logic elements and a single sensor so that if shaft rotation stops or falls below the desired minimum speed, the device will actuate a switch to sound an alarm or automatically engage the turning gear of a turbine. A digital clock generates a preset frequency of pulses which is compared to the frequency of pulses generated by a sensor posi-

tioned near a toothed wheel, on the turbine shaft and if the proper condition exists, a counter produces a logic "1" to ac-



tuates a switch for engaging the turning gear or sounding an alarm.

3,597,654
PROTECTIVE CIRCUIT FOR A VOLTAGE REGULATOR
Glen E. Harland, Jr., and Charles G. Hanson, both of Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Sept. 15, 1969, Ser. No. 858,029
Int. Cl. H02h 3/14, 9/04 12 Claims



A protective circuit for a semiconductor voltage regulator of the transistor type which is used to control the output voltage of a generator. The regulator is adapted to regulate the output voltage of a diode-rectified alternating current generator that is used to supply the electrical loads on a motor vehicle. The generating system includes auxiliary diodes for feeding the field winding of the generator under the control of a switching transistor device which forms a part of the voltage regulator. The protective circuit regulates the output voltage of the generator at a value which is higher than the desired regulated voltage in the event that a disconnection occurs in the system which would otherwise cause a destructive high voltage output from the generator. This protective circuit includes a voltage divider formed in part by a temperature sensitive resistance. The voltage divider is coupled to a semiconductor such as a forward biased diode or a transistor and when the voltage applied to the field circuit of the generator rises to a predetermined value the protective circuit operates to control the output transistor stage of the voltage regulator to limit the output voltage of the generator to a value which is higher than its normal operating value but which is low enough to prevent destruction of the semiconductor components of the voltage regulator.

3,597,655
OVERVOLTAGE PROTECTIVE CIRCUIT FOR
CONSTANT VOLTAGE-CURRENT CROSSOVER
NETWORK

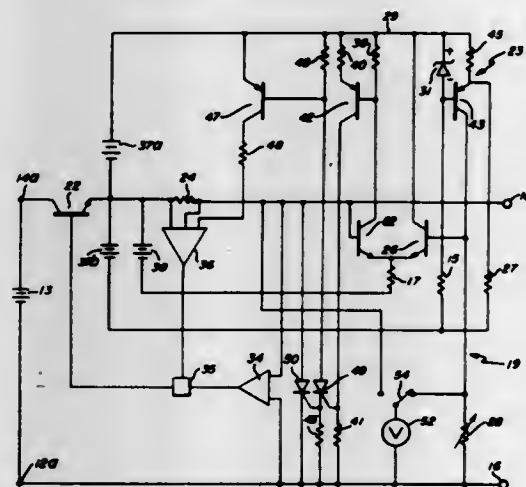
Luciano Forte, Spring Valley, N.Y., assignor to Raytheon Company, Lexington, Mass.

Filed Jan. 26, 1970, Ser. No. 5,503

Int. Cl. H02h 3/20; G05f 1/40

U.S. Cl. 317-16

14 Claims



A crowbar circuit for overvoltage protection of loads in which the setting of the overvoltage crowbar trip point is made without activating the crowbar circuit. Normally, the setting is made by adjusting the power supply to the voltage trip level desired and then setting the crowbar sense network until activation occurs. This procedure is considered dangerous for the load during "online" operation of power supplies. The invention permits setting the crowbar actuation on trip level by meter reading without changing the power supply level.

3,597,656
MODULATING GROUND FAULT DETECTOR AND
INTERRUPTER

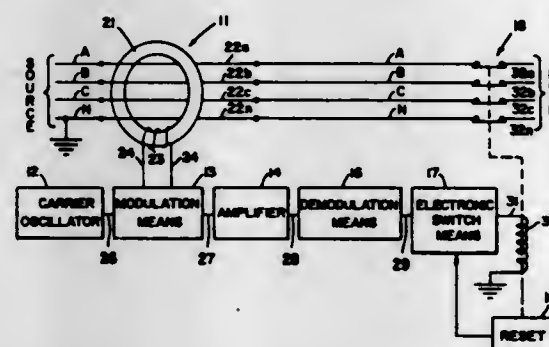
Ellwood S. Douglas, Orinda, Calif., assignor to The Rucker Company, Oakland, Calif.

Filed Mar. 16, 1970, Ser. No. 19,625

Int. Cl. H02h 3/32, 3/28

U.S. Cl. 317-18 R

23 Claims



Ground fault detector and interrupter in which a ground fault signal is modulated onto a carrier signal before it is processed. After processing, the modulated carrier is demodulated, and the fault signal is available for actuating a current interrupter or other monitoring device.

3,597,657
CURRENT LIMITER FOR POWER SUPPLIES
Bo G. Fredrickson, San Francisco, Calif., assignor to Lynch Communication Systems, Inc., San Francisco, Calif.

Filed Mar. 17, 1969, Ser. No. 807,669

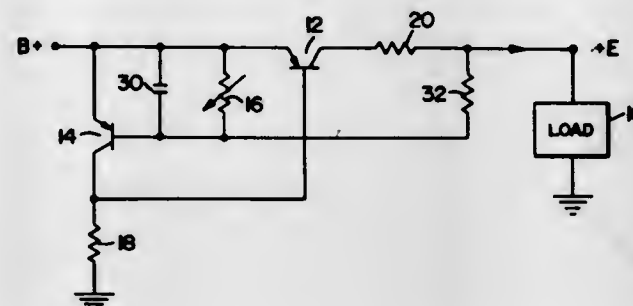
Int. Cl. H02h 9/02

U.S. Cl. 317-22

4 Claims

A self-resetting current limiter for power supplies achieves control of large currents with low-dissipation transistors by providing a normally saturated transistor in series with the

load. A control transistor whose base is connected to sense any overload-caused drop across the saturated transistor controls the base potential of the series transistor in such a manner as to bias the series transistor into a current-limiting condition by a snap action as soon as an overload occurs. The resulting additional drop across the series transistor



locks the control transistor in the current-limiting control condition. When a decrease in load increases the load voltage to a level sufficient to unlock the control transistor, the series transistor snaps back into its normal condition. The parameters of the circuit can be made such that release of the control transistor cannot occur until the load is well below the overload tripping level.

ERRATUM

For Class 317-230 see:
Patent No. 3,596,370

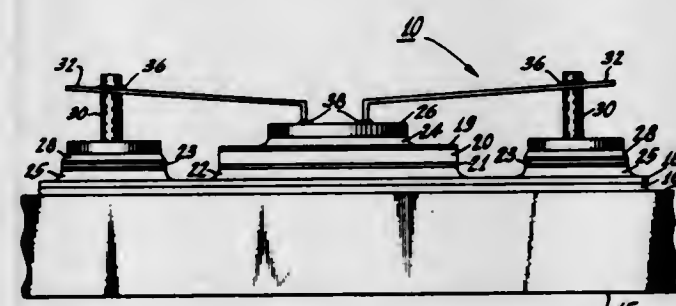
3,597,658
HIGH CURRENT SEMICONDUCTOR DEVICE
EMPLOYING A ZINC-COATED ALUMINUM SUBSTRATE
John Rivera, Raritan, N.J., assignor to RCA Corporation

Filed Nov. 26, 1969, Ser. No. 880,328

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

4 Claims



The device structure includes a zinc layer on an aluminum substrate, and a layer of nickel on the zinc layer. A pedestal member which has a semiconductor device mounted thereon, is joined to the nickel with a brazing material which has a melting temperature below that of the aluminum substrate, and wets well to nickel.

3,597,659
MOUNT FOR ELECTRONIC CIRCUITS AND THE LIKE
AND METHOD FOR MAKING SAME
Carl K. Hoffman; John A. Laster, and George R. Urlich, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 24, 1969, Ser. No. 860,526

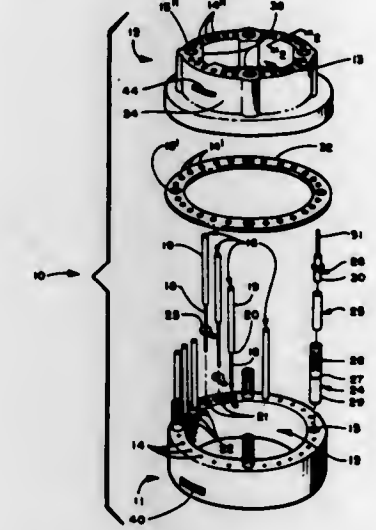
Int. Cl. H02b 1/04

U.S. Cl. 317-101 D

3 Claims

A mount for electronic circuits and the like including two annularly or cylindrically shaped frames mountable one upon the other to form an interior cavity, each frame having a plurality of axially extending holes through the walls thereof to receive a plurality of service conductors, and a plurality of key-shaped tabs extending from the service conductor into the interiorly defined cavity between the two frames, and

being adhesively secured to the other frame. A plurality of coaxial feedthrough conductors may also be axially disposed within the frame walls to carry signals therethrough without disturbing or interfering with the operation of the electronics contained within the cavity. The method for making the mount includes the steps of forming the frames, forming the



key-shaped tabs on a single central support portion of a solder coated sheet, placing and soldering each service conductor in a hole in one of said key-shaped tabs, disposing the service conductors and key-shaped tab assembly within the holes in the frames, affixing the frames together, and removing the central support portion.

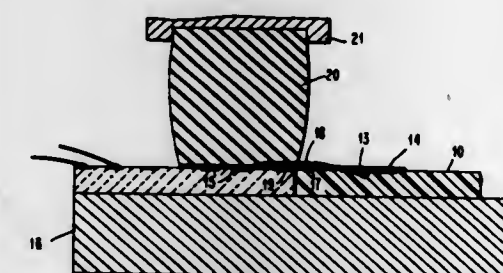
3,597,660
HIGH-DENSITY CIRCUITS CONNECTOR
Stanley M. Jensen, Apalachin; Thomas J. Kopl, Endicott; Vincent P. Subik, Binghamton; Henry R. Tatko, Endicott, and Gordon L. Williams, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 10, 1969, Ser. No. 883,706

Int. Cl. H02b 1/02

U.S. Cl. 317-101 CC

7 Claims



A high-density circuits connector assembly for interconnecting the edge conductors of module circuit boards with the I/O (input/output) circuits conductors of a cabling network of a data processing system. The connector assembly comprises signal and ground overlays formed by printed circuit techniques to provide conductive copper paths affixed to a flexible thin layer of polyimide material which are registered and attached at the edges of the module boards. An interconnecting contact pressure is achieved by a force mechanism comprising a resilient pad directly in contact with the overlays and a pressure-applying mechanism. The overlays function as a matched impedance I/O connector for interconnecting the module circuits boards with the other circuits wiring of a data processing system.

3,597,661
MONITORING AND SHUTDOWN APPARATUS
Sherrill F. Isaacs, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Mar. 13, 1970, Ser. No. 19,205

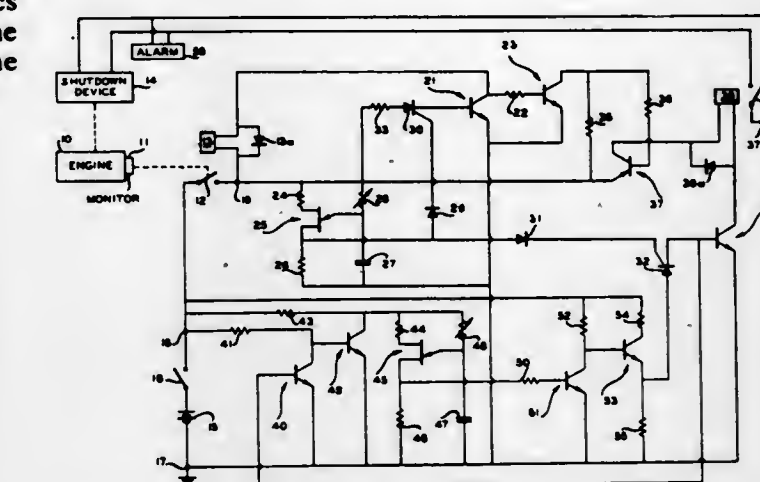
Int. Cl. H01h 47/32

U.S. Cl. 317-135

5 Claims

A control circuit for a monitoring device employs two timing elements of different durations. A signal from the monitor actuates the shorter duration-timing element, and the out-

put from this timing elements actuates the longer duration timing element. An alarm or shutdown control is actuated if



a second signal is received from the monitor during the timing interval of the longer duration-timing element.

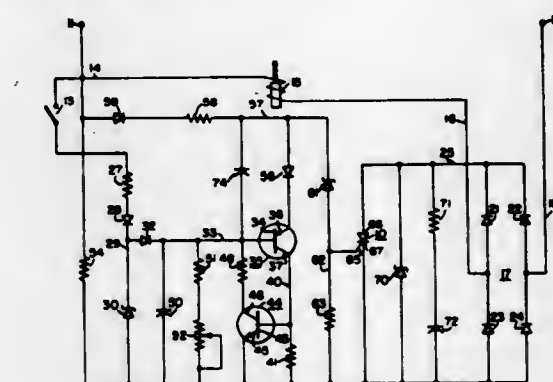
3,597,662
OFF DELAY SOLID-STATE TIME DELAY APPARATUS
Wardell Gary, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 28, 1968, Ser. No. 732,720

Int. Cl. H01h 47/32

U.S. Cl. 317-141.5

11 Claims



An off delay circuit utilizes an output controlled rectifier together with diodes and transistors and an RC network to provide time delay. The controlled rectifier is maintained in conduction by a controllable half cycle trigger current and a half cycle phase shifted load current.

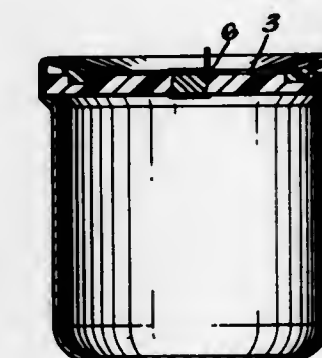
3,597,663
ELECTROLYTIC CAPACITOR HAVING A POURED
ELASTOMER O-RING SEAL
Mark Markarian, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Dec. 17, 1969, Ser. No. 885,778

Int. Cl. H01g 1/02

U.S. Cl. 317-230

7 Claims



An electrolytic capacitor seal is formed by pouring a liquid polymerizable elastomer either on a channel at the outer edge of a capacitor cover or on a ridge formed on the inner

diameter of the capacitor case and curing the elastomer so that it becomes heat resistant and resilient and in effect producing a gasket in situ upon either the cover or the capacitor case.

3,597,664 NIOBIUM-ZIRCONIUM-TITANIUM CAPACITOR ELECTRODE

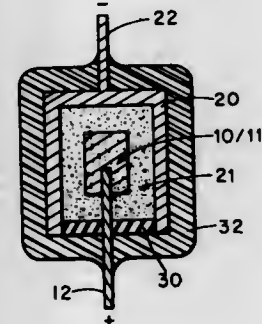
Gerard J. Villani, Needham, Mass., assignor to Norton Company, Worcester, Mass.

Filed Dec. 5, 1969, Ser. No. 882,482

Int. Cl. H01g 9/05

U.S. Cl. 317-230

10 Claims



Electric capacitor comprising an electrode in powder or fabricated part form (e.g. wire or sheet) made of a ternary niobium-zirconium-titanium alloy with an oxide film on the electrode surface as capacitor dielectric. The alloy is selected as to composition and treated to produce and retain the Beta (body-centered cubic) phase. The resultant product affords high-capacitor stability and low leakage approaching the characteristics of the more expensive tantalum at a capacitance cost comparable to or better than that of niobium.

3,597,665 SEMICONDUCTOR DEVICE HAVING LARGE METAL CONTACT MASS

John G. Quetsch, Jr., Anaheim, and Frank J. Sala, Costa Mesa, both, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

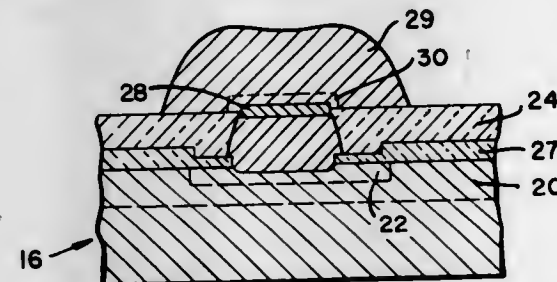
Division of Ser. No. 352,148, Mar. 16, 1964, Pat. No. 3,361,952.

Filed Aug. 14, 1967, Ser. No. 670,487

Int. Cl. H01l 1/14, 9/12

U.S. Cl. 317-234 R

2 Claims



A semiconductor device having a relatively large, low-penetration metal contact mass extending through a passivating layer on a planar surface for assembly or lead attachment. The contact may be formed by silver metal bonded by gold to a silicon device in the plane of the passivating layer with additional metal mass bonded to the first metal mass.

3,597,666 LEAD FRAME DESIGN

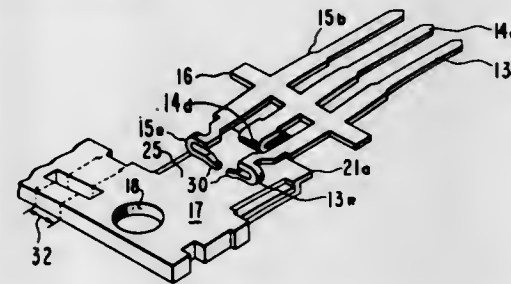
Hugo G. Taskovich, Palo Alto, Calif., assignor to Fairchild Camera and Instrument Corporation, Mountain View, Calif.

Filed Nov. 26, 1969, Ser. No. 879,998

Int. Cl. H01l 5/00

U.S. Cl. 317-234 R

11 Claims



A lead frame strip contains a plurality of groups of leads, each group spring locking a semiconductor die between an extension of the collector lead and extensions of the base and emitter leads prior to soldering the die to the leads.

3,597,667 SILICON OXIDE-SILICON NITRIDE COATINGS FOR SEMICONDUCTOR DEVICES

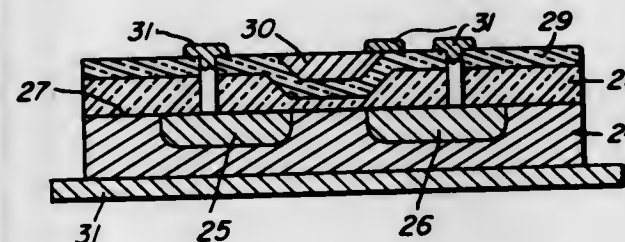
Fordyce H. Horn, Schenectady, N.Y., assignor to General Electric Company

Filed Mar. 1, 1966, Ser. No. 530,811

Int. Cl. H01l 1/100

U.S. Cl. 317-235

11 Claims



Semiconductor devices having improved surface coatings to provide surface passivation and/or electrical insulation include a composite insulating layer. Insulating layer has a first layer of oxide covering and insulating the semiconductor surface. A second layer of silicon nitride is formed over the oxide layer and adds its greater density and lack of permeability characteristics to the insulating characteristics of the oxide.

3,597,668 ELECTROSTATIC CHARGER FOR LIQUID FUEL BY FRICTION

Kunio Yoshimine, Tokyo, Japan, assignor to Goro Fujii, Tokyo, Japan, a part interest

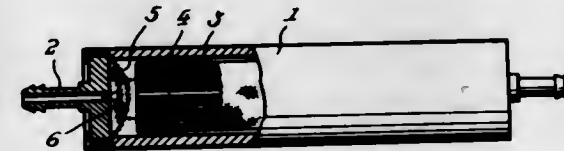
Filed Oct. 16, 1969, Ser. No. 866,990

Claims priority, application Japan, Oct. 17, 1968, 43/75262

Int. Cl. H01g 1/00

U.S. Cl. 317-262

9 Claims



A static charger for electrostatically charging liquid fuel comprises a friction element adapted to be installed within a fuel feed pipe adjacent the carburetor of an internal combustion engine. The friction element comprises a metal sheet or mesh rolled into a roll around a core and frictionally contacts the liquid fuel thereby electrostatically charging the liquid fuel.

3,597,669 ELECTRICAL BRAKING SYSTEM FOR ELECTRIC MOTOR-DRIVEN VEHICLES

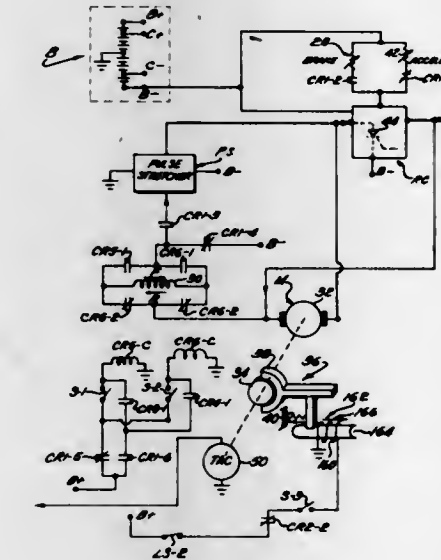
Daniel J. Soltz, Norristown, Pa., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Apr. 30, 1970, Ser. No. 33,181

Int. Cl. H02k 17/14

U.S. Cl. 318-17

19 Claims



An electrical braking system is provided for a vehicle driven by an electric motor, having a field winding arranged so that the vehicle is driven in a direction in accordance with the direction of direct current flowing through the field winding. The system, which is adapted to be carried by such a vehicle, includes a movable brake member adapted to be mounted to the vehicle for movement between a normal first position and a second position. Circuit means, which may include a variable resistor, serves to vary the amount of direct current applied to the field winding in dependence upon the relative position of the brake member between the first and second positions. An electrical sensing circuit is utilized to sense whether the vehicle is traveling in a forward or reverse direction. A current direction control circuit serves to control the direction of direct current through the field winding so as to flow in a direction opposite to that required for driving a vehicle in the sensed direction. In this manner, the electrical motor is electrically braked to thereby retard motion of the vehicle in the sensed direction substantially in proportion to the relative position of the brake member.

3,597,670 DIRECT-CURRENT OPERATED SYNCHRONOUS MOTOR

Walter Kohlhaugen, Elgin, Ill., assignor to The Bunker-Ramo Corporation, Broadview, Ill.

Continuation of application Ser. No. 681,171, Nov. 7, 1967, now abandoned. This application July 1, 1970, Ser. No. 56,102

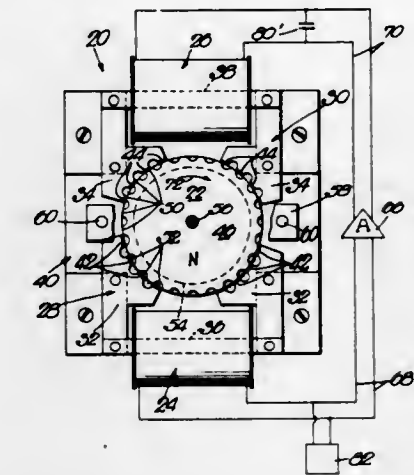
Int. Cl. H02k 29/00

U.S. Cl. 318-138

10 Claims

The disclosure deals with an electromechanical device having a rotor with associated pickup and drive coils, with the signals induced on rotor rotation in the pickup coil being by an amplifier supplied at amplification to the drive coil. The device features frequency control by a high frequency source

such as an oscillator of inherent high rate stability, with the high frequency being injected into the electric circuit of the



device so that this circuit will operate at a frequency which is an invariable submultiple of the high frequency.

3,597,671 MOTOR SPEED SYSTEM WITH SWITCHING FREQUENCY CONTROL

Derek Stanley Adams, Shirley, Solihull, and Michael Ainley Thompson, Birmingham, both of, England, assignors to Joseph Lucas Industries, Limited, Birmingham, England

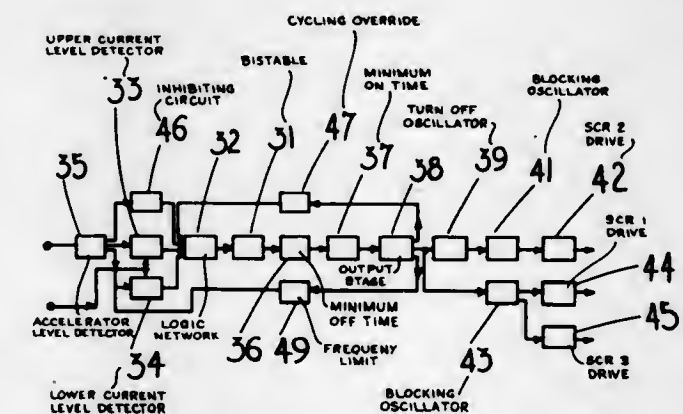
Filed July 10, 1969, Ser. No. 840,674

Claims priority, application Great Britain, July 17, 1968, 33981/68

Int. Cl. H02p 7/28

U.S. Cl. 318-332

8 Claims



An electric traction system and a drive motor, an electronic switching device in series with the motor for controlling current flow through the motor, and a switching circuit for turning the device off at a first current level in the motor and on at the second lower current level in the motor. Manually operable means varies at least one of the current levels for controlling the speed of the motor, and frequency detecting means is provided for detecting the switching frequency and adjusting at least one of the current levels independently of the manually operable means to maintain the switching frequency below a predetermined value.

3,597,672 ELECTRICAL DRIVE SYSTEMS FOR SEWING MACHINES

Henry A. Seesselberg, South Plainfield; Richard Beck, Morris Plains, and Benjamin T. Bernstein, Metuchen, all of, N.J., assignors to The Singer Company, New York, N.Y.

Filed Dec. 30, 1968, Ser. No. 787,797

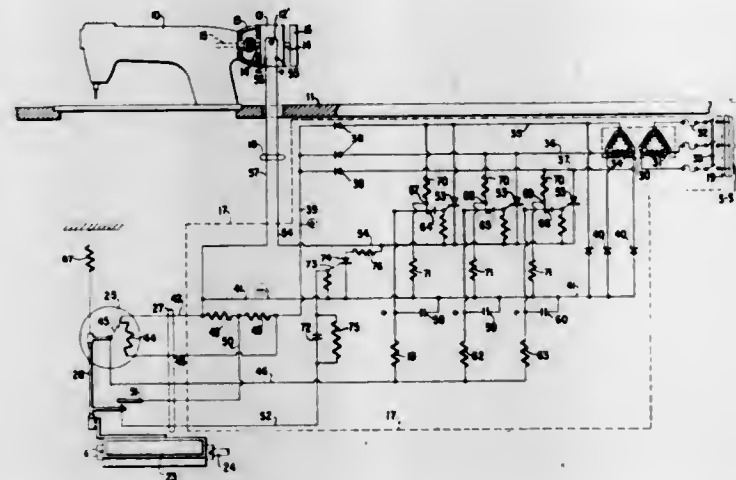
Int. Cl. H02p 3/12

U.S. Cl. 318-269

6 Claims

An electrical drive system for a sewing machine has a low-inertia DC motor drivingly coupled directly to the main shaft of the sewing machine. The motor is preferably of the type having a single low-inertia low-inductance armature im-

mersed in a field of constant flux. A bridge rectifier using sequentially-fired drive-controlled rectifiers supplies variable direct current to the armature from a commercial AC source. A fixed rectifier bridge supplies a reference voltage which is controlled by an operator-actuated controller to phase control the firing of the controlled rectifiers to provide running



speed control. The armature-generated back E.M.F. is used automatically as a speed feedback signal opposed to the reference voltage to provide good speed regulation with respect to load variations. A separate stop controlled rectifier is rendered conductive responsive to a command initiated by the controller to provide dynamic braking of the motor for quickly stopping tee sewing machine.

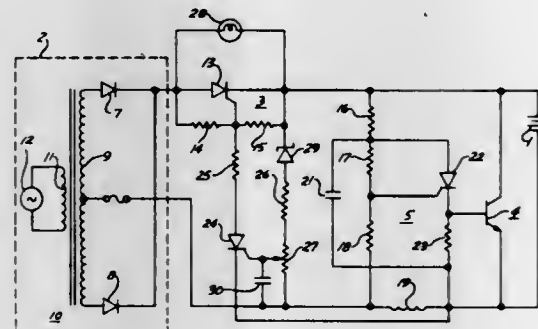
3,597,673

RAPID CHARGING OF BATTERIES

Wilford B. Burkett, Pacific Palisades, and John H. Bigbee, III, Los Angeles, both of, Calif., assignors to McCulloch Corporation, Los Angeles, Calif.
Continuation-in-part of application Ser. No. 744,902, July 15, 1968. This application June 26, 1969, Ser. No. 836,791
Int. Cl. H02j 7/10

U.S. Cl. 320-5

14 Claims

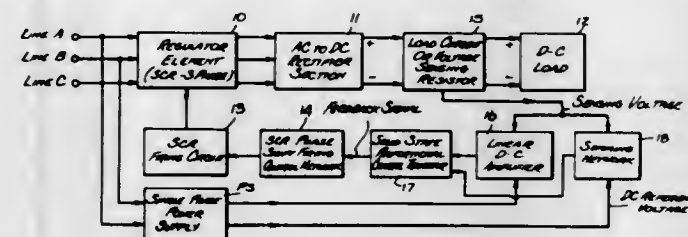


A battery is charged in a very short period of time, for example less than 15 minutes, by applying a charging current that is in excess of the nominal 1-hour rate of the battery with discharge pulses sandwiched between charge pulses, with or without a rest period between the end of the charge pulse and the beginning of a discharge pulse and the end of the discharge pulse and the beginning of a charge pulse. The discharge pulse has a peak value in excess of the nominal 1-hour rate of the battery and the pulse has a short period, for example 1 to 4 microsec. Is, which time may be related to the time associated with the electrochemical characteristics and construction of the cell or cells of the battery being charged. The frequency of the discharge pulses is increased as the terminal voltage and charge of the battery increases. The charging at the high rate is terminated or converted to a trickle charge when the terminal voltage of the battery exceeds a selected voltage level associated with the desired level of charge in the battery. The disclosure relates to both the method of rapid charge and apparatus for rapid charging.

3,597,674
SOLID-STATE REGULATION OF POWER SUPPLIES
Harold G. Abbey, 1130 Parker Ave., Detroit, Mich.
Filed June 11, 1969, Ser. No. 832,157
Int. Cl. H02m 7/12

U.S. Cl. 321-5

9 Claims



A regulated power supply in which voltage from an AC power line is supplied through a power-regulating element, such as an SCR device, to a rectifier section whose DC output is supplied to a load. A relatively small sensing voltage, linearly reflecting current or voltage changes in the load circuit, is applied through a linear amplifier to the base of a proportional control transistor circuit. The sensing voltage, combined algebraically with a reference voltage is also applied to the emitter to produce in the collector output circuit a feedback voltage which is linearly proportional to the sensing voltage throughout a broad range. The feedback voltage is applied to the regulator element to adjust the output of the supply so as to compensate for said changes in the load circuit and thereby maintain a constant DC output.

3,597,675

PULSE WIDTH MODULATED DC POWER SUPPLY

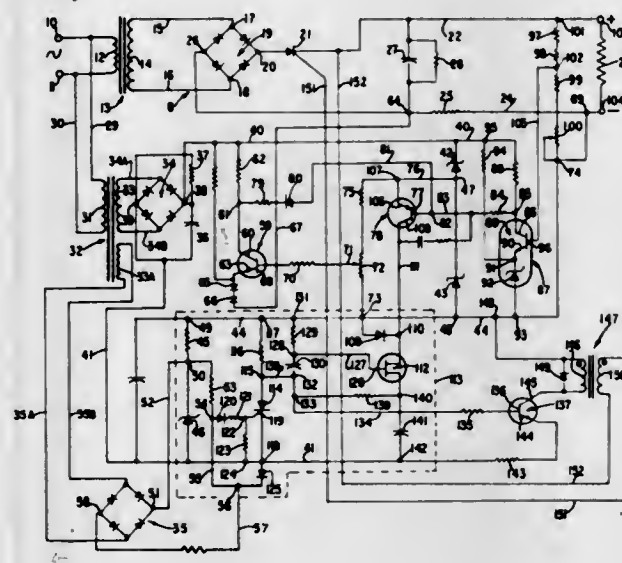
John E. Peek, Addison, and Milan Smrcka, Hickory Hills, both of, Ill., assignors to Sola Basic Industries, Inc., Milwaukee, Wis.

Filed May 12, 1969, Ser. No. 823,875

Int. Cl. H02m 1/08; H02h 7/14

U.S. Cl. 321-14

7 Claims



An AC to regulated DC power supply utilizing pulse width modulation wherein the output side of a high leakage reactance transformer or the like is directly connected to a rectifying bridge, a regulating thyristor is serially connected in the output from the bridge, and a capacitor is connected across the output lines of the bridge on the load side of the thyristor. Voltage and/or current regulation is provided by a control circuitry for the thyristor which includes voltage node control of a unijunction timing circuit wherein the timing cycle is controlled by a periodically pulsed SCR.

ERRATUM

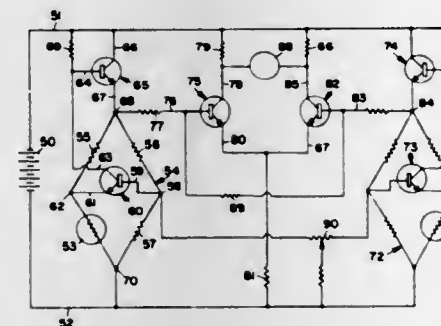
For Class 321-43 sec:
Patent No. 3,596,369

3,597,676
THERMISTOR CIRCUIT FOR USE IN AN ANGULAR MOVEMENT SENSING DEVICE
Alvin G. Moore, Cumberland, Md., assignor to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of application Ser. No. 632,239, Apr. 20, 1967, now Patent No. 3,500,691. This application June 5, 1969, Ser. No. 830,825
Int. Cl. G05f 1/58

U.S. Cl. 323-20

3 Claims



A circuit for measuring the difference in cooling imposed upon two thermistors, which circuit is particularly adapted for use in a sensing device wherein a fluid jet is deflected relative to the thermistors in response to angular movement, and comprises a bridge for electrically heating each thermistor and thus lowering its resistance until the bridge is balanced, and a difference in the power consumption required to maintain each thermistor at its equilibrium temperature is an indication of the unequal cooling imposed upon the thermistors, which, in a fluid-jet-type angular rate sensor, is an indication of the deflection of the fluid jet from a centered condition relative to the jets which is in turn an indication of the rate and direction of angular movement.

3,597,677

STROBOSCOPIC SPARK ADVANCE MEASURING APPARATUS

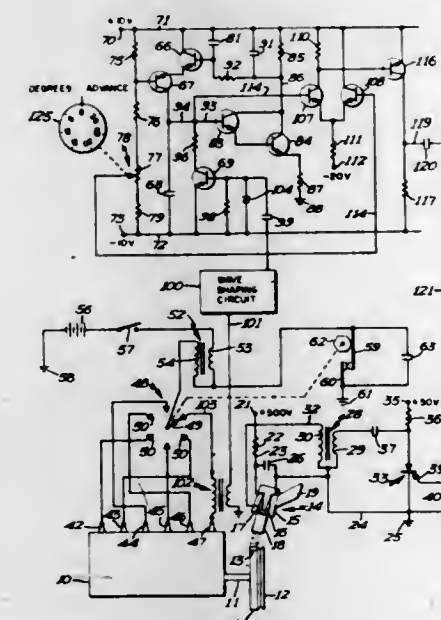
Richard S. MaC Crea, New Brighton, and Joseph A. Marino, Hopkins, both of, Minn., assignors to Marquette Corporation

Filed Oct. 28, 1968, Ser. No. 771,133

Int. Cl. F02p 17/00

U.S. Cl. 324-17

7 Claims



Apparatus for determining the spark advance of an internal combustion engine by the use of a stroboscopic lamp in which a sawtooth voltage is initiated with the occurrence of a regularly repeating electrical impulse such as the firing of a particular spark plug and in which the stroboscopic lamp is energized during each cycle of the sawtooth voltage when the instantaneous amplitude of the sawtooth voltage reaches a

predetermined value, the selected value of the instantaneous amplitude being determined by an adjustable means which selects a portion of the sawtooth voltage and applies it to a voltage comparison circuit which in turn controls the conductivity of the lamp. The adjusting means is calibrated in degrees of the cycle of the operation of the engine. The amplitude of the sawtooth voltage is determined by a capacitor charging circuit and the timing rate of the capacitor charging circuit is adjusted in accordance with its maximum amplitude to maintain the same constant.

3,597,678

APPARATUS FOR SENSING THICKNESS VARIATIONS, DISCONTINUITIES, AND THE LIKE IN ELONGATED STEEL STRUCTURES BY MEASURING VARIATIONS IN MAGNETIC PROPERTIES UTILIZING A FLUX GATE

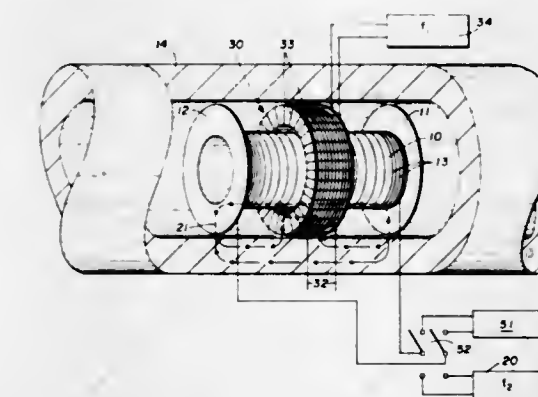
Robert E. Fearon, Tulsa, Okla., assignor to Williams Brothers Company, Tulsa, Okla.

Filed Dec. 24, 1968, Ser. No. 786,657

Int. Cl. G01r 33/12

U.S. Cl. 324-37

12 Claims



A ferromagnetic pipe section is magnetically energized parallel to its axis at a low frequency and flux intensity, and a subsection of the energized section is sensed circumferentially to generate a signal responsive to changes in the magnetic character of the pipe comprising the said subsection. The sensing apparatus includes an annularly shaped, axially outwardly facing channel containing a circumferentially wound sensing coil surrounded by a toroidal gating coil. Associated circuitry generates a signal indicative of changes in the magnetic character of the subsection of the pipe sensed.

3,597,679

DEVICE FOR MEASURING MAGNETIC FIELD STRENGTH USING A HALL PROBE AND COMPRISING MEANS FOR SUPPRESSING ALTERATIONS OF THE HALL VOLTAGE DUE TO TEMPERATURE FLUCTUATIONS

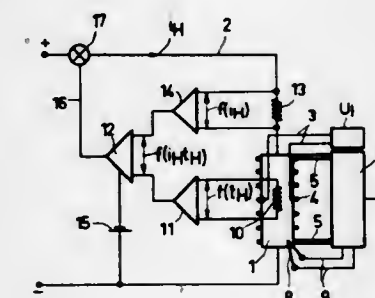
Karl Eugen Habfast, Bremen, Germany, assignor to Varian Mat GmbH, Bremen, Germany

Filed Mar. 10, 1969, Ser. No. 805,447

Claims priority, application Germany, Mar. 13, 1968, P 16 16 916.6
Int. Cl. G01r 33/06

U.S. Cl. 324-45

3 Claims



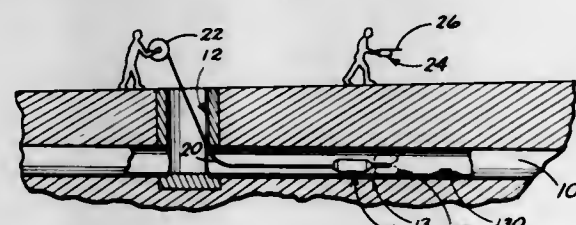
The invention provides a device for measuring magnetic field strength using a Hall probe and comprising means for suppressing alterations of the Hall voltage due to temperature fluctuations, said means comprising a thermal stabiliza-

tion device for the Hall probe and a device for controlling the Hall current in such a way that the Hall voltage remains constant with a constant magnetic field.

3,597,680
METHOD AND APPARATUS UTILIZING A TRANSMITTER AND RECEIVER FOR DETECTING THE PRESENCE OF A METALLIC OBJECT WITHIN A PIPE
 Merrill K. Haddon, Portland, Oreg., assignor to Aquatronics, Inc., Portland, Oreg.
 Filed Dec. 19, 1968, Ser. No. 785,117
 Int. Cl. G01v 3/08, 3/12

U.S. Cl. 324-67

3 Claims

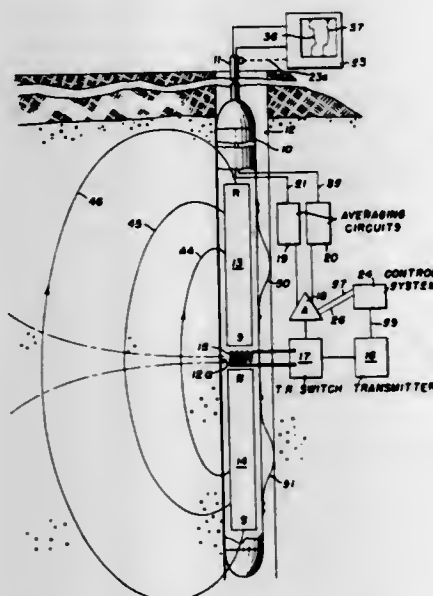


A method and apparatus for exploring an installed, concealed pipe to obtain information such as the location and coarse thereof, and the presence and position of a metallic object lodged therein. The method involves moving an electromagnetic wave transmitter through a pipe with the transmitter operating, and from a point outside the pipe receiving and interpreting the wave transmitted thereto by the transmitter.

3,597,681
NUCLEAR MAGNETIC WELL LOGGING
 William B. Huckabay, Dallas, Tex.; John K. Godbey, Dallas, Tex., and John O. Ely, deceased, late of Lexington, Mass. (by La Verne Barton Ely, executrix), assignors to Chevron Research Company
 Continuation-in-part of application Ser. No. 267,264, Jan. 19, 1952, now abandoned. This application Jan. 30, 1957, Ser. No. 637,313
 Int. Cl. G01n 27/78

U.S. Cl. 324-0.5

14 Claims

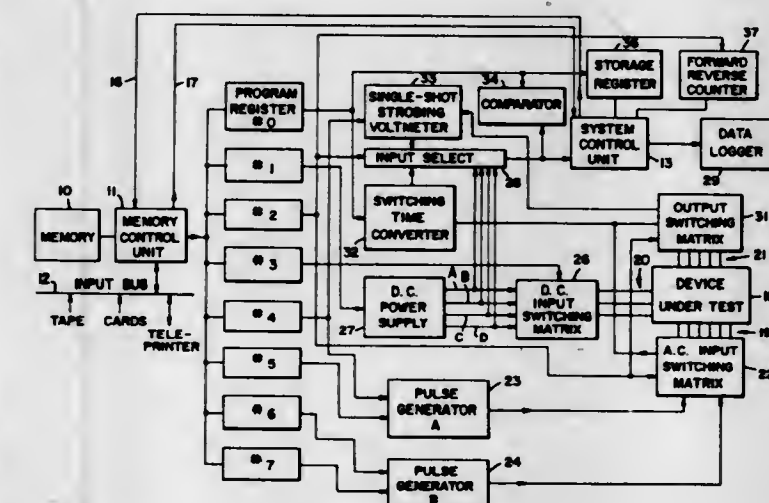


This invention relates to nuclear magnetic resonance well logging where hydrogen nuclei are polarized in a unidirectional field. Free precession of nuclei is established at a measuring level in the well bore by generating a magnetic field at an angle to the unidirectional field and removing the same. Output signals are generated having a frequency characteristic of the precession of the macroscopic moment vector of hydrogen nuclei and a characteristic dependent upon the number of hydrogen nuclei. The output signal is then recorded in correlation with the depth of the measuring level to produce a record indicative of regions in which hydrogen atoms are concentrated.

3,597,682
PROGRAMMABLE TESTING UNIT FOR SINGLE SHOT TESTING
 John C. Hubbs, Lafayette, and Thomas E. Castanera, Oakland, both of, Calif., assignors to E-H Research Laboratories, Inc., Oakland, Calif.
 Filed Nov. 12, 1968, Ser. No. 774,798
 Int. Cl. G01r 15/12

U.S. Cl. 324-73 AT

3 Claims



A programmable testing system for testing large scale array integrated circuits and similar devices having several inputs and outputs. The device is coupled from an input standpoint to two pulse generators and several DC power supplies and from an output standpoint to a single-shot strobing voltmeter and a single-shot-switching time converter. The pulse generators, DC power supplies, switching time converter, and single-shot strobing voltmeter are programmed by individually coupled and separate program registers preloaded with instructions from a core memory. A system control unit controls the filling or loading of these program registers. The program registers also control a switching matrix to couple the device under test and their terminals to the proper inputs and outputs. The control unit senses when the test sequence is over and when the entire test on the device is completed. This provides for a completely automatic testing sequence. When one testing sequence ends and another is to begin only those program registers whose parameters are changed are reloaded thus saving essential time in the testing procedure and effectively utilizing the single-shot capability of the testing instruments.

3,597,683
CURRENT TRANSFORMER UTILIZING AN ELECTROMAGNETIC WAVE, A FARADAY ROTATOR, CIRCULAR WAVEGUIDES, HORN ANTENNAE, AND MODE CONVERTERS TO MEASURE CURRENT IN A HIGH VOLTAGE TRANSMISSION LINE
 Shigebumi Salto, No. 30, 2-chome, Kamiyama-cho, Setagaya-ku, Tokyo; Yoichi Fujii, No. 844, 3-chome, Mama-machi, Ichikawa-shi, Chiba-ken, and Yutaka Ohno, No. 5-1, 4-chome, Saginomiya, Nakano-ku, Tokyo, all of, Japan
 Continuation of application Ser. No. 595,170, Nov. 17, 1966, now abandoned. This application Apr. 24, 1970, Ser. No. 29,749
 Int. Cl. G01r 19/00, 31/00

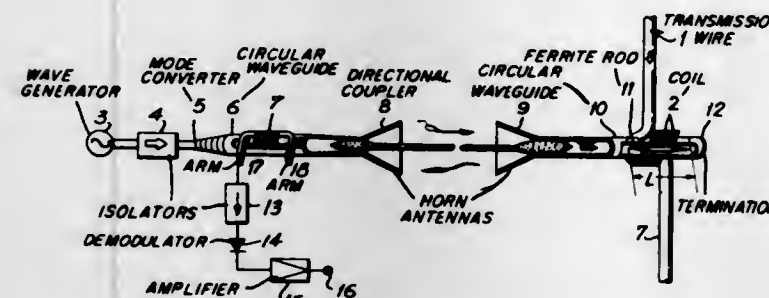
U.S. Cl. 324-96

2 Claims

A laser beam is directed from a ground potential site to a Faraday rotation element provided in the magnetic field produced by the current in high voltage transmission line. The Faraday rotation element rotates a plane of polarization of the laser beam in accordance with the intensity of the magnetic field. The laser beam is transmitted through the Faraday rotation element to a polarization analyzer at the site. The analyzer produces an output proportional to the magnitude of the current in the line. In another embodiment, waveguide means are used to direct an electromagnetic wave from a ground potential site to a Faraday rotation element in

the magnetic field produced by the current in the high voltage transmission line and back to the ground potential site.

thermocouple. This DC voltage causes the meter to indicate the intensity of the electromagnetic field. To prevent error due to electromagnetically coupled energy heating the thermocouple and/or producing a high frequency current which

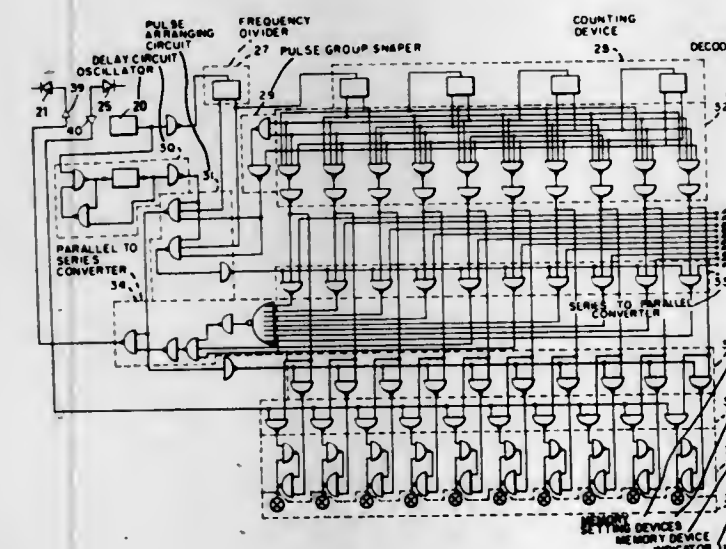


The wave is transmitted and received along the same path between a pair of horn antennae.

3,597,684
OPTICAL METHOD UTILIZING LIGHT MODULATION FOR THE TRANSFER OF INFORMATION FROM ONE POTENTIAL LEVEL TO ANOTHER AND DEVICE FOR THE APPLICATION OF THIS METHOD
 Wei H. J. Damen, Tampere, Finland, assignor to Oy Nokia Ab, Helsinki, Finland
 Filed Feb. 10, 1969, Ser. No. 798,068
 Claims priority, application Finland, Feb. 12, 1968, 363/68
 Int. Cl. H04b 9/00

U.S. Cl. 324-96

7 Claims



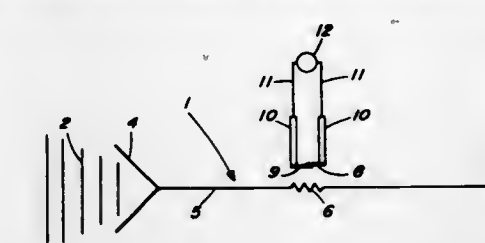
A method for transferring information optically by means of light, which is time division modulated, in such a way that pulse groups, which are time separated and contain a set number of pulses, are generated at ground potential, converted from series to parallel form, and have information added thereto by selectively removing and leaving pulses in the groups. A subsequent parallel-to-series conversion is effected and the resulting pulse groups are transferred by a light emitting means through an insulating means to light sensitive means where the series of pulses is again converted to parallel form and directed to the appropriate indicating circuit.

3,597,685
SEMICONDUCTOR ELECTROMAGNETIC RADIATION ISOLATED THERMOCOUPLE
 Richard T. Ford, Hampton, N.H.
 Filed Apr. 23, 1969, Ser. No. 818,624
 Int. Cl. G01r 5/26, 21/04

U.S. Cl. 324-106

5 Claims

To measure the intensity of an electromagnetic field a thermocouple is connected to a meter and placed adjacent a small resistance in a line carrying current induced by the electromagnetic field. This current produces heat in the resistor which is sensed and converted into a DC voltage by the

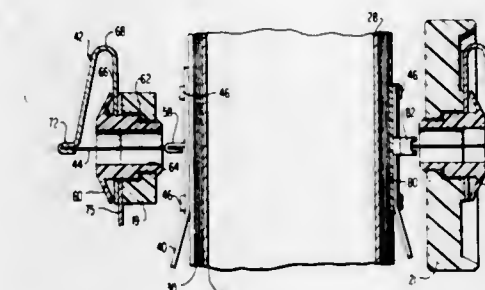


is conducted to the meter circuit from interfering with the meter readings, a physically small thermocouple with semiconductor leads or a semiconductor thermocouple having semiconductor leads is provided.

3,597,686
TAUT BAND SUSPENSION SYSTEM
 John F. Kain, Marblehead; Carl F. Van Bennekum, Lynnfield, and William J. Schultz, Lynnfield, all of, Mass., assignors to General Electric Company
 Filed May 13, 1969, Ser. No. 824,034
 Int. Cl. G01r 1/00

U.S. Cl. 324-154 R

9 Claims

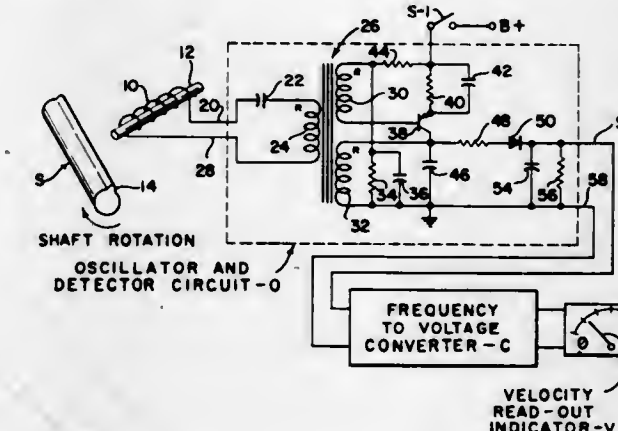


A taut band suspension system for an electrical measuring instrument including a taut band, an inner band anchor connected to an armature assembly and an outer band anchor connected to a frame member. The taut band is "welded" to tab portions formed integrally on each band anchor and located along the axis of rotation of the armature assembly. The taut band is thus welded along a portion of its length and directly along the axis of rotation of the armature assembly which it rotatably supports.

3,597,687
APPARATUS AND METHOD FOR MEASURING VARIATIONS IN THE ABSORPTION OF ENERGY
 William H. Seipp, Davenport, Iowa, assignor to Gulf & Western Industries, New York, N.Y.
 Filed June 20, 1969, Ser. No. 835,041
 Int. Cl. G01p 3/48

U.S. Cl. 324-173

2 Claims



There is disclosed an apparatus and method for measuring the variations in the absorption of energy by a metallic ob-

ject, wherein the apparatus includes a rod of a material which exhibits the characteristic of concentrating a variable magnetic flux, such as for example ferrite, forming a variable airgap with the metallic object, a coil of wire positioned around the rod, for upon energization, transmitting energy to the rod, and oscillator means for applying energy in the form of an oscillating signal to the coil of wire to thereby energize the coil of wire. Also, there is provided detection means for detecting modulations of the oscillating signal resulting from variations in the energy absorption by the metallic object.

3,597,688

PCM TRANSMISSION SYSTEM UTILIZING ANALOG PHASE DISCRIMINATOR FOR BINARY CODE SIGNALS

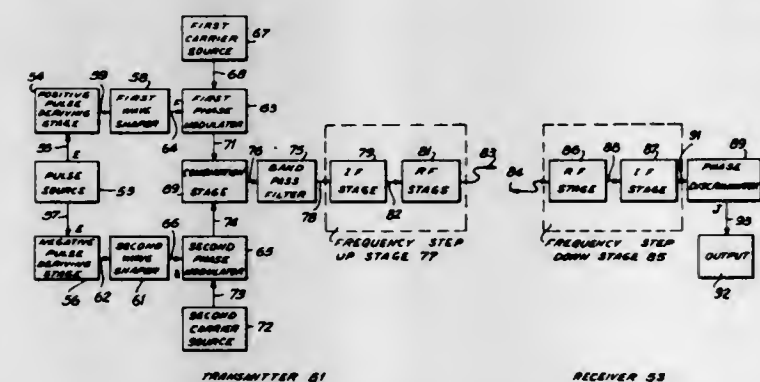
Masaka Ogi, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation-in-part of application Ser. No. 603,386, Dec. 20, 1966, now abandoned. This application Mar. 3, 1970, Ser. No. 016,148

Int. Cl. H04I 27/18

U.S. Cl. 325-30

2 Claims



The transmitter of a PCM transmission system for transmitting binary code signals comprises a wave shaper for shaping binary pulses into a rectangular wave pulse train having positive pulses each having a pulse duration equal to the period from the leading edge of a corresponding one of the binary pulses coincident with the leading edge of the corresponding positive pulse to the leading edge of the next succeeding one of the binary pulses. A phase modulator phase modulates a carrier wave with the rectangular wave pulse train provided by the wave shaper to provide a phase shifted carrier which is then transmitted via wireless.

3,597,689

COMMUNICATION SYSTEM

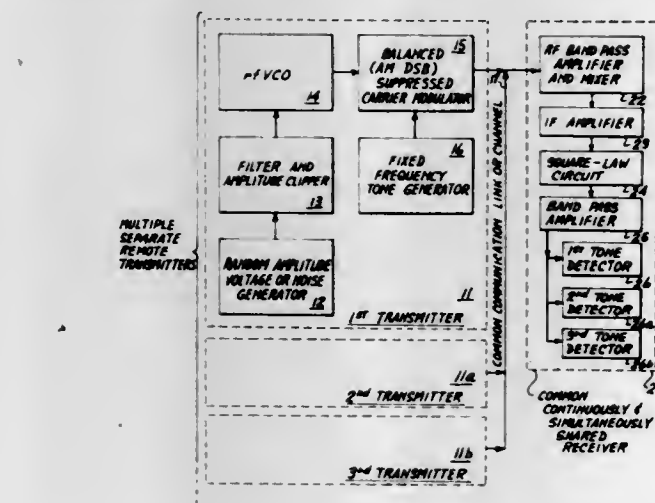
Philip J. Ferrell, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Nov. 14, 1966, Ser. No. 594,244

Int. Cl. H04b 1/100

U.S. Cl. 325-51

1 Claim



This invention relates to communication systems and more particularly to a communication system wherein a plurality of

separate information transmitters can simultaneously transmit information through a common, relatively small bandwidth communication channel to a single commonly-and-continuously shared receiver.

3,597,690

tone control circuit having a frequency-controllable filter

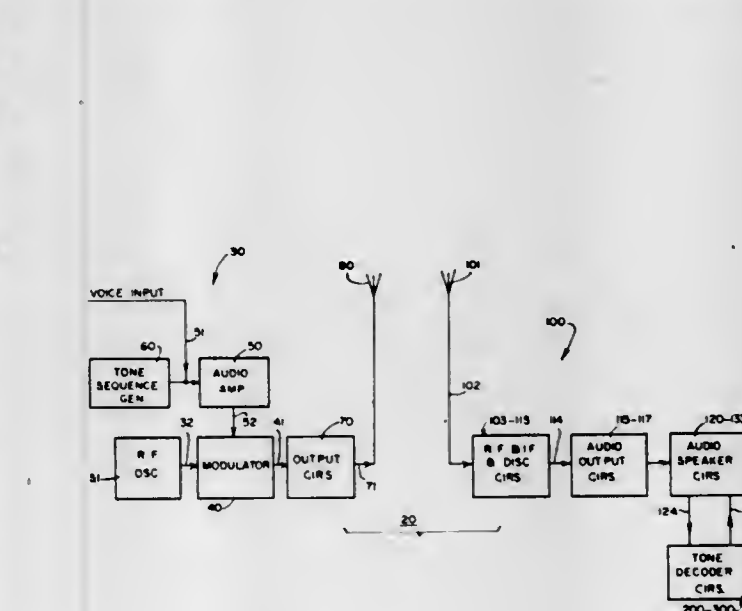
Keith H. Wycott, P. O. Box 308, Lexington, Nebr.

Filed Sept. 11, 1967, Ser. No. 666,645

Int. Cl. H04b 1/04, 1/26

U.S. Cl. 325-64

40 Claims



A tone control circuit is in a receiver adapted to respond to a sequence of control tones alternately selected from a first group of tones in a first band of frequencies and a second group of tones in a second band of frequencies, wherein the two bands are separated by an intermediate band and wherein the time duration of the gap between adjacent tones in the sequence of tones is substantially zero, the tone control circuit including a filter device which is tuned to the frequencies of the control tones as they are received, a plurality of AND circuits corresponding in number to the control tones and respectively having one input coupled to the filter device and another input coupled to the preceding AND circuit so that each AND circuit is operative to produce an output only in the presence of a tone being passed by the filter and an output signal from the preceding AND circuit, the filter device being tuneable either manually or electronically via the outlet signals from the AND circuits.

3,597,691

RADIO TRANSMITTER ANTENNAE COMPRISING A PLURALITY OF OPEN-ENDED COAXIAL CAVITIES AND MEANS FOR EXCITING THEM WITH PULSED ELECTRON BEAMS

Harold Kilner Robin, 17 Broadwater Down, Tunbridge Wells, Kent, and Francis Michael Russell, Abingdon, Berkshire, both of, England

Filed June 19, 1968, Ser. No. 738,335

Claims priority, application Great Britain, June 19, 1967, 28180/67

Int. Cl. H04b 1/04

U.S. Cl. 325-120

13 Claims

A radio antenna suitable for the transmission of high-power signals in the medium and high radiofrequency ranges, includes at least one electromagnetically resonant cavity, each cavity being excited by at least one pulsed electron beam which interacts with the cavity and generates radiofrequency oscillations within it. A radiator element is

mounted on and directly connected to the cavity. Embodiments comprising two cavities and modulation apparatus, for

3,597,693

NONLINEAR DECODER

Joseph Hood McNeilly, Harlow, Essex, England, assignor to International Standard Electric Corporation, New York, N.Y.

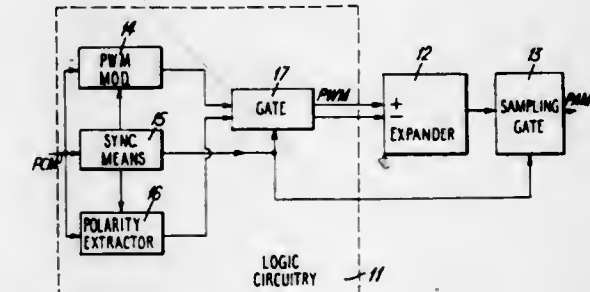
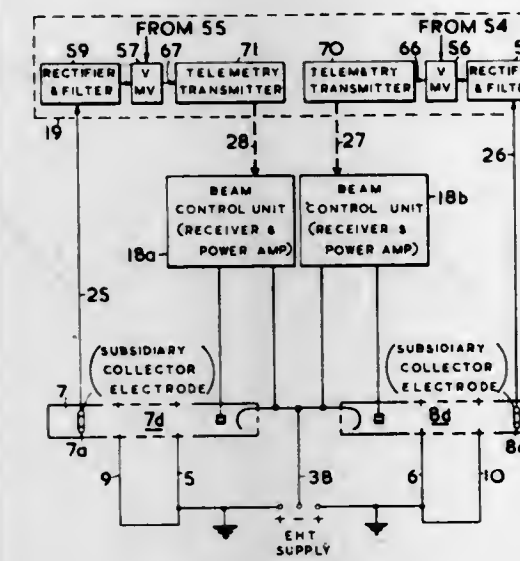
Filed Mar. 1, 1968, Ser. No. 709,617

Claims priority, application Great Britain, Mar. 28, 1967, 13952/67

Int. Cl. H03k 13/16

U.S. Cl. 325-321

10 Claims



modulating the signals transmitted by controlling the relative phases of the electron beam pulses, are described.

3,597,692

PROCESS AND APPARATUS FOR THE SELECTIVE TRANSMISSION OF IMAGES BY TELEVISION SET

Pierre Fanny, Avenue du Manoir 3, Rhode-St-Genese, Belgium

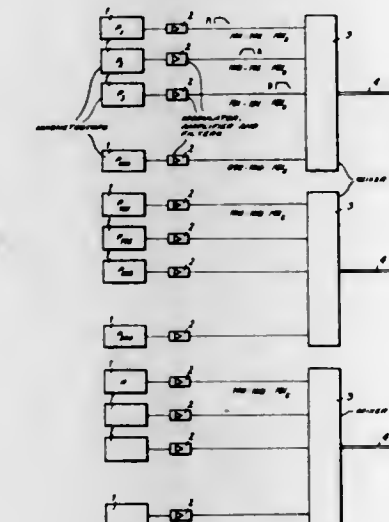
Filed Feb. 10, 1969, Ser. No. 797,838

Claims priority, application Belgium, Nov. 29, 1968, 48550

Int. Cl. H04b 3/02; H04n 7/10, 7/18

U.S. Cl. 325-308

6 Claims



Process and apparatus for the selective transmission of images by ordinary commercial television set, characterized in that it substantially comprises recording program carriers; also recording on said program carriers at least one track for code signals; combining with said program carriers, means for selecting them, running and rewinding them respectively; interpolating between said program carriers and each commercial television receiver; a converter-selector operable by the interested person; coordinating said program carriers and said converter-selectors such that after transmission said program carriers are returned to the ready position and that in addition, in the event that a program selected by the interested person is not free, said person receives an occupied signal.

3,597,694

FM DEMODULATOR SYSTEM FOR FACSIMILE TRANSMISSION

Paul J. Crane, Torrance, Calif., assignor to The Magnavox Company

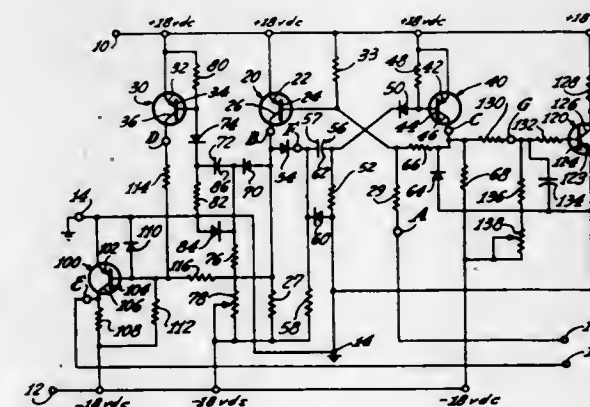
Division of Ser. No. 535,442, Mar. 18, 1966, Patent No. 3,467,772.

Filed Dec. 12, 1968, Ser. No. 798,541

Int. Cl. H03d 3/04

U.S. Cl. 329-126

9 Claims



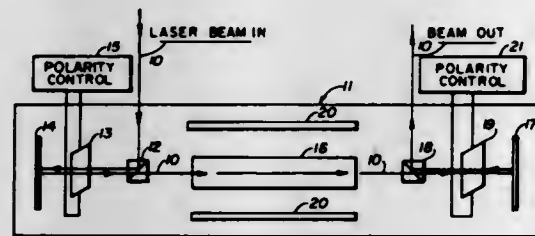
3,597,695 SINGLE-CAVITY REGENERATIVE LASER PULSE AMPLIFIER

James E. Swain; Lloyd L. Steinmetz, and Frank Rainer, all of Livermore, Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed May 23, 1969, Ser. No. 827,255
Int. Cl. H01s 3/00

U.S. Cl. 330-4.3

10 Claims



An apparatus for amplifying laser light by multiple passes through a lasing material in a single laser cavity. A single amplifier stage now achieves what has been previously accomplished by several stages. This is accomplished by a switching mechanism which directs a laser beam into and out of the cavity at selected time intervals, thereby enabling amplification of low intensity laser pulses having a time width anywhere in the range of picoseconds to nanoseconds, to energy levels near the damage limit of the optical components of the system.

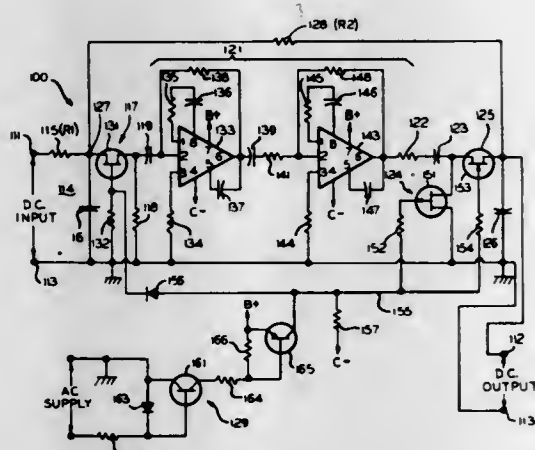
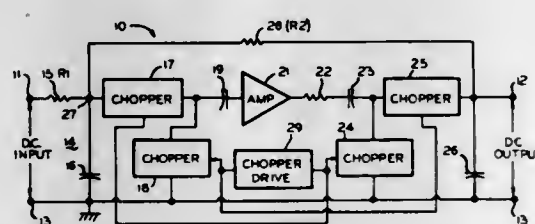
3,597,696 STABLE HIGH-GAIN SOLID STATE DC AMPLIFIER

Karavattuvettil George Rabinathan, Evanston, Ill., assignor to Vapor Corporation, Chicago, Ill.

Filed Sept. 11, 1969, Ser. No. 856,984
Int. Cl. H03f 3/38; H03g 3/16

U.S. Cl. 330-10

7 Claims



A stable high-gain solid-state DC amplifier circuit comprising a low-pass filter connecting a DC supply to an input chopper (either shunt or series connected) that is AC coupled to a high-gain noninverting AC amplifier; the amplifier is in turn AC coupled to an output chopper (again, either series or shunt connected) connected to a storage capacitor, with a negative feedback circuit from the storage capacitor back to the low-pass filter in the input of the input chopper. The two choppers are driven in effective phase opposition, relative to each other, so that the feedback loop is not completely closed at any instant. For improved gain, the

combination of a series chopper and a shunt chopper may be used at either end, or at both ends, of the amplifier circuit.

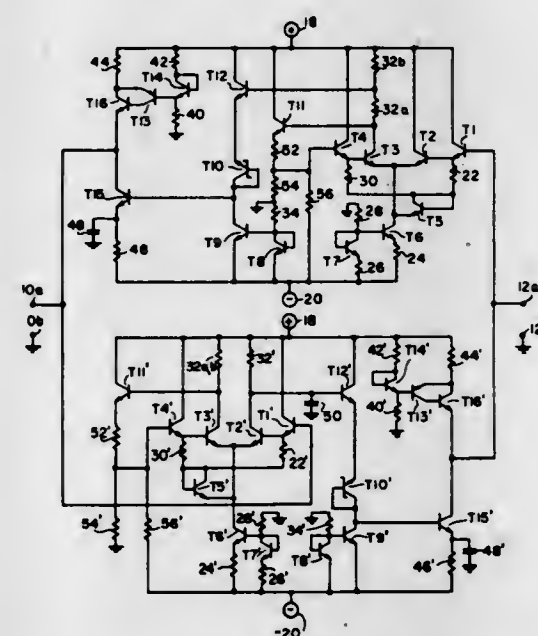
3,597,697 INTEGRATABLE GYRATOR

John Matarese, New City, N.Y., assignor to General Telephone & Electronics Laboratories, Incorporated

Filed July 7, 1969, Ser. No. 839,221
Int. Cl. H03f 9/00, 3/04

U.S. Cl. 330-63

7 Claims



A two-port gyrator circuit which can be manufactured by standard silicon monolithic techniques, is capable of simulating an inductor with a high Q-factor at frequencies ranging from DC to 100 kHz. without compensation, and has low operating voltage and power dissipation requirements. The gyrator circuit is similar to that disclosed in application Ser. No. 839,036, except that the dual power supplies have magnitudes of 6 volts rather than 12 volts. To achieve maximum dynamic range with DC stages and yet to retain the advantages of the gyrator disclosed in application Ser. No. 839,036, a different amplifier having internal gain and external attenuation is provided.

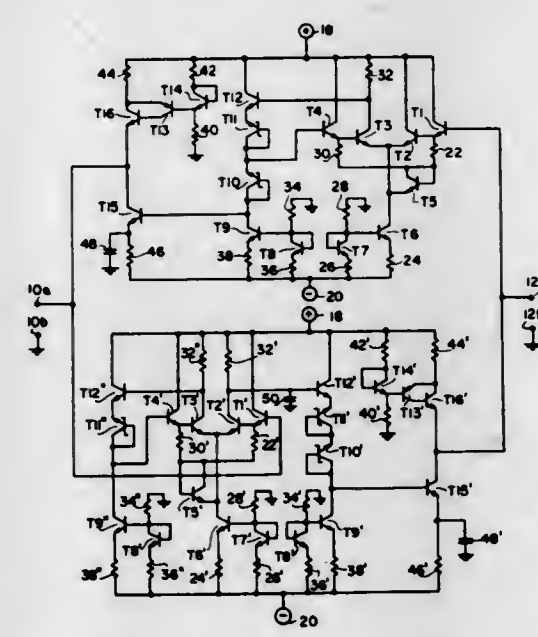
3,597,698 INTEGRATABLE GYRATOR

John Matarese, New City, N.Y., assignor to General Telephone & Electronics Laboratories, Incorporated

Filed July 7, 1969, Ser. No. 839,036
Int. Cl. H03f 9/00, 3/04

U.S. Cl. 330-63

8 Claims



A two-port gyrator circuit which can be manufactured by standard silicon monolithic techniques, and which nevertheless

less is capable of simulating an inductor with a high Q-factor at frequencies ranging from DC to 100 kHz. without compensation. With compensation, the gyrator does not become unstable at frequencies as high as 1 MHz. The gyrator is also insensitive to temperature changes and has a large dynamic range. The improved characteristics are achieved with the use of a modified Darlington pair at each port, the low-current performance of each pair being improved without requiring the use of large resistors. Each of the two voltage-to-current converters includes a difference amplifier with feedback. The output stage of the converter is a complementary pair with the PNP transistor functioning as a constant current source and the NPN transistor being driven in accordance with the output of the difference amplifier. This requires level shifting but greatly improves the high frequency performance.

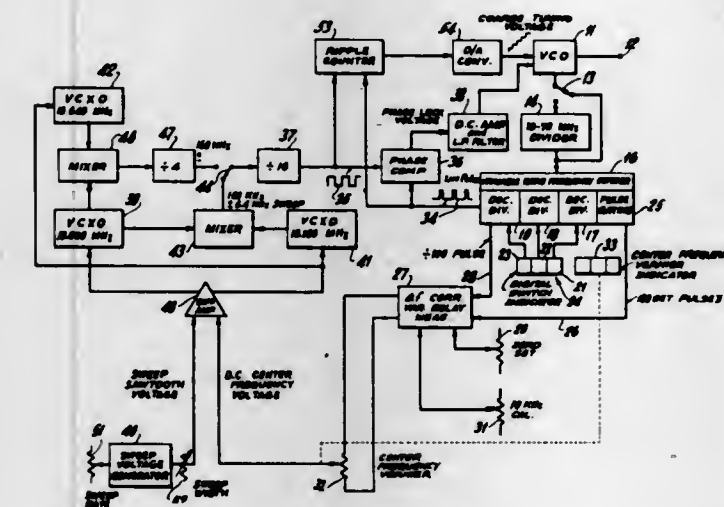
3,597,699 PHASE-LOCKED SWEEP AND CONTINUOUS WAVE GENERATOR

Arnold J. Seipel, Wyckoff, N.J., assignor to Omega Laboratories, Pine Brook, N.J.

Filed Apr. 2, 1969, Ser. No. 812,665
Int. Cl. H03b 3/04

U.S. Cl. 331-18

4 Claims



As in existing frequency synthesizers, the frequency of a main tunable oscillator is controlled by being phase locked to a voltage obtained by comparing a pulse signal of comparable frequency derived by dividing the oscillator signal frequency by the necessary divisor. Binary-coded decimal switches set the divisor in steps equal to the standard frequency. A central feature of the present invention is a calibrated potentiometer supplied with a voltage that is inversely proportional to the frequency of the main oscillator and is of such a magnitude that moving the arm of the potentiometer from one end to the other will vary the frequency of the main oscillator continuously over a range which is equal to the difference between two successive frequencies determined by the switches, no matter what the frequency of the main oscillator may be. The voltage at the arm of the potentiometer is connected to the standard-frequency generator to modify its frequency a certain percentage, and a sweep signal may also be applied to sweep the standard signal over a limited band and thus sweep the signal of the main oscillator over a controlled band while still retaining a phase-locked condition.

3,597,700 HIGH ENERGY GAS LASER PRODUCING A CONTINUOUS ABNORMAL GLOW DISCHARGE IN THE GAS MIXTURE

Auguste Louis Marie Antoine Rouy, 142 Edgemont Road, Scarsdale, N.Y.

Continuation of application Ser. No. 289,626, June 21, 1963, now abandoned. This application Aug. 22, 1968, Ser. No. 755,516

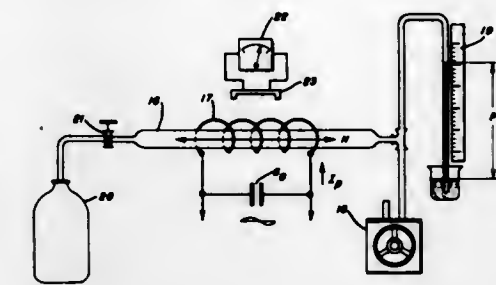
Int. Cl. H01s 3/09

U.S. Cl. 331-94.5

5 Claims

An energizing coil encircles a tubular light-resonating cavity containing a gas mixture, the pressure of the gas mixture

and the ratio of the cavity inside diameter to the coil diameter having predetermined values. A high frequency voltage is



applied to the coil, the magnitude of the voltage being such as to produce and maintain an abnormal glow of the gas mixture substantially over the axial length of the coil.

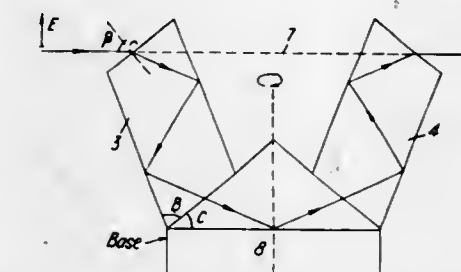
3,597,701 MECHANICAL Q-SWITCHING OF LASERS

Jean Eugene Martial Cornillault, Antony, France, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Feb. 13, 1969, Ser. No. 799,029
Claims priority, application France, Feb. 20, 1968, 140478
Int. Cl. H01s 3/11, 3/02

U.S. Cl. 331-94.5

5 Claims



Apparatus for improving the Q-switching of a laser beam wherein a critical transmission prism is placed in the Fabry-Perot interferometric cavity. In one embodiment, two Lummer-Gehrke plates are joined by their end faces in a V-shape to form said critical transmission prism having an aligned input and output. In a second embodiment, two Lummer-Gehrke plates are joined to a prism to form said critical transmission prism having an aligned input and output.

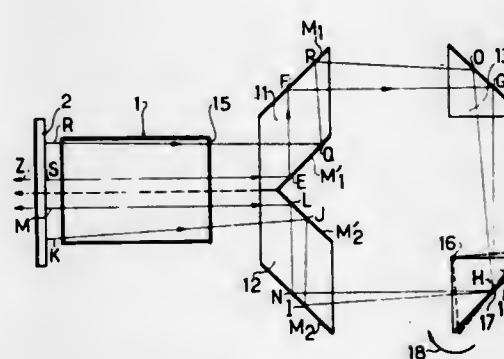
3,597,702 METHOD AND APPARATUS FOR TRIGGERING A SOLID LASER

Roger Dumanchin, Orsay, and Jean-Pierre Bettini, Saint Gratien, both of, France, assignors to Compagnie Generale D'Electricite, Paris, France

Filed Mar. 5, 1969, Ser. No. 804,574
Claims priority, application France, Mar. 6, 1968, 142 631
Int. Cl. H01s 3/05

U.S. Cl. 331-94.5

4 Claims



A process for triggering a laser of a solid bar of active material, consisting of separating the rays emitted from the

bar into two beams and rotating each of the beams in opposite directions so as to render them parallel with the optical axis of the cavity at the same time.

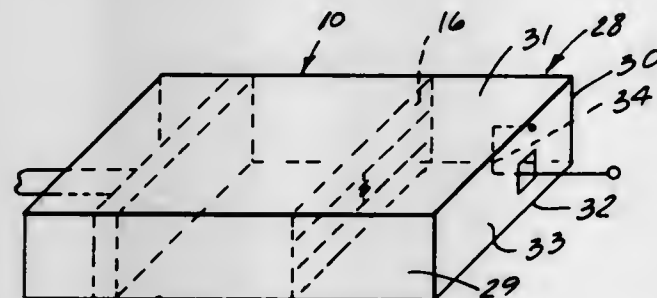
3,597,703

IMPATT DIODE OSCILLATORS

Robert A. Lebowitz, Brooklyn, N.Y., assignor to PRD Electronics, Inc., Westbury, L.I., N.Y.
Filed Nov. 29, 1968, Ser. No. 779,774
Int. Cl. H03b 7/06

U.S. Cl. 331-107 R

1 Claim



A microwave frequency oscillator using an impatt diode in conjunction with a waveguide cavity to provide wideband tunability at high frequencies. An impatt or similar type solid-state device is embedded within a slit which is formed in an end wall of a circular or rectangular waveguide. The waveguide cavity has an effective length which is a multiple of one-half of the wavelength at the center frequency. A quarter wavelength cavity is then coupled to the wall of the half wavelength cavity having the impatt diode. In this way wideband tunability is achieved and an output signal is developed which has a substantially reduced noise content.

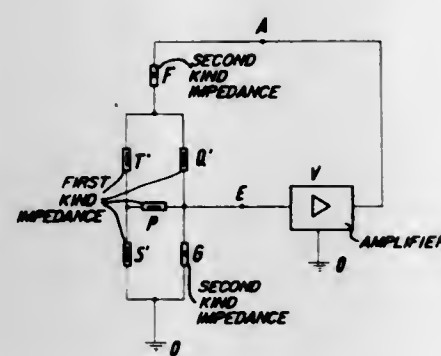
3,597,704

RC BRIDGE VARIABLE FREQUENCY SINUSOIDAL OSCILLATOR

Heinz Steinger, Langenthal, Switzerland, assignor to Hasler, AG, Bern, Switzerland
Filed July 14, 1969, Ser. No. 841,523
Claims priority, application Switzerland, July 17, 1968, 10390/68
Int. Cl. H03b 5/26

U.S. Cl. 331-140

8 Claims

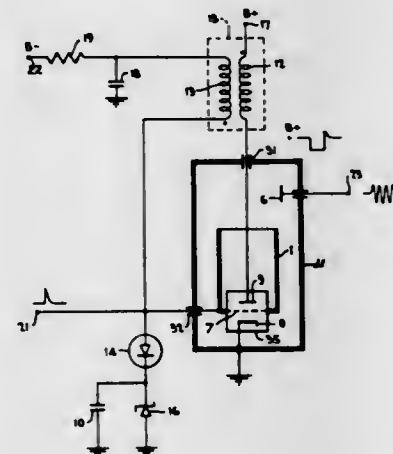


A sinusoidal wave generator comprises an amplifier operating with feedback through an RC bridge network having a first and a second loop. One pole of the first loop is connected through a resistor or capacitor to one pole of the amplifier; the other two poles, being common to both loops, are connected together by a circuit element which may be a single-pole circuit breaker or a variable impedance. One pole of the circuit element is connected to a second pole of the amplifier. The aforesaid pole on the first loop is connected to the common poles by capacitors or resistors. One of the common poles is also connected to a pole on the second loop by a resistor and the other common pole to said pole by a capacitor.

3,597,705
SELF-MODULATING PULSED RF OSCILLATOR
Frank Weiss, Washington, D.C., and Fabian T. Liss, Bethesda, Md., assignors to The United States of America as represented by the Secretary of the Army
Filed Sept. 30, 1963, Ser. No. 312,791
Int. Cl. H03b 1/108

U.S. Cl. 331-166

10 Claims

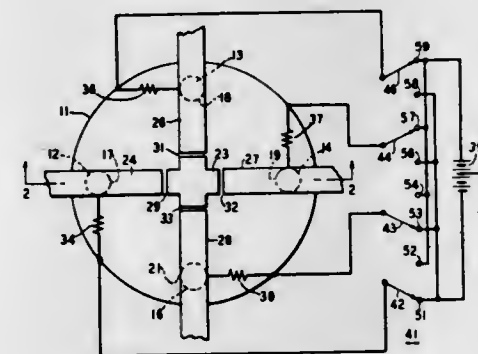


1. A self-modulating source of radio frequency pulses comprising: a resonant cavity; a microwave tube comprising a plate, a grid and a cathode, said microwave tube being connected in said resonant cavity to form a radio frequency oscillator that produces radio frequency energy in said resonant cavity when said microwave tube conducts, the frequency of oscillation of said radio frequency oscillator being determined by the dimensions of said resonant cavity; an output terminal located externally of said resonant cavity; radio frequency energy probe means disposed within said cavity and connected to said output terminal for coupling radio frequency energy generated in said resonant cavity by the conduction of said microwave tube to said output terminal; and blocking oscillator feedback circuit means connected between said plate and said grid of said microwave tube and isolated from the radio frequency energy generated in said resonant cavity when said microwave tube conducts for applying a positive voltage to said grid upon initiation of conduction of said microwave tube and for applying a negative voltage to said grid after the plate current of said microwave tube reaches its maximum value.

3,597,706
STRIP LINE SWITCH
Lynden U. Kibler, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 1, 1969, Ser. No. 862,771
Int. Cl. H01p 5/12

U.S. Cl. 333-7

3 Claims

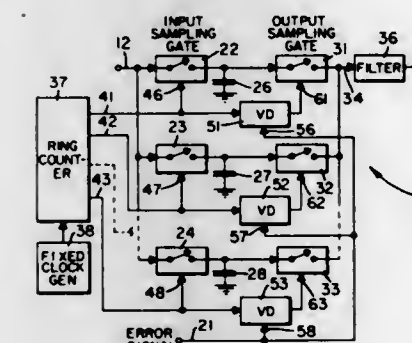


A switch for high frequency use is an integrated strip line structure wherein diodes are in shunt between the source and load and can be selectively biased to produce switching with a minimum of impedance mismatching.

3,597,707
VARIABLE SAMPLE PERIODIC HOLD ELECTRONIC DELAY NETWORK
Sidney S. C. Chao, Palo Alto, and Donald E. Morgan, Saratoga, both of, Calif., assignors to Ampex Corporation, Redwood City, Calif.
Filed Sept. 2, 1969, Ser. No. 854,625
Int. Cl. H03h 7/36; H04b 3/04

U.S. Cl. 333-18

4 Claims

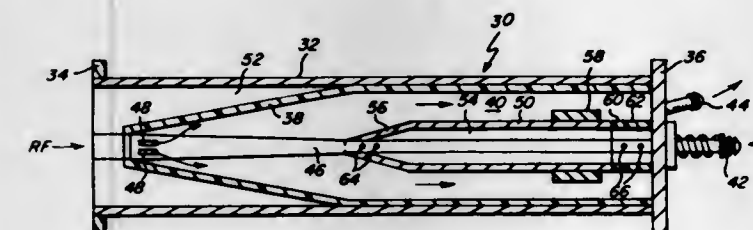


To achieve a variable time delay of an information signal wherein the amount of delay can be continuously varied in response to a control signal, a plurality of paralleled sample and hold networks are arranged to receive the information signal and perform the following operations thereon. First, the magnitude of the information signal is sequentially sampled by a plurality of separate sampling gates, wherein each gate is provided with a separate storage capacitor for holding the sampled magnitude for the time interval between successive operations of the associated gate. The stored signal magnitudes are in turn sampled in succession by a plurality of separate output sampling gates wherein the resulting output signals therefrom are fed to a low-pass filter for eliminating high frequency signal components introduced by operation of the sampling gates. As the time duration between successive operations of the input and output sampling gates determines the amount of delay introduced into the information signal, a plurality of voltage controlled delay means are connected between associated sampling gates and are responsive to the instantaneous amplitude of the control signal to provide continuous adjustment of the gate-timing intervals.

3,597,708
BROADBAND RADIO FREQUENCY TRANSMISSION LINE TERMINATION
Henry W. Perreault, Chelmsford, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Dec. 31, 1969, Ser. No. 889,393
Int. Cl. H01p 1/24

U.S. Cl. 333-22 R

12 Claims

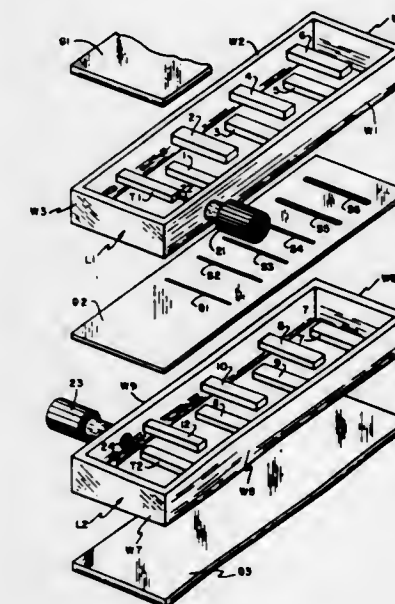


An electromagnetic energy termination device is provided with power absorbing means in a structure having plural reentrant electrical paths in series defined by concentric coaxial conductors within a substantially reduced mechanical configuration. Movement of a fluid dielectric medium within a fluidtight chamber is provided either in parallel or serially along the electrical paths to absorb high average and peak powers at ultrahigh radio frequencies over relatively wide bandwidths.

3,597,709
FILTER HAVING DIRECT AND CROSS-COUPLED RESONATORS
John David Rhodes, Natick, Mass., assignor to Microwave Development Laboratories, Inc., Needham Heights, Mass.
Filed Mar. 24, 1969, Ser. No. 809,674
Int. Cl. H01p 1/20

U.S. Cl. 333-73 R

5 Claims

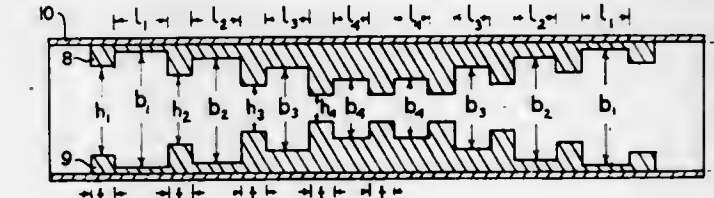


A band-pass filter is constructed from arrays of resonant elements which are coupled in a manner enabling control to be simultaneously effected over the filter's amplitude and group delay characteristics. In each array the resonators are directly coupled in consecutive order and the resonators in one array are cross coupled to resonators in the other array. The direct and cross-coupled arrangement of resonators is in accordance with a mathematical relationship which permits selection of the filter's group delay characteristic and the filter's amplitude characteristic. In accordance with that relationship, multiple paths of different lengths are provided for the wave energy travelling from the input to the output.

3,597,710
APERIODIC TAPERED CORRUGATED WAVEGUIDE FILTER
Ralph Levy, Newton, Mass., assignor to Microwave Development Laboratories, Inc., Needham Heights, Mass.
Filed Nov. 28, 1969, Ser. No. 880,556
Int. Cl. H03h 7/10

U.S. Cl. 333-73 R

4 Claims



A waveguide band-pass filter utilizes a sequence of capacitive irises to form corrugations within the rectangular waveguide. The capacitive irises are aperiodically spaced along the guide and the capacitance of consecutive irises in the sequence are of different values. The waveguide has its height tapering in steps and each capacitive iris in the sequence is situated between waveguide sections of different heights.

3,597,711

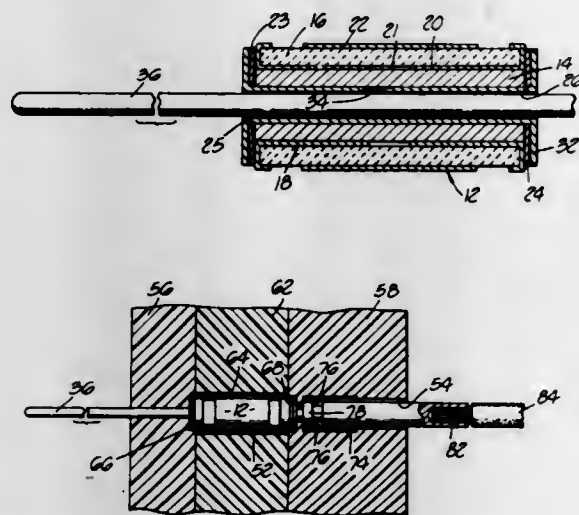
REMOVABLE ELECTRICAL CONNECTOR FILTER
Joseph W. Buckley, Sepulveda, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jan. 23, 1969, Ser. No. 793,264

Int. Cl. H03h 7/14

U.S. Cl. 333-79

2 Claims



The disclosure relates to an electrical connector filter assembly comprising a cylindrical core made of ferromagnetic material and an outer core of dielectric material which is coated by a conductive layer. A pair of conductive spring members having an opening approximately the same as that of the ferromagnetic core are placed at either end of the two core members. A conductive tube having a flange at one end thereof which abuts one of the spring members is inserted through the spring members and the ferromagnetic core and the other end of the tube is then formed against the other spring member. A plurality of inwardly extending tines are formed along the conductive tube for contacting a terminal member which can be inserted through the tube. The assembly provides a removable pi-filter.

3,597,712

SWITCH ELEMENT

Yukio Nakagome, Tokyo; Hiroichi Teramura, Tokyo; Yasuo Fukata, Tokyo, and Sumitoshi Ando, Ohmiya, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan

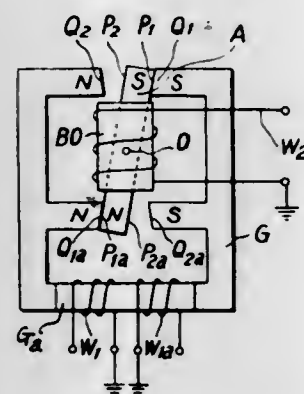
Filed Feb. 9, 1970, Ser. No. 9,560

Claims priority, application Japan, Feb. 10, 1969, 44/9251

Int. Cl. H01h 51/27

U.S. Cl. 335-151

8 Claims



A switch element having at least one pair of contacts to be switched-on and switched-off states, where the switch-on and the switch-off are controlled in accordance with only the attractive force or the repelling force acting between magnetic poles produced on each of two magnets which form the switch element, without the use of the internal stress of the arm of each of the contacts, and in which each the switched-on state and the switched-off state of the switch element is self-held by utilizing the residual flux density in a magnetic circuit including said pair of contacts.

CURRENT RESPONSIVE CIRCUIT BREAKER WITH RELEASABLE COUPLING MEANS, AND WITH CIRCUITRY MEANS DISPOSED WITHIN A HOLLOW TERMINAL

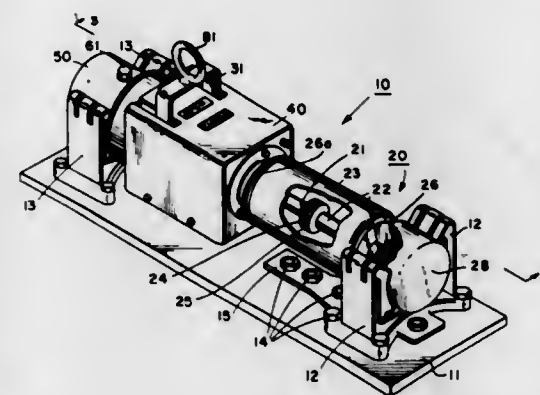
James E. McClain, and Argus F. Parks, both of Greenville, Tex., assignors to Esco Manufacturing Company, Greenville, Tex.

Filed Jan. 3, 1969, Ser. No. 788,773

Int. Cl. H01h 73/38, 33/66, 73/20

U.S. Cl. 335-171

10 Claims



Disclosed is circuit interrupting apparatus having a pair of remotely spaced conductive terminals for insertion into a line or circuit which is to be protected from overload or fault current. One of the coaxially disposed reciprocally mounted contact carrier rods adapted to engage and disengage within a substantially evacuated chamber is coupled to spring actuated means and is tripped open by action of a solenoid plunger actuated by an output signal from relay circuitry disposed within one of the remotely spaced conductive terminals. Opening and closing springs respectively retract and advance the movable contact carrier rod, the compression of these springs being effected by latch means which, upon release, retracts the carrier rod from engagement. One of the embodiments discloses a separate trip-free actuating mechanism which cocks the apparatus by advantageous action of a rotatable shaft, linkage mechanism, camming arrangement, and respective collars coupled to the opening and closing springs.

3,597,714

MAGNETIC ROTARY SWITCH

Federico Visconti Brebbia, and Giorgio Visconti Brebbia, both of Milan, Italy, assignors to Aliprando Visconti Brebbia, Milan, Italy

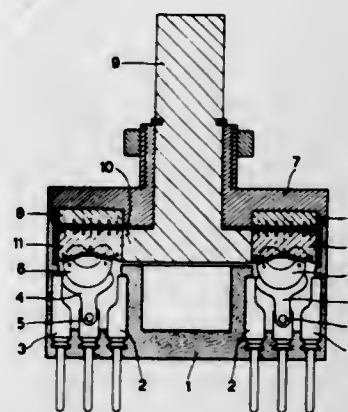
Filed Apr. 15, 1970, Ser. No. 28,861

Claims priority, application Italy, Feb. 12, 1970, 20522A/70

Int. Cl. H01h 5/02, 19/60

U.S. Cl. 335-207

3 Claims



Snap acting magnetic rotary switch having a plurality of switches, each of which comprising two fixed contacts and one movable contact, a permanent magnet being fast with the latter. The switch also comprises two annularly shaped permanent magnets adjacent each other and the magnets fast with said movable contacts, the annular magnet outwardly positioned being fixed and having as many pairs of poles as the switches and as many pairs of poles being provided on the adjacent surface of the intermediate annular magnet

which is fast with a rotary shaft. On the surface of the intermediate annular magnet facing the magnets fast with the movable contacts three ring-shaped poles are provided, the sign of which being alternately different; one of these poles is interrupted at a location and the other two poles are deformed to this location. Upon rotation of said shaft, the switch contacts are snap opened or closed with a speed independent of the speed of rotation of said shaft.

placed on either side of the conductive plate. The arrangement is mounted in a connector shell and fired so that the sealing members are fused around the conductive plate and to the shell forming a hermetic seal. Contacts which are not connected to the conductive plate may also be sealed to the sealing members. The resultant device provides a hermetically sealed connector having sufficient rigidity and resistance to prevent unwanted physical contact between the members mounted within the connector shell.

3,597,715

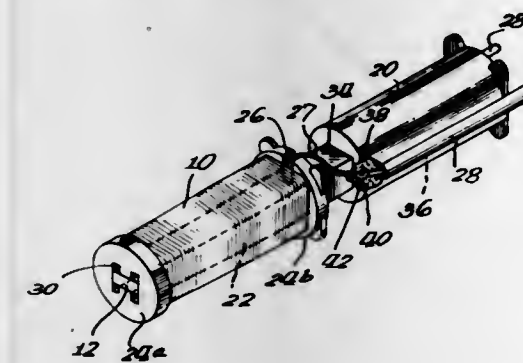
FIXTURE FOR ELECTRICAL SENSING APPARATUS
Dhu Aine J. Davis, Wheaton, Ill., assignor to Hermetic Coil Co., Inc.

Filed Apr. 18, 1969, Ser. No. 817,445

Int. Cl. H01f 27/02

U.S. Cl. 336-96

10 Claims



A unitary fixture for an electrical sensing apparatus which includes a coil, a core and a magnet for creating a magnetic flux to sense the presence of an object of conductive material. The fixture includes a bobbin portion having a coil receiving central portion which encases the core and holds the core axially within the coil. A housing portion is formed integral with the bobbin portion at one end thereof and encases the magnet and holds the magnet coaxially with the coil at one end of the bobbin portion. The bobbin portion has an end wall at the inner end thereof with openings through which end wires from the coil extend for connection to appropriate terminal leads. The housing portion has grooves for receiving and positioning the terminal leads for connection with the end wires and a portion of the housing is made of plastic whereby the end wires and terminal leads are affixed thereto by heat sealing as the end wires are soldered to the terminal leads.

3,597,716

HERMETICALLY SEALED CONNECTOR

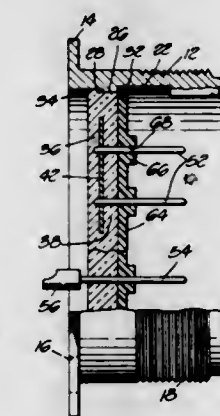
Ross M. Stuart, Glendale, Calif.; George E. Durst, Orange, Calif., and Francis H. Ingham, Scottsdale, Ariz., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 29, 1969, Ser. No. 829,071

Int. Cl. H01r 31/08

U.S. Cl. 339-19

1 Claim



The disclosure relates to a hermetically sealed electrical connector which is formed of a plurality of contacts which are interconnected by means of a conductive plate. The contacts are connected to the conductive plate and a pair of sealing members which are made of a vitreous material,

3,597,717

DUAL POTENTIOMETER

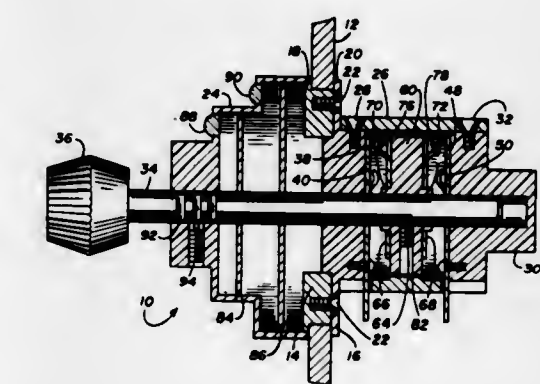
Harry William Kent, 918 Briar Way, Garland, Tex.

Filed Nov. 24, 1969, Ser. No. 879,271

Int. Cl. H01c 9/00

U.S. Cl. 338-131

13 Claims



A dual potentiometer is operable by manipulation of a single shaft; two stationary resistive elements presenting annular tracks are axially spaced adjacent the shaft, and a contact hub is fixed on the shaft between the resistive elements with a pair of brushes for slidably contacting the elements; the shaft may be reciprocated to place a brush in contact with either of the elements, or to open circuit both potentiometers, and the shaft may be rotated to adjust the potentiometers; each of two indicator discs on the shaft is marked with appropriate calibrations for one of the potentiometers, and each is viewed through a lens having a focal length such that the disc is in focus when viewed through the lens when the shaft is in operating position for the potentiometer to which it relates.

3,597,718

VARIABLE RESISTOR MEANS

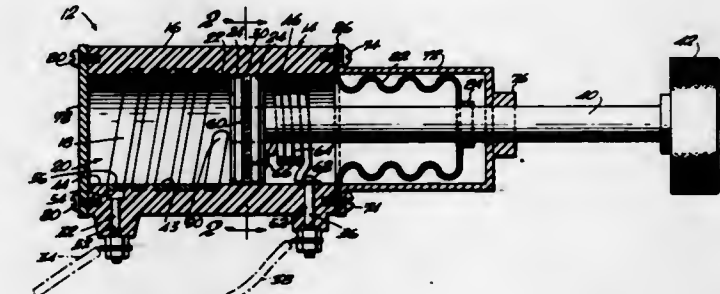
James W. Gibbs, 8027 W. 14th Avenue, and John L. Gibbs, 14820 Miami Lakeway East, both of Hialeah, Fla.

Filed Mar. 23, 1970, Ser. No. 21,794

Int. Cl. H01c 9/00

U.S. Cl. 338-156

10 Claims



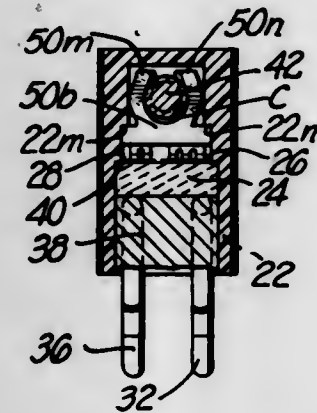
A variable resistor unit particularly useful in selectively controlling current in a circuit of low or medium voltage, a preferred form of the invention includes a smooth bore resistance coil having a helical wire contact element convolutely arranged in the bore of the resistance coil structure of the device. A ring of metallic mercury fluid is concentrically arranged in the bore of the resistance coil and defines adjustable contact means engaging the contact areas of the helical coil element. Selective axial manipulation of the mercury

ring in the bore of the resistance coil operatively increases or decreases the resistance in the circuit of the resistor device.

3,597,719
VARIABLE RESISTOR WITH CLUTCH LIMBS LIFTING SLIDER AGAINST HOUSING GUIDES
Henry F. Martin, Banning, and Joseph R. De Rouen, Rialto, both of, Calif., assignors to Bourns, Inc.
Filed Nov. 28, 1969, Ser. No. 880,672
Int. Cl. H01c 9/02

U.S. Cl. 338-180

7 Claims

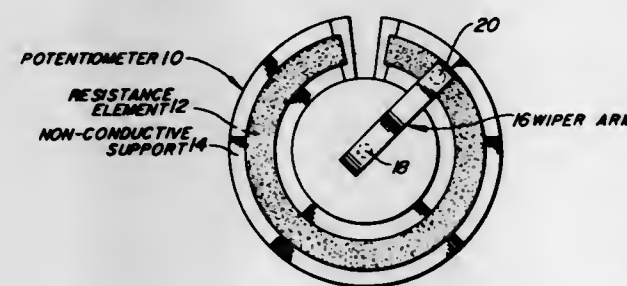


A variable resistor adjustable by operation of a lead screw, with a post or slider having opposed upstanding elongate internally serrated limbs devised to grip the lead screw at opposed regions above the lead screw axis and thereby tend to lift the post, the latter having laterally extending elongate wings whose upper surfaces are lifted into engagement with guiding surfaces on the resistor housing, and the slider carrying a snap-on demountable contact.

3,597,720
WIPER ARM AND POTENTIOMETER COMPRISING THE SAME
Lester E. Burgess, Roslyn, Pa., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.
Filed Sept. 5, 1969, Ser. No. 855,481
Int. Cl. H01c 1/12

U.S. Cl. 338-202

10 Claims



An improved wiper arm for a potentiometer having bonded at least to the wiping end thereof, an electrically conductive, synthetic, resinous polymerizate, formed in situ by curing with an epoxy curing agent, a composition containing about 25 to 40 weight percent of an epoxy resin, about 40 to 70 weight percent finely divided silver, and about 5 to 20 weight percent finely divided carbon.

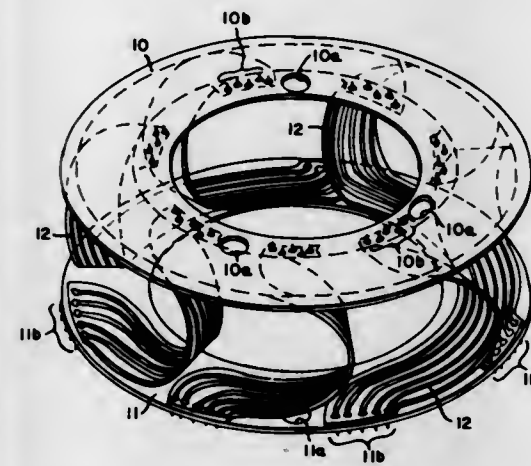
3,597,721
MULTICIRCUIT ROTARY ELECTRICAL CONNECTOR
Joseph P. Mangan, Whitestone, N.Y., assignor to Aeroflex Laboratories Incorporated
Filed Sept. 29, 1969, Ser. No. 861,596
Int. Cl. H01r 39/00

U.S. Cl. 339-5

4 Claims

A unitary multicircuit rotary electrical connector comprises a pair of terminal boards of insulation material in the form of substantially parallel spaced discs and means for

mounting the boards for relative rotation, each of the boards having a plurality of spaced contact terminals arranged approximately in a circle with the groups of contact terminals of one of the boards at a greater radius than those of the other of the boards. The connector further comprises a plurality of flat flexible multiconductor ribbons preformed approximately in annular form and terminating at each end in a plurality of terminal contacts spaced to register with a group

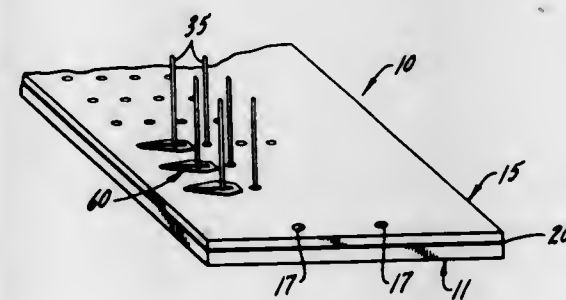


of contact terminals, the terminal contacts at one end of each of the ribbons being electrically connected to a group of terminals of one of the boards and the terminal contacts at the other end thereof being electrically connected to a group of terminals of the other of the boards and each ribbon being of a length to form an U-shaped loop between the boards, the ribbons being substantially equally spaced about the axis of rotation.

3,597,722
CONNECTOR
George Walter, Chicago, Ill., assignor to Malco Manufacturing Company, Inc., Chicago, Ill.
Division of Ser. No. 667,245, Sept. 12, 1967, Pat. No. 3,496,517.
Filed Oct. 13, 1969, Ser. No. 865,775
Int. Cl. A44b 21/00; H01r 9/02

U.S. Cl. 339-19

5 Claims



A connector clip for making an electrical connection between a terminal post and an apertured plate or the like. The clip has resilient parallel legs and bows outwardly to grip the post between them while anchoring itself in the aperture. The plate provides a uniform power source at all terminals to which it is connected and is insulated from a ground plate, which it overlies, and in which the terminals are mounted.

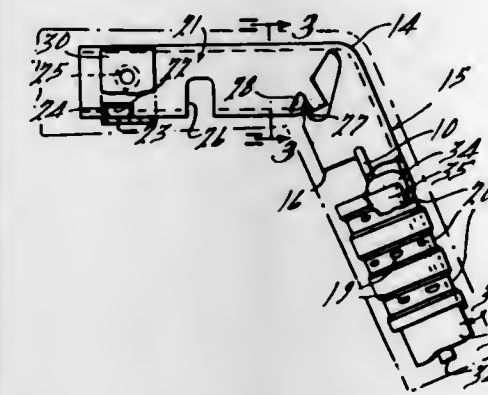
3,597,723
SPARK PLUG TERMINAL
Francis C. Schmidt, Berkley, and David E. Taylor, Mount Clemens, both of, Mich., assignor to Microdot Inc.
Filed May 1, 1970, Ser. No. 33,629
Int. Cl. H01r 13/44, 15/12

U.S. Cl. 339-26

10 Claims

The terminal is stamped from a thin sheet of metal and rolled into a cylindrical sleeve which is bent at the center to have the adjacent sections disposed at an angle of approximately 110° to each other after the wires of a conductor have been inserted in the end with the two sections retained in an

gular relation by locking fingers. The terminal is encased in an elastomeric tube before it is bent and the memory therein therewith. Each contact is provided with a crosspiece constituting a key formation anchoring the contact within the

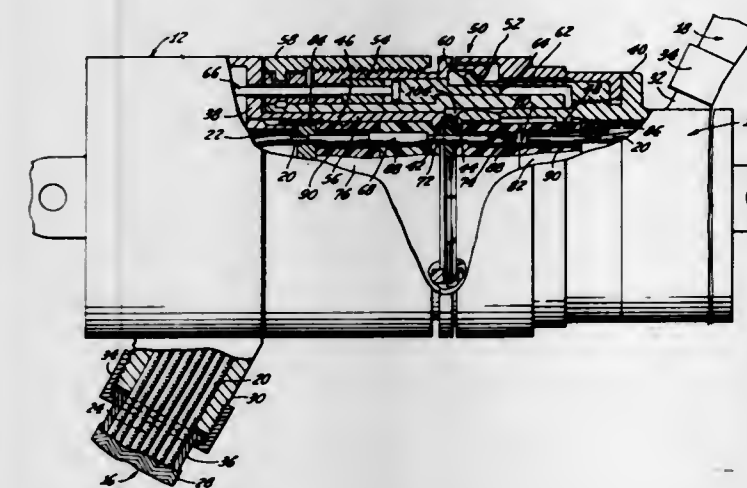


aids in retaining the terminal sections in locked angular relation.

3,597,724
CONNECTOR
John J. Phillips, Rolling Hills, Calif., assignor to G & H Technology, Inc., Santa Monica, Calif.
Continuation of application Ser. No. 606,077, Dec. 30, 1966, now abandoned. This application Sept. 23, 1968, Ser. No. 767,910
Int. Cl. H01r 13/52

U.S. Cl. 339-94 M

12 Claims



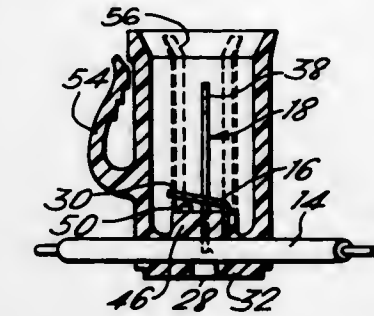
The electrical connector disclosed herein includes a novel seal for sealing the parts of the connector against dirt and moisture and for insuring an electrically conductive path between the different parts of the connector and the shielding for the cables. The seal includes a center body of resilient, electrically nonconductive material and a resilient metal outer rim which insures an electrically conductive path between the two parts of the housing. When the housings are secured together the resilient material in the seal tends to flow radially outwardly so as to spread the electrically conductive rim against the two parts of the housing whereby the pressure is uniformly distributed throughout all portions of the seal.

3,597,725
ELECTRICAL SOCKET
Henry T. Beck, 248 Forest Hill Road, Toronto, Ontario, and Rudolph Koehler, 32 Fleming Drive, Willowdale, Ontario, both of, Canada
Filed May 15, 1969, Ser. No. 824,816
Int. Cl. H01r 9/08

U.S. Cl. 339-97 L

5 Claims

An electric lamp socket molded around part of a power cord and having contacts with pointed tips piercing the insulation of the power cord to effect electrical communication

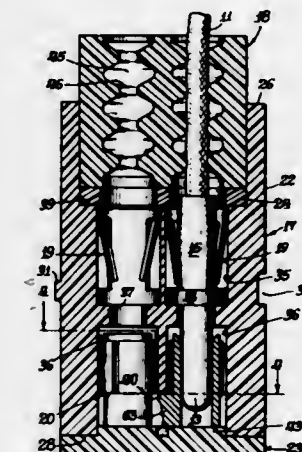


socket material and rendering the contact immovable relative thereto.

3,597,726
TERMINAL BLOCK CONNECTORS
Arthur I. Appleton, Northbrook, and John L. Rutkowski, Elk Grove, both of, Ill., assignor to said Rutkowski, assignor to Appleton Electric Co.
Filed Apr. 7, 1969, Ser. No. 814,137
Int. Cl. H01r 9/00

U.S. Cl. 339-198 P

2 Claims

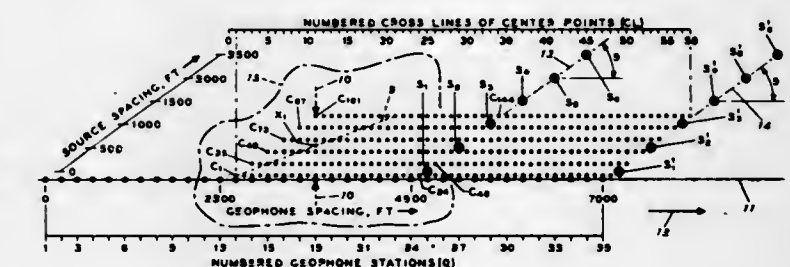


An improved terminal block assembly including at least one parallel pair of female contacts electrically connected together by a bridge formed integrally therewith. Preferably each of the female contacts include a base portion and a floating portion, and the bridge connects the base portions in an undulating pattern in end view.

3,597,727
METHOD OF ATTENUATING MULTIPLE SEISMIC SIGNALS IN THE DETERMINATION OF INLINE AND CROSS DIPS EMPLOYING CROSS-STEERED SEISMIC DATA
Roger D. Judson, Houston, Tex.; Robert J. S. Brown, Fullerton, Calif., and Ian R. Malarky, La Habra, Calif., assignors to Chevron Research Company, San Francisco, Calif.
Filed Dec. 30, 1968, Ser. No. 787,788
Int. Cl. G01v 1/00

U.S. Cl. 340-15.5

24 Claims



A method for collecting and processing seismic data to determine the attitude of strata below the surface of the

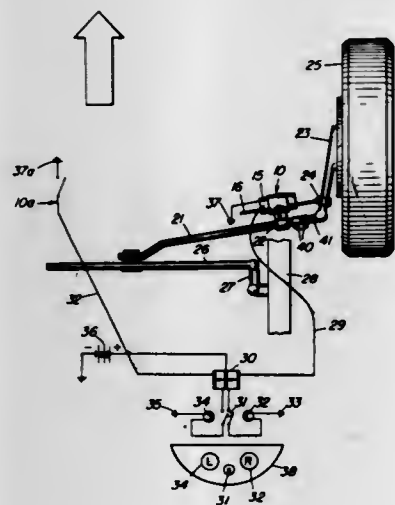
earth. A spread of seismic detectors is employed in conjunction with an array of obliquely aligned seismic sources (oblique with respect to a survey line at the surface of the earth) such that (i) center points between all possible source-detector pairs form a grid of center points having sets of cross-aligned center points perpendicular to the line of survey, yet (ii) respective pairs of detector station-shot points associated with any one set of cross aligned center points have appreciably different horizontal spacings. Multitrace records of seismic data are produced representing energy reflected from said strata after initiation of each seismic source individually. These traces are rearranged and then processed by the technique known as beam steering to produce traces that not only provide directional information as to the emergence angle of the reflected energy from said strata but also significantly attenuate multiple reflected signals present in the original traces.

3,597,728
MEANS OF INSTANTLY DETECTING ANOMALIES ON A MOVING VEHICLE

Anthony D. Kurtz, 901 N.W. 47th St., Lawton, Okla.
Filed June 11, 1968, Ser. No. 736,164
Int. Cl. B60q 1/00

U.S. Cl. 340-52

5 Claims



This application discloses a new method and means for instantly ascertaining any deviation from the normal toe-in, toe-out alignment of any vehicle's front wheels, regardless of make or model, domestic or foreign, all wheel or front-wheel drive. This valuable information is derived from detecting any maladjustment of the specified adjusted angle between the tie rod and the steering arm at the precise point of adjustment and causing an indicator lamp on the instrument panel to light whenever such misalignment occurs.

The device operates by means of a microswitch contact arm having a roller wheel at its free end. When the front wheels are in a straight ahead position and alignment is normal, the roller rides in a groove in an operating rod which is pivotally attached at one end to a fixed pivot mount on a steering arm. If the adjusted angle between the tie rod and the steering arm deviates from its original correct adjustment, the roller is displaced from its groove, forcing the contact arm upwardly to close the normally open microswitch. This in turn lights a lamp on the instrument panel to indicate that the left and/or the right wheel is toeing in or out in excess of specifications.

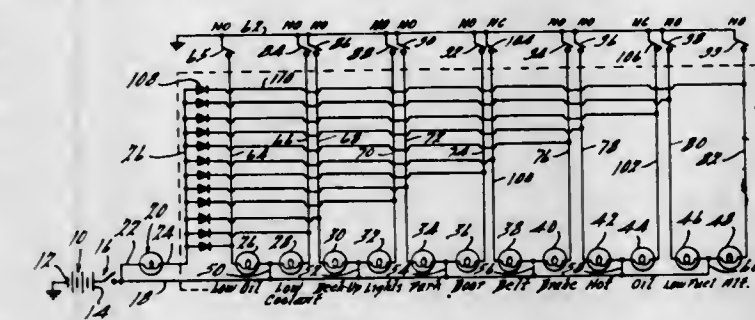
3,597,729
AUTOMOTIVE VEHICLE CONDITION INDICATOR
Lawrence A. Lopez, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Dec. 4, 1968, Ser. No. 781,029
Int. Cl. B60q 1/00

U.S. Cl. 340-52 F

1 Claim

This disclosure relates to an automotive vehicle condition indicator for warning the vehicle operator when one or more of the conditions relating to vehicle operations are abnormal

or are in a certain predetermined state. It comprises a master warning lamp, preferably positioned in the primary field of vision of the vehicle operator, and a plurality of warning or condition indication lamps, one for each vehicle condition, located out of the primary field of vision of the vehicle operator. Means are connected to each of the condition indication or warning lamps and to the master warning lamp for lighting or energizing the master warning lamp and one of more of the plurality of condition indicator lamps when one

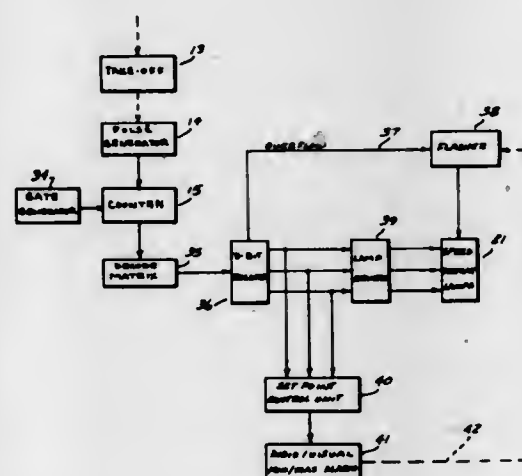


or more of the conditions relating to vehicle operations is abnormal or is in the certain predetermined state. A unilateral conducting means is connected in circuit with the master warning lamp and with each of the condition indication or warning lamps for preventing energizing of the remainder of the vehicle condition indication or warning lamps when one of them is energized. In addition, a means is provided, actuated by the vehicle operator, for proving out the master warning lamp and the vehicle condition indication or warning lamps.

3,597,730
VEHICLE SPEED INDICATOR SYSTEM
Rudolph M. McClellan, Sr., and Rudolph M. McClellan, Jr., both of Houston, Tex., assignors to Houston Engineering & Research Corp., Houston, Tex.
Filed Dec. 23, 1968, Ser. No. 786,291
Int. Cl. B60q 1/54

U.S. Cl. 340-62

19 Claims



For installation in moving vehicles, apparatus having a preferred form which incorporates an externally visible indicating means preferably seen from highway points forward of, behind, and from above a moving vehicle which indicates speed and acceleration of the vehicle to others remote from the vehicle.

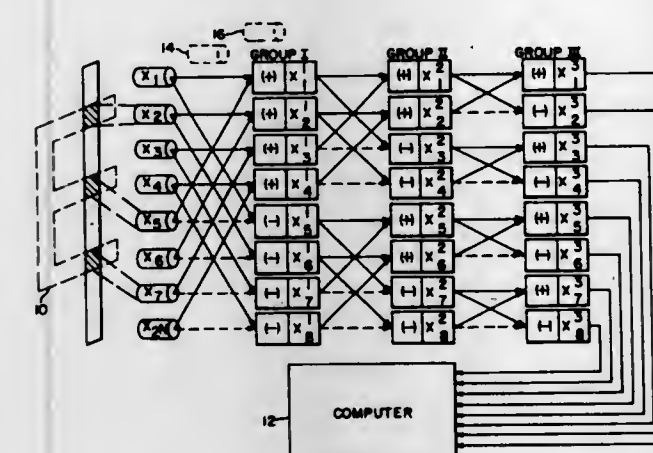
3,597,731
PATTERN RECOGNITION APPARATUS
Heribert J. Reiboeck, Turtle Creek, and Thomas P. Brody, Pittsburgh, both of, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 28, 1969, Ser. No. 845,133
Int. Cl. G06k 9/04

U.S. Cl. 340-146.3 R

10 Claims

Described is apparatus, employing a mathematical transform involving addition and differencing only, for recogniz-

ing patterns or characters which can be distorted or misaligned with respect to optical-sensing means without any sacrifice in the accuracy of the device. When executed on a digital computer, the mathematical transform utilized in ac-

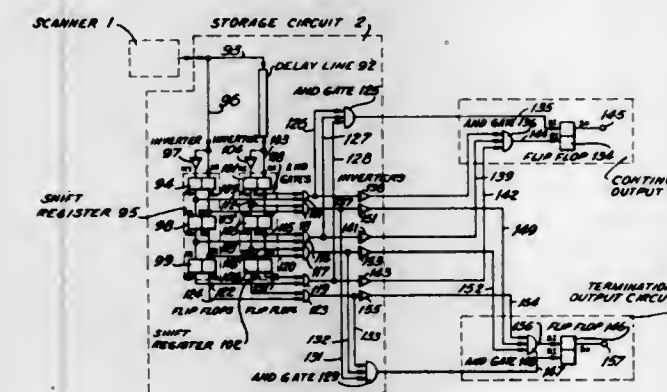


cordance with the invention needs only a fraction of the computation time needed for transforms utilized by prior art devices. At the same time, it is better able to cope with certain distortions that are characteristic of hand-printed letters and digits such as inclination, small rotation and the like.

3,597,732
LINE-DETERMINING CIRCUIT FOR PATTERN-INDICATING CIRCUIT
Naoki Morimoto, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Filed Jan. 16, 1969, Ser. No. 791,675
Claims priority, application Japan, Jan. 18, 1968, 43/2743
Int. Cl. G06k 9/10

U.S. Cl. 340-146.3 A

9 Claims



A scanner scans a pattern and supplies to a storage circuit scanning signals in accordance with the pattern. The storage circuit determines the complete continuity and the noncontinuity of specific slope components of the lines of the pattern and the complete termination and the nontermination of such components.

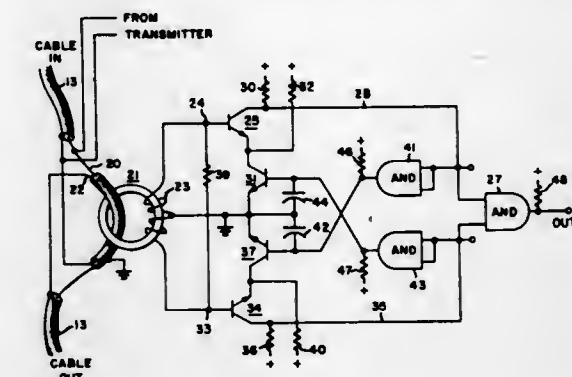
3,597,733
CABLE RECEIVER
Warren R. Foxwell, Park Ridge, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Feb. 4, 1970, Ser. No. 8,630
Int. Cl. H04q 9/00

U.S. Cl. 340-147 R

10 Claims

A cable receiver for use in the connection of a central station to a plurality of groups of remote stations with the use of transmitting and receiving apparatus at the central station and at the remote stations to transmit and receive serially coded messages comprising a plurality of bits in binary form. A pulse transformer in series with the cable at each receiver location detects the binary transmission from the central station through one branch or channel of the receiver and de-

fects the binary transmission from a still more remote group of remote stations through another channel of the receiver. When one channel of the receiver is receiving a bit, the other channel is disabled. This disabling is caused to extend slightly

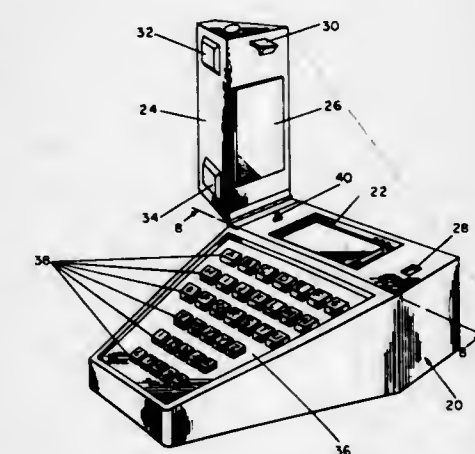


beyond the end of transmission of each bit so that the collapsing field of the input transformer occurring at the trailing edge of each transmitted bit does not cause a false signal through the other channel.

3,597,734
SEQUENTIALLY OPERATED SYSTEM FOR AUTHENTICATING CREDIT CARDS
George A. Harris, Jr., 110 Lincoln Ave., Saddle Brook, N.J.
Filed Oct. 4, 1968, Ser. No. 765,051
Int. Cl. H04g 3/00

U.S. Cl. 340-149

4 Claims



A system for authenticating credit cards wherein the card contains a hidden code and is coded by means of irregularities in the card's surface. The card is inserted in the reader which is provided with a plurality of keys. When the code is punched in the correct order on the keys so that it corresponds with the hidden code contained on the card irregularities, circuits in the reader close and an indication that the card is in the hands of one having knowledge of the hidden code is displayed. This display can be by means of a light or by means of actuation of the print roller contained in the reader or both.

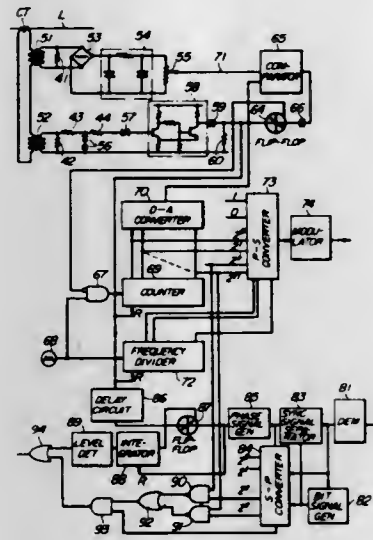
3,597,735
CARRIER PILOT RELAYING SYSTEM
Keizo Nakayama, Hitachi-shi, and Yutaka Ohno, Tokyo, both of, Japan, assignors to Hitachi, Ltd., Tokyo, Japan and Yutaka Ohno, Tokyo, Japan
Filed Jan. 29, 1969, Ser. No. 795,094
Claims priority, application Japan, Feb. 2, 1968, 43/6011
Int. Cl. H02h 3/28, 7/26

U.S. Cl. 340-149

14 Claims

A carrier pilot relaying system in which the current flowing through the power transmission line in each electrical station is detected by a current transformer to be converted into a phase signal and a digital signal representing the magnitude (scalar quantity) of the current, these signals being transmitted from one station to another station in the form of a train of pulse signals. In each station, detection of the phase

difference between the phase signals and detection of the difference between the magnitude of the currents are carried



out independently of each other so that a circuit breaker can be tripped when a predetermined condition is satisfied.

3,597,736

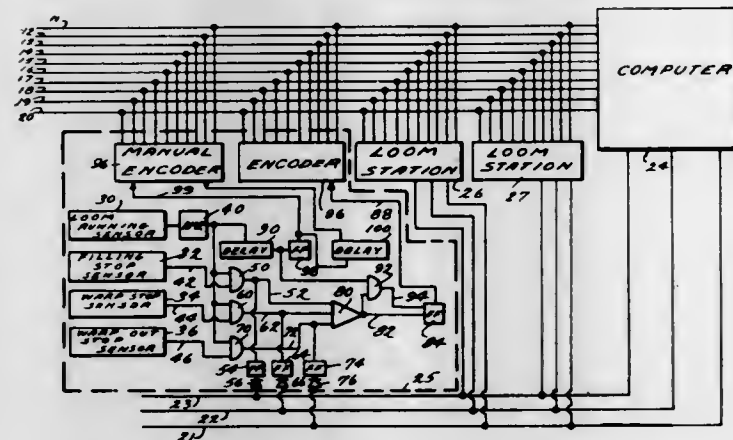
PLURAL STATION LOOM DATA COLLECTION SYSTEM
Robert H. Best, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed July 23, 1968, Ser. No. 746,961

Int. Cl. H04g 11/00

U.S. Cl. 340-163

12 Claims



The invention relates to an information-conveying system for communicating conditions on a number of textile machines to a computer or recorder whereby the machines themselves notify the computer or recorder whenever a trigger condition, such as stoppage, occurs and whenever it ends. In one embodiment each of a number of looms encodes its address onto a number of address lines when it stops and communicates the cause of stoppage to the computer or recorder on a number of return lines. Upon restarting the address is once again encoded onto the address lines. A manual encoder can encode an information signal onto the address lines or onto return lines following the address encoded when the machine restarts.

3,597,737

INTERLOCKING SWITCH ARRANGEMENT

Jacob L. Wallace, Jr., Springfield, and Robert M. Brown, Arlington County, both of, Va., assignors to The Susquehanna Corporation, Fairfax County, Va.

Filed June 21, 1968, Ser. No. 739,069

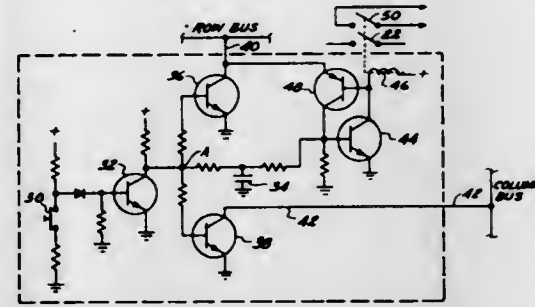
Int. Cl. H04q 1/00; H04m 3/00

U.S. Cl. 340-166 R

6 Claims

An example of an interlocking switch arrangement is a matrix design having an interlocking circuit connected at each matrix cross point. Each interlocking circuit has a relay

which when actuated closes the matrix at its associated cross point. Prior to actuation of its relay, this circuit grounds the matrix column and row buses at its cross point. This serves to open the matrix at any other cross point in the same row and column thereby preventing the matrix from being connected



at more than one cross point in any column or row at the same time. The matrix design affords versatility in that it permits interlocking circuits to be easily added to or removed from the matrix without affecting or requiring any altering of the other interlocking circuits.

3,597,738

SWITCHING SYSTEM USING DIVIDED CROSSBAR SWITCH

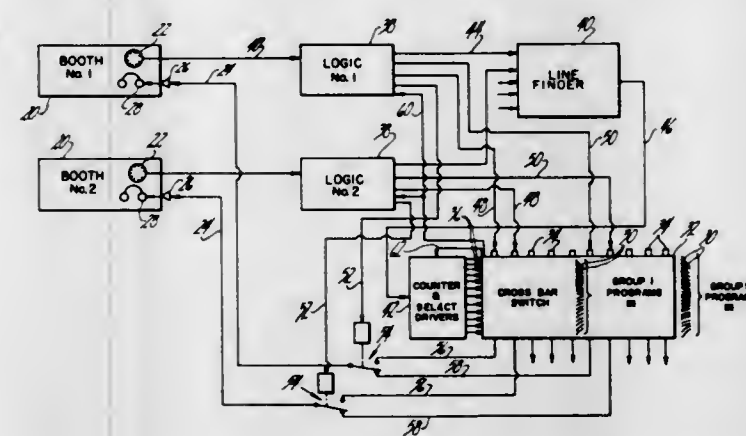
David L. Joslow, Chester; John J. Bosnak, Old Saybrook, and James M. Skeffington, Chester, all of, Conn., assignors to Chester Electronic Laboratories, Inc., Chester, Conn.

Filed Mar. 10, 1969, Ser. No. 805,700

Int. Cl. H04q 9/00, 3/54

U.S. Cl. 340-166 R

6 Claims



In a switching system for connecting any one of a number of given lines to any selected one of a large number of available lines, a crossbar switch is used having its hold columns divided into two groups with each given line having assigned to it one hold column of each group. In the making of a selection, one hold column assigned to a given line selects a group of available lines, from the total of such lines, and connects the selected group to the other hold column assigned to the given line. The other hold column is then used to select an individual available line from the selected group. Preferably, the crossbar switch is so wired that both of the two hold columns assigned to a given line actually make both a group selection and an individual selection and a separate two-position auxiliary switch is used to select from the two individual available lines selected by the two hold columns.

3,597,739

METHOD FOR OPERATING A DATA PROCESSOR

Maria C. Kolatis, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y.

Filed Aug. 25, 1965, Ser. No. 482,461

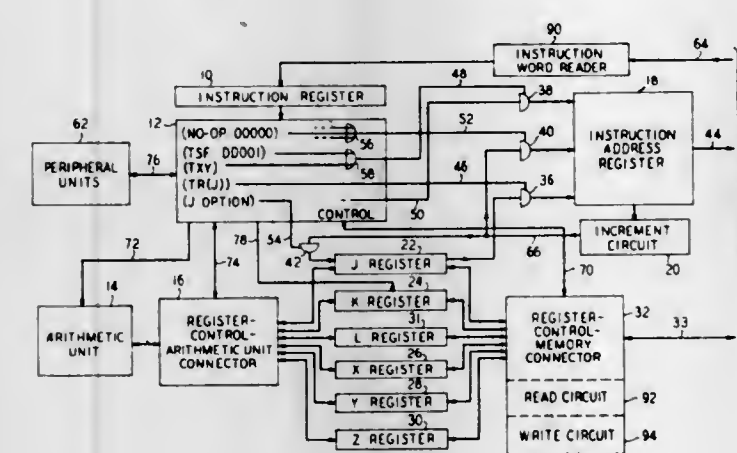
Int. Cl. G06f 9/12

U.S. Cl. 340-172.5

9 Claims

A stored program data processor having a memory unit for storing data words and instructions is disclosed. In the operation of the data processor it is from time to time necessary to

store groups of data words in various locations in the memory and periodically to process such stored data. However, not all the locations will always have had data stored therein at the beginning of the period allocated for processing such data. A method of operating the data processor is disclosed which involves storing a modifiable operation



code and a transfer address in one word of each of the groups. This method permits the data in the group of locations to be processed only when the group in fact contains such data. When the group of locations has no data to be processed the transfer address is employed to indicate another group of locations which may have data to be processed.

3,597,740

INTERPOLATION AND INITIALIZATION TECHNIQUE FOR COMPUTER CONTROL OF MACHINE TOOLS

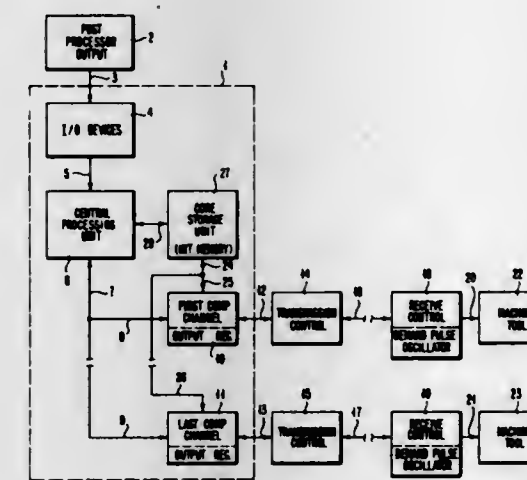
Royal H. Daw, Sherman Oaks, and Alexander Hurwitz, Los Angeles, both of, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,848

Int. Cl. G06c 29/00

U.S. Cl. 340-172.5

8 Claims

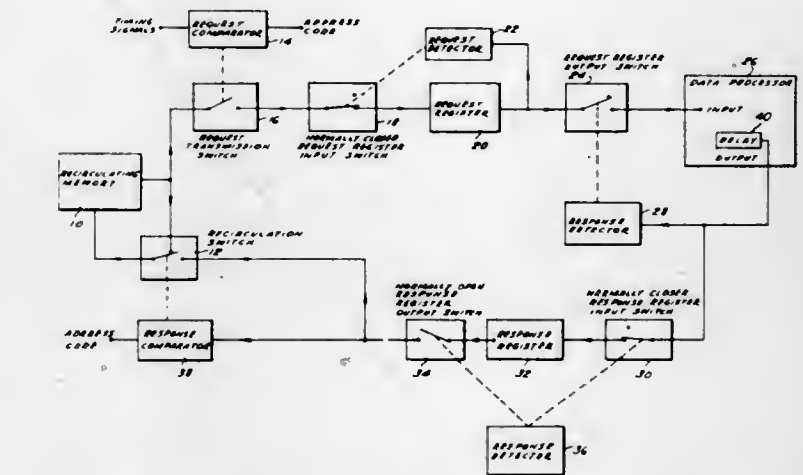


An interpolation technique in which numbers are calculated for each axis based on the velocity and distance to be moved and the numbers stored in output buffer tables in core storage for gating out by an oscillator external to the processing system. Each core storage output buffer table is initialized by a look-ahead technique in which the calculated numbers for each axis are examined and a determination made as to whether for a particular segment more ones than zeros are to be stored and the core storage portion for that segment initialized in accordance with this determination.

INFORMATION CONTROL IN A PROCESSING SYSTEM
Frank W. Sieracki, and Thomas Coombe, both of Berlin, N.J., assignors to Ultronic Systems Corporation
Filed Apr. 30, 1969, Ser. No. 820,592
Int. Cl. G06f 3/14

U.S. Cl. 340-172.5

7 Claims



Information, such as stock market transactions, stored in a common memory, is to be displayed visually by a plurality of remotely disposed video monitors. The displays of the various monitors can be totally independent in content, but partial or complete duplication is possible. Each monitor has a keyboard associated therewith whereby the memory can be interrogated for certain specific information to be displayed by the corresponding monitor. To this end, interrogations or requests are supplied sequentially into the memory. The requests are then read out of the memory into a data processor which generates answers. The answers are fed back into the memory and then read out from the memory to the various monitors at which the requests originated.

3,597,742

DATA HANDLING SYSTEM

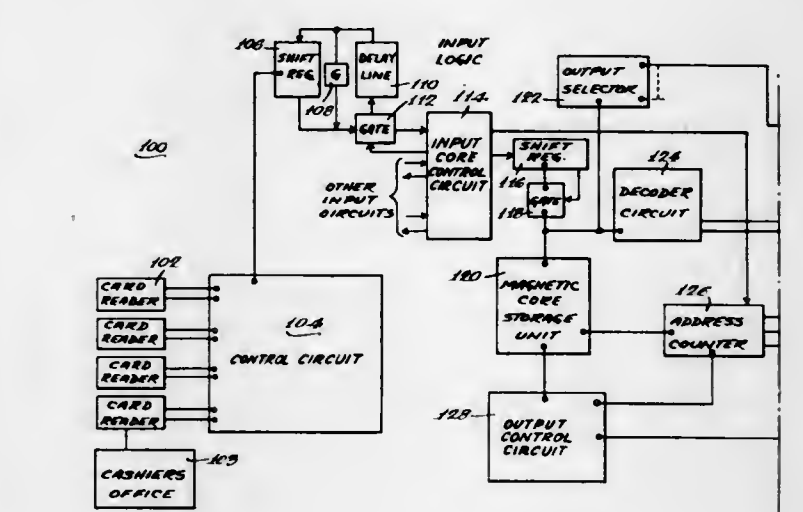
Louis E. Philipps, Addison, and Eugene A. Stanis, Wheeling, both of, Ill., assignors to Medelco Incorporated, Wood Dale, Ill.

Filed Sept. 20, 1968, Ser. No. 761,043

Int. Cl. G06f 3/00

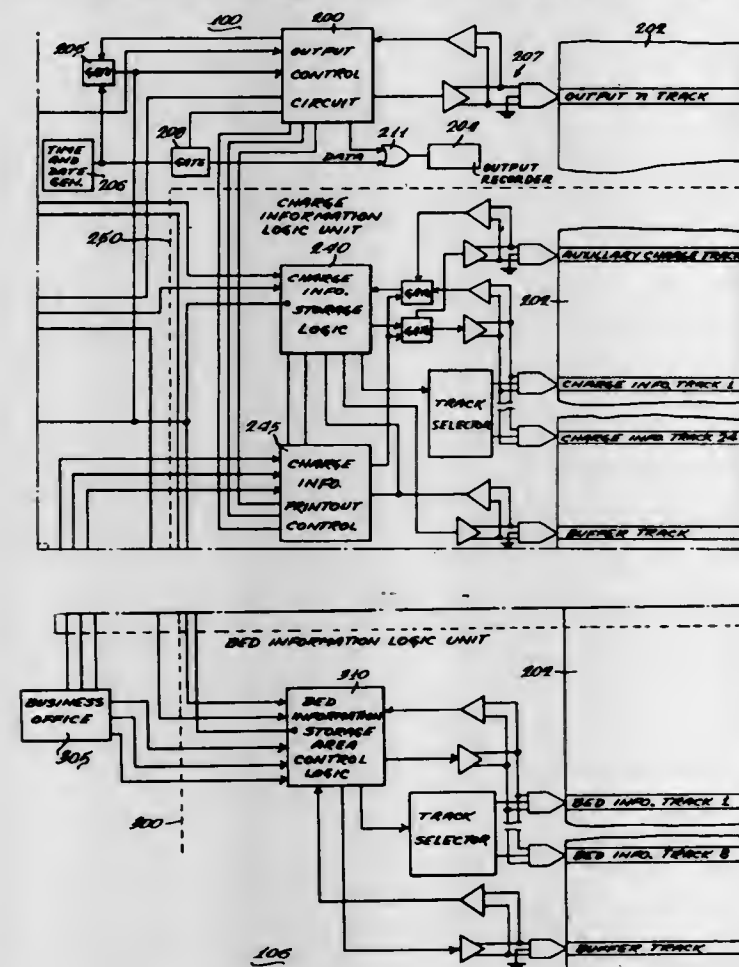
U.S. Cl. 340-172.5

13 Claims



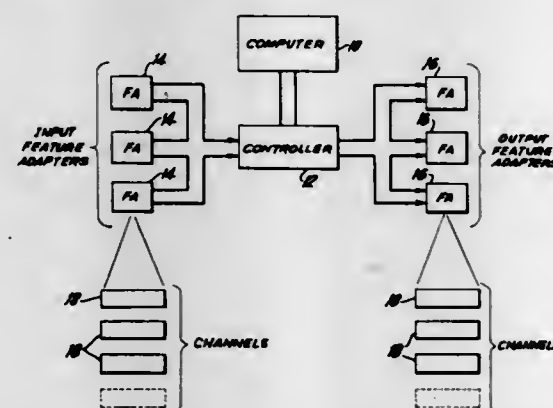
The application discloses a hospital data handling system which transmits and receives all message information normally required in hospital operations and automatically withdraws from the transmitted messages all data necessary for establishing such items as bed status data, inventory records, patient charges, etc. The system input is derived from permanent punch cards containing all necessary message and control information and disposable punch cards containing variable data, such as patient identifying cards made, for instance, when a patient is admitted. A printer and

a card reader are located at each message originating location or station in the hospital to provide messages which are placed in a delay line input storage shared by a group of card readers. As the delay line data is transferred to a core storage unit shared by all the readers, a printer selector checks each message for printer addresses, and a control decoder checks for the type of operation to be performed on the message. If only output recording is required and if all addressed printers



are available, the message is cleared from the delay line storage and read out from the core storage unit to the printers through individual buffer tracks on a drum in a central processor. Alternatively, if all the printers are not available, the message is retained in the delay line until the printers are available. If the control decoding indicates that data operations are to be performed on the message, the message is sent from the core storage unit to the drum in the central processor.

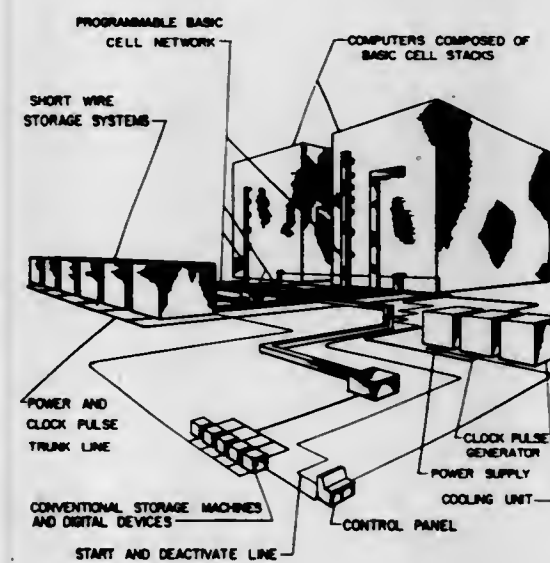
3,597,743
EXPANDER FOR REAL-TIME COMMUNICATION BETWEEN A COMPUTER AND EXTERNAL DEVICES
William J. Murphy, Suffern, and Alan S. Rosenthal, New York, both of, N.Y., assignors to Digital Applications, Inc., Houston, Tex., by said Rosenthal
Filed Mar. 26, 1969, Ser. No. 810,521
Int. Cl. G06f 9/18
U.S. Cl. 340-172.5
18 Claims



A device is described for expanding the real-time access channel of a digital computer to enable the computer to

communicate with a large number of external devices. A plurality of channels are arranged in groups, with each group forming a feature adapter. A plurality of feature adapters are shown connectable to the computer. A controller provides the necessary control functions to manipulate the data which may be sent to or demanded from the computer on an interrupt request basis or under direct program control.

3,597,744
DIGITAL COMPUTING AND INFORMATION PROCESSING MACHINE AND SYSTEM
James H. Case, 2286 Preston St., Salt Lake City, Utah, and Neil C. Stewart, 1991 McClelland, Salt Lake City, Utah
Continuation of application Ser. No. 605,757, Dec. 29, 1966, now abandoned. This application Sept. 11, 1969, Ser. No. 871,729
Int. Cl. G11c 19/00
U.S. Cl. 340-172.5
23 Claims

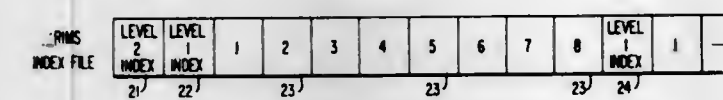


This invention provides a new parallel digital computing and information processing machine and system, which is word organized and can be appropriately described as of "short wire" type. The basic machine has an array of an arbitrarily large number of relatively simple information processing and transferring cells, which are arranged for independent operation in parallel at very high speeds. There is no overall command organization. When properly activated each cell processes or transfers information only within a region of influence containing the cell. Any such array has at least two and may have a multitude of such nonoverlapping regions of influence. The information transfer means between the cells are all "short" in that no such means connect between cells which are not in each other's influence regions. Long distance information transfer is achieved by programming means—duplicating information in a "bucket brigade" fashion from cell to cell. Each cell in the array contains at least one word of information, representing a four address instruction referring to cells in its influence region; and, when properly activated, each cell will decode its respective instruction word, obtain or send the addressed operand-information to neighboring cells; execute the instruction, store any results in the appropriate cells; and activate the next cell in the influence region.

3,597,745
METHOD FOR ARRANGEMENT AND INDEXING OF DIGITAL DATA IN STORAGE
Allan E. Lahrson, Oakland; Timothy L. Lenox, San Leandro; Robert J. Vannucci, Concord; Richard C. Zuchowski, San Francisco, and Frank E. Hublou, Richmond all of, Calif., assignors to Kaiser Aluminum & Chemical Corporation
Filed Aug. 19, 1969, Ser. No. 851,371
Int. Cl. G06f 9/20
U.S. Cl. 340-172.5
4 Claims

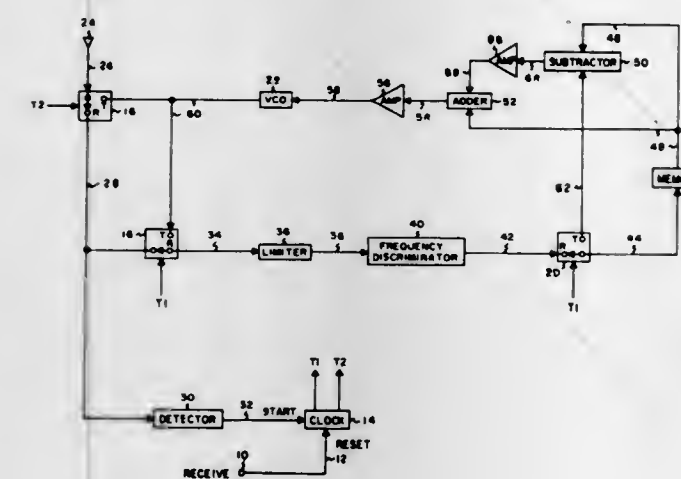
A method of arranging digital data so that it may be most efficiently located and read out. Two levels of indices are used to locate each data record, a ten word or eighty

character block of data. A single high level index tag refers to one of a plurality of secondary level index tags which, in turn, refer to the data record. The block containing the high level index tag also contains various file information.



turn, refer to the data record. The block containing the high level index tag also contains various file information.

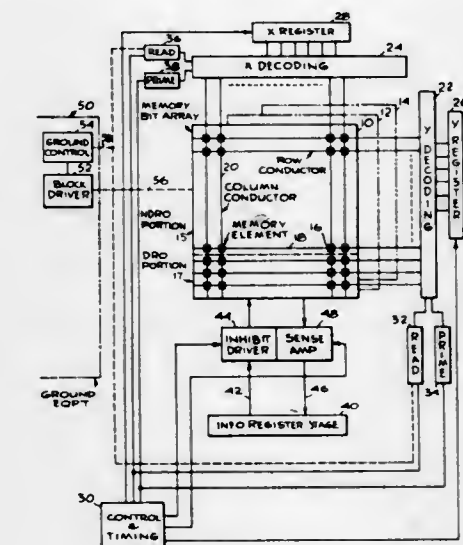
3,597,746
INFORMATION PROCESSING DEVICE
Francis Leighton Burnham, Silver Spring, Md., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif.
Filed Nov. 29, 1968, Ser. No. 779,984
Int. Cl. G11c 27/00; H04b 1/40, 7/14
U.S. Cl. 340-173 RC
12 Claims



An information processing device having a means for applying information to the device in a first form, such as frequency, and a means for converting the information into a second form, such as an analog voltage, in which form it is desired to store the information. Means are provided for storing the information in its second form. At a selected time after the information is stored, it is applied through a reconverting means, such as a VCO, to restore it to its original form for utilization. The output from the reconverting means is fed back through the same converting means as was used in the input operation. The feedback signal is utilized to control the input to the reconverting means. This feedback operation has the effect of compensating for any errors in the converting and reconverting operations.

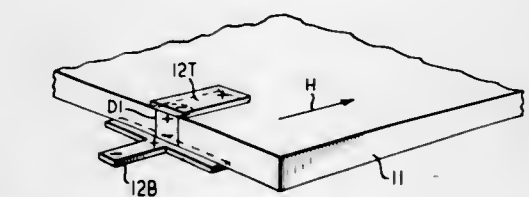
3,597,747
DIGITAL MEMORY SYSTEM WITH NDRO AND DRO PORTIONS
Ted Winkler, and Paul E. Wells, both of Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Feb. 10, 1966, Ser. No. 526,577
Int. Cl. G11c 5/02, 11/08
U.S. Cl. 340-174
19 Claims

A single hard core memory system is disclosed having a first portion capable of reading and writing information and a second portion having a capability of reading out information



common to both the destructive readout portion and the nondestructive readout portion.

3,597,748
DOMAIN PROPAGATION ARRANGEMENT
Peter I. Bonyhard, Newark; Donald E. Kish, North Plainfield, and James L. Smith, Bedminster all of, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Oct. 16, 1969, Ser. No. 866,869
Int. Cl. G11c 11/14, 19/00
U.S. Cl. 340-174 SR
5 Claims

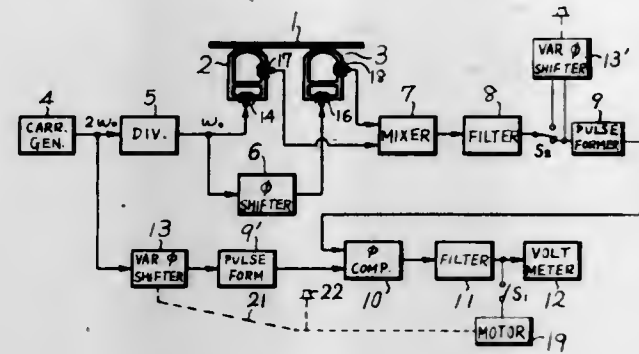


Single wall domains are moved in a slice of magnetic material by magnetically soft overlay patterns on both surfaces of the slice. The overlays are shaped alike and are offset one from the other along the axis of domain movement so that each provides pole patterns to attract a domain to the same consecutive positions as a magnetic field reorients in the plane of the slice.

3,597,749
MAGNETIC HEADS UTILIZED AS A DISPLACEMENT MEASURING INSTRUMENT
Saburo Uemura, Kanagawa-ken, and Kiyoshi Himuro, Tokyo, both of, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jan. 17, 1969, Ser. No. 792,053
Claims priority, application Japan, Jan. 29, 1968, 43/5275
Int. Cl. G11b 5/46
U.S. Cl. 340-174.1 H
10 Claims

An apparatus for the magnetic recording of gradient information wherein magnetic indicia are recorded on a magnetic medium which is detected by a pair of magnetic pickup heads. Since the spacing between the magnetic indicia is fixed it is possible to accurately measure distance by counting the number of magnetic indicia which move past the heads. Since there are two heads, the direction of movement of the information may be detected also. In the present invention, the two heads are indexed by supplying a variable

phase shift mean in either of two channels and the indexing is accomplished by the phase shifters and the heads do not have



to be mechanically moved relative to each other for proper indexing.

3,597,750

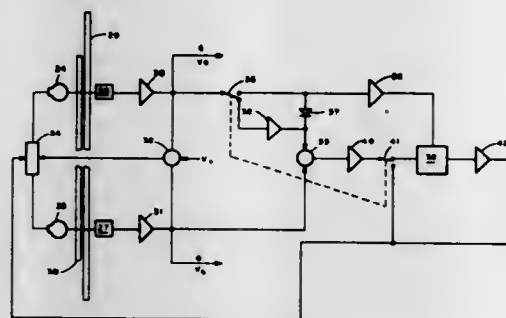
SERVO WITH AGC FOR POSITIONING A MAGNETIC HEAD

Russell K. Brunner, Morgan Hill; Timothy W. Martin, San Jose, and Charles R. Wilford, San Jose, all of, Calif., assignors to Information Storage Systems, Inc., Cupertino, Calif.

Filed Jan. 21, 1969, Ser. No. 792,343
Int. Cl. G11b 5/56, 21/10

U.S. Cl. 340-174.1 C

6 Claims



Apparatus for maintaining an array of read/write heads in position at a given track location on a stack of rotating discs, including: a photoelectric transducer for producing two alternating signals of 180° phase relationship, actuator control circuitry for servoing the array onto the signals and AGC circuitry for comparing the two signals and generating error signals to adjust the gains and amplitudes of the signals.

3,597,751

SIGNAL RECOVERY SYSTEM FOR USE WITH MAGNETIC MEDIA

Robert F. Heidecker, Longmont, and Friedrich R. Hertrich, Boulder, both of, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

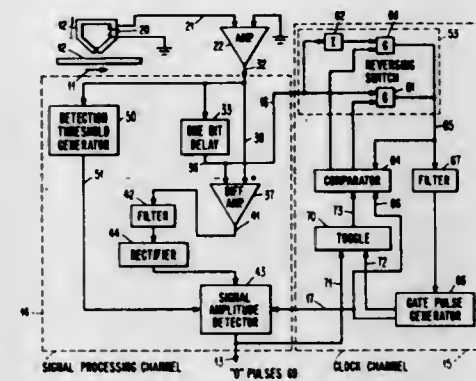
Filed Apr. 21, 1969, Ser. No. 817,761
Int. Cl. G11b 5/04

U.S. Cl. 340-174.1

11 Claims

The readback signal from a magnetic media is characterized by signal components of frequency F and frequency 2F, with shifts between such signal components. Normally, the F signal component has a greater amplitude than the 2F signal component. For recording binary data, a bit period of recording is equal to the wavelength of the 2F signal component. For data signal recovery, the readback signal is delayed by a period equal to one bit period. The delayed signal is then differenced with the readback signal in a linear manner such that the F signal components are added together in an absolute manner, while the 2F signal components are substantially cancelled. The amplified F signal components are then amplitude detected. Since there is a phase reversal of the 2F signal component each time the F

signal component occurs, a reversing switch is utilized to maintain the phase of the clock the same irrespective of the



3,597,752

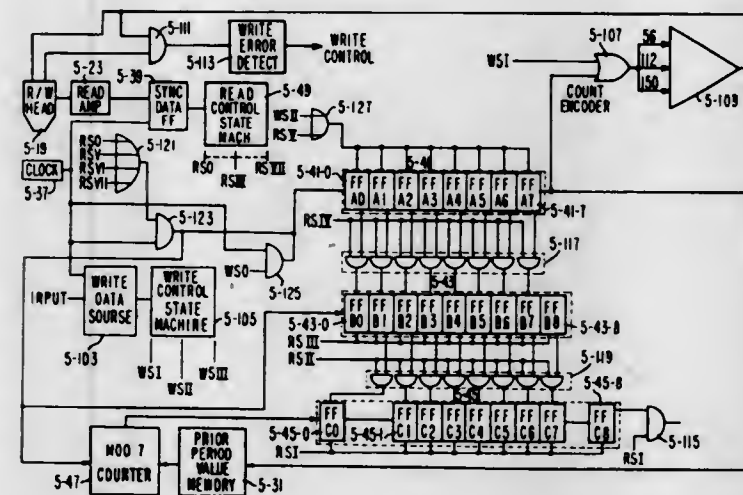
FM MAGNETIC RECORDING AND SENSING UTILIZING BIT PERIODS OF DIFFERENT LENGTHS

Cornelius Eldert, Bloomfield Hills, and Virgilio J. Quogue, Northville, both of, Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Sept. 17, 1969, Ser. No. 858,727
Int. Cl. G11b 5/04

U.S. Cl. 340-174.1 H

34 Claims



3,597,753

MOTION-TRIP SECURITY DEVICE

Leon Tabankin, Morris Plains, N.J., assignor to Visual Security Systems, Inc., Hanover, N.J.

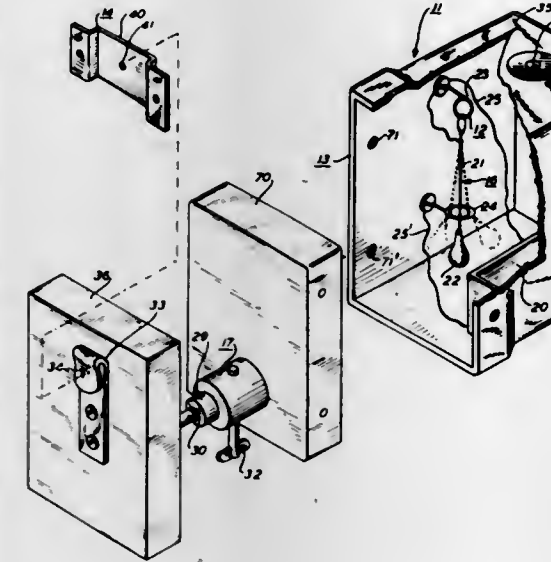
Filed June 11, 1969, Ser. No. 832,075
Int. Cl. G08b 13/02

U.S. Cl. 340-224

4 Claims

A motion-trip security device, for transmitting, receiving, and signalling upon occurrence of a breach of security of the object to which the device is affixed, said device being auto-

matically operative on slight unauthorized movement of the object or of the device, and having selective transmitting and



receiving features to indicate which of a series of such objects is being moved.

3,597,754

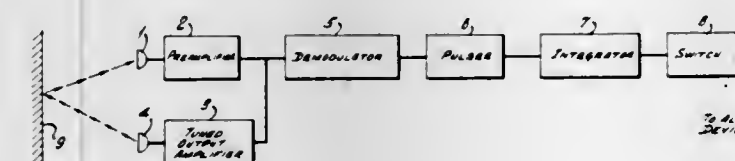
APPARATUS FOR DETECTING OBJECT MOVEMENT

Julius O. Lerner, Verona, N.J., assignor to David Herman, Livingston, N.J., a part interest

Filed Apr. 10, 1968, Ser. No. 720,050
Int. Cl. G08b 13/00

U.S. Cl. 340-258 R

28 Claims



An apparatus for detecting a moving object in a monitored area includes an amplifier, preferably tuned to an ultrasonic frequency and having electromechanical transducers of either resonant or nonresonant type connected to its input and an output and mechanically coupled through the monitored area to form a feedback loop which causes the amplifier to oscillate at its tuned frequency. The amplifier signal level depends upon the state of the monitored area, and any movement therein varies the amplifier signal level as a cosine squared function pulse train. The amplifier output after demodulation is AC coupled to a pulse amplifier, shaper and limited, and then AC coupled to an RC integrating network to produce a DC signal whose level is proportional to the duration of the motionally caused pulse train, and is applied to control a solid state alarm switch. A plurality of pairs of transducers may be connected to each amplifier, and the demodulator and alarm network may be remote from the amplifier and transducers and coupled thereto by radio signals, the electric power line, acoustic coupling through transducers, or by direct wire connection. A plurality of amplifiers of different frequencies may be employed, and corresponding filters may be provided in the demodulating and control networks.

Also, a plurality of amplifiers, each modulating an oscillator, may be employed, and coupled to a common demodulator and control network.

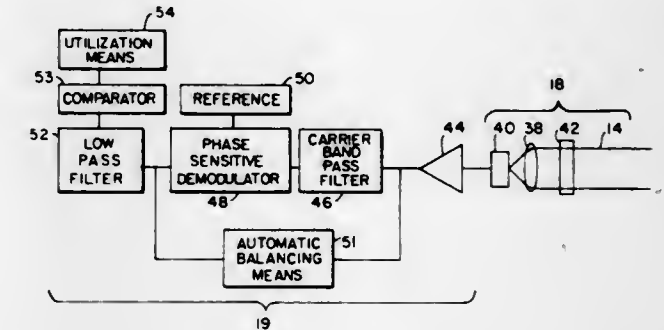
3,597,755 ACTIVE ELECTRO-OPTICAL INTRUSION ALARM SYSTEM HAVING AUTOMATIC BALANCING MEANS

William J. Parkin, Wayland, Mass., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed May 28, 1968, Ser. No. 732,757
Int. Cl. G08b 13/18; G01t 1/16

U.S. Cl. 340-258

8 Claims



An active reflected energy optical intruder detection system wherein changes in reflected energy received by the system indicate the entry, exit or change of position of an object within the field-of-view. An automatic balancing means is included in the receiving portion of the apparatus whereby large background signals are balanced out such as to improve the sensitivity of the apparatus.

3,597,756

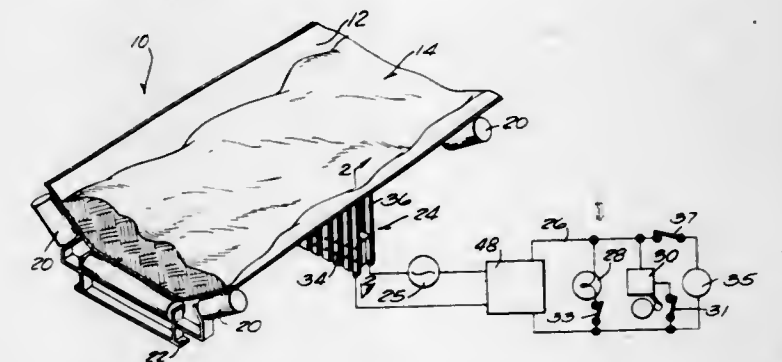
BELT FAULT DETECTION DEVICE

William G. Jackson, 1010 W. Washington St., Marquette, Mich.

Filed Mar. 21, 1969, Ser. No. 809,075
Int. Cl. B65h 25/30; H01h 1/50

U.S. Cl. 340-259

10 Claims



Pairs of conductor strips are positioned adjacent a moving conveyor belt for carrying materials. The flexible conductor strips of each pair are spaced to form a plurality of normally open switches in an electric circuit adapted to produce an electric signal. The strips are adjustably positioned for engagement by a protrusion in the conveyor belt whereby one of the flexible conductors of a pair is deflected into engagement with the other to close the electric circuit and produce the electric signal.

3,597,757

VISUALIZATION DEVICE WITH SETS OF VARIABLE CHARACTERS

Jacques J. Vincent-Carrefour, La Sapiniere, Perros-Guirec; Jean-Claude Merlin, 1 rue Marcellin Berthelot, Vanves, and Philippe Pitard, 158 rue de la Convention, Paris, all of, France

Filed Jan. 20, 1970, Ser. No. 4,325
Claims priority, application France, Jan. 22, 1969, 6901071 6901071

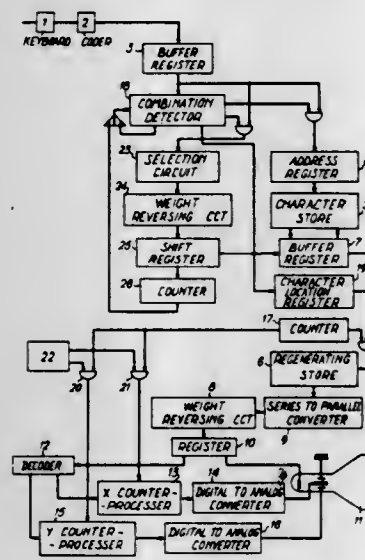
Int. Cl. G06f 3/14

U.S. Cl. 340-324 A

4 Claims

System for displaying characters or patterns on the screen of a cathode-ray tube, with each character or pattern formed

by a group of vectors and with each vector represented by a binary vector word of which one bit controls illumination and extinction of the spot tracing the vector on the screen and the other bits selectively define predetermined directions of incremental tracks of the spot. The system allows characters stored in a character store in the form of character words including a plurality of vector words to be selectively displayed. The character store is associated with a character address register and upon reception of a character address in said register, the character stored at that address in the



character store is displayed. The system permits also the change of the stored characters. For this, a character address word called in the following "fictitious address word" is sent from a remote station; it contains, as a part thereof a vector word contained in the character word of the character to be changed. A selection or chopper circuit chops off suitable bits of the fictitious address word to convert it into the vector word included therein. A function combination detector channels the true character address words towards the address register and the fictitious character address words towards the chopper circuit.

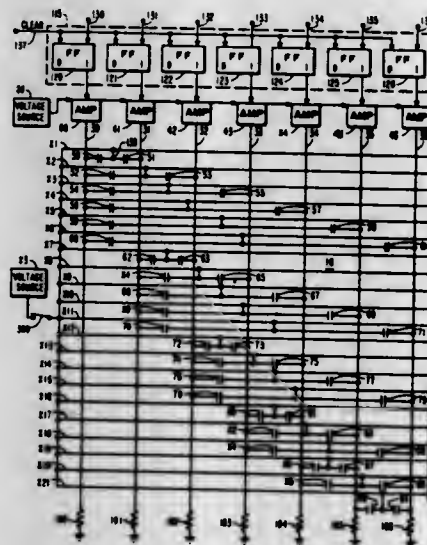
3,597,758

DISPLAY SYSTEM

James C. Greeson, Jr., Woodstock, N.J., and Charles E. Newcomb, Norwood, Mass., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 19, 1968, Ser. No. 785,172
Int. Cl. G09f 9/30

U.S. Cl. 340—324 R

11 Claims



A plasma display panel has X and Y drive lines disposed on opposite sides of the panel, and plural signal sources are connected to the X and Y drive lines for the purpose of generating light characters on a dark background. The panel which may be relatively large consists of an illuminable

gas sealed in a flat envelope. The gas at a selected coordinate intersection is ignited by a firing potential for maintaining illumination of ignited regions is supplied directly to the X and Y drive lines.

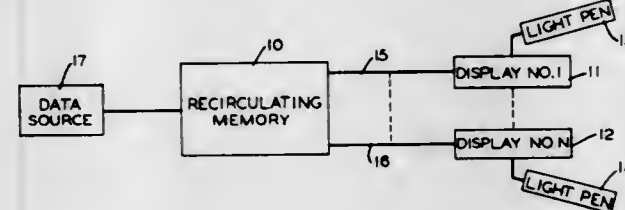
3,597,759

DISPLAY SYSTEM UTILIZING ORDERED DATA STRUCTURE

Arthur D. Hause, Watchung, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 29, 1968, Ser. No. 748,458
Int. Cl. G06k 15/20; G06f 7/22

U.S. Cl. 340—324 A

8 Claims



A limited interaction display system is described. The system features a display console equipped with a light pen and special logic circuitry which is controlled by ordered data signals stored in a memory. The system allows a user to interrogate displayed data and retrieve data interrelationships without the intervention of a computer.

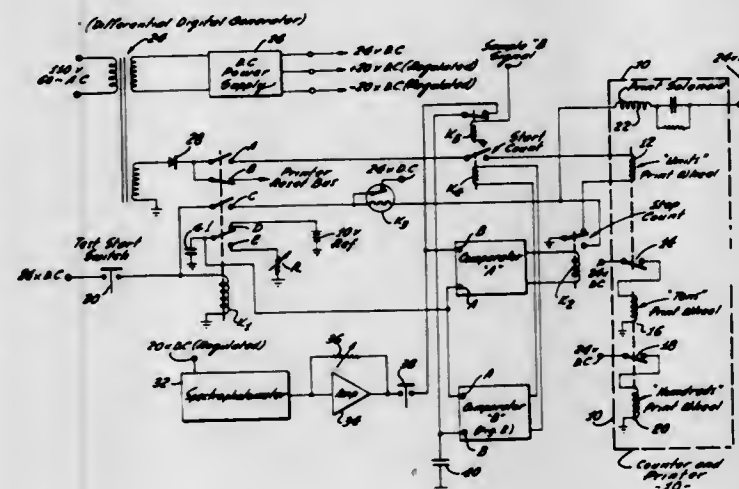
3,597,760

DIFFERENTIAL DIGITAL CONVERTER

Harold L. Fox, Salt Lake City, Utah; Lamont J. Seltz, Tujunga, Calif., and Gale H. Thorne, Salt Lake City, Utah, assignors to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Oct. 31, 1968, Ser. No. 772,332
Int. Cl. G06g 7/18

U.S. Cl. 340—347 AD

4 Claims



An electronic apparatus and system is described for use in conjunction with a spectrophotometer, and the like, and which is capable, for example, of directly reading the difference between two optical transmission readings of two successive test samples; or of converting the difference into a logarithmic scale, indicating the difference in optical densities of the two samples.

3,597,761

HIGH-SPEED ANALOG-TO-DIGITAL CONVERTER AND METHOD THEREFOR

Jerry J. Fraschilla, Sunnyvale; Robert D. Caveney, San Jose, and Ronnie M. Harrison, San Jose, all of Calif., assignors to American Astronics, Inc., Palo Alto, Calif.
Filed Nov. 14, 1969, Ser. No. 876,787
Int. Cl. H03k 13/06

U.S. Cl. 340—347 AD

9 Claims

An analog-to-digital converter having first and second comparator banks where the analog input voltage is applied to both of the comparator banks simultaneously to allow the

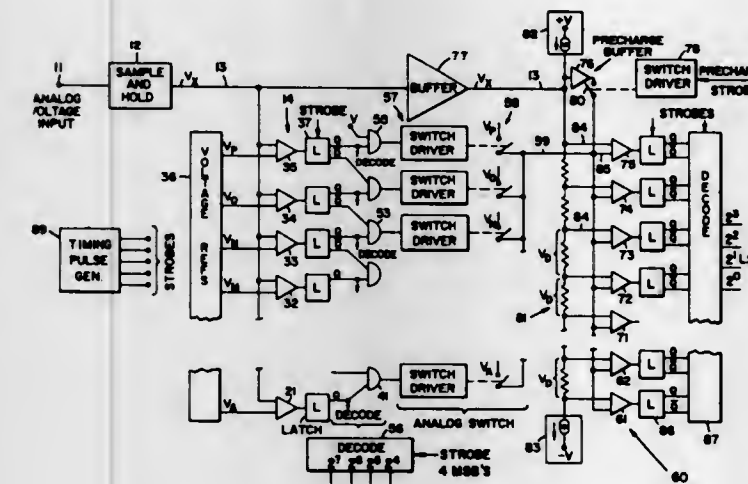
3,597,762

INSTANTANEOUS RANGE CIRCUIT

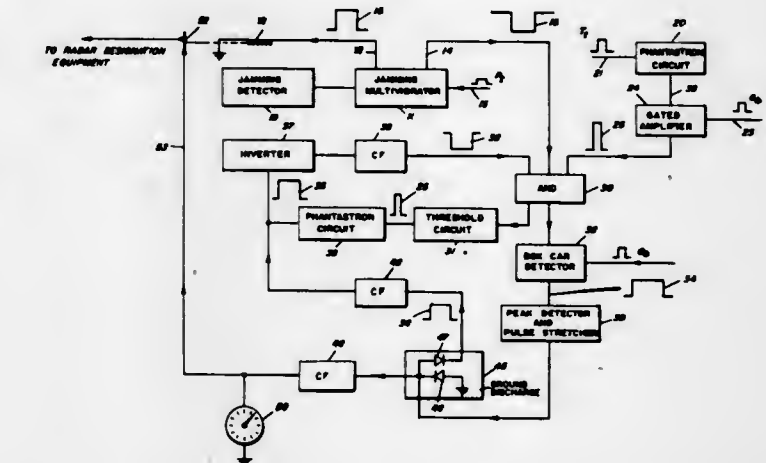
Paul L. DiMatteo, Plainfield, N.Y., assignor to The United States of America as represented by the Secretary of Navy
Filed Feb. 6, 1962, Ser. No. 171,533
Int. Cl. G01s 7/36

U.S. Cl. 343—18 E

4 Claims



voltage and switched to the second comparator bank and serve to adjust the threshold detection level of the second bank. In an alternative embodiment two sample and hold circuits alternately apply samples taken at different times to the two comparator banks.

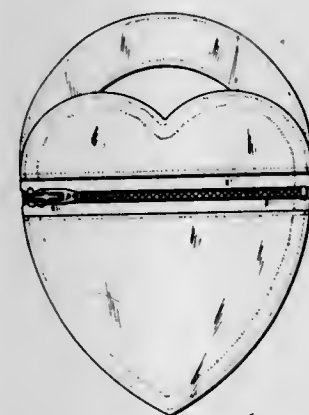


This invention relates to a counter-countermeasure for use in radar systems and more specifically to a circuit which is capable of giving an indication of the range of a target notwithstanding the fact that the target is jamming the radar equipment.

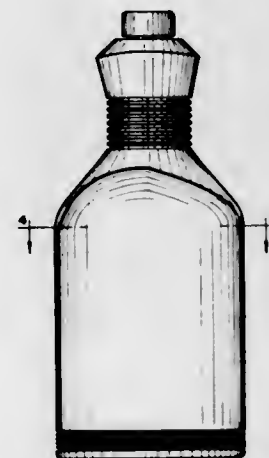
DESIGNS

AUGUST 3, 1971

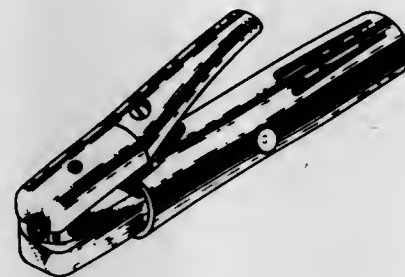
221,327
PREFORMED POCKET FOR A GARMENT
Elizabeth L. Watts, Hayward, Calif., assignor to
George R. Mirande, Fremont Calif.
Filed Feb. 26, 1970, Ser. No. 21,746
Term of patent 14 years
Int. Cl. D2—08
U.S. Cl. D2—400



221,329
BOTTLE OR SIMILAR ARTICLE
Ted L. Beaver, Roselle, Ill., assignor to Continental Can
Company, Inc., New York, N.Y.
Filed Aug. 12, 1970, Ser. No. 24,441
Term of patent 14 years
Int. Cl. D9—01
U.S. Cl. D9—67



221,328
**COMPRESSED AIR ELECTRIC ARC CUTTING AND
GOUGING TORCH COMBINATION**
Harold R. Henderson, Stephen A. Hoffman, and Myron
D. Stepath, Lancaster, Ohio, assignors to Arcair Com-
pany, Lancaster, Ohio
Filed Sept. 16, 1969, Ser. No. 19,173
Term of patent 14 years
Int. Cl. D8—02
U.S. Cl. D8—98



221,330
WALL PANEL
Lester V. Ottinger, Danbury, Conn., and Donald F. Luebs,
Vienna, Va., assignors to U.S. Plywood-Champion
Papers Inc., New York, N.Y.
Filed June 17, 1970, Ser. No. 23,546
Term of patent 14 years
Int. Cl. D25—01
U.S. Cl. D13—1

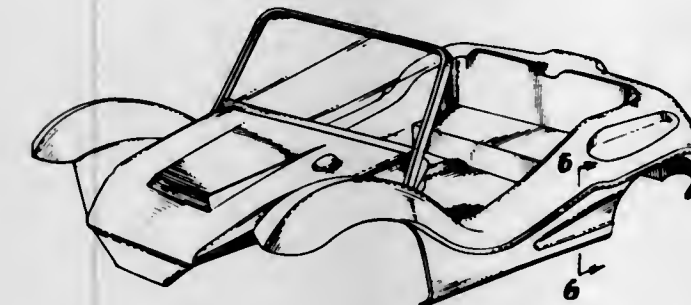


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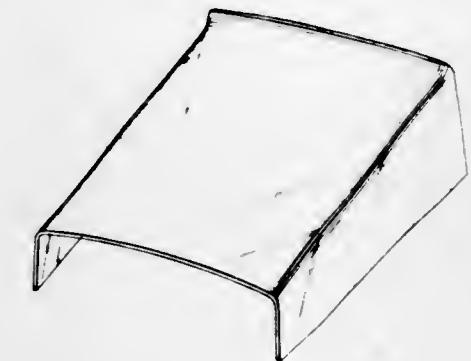
U. S. PATENT OFFICE

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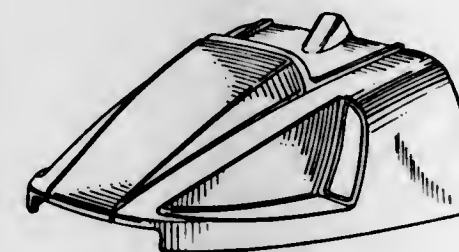
221,331
VEHICLE BODY
Joseph C. Vlttone, Riverside, Calif., assignor to
Engineered Motor Products, Inc., Riverside, Calif.
Filed Oct. 8, 1969, Ser. No. 19,472
Term of patent 14 years
Int. Cl. D12—08
U.S. Cl. D14—3



221,334
SNOWMOBILE WINDSHIELD
Yves Anselme Lapointe and Anthony Mackeen, Val-
court, Quebec, Canada, assignors to Bombardier
Limited, Valcourt, Quebec, Canada
Filed Oct. 6, 1969, Ser. No. 19,429
Term of patent 14 years
Int. Cl. D12—14
U.S. Cl. D14—24



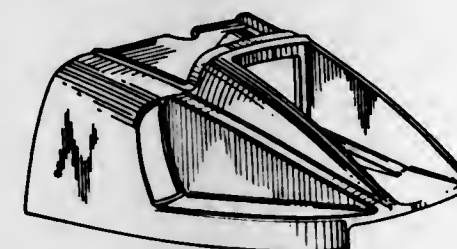
221,332
SNOWMOBILE COWL
Anthony D. MacKeen and Yves Anselme Lapointe, Val-
court, Quebec, Canada, assignors to Bombardier
Limited, Valcourt, Quebec, Canada
Filed Oct. 6, 1969, Ser. No. 19,424
Term of patent 14 years
Int. Cl. D12—13
U.S. Cl. D14—24



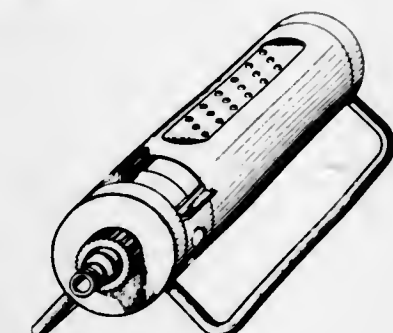
221,335
SWORD
James Alfred Clayton, Acton, England, assignor to
Wilkinson Sword Limited, London, England
Filed May 29, 1969, Ser. No. 17,424
Term of patent 14 years
Int. Cl. D22—01
U.S. Cl. D22—1



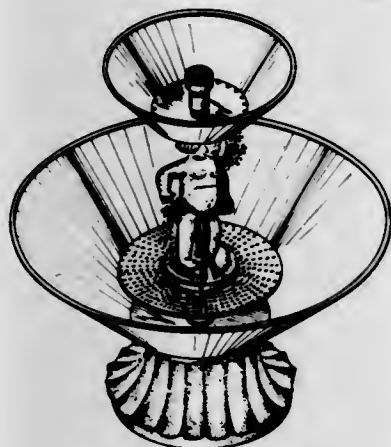
221,333
SNOWMOBILE COWL
Anthony D. MacKeen and Yves Anselme Lapointe, Val-
court, Quebec, Canada, assignors to Bombardier
Limited, Valcourt, Quebec, Canada
Filed Oct. 6, 1969, Ser. No. 19,425
Term of patent 14 years
Int. Cl. D12—13
U.S. Cl. D14—24



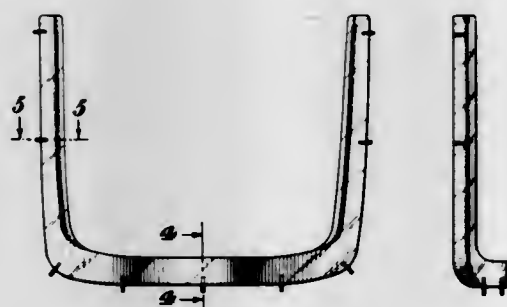
221,336
OSCILLATING SPRINKLER
Dieter Raffler, Olgastr. 87; and Franco Clivio, Olgastr. 64,
both of Ulm, Germany; and Johan Katzer, Karls-
baderstr. 19, Neu-Ulm, Germany
Filed Sept. 8, 1969, Ser. No. 19,057
Claims priority, application Germany Mar. 13, 1969
Term of patent 14 years
Int. Cl. D23—01
U.S. Cl. D23—8



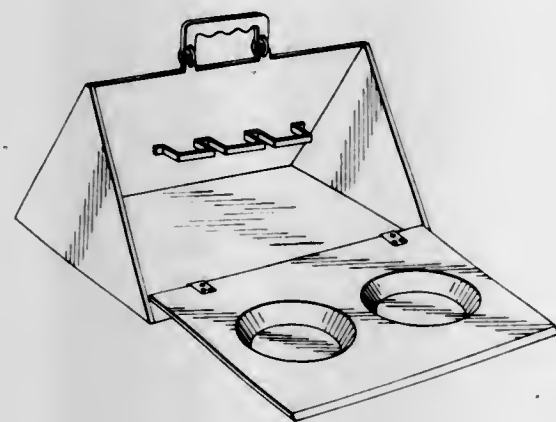
221,337
FOUNTAIN OR THE LIKE
 Carl Price, 17218 Escalon Drive, Encino, Calif. 91316
 Filed Oct. 15, 1969, Ser. No. 19,584
 Term of patent 14 years
 Int. Cl. D23—01
 U.S. Cl. D23—13



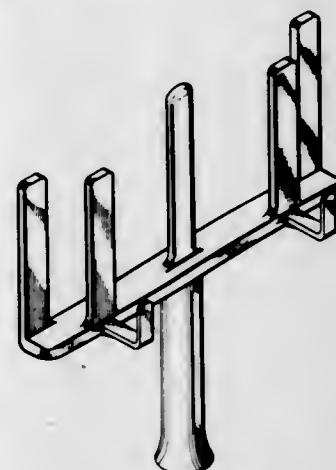
221,338
DENTAL DAM FRAME
 Dennis G. Brave, 1600 Garrett Road,
 Upper Darby, Pa. 19082
 Filed Apr. 1, 1970, Ser. No. 22,166
 Term of patent 14 years
 Int. Cl. D24—03
 U.S. Cl. D24—1



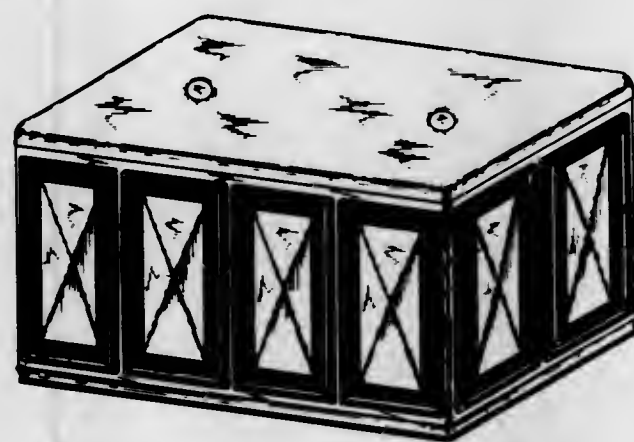
221,339
PET TRAVEL KIT
 Charles H. Holycross, 240 Eldridge St.,
 Long Beach, Calif. 90807
 Filed Feb. 24, 1970, Ser. No. 21,583
 Term of patent 3½ years
 Int. Cl. D30—01
 U.S. Cl. D30—1



221,340
BOOK SUPPORT FOR HOLDING A BOOK
IN OPEN POSITION
 Morton S. Pearl, 1940 Bay Drive,
 Miami Beach, Fla. 33141
 Filed Mar. 4, 1970, Ser. No. 21,740
 Term of patent 14 years
 Int. Cl. D6—99
 U.S. Cl. D33—3



221,341
CHEST
 Monte L. Levin, New York, N.Y., assignor to Pearl-Wick
 Corporation, Long Island City, N.Y.
 Filed Feb. 18, 1970, Ser. No. 21,494
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D33—6



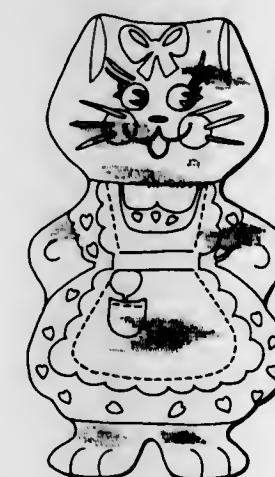
221,342
ANIMAL FIGURE DOLL
 Anthony Chrones, 52 Wood Haven Blvd.,
 North Providence, R.I. 02908
 Filed May 25, 1970, Ser. No. 23,128
 Term of patent 3½ years
 Int. Cl. D21—02
 U.S. Cl. D34—2



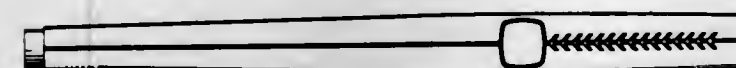
221,343
ANIMAL FIGURE DOLL
 Anthony Chrones, 52 Wood Haven Blvd.,
 North Providence, R.I. 02908
 Filed May 25, 1970, Ser. No. 23,129
 Term of patent 14 years
 Int. Cl. D21—02
 U.S. Cl. D34—2



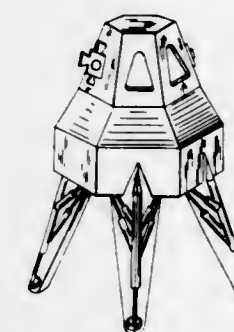
221,344
ANIMAL FIGURE DOLL
 Anthony Chrones, 52 Wood Haven Blvd.,
 North Providence, R.I. 02908
 Filed May 25, 1970, Ser. No. 23,130
 Term of patent 14 years
 Int. Cl. D21—02
 U.S. Cl. D34—2



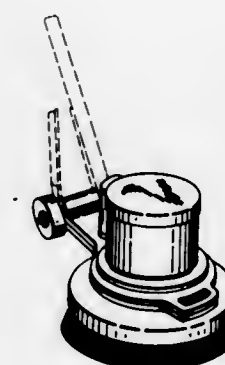
221,345
PUTTER GOLF CLUB GRIP
 Victor L. Dworak, Huntington Beach, and John J. Baker,
 Laguna Hills, Calif., assignors to AMF Incorporated
 Filed Apr. 1, 1969, Ser. No. 16,543
 Term of patent 14 years
 Int. Cl. D21—03
 U.S. Cl. D34—5



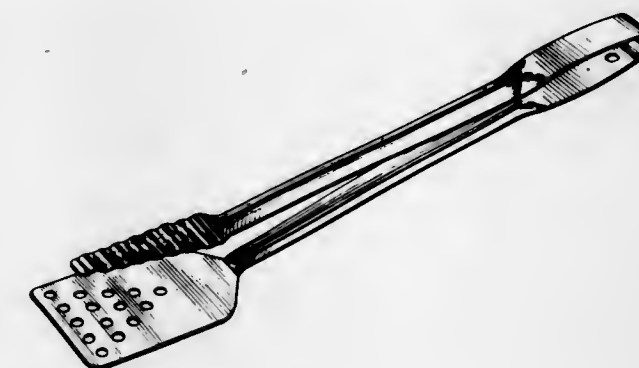
221,346
LUNAR EXCURSION MODULE TOY
 Robert B. Pennington, Jr., 17210 Parkland Drive,
 Shaker Heights, Ohio 44122
 Filed Jan. 7, 1970, Ser. No. 20,804
 Term of patent 14 years
 Int. Cl. D21—02
 U.S. Cl. D34—15



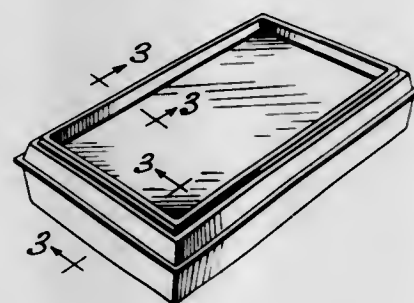
221,347
BASE OF A FLOOR MACHINE
 Robert C. Albers, Lakewood, Ohio, and John W. Albers,
 Ballwin, Mo., assignors to Hadco Corporation, Cleve-
 land, Ohio
 Filed Oct. 21, 1969, Ser. No. 19,652
 Term of patent 14 years
 Int. Cl. D15—05
 U.S. Cl. D37—1



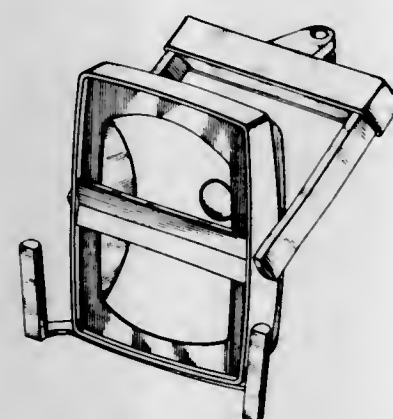
221,348
FOOD HANDLING TONGS OR THE LIKE
 Beekman W. Myer, Wood Dale, and Leslie W. Seibert, Jr.,
 Northbrook, Ill., assignors to Chicago Display Com-
 pany, Melrose Park, Ill.
 Filed Apr. 9, 1970, Ser. No. 22,348
 Term of patent 14 years
 Int. Cl. D7—03
 U.S. Cl. D44—4



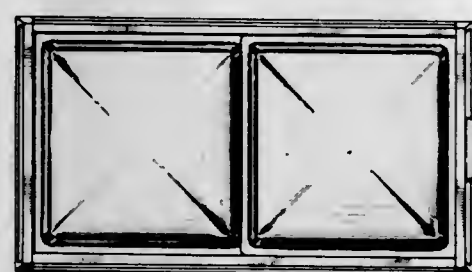
221,349
SERVING TRAY
 John A. Bridges, Nashville, and Margaret E. Wilson,
 Chapel Hill, Tenn., assignors to Aladdin Industries, In-
 corporated, Chicago, Ill.
 Filed Dec. 17, 1969, Ser. No. 20,536
 Term of patent 14 years
 Int. Cl. D7—01
 U.S. Cl. D44—10



221,350
DENTAL LIGHT OR SIMILAR ARTICLE
 Alexander Schwan, 3131 Westchester Road,
 Toledo, Ohio 43615
 Filed Jan. 26, 1970, Ser. No. 21,071
 Term of patent 14 years
 Int. Cl. D26—02
 U.S. Cl. D48—20



221,351
**LIGHTING FIXTURE FOR RECREATIONAL
 VEHICLES, BOATS OR THE LIKE**
 Bruce G. Remington, Vicksburg, Mich., assignor to
 Progressive Dynamics, Inc., Marshall, Mich.
 Filed Dec. 29, 1969, Ser. No. 20,670
 Term of patent 14 years
 Int. Cl. D12—99; D26—02
 U.S. Cl. D48—32



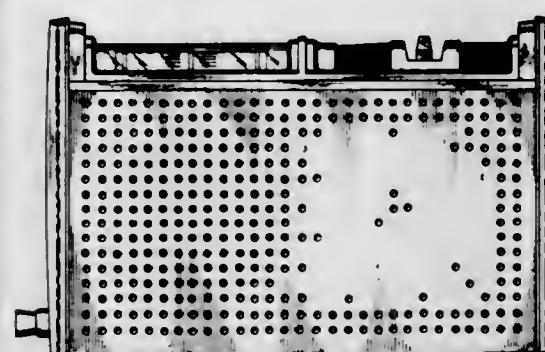
221,352
**STABILIZER FOR AN ELECTRIC PRESSING
 IRON HANDLE**
 John E. Reed, Glen Ellyn, Ill., assignor to
 Sunbeam Corporation, Chicago, Ill.
 Filed Apr. 10, 1970, Ser. No. 22,363
 Term of patent 14 years
 Int. Cl. D7—06
 U.S. Cl. D49—6



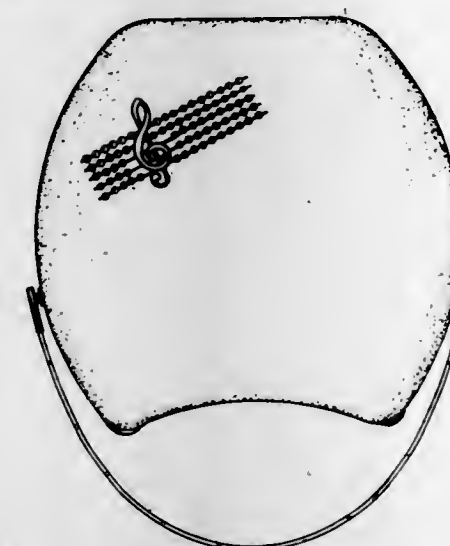
221,353
DIFFERENTIAL
 Hans Hauser, Fredericktown, Ohio, assignor to The J. B.
 Foote Foundry Co., Fredericktown, Ohio
 Filed Mar. 5, 1970, Ser. No. 21,758
 Term of patent 14 years
 Int. Cl. D15—99
 U.S. Cl. D55—1



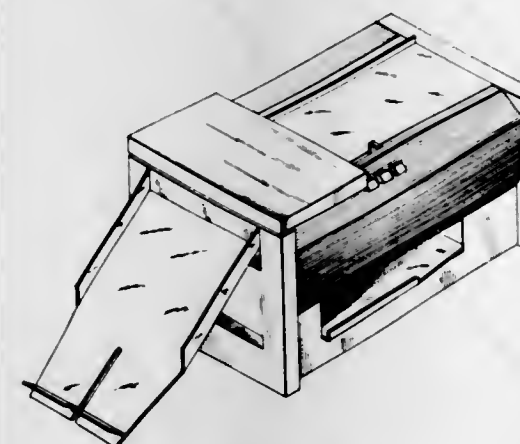
221,354
PORTABLE RADIO
 Richard Cubertson, Manlius, N.Y., assignor to
 General Electric Company
 Filed June 25, 1970, Ser. No. 23,676
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D56—4



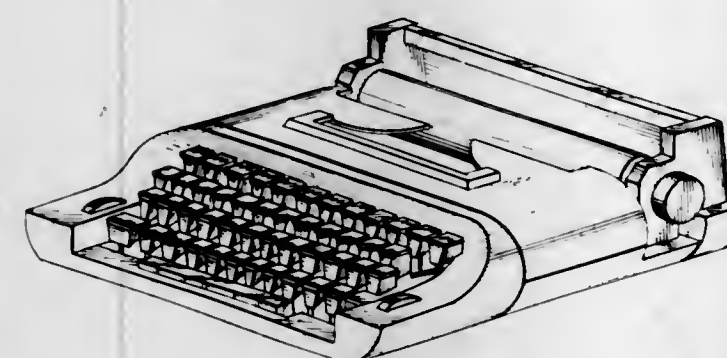
221,355
**PORTABLE AUTOMATIC RECORD PLAYER
 OR SIMILAR ARTICLE**
 Antonio Melandri, Viale Lunigiana 42, Milan, Italy
 Filed Nov. 3, 1969, Ser. No. 19,905
 Claims priority, application Italy May 2, 1969
 Term of patent 14 years
 Int. Cl. D14—01
 U.S. Cl. D56—4



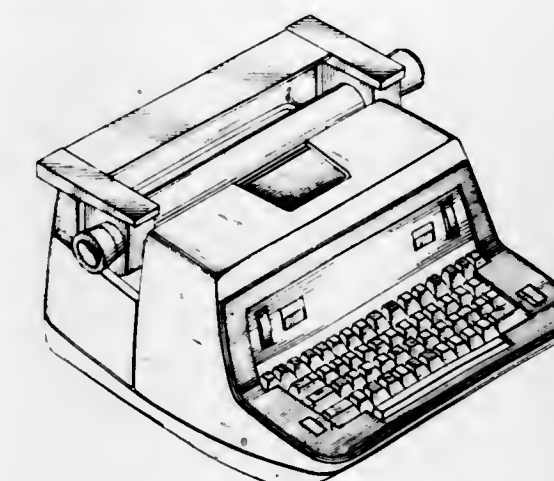
221,356
ELECTROSTATIC COPIER
 Richard H. Penney, New York, N.Y., assignor to
 Sperry Rand Corporation, New York, N.Y.
 Filed Feb. 19, 1970, Ser. No. 21,513
 Term of patent 14 years
 Int. Cl. D16—05
 U.S. Cl. D61—1



221,357
TYPEWRITER
 Richard H. Penney, New York, N.Y., assignor to
 Sperry Rand Corporation, New York, N.Y.
 Filed Aug. 11, 1969, Ser. No. 18,618
 Term of patent 14 years
 Int. Cl. D18—01
 U.S. Cl. D64—11



221,358
TYPEWRITER
 Donald M. Genaro, Haworth, N.J., assignor to
 Sperry Rand Corporation, New York, N.Y.
 Filed Sept. 3, 1969, Ser. No. 18,991
 Term of patent 14 years
 Int. Cl. D18—01
 U.S. Cl. D64—11



221,359
PONTOON VESSEL
 Leedice S. Smith, Spokane, Wash. (Elk, Wash. 99009)
 Filed Apr. 13, 1970, Ser. No. 22,412
 Term of patent 14 years
 Int. Cl. D21—02
 U.S. Cl. D71—1

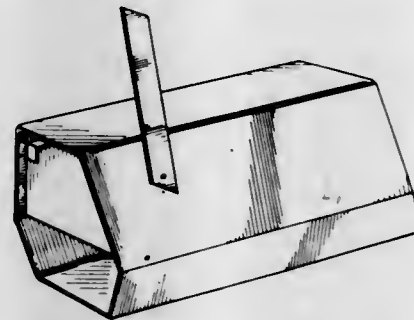


221,360
CLIP BOARD
 Warren V. Prince, 307 N. East St.,
 Anaheim, Calif. 92805
 Filed Dec. 22, 1969, Ser. No. 20,596
 Term of patent 14 years
 Int. Cl. D19—99
 U.S. Cl. D74—2



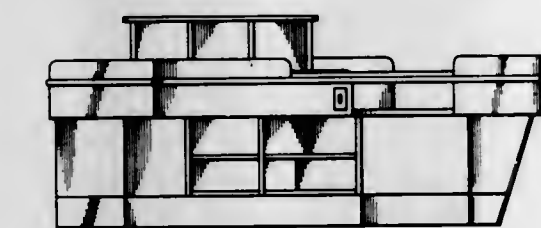
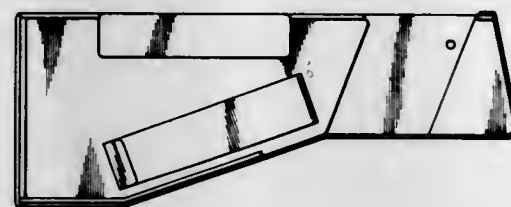
221,361
MAILBOX OR SIMILAR ARTICLE
 Walter L. Parker, R.F.D. 14, Box 318R,
 Richmond, Va. 23231
 Filed Nov. 20, 1969, Ser. No. 20,202
 Term of patent 14 years
 Int. Cl. D31

U.S. Cl. D74—9



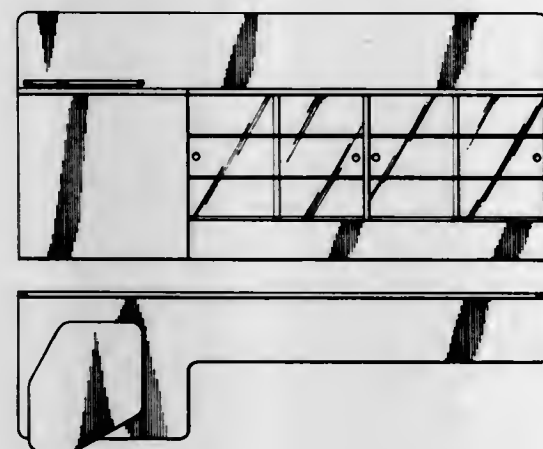
221,362
CHECK STAND OR SIMILAR ARTICLE
 Oscar Ray Henderson, Covina, Calif.
 (12774 Islandview Ave., Uniontown, Ohio 44685)
 Filed Feb. 12, 1970, Ser. No. 21,416
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D80—2



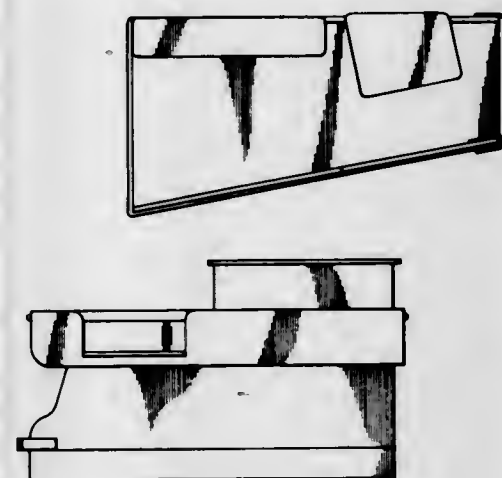
221,363
COMBINED REGISTER STAND AND DISPLAY CABINET
 Oscar Ray Henderson, Covina, Calif.
 (12774 Islandview Ave., Uniontown, Ohio 44685)
 Filed Feb. 12, 1970, Ser. No. 21,417
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D80—2



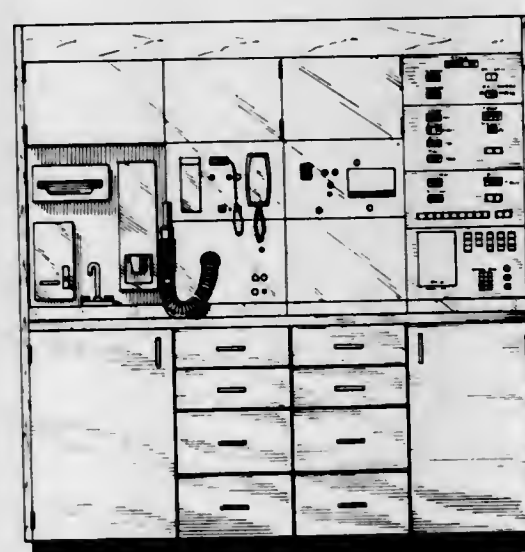
221,364
CHECK STAND OR SIMILAR ARTICLE
 Oscar Ray Henderson, 652 W. Arrow Highway,
 Covina, Calif. 91722
 Filed Mar. 11, 1970, Ser. No. 21,849
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D80—2



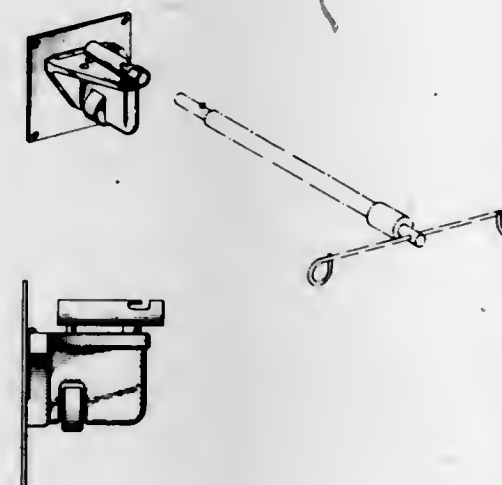
221,365
MEDICAL DIAGNOSTIC CONSOLE
 Walter M. Miller, Arlington Heights, and Ronald W. Jodat, Park Ridge, Ill., assignors to Medequip Corporation
 Filed Jan. 26, 1970, Ser. No. 21,096
 Term of patent 14 years
 Int. Cl. D24—02; D6—01

U.S. Cl. D83—1



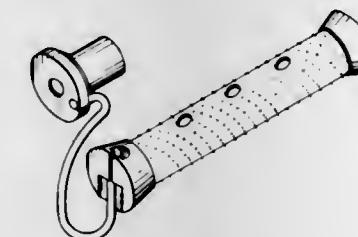
221,366
INTRAVENOUS ROD HOLDER
 Joseph P. Saternus, Midlothian, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.
 Filed Mar. 24, 1970, Ser. No. 22,195
 Term of patent 14 years
 Int. Cl. D24—02; D8—03

U.S. Cl. D83—1



221,367
HAIR WAVING RODS
 Weldon K. Weldon, 130 Broad St.,
 Jacksonville, Fla. 32202
 Filed Oct. 21, 1969, Ser. No. 19,654
 Term of patent 14 years
 Int. Cl. D11—03

U.S. Cl. D86—10



221,368
COMBINED UMBRELLA AND SHEATH
 Manfred Bremshey, Mount Royal, Quebec, Canada, assignor to Telesco Brophy Limited, Montreal, Quebec, Canada
 Continuation-in-part of design application Ser. No. 14,435, Nov. 13, 1968. This application Feb. 19, 1970, Ser. No. 21,512
 Claims priority, application Canada June 5, 1968
 Term of patent 14 years
 Int. Cl. D3—03

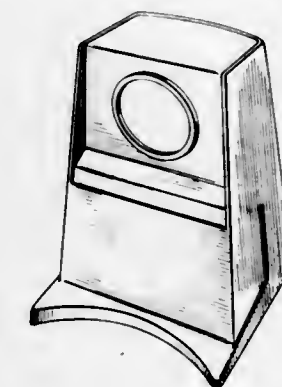
U.S. Cl. D87—1



889 O.G.—12

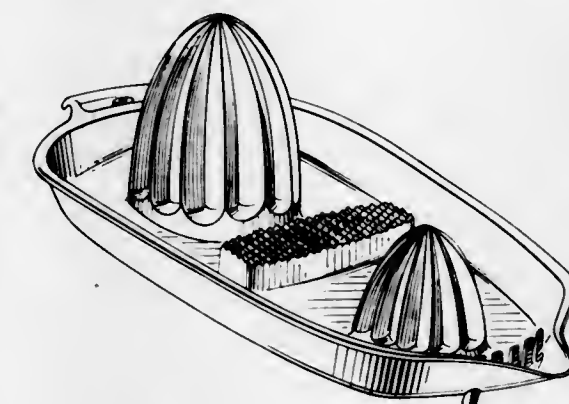
221,369
POWER UNIT FOR KITCHEN APPLIANCES
 Monte L. Levin, New York, N.Y., assignor to Scovill Manufacturing Company, Waterbury, Conn.
 Filed Mar. 2, 1970, Ser. No. 21,705
 Term of patent 14 years
 Int. Cl. D7—04

U.S. Cl. D89—1



221,370
JUICER
 Lothar Hutzler, Long Beach, N.Y., assignor to Hutzler Manufacturing Company, Long Island City, N.Y.
 Filed July 28, 1970, Ser. No. 24,181
 Term of patent 7 years
 Int. Cl. D7—05

U.S. Cl. D89—1



221,371
TEXTILE FABRIC
 George Hilliard Hughes, Asheville, N.C., assignor to Beacon Manufacturing Company, Swannanoa, N.C.
 Filed Nov. 28, 1969, Ser. No. 20,300
 Term of patent 14 years
 Int. Cl. D5—02

U.S. Cl. D92—1



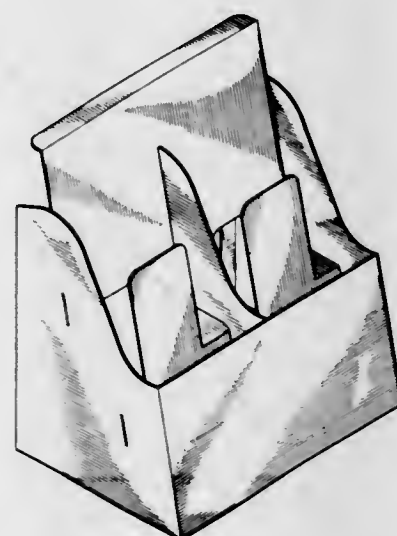
221,372
TOWEL OR SIMILAR ARTICLE
 Leonard C. Clementi, Huntington, N.Y., assignor to
 Cannon Mills Company, Kannapolis, N.C.
 Filed June 9, 1970, Ser. No. 23,398
 Term of patent 14 years
 Int. Cl. D6—09

U.S. Cl. D92—26



221,373
BROCHURE STAND
 Paul N. Gallat, 4333 East 10 Lane,
 Hialeah, Fla. 33013
 Filed Mar. 9, 1970, Ser. No. 21,797
 Term of patent 14 years
 Int. Cl. D20—03

U.S. Cl. D96—3



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 3d DAY OF AUGUST, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- 1/3% to Kummerer, Richard A.: See—
 Den Besten, Alfred; and 1/3% to Kummerer, Richard A., 3,596,527.
- A & A Die Casting Co.: See—
 Roe, Forrest D., 3,596,704.
- Aaronson, Stephen F.; Garnich, Alvin B.; and Morris, Errick G., to Eaton Yale & Towne, Inc. Load handling apparatus. 3,596,789, Cl. 214-730.
- AB Braas Spegelindustri: See—
 Allander, Claes Vilhelm, 3,596,867.
- Ab-Der-Halden, Claude, to Proabd S. A. Process and apparatus for the purification of crystallizable organic compounds. 3,597,164, Cl. 23-273.
- Abbey, Harold G. Solid-state regulation of power supplies. 3,597,674, Cl. 321-5.
- Abbey, Janet Ballard, 15% to Lacheen, Jerome H. Educational teaching and testing device. 3,596,377, Cl. 35-22.
- Abbott Laboratories: See—
 Forry, Donald R.; Cummings, Charles A.; Russell, Robert; Peralta, Ben C.; Schaffer, Albert M.; Denny, Dale A.; and Welch, William H., 3,596,501.
- Winn, Martin, 3,597,422.
- Abel, Edward P.; and Minsk, Louis M., to Eastman Kodak Company. Photographic silver halide and a poly(vinyl alcohol) binding agent. 3,597,215, Cl. 96-114.
- Abelow, Joseph: See—
 Nevarez Ocamop, Ricardo J., 3,597,513.
- Abendroth, Karl W., to General Signal Corporation. Warning light housing. 3,597,606, Cl. 240-41.3.
- Abildgaard Laboratories, Inc.: See—
 Abildgaard, William H.; and Groswith, Charles T., III, 3,596,929.
- Abildgaard, William H.; and Groswith, Charles T., III, to Abildgaard Laboratories, Inc. Book formed of plastic strips and studs. 3,596,929, Cl. 281-21.
- Abitibi St. Anne Paper Ltd.: See—
 Hamilton, Douglas D.; and Boivin, Joseph J. R., 3,596,690.
- A B Nordiska Piono: See—
 Lager, Birger, 3,596,552.
- Acheson, John L.: See—
 Clark, Richard J.; Acheson, John L.; and Landherr, Lawrence R., 3,596,677.
- Ackermann, Jacob; Radici, Pierino; and Anessi, Giorgio, to Societa Italiana Resine S.p.A. Stabilization of polyoxymethylenes. 3,597,396, Cl. 260-67.
- Acme Building Land Trust (No. 47912): See—
 Dorn, Fred H., 3,597,077.
- Acme-Hamilton Manufacturing Corporation: See—
 Elson, Arthur M., 3,596,681.
- Adaks Products Incorporated: See—
 Pandajis, Costantinos; Flint, David G.; and Heen, Helge K., 3,596,812.
- Adam, Gunter, to Hannes Marker. Toe iron for safety ski bindings. 3,596,919, Cl. 280-11.35.
- Adamovske strojirny narodni podnik: See—
 Jurny, Josef, 3,596,903.
- Adams, Derek Stanley; and Thompson, Michael Ainley, to Lucas, Joseph, (Industries) Limited. Motor speed system with switching frequency control. 3,597,671, Cl. 318-332.
- Adams, Donald L. Plug valve manifold. 3,596,680, Cl. 137-637.
- Adams, John Q. Air current deflecting device. 3,596,974, Cl. 296-1.
- Adams, Norman S.: See—
 Ortner, Robert C.; and Adams, Norman S., 3,596,609.
- Adams, Robert P., to Cenco Medical/Health Supply Corporation, mesne. Peristaltic pump. 3,597,124, Cl. 417-477.
- Adickes, Cecil F., to Tonka Corporation. Combination helmet and hanger means for carrying toy vehicles. 3,596,289, Cl. 2-3.
- Adrian, Philip R., to Fruit Harvesting Co., Inc. Fruit-harvester. 3,596,455, Cl. 56-329.
- Adsit, Lewis E.: See—
 Gowan, Richard L.; and Adsit, Lewis E., 3,597,628.
- Aero-Vac Corporation: See—
 Pagano, Frank, 3,597,084.
- Aeroflex Laboratories Incorporated: See—
 Mangan, Joseph P., 3,597,721.
- AGA Aktiebolag: See—
 Granqvist, Carl-Erik; and Bjork, Nils Arvid Norman, 3,597,534.
- Niss, Erik, 3,597,092.
- Wiklund, Klas Rudolf, 3,596,364.
- Agfa-Gevaert Aktiengesellschaft: See—
 Glockner, Hans; Kuffner, Karl; Stark, Herbert; and Gotthard, Hans, 3,597,199.
- Aisin Seki Company Limited: See—
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3.596,568	3.596,546	3.596,829	3.596,917	3.596,678	3.596,732
3.596,672	3.596,573	3.596,833	3.596,961	3.596,693	3.596,747
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3.597,491	3.597,242	3.597,282	3.597,198	3.597,043	3.597,357
22 : 3.596,700	3.597,251	3.597,291	3.597,201	3.597,093	3.597,358
3.597,260	3.597,284	3.597,302	3.597,202	3.597,110	3.597,390
3.597,487	3.597,395	3.597,311	3.597,206	3.597,126	3.597,432
3.597,488	3.597,415	3.597,321	3.597,207	3.597,175	3.597,442
23 : 3.596,468	3.597,418	3.597,322	3.597,209	3.597,179	3.597,479
24 : 3.596,310	3.597,481	3.597,332	3.597,210	3.597,180	3.597,493
3.596,364	3.597,482	3.597,341	3.597,212	3.597,181	3.597,512
3.596,402	3.597,500	3.597,366	3.597,213	3.597,187	3.597,518
3.596,686	3.597,515	3.597,377	3.597,214	3.597,211	3.597,519
3.596,730	3.597,555	3.597,382	3.597,215	3.597,224	3.597,521
3.596,782	3.597,572	3.597,387	3.597,232	3.597,225	3.597,556
3.596,852	3.597,573	3.597,397	3.597,272	3.597,226	3.597,589
3.596,911	3.597,674	3.597,401	3.597,305	3.597,230	3.597,603
3.596,984	3.597,723	3.597,425	3.597,315	3.597,246	3.597,604
3.597,080	3.597,729	3.597,430	3.597,327	3.597,249	3.597,613
3.597,154	3.597,752	3.597,435	3.597,363	3.597,255	3.597,662
3.597,235	3.597,756	3.597,440	3.597,404	3.597,259	3.597,669
3.597,312	27 : 3.596,432	3.597,445	3.597,409	3.597,261	3.597,720
3.597,444	3.596,454	3.597,451	3.597,413	3.597,265	3.597,731
3.597,618	3.596,558	3.597,455	3.597,420	3.597,283	43 : 3.596,427
3.597,676	3.596,630	3.597,456	3.597,426	3.597,294	3.596,869
3.597,746	3.596,662	3.597,475	3.597,427	3.597,298	3.597,090
25 : 3.596,302	3.596,784	3.597,485	3.597,431	3.597,378	3.596,296
3.596,318	3.596,900	3.597,486	3.597,465	3.597,383	3.596,379
3.596,326	3.596,904	3.597,510	3.597,469	3.597,403	3.596,464
3.596,329	3.597,105	3.597,539	3.597,503	3.597,406	3.596,512
3.596,340	3.597,121	3.597,549	3.597,529	3.597,416	3.596,768
3.596,408	3.597,125	3.597,531	3.597,531	3.597,417	3.596,910
3.596,415	3.597,295	3.597,624	3.597,536	3.597,428	3.596,913
3.596,481	3.597,297	3.597,626	3.597,538	3.597,463	3.596,909
3.596,520	3.597,304	3.597,630	3.597,560	3.597,517	45 : 3.597,036
3.596,556	3.597,389	3.597,639	3.597,582	3.597,544	3.597,145
3.596,597	3.597,677	3.597,658	3.597,602	3.597,602	3.597,148
3.596,682	28 : 3.596,622	3.597,672	3.597,606	3.597,616	3.596,727
3.596,713	3.597,590	3.597,699	3.597,627	3.597,619	3.596,878
3.596,742	29 : 3.596,513	3.597,706	3.597,650	40 : 3.596,354	47 : 3.596,486
3.596,801	3.596,539	3.597,734	3.597,653	3.596,367	3.596,617
3.596,841	3.596,625	3.597,741	3.597,655	3.596,419	3.596,651
3.596,847	3.596,813	3.597,748	3.597,660	3.596,610	3.596,684
3.596,937	3.596,827	3.597,753	3.597,667	3.596,626	3.596,755
3.596,958	3.596,974	3.597,754	3.597,697	3.596,636	3.597,004
3.596,985	3.597,008	3.597,759	3.597,698	3.596,739	3.597,167
3.597,062	3.597,014	35 : 3.596,496	3.597,700	3.596,794	3.597,344
3.597,069	3.597,015	3.596,506	3.597,703	3.596,816	3.597,360
3.597,079	3.597,116	3.597,173	3.597,721	3.596,835	3.597,398

47 : 3,597,434	48 : 3,596,766	48 : 3,597,380	49 : 3,597,760	53 : 3,596,505	55 : 3,596,605
48 : 3,596,337	3,596,785	3,597,402	50 : 3,596,395	3,596,588	3,596,677
3,596,417	3,596,927	3,597,452	3,596,557	3,596,612	3,596,709
3,596,437	3,596,931	3,597,470	3,596,995	3,596,866	3,596,767
3,596,439	3,597,005	3,597,476	3,596,999	3,596,973	3,596,809
3,596,511	3,597,006	3,597,502	51 : 3,596,320	3,596,993	3,596,810
3,596,516	3,597,007	3,597,542	3,596,435	3,597,374	3,596,858
3,596,629	3,597,035	3,597,681	3,596,596	3,597,375	3,597,081
3,596,665	3,597,055	3,597,713	3,596,843	3,597,689	3,597,280
3,596,667	3,597,120	3,597,717	3,596,925	3,596,392	3,597,299
3,596,680	3,597,170	3,597,727	3,596,936	3,597,371	3,597,562
3,596,714	3,597,257	3,597,730	3,597,394	55 : 3,596,303	3,597,563
3,596,720	3,597,323	49 : 3,596,874	3,597,614	3,596,495	3,597,575
3,596,723	3,597,346	3,597,158	3,597,737	3,596,587	3,597,580
3,596,764	3,597,352	3,597,744	53 : 3,596,457	3,596,591	56 : 3,596,544

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6 : 221,327	6 : 221,363	17 : 221,348	36 : 221,354	39 : 221,328	44 : 221,342
221,331	221,364	221,352	221,356	221,346	221,343
221,337	9 : 221,330	221,355	221,357	221,347	221,344
221,339	12 : 221,340	221,366	221,369	221,350	47 : 221,349
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PATENT OFFICE NOTICES

Printing of Chemical Patents

In view of financial and scheduling considerations associated with the closing of Fiscal Year 1971, no chemical patents will appear in the patent issues of August 24 and 31, and September 7 and 14, 1971. Chemical patents will again be issued on September 21, 1971.

July 6, 1971.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Patent Suite

Notices under 35 U.S.C. 200; Patent Act of 1952

2,806,891, L. Ritter, ACID STABILIZED TETRACYCLINE SALTS; 2,806,892, Kneegle and Ritter, ANTIBIOTIC IN-TRANS-GLUCAR COMPOSITION, filed Jan. 20, 1971, D.C. C.A. 5-787, (Los Angeles), Doc. 71-508-JWC, American Cyanamid Company v. Beecham Laboratories, Inc.

2,806,893, L. Ritter, TOW TARGET SYSTEMS COMBINING SIGNAL MEANS, filed Jan. 21, 1971, U.S. Ct. of Cl. Washington, D.C., Doc. 71-509, Bell Telephone Laboratories v. The United States of America.

2,806,894, O. F. MacLaren, STRUCTURES FOR FOLDING BABY-CARRIAGES, CHAIRS AND THE LIKE, filed Dec. 7, 1970, D.C., S.D.N.Y., Doc. 70-C-5348, Owen Finlay MacLaren and Miron Charles Bell v. B-I-W Group Inc.

2,804,739, Bower, Wykes and Bonds, CONTROL SYSTEM FOR SELF-PROPELLED SPRINKLING APPARATUS, filed Feb. 16, 1970, D.C., N.D. Tex. (Lubbock), Doc. CA-5-787, Layne & Bowler Pump Company v. Gifford-Hill Western Inc. Judgment in favor of plaintiff; plaintiff is the sole and exclusive owner of said patent.

2,806,894, W. B. Bridges, IONIZED NOBLE GAS LASER, filed Feb. 16, 1971, D.C., N.D. Calif. (San Francisco), Doc. C-71-200 LEB, Hughes Aircraft Corp. v. Coherent Radiation, Inc.

2,407,882, P. G. Cassidy, BASEMENT WATERPROOFING METHOD AND ARRANGEMENT, filed Feb. 12, 1971, D.C., N.D. Ill. (Chicago), Doc. 71-608, Paul G. Cassidy and Paul G. Cassidy & Co. v. John R. Schuch, Aqua Waterproofing Co.

2,806,895, Demarest and Karlson, LIGHT BULB WITH A PLURALITY OF INDEPENDENTLY CONNECTED FILAMENTS FOR INDICATING GRAPHIC SYMBOLS, filed May 1, 1970, D.C., N.D. Ill. (Chicago), Doc. 70-1044, Safco Technology Development Corp. v. General Instrument Corp. Signed (containing) order with prejudice, Mar. 1, 1971.

2,806,896, J. A. Pines, REINFORCED METAL POWDER;

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D. 291,144, G. Schanz, COMBINATION STORING AND STACKING CASE, filed Feb. 26, 1967, D.C., E.D.N.Y. (Brooklyn), Doc. 67-C-62, G. B. Lewis Co. v. Continental Dynamics Corp. and Global Equipment Co. Order of discontinuance, Feb. 24, 1971.

D. 212,864, R. Fraige, LENS FOR SPECTACLES, filed Sept. 18, 1970, D.C., N.D. Ill. (Chicago), Doc. 70-2301, C & F Products of San Francisco, Inc. v. Popular Products Manu- etc.

facturing Company et al. Consent judgment, plaintiff owner of Design Patent No. 212,864. Defendants will not hereafter use the trademark in Reg. No. 875,547 nor commit any acts of infringement of such registration.

D. 217,981, F. H. Panning, WASTE RECEPTACLE OR THE LIKE, filed Feb. 5, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-304-WPG, Floyd H. Panning, etc. v. Eleanor V. Kingsley, etc.

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RICHARD A. WAHL,
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July 6, 1971.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,903,657, L. Ritter, ACID STABILIZED TETRACYCLINE SALTS; 3,123,227, Kanegle and Ritter, ANTIBIOTIC INTRAMUSCULAR COMPOSITION, filed Jan. 29, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-242-JWC, American Cyanamid Company v. Rachele Laboratories, Inc.

2,909,190, Lolmangh, Thornton and Smith, TOW TARGET HAVING COMBUSTION SIGNAL MEANS, filed Jan. 28, 1971, U.S. Ct. of Cl., Washington, D.C., Doc. 27-71, Del Mar Engineering Laboratories v. The United States of America.

3,011,000. (See 3,429,410.)

3,025,778, L. J. Stuckens, PHOTOCOPY APPARATUS AND DOCUMENT CARRIER FOR SAME, filed Mar. 9, 1971, D.C. Mass. (Boston), Doc. C.A. 71-544-C, Robert E. Russo, doing business as General Graphic v. American Photocopy Equipment Company.

3,056,067, D. M. Caplan, FLEXIBLE HOSE; 3,194,705, same, METHOD AND APPARATUS FOR MAKING REINFORCED CORRUGATED HOSE, filed Nov. 13, 1965, U.S. Ct. of App., 6th Cir., Cincinnati, Ohio, Doc. 19911, H. K. Porter Company, Inc. v. The Goodyear Tire & Rubber Company. Lower Court affirmed and remanded, decided Jan. 27, 1971.

3,123,305, E. Offner, WIDTH-ADJUSTING ATTACHMENT FOR WHEEL CHAIRS, filed Feb. 15, 1971, D.C.N.J. (Newark), Doc. C 204-71, Nerro-Matic, Inc. v. Everest & Jennings, Inc.

3,123,227. (See 2,803,057.)

3,194,705. (See 3,050,087.)

3,223,063, Horton, Berry and Stirling, CYLINDRICAL BRUSH ASSEMBLY, filed Feb. 26, 1971, U.S. Ct. of Cl., Washington, D.C., Doc. 61-71, Newark Brush Company et al. v. The United States of America.

3,302,721, J. W. Perry, POST DRIVING AND COMPACTING MACHINE; 3,335,804, same, POST DRIVING MACHINE, filed Feb. 31, 1971, D.C. Ariz. (Phoenix), Doc. C-71-75 Phx., James W. Perry et al. v. Gostil Bros., Metal Products, Inc.

3,335,804. (See 3,302,731.)

3,350,351, R. B. Bender, METHOD OF APPLYING INSULATION COATING FOR PIPE; 3,432,582, same, APPARATUS AND METHOD FOR COATING PIPE, filed Oct. 30, 1969, D.C., S.D. Tex. (Houston), Doc. 69-H-1062, Richard B. Bender and Thermacor Process, Inc. v. Polymer Insulations, Inc. Judgment entered, patents valid and infringed; injunction issued, Jan. 28, 1971.

3,363,501, R. E. Lawrence, SECTIONALIZED EXPANSIBLE INSULATED SMOKESTACK AND BREECHING; 3,363,506, same, STACK SECTIONS WITH EXPANSION MEANS; 3,437,795, same, SECTIONALIZED EXPANSIBLE SMOKESTACK, filed Feb. 8, 1971, D.C. Mass. (Boston), Doc. 71-374-M, Lawrence Rigging, Inc. et al. v. Airtek Corporation et al.

3,363,506. (See 3,363,501.)

3,393,811, B. B. Finney, INTERLOCKING GLOVE AND HANDLE, filed Jan. 29, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-240-CC and Doc. 71-241-CC, Basil B. Finney v. National Aeronautics and Space Administration.

3,399,993, O. F. MacLaren, STRUCTURES FOR FOLDING BABY-CARRIAGES, CHAIRS AND THE LIKE, filed Dec. 7, 1970, D.C., S.D.N.Y., Doc. 70-C-5348, Owen Finlay MacLaren and Miron Charles Bell v. B-I-W Group Inc.

3,394,729, Bower, Wykes and Bonds, CONTROL SYSTEM FOR SELF-PROPELLED SPRINKLING APPARATUS, filed Feb. 16, 1970, D.C., N.D. Tex. (Lubbock), Doc. CA-5-787, Layne & Bowler Pump Company v. Gifford-Hill Western Inc. Judgment in favor of plaintiff; plaintiff is the sole and exclusive owner of said patent.

3,395,304, W. B. Bridges, IONIZED NOBLE GAS LASER, filed Feb. 16, 1971, D.C., N.D. Calif. (San Francisco), Doc. C-71-290 LHB, Hughes Aircraft Corp. v. Coherent Radiation, Inc.

3,407,552, P. G. Cassidy, BASEMENT WATERPROOFING METHOD AND ARRANGEMENT, filed Feb. 12, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c409, Paul G. Cassidy and Paul G. Cassidy & Co. v. John R. Sukach, Aqua Waterproofing Co.

3,408,523, Demarest and Karlson, LIGHT BULB WITH A PLURALITY OF INDEPENDENTLY CONNECTED FILAMENTS FOR INDICATING GRAPHIC SYMBOLS, filed May 1, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c1044, Refac Technology Development Corp. v. General Instrument Corp. Stipulation dismissing cause with prejudice, Mar. 5, 1971.

3,413,106, J. A. Pierret, REFRACTORY METAL POWDER; 3,473,915, same, METHOD OF MAKING TANTALUM METAL POWDER, filed Jan. 20, 1971, D.C., E.D. Pa. (Philadelphia), Doc. CA-71-152, Kawecki Berylico Industries, Inc. v. Funsteel, Inc.

3,429,410, Q. A. Hansen, CLUTCH WITH NON-ROTATABLE FLUID MOTOR; 3,011,000, same, FLUID PRESSURE OPERATED CLUTCH HAVING AN INTEGRAL AND NON-ROTATABLE CYLINDER AND PISTON ASSEMBLY, filed Dec. 24, 1969, D.C., E.D. Wis. (Milwaukee), Doc. 69-C-631, Form-sprag Company v. Cabot Engineering Corporation. Final judgment entered dismissing complaint and counterclaim with prejudice, Nov. 30, 1970.

3,432,582. (See 3,350,351.)

3,436,787, W. H. Wisdom, STEAM AND VACUUM NOZZLE; 3,439,374, same, filed Feb. 9, 1971, D.C., S.D. Fla. (Miami), Doc. 71-206-C-JLK, Steamatic, Inc. et al. v. Edward H. Crane and Steam-O-Vac, Inc., et al.

3,439,374. (See 3,436,787.)

3,473,915. (See 3,413,106.)

3,476,200, R. S. Jay, STORAGE RACK FOR CYLINDRICAL CONTAINERS, filed Dec. 22, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-723, Jarke Corporation v. C & H Distributors, Inc. Consent decree, action dismissed, Mar. 8, 1971.

3,490,919, Dreazy and Kreeger, PANEL EMBOSSED AND PRINTING PROCESS, filed Jan. 26, 1971, D.C. Oreg. (Portland), Doc. C-71-47, Evans Products Company v. Hearin Products, Inc.

3,497,795. (See 3,363,501.)

3,498,200, R. C. Brammer, STABILIZING JACK BASE, filed Feb. 11, 1971, D.C., W.D. Mich. (Kalamazoo), Doc. CA 309, Stromberg Carlson Products, Inc. v. Barker Mfg. Co.

Re. 26,308, H. B. Brose, TIRE REPAIR INSERT, filed July 22, 1968, D.C., S.D. Fla. (Miami), Doc. 68-860-C-CA, Horace B. Brose v. Sears, Roebuck and Co. et al. Final judgment, none of claims 1, 11, 14 and 16 is infringed. The defendants, their attorneys and agents, and National Distillers and Chemical Corporation and its H. B. Egan Mfg. Co. Div., their attorneys and agents, are required to return to C. V. Wisner, Jr., counsel for plaintiff, within sixty days after entry of this final judgment, all copies of documents received by them during the discovery process which passed between plaintiff and his attorneys after Jan. 22, 1962, and each of them shall refrain from publishing in any manner and of the contents thereto. The clerk of the court shall return to C. V. Wisner, Jr. the documents identified in Finding No. 45 of the findings of fact and conclusions of law filed herein Jan. 7, 1971; Feb. 27, 1971.

AUGUST 10, 1971

U. S. PATENT OFFICE

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D. 191,144, G. Schanz, COMBINATION STORING AND STACKING CASE, filed Feb. 28, 1967, D.C., E.D.N.Y. (Brooklyn), Doc. 67-C-62, G. B. Lewis Co. v. Continental Dynamics Corp. and Global Equipment Co. Order of discontinuance, Feb. 24, 1971.

D. 212,864, R. Fraige, LENS FOR SPECTACLES, filed Sept. 18, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2301, C & F Products of San Francisco, Inc. v. Popular Products Manufacturing Company et al. Consent judgment, plaintiff owner of Design Patent No. 212,864. Defendants will not hereafter use the trademark in Reg. No. 875,547 nor commit any acts of infringement of such registration.

D. 217,981, F. H. Panning, WASTE RECEPTACLE OR THE LIKE, filed Feb. 5, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-304-WPG, Floyd H. Panning, et al. v. Eleanor V. Kingsley, etc.

Certificates of Correction for the Week of Aug. 10, 1971

Re. 27,064	3,546,117	3,561,351	3,570,630
Re. 27,084	3,546,185	3,562,103	3,570,777
D. 207,096	3,546,204	3,562,428	3,570,788
D. 220,376	3,546,659	3,562,636	3,571,637
3,334,174	3,548,192	3,563,286	3,571,874
3,392,704	3,549,430	3,563,635	3,572,118
3,394,465	3,549,480	3,563,974	3,572,164
3,423,623	3,550,826	3,564,093	3,573,032
3,450,335	3,551,098	3,564,264	3,573,238
3,459,269	3,551,737	3,564,473	3,573,462
3,488,728	3,551,829	3,564,509	3,573,663
3,498,304	3,552,664	3,565,625	3,574,073
3,507,834	3,552,975	3,565,726	3,574,240
3,513,265	3,554,378	3,565,942	3,574,284
3,513,303	3,555,118	3,565,977	3,574,329
3,521,144	3,555,385	3,566,018	3,574,844
3,528,939	3,555,976	3,566,743	3,574,916
3,532,800	3,556,197	3,566,800	3,574,944
3,537,075	3,556,986	3,566,990	3,575,055
3,537,084	3,557,016	3,567,510	3,575,204
3,538,618	3,558,145	3,567,973	3,575,293
3,538,758	3,558,508	3,567,990	3,575,398
3,539,122	3,558,633	3,568,051	3,575,418
3,539,161	3,558,830	3,568,660	3,575,772
3,541,056	3,559,712	3,568,718	3,576,122
3,541,775	3,560,375	3,568,987	3,576,251
3,541,915	3,560,752	3,569,779	3,576,762
3,545,233	3,560,827	3,569,995	3,577,059
3,545,701	3,560,973	3,570,181	3,577,387
3,545,720	3,561,040	3,570,490	3,577,856

Adverse Decisions in Interferences

In the designated interferences involved the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,377,240, J. D. Nault, NEMATOCIDAL 4-HALOPYRIDINES, THEIR OXIDES AND HYDROHALIDES, decided June 30, 1971, Interference No. 96,930, claims 1, 2, 3, 4 and 5.

Patent No. 3,378,582, W. A. Bolhofer, (α-PHENOXO)- AND (α-PHENYLTHIO)-OMEGA-PHENYL-ALKANOIC ACIDS, decided June 30, 1971, Interference No. 96,998, claims 1 and 2.

Patent No. 3,431,942, A. F. Kopaska, HYDRAULIC COUPLER, decided June 30, 1971, Interference No. 97,318, claims 1, 2 and 4, 5, 6, 7 and 8.

Patent No. 3,490,119, Y. Fukuyama and Y. Okada, POLYURETHANE RUBBER COVERED ROLL, decided June 30, 1971, Interference No. 97,504, claim 1.

Patents Available for Licensing or Sale

3,225,761. FATIGUE SUPPORT. Robert Swensen, 120 Poincianna Drive, Martinez, Ga., 30907.

3,358,532. ADJUSTABLE OPEN-END WRENCH. Robert Allred, 2850 Laskey Road, Toledo, Ohio, 43613.

3,532,645. INSECT REPELLENT DEVICE. Earl N. Beauchamp, 7213 S. Sawyer Ave., Chicago, Ill., 60629.

3,576,844. DRY ALCOHOLIC BEVERAGE FORMING COMPOUND. Anderson et al. Correspondence to: The Signal Companies, Inc., 1010 Wilshire Blvd., Los Angeles, Calif., 90017.

3,581,626. ADJUSTABLE ADMISSION VALVE MEANS FOR STEAM ENGINES AND THE LIKE. Daniel S. Matthews, 513 Ford Road, Sacramento, Calif., 95638.

3,582,441. DECORATIVE TRIM FOR WINDOW SHADES. Samuel Guffan. Correspondence to: Jacobs & Jacobs, 521 5th Ave., New York, N.Y., 10017.

3,582,583. CODED SWITCH. Stephen Paterson, 4 Dartmouth St., Forest Hills, N.Y., 11375.

3,583,176. POWER OPERATED MEANS FOR PRODUCING FROZEN DESSERTS IN A REFRIGERATED COMPARTMENT. Cecil E. Gordy, 9324 Castlemont Circle, Orangevale, Calif., 95662.

3,585,564. SWIVELING ELECTRICAL CONNECTOR. Olav Skjervoll. Correspondence to: Jacobs & Jacobs, 521 5th Ave., New York, N.Y., 10017.

The following 2 patents are offered by Joe Bertao, with correspondence to: Loudrea Bertao, % Joe Bertao, 7033 E. Harlan, Laton, Calif., 93242.

3,094,099. FLOATING CLAW FOR MILKING MACHINES.
3,408,878. TRANSMISSION.

The following 2 patents are offered by R. S. Pauliukonis, 6660 Greenbriar Drive, Cleveland, Ohio, 44130.

3,309,884. DEWAR DESIGN.
3,412,573. CRYOGENIC QUICK FREEZER.

The following 2 patents are offered by Duane C. Bowen, 2541 State St., Carlsbad, Calif., 92008.

3,570,847. TIGHTWIRE SPORTS EQUIPMENT.
3,570,848. TIGHTWIRE.

The following 2 patents are offered by Th. Kieserling & Albrecht, Birkenweiher 66, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,570,290. STRAIGHTENING MACHINE FOR ROUND WORKPIECES.

3,570,300. APPARATUS FOR EJECTING ARTICLES IN COLD FORMING PRESSES OR THE LIKE.

Department of Health, Education and Welfare is prepared to grant licenses under the following 4 patents, as provided by Title 45 C.F.R. Section 6.3.

Inquiries should be addressed to: Mr. Norman J. Latker, Chief, Patent Branch, % National Institutes of Health, Room 5A03, Westwood Bldg., Bethesda, Md., 20014.

3,540,388. GASSIFICATION MATERIAL COMBUSTION METHOD AND APPARATUS.

3,578,839. AUTOMATED DEVICE FOR PROTECTING LENS SYSTEMS.

3,580,680. FLAME EMISSION INSTRUMENT FOR SELECTIVELY MONITORING METAL AEROSOLS.

3,584,001. CERTAIN N-SUBSTITUTED CYCLOBUTANE CARBOXAMIDES.

General Electric Company is prepared to grant non-exclusive licenses under the following 14 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Co., P.O. Box 8553, Philadelphia, Pa., 19101.

3,571,631. ELECTRICAL DISCHARGE STABILIZER.

3,579,929. FLEXIBLE STRUCTURE ORIENTATION CONTROL.

Applications for license under the following 12 patents may be addressed to: Patent Counsel, Major Appliance Business Group, General Electric Company, Appliance Park, Louisville, Ky., 40225.

2,841,003. CONTROL CIRCUITS FOR AUTOMATIC CLOTHES WASHING MACHINES.

2,957,329. CONTROL CIRCUITS FOR AUTOMATIC CLOTHES WASHING MACHINES.

3,074,863. PROCESSES OF AND APPARATUS FOR TREATING IONIC LIQUIDS.

3,074,864. METHODS OF AND APPARATUS FOR DEMINERALIZING RAW WATER.

3,074,865. METHODS OF AND APPARATUS FOR DEMINERALIZING RAW WATER.

3,084,113. METHODS OF AND APPARATUS FOR DEMINERALIZING WATER.

3,450,021. AIR-CONDITIONER AIR FLOW CONTROL DEVICE.

3,531,947. REFRIGERATION SYSTEM INCLUDING REFRIGERANT NOISE SUPPRESSION.

3,569,670. SAFETY DOOR LATCHING SYSTEM FOR SELF-CLEANING OVEN HAVING HYDRAULIC THERMOSTAT WITH CAM-ACTUATED AUXILIARY SWITCH.

3,569,672. LOW THERMAL MASS, PLATE SURFACE HEATING UNIT.

3,571,564. MULTILEVEL TEMPERATURE CONTROL CIRCUIT.

3,572,978. HERMETIC COMPRESSOR HAVING LUBRICANT COOLING MEANS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 13, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-01-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	3-02-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	7-01-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-03-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-12-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	10-12-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	2-09-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-30-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	7-06-70
PHYSICS, GROUP 260—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2-27-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	6-23-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	7-01-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	5-01-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	6-01-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	8-10-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	7-01-70

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 86th Congress, approved August 22, 1959 (73 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 283. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,682,668 to 2,688,084, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

REISSUES

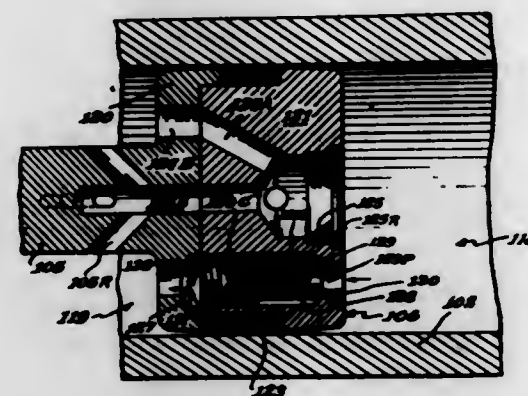
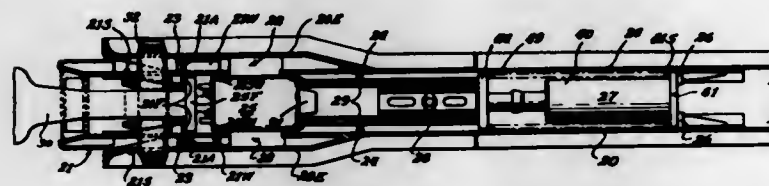
AUGUST 10, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,158
CROSSLINKING PROCESS
Clifton L. Kehr, Silver Spring, and James L. Guthrie, Ashton, Md., assignors to W. R. Grace & Co., New York, N.Y.
Original No. 3,226,356, dated Dec. 28, 1965, Ser. No. 232,771, Oct. 24, 1962. Application for reissue Nov. 28, 1969, Ser. No. 888,173

Int. Cl. C08d 11/00; C08f 3/02, 45/08
U.S. Cl. 260—41.5 16 Claims
The curing of alpha-olefins and of alpha-olefin copolymers with quinone dioxime esters is accelerated by the addition of a Lewis acid. The curing temperature is lowered still further by the addition to the curing system of a synergistic agent consisting of a polar organic member of the group consisting of carboxylic acids, phosphoric acid, boric acid, and esters thereof, and fillers such as carbon black and/or other conventional additives may be included.

27,159
HYDRAULIC CUSHION
David S. Campbell, Glen Ellyn, and Eldred H. Natschke, Bourbonnais, Ill., assignors to Cardwell Westinghouse Company
Original No. 3,150,783, dated Sept. 29, 1964, Ser. No. 278,952, May 8, 1963, which is a continuation-in-part of Ser. No. 220,323, Aug. 29, 1962. Application for reissue Sept. 8, 1969, Ser. No. 862,990
Int. Cl. B61g 9/16, 11/12
U.S. Cl. 213—43 21 Claims

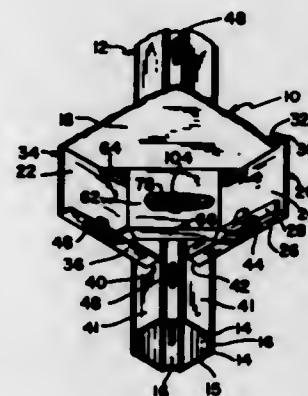


A hydraulic cushion for railroad cars including a hydraulic cylinder having a ram actuated piston reciprocally mounted therein in which the piston is equipped with a variable orifice responsive to instantaneous pressures on the high pressure side of the piston in the form of a spring loaded orifice pin that meters the flow of hydraulic

360

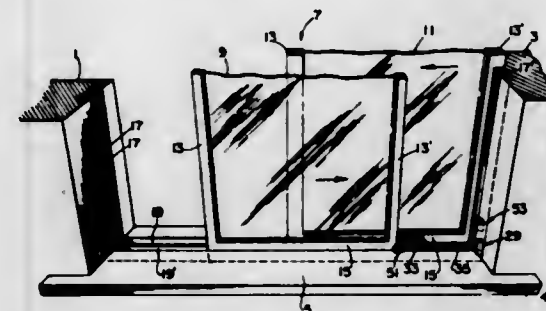
fluid between the high and low pressure sides of the piston in cushioning impacts. A pressure relief valve is also included in the piston to protect against overloads.

27,160
STEEL SHELVING
Irwin J. Ferdinand, Glencoe, and Milton E. Handler, Evanston, Ill., assignors to Hirsch Company
Original No. 3,479,975, dated Nov. 25, 1969, Ser. No. 668,433, Sept. 18, 1967. Application for reissue Jan. 19, 1970, Ser. No. 3,251
Int. Cl. A47b 95/08, 3/06
U.S. Cl. 108—144 17 Claims



Knockdown lightweight steel shelving in which cut ends of corner notched shelf flanges are clamped securely against adjacent sides of a roll-formed upright corner post having improved form lines for continuous shelving with wedge activated tension elements manually applied from a position internally of the shelves.

27,161
ADJUSTABLE CLOSURE LOCK
Raymond T. Raymon, Warren, Mich., assignor to Home Guard Control, Inc., Detroit, Mich.
Original No. 3,420,001, dated Jan. 7, 1969, Ser. No. 654,136, July 18, 1967. Application for reissue Dec. 22, 1969, Ser. No. 886,958
Int. Cl. E05d 13/04
U.S. Cl. 49—449 20 Claims



A lock for use with sliding closure panels, and the like, to lockingly maintain a panel in adjusted partially open position, against further opening, or in fully closed position. A locking bar of adjustable length pivotally mounted at one end, and inoperative locking position disposed in the horizontal guide track for the panel, and extending therein in a plane parallel to the plane of slid-

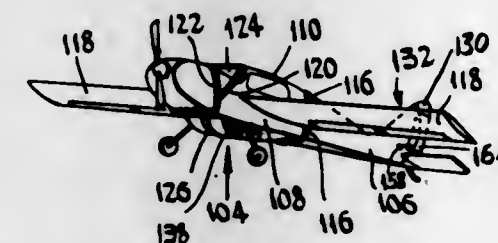
AUGUST 10, 1971

U. S. PATENT OFFICE

361

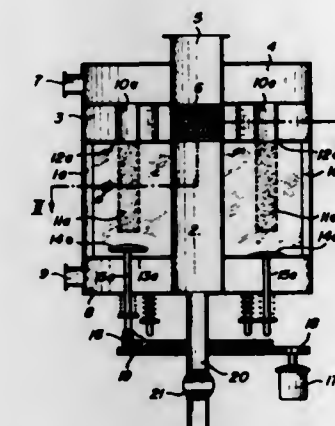
ing movement of the panel, and in inoperative position disposed in the vertical channel guide track for the panel. The adjustable locking bar in operative position having the free end thereof engaged against the rear edge of the panel to prevent the panel from being moved rearwardly. Clamping means positioned in said vertical channel guide track for releasably maintaining said locking bar in inoperative position.

27,162
PARACHUTE PROTECTED AIRCRAFT
Odell C. Markham, 247 Colorado Ave., Bridgeport, Conn. 06605, and Alan C. Ferguson, Perry Ave., Norwalk, Conn. 06850
Original No. 3,395,881, dated Aug. 6, 1968, Ser. No. 616,672, Feb. 16, 1967. Application for reissue Sept. 24, 1968, Ser. No. 767,535
Int. Cl. B64d 25/00
U.S. Cl. 244—139 13 Claims



A parachute-protected aircraft having a framework comprising fuselage and wings, and an outboard parachute anchored at a top portion of the framework adjacent the center of gravity of the aircraft. The parachute is secured to the aircraft by an anchorage or base member tethered to the parachute and overlying the framework and by attachable fastener devices engaging the base member and adapted to be secured to the framework.

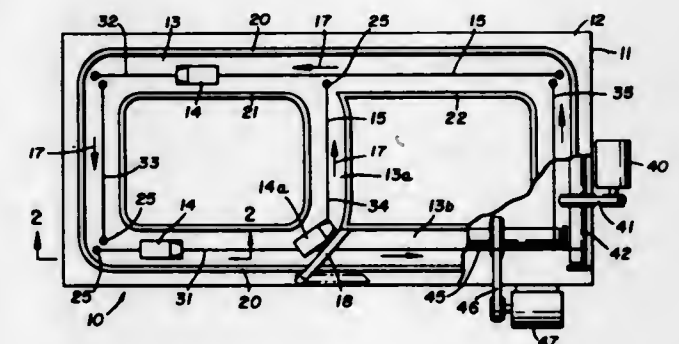
27,163
CONTINUOUSLY AND AUTOMATICALLY CLEANING MULTICELLULAR FILTERS
Jean-Jacques Asper, Geneva, Switzerland, assignor to Bracco S.A., Geneva, Switzerland
Original No. 3,392,835, dated July 16, 1968, Ser. No. 448,386, Apr. 15, 1965. Application for reissue May 13, 1969, Ser. No. 830,901
Int. Cl. B01d 29/38
U.S. Cl. 210—138 17 Claims



A multicellular filter for liquids comprising several circularly arranged filter cells each enclosing at least one filter element carried at one end by a tubular member communicating with a common outlet chamber. Gauged annular passages surrounding each tubular member connect each cell with a common admission chamber. For

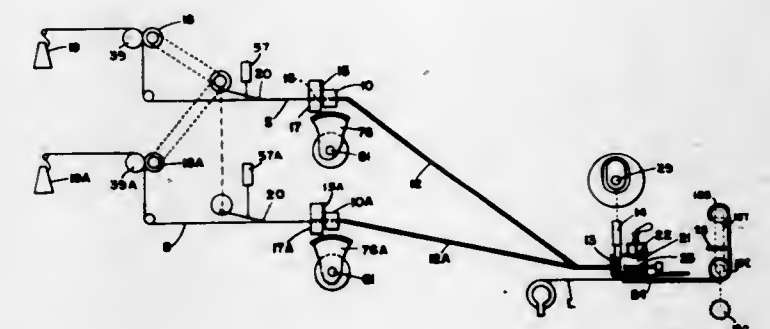
cleaning, the cells communicate cyclically with a common discharge chamber via discharge channels each equipped with a valve having a brief maximal opening stage for sudden reverse filtrate flow followed by a longer partial opening stage for direct flow of liquid from the admission chamber to the discharge chamber.

27,164
MINIATURE AUTOMOBILE RACING GAME UTILIZING ADHESIVE CONNECTION
Edward H. Yeager, Akron, Ohio, assignor to Mattel, Inc., Hawthorne, Calif.
Original No. 3,335,520, dated Aug. 15, 1967, Ser. No. 443,891, Mar. 30, 1965. Application for reissue Aug. 12, 1969, Ser. No. 860,446
Int. Cl. A63h 33/26
U.S. Cl. 46—243M 5 Claims



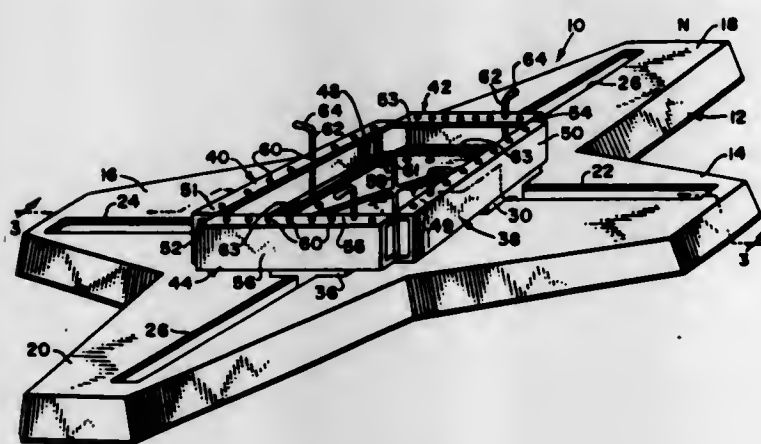
A toy auto track having a surface with series of motor driven belts arranged thereover in a closed path and toy autos for movement over said path. Adhesive means, such as tape, with a downwardly directed exposed adhesive surface is affixed to the underside of each auto in position to contact and adhere to the moving belt. Rails and/or pivoted members along the path guide the autos directionally.

27,165
TUFTING APPARATUS FOR THE MANUFACTURE OF CARPETS, RUGS, AND THE LIKE
Abram N. Spanel, 344 Stockton St., Princeton, N.J. 08540, and Loy E. Barton, Bradenton, Fla.; said Barton assignor to said Spanel
Original No. 3,387,577, dated June 11, 1968, Ser. No. 503,342, Oct. 23, 1965. Application for reissue Sept. 17, 1969, Ser. No. 866,416
Int. Cl. D05c 15/16
U.S. Cl. 112—79 38 Claims



Yarn bits are cut from yarn strands and pneumatically transported [by suction] to bit-loading stations where they are positioned by stop means for transfer to a backing layer by bit-applying elements as provided by needles, narrow blunt-edged blades, or a single [wide] blunt-edged blade.

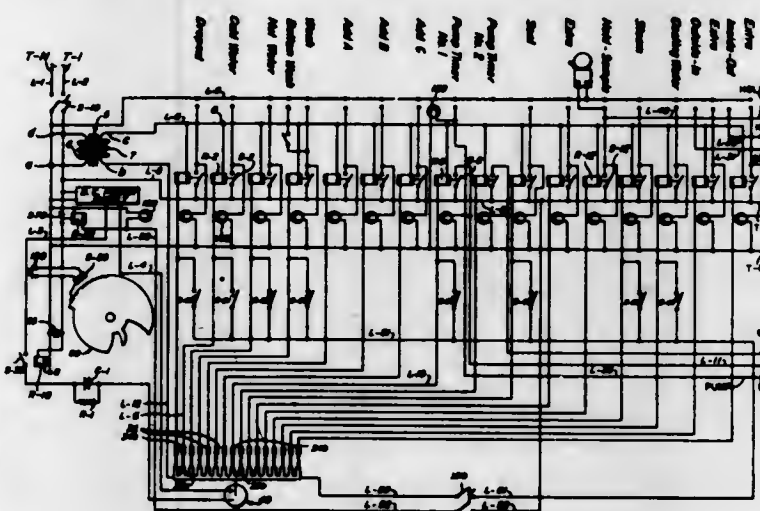
27,166
SELECTIVE CARD DISTRIBUTING DEVICE
 Le Roi Nottoli, Chicago, Ill., assignor to Robert H. Hallowell Industries, Inc.
 Original No. 3,377,070, dated Apr. 9, 1968, Ser. No. 496,618, Oct. 15, 1965, Application for reissue Oct. 13, 1969, Ser. No. 871,486
 Int. Cl. A63f 1/14
 U.S. Cl. 273—149P



Cards containing predetermined information may be simply and easily separated by placing holes and cutouts along the edges of the cards to be used and utilizing as the means for separation a device comprising a base and a plurality of card carrying trays which are movable on the base, said trays having holes therethrough so that a pin or series of pins which are adapted to be removably placed through a hole in each of said trays will pass through a preselected series of holes and cutouts and movement of the trays outward will result in extraction of certain cards in one or more directions thereby effecting separation. The cards and device described herein are especially suitable for use with playing cards whereby

a pack of playing cards having the holes and cutouts above described may be separated into four preselected hands.

27,167
BATCH TEMPERATURE-FUNCTION PROGRAM CONTROLLER
 Jefferson Lyle Claiborne, Chattanooga, Tenn., assignor to Dixie Yarns, Inc.
 Original No. 3,358,161, dated Dec. 12, 1967, Ser. No. 373,457, June 8, 1964, Application for reissue Nov. 24, 1969, Ser. No. 879,590
 Int. Cl. H01h 47/00
 U.S. Cl. 307—140



A batch temperature-function program controller in which a cam having a contoured periphery moves through a path to move two followers, each of which engages the cam 180° apart. A function control mechanism and a batch temperature control device are provided along with means responsive to displacement of the followers to actuate these controls.

PLANT PATENTS

GRANTED AUGUST 10, 1971

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,054
MILKWEED PLANT FAMILY
 Barnell L. Cobla, Winter Garden, Fla., assignor to B. L. Cobla, Inc., Winter Garden, Fla.
 Filed Mar. 13, 1969, Ser. No. 808,025
 Int. Cl. A01h 5/00

U.S. Cl. Pkt.—88
 1 Claim
 A new plant variety of the milkweed family closely resembles the Hoya carnosa compacta variety in structural appearance but is distinguishable from this variety by a more compact growth habit, leaf blades which are distinctively variegated and by certain color characteristics.

3,055
ROSE PLANT
 Robert W. Hyde, 1 Putter Place, Crystal River, Fla. 32629
 Filed Aug. 19, 1969, Ser. No. 851,502
 Int. Cl. A01h 5/00

U.S. Cl. Pkt.—11
 1 Claim
 A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by being substantially identical with the variety known as "Swarthmore" (Plant Patent No. 2,444) except for its flower color and fragrance, said flower color being basically light pink, with bright and lighter or darker pink petal edges, and said flowers having a stronger fragrance than those of "Swarthmore."

3,056
ROSE PLANT
 Alexander Morrison Cocker, Whitemyres, Lang Stracht, Aberdeen, Scotland
 Filed Sept. 4, 1969, Ser. No. 855,433
 Int. Cl. A01h 5/00

U.S. Cl. Pkt.—20
 1 Claim
 A new and distinct variety of rose plant of the Hybrid Tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of the red colors, with a very strong fragrance, stiff flower stems, large flower size, high centered form up to the time of maturity, and glossy foliage.

3,057
APPLE TREE
 Harry W. Guengerich, Louisiana, Mo., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.
 Filed Aug. 15, 1969, Ser. No. 850,681
 Int. Cl. A01h 5/03

U.S. Cl. Pkt.—34
 1 Claim
 A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by its general resemblance in size, vigor and form to the unnamed and unpatented variety identified as "EM VIII" formerly used extensively as dwarfing interstock, but having a greater tolerance to stem-pitting virus than "EM VIII," said new variety also having superior utility as dwarfing interstock to produce dwarf apple trees about half the size of standard trees grown on seedling rootstock, but which bear earlier and heavily.

3,058
APPLE TREE
 Harry W. Guengerich, Louisiana, Mo., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.
 Filed Aug. 27, 1969, Ser. No. 853,555
 Int. Cl. A01h 5/03

U.S. Cl. Pkt.—34
 1 Claim
 A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by a taller and less spreading tree habit than the variety identified as "EM VIII" formerly used extensively as dwarfing interstock, and having greater tolerance to stem-pitting virus than "EM VIII," said new variety also having superior utility as dwarfing interstock to produce dwarf apple trees about three-quarters the size of standard trees grown on the usual seedling rootstock, but which bear heavily and at an earlier age.

3,059
ROSE PLANT
 Gayle Kent McDaniel, Carlton, Oreg., assignor to Carlton Rose Nurseries, Carlton, Oreg.
 Filed Apr. 14, 1969, Ser. No. 816,130
 Int. Cl. A01h 5/00

U.S. Cl. Pkt.—21
 1 Claim
 A hybrid tea rose plant of the greenhouse type, originated by crossing Happiness as the seed parent with an unknown red seedling.

3,060
MAPLE TREE
 Daniel P. Schmidt, deceased, late of Portland, Oreg., by Jane E. Schmidt, executrix, 18324 NE. Sandy Blvd., Portland, Oreg. 97230
 Filed Feb. 28, 1969, Ser. No. 804,721
 Int. Cl. A01h 5/12

U.S. Cl. Pkt.—51
 1 Claim
 A new and distinct variety of maple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, well-shaped, bushy, free-branching, compact and rapid habit of growth, a good, natural main stem, with ascending branches, giving the tree a broadly pyramidal shape, and an unusually dense form, abundant foliage, distinctive, shapely, crinkly, glossy, deeply incised and finely lobed leaves of attractive medium to dark green color overlaid with reddish bronze, and distinctive, bright red petioles which attractively and conspicuously contrast with the green leaf color.

3,061
APPLE TREE
 Harry W. Guengerich, Louisiana, Mo., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.
 Filed Aug. 27, 1969, Ser. No. 853,554
 Int. Cl. A01h 5/03

U.S. Cl. Pkt.—34
 1 Claim
 A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by a more vigorous and more spreading tree habit than the variety identified as "EM IX" formerly used extensively as dwarfing interstock, and having greater tolerance to stem-pitting virus than "EM IX," said new variety also having superior utility as dwarfing interstock to produce dwarf apple trees about two-thirds the size of standard trees grown on the usual seedling rootstock, but which bear earlier and heavily.

3,062
APRICOT TREE
 Frederic W. Anderson, Merced, Calif., assignor to The Burchell Nursery, Inc., Modesto, Calif.
 Filed Sept. 8, 1969, Ser. No. 856,224
 Int. Cl. A01h 5/03
 U.S. Cl. Plt.—39
 An apricot tree which is of large to medium size, vigorous, spreading, open, and a regular and productive bearer

1 Claim

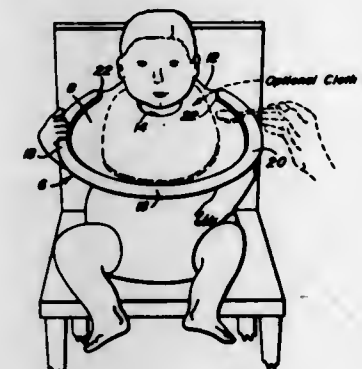
of large to medium size freestone fruit having an average larger size, tougher skin, firmer flesh, and less pit burn than the fruit of the Blenheim (unpatented), long the leading commercial variety of apricot tree grown in the State of California; the fruit of the present variety ripening later than the Modesto (United States Plant Patent No. 2,543) and Patterson (United States Plant Patent No. 2,877).

PATENTS

GRANTED AUGUST 10, 1971

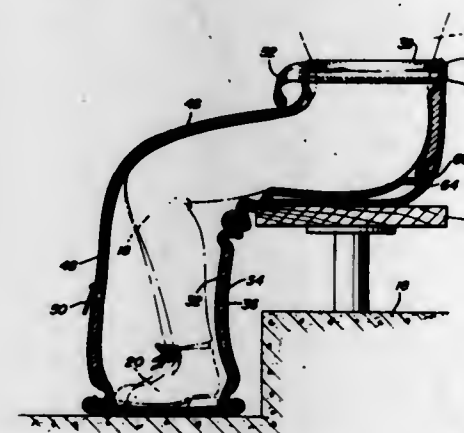
GENERAL AND MECHANICAL

3,597,763
RIGID BIB FOR INFANTS
 Laura Helen Frances Funk Bienvenu, 318 Maple Ridge Drive, Metairie, La.
 Filed Sept. 26, 1969, Ser. No. 861,441
 Int. Cl. A41d 13/04
 U.S. Cl. 2—49



A substantially rigid infant's bib made of self-shape-sustaining sheet material, plastic-coated cardboard or equivalent washable material for example, and such in function and capability that it helps the infant's mother to cope with often exasperating spoon feeding difficulties. It comprises a lightweight rigid panel having suitable attaching and retaining means and which is dimensionally large enough in plan to prevent an over-active infant from lifting his hands and arms too high, getting his hands into his mouth, or reaching his hands upwardly beyond the marginal edges of the bib grabbing the spoon, while being fed. The marginal edge of the panel is provided with an appropriately encompassing C-shaped or equivalent catchall trough.

3,597,764
SPECTATOR PROTECTOR
 Harry B. Povey, 1555 Via Hermosa, San Lorenzo, Calif.
 Filed Aug. 18, 1969, Ser. No. 851,007
 Int. Cl. A41d 13/00
 U.S. Cl. 2—69



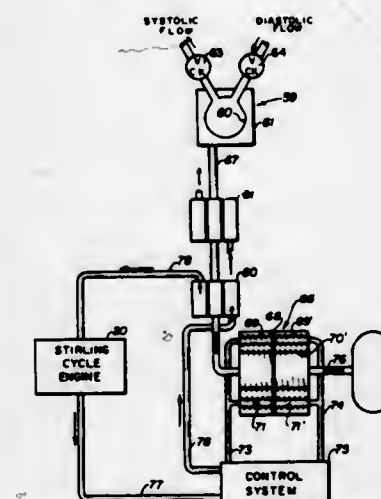
A protective garment enclosing the lower portion of a person employing the device such as a spectator at an outdoor winter sporting event or other persons subjected to cold climatic conditions. The protector is generally in the nature of the lower half of a sleeping bag and includes a pillow structure incorporated into the seat area thereof, a slide-type fastener in the front to facilitate use of the garment and a carrying case into which the garment may be folded to serve as a cushion when the protector is not needed.

3,597,765
SPORT GLOVE
 Lari Stanton, New York, N.Y., assignor to Consolidated Foods Corporation, Chicago, Ill.
 Filed Nov. 26, 1969, Ser. No. 880,021
 Int. Cl. A41d 19/00
 U.S. Cl. 2—159



a novel sport glove is constructed of a stretch fabric including spandex fibers in which the glove is provided with an overlying gripping surface of relatively high friction material on its interior surface. The dimensions of the glove and the glove fabric are selected in such a manner that the tensile forces exerted on the wearer's hand assist in the gripping function and exercise the hand.

3,597,766
ARTIFICIAL HEART PUMPING SYSTEM POWERED BY A MODIFIED STIRLING CYCLE ENGINE-COMPRESSOR HAVING A FREELY RECIPROCABLE DISPLACER PISTON
 Keith E. Buck, Alamo, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission
 Filed July 11, 1968, Ser. No. 744,204
 Int. Cl. A61f 1/24
 U.S. Cl. 3—1



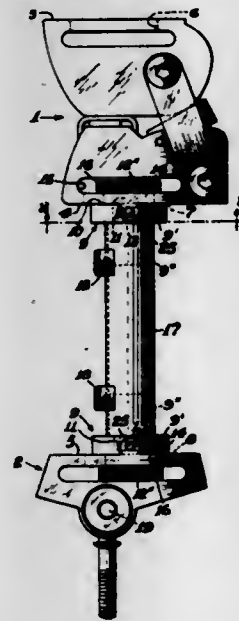
A modified Stirling cycle engine operable as a compressor and having its displacer piston directly connected to a reversing piston to which high and low pressures are alternately applied at opposite ends for reciprocally driving the pistons. In one embodiment, the reversing piston is mounted in a double acting compression cylinder which acts as an oscillating spring to drive the pistons whereby energy to sustain oscillation of the reversing piston within the compression cylinder is supplied directly from the displacer piston. In another embodiment, the pistons are driven by high and low

pressure gases alternately applied from respective reservoirs to opposite sides of the reversing piston through valves operated by the reversing piston. The modified Stirling cycle engine is capable of unattended operation over a period of years in an inaccessible location and therefore, is especially well suited for supplying motive power for an artificial heart-pumping system.

3,597,767 ADJUSTABLE TUBULAR SKELETAL SYSTEMS FOR ARTIFICIAL LIMBS

Jan Prahl, Gollubhof, Germany, assignor to William J. Teufel, Stuttgart, Germany
Filed Sept. 3, 1969, Ser. No. 854,860
Claims priority, application Germany, Oct. 2, 1968, P 18 00 500.0

Int. Cl. A61f 1/08
U.S. Cl. 3-21



9 Claims

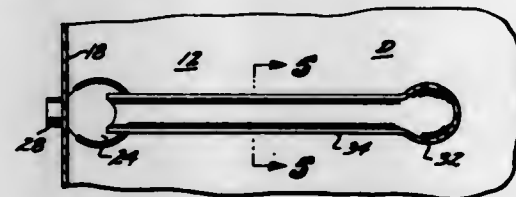
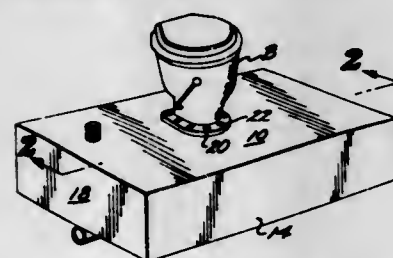
A tubular skeletal system for a limb prosthesis includes a plurality of sections some of which are joint sections while others are limb sections. Each joint section terminates in an end surface directed toward a limb section, and this end surface forms part of a wall which is formed with an elongated slot. A connector is connected to a limb section and has a slotted wall terminating in an end surface which engages the end surface of an adjacent joint section. A bolt has a pair of perpendicularly elongated portions which are respectively received in the slot in a connector and in the slot in an adjacent joint section. Beyond the elongated portions, the bolt has a threaded shank extending into a nut which can be turned to tightly draw the abutting surfaces of the connector and joint section against each other.

3,597,768 HOLDING TANK FOR MOBILE VEHICLE

Arthur Walter Wofford, 11259 Hollyhock, Santa Fe Springs, Calif.
Filed Jan. 2, 1970, Ser. No. 43
Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

6 Claims



A holding tank for a mobile vehicle having a toilet, said tank having means incorporated in the interior thereof for

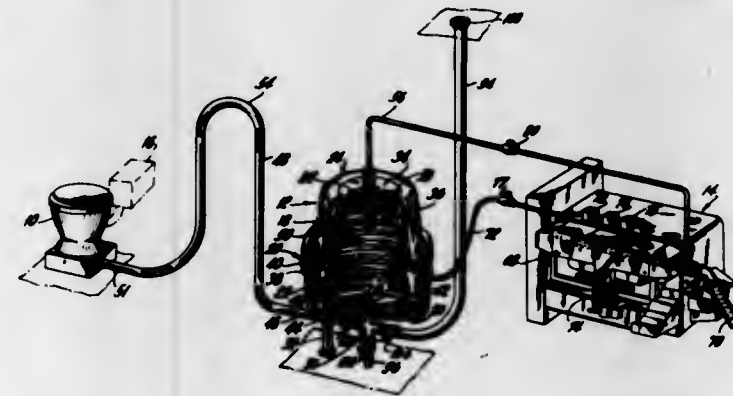
discharging solid waste material and water from said toilet direct to a sewer line without contaminating the interior of the tank when said vehicle is parked in a trailer lot, but said tank capable of receiving waste material and water for future disposal when said vehicle is being driven or parked at a location where sewer facilities are not available.

3,597,769 WASTE DISPOSAL SYSTEM

Edward C. Brainard, II, and Alexander G. Vrouhart, both of Marion, Mass., assignors to General Time Corporation, Stamford, Conn.
Filed Mar. 13, 1969, Ser. No. 807,028
Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

14 Claims



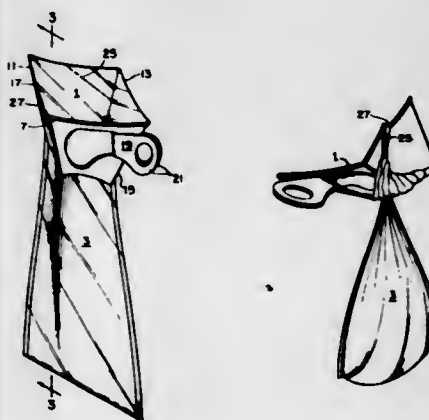
This invention relates to a self-contained, noncontaminating waste disposal system useful over a prolonged period of time with particular utility in passenger carrying vehicles, such as waterborne pleasure craft. The system of the invention provides an impervious container into which is fed waste products and from which liquid effluent is removed by compression of the container. The container can be enveloped by an outer container which causes compression of the inner container. Liquid effluent removed from the inner container is then pasteurized so that only harmless pasteurized effluent is discharged from the system. Removal and pasteurization of effluent, moreover, can be effected even while waste products are being fed to the container. Also, the engine for a passenger carrying vehicle can be used in effecting compression of the container and in pasteurizing the drained effluent. After the container becomes so filled with solid waste products that appreciable amounts of liquid effluent can be no longer removed, the container itself can be removed from the system and either can be disposed of or reused after cleaning.

3,597,770 DISPOSABLE URINAL BAG

Kenneth A. Jacuzzi, Lafayette, and Roy A. Jacuzzi, Oakland, both of Calif., assignors to Jacuzzi Research, Inc.
Filed Feb. 4, 1969, Ser. No. 796,393

U.S. Cl. 4-110

3 Claims



A disposable urinal bag involves a mouth portion of semirigid water disintegratable material, to which is attached

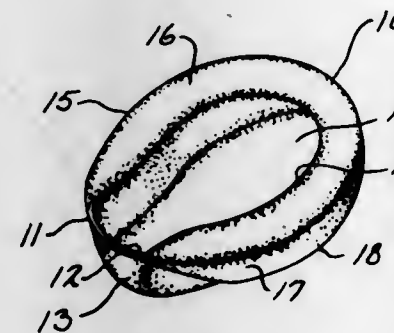
a limp sack of thin plastic. Slits in the mouth portion enable convenient sealing of the bag following use, until disposal thereof.

3,597,771 BEDPANS

Carl H. Rickmeier, Jr., Sheboygan, Wis., assignor to The Voltrath Co., Sheboygan, Wis.
Filed July 9, 1969, Ser. No. 840,287
Int. Cl. A61g 9/00

U.S. Cl. 4-112

1 Claim



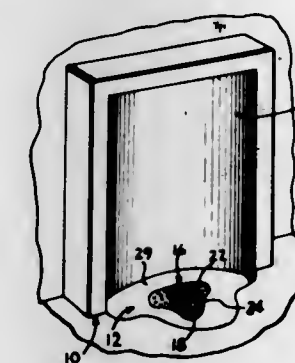
A disposable plastic bedpan is so designed that a plurality of said pans can be stacked in semineesting relation to conserve space. In addition, said bedpan is formed with outwardly and downwardly directed side flanges which engage the mattress when someone is seated thereon on a bed to provide stability and minimize the possibility of tipping, which side flanges also serve as handles to facilitate the withdrawal of the pan, and which side flanges provide increased strength and rigidity and permit the use of relatively lightweight inexpensive plastic in the manufacture of said disposable bedpan.

3,597,772 LAVATORY SANITATION BODIES

Seymour Leavitt, Lincolnwood, and Barry L. Schneider, Chicago, both of Ill., assignors to Chemtrust Industries Corporation, Maywood, Ill.
Continuation-in-part of application Ser. No. 693,488, Dec. 26, 1967, now Patent No. 3,538,520. This application Dec. 13, 1968, Ser. No. 783,609
Int. Cl. E03d 9/02

U.S. Cl. 4-222

27 Claims



Bodies for use in connection with urinal drains and the like, which are positioned in relation thereto in a manner whereby drain or flush water will come into direct contact with at least a portion of the bodies. The bodies preferably include a solid cleaning and/or sanitizing material which will dissolve in part with each flow of drain or flush water thereby to provide automatic and metered cleaning, disinfecting, deodorizing, and the like, of the urinal. The solid-cleaning and -sanitizing material most useful for urinals is most advantageously in bar or premolded form and comprises, as its essential active ingredients, an intimate admixture of (a) one or more synthetic detergents which are solid at room temperatures, and (b) an acidic agent in the form of one or more

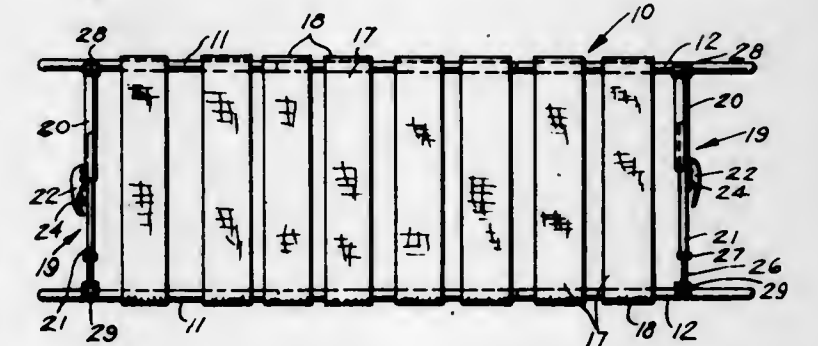
acids or acid-forming salts or both, the ratio of the synthetic detergent to the acidic agent in the solid, sanitizing material ranging preferably from about 1 to 100 of the former to about 1 of the latter. The bodies include a holder, which can be placed in a urinal drain or the like, designed to be made economically and to support the cleaning and sanitizing material in a position where drain or flush water will come into direct and extensive contact therewith.

3,597,773 EMERGENCY STRETCHER

Alva Ray Firestone, P.O. Box 94, San Jon, N. Mex.
Filed Aug. 6, 1969, Ser. No. 848,050
Int. Cl. A61g 7/10; A61q 1/06

U.S. Cl. 5-82

1 Claim



A device for lifting accident victims having possible back injuries. This device includes a plurality of narrow straps which are placed into position beneath the victim one at a time, after which the rails are placed into the ends of the straps and crossbars are locked into place in order that the device will be rendered rigid so that the patient may be carried.

3,597,774 PATIENT MOVING DEVICE FOR ATTACHMENT TO HOSPITAL BEDS

Estel M. Warren, 311 Elizabeth St., Clinton, N.C.
Filed Apr. 7, 1969, Ser. No. 813,825
Int. Cl. A47b 83/04; A61g 7/10

U.S. Cl. 5-84

3 Claims



A patient moving device which includes an adjustable post having clamps for attachment to the head of a bed and carrying thereon a winch having a cable wound thereon. A harness is arranged for engagement in the armpits of the patient or is attached to an apron underlying the patient so that upon winding of the winch the cable pulls the harness and thus moves the patient upwardly in the bed.

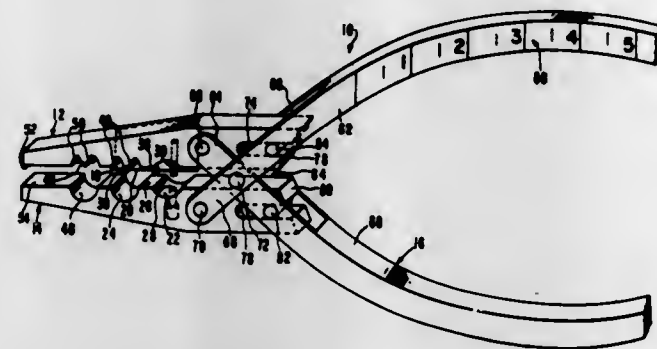
3,597,775

PRODUCT-FORMING TOOL

Thomas A. McCandless, Mountain View, Calif., assignor to Diversified Electronics Co., Inc., Sunnyvale, Calif.
Filed Oct. 21, 1968, Ser. No. 769,242
Int. Cl. B25b 7/22

U.S. Cl. 7-5.3

1 Claim



A handtool adapted for forming a product including cutting the same and providing a recess therein. The invention is especially adapted for making a sinker for attachment to a fishing line wherein a length of sinker material is cut to a desired size and provided with a recess therein for receiving the fishing line. The recess can be either a hole or a groove in the sinker.

3,597,776

TOOL FOR CUTTING, JOINING AND DISCONNECTING BELL AND SPIGOT PIPES

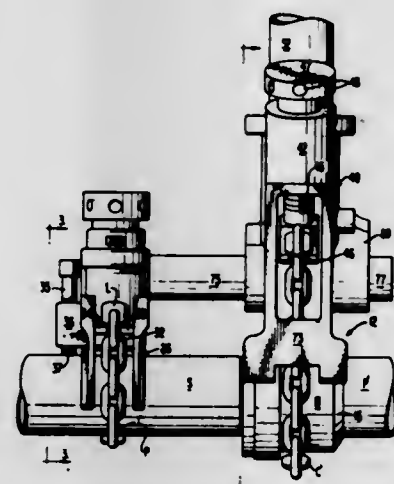
Crawford B. Saunders, RR5, Box 5459, Albuquerque, N. Mex.

Filed Apr. 3, 1969, Ser. No. 813,051

Int. Cl. B25f 1/00; B23p 19/04

U.S. Cl. 7-14.1

20 Claims



This disclosure is directed to a tool for assembling and disassembling bell and spigot pipes, and includes a pair of clamping members having respective first and second clamping means for clamping securement thereof to a pair of contiguous generally axially aligned pipes, each of the clamping members including a housing, an apertured member fixed to one of the housings and slidably received in an aperture bore of the other of the housings whereby a tool selectively positioned within the apertures may be manipulated to impart relative movement of the clamping members toward and away from each other for respectively assembling and disassembling the pipes, one of the clamping members having a tubular handle, and pipe cutting means in the form of a flexible member carrying a plurality of cutting elements being retractably supported interiorly of the tubular handle.

3,597,777

CLOTHES WASHING MACHINES AND METHODS OF OPERATING THE SAME

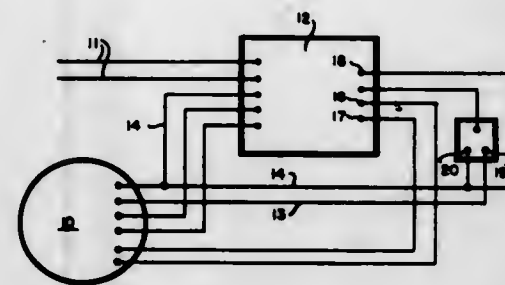
Peyton W. Douglas, Lakewood, N.Y., assignor to Blackstone Corporation

Filed Jan. 19, 1970, Ser. No. 3,748

Int. Cl. D06f 33/02, 37/36

U.S. Cl. 8-159

4 Claims



A clothes washing machine and method of operation are provided in which a high speed spin and drain cycle is locked in immediately after the wash cycle in all washing programs followed by a deep agitated rinse and a final high speed spin and drain for regular clothes and a final slow speed spin and drain for delicate fabrics and wash and wear clothes.

3,597,778

MOORING DEVICES

Hans Castelliz, Halifax, Nova Scotia, Canada, assignor to E M I Limited, Hayes, England

Filed Sept. 20, 1967, Ser. No. 654,892

Claims priority, application Great Britain, Aug. 19, 1966,

37,147/66

Int. Cl. B63b 21/52

U.S. Cl. 9-8

10 Claims



The invention relates to a mooring device which includes a float intended for mooring below the surface of the sea, a sinker, a cable connecting the float to the sinker and means for paying out the cable. The device also includes control means for regulating the pay out of the cable in response to the ambient pressure at the float so as to tend to maintain the float at a predetermined depth below the surface during the mooring process, and in addition locking means operative to lock the paying out means when paying out ceases.

3,597,779

MULTICONDUIT BUOYED UNDERWATER LINE

George W. Morgan, Anaheim, Calif., assignor to North American Rockwell Corporation

Filed Nov. 5, 1969, Ser. No. 874,163

Int. Cl. H02g 9/12

U.S. Cl. 9-8 R

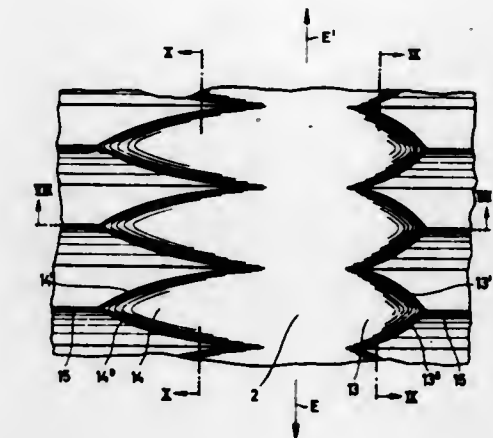
11 Claims

A flexible underwater line has a plurality of conduits layed in a helical configuration about a central core member. The

central core member in turn has a group of spokes, extending radially therefrom and each group is disposed at spaced intervals along its length. The conduits are layed between the piece, will form through its own male thread the corresponding internal thread within the wall of the work piece bore. The bushing is formed with one or more exterior bevels or



spokes so that the spokes protrude above the conduits and a ring-buoy is clamped about each group of spokes so that the spokes prevent the buoys from moving axially along the central core member.



grooves which extend axially over at least several threads and intersect such threads to form blade or cup-shaped frontal areas where each bevel or groove merges into a respective thread.

3,597,780

AUTOMATIC INFLATION DEVICE

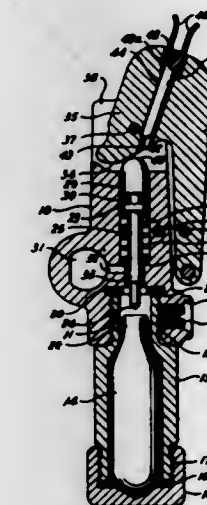
Jan R. Coyle, P.O. Box 297, Milford, Utah

Filed Nov. 3, 1969, Ser. No. 873,572

Int. Cl. B63c 9/18

U.S. Cl. 9-316

8 Claims



An automatic inflation device for flotation gear, in which a manually operable cam lever for effecting the release of gas from a pressure cartridge by moving a punch, is provided with a pyrotechnic device for shifting the punch for releasing the gas without requiring operation of the cam lever.

3,597,781

SELF-TAPPING THREADED BUSHINGS

Carl B. H. Elbes, deceased, 11 Dr. Carl-Elbes Str., late of Schnaktenbach; Christian Elbes, 11 Dr. Carl-Elbes Str.; Carl-Herwig Elbes, 30, Berlin-Schöneberg, and Maria-Theresa Wagner, nee Elbes, heirs, Hans Klopferweg Nr. 1 Amberg, all of Schnaktenbach, Germany

Filed May 31, 1968, Ser. No. 733,562

Claims priority, application Germany, June 5, 1967, K 62

476

Int. Cl. B21k 1/44; B23g 9/00, 7/00; B21h 3/02

U.S. Cl. 10-10

6 Claims

The disclosure relates to a threaded bushing which, upon entering and turning in the initially smooth bore of the work



An aligned and connected spindle and lead screw are rotatably and axially movably mounted in a housing, the lead screw being engaged by a housing stationary nut so that rotation of the assembly in one direction moves the same axially in a feed stroke and in the other direction moves it axially in a retraction stroke. A spline connected sleeve telescopes the spindle and mounts spindle gears axially stationary and rotatable for driving the spindle and lead screw. The spindle gears are operably engaged by aligned clutch gears which are, in turn, alternately engaged and driven by a countershaft mounted clutch, the one clutch gear and clutch driving the spindle and lead screw in the one direction of rotation and the other clutch gear and clutch driving the spindle and lead screw in the other direction of rotation. A partially governor controlled drive motor is connected to the clutch through the countershaft, the drive motor being governor controlled for selective constant speed during the spindle and lead screw lead stroke and being free of governor control for high speed during the spindle and lead screw retraction stroke.

3,597,783

HEEL AND TOE LASTING APPARATUS

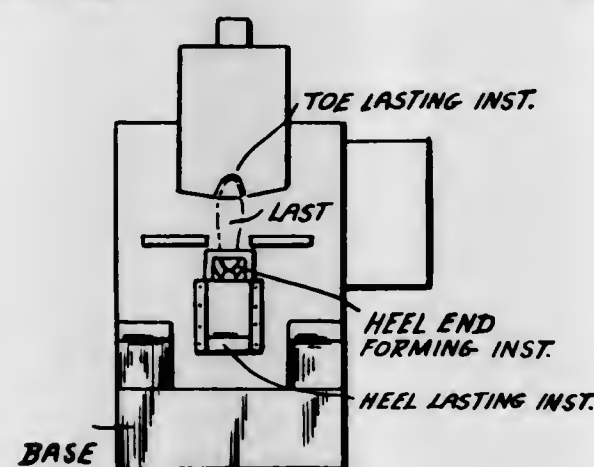
Herbert K. Klamke, Lemberg, Germany; Henry Von Den Benken, West Roxbury, Mass., and Robert B. Dunlap, Medway, Mass., assignors to E. G. Henkel Maschinenfabrik, Neu-Isenburg, Germany and Compo Industries, Inc., Waltham, Mass.

Division of Ser. No. 730,081, May, 17, 1968, Pat. No. 3,523,317.
This application Dec. 4, 1969, Ser. No. 882,033

Int. Cl. A43d 21/00

U.S. Cl. 12-10.1

22 Claims



A shoe lasting machine having a support on which the toe of the last may be placed and held and instrumentalities at the toe for operating on an upper and insole assembled on the last, said instrumentalities comprising adjustably mounted pincers adapted to grip the lasting margin at the tip, along the sides and at the waist and to pull it taut about the toe and forwardly with reference to the heel, and wipers for wiping the lasting margin inwardly against the insole.

3,597,784

VEHICLE WITH DISMOUNTABLE RAMP

Hermann Walter Gehlen, Pirmasensstrasse 60, 675 Kaiserlautern, Upper Palatinate, Germany

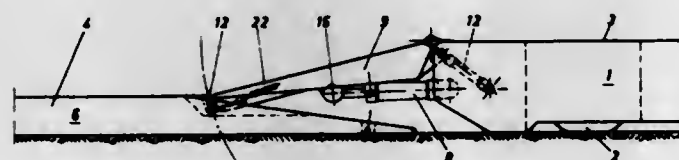
Filed July 16, 1969, Ser. No. 842,168

Claims priority, application Germany, Apr. 12, 1969, P 19 18 600.6

Int. Cl. E01d 1/00

U.S. Cl. 14-1

5 Claims



Vehicle with dismantable ramp that is linked to one end of the vehicle and the vehicle is equipped at both ends with additional short drive-on ramps.

3,597,785

CLEANING DEVICE

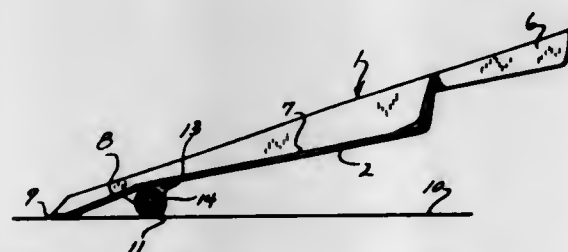
Norman P. Zinda, Milwaukee, Wis., assignor to Robert E. Head, Milwaukee, Wis., a part interest

Filed June 11, 1969, Ser. No. 832,297

Int. Cl. A47i 13/40, 13/52

U.S. Cl. 15-1.5

7 Claims



A dustpan or tray having a front edge to be held against the surface to be cleaned and the dirt or debris is adapted to

be swept across the front edge into the pan.

A resilient roller is mounted for rotation on the under surface of the pan and extends generally parallel to the front edge. The roller aids in positioning the front edge at the proper angle during sweeping of debris into the pan and, after sweeping, the roller is adapted to be rolled over the ridge of residual dirt remaining on the surface. The residual dirt clings to the roller so that all of the residual dirt can be removed.

3,597,786

MATERIAL COLLECTOR WITH BACK DUMPING HAMPER

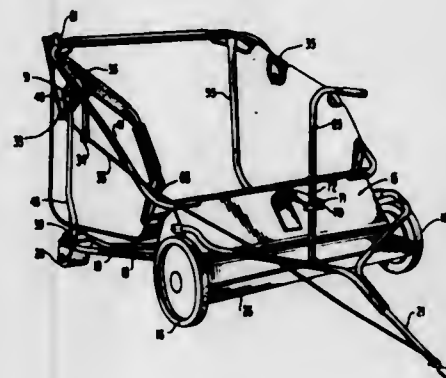
Walter Franklin Ruhl, Greenville, Ohio, assignor to Lambert Incorporated, Dayton, Ohio

Filed May 27, 1969, Ser. No. 828,167

Int. Cl. E01h 1/04

U.S. Cl. 15-79

9 Claims



A lawn sweeper having a removable hamper for collecting projected material which can be dumped rearwardly from a pulling vehicle by means of a rope and which automatically returns to down position upon rope release. The lawn sweeper chassis is connected to the hamper by a support means which limits the up position of the hamper to insure automatic return, provides structural strength, and serves to secure the hamper in down position. The back dumping is accomplished by the rope which is threaded progressively through levers depending from the hamper pivot means which provide a significant mechanical advantage. The material projector is vertically adjustable through a mechanism operable by the person on the towing vehicle.

3,597,787

BRUSH MANUFACTURE

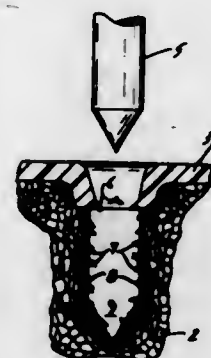
Henry J. Rosendall, Grand Rapids, Mich., assignor to Bissell Inc., Grand Rapids, Mich.

Filed Apr. 1, 1969, Ser. No. 811,858

Int. Cl. A46b 3/16; A46d 1/08

U.S. Cl. 15-179

13 Claims



A brush backing of relatively rigid foamed cellular polyurethane is pierced at a plurality of locations to form openings for receiving unitary bristle tufts. The piercing action creates barbs in the backing which firmly secure the tufts. The pierced openings may be formed to receive circular as well as flat tufts.

3,597,788

BOTTOM DOOR SEALER

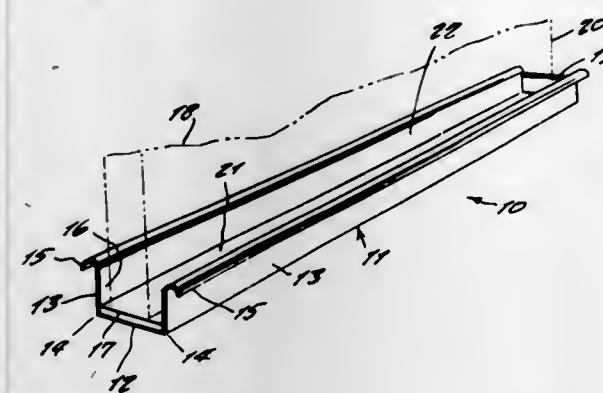
Frank J. Eisenschenk, R.R. #1, Richmond, Minn.

Filed Dec. 22, 1969, Ser. No. 888,208

Int. Cl. B05c 1/02

U.S. Cl. 15-244 R

2 Claims



A tool for applying a sealer-soaked sponge pad on the underside of a door so to seal the underside of the door against dampness, the device comprising a shallow pan slidable under the door, the pan containing an approximately 1/4-inch-thick sponge which is then pressed to the underside of the door for a period of time until the sealer has soaked into the underside of the door, after which the pan and sponge are removed.

3,597,789

VACUUM CLEANER

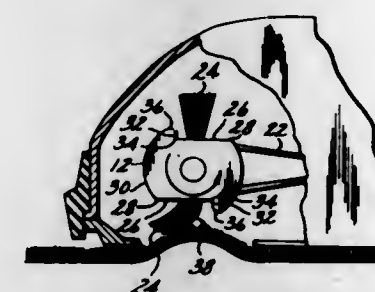
Wilton E. Boyd, Mayfield Heights, Ohio, assignor to General Electric Company

Filed Mar. 13, 1970, Ser. No. 19,392

Int. Cl. A47i 9/04

U.S. Cl. 15-383

6 Claims



An electric vacuum cleaner having a generally cylindrical brush roller positioned in the suction nozzle of the vacuum cleaner wherein the brush roller includes a wall positioned adjacent to and extending outwardly from portions of the brush bristles for causing the bristles to bend over when a carpet is sucked partially into the suction nozzle. This construction reduces the resistance of the bristles on the carpet pile thereby preventing the brush from stalling.

3,597,790

FOLDING DOOR HARDWARE

Kenneth K. Kellems, Ontario, and Robert Brydolf, Pasadena, both of Calif., assignors to Acme General Corporation, Menlo Park, Calif.

Continuation of application Ser. No. 475,685, July 29, 1965, now abandoned. This application Nov. 29, 1968, Ser. No. 781,695

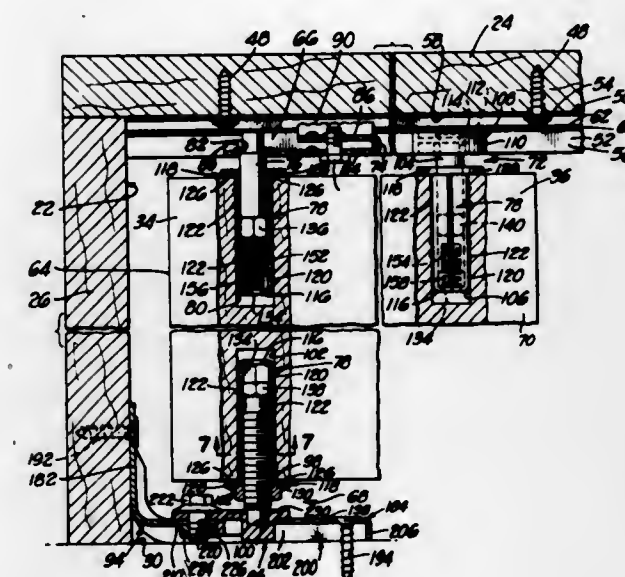
Int. Cl. E05d 7/08

U.S. Cl. 16-151

7 Claims

A pivot or guide assembly for folding doors comprising a sleeve secured in its door-edge opening by driving it therein to inner-end-first. The sleeve is hexagonal to receive a hexagonal portion of a pivot or guide pin to prevent rotation of the pin while permitting vertical adjustment of the position thereof. Springs bias certain of the pins in such a way that the corresponding sleeves can be driven through the pins without damaging the springs. In one form, an annular retainer

secures a rotatable nut to the outer end of the sleeve and the pin threadedly engages the nut so that rotation of the nut displaces the pin longitudinally of the sleeve without rotation of the pin. The sleeve is a split sleeve and the annular retainer



limits spreading of the segments thereof. The disclosure also includes a folding-door bottom pivot assembly which includes a pivot bracket and a pivot socket adjustable relative thereto to adjust the horizontal position of the pivot axis of the door.

3,597,791

METHOD FOR PRODUCING SHIRRED FOOD CASINGS

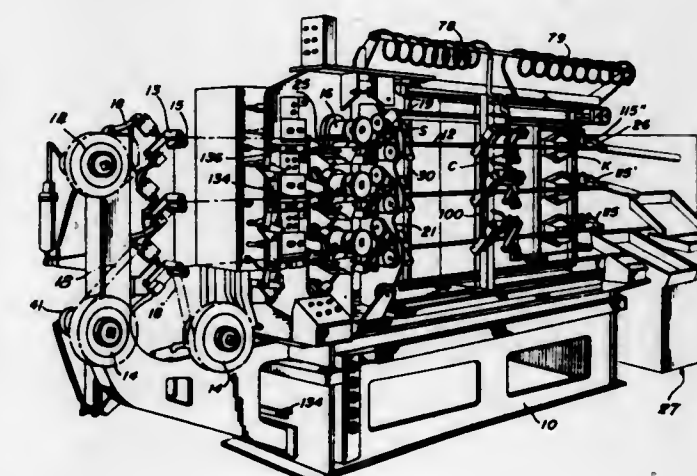
Walter V. Marbach, Palos Heights; Victor K. Naudzius, Chicago, and Edward S. Sherman, Palos Heights, all of Ill., assignors to Union Carbide Corporation

Division of Ser. No. 661,689, Aug. 18, 1967, Pat. No. 3,503,093, this application Oct. 22, 1969, Ser. No. 871,353

Int. Cl. A22c 13/00

U.S. Cl. 17-49

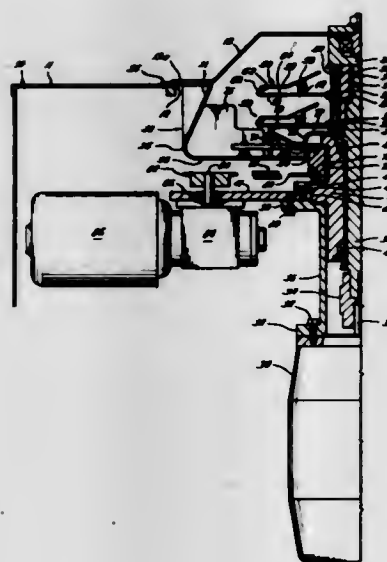
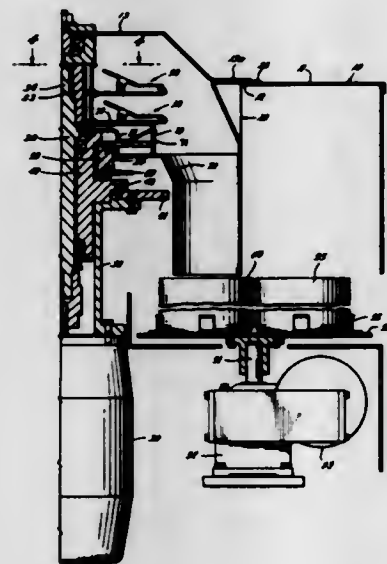
2 Claims



Shirring and compression of food casings are accomplished on a multimandrel machine having common drive and control systems for a plurality of casing strands, the steps of shirring, compacting and severing being performed on each mandrel independent of action on each other mandrel despite common drive mechanism. Provision is made for detecting and remedying discontinuities in casing material supplied to each mandrel and automatic systems reject casing lengths deviating from a predetermined standard.

3,597,792
CRAB MEAT EXTRACTION APPARATUS AND METHOD
 W. Lee Lockerby, Houston, Tex., assignor to Avico, Inc., Houston, Tex.
 Division of Ser. No. 697,966, Jan. 15, 1968, Pat. No. 3,548,449, this application Dec. 8, 1969, Ser. No. 880,450
 Int. Cl. A22c 29/00
 U.S. Cl. 17-71

6 Claims



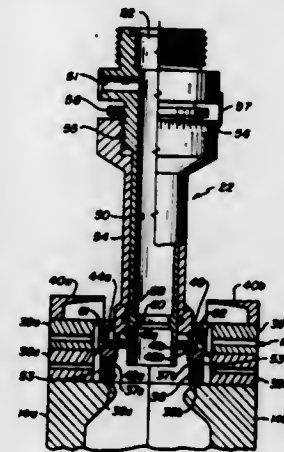
A machine and method for extracting meat from the body shells of crabs by the employment of centrifugal force, characterized by structures and procedures permitting operation at two different speeds operative to separately and successively extract the more valuable, relatively large lump meat sections in substantially unbroken condition; followed by extraction of the smaller, less valuable, flake meat sections.

3,597,793
BOTTLES AND THE METHOD AND APPARATUS FOR FORMING THEM
 Gerhard H. Weller, Des Plaines, and Henry Komendowski, Evanston, both of Ill., assignors to Automatic Liquid Packaging, Inc., Elk Grove Village, Ill.
 Filed May 28, 1969, Ser. No. 828,589
 Int. Cl. B29c 1/00

U.S. Cl. 18-5 BF
 Improved methods and apparatus are disclosed for blow-

20 Claims

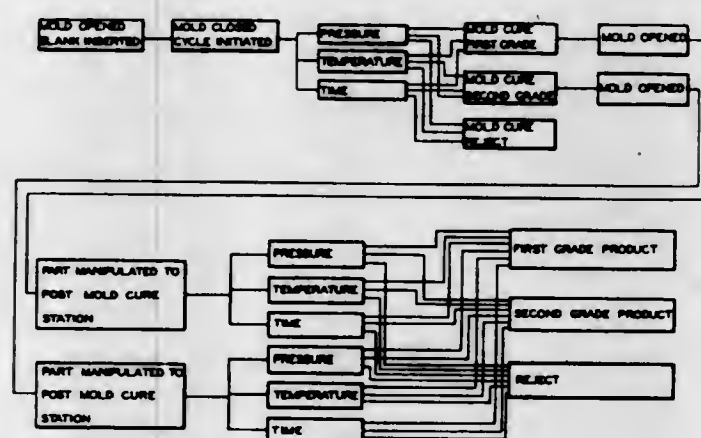
ing, filling and hermetically sealing bottles having end closures such as caps which can be easily removed and thereafter used to reclose or reseal the bottles.



3,597,794
MULTIFUNCTION PRODUCTION MONITOR
 Charles G. Mann, Farmington, Mich., assignor to Weltronic Company, Southfield, Mich.
 Filed Nov. 29, 1968, Ser. No. 779,949
 Int. Cl. B29g 1/00

U.S. Cl. 18-2 HA

11 Claims



A system for monitoring the production of a work station wherein a plurality of process functions must be performed for a satisfactory product. The plurality of functions are sensed in the system to actuate a product count. The functions can be defined by limits on a range as temperature, pressure or curing time. Sequencing of the functions can be critical as where pressure must be imposed prior to heating an article being processed to produce a count of a satisfactory product. Combinations of function limits and sequences of functions can be utilized to indicate an acceptable process cycle. Several processes can be imposed on the product with a grading of the final product dependent upon the grading of intermediate product and process parameters. Several grades of product can be sensed and counted in the system depending upon the values or sequences of functions being performed. For example, a cure time outside the limits for a prime grade product, if within the looser limits of a secondary grade product causes the resultant product, other functions being within limits, to be counted as a secondary grade product.

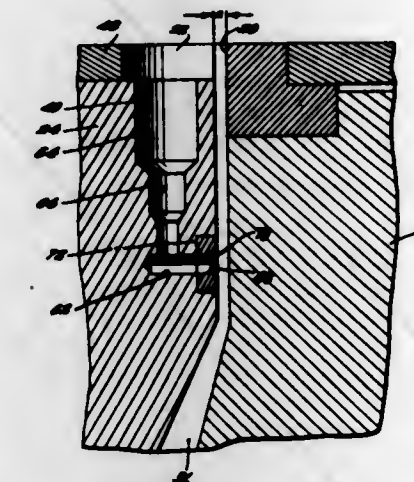
3,597,795
DIE HEAD FOR THE CONTINUOUS EXTRUSION OF PLASTIC FILM WITH PROFILES FOR A CLOSURE FOR USE IN PLASTIC BAGS
 Kakuji Nakto, No. 49, 1-chome, Watarida-shir-machi, Kawasaki-shi, Kanagawa-ken, Japan
 Filed Oct. 7, 1968, Ser. No. 765,295
 Int. Cl. B29d 23/04

U.S. Cl. 18-14 R

7 Claims

A die head for the continuous extrusion of plastic for the

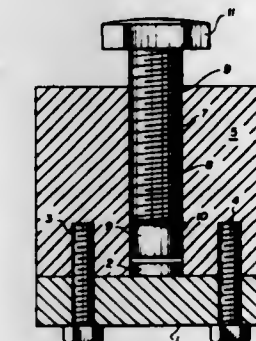
manufacture of a plastic film having profile ledges for the bag closure which serves for the formation of plastic bags.



3,597,796
DIE FOR PREPARATION OF FUSED SALT DISCS FOR INFRARED SPECTROSCOPIC ANALYSIS
 Robert Ehrlich, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
 Filed Oct. 17, 1969, Ser. No. 867,203
 Int. Cl. B30b 1/20

U.S. Cl. 18-16 R

4 Claims



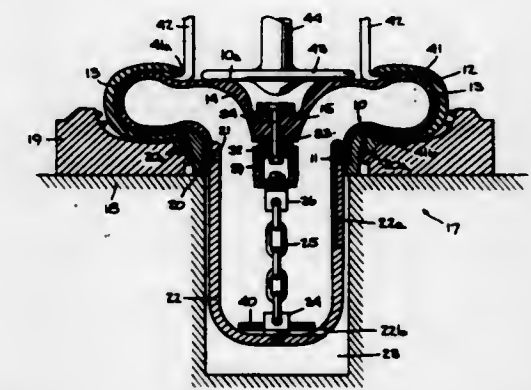
An improved die for use in casting of fused impregnated discs for infrared spectroscopic analysis, particularly where air and moisture are a problem. The improvement resides in the combination of a removably fastened base on a threaded die body and a single threaded plunger to fit the bore of the die. When the base is fastened to the die body, it acts as a supporting structure for an anvil seated at the bottom of the threaded die bore. In operation the impregnated salt to be pelleted is introduced into the threaded die bore onto the anvil positioned at the bottom of the bore, being secured in the bore by the fastened removable base. The plunger is thereafter screwed into the threaded bore until sufficient pressure is applied to produce a salt disc or pellet between the anvil and the plunger. The base is then removed and by turning the plunger a few more times, both the anvil and the fused disc are ejected from the die.

3,597,797
TIRE-VULCANIZING PRESS
 Martin DeLille, Aachen, Germany, assignor to Uniroyal Engelbert Deutschland AG, Aachen, Germany
 Filed Oct. 30, 1969, Ser. No. 872,540
 Claims priority, application Germany, Nov. 14, 1968, P 18 08 742.8
 Int. Cl. B29h 5/02

U.S. Cl. 18-17 W

14 Claims

A bladder press of the well type adapted to enable belted tires and especially radial ply tires to be cured with bladders of generally conventional shape, is disclosed. The press is equipped with a tension member for limiting bladder expansion in the axial direction, the member being anchored at one end of thereof in the well and at the other end to the inwardly projecting vertex of a bell-shaped depression provided at the free, closed end of the bladder. The maximum length of the tension member is so chosen that the uppermost part

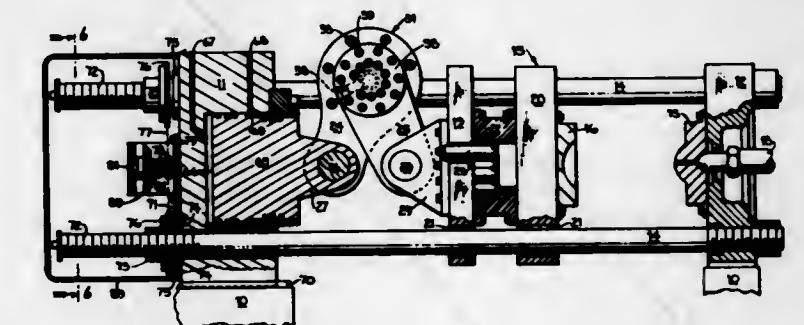


of the bladder cannot engage the upper bead of the preshaped tire carcass being loaded into the mold while the bladder sides are being expanded radially into the carcass, thereby enabling air to be expelled from between the bladder and the carcass and preventing the production of tires with bead defects and entrapped air bubbles.

3,597,798
TWO-STAGE CLAMPING MECHANISM
 David I. McDonald, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
 Filed Mar. 20, 1970, Ser. No. 21,446
 Int. Cl. B29f 1/00

U.S. Cl. 18-30 LV

10 Claims



A hydraulically actuated two-stage clamping mechanism for moving a movable member into and out of cooperative relationship with a stationary member. A pair of rigid link arms is pivotally interconnected at one end of each of the arms to form a toggle which comprises the first stage of the mechanism. The free end of one of the toggle arms is pivotally connected to a stationary portion while the free end of the other arm is pivotally connected to a movable member. The pivotally interconnected ends of the toggle arms define a knee-type joint which incorporates an integral hydraulic rotary actuator which upon the application of hydraulic pressure, causes relative motion between the arms and thereby moves the movable member toward and away from the stationary member. The second stage of the mechanism is a large diameter, short travel clamping piston to firmly hold the movable and stationary members together. Additionally, adjustment means are provided to vary the initial spacing between the two stationary members.

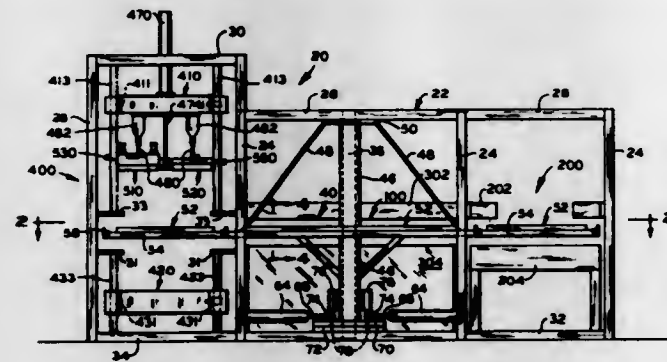
3,597,799
APPARATUS FOR VACUUM FORMING HOLLOW PLASTIC ARTICLES
 Herbert J. Earle, Ann Arbor, Mich., assignor to The Mather Company, Toledo, Ohio
 Filed Feb. 24, 1969, Ser. No. 801,446
 Int. Cl. B29c 17/00

U.S. Cl. 18-19 H

10 Claims

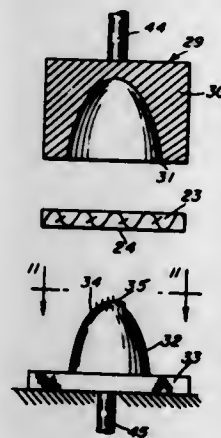
An apparatus for forming at least one planar sheet of heat-fusible plastic into a hollow article by heating the plastic

sheet to its fusion temperature; folding the heated sheet so as to bring preselected portions of the sheet together and holding other portions thereof spaced apart; and fusing the contacting portions together. An open frame supports and holds opposite edges of the heat-fusible plastic sheet during the heating of both planar surfaces of the sheet and the moving of the sheet parallel to a two section hinged planar mold. The edges of the sheet also may be preheated before its planar surfaces are heated. A vacuum is applied to draw the heated sheet into the mold cavities and concurrently the heated sheet is released from its supporting frame. The mold is then folded to fold the plastic sheet between the folded sections of



the mold, which sections are then clamped in their folded positions. If desired, a sheet of insulation, such as of plastic foam, may be inserted between the folded portions of the sheet before the mold sections are folded together. Next these clamped sections are pressed to fuse together preselected portions of the folded sheet. These preselected portions may have been further heated before fusion and a cooling medium may be circulated through the mold sections to set the formed article. Compressed air then may be applied to one of the mold sections to release the article from that one section as the mold is opened. Lastly, air and/or a pusher is employed to eject the article from the other mold section.

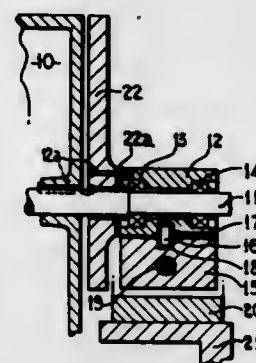
3,597,800
APPARATUS FOR MAKING BRASSIERE PADS
Abe Silverman, Chicago, Ill., assignor to Silveco Products, Inc., Chicago, Ill.
Filed Mar. 20, 1969, Ser. No. 808,959
Int. Cl. B29g 1/00; A41c 5/00
U.S. Cl. 18—19 R 4 Claims



Molded seamless brassiere pads or cups made from thermoplastic adhesive bonded nonwoven fibrous batting and an apparatus and method for molding the same without thinning of the cross-sectional area of the apex portion of the brassiere pad or cup relative to the cross-sectional thickness of the remaining wall portions of the pad or cup. To this end a central portion of the blank from which the pad is molded under heat and pressure is subjected prior to the molding operation to the action of a coolant to prevent the thermoplastic adhesive bond in the bonded nonwoven fibrous batting from being softened during the molding operation. The thus cooled central portion of the body of the blank is held in position in the mold by piercing elements mounted on

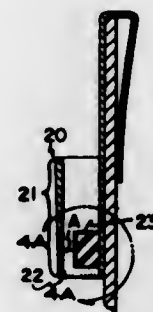
the male mold member and which project into the loosely arranged fibers in the cooled central area of the inner surface of the body of the blank without forming unsightly or objectionable holes or other marks therein. A molded seamless brassiere pad or cup is formed in which the cross-sectional thickness of the apex portion of the pad or cup is not reduced relative to the cross-sectional thickness of the remaining wall portions of the pad or cup and the apex portion of the pad or cup is not otherwise weakened.

3,597,801
CARDING ENGINES
John Maximilian Jules Varga, Isle of Man, England, assignor to Carding Specialists (Canada) Limited
Filed Feb. 14, 1969, Ser. No. 799,425
Claims priority, application Great Britain, Feb. 21, 1968, 8,372/68
Int. Cl. D01g 15/28
U.S. Cl. 19—98 9 Claims



A carding engine including a frame, an axle, a cylinder mounted on said axle and rotatable therewith, bearing means between the frame and each of the ends of the axle, a bearing block housing said bearing means at each end of said axle, a bend spaced apart from each end of the cylinder and fixed to the bearing blocks, the axle ends extending through the bends into the bearing means, pivot means between the bearing blocks and the frame permitting swiveling movement of the bearing blocks about an axis parallel to the frame and an axis vertical to the frame.

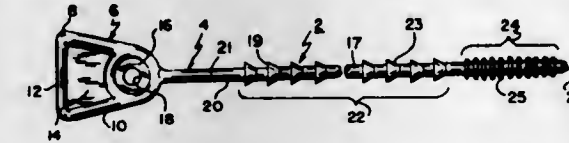
3,597,802
WRITING IMPLEMENT HOLDER
Larrie D. White, 136 E. 3rd South, Logan, Utah
Filed Oct. 31, 1969, Ser. No. 872,986
Int. Cl. B43k 25/00
U.S. Cl. 24—11 CT 7 Claims



The present invention comprises a writing implement holder having a front plate provided with a holder yoke and a clip portion contiguous with and cooperably associated with the front plate, whereby the implement may be attached to a book. The holder yoke is advantageously tapered for proper clip reception and retention. The writing implement holder includes resilient means having separated resilient portions which cooperate with respective ones of writing implements inserted in the holder so as to frictionally retain the same in place in stored position. Independent operation of the individual resilient portions preclude insertion of additional implements from affecting retention of implements previously

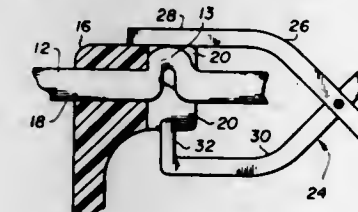
stored in the holder. Individual portions of the resilient means may comprise fingers, resilient pad portions, or equivalent means.

3,597,803
FASTENING DEVICE
Clarence R. Van Noll, North Olmsted, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed July 2, 1969, Ser. No. 838,480
Int. Cl. B65d 63/00
U.S. Cl. 24—16 PB 10 Claims



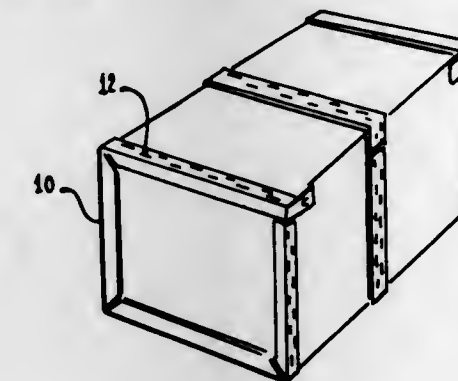
A fastening device including an elongated, flexible body having a tail end portion and a grip end portion providing a straplike construction for assembly around a bundle or the like. The grip end portion has an aperture therein and the body includes a plurality of spaced enlargements disposed between the end portions for resilient interlocking engagement with the margins of the aperture upon insertion of the tail end portion through the aperture for locking assembly with the bundle in the installed position thereof.

3,597,804
BUNDLING STRAP-LOCKING TECHNIQUE
George H. Geisinger, Union County, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed Sept. 15, 1969, Ser. No. 857,826
Int. Cl. B65d 63/00
U.S. Cl. 24—16 PB 2 Claims



The locking technique employed herein requires the displacement of a portion of the strap body from its normal plane into transverse slots in the face of the head member of such bundling strap. In an alternative embodiment, a special web is provided across one of the facial transverse slots; such web is displaced into and along with the strap body portion into a second transverse facial slot in order to provide the necessary locking.

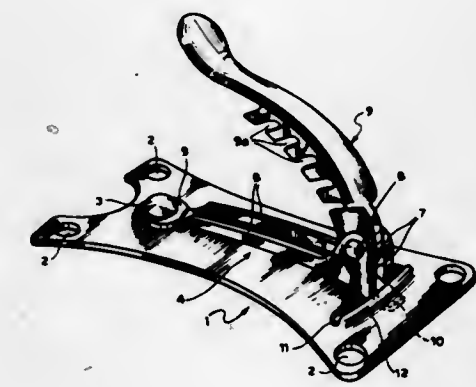
3,597,805
CONTINUOUS STRIP FASTENER
Andrew J. Powell, Jr., 1215 N. Orange Grove Ave., W. Hollywood, Calif.
Filed Feb. 17, 1969, Ser. No. 799,660
Int. Cl. B65d 63/02
U.S. Cl. 24—20 1 Claim



The invention concerns itself with a continuous nailing strip comprising a multiplicity of tangs, each tang being in-

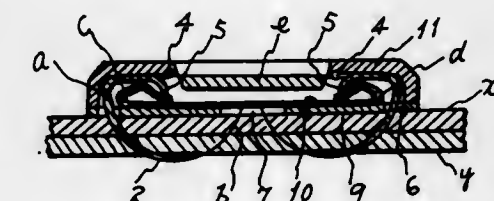
tegral with the strip at one end and disconnected from said strip at the other end and being L-shape. The tang being narrower than the strip. The disconnected end can be hammered into wood such as sheet plywood. The plywood then becomes the ends, sides and top of a resulting shipping container.

3,597,806
TRACTION LEVER DEVICE FOR THE FASTENING OF BOOTS, PARTICULARLY SKI BOOTS
Icaro Olivieri, Via Caprera 4, Lecco, Como, Italy
Filed Nov. 25, 1969, Ser. No. 879,642
Claims priority, application Italy, Apr. 11, 1969, 51396/69
Int. Cl. A43c 11/14
U.S. Cl. 24—70 SK 2 Claims



This invention provides a traction lever device for the quick fastening of boots, particularly ski boots, in which a manually operable notched lever arm is carried by a support which is itself pivotally mounted on the plate which secures the device to one of the boot upper flaps, permitting rocking movement of the support and the lever arm about an axis perpendicular to the plate and spaced from the pivot axis of the lever arm itself. This arrangement permits alignment of the lever arm with the direction of the tension applied thereto when the arm engages a tensioning element such as a ring attached to the other boot upper flap.

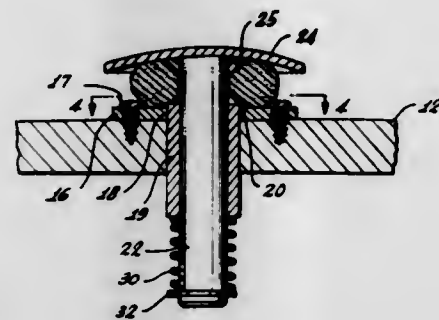
3,597,807
FASTENING DEVICE AND A PROCESS FOR MAKING THE SAME
Kouzo Yasuoka, c/o Sulkoh Komori No. 17 Shibuse-cho, Kitashiraka, Kyoto, Japan
Filed June 2, 1969, Ser. No. 829,212
Claims priority, application Japan, Aug. 26, 1968, 43/61023
Int. Cl. A44b 9/12
U.S. Cl. 24—87 3 Claims



An archwise-curved needle has a basic portion which is on a level with the surface of a fastening device, and which is pivotally attached to said body. Said curved needle is so provided as to go through the back of said body. Said body is also provided with an elastic piece to restrain by its elasticity the pivotal movement of said curved needle.

3,597,808 LINE CLAMP

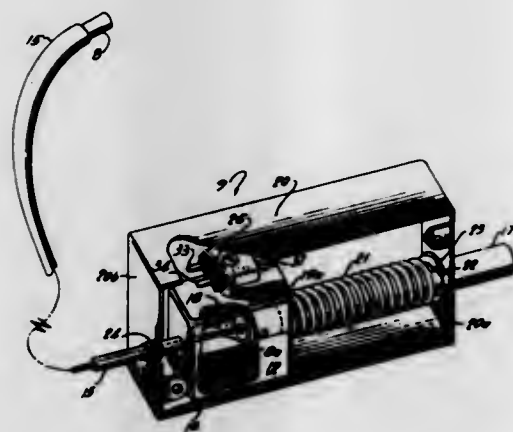
Philip L. Johnson, 9710 Ocean Gate, Inglewood, Calif.
Filed June 4, 1970, Ser. No. 43,432
Int. Cl. F16g 11/04, 11/14
U.S. Cl. 24-127



A line clamp comprising a ring plate adapted to be secured in position on a mounting surface, e.g., a deck, or other platform, or the like, by means of headed screws, and with a sleeve mounted in the center thereof and projecting downwardly therefrom with a bore extending into and through the supporting surface. A shank mounted for axial movement in this sleeve has a dished upwardly convex clamp plate on its upper end, and a spring draws the shank downward to releasably clamp a line between the dished head and the mounting ring.

3,597,809 SEPARATING LINK

Burke J. Crane, Lombard, Ill., assignor to Rixson Inc., Franklin Park, Ill.
Filed Aug. 11, 1969, Ser. No. 848,955
Int. Cl. A44b 17/00
U.S. Cl. 24-201 LP



A separating link and operator particularly adapted as a substitute for the fusible links employed in prior art closure control systems.

A first embodiment of the separating link has two link sections whose joiner is controlled by a pull wire latch. One section is a cam link section having an integral ball cam. The second section is a socket link section formed with a socket for receiving the cam in mating relationship. A pair of locks couple the link sections together. The latching engagement of one lock is dependent upon the latching engagement of the other or operating lock.

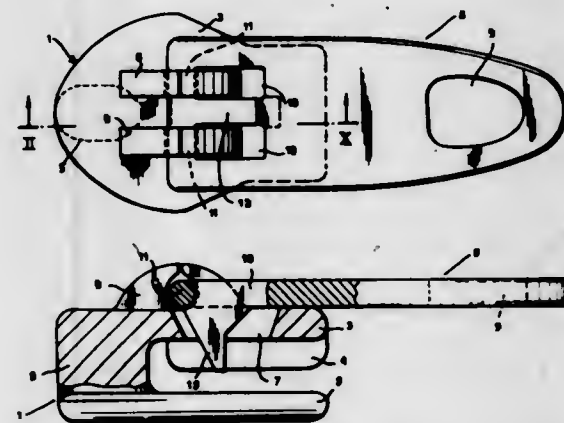
The pull wire latch is connected to a magnetizable armature which reciprocates within a solenoid. Upon deenergization of the solenoid, the pull wire latch is removed from the operating lock thus disengaging this lock. The ball cam then partially separates the two links sections with a resultant disengagement of the dependent lock. Accordingly, the links sections are fully separated in response to external forces applied by a closure, for example.

3 Claims

A modification is incorporated within a second embodiment by which each link is a sandwich of elements including a fusible layer. This embodiment thus fully separates in response to excessive heat which causes melting of one or both of the fusible layers, or, alternatively, in response to the removal of the pull wire latch.

3,597,810 ZIP FASTENER SLIDER

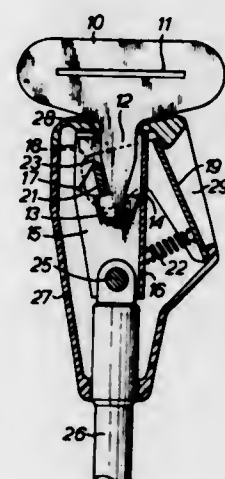
Vincenzo Ilotte, Turin, Italy, assignor to Remmert Valle & Co. Società per Azioni, Turin, Italy
Filed June 17, 1970, Ser. No. 46,852
Claims priority, application Italy, Sept. 19, 1969, 19,805 B/69
Int. Cl. A44b 19/30
U.S. Cl. 24-205.14



A sliding clasp for a zip fastener having a tab with a tooth which can extend through a central aperture in the sliding clasp to engage the teeth of the zip and lock the sliding clasp against movement in either direction. The tooth is perpendicular to the tab. The tab is hinged to the sliding clasp by means of two upstanding lugs, one on each side of the aperture through which the tooth on the tab extends when the tab is rotated to be substantially parallel to the body of the sliding clasp.

3,597,811 SEAT BELTS FASTENER

Douglas J. Cunningham, Chichester, England, assignor to Wingard Limited, Chichester, England
Filed Mar. 6, 1970, Ser. No. 17,228
Claims priority, application Great Britain, July 11, 1969, 34,982/69
Int. Cl. A44b 11/26
U.S. Cl. 24-230

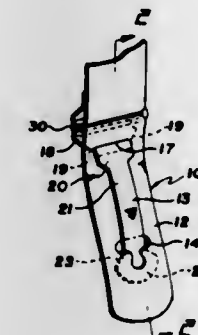


In a two-part separable buckle for a safety seat belt for vehicles, one part comprises a flat shank having a step on at least one side edge and adapted to enter between parallel walls of a frame member in the other part, and a latch

2 Claims

3,597,812 SUSPENDER CLIP

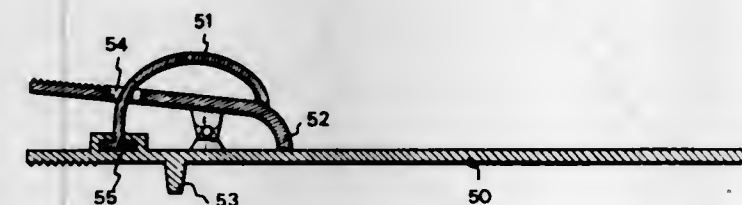
Gust Allan, 3757 Eaton Street, North Burnaby, British Columbia, Canada
Filed Oct. 29, 1969, Ser. No. 872,106
Int. Cl. A44b 21/00
U.S. Cl. 24-245 FF



A suspender clip for women's stockings which is formed from a strip of plastic material, the strip being divided into two parts by a fold line about which the two parts may be folded into face-to-face relationship. The part to one side of the line forms a base and part to the other side a tongue with a widened tip. The base has a keyhole opening through it of which the narrow part is not so broad as the tip of the tongue and the wider part will allow the passage of the tongue therethrough.

3,597,813 CLAMPING DEVICE

Kiyoshi Takahashi, and Akira Takahashi, both of 140 Sakai 1-chome, Edogawa-ku, Tokyo, Japan
Filed Aug. 29, 1969, Ser. No. 854,066
Int. Cl. A44b 21/00; B29c 1/02; B30b 7/00
U.S. Cl. 24-67.5



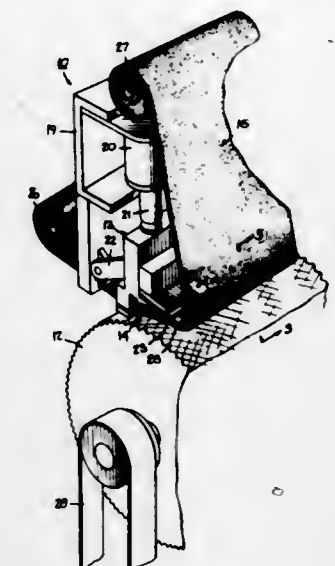
A clamping device comprising a pair of clamping members pivotally fixed to each other, one of said clamping members having an elongated opening through which extends a clamping spring and an arcuately curved leading end portion while the other clamping member has the arcuate compression spring for clamping which extends through said opening and presses against said curved portion the center of the radius of curvature of which is slightly deviated from the pivotal point of said pair of clamping members.

3,597,814 MACHINE FOR MECHANICALLY TREATING MATERIALS HAVING A MOVABLE FLEXIBLE RETARDER

Alexander L. Trifunovic, Wilmington, and Charles R. Kase, Jr., Newark, both of Del., assignors to Joseph Bancroft & Sons Co., Wilmington, Del.
Filed Jan. 24, 1969, Ser. No. 793,740
Int. Cl. D06c 21/00

The flexible retarder which is of a higher coefficient of friction than the primary surface is mounted so as to be

moved relative to the driving roll to avoid excessive wear. The flexible retarder can be an endless belt, a jacketed roller or an elongated strip. The flexible retarder is moved continuously or intermittently to expose fresh surfaces to the material being compacted in relation to the wear of the flexible retarder during treatment.



ously or intermittently to expose fresh surfaces to the material being compacted in relation to the wear of the flexible retarder during treatment.

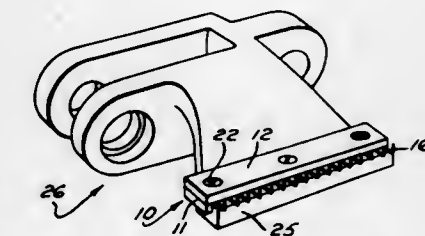
3,597,815

PIN RACK FOR TENTER CHAIN LINK

Kenneth Elton Fish, Warwick, R.I., assignor to Bevis Industries, Inc., Providence, R.I.
Filed Aug. 1, 1969, Ser. No. 846,679
Int. Cl. D06c 3/10

U.S. Cl. 26-62

4 Claims

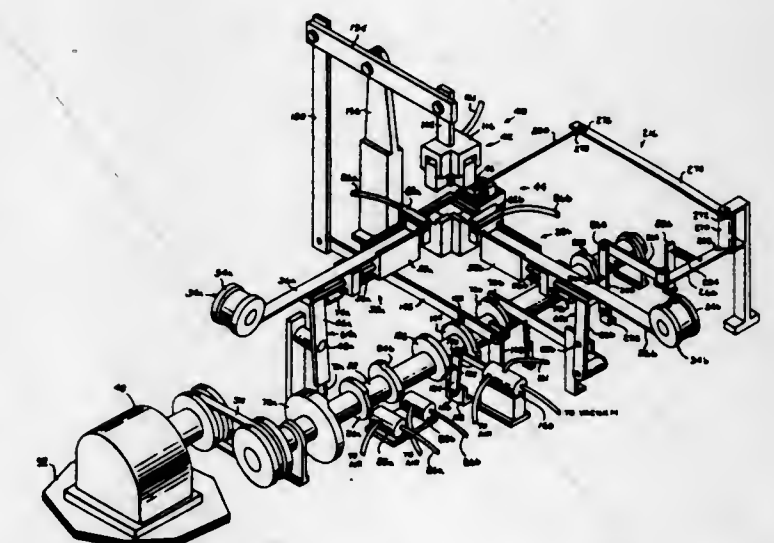


This invention relates to the pin rack carried by the rack carrier of a tenter chain link, such as used, for example, in machines for drying cloth or the like.

3,597,816 APPARATUS FOR FABRICATING MULTILAYER ELECTRICAL COMPONENTS

Martin L. Zelenz, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc.
Filed Feb. 20, 1969, Ser. No. 801,115
Int. Cl. H01g 13/00
U.S. Cl. 29-25.42

8 Claims



Method and apparatus for forming thick-film electrical capacitors. Strips of electrically conducting and electrically

6 Claims

6 Claims

22 Claims

insulating material are fed in an overlapping manner to a cutting area. The strips are cut under sufficient pressure to form a bonded pair which is then transported to a remote position. Alignment between the bonded pair and a receptacle is achieved and the bonded pair is deposited therein. The cycle is repeated with the receptacle being rotated 180°. The rotation of the receptacle between cycles allows an interleaved capacitor of any desired size to be built up. When this is achieved, the receptacle may be removed to a die where sufficient pressure is applied to achieve adherence of all bonded pairs into a compact unit. This unit is then fired at selected temperatures to produce the capacitor.

thereby insuring uniform deposition of the paper stock onto a paper-forming surface.

3,597,819

METHOD OF MAKING A COMPOSITE TAPERED ROLLER BEARING RACE

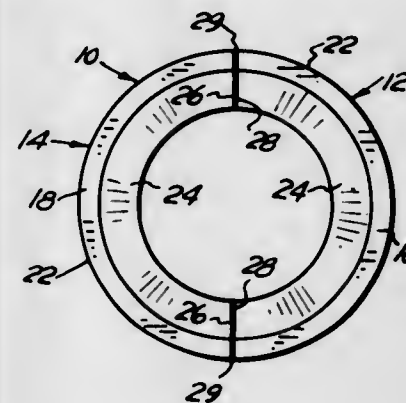
Hudson B. Scheffele, 30165 Ponds View Road, Franklin, Mich.

Filed Oct. 27, 1969, Ser. No. 870,681

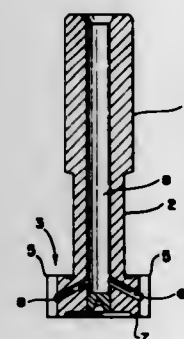
Int. Cl. B23p 11/00; B21h 1/12

U.S. Cl. 29—148.4 R

9 Claims



Suitable bearing race material is formed into bar stock having a longitudinally-oriented grain structure and having a cross section corresponding to the cross section of the prospective bearing race. From the thus-shaped bar stock are cut a plurality of pieces whose combined lengths substantially equal the circumferential length of the prospective bearing race. These pieces are then bent into circularly arcuate segments having curvatures corresponding to that of the prospective bearing race and having ends configured to fit one another. These segments are then aligned end-to-end in an annular path and welded together into an annular body which is then hardened and ground. This bar stock is provided with an inclined side surface which, for an outer race, becomes the inner surface of the segment, and for an inner race becomes the outer surface of the segment, in each instance constituting the roller path.



3,597,817

TEE-SLOT CUTTER AND METHOD FOR USING IT

Howard M. Whalley, 6742 Stafford Drive, Mayfield Heights, Ohio

Filed Mar. 20, 1969, Ser. No. 808,866

Int. Cl. B26d 1/00, 1/12

U.S. Cl. 29—106

1 Claim

A tee-slot cutter for cutting T-shaped slots, as for example, in the metal table of a milling machine, at high speeds, without sacrificing tool life by providing liquid coolant through the openings near the hub of the cutting bit and away from the cutting edges, to direct liquid streams immediately in front of the cutting edges.

3,597,818

RECTIFIER ROLL

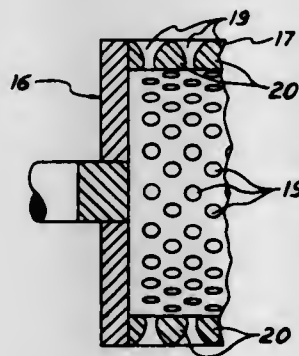
Ralph A. Beck, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Apr. 10, 1969, Ser. No. 815,121

Int. Cl. D21f 1/08

U.S. Cl. 29—121

3 Claims



A tubular rectifier roll for use in a paper machine headbox is provided with tapered radial perforations of streamlined contour which impart essentially uniform and nonturbulent rectilinear flow to the paper stock emerging from the downstream side of the roll and entering the headbox slice,

3,597,820

METHOD OF MAKING FULLY LINED VALVE

Robert C. Schenck, Jr., Dayton, Ohio, assignor to The Duriron Company, Inc., Dayton, Ohio

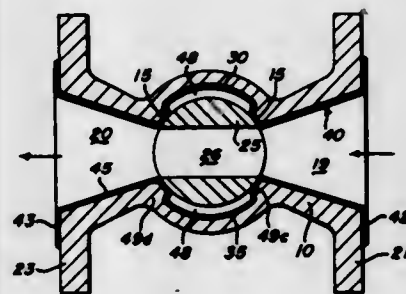
Division of Ser. No. 497,825, Oct. 19, 1965, Pat. No. 3,438,388.

This application Sept. 17, 1968, Ser. No. 760,292

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26

U.S. Cl. 29—157.1 R

8 Claims



A corrosion resistant valve has a continuous polytetrafluoroethylene (PTFE) lining and includes a rotatable closure member. The valve body is lined by expanding an isostatically formed tubular element of PTFE, and maintaining the element expanded as it cools. In this way all interior surfaces of the body are covered with a corrosion resistant sheath. After formation of the lining, the bore is sized and the remaining components of the valve are assembled.

3,597,821

METHOD OF MAKING AN INTEGRATED MATCH MACHINING ROCKET NOZZLE

Herff C. Emerson, Chula Vista, Calif., assignor to Rohr Corporation

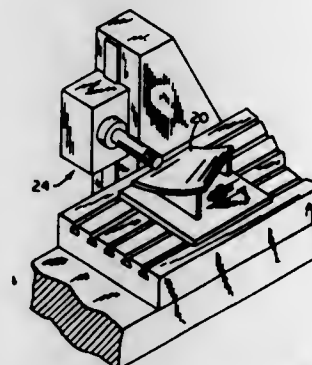
Division of Ser. No. 449,076, Apr. 19, 1965, Pat. No. 3,418,707.

This application Aug. 9, 1968, Ser. No. 766,007

Int. Cl. B23p 15/26

U.S. Cl. 29—157

2 Claims



A rocket nozzle shell-ablative liner composite is disclosed in which a large hot-sized, high-strength unitary nozzle is formed of annularly welded frustoconical ring sections of varying diameters and cone angles. Each of the ring sections is formed of arcuate ring segments welded together to form a unitary frustoconical ring section, and each ring segment is cut and contoured plate metal. The welded ring sections and unitary nozzle are hot sized to remove distortion, and the external surfaces of the resulting nozzle structure is only nominally machined to design configuration. The internal surface dimensions of the nozzle are measured numerically to receive a match-machined ablative liner which is bonded thereto. The liner has an inner layer of an ablative material and an outer layer of a resin impregnated fiber glass fabric which is machined to the inner dimensions of the nozzle shell.

3,597,822

METHOD OF MAKING FILAMENTARY METAL STRUCTURES

Francis P. Fehner, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.

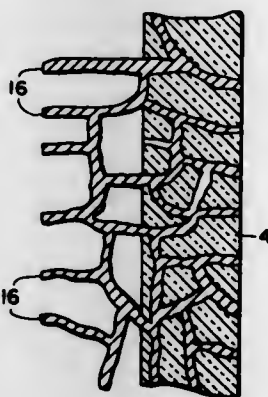
Division of Ser. No. 426,181, Jan. 18, 1965, Pat. No. 3,407,125.

This application Feb. 15, 1968, Ser. No. 705,775

Int. Cl. B32b 15/02, 15/14

U.S. Cl. 29—183.5

1 Claim



A composite body consisting of a filamentary dispersion of metal within the pores of a porous body, the individual filaments having a maximum thickness of less than 200 angstrom units. A cathode is applied to a portion of the external surface of a nonelectroconductive porous body and the exposed portion of the cathode as well as a portion of the porous body adjacent to the cathode are covered with a nonelectroconductive protective coating. Metal ions from the anode traverse the pores of the body and deposit on the cathode resulting in the growth of metallic filaments which extend

from the cathode throughout at least a portion of the pores of the body.

3,597,823

PINCH-ON FISHING SINKER APPLIER AND ASSEMBLY

Averd G. Nelson, 6611 Wazeecha Ave., Wisconsin Rapids, Wis.

Filed Jan. 30, 1969, Ser. No. 795,309

Int. Cl. B23p 19/00

U.S. Cl. 29—200 B

10 Claims



A fisherman's sinker having a split opening is gripped in a hinged throwaway pincher having legs provided with flanges which hold the sinker in place. When a fisherman's line is placed in the split opening of the sinker, the pincher legs are pushed together to close the opening onto the line. The pincher may then be removed and thrown away.

3,597,824

FULL-AUTOMATIC ELECTRIC PART MOUNTING APPARATUS

Takekazu Yoshida, Fujidera-shi; Yoshinobu Maeda, Kitakawachi-gun, Osaka, and Kazufumi Isomichi, Moriguchi-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

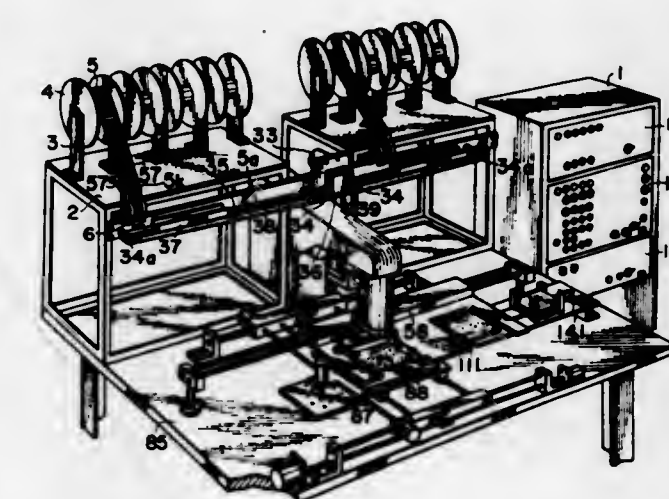
Filed Aug. 4, 1969, Ser. No. 847,329

Claims priority, application Japan, Aug. 10, 1968, May 9, 1969, Aug. 10, 1968, Mar. 19, 1969, 43/56791; 44/36841; 43/24743

Int. Cl. H01r; B23q 7/10

U.S. Cl. 29—203

8 Claims



An apparatus for mounting electric parts, each having leads extending axially from the opposite ends thereof, on a printed substrate, by which the steps of chopping the leads, shaping the chopped leads, and inserting and fixing the shaped leads in the corresponding holes in said printed substrate are carried out automatically continuously.

3,597,825

BATTERY BURNING AND BOXING MACHINE

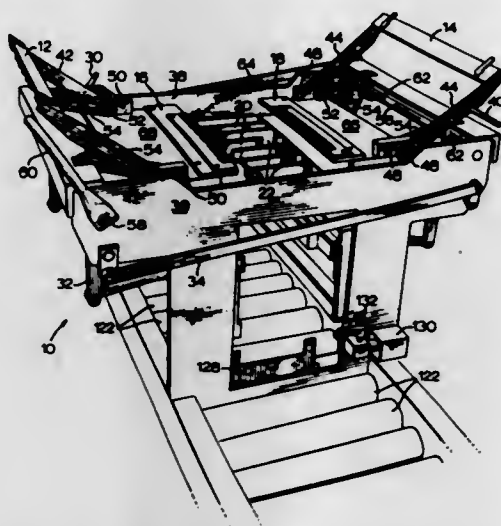
Karl Heinz Metaltzer, Winnipeg, Manitoba, Canada, assignor to Globette Batteries Canada Limited, Scarborough, Ontario, Canada

Filed Nov. 24, 1969, Ser. No. 879,149

Int. Cl. H01m 35/18; B23p 19/04

U.S. Cl. 29-204

6 Claims



An apparatus for the assembly of lead-acid storage batteries wherein all of the plate groups are assembled into pockets in the upper part of the apparatus so that the dimensional relationships between the plate groups are as they will be when assembled into a battery box. Jig plates secure the groups of plate lugs so that they may be burned to form bus bars and also so that intercell connectors and battery posts may be assembled to the plate groups and burned simultaneously therewith. The then completely assembled electrical components of the battery are pushed downwardly into a waiting battery box to which only the electrolyte and battery cover need be added to have a completely assembled and operative lead-acid battery.

3,597,826

APPARATUS FOR UNITING A PLUNGER AND A PISTON OF A FULLY ASSEMBLED HYPODERMIC NEEDLE SYRINGE

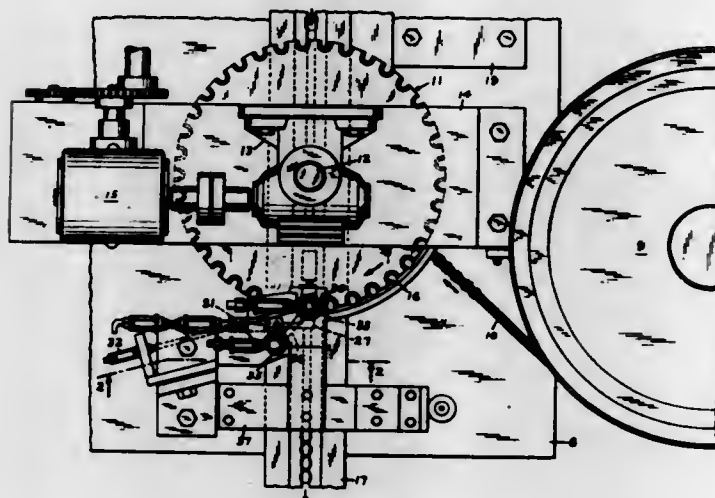
Walter A. Shields, 38-09 24th St., Long Island City, N.Y.

Filed July 28, 1969, Ser. No. 845,419

Int. Cl. B23p 19/04; B23g 7/10

U.S. Cl. 29-208 B

9 Claims



A plunger to actuate the piston of a fully assembled hypodermic needle syringe is united to said piston by moving the syringe longitudinally toward a stationary plunger to engage the piston with the plunger and rotating the syringe to unite the piston with the plunger. After the piston is united with the plunger, the syringe is lowered and removed from the apparatus.

3,597,827

AUTOMATIC HANDLE-APPLYING MACHINE

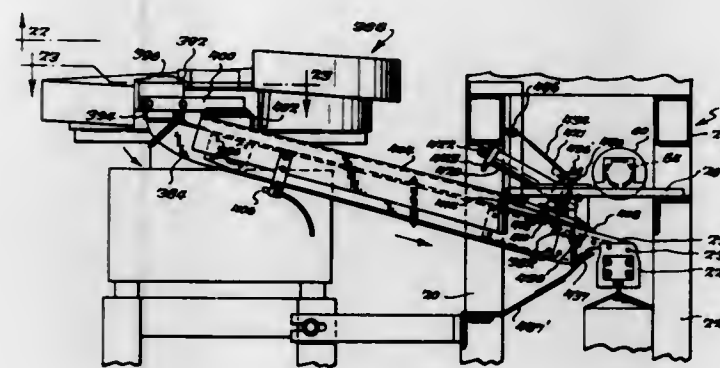
Carl J. Fries, Jr., Philadelphia; Leigh D. Leiter, Willow Grove, Pa., and Frank R. Linda, Fairfield, Conn., assignors to International Paper Company, New York, N.Y.

Filed Aug. 19, 1969, Ser. No. 851,420

Int. Cl. B23p 19/04

U.S. Cl. 29-208 B

10 Claims



An apparatus for feeding and securing a handle to the top of a gable-top container through a hole in the gable. A conveyor feeds each container to a receiving station. The handles, comprising a male member and a female member, are randomly oriented within a vibration hopper. A vibration feeder aligns the handles within the hopper and continuously positions a number of them on a slide beam. An applicator strips the leading handle from the slide beam and feeds it to a mandrel which is located at the receiving station. The mandrel spreads the handle and aligns the male member relative to the hole. The applicator inserts the male member through the hole in the gable of the container. The female member is automatically snapped over the end of the male member which protrudes through the hole to secure the handle to the container.

3,597,828

SNAP-RING TOOLS

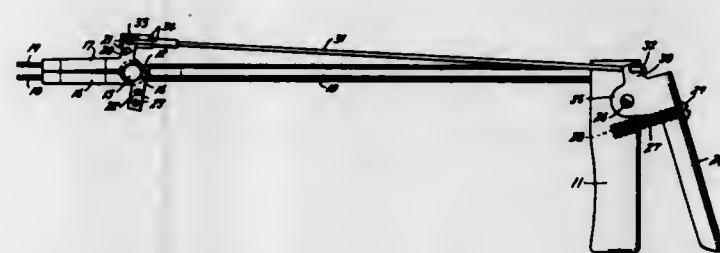
James T. Clark, Fort Morgan, Colo., assignor to Clark-Feather Manufacturing Co., Fort Morgan, Colo.

Filed July 24, 1969, Ser. No. 844,593

Int. Cl. B23p 19/04

U.S. Cl. 29-229

5 Claims



An elongated tubular frame bar with a pistol grip handle at its outer extremity and fixed jaw projecting from its inner extremity. A movable jaw pivoted on said fixed jaw and extending forward in alignment with said fixed jaw, said jaws being provided with snapping-engaging pins. A handgrip lever pivotally mounted on said handle and a connecting rod connecting said handgrip lever with said movable jaw to actuate the latter.

3,597,829

METHOD OF MAKING A NICKEL HYDROXIDE ELECTRODE

Otto C. Wagner, Long Branch, and Martin J. Saltes, Freehold, both of, N.J., assignors to The United States of America as represented by the Secretary of the Army

Filed Mar. 18, 1969, Ser. No. 808,353

Int. Cl. B22f 3/24

U.S. Cl. 29-420.5

4 Claims

A nickel hydroxide electrode suitable for use in an alkaline nickel battery is made by pasting a solvent dispersion of nickel hydroxide onto a nickel foam matrix, drying the pasted matrix, pressing the dried pasted matrix to the required size, and attaching an electrically conductive tab to the electrode.

3,597,830

METHOD AND APPARATUS FOR POST TENSIONING AND ANCHORING PRESTRESSING TENDONS

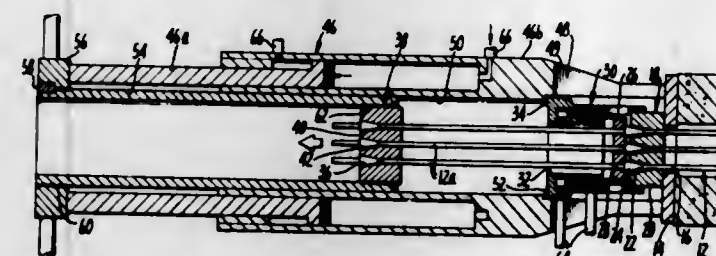
Lawrence R. Yegge, 139 Via de Tesoros, Los Gatos, Calif.

Filed Nov. 29, 1968, Ser. No. 780,111

Int. Cl. B21d 39/00; E21b 19/00

U.S. Cl. 29-452

10 Claims



A method and apparatus for post tensioning a prestressing tendon disposed in a concrete structure through the employment of a first jack to impart a uniform predetermined tension to the tendon, and a second jack used in conjunction with an engageable anchor to selectively engage the anchor to the prestressing tendon and place the anchor in abutment with the concrete structure. The jacks are separate and separable from each other to facilitate preassembly of the second jack and anchor on a tendon prior to the application of the first jack.

3,597,831

METHOD OF MANUFACTURING A GOLF CLUB

David Morton Caplan, Los Angeles, Calif., assignor to AMF Incorporated

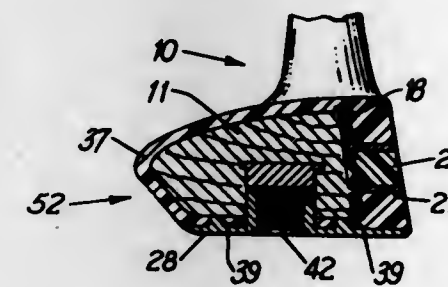
Division of Ser. No. 602,691, Dec. 19, 1966, abandoned.

Filed July 7, 1969, Ser. No. 852,141

Int. Cl. B23p 3/00, 19/04

U.S. Cl. 29-460

5 Claims



A golf club comprising a core having a soleplate register hole formed on the bottom portion thereof, a hosel hole formed on a side portion thereof and a cutaway section on the face portion thereof forming a rear face, a rear faceplate mounted within the cutaway portion, said rear faceplate including a base portion and a projecting portion consisting of

two sidewalls and an apertured center portion extending outwardly from the base portion, a weight mounted within the soleplate register hole, a soleplate mounted to the bottom portion of the core, said soleplate having an apertured projecting portion extending outwardly therefrom to engage the soleplate register hole, a predetermined swing weight mounted within the apertured portion of the soleplate, and a shaft having one end portion mounted within the hosel hole of the core.

3,597,832

INERTIA WELDING OF STEEL TO ALUMINUM

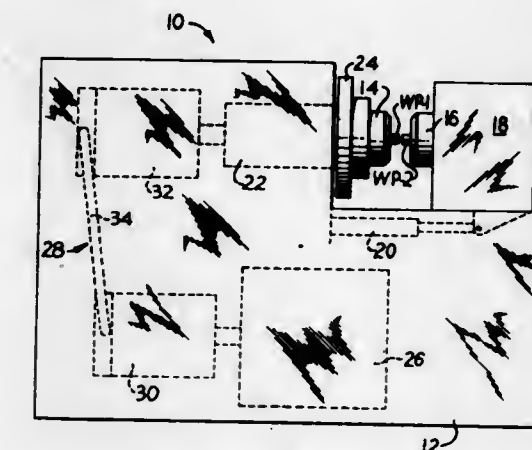
Marion R. Calton, East Peoria, and Calvin D. Loyd, Peoria, both of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 4, 1969, Ser. No. 796,425

Int. Cl. B23k 27/00

U.S. Cl. 29-470.3

9 Claims



A process for inertia welding of steel to aluminum which may include the steps of cleaning and/or etching the parts, providing conical projections on the parts, providing a step load cycle wherein the final thrust load is high and close to the yield strength of the aluminum, utilizing moderately high speeds, the exercising close control of the alignment, amount of stickout, rigidity, and the triggering speed for the final load.

3,597,833

METHOD OF PERFORMING A BRAZING OPERATION ON TERMINAL STRUCTURE OF METAL BRAID

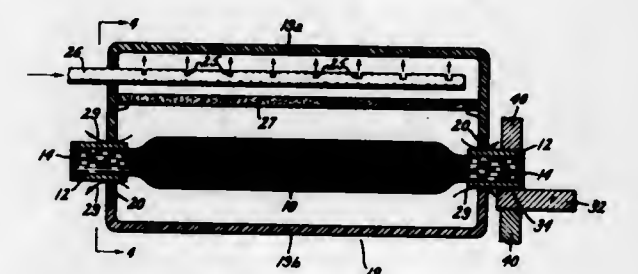
Oscar C. Frederick, and Albert C. Young, both of Springfield, Pa., assignors to General Electric Company

Filed Sept. 3, 1969, Ser. No. 854,913

Int. Cl. B23k 31/02

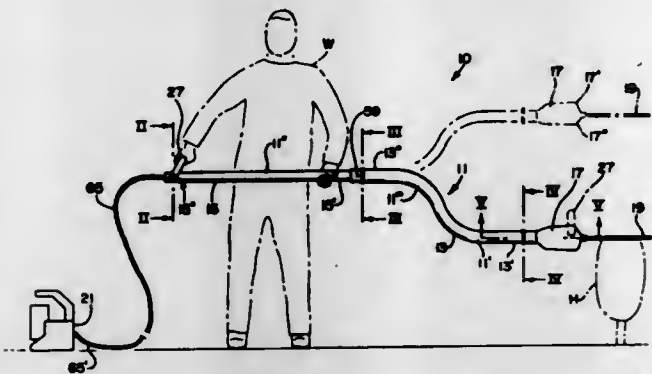
U.S. Cl. 29-479

14 Claims



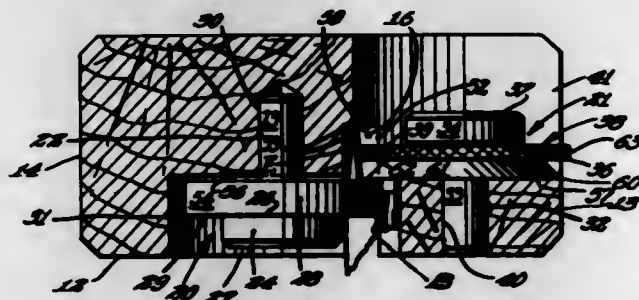
In this method, a tubular end ferrule is placed about the end of a short length of metal braid, and this assembly is placed in a chamber with the ferrule projecting through a hole in the chamber wall. A flow of nonoxidizing gas, such as nitrogen, is introduced into the chamber to form a blanket of nonoxidizing gas around the braid. While this blanket is present, heat is applied to the ferrule portion outside the chamber as part of a brazing operation that raises the temperature of the ferrule and the braid to a high level. After such heating, liquid nitrogen is introduced into the chamber to rapidly cool the braid and the ferrule.

is a conventional portable generator which provides electrical power for operating the hedge trimmer at locations that



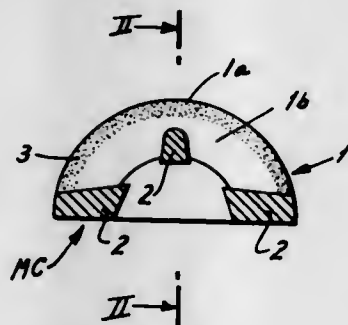
may be far reaching from commercial power outlets and/or remotely situated.

3,597,843
DEVICE FOR OPENING ENVELOPES
John S. Kettlestrings, 216 N. Knollwood Drive, Wheaton, Ill.
Filed Mar. 21, 1969, Ser. No. 809,220
Int. Cl. B26b 27/00
U.S. Cl. 30—265 2 Claims



A generally rectangular block sized to be held in the hands of a user is provided with an elongate guide slot through which the edge of an envelope is directed and a two-part rotatable cutting means journaled in the block has a cutting nip formed in the slot so that the edge of the envelope will be severed as it is moved relative to the block. One of the parts of the cutting means has a sharpened cutting edge and a somewhat enlarged knurled action surface which not only actively engages the adjoining surface of the envelope but also projects from one sidewall of the block to facilitate manipulation by the user.

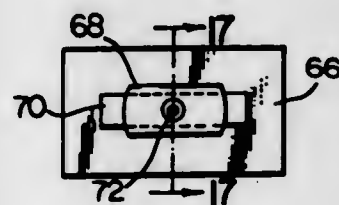
3,597,844
MOVABLE CUTTER FOR SHAVING APPARATUS
Werner Messinger, Kronberg, Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Apr. 24, 1969, Ser. No. 819,050
Claims priority, application Germany, May 2, 1968, P 17 03 330.5
Int. Cl. B26b 19/06
U.S. Cl. 30—346.51 8 Claims



The reciprocable cutter of a dry shaver has substantially semicircular blades whose convex outer surfaces are adjacent to the inner side of the comb foil and whose side surfaces are

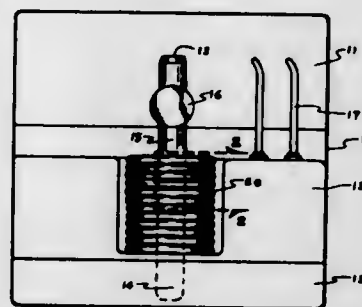
provided with strips of diamond dust, sapphire dust or other finely comminuted granular material having a hardness which is considerably higher than the hardness of the ferrous or synthetic plastic material of the blades. The width of such strips is in the range of 1 millimeter and the granules impart to the adjoining cutting edges of the blades an irregular (substantially undulate) shape to insure more reliable engagement between the cutting edges and the whiskers or hairs which penetrate through the apertures of the foil into the range of reciprocating blades. The outer surfaces of the blades are polished to a high degree of smoothness subsequent to application of granulae.

3,597,845
ORTHODONTIC APPLIANCE
Patrick C. Rasmussen, 4319 Drury Lane, Fort Wayne, Ind.
Division of Ser. No. 614,654, Feb. 8, 1967, Pat. No. 3,469,315.
Filed Apr. 4, 1969, Ser. No. 813,422
Int. Cl. A61c 7/00
U.S. Cl. 32—14 A 7 Claims



An orthodontic appliance comprising means for securing detachably an arch wire to a tooth, including a retainer which slidably receives an elongated hollow receptacle, an arch wire received by said receptacle, and means securing said retainer, said receptacle and said arch wire together.

3,597,846
ORAL LAVAGE UNIT
Reinhold M. Weiss, Chicago, Ill., assignor to Parke, Davis & Company, Detroit, Mich.
Filed May 12, 1969, Ser. No. 823,731
Int. Cl. A61c 19/02
U.S. Cl. 32—22 4 Claims

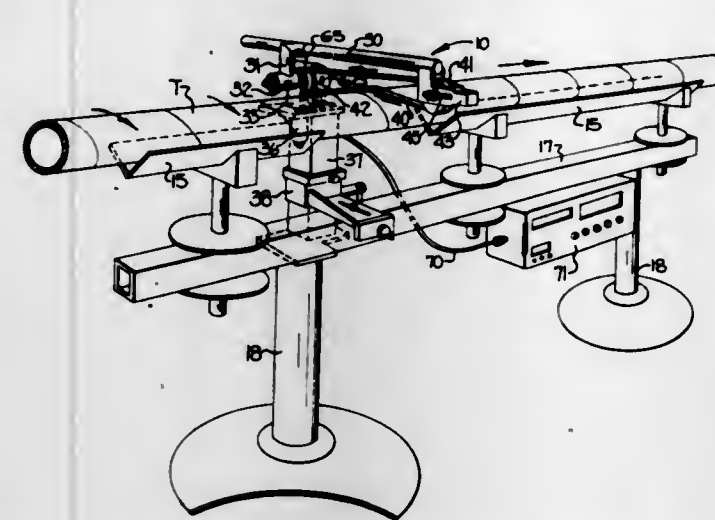


A lavage unit is provided for hydraulic dental cleansing and massage having a tool piece or handpiece and water supply joined in open communication by a helically shaped length of flexible hose. For storage purposes the unit includes a pedestal for axially mounting the tool piece and for holding the hose in a stack of coils matching and surrounding outer walls of the pedestal.

3,597,847
APPARATUS AND METHOD FOR MEASURING A COMPONENT OF TRAVEL OF A AXIALLY ADVANCING AND ROTATING TUBE
Clarence W. Anderson, Cheraw, S.C., assignor to Sonoco Products Company, Hartsville, S.C.
Filed Aug. 19, 1969, Ser. No. 851,342
Int. Cl. G01b 3/12, 5/04
U.S. Cl. 33—142 16 Claims

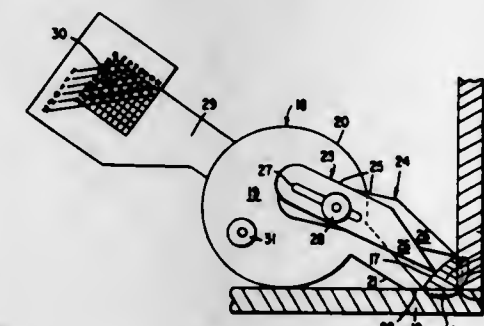
A surface contacting device is applied to a rotating and axially advancing tube to measure the angular direction of

travel of the surface and the length of travel of a point on the surface in its generally helical path or its axial or its rotary component, or all of them. A freely pivotable arm extending over the tube carries an endless belt which engages the moving surface and is swiveled thereby into the direction of the



surface travel. A sphere and disc type of resolver at one of the belt pulleys provides for picking off the selected component or the resultant travel, and a pulse generator driven thereby transmits to a counter where the length of travel is indicated.

3,597,848
WELD GAUGE
Paul E. Matson, East Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed May 23, 1969, Ser. No. 827,222
Int. Cl. G01b 5/02
U.S. Cl. 33—169 D 2 Claims

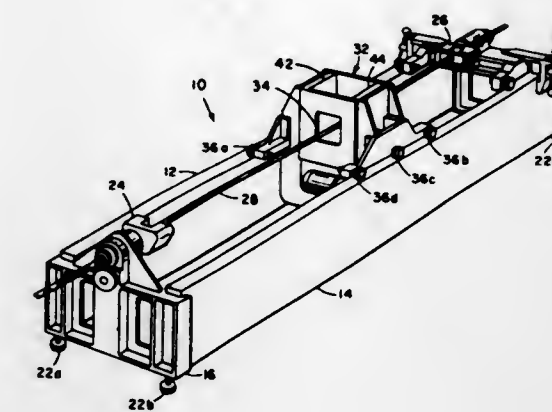


A gauge for measuring the length of each leg and the thickness of the throat of a fillet weld. The gauge comprises three rotatable sections arranged in superimposed relation. One of the sections is positioned to engage the end of one of the legs forming the fillet weld. A second section of the gauge is positioned to engage the end of the remaining leg of the fillet weld. The third section of the gauge is positioned to contact the face of the throat. Associated with the three sections of the gauge is a scale. The three sections of the gauge are positioned on the scale so the lengths of the legs and the thickness of the throat portion of the weld may be obtained.

3,597,849
PERIPHERAL SCANNING SYSTEM
Andrew E. Gaal, Monroeville, Pa., assignor to The United States of America as represented by the United States Atomic Energy Commission.
Filed Aug. 12, 1969, Ser. No. 849,420
Int. Cl. G01b 5/02
U.S. Cl. 33—174 PB 4 Claims

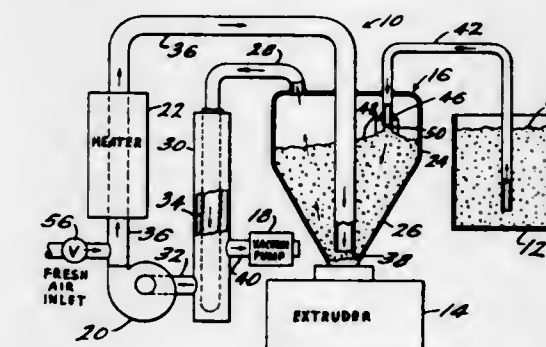
A peripheral scanning system for measuring the surface shape of a rod. A pair of needlelike probes are maintained in contact with the outer surface of the rod while a mechanism is employed to maintain contact with the probes as the latter are moved transversely. Thus the probes are forced to retract

to accommodate changes in surface shape. Transducers are utilized to report the positions of the probes continuously. A



swing arm arrangement interconnects the probes for simultaneous movement.

3,597,850
CONTINUOUS VACUUM DRIER
John W. Jenkins, Clayton County, Ga., assignor to National Service Industries, Inc., Atlanta, Ga.
Continuation-in-part of application Ser. No. 706,965, Feb. 20, 1968, now abandoned. This application Mar. 11, 1970, Ser. No. 18,618
Int. Cl. F26b 3/08, 17/00
U.S. Cl. 34—10 17 Claims



A continuous vacuum drier for removing moisture from solid synthetic resins in granular form prior to manufacturing into finished products. The synthetic resinous material is continuously supplied to the top of a closed drying hopper and removed from the bottom of the hopper. In one embodiment air withdrawn from the top of the hopper is circulated through a heater and is returned to the bottom of the hopper, where it travels upwardly through the synthetic resinous material in the hopper. In a second embodiment, air is withdrawn from the bottom of the hopper and is returned to the top of the hopper, where it travels downwardly through the synthetic resinous material in the hopper. The circulated air and the material in the hopper are heated as they pass grids of pipes which are heated by circulated hot water. In both embodiments, a vacuum pump is connected to reduce the air pressure in the system for increasing the efficiency of the drier and for causing the hopper to automatically fill with material to a predetermined level from a primary feeder hopper. A small amount of dry air may be introduced into the hopper for carrying off evaporated moisture. The dry material is fed by gravity from the bottom of the hopper to a processor.

3,597,851
ROTATING APPARATUS FOR SUBJECTING TEXTILE
MATERIALS TO A SHRINKAGE-REDUCING
TREATMENT

Hans Fritz Arendt, Bietigheim, Wurttemberg, and Berthold Magin, Kleinsachsenheim, both of, Germany, assignors to Hans F. Arendt, Bietigheim, Wurttemberg, Germany

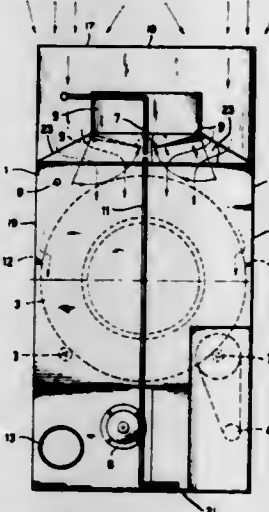
Filed Aug. 1, 1968, Ser. No. 749,479

Claims priority, application Germany, Aug. 5, 1967, P 16 35 141.0

Int. Cl. F26b 11/00

U.S. Cl. 34—60

1 Claim



The residual shrinkage of textile materials of limited length is reduced to about ± 2 percent and less by tumbling the textile materials in a drumlike apparatus rotating at a predetermined speed in a closed chamber. Natural fibers become crimped during tumbling by alternately humidifying and drying the textiles; or synthetic fibers become thermofixed by exposing the textiles to hot air at a temperature above 110° C. during tumbling. The direction of rotation of the apparatus may be repeatedly reversed during crimping or thermofixing. Steam or water is supplied to the textile material for humidifying the same in finely divided form by means of spray nozzles.

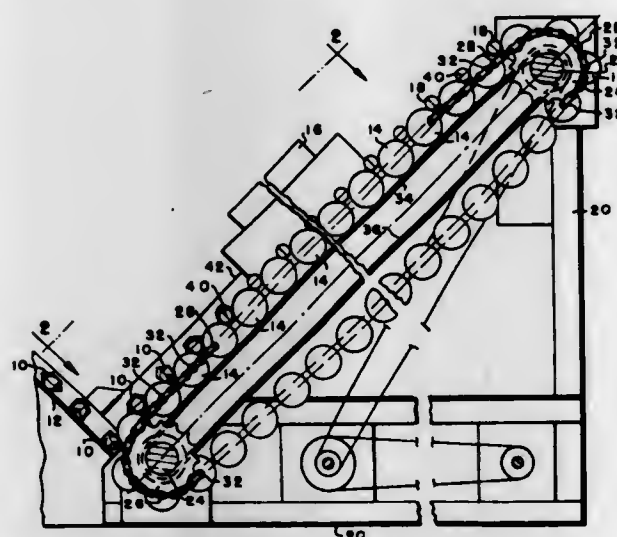
3,597,852
COIN CONVEYOR AND SHRINK OVEN

John K. McCollough, Jr., Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C. Continuation of application Ser. No. 675,565, Oct. 16, 1967, now abandoned. This application Jan. 2, 1970, Ser. No. 5,388

Int. Cl. B65b 11/04

U.S. Cl. 34—218

3 Claims



This application discloses a method and apparatus to efficiently convey and shrink a pillow package around a roll of coins in a shrink oven. Basically a plurality of rollers are rotatably connected to an endless chain and the roll of coins is dropped into the conveyor between a pair of rollers and is

constantly rotated by the rollers to orient the coins and allow even shrinkage of the film on all sides of the package.

3,597,853
CONTRACT BRIDGE SIMULATOR

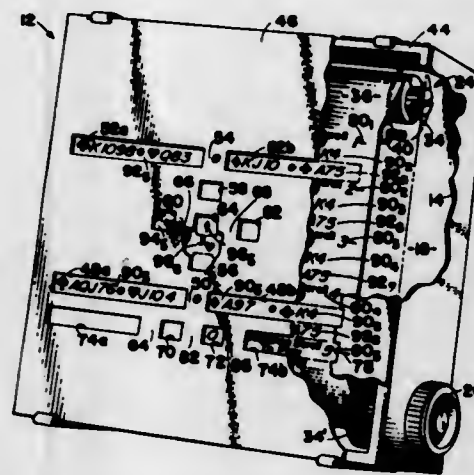
George F. Kucera, Palo Alto, Calif., assignor to Ira G. Corn, Jr., Dallas, Tex.

Filed June 19, 1969, Ser. No. 834,854

Int. Cl. G09b 19/22

U.S. Cl. 35—8 B

13 Claims



An elongate indicia bearing strip having preprogrammed indicia thereon for guiding the user through the bidding and playing procedures of a bridge hand. A mechanism for supporting the strip so that the strip can be positioned and advanced as bidding and playing proceed. The mechanism includes interchangeable opaque plates having openings therein that are positioned so as to reveal to the user indicia corresponding to the bidding and playing steps in proper sequence. A rotatable disc that has openings therein proportioned to reveal bids and plays in proper sequence. An auxiliary elongate scroll sheet that contains explanatory and educational material thereon which is descriptive of the bids and plays appearing on the first-mentioned strip together with a support mechanism for advancing the scroll in proper correlation with the strip advance.

3,597,854
TEACHING DEVICE

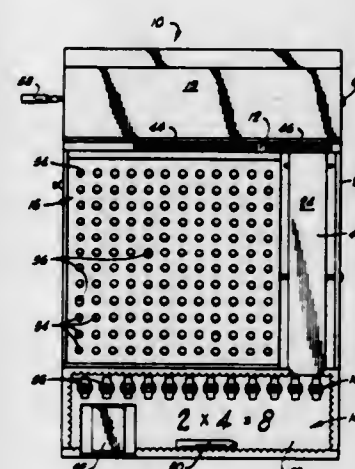
Edwina P. Trimmer, P.O. Box 922, Santa Ana, Calif.

Filed Dec. 22, 1969, Ser. No. 886,949

Int. Cl. G09b 3/00

U.S. Cl. 35—8 R

7 Claims



This invention is an apparatus to aid in the teaching of mathematics to children. It has a closed boxlike housing with a window to display the problems which are written on a sheet and attached to a roller mounted within the housing.

The housing also has on its surface a member with a plurality of holes therein and pegs therefore and a member with a surface to receive indicia thereon for the student to formulate the problem's answer. The apparatus has a plurality of indicators to be operated by the student upon correctly answering each problem, and a senses-indicating system operable upon proper manipulation of the indicators.

3,597,855
UNIVERSAL ADAPTIVE AUDIOVISUAL TEACHING
MACHINE

Bretislav Stejskal; Vladimir Stepan, and Petr Vlach, all of Prague, Czechoslovakia, assignors to Tesla, Narodni Podnik, Prague, Czechoslovakia

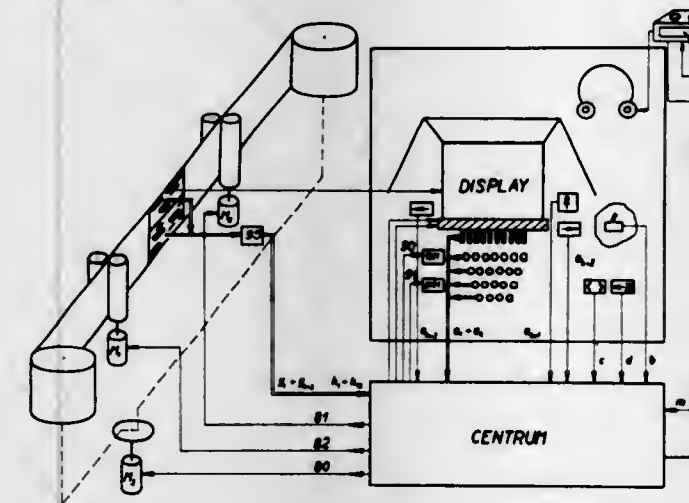
Filed Sept. 6, 1968, Ser. No. 757,999

Claims priority, application Czechoslovakia, Sept. 9, 1967, 6457-67

Int. Cl. G09b 7/04

U.S. Cl. 35—9 R

9 Claims



A universal adaptive audiovisual teaching device having visual display means, sound reproducing means and input means for a response by the user. A decision system is provided having a basic decision unit, a stepping unit and timing unit. The decision unit includes a control memory, a peripheral memory and a selector. The decision unit receives information from the visual, sound and response input units, evaluates and compares the response to the audio-visual units and directs movement of the audio-visual units to appropriate activating positions.

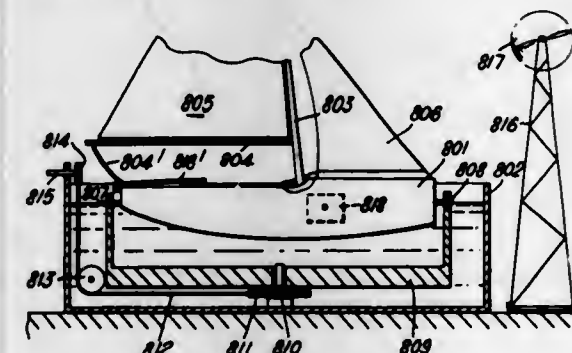
3,597,856
SIMULATING APPARATUS FOR TEACHING THE ART
OF SAILING

Roger Strange Waddington, deceased, late of Lausanne, Switzerland; Bruce Duval, Lausanne, Switzerland, and David Buckley Sharp and Joan Stanley Rubinstein, executors, London, England (of said Roger Strange Waddington, deceased), assignors to T.P.I. Limited, Nassau, Bahamas Continuation-in-part of application Ser. No. 775,559, Nov. 13, 1968, now Patent No. 3,471,943. This application July 8, 1969, Ser. No. 840,611

Int. Cl. G09b 9/06

U.S. Cl. 35—11

6 Claims



The invention provides a simulator for teaching the art of sailing on dry land. A hull mounted for change of heading

upon mechanical bearings or upon a tank of water has a helm, a boom and a mainsheet. Operation of the boom and mainsheet causes the hull to change its heading as in actual sailing upon water. The hull is preferably mounted to permit heeling. Heeling motion may be produced mechanically or by the action of an airstream upon a sail. Automatic devices may be provided for giving the hull heeling movements and/or for changing the sensitivity of the helm in a realistic manner making allowance for the strength and direction of the supposed wind, the position of the boom, etc.

3,597,857
GROUND BASED FLIGHT SIMULATING APPARATUS

William Desmond Akister, Aylesbury, and Meville Leslie Shelley, Haywards Heath, both of, England, assignors to Rediffon Limited, London, England

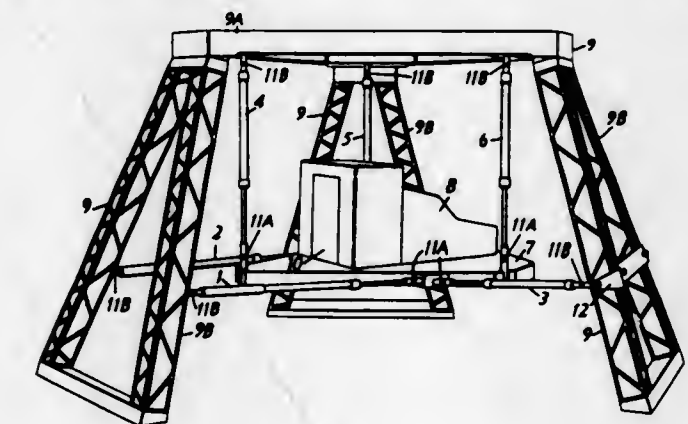
Filed Feb. 3, 1969, Ser. No. 795,946

Claims priority, application Great Britain, Mar. 4, 1968, 10279

Int. Cl. G09b 9/08; B64g 7/00

U.S. Cl. 35—12

13 Claims



In ground-based flight-simulating apparatus, a dummy flight deck is provided for the crew being trained and the dummy flight deck, with occupants, is moved to simulate at least pitch and roll movement of an aircraft in actual flight. The present invention comprises a dummy flight deck suspended from a supporting structure by three hydraulic jacks attached to the dummy flight deck. Differential action of the jacks provides pitch and bank motions and common action provides heave motion. A further pair of hydraulic jacks attached, on opposite sides of the flight deck centerline, provides yaw, surge and retardation motions. A further hydraulic jack, acting transversely of the flight deck centerline, provides sway motion.

3,597,858
SCALE BUILDING SET AND ELEMENTS

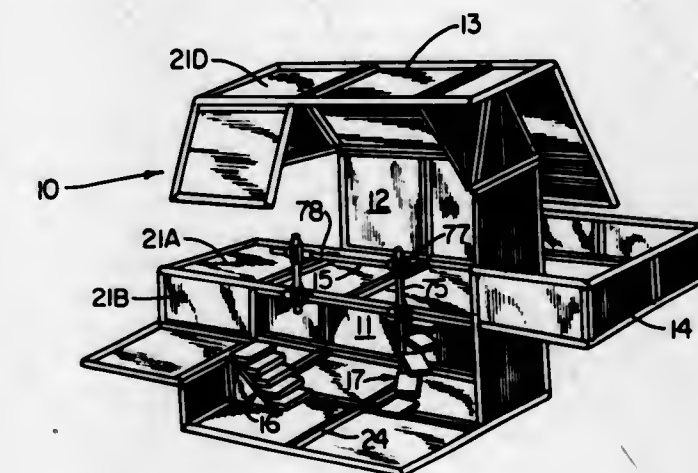
Charles S. Ogsbury, Gold Hill, and Don C. Witte, Salina Star Rte., Boulder, both of, Colo.

Filed Nov. 27, 1968, Ser. No. 779,379

Int. Cl. G09b 25/04

U.S. Cl. 35—16

9 Claims



In a scale building set there is provided a plurality of building elements dimensionally related to conform to a selected

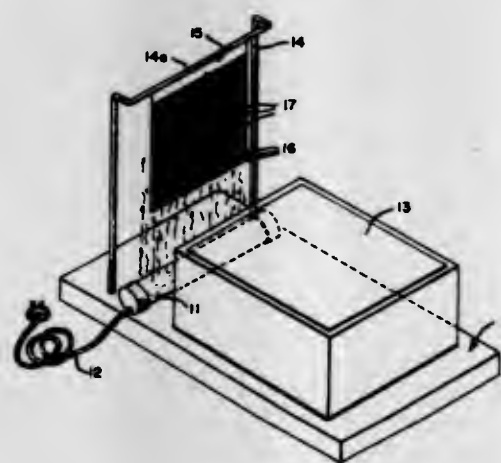
scale having interlocking socket and beaded joint portions which may be assembled into a wide variety of composite structures including scale model buildings. The socket joint portion is slotted for insertion of the beaded joint portion and firmly grips the beaded joint portion to hold the elements in particular angular relation while at the same time permitting substantial forced rotational and sliding movement between elements. One of the elements is a flat panel which may be of a variety of geometric shapes and another of the elements is a connector of preselected lengths having plural joint portions arranged in angular spaced relation to one another about a common midpoint.

3,597,859

APPARATUS AND METHODS OF VISUAL DEMONSTRATION OF SOUND WAVE MOTION
Kenneth G. Salem, 226 Belmont St., Johnstown, Pa.
Continuation-in-part of application Ser. No. 775,874, Nov. 14, 1968. This application Aug. 26, 1969, Ser. No. 853,088
Int. Cl. G09b 23/06

U.S. Cl. 35-19 R

4 Claims



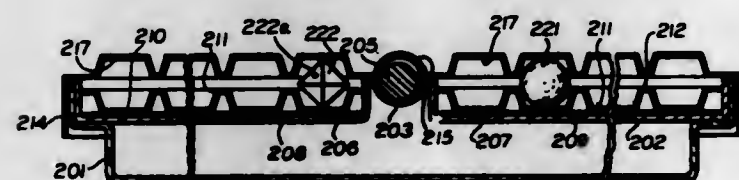
An apparatus is provided for visually demonstrating sound wave motion in the form of a plurality of side-by-side reflective strips suspended vertically from one end, a source of moving fluid acting continuously on said strips and an indicating means normally reflected from the strips intermediate their ends.

3,597,860
TEACHING AID

Achille Capecelatro, 153 Woodland Road, Madison, N.J.
Filed Oct. 6, 1969, Ser. No. 864,085
Int. Cl. G09b 23/06

U.S. Cl. 35-19 R

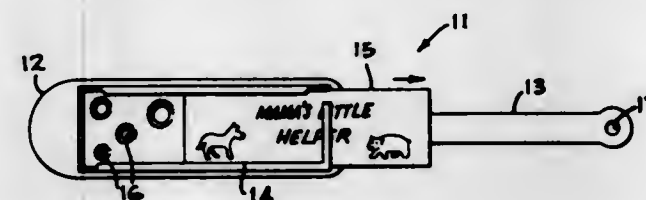
6 Claims



A teaching aid for teaching decay-growth phenomenon. Polyhedrons representing a parent isotope and having at least one distinctively marked face are thrown, and those having a distinctively marked face up are replaced by other pieces which may be marked to serve as a daughter isotope or may be unmarked to serve as the stable atoms. Data is taken after each throw and replacement, and plotted, whereby decay-growth curves are obtained. A throwing tray with a nested storage tray are provided for containing the polyhedrons.

3,597,861
EDUCATIONAL DEVICE
Dewey J. Gordon, 120 Happy Acres Road, Los Gatos, Calif.
Filed May 20, 1969, Ser. No. 826,122
Int. Cl. G09b 19/00; G09f 3/20; A63b 59/00
U.S. Cl. 35-22 R

4 Claims



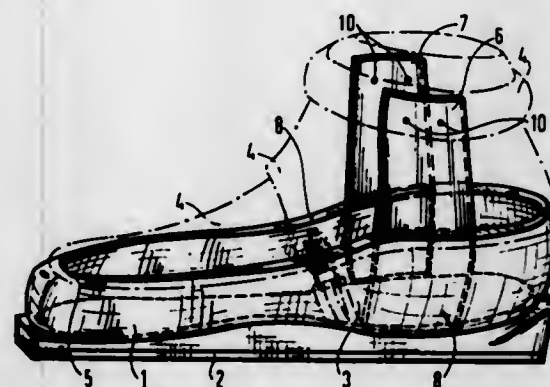
Disclosed herein is a paddle having a plurality of apertures through the main body portion of the paddle and a sign-holding frame disposed about the perimeter of said apertures on one side of the paddle.

3,597,862
SKI BOOT

Raimund W. Vogel, Lierstr. 25, Munich 19, Germany
Filed July 31, 1969, Ser. No. 858,902
Claims priority, application Germany, Aug. 1, 1968, Jan. 31, 1969, Feb. 6, 1969, P 17 85 023.6; P 19 04 847.6; P 19 05 980.4
Int. Cl. A43b 00/00

U.S. Cl. 36-2.5

12 Claims



A plastic ski boot is provided with lateral reinforcing means in the ankle region, an elastic cuff connected with the reinforcing means, and with a waterproof bat tongue which makes possible a wide opening of the boot and closing of the boot so as to facilitate removal of the boot from the mold in production.

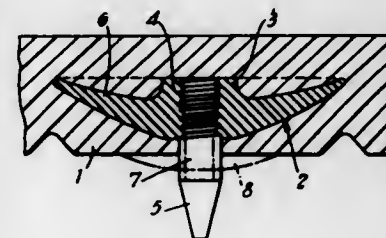
3,597,863
SPORTS SHOES

Marcus Luther Austin, 53, Park Avenue, and Clive Jonathan Austin, 1, Balmoral Avenue, both of Bedford, Bedfordshire, England

Filed Feb. 24, 1969, Ser. No. 801,509
Claims priority, application Great Britain, Feb. 26, 1968, 9173/68
Int. Cl. A43b 23/28; A43c 15/00

U.S. Cl. 36-59

13 Claims



A shoe, such as a golf shoe having a molded sole embodying a plurality of preformed molded members of higher

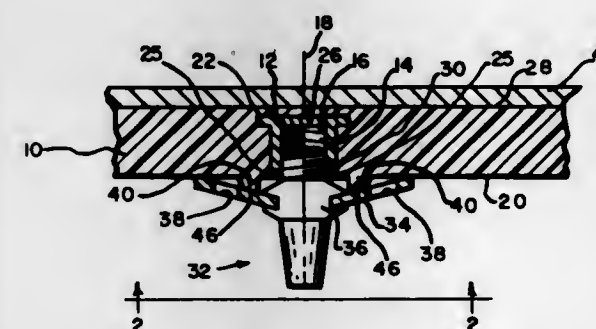
mechanical strength than the main sole body each molded member comprising a receptacle portion for removably securing a spike, and an integral plate portion sandwiched within the thickness of the sole and performing the function of distributing ground pressure on a spike secured in the receptacle over a large area of the sole, the molded members being embodied in the sole as individual units or as a multiple unit or multiple units of interconnected preformed molded members.

3,597,864

SHOE SOLE AND HEEL STRUCTURE
Arden B. MacNeill, Sudbury, Mass., assignor to MacNeill Engineering Company, Inc., Waltham, Mass. and Walter J. Kreske, Newton Centre, Mass., part interest to each
Continuation of application Ser. No. 848,442, Aug. 8, 1969, now abandoned. This application June 3, 1970, Ser. No. 41,752
Int. Cl. A43c 15/00

U.S. Cl. 36-67 D

8 Claims



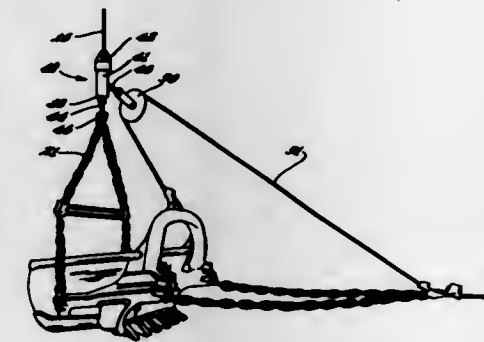
A molded shoe sole or heel having imbedded therein a receptacle with a threaded sleeve for receiving a threaded stem of a spike, such as a golf shoe spike, loggers boot spike, track shoe spike and the like, of the type having a laterally projecting flange which presses against a sealing ridge on the bottom surface of the shoe sole to thereby form with the spike a leaktight seal about the spike receptacle.

3,597,865

ATTITUDE ADJUSTER FOR DRAGLINE BUCKET
Henry Rumfelt, 300 N. Grove Ave., Oak Park, Ill.
Filed Apr. 15, 1969, Ser. No. 816,303
Int. Cl. E02f 3/44

U.S. Cl. 37-135

3 Claims



A device for insertion between the hoist rope and hoist chain of a dragline bucket which provides a movable support for the dump sheave. The device includes a spring suspension of the hoist chain with respect to the hoist rope whereby lifting the bucket with a load therein will act to compress the spring to move the dump sheave with respect to the hoist trunnions, thereby increasing the moment arm of the off-center weight on the dump rope to reduce the amount of force necessary to lift the bucket while maintaining proper bucket attitude to prevent premature dumping.

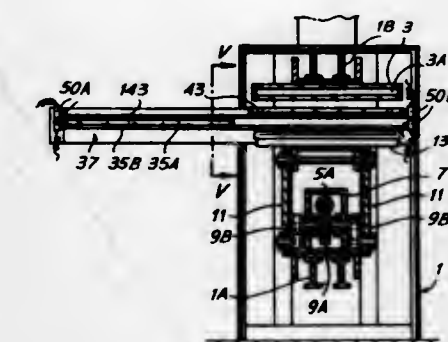
3,597,866

PRESSING MACHINES

Riccardo Bettarini, Localita' Piazano Empoli, and Gino Pacini, Piazza Paistello 7, both of Empoli, Florence, Italy
Filed Jan. 9, 1970, Ser. No. 1,790
Claims priority, application Italy, Jan. 11, 1969, 4,411 A/69
Int. Cl. D06f 71/00, 71/38

U.S. Cl. 38-28

1 Claim



A pressing machine intended for covering fabric articles with a sheet coated at least partially with a thermally sensitive adhesive or for ironing fabrics includes an upper fixed platen and a lower movable platen. Two carriages are provided for introducing fabrics to be treated to the space between the platens, one being inoperative at any given time. The lower platen carries a flexible sheet member sealed at its periphery and capable of being inflated by compressed air, whereby the pressure on the articles is equalized over their whole surface area.

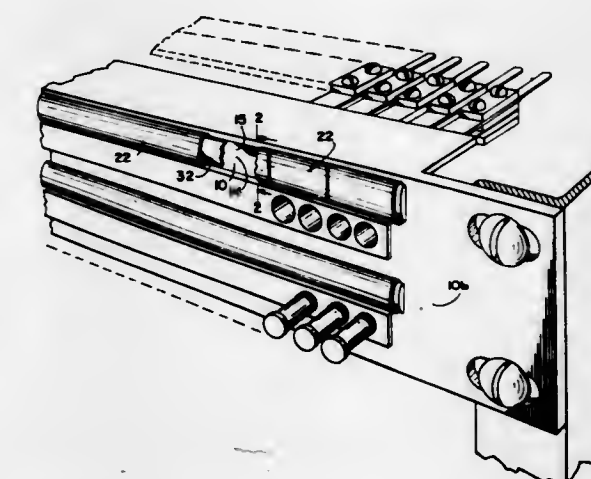
3,597,867

DESIGNATION STRIP ASSEMBLY

James R. Bailey, Chicago, Ill., assignor to Switchcraft, Inc., Chicago, Ill.
Filed June 13, 1969, Ser. No. 833,038
Int. Cl. G09f 3/18

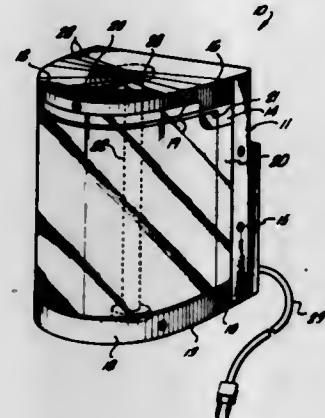
U.S. Cl. 40-10 R

10 Claims



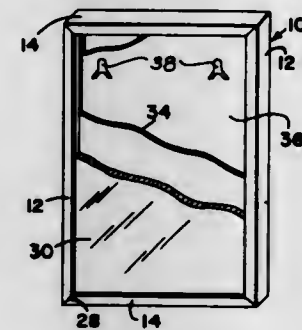
A designation strip assembly comprises an elongated straight base portion having an outer face between shouldered sides. The outer face may have a concave portion adjacent each shouldered side and a gently convex surface longitudinally between the concave portions. A self-supporting, channel-shaped, springable, transparent cover strip is attached to overlie the outer face of the base portion and has flanges with beaded locking edge portions engageable along the shouldered sides for locking the cover strip against the base. The cover strip web curves gently to conform to the convex part of the base outer face. The cover strip may be progressively sprung to the base along the shouldered base sides and may be progressively removed by springing therefrom. An indicia bearing designation strip is normally carried along the inside face of the cover strip and is wide enough to be retained between the flanges of the cover strip.

3,597,868
CONVEX SCREEN VIEWBOX
 James A. Tamborello, North Hollywood, Calif., assignor to
 Osamu Miyamoto, Arcadia, Calif., a part interest
 Filed Mar. 18, 1969, Ser. No. 808,096
 Int. Cl. G09f 13/10
 U.S. Cl. 40-106.1 10 Claims



The invention disclosed herein describes a viewbox having a curvilinear screen for receiving a panoramic radiograph in order to illustrate the anatomical structure depicted on the radiograph in its natural position.

3,597,869
THEFTPROOF INSTALLATION FOR FRAMED MIRRORS, PICTURES AND THE LIKE
 Donald R. Rayle, 2901 Holiday St., Wichita Falls, Tex.
 Filed July 7, 1969, Ser. No. 839,269
 Int. Cl. G09f 11/2
 U.S. Cl. 40-152.1 7 Claims

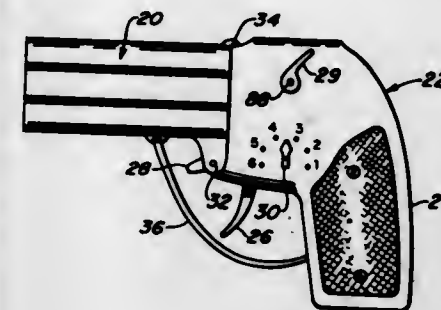


A frame means is fixed against a surface, such as a wall, by fastening means, such as screws, with the heads thereof interengaging with an opening formed in the backing plate of the frame means, with a locking tongue arrangement which permits the frame, in which the mirror, picture or the like is mounted, to be moved into a permanently locked position on the heads of a plurality of screws or projections in such manner that the mirror or picture frame cannot be removed without the destruction thereof. The present arrangement is particularly adaptable for use in restrooms, hotels and the like for the mounting of mirrors, pictures and the like.

3,597,870
MULTIPLE-BARREL HAND WEAPON WITH SELECTIVE BARREL DISCHARGE CAPABILITY
 Myron J. Block, Nahant, Mass., assignor to Block Engineering, Inc., Cambridge, Mass.
 Filed June 25, 1969, Ser. No. 836,279
 Int. Cl. F41c 19/00
 U.S. Cl. 42-42 R 2 Claims

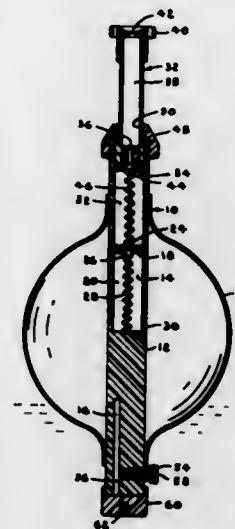
A multiple-barrel hand weapon with selective barrel discharge capability containing a like number of cartridges

and having a selectively adjustable arming mechanism so that a shooter can fire each cartridge individually by successive



actuators of the trigger or, alternatively, can fire groups of cartridges simultaneously upon successive actuations of the trigger.

3,597,871
FISHING FLOAT DEVICE
 Ralph H. Hausen, 7230 Harrison St., Hammond, Ind.
 Filed Feb. 2, 1970, Ser. No. 7,558
 Int. Cl. A01k 93/00
 U.S. Cl. 43-43.14 10 Claims



This invention is a water fishing float or bobber device comprising an elongated rod member formed with a cylinder chamber having a piston reciprocable therein. A resiliently elastic sleeve member covers the elongated rod member and is connected thereto at the ends thereof. The piston is manually operated to pump air into the elastic sleeve member which inflates to a certain volume. This invention serves as a fishing float or the like which can be inflated to any select volume to replace the use of a plurality of different fixed volume floats.

3,597,872
TOY COMPOSED OF A PLURALITY OF BODIES HELD IN END-TO-END RELATION BY AN ELASTIC MEMBER
 Jorma Vennola, Luotela, Finland, 17 B, Helsinki 20, and Pekka Korpela, Jaskko, Implahdentie 14 A, Laaksojahti, both of, Finland
 Filed Mar. 5, 1969, Ser. No. 804,412
 Claims priority, application Finland, Jan. 23, 1969, 206/69
 Int. Cl. A63h 33/00
 U.S. Cl. 46-1 R 5 Claims

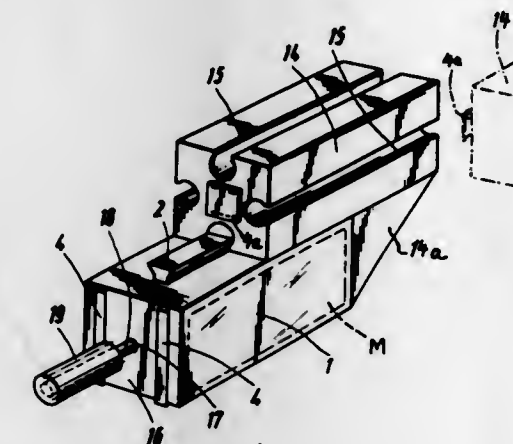
A toy comprises a number of mutually connected bodies of wood, plastic, metal, cork or the like arranged in a row in which consecutive bodies are joined turnably in such manner

that the friction between the surfaces of the bodies resting against each other counteracts the turning. In each body both



such contact surfaces have different directions, that is that in each body both turning axes have different directions.

3,597,873
TOY CONSTRUCTION KIT
 Artur Fischer, Altheimer Str. 219, Tümlingen, Germany
 Filed July 28, 1969, Ser. No. 846,306
 Claims priority, application Germany, Aug. 3, 1968, P 17 03 950.8
 Int. Cl. A63h 33/00
 U.S. Cl. 46-16 10 Claims

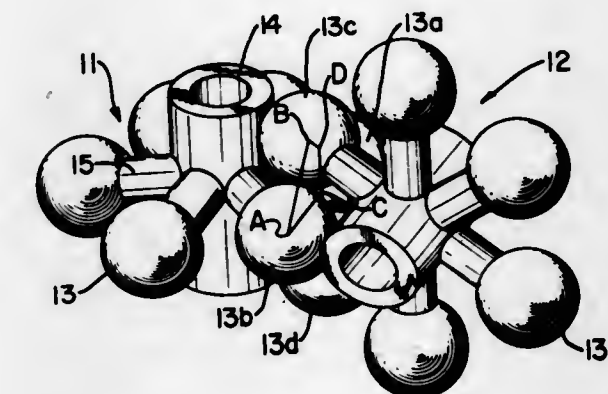


A toy construction kit includes, among other connectable structural elements, a plurality of building blocks of identical predetermined dimensions and outline. A drive unit comprises a housing whose outline and dimensions are identical with those of the building blocks, and a prime mover which is accommodated in the housing and has an output shaft. Undercut male coupling heads and undercut female coupling grooves are provided on the housing and building blocks and the housing may thereby be connected to the building blocks in place of and in the same manner as another building block, so that the drive unit may be used as an integral component of the structure which is erected with the construction kit.

3,597,874
RELEASABLY INTERLOCKING UNITS HAVING A SNAP CONNECTION
 Charles S. Osgary, Gold Hill, and Don C. Witte, Salina Star Route, Boulder, both of, Colo.
 Filed Apr. 14, 1969, Ser. No. 815,614
 Int. Cl. A63h 33/08
 U.S. Cl. 46-25 16 Claims

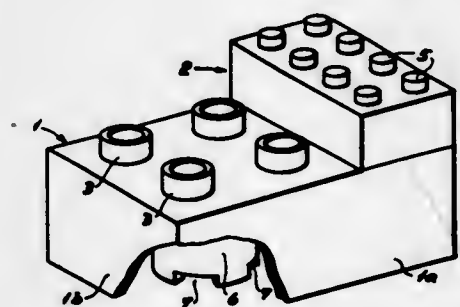
In a toy construction set, coordinated toy units are characterized by connectable members which radiate outwardly

from common support and terminate in enlarged end portions of generally spherical shape and are so constructed and arranged that any pair of enlarged end portions will releasably interlock with a pair of enlarged end portions on another toy unit disposed at right angles thereto; or interlock with other toy members to make up a variety of geometric shapes. The enlarged end portions with modifications such as



opposed concave recesses permit the end portion of one unit to snap between a pair of end portions on another unit or an elongated shaping for the end portion provides suitable spacing for right angle connections. A single enlarged end portion and a hollow cylindrical hub, each preferably being slotted or hollow and of the same external dimension permits either to serve as a male or female coordinated locking joint portion for the toy units.

3,597,875
TOY BUILDING SET
 Godtfred Kirk Christiansen, Billund, Denmark, assignor to Interlego A.G., Zug, Switzerland
 Filed Nov. 18, 1968, Ser. No. 776,607
 Claims priority, application Denmark, Nov. 29, 1967, 5973, Germany, Feb. 3, 1968, P 16 78 326.9
 U.S. Cl. 46-25 7 Claims



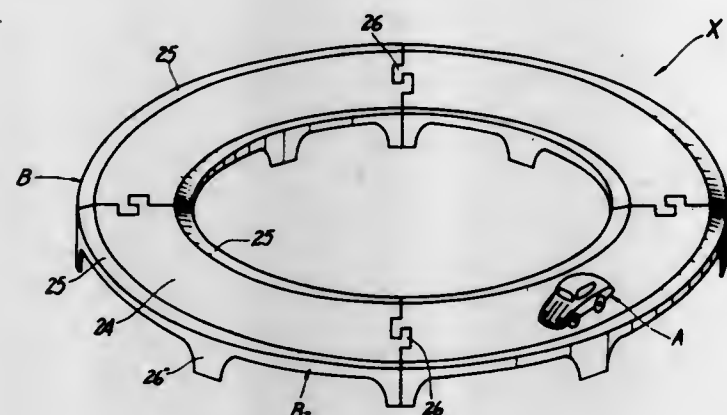
This application discloses toy building blocks of similar shape but constructed to different modules. They are buildable together and, to this end, the inner protrusions of the smaller blocks coact with the outer projections of the larger blocks differently from the coaction within the module which is disclosed in U.S. Pat. No. 3,005,282.

3,597,876
TOY ROADWAY SET
 Sadao Haji, No. 3, No. 7, 3-chome, Kotobuki, Daiko-ku, Tokyo, Japan
 Filed Nov. 20, 1968, Ser. No. 777,249
 Claims priority, application Japan, Nov. 22, 1967, Oct. 14, 1968, 42/98319 and 43/89568
 Int. Cl. A63h 11/10
 U.S. Cl. 46-202 9 Claims

A motor-driven toy vehicle and a track adapted to guide it therealong in a zigzag manner in combination with guide means provided in the vehicle. The track is composed of a plurality of track sections, each of the track sections having a

level surface portion, a pair of inclined surface portions and joint means, the inclined portions being formed along the

of a head-spotting assembly. The latter is used to inhibit the rotation of the head during a fixed preselected portion of

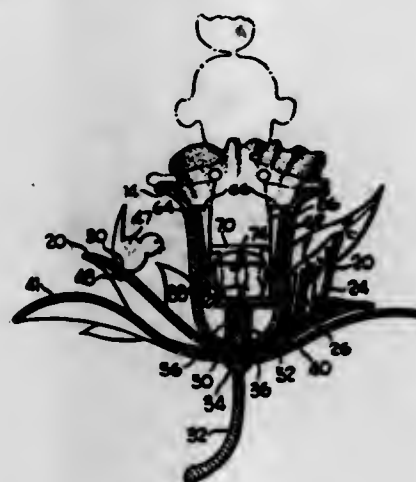


side edges of the track and adapted to serve for steering the vehicle.

3,597,877
MULTIPURPOSE NOVELTY ITEM USED AS A DECORATION OR TOY
Samuel F. Speers, North Attleboro, Mass., assignor to Marvin Glass & Associates, Chicago, Ill.
Filed Jan. 23, 1969, Ser. No. 793,450
Int. Cl. A63h 13/00

U.S. Cl. 46-116

3 Claims



Apparatus comprising a simulated flower having anchoring means for removably securing a doll figure in position. The flower may be worn as a brooch and the doll figure may be removed and used as a toy.

3,597,878
ANIMATED TOY
Cedric E. Iwasaki, Hermosa Beach, and Raymond J. Douglas, Lemita, both of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed June 2, 1969, Ser. No. 829,617
Int. Cl. A63h 3/00

U.S. Cl. 46-247

13 Claims

An animated doll, energizable by a reversible DC motor, selectively animating a stepping motion or a rotational motion with head spotting. The doll includes a rotatable shaft which is movable along its axis of rotation from a neutral position to an upward position in which the shaft engages a crankshaft assembly to cause the doll's legs to move with respect to the doll's torso to produce a stepping motion. The rotatable shaft is also movable to a downward position in which the shaft is inhibited from rotating, thereby causing the motor's housing, which is connected to the doll's torso, to rotate and to rotate the torso therewith. The doll's head is coupled to the torso with a torsion spring, which forms part



each revolution of the doll's torso. All the doll's motions are controlled by a knob extending out of the doll's head.

3,597,879
FLOWER-PETAL HOLDER
Joseph Sabeto Gallo, 58 Peach St., Walpole, Mass.
Filed Oct. 28, 1969, Ser. No. 871,881
Int. Cl. A01g 5/00; A41g 1/00

U.S. Cl. 47-55

3 Claims



The disclosure of the invention is a flower-petal holder which comprises a strip of a stiff material, such as a transparent plastic, which is folded across the middle forming opposed covers adapted to engage opposite sides of a petal, a wire stem which passes upwardly through an aperture in the fold of the material, and is hooked over the outer edge of one of said covers, and a fastener, for example, a staple, having the two legs thereof driven through the covers and enclosed petal at opposite sides of the wire stem and then bent over, so that the several elements of the flower and petal holder assembly are secured firmly together.

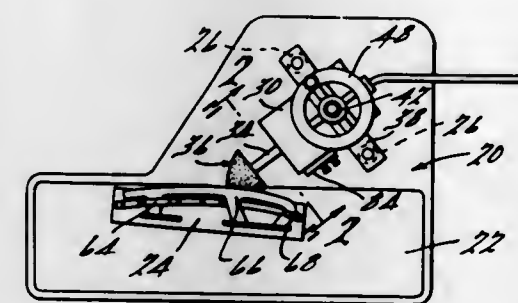
3,597,880
ICE-SKATING GRINDING APPARATUS
Leo I. Norgel, 7621 W. Morrow Circle, Dearborn, Mich.
Filed Mar. 14, 1969, Ser. No. 807,180
Int. Cl. B24b 9/04; B21k 17/00

U.S. Cl. 51-102

2 Claims

A grinding apparatus for sharpening the edges of ice skates employing a conoidal abrasive element and aligning means

for grinding a symmetrical arcuate surface of a desired hydraulic fluid and a slidable balance weight. Signals from a vibration pickup are used to control fluid flow to and from

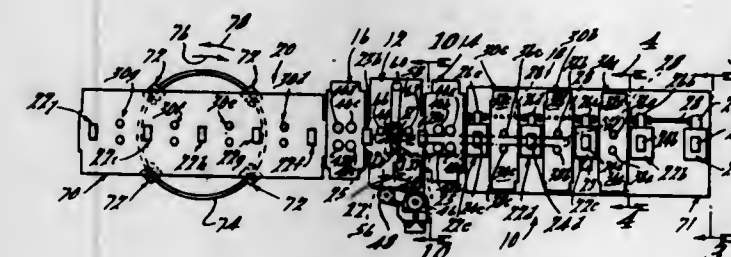


uniform concavity on the edge of an ice skate blade.

3,597,881
GRINDER FOR GRINDING THE FACES OF EDGE-SUPPORTED WORKPIECES
Dirck J. Otton, Loudonville, N.Y., and Witold C. Przygocki, Southfield, Mich., assignors to Murray-Way Corporation and Norton Company, Troy, N.Y., part interest to each
Filed Nov. 13, 1968, Ser. No. 775,468
Int. Cl. B24b 21/04, 47/00

U.S. Cl. 51-135

31 Claims



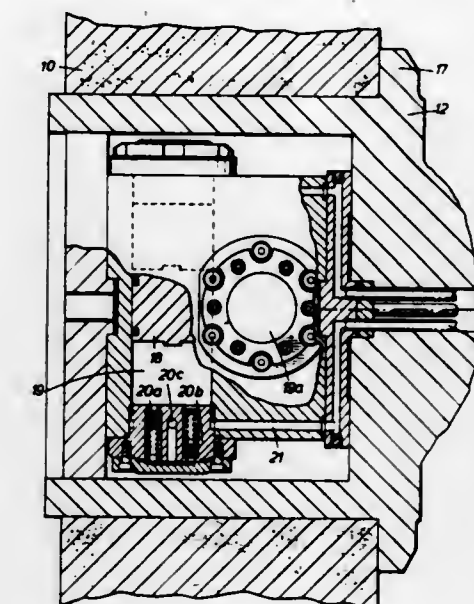
An apparatus for grinding the faces of edge-supported workpieces such as metal slabs, billets, coil, strip and the like by means of a vertically disposed grinding head which can include an abrasive belt, with the apparatus including guide apparatus whereby the workpiece can be presented to the abrasive belt, and if desired, can be presented a plurality of times in reverse directions to the abrasive belt surface whereby several cuts can be made on the same surface, with the guide apparatus including a turntable whereby the workpiece can be turned 180° for grinding both sides.

3,597,882
HYDRAULIC BALANCING OF ROTARY MEMBERS USING MOVABLE WEIGHTS
Anthony John Riddington, Peterborough, England, assignor to The Newall Engineering Company Limited, Old Felton, Peterborough, Northamptonshire, England
Filed May 5, 1969, Ser. No. 821,795
Claims priority, application Great Britain, May 6, 1968, 21260/68
Int. Cl. B24b 45/00

U.S. Cl. 51-169

9 Claims

The invention concerns a balancing assembly for rotary members such as grinding wheels. Two cylinders at right angles in the plane of rotation of the wheel each contain

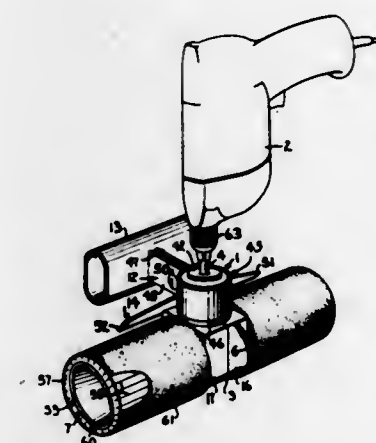


the ends of the cylinders to alter the positions of the weights and correct unbalance of the wheel.

3,597,883
POWER-SANDING DEVICE
Robert L. Choplin, 304 N. Delaware, Independence, Mo., and Walter D. Hodge, 5237 Delmar, Roeland Park, Kans.
Filed Feb. 26, 1969, Ser. No. 802,361
Int. Cl. B24b 23/00

U.S. Cl. 51-170 PT

6 Claims



A power-sanding device has a housing rotatably supporting an elongate drive shaft extending therefrom and rotatably supporting driven shaft portions extending from opposed ends and having a sanding drum mounted on the extending ends thereof. Power means operatively engages the drive shaft to rotate the sanding drums through intermeshing gears on the drive and driven shafts. An elongate arm extends from the housing and has a gripping portion on one end thereof and a guard member mounted on the housing between the gripping portion and a portion of the sanding drums.

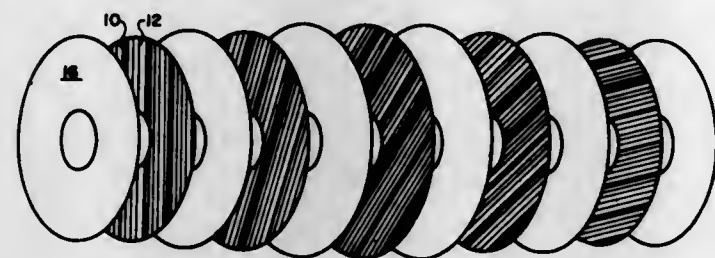
3,597,884
BORON RESIN CUTOFF AND ABRASIVE WHEEL
William T. Kaarlela, Fort Worth, Tex., assignor to General Dynamics Corporation, Fort Worth, Tex.
Filed Aug. 4, 1969, Ser. No. 847,047
Int. Cl. B24d 5/12, 11/00

U.S. Cl. 51-207

6 Claims

A combination of materials and method of using them in the forming of extremely long wear life and breakage resistant abrasive tools such as cutoff and grinding wheels. This invention utilizes superindurate materials such as boron, boron nitrides or boron carbides as the incorporated abrasive material. The several methods for incorporation of these

abrasive materials include lamination of filamentous tape containing the chosen abrasive and spinning or casting a tool



of the desired shape from a resinous matrix containing fibers of the chosen abrasive.

3,597,885

WORK HOLDER FOR MACHINE TOOLS

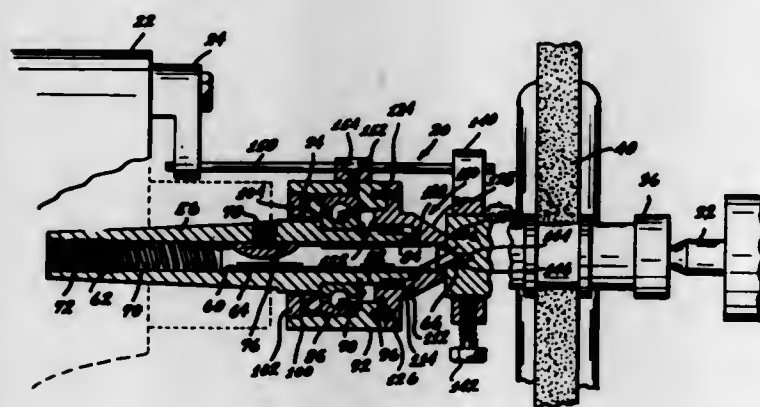
Ismael Gonzales, 6457 Tokay Road, Tujunga, Calif.

Filed Sept. 3, 1968, Ser. No. 757,060

Int. Cl. B24b 41/06, 19/00; B23b 3/14

U.S. Cl. 51—237 R

7 Claims



The invention is an improved work holder embodying a dead center for use in the headstock of power tools such as grinding equipment. A dead center is provided in the form of a rod having a pointed end which is nonrotatable but retractable against a spring in a chuck. The chuck is provided with a rotating body having a faceplate mounted on a bearing in such a way that the end of the workpiece comes flush against the faceplate on the rotating member. In this manner, precision of concentricity with respect to the workpiece and precision with respect to linear dimensions is maintained in working on similar workpieces.

3,597,886

METHOD OF VIBROABRASION TREATMENT OF SMALL-SIZED PARTS

Vladimir Vasilievich Sapozhnikov, Petropavlovskaya ulitsa, 8, kv. 10; Vladimir Nikolaevich Smirnov, ulitsa Smirnova, 13, kv. 27; Alexandr Mikhailovich Soloviev, Prospekt Smirnova, 13, kv. 60, and Roman Izraelievich Shneider, ulitsa Piekhanova, 16, kv. 12, all of Leningrad, U.S.S.R.

Filed Mar. 12, 1969, Ser. No. 806,725

Int. Cl. B24b 1/00

U.S. Cl. 51—316

5 Claims

According to the method proposed herein, in an inert liquid medium are introduced abrasive powder and metallic bodies or particles which are capable of fixing the particles of abrasive powder on their surface and grinding these while interacting with said abrasive powder in the course of treatment of the small-sized parts involved, said abrasive powder that is introduced into said inert liquid medium, should feature its granularity permissible to perform the initial stage of treatment of the small-sized parts involved e.g. coarse grinding, whereas the quantitative ratio between the metallic bodies and abrasive powder that are introduced into said liquid medium, must be so selected as to provide a successive and complete grinding of abrasive powder till obtaining its granularity necessary to perform the final stage of treatment of said small-sized parts e.g. buffing.

3,597,887

RESILIENT ABRASION

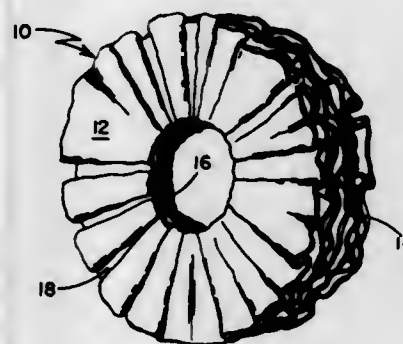
Elisha Winthrop Hall, Jr., Scituate, Mass., assignee to F. L. & J. C. Godman Company, Rockland, Mass.

Continuation-in-part of application Ser. No. 676,902, Oct. 20, 1967, now abandoned. This application July 1, 1970, Ser. No. 51,444

Int. Cl. B24d 11/00

U.S. Cl. 51—395

10 Claims



A buffing member comprising a multiplicity of thin, flexible elements secured for rotation about an axis and adapted to wipe across a workpiece wherein each element comprises a substrate in the form of a sheet member of a fibrous mesh, synthetic resinous elastomeric substance comprising elastomeric foam permanently bonded in and to the mesh, and a distribution of abrasive substance permanently bonded to the foam.

ERRATUM

For Class 51—165 see:
Patent No. 3,597,933

3,597,888

GRINDING MACHINE

Takeshi Kusakabe, and Kenji Suzuki, both of Asahimachi, Japan, assigns to Toyoda Koki Kabushiki Kaisha (trading as Toyoda Machine Works, Ltd.), Aichi Prefecture, Japan

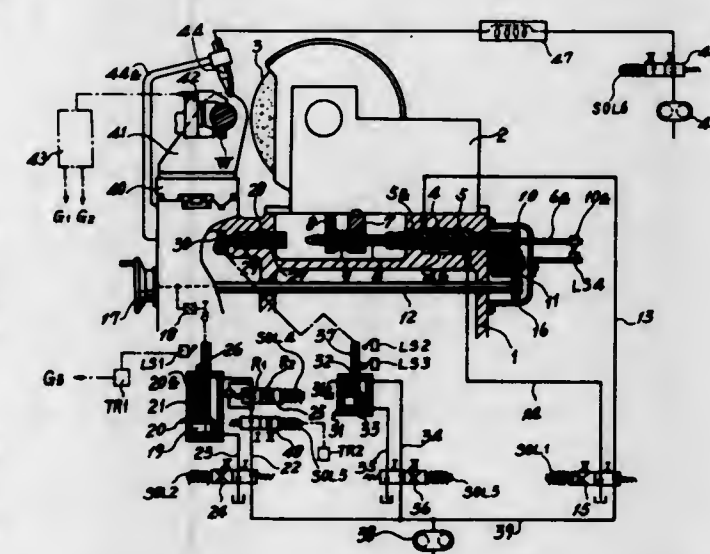
Filed Sept. 10, 1969, Ser. No. 856,614

Claims priority, application Japan, Sept. 19, 1968, July 9, 1969, 43/68163; 44/54279

Int. Cl. B24b 49/14

U.S. Cl. 51—165.73

13 Claims



A grinding machine comprising a grinding wheel support for rotatably supporting a grinding wheel, a table for supporting a workpiece, means for rapidly moving the grinding wheel support toward and away from the workpiece, and means for moving the grinding wheel support toward the workpiece at a feed speed for rough-grinding operation which is lower than the speed of the means for moving the grinding wheel support toward and away from the workpiece, wherein the grinding wheel support is separated from the workpiece after the rough-grinding operation in order to cool

the workpiece, following which the wheel support is advanced to the workpiece for the fine-grinding operation so that the workpiece, which is thermally expanded during the rough-grinding operation, recovers from the expanded condition prior to the fine-grinding operation, whereby a more accurate size of the finished workpiece will be attained.

3,597,889

JUNCTION BOX SUSPENSION UNIT FOR SUSPENDED CEILINGS

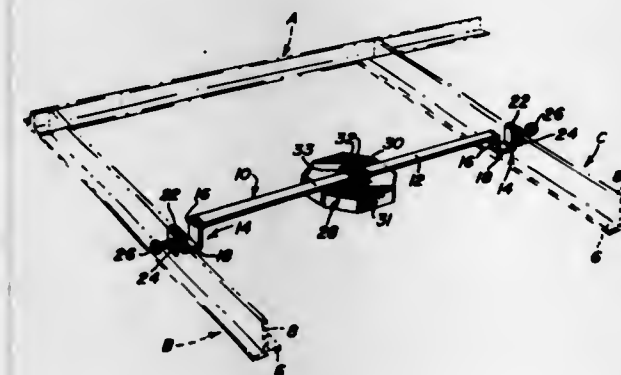
Antonio Lo Nigro, 192 Brooks St., East Boston, Mass.

Filed Oct. 8, 1969, Ser. No. 864,794

Int. Cl. E04g 17/18

U.S. Cl. 52—28

1 Claim



A suspension unit for installation in an openwork or grid-type suspension ceiling and which can be relied upon to support a fixture-hanging junction box. It comprises a one-piece strap-iron supporting bar which is adapted to bridge the space between a pair of the usual inverted T-irons. The respective outer end portions feature right angularly positioned downwardly opening hooks which are hooked over the respectively cooperable T-irons and are held in place by accessible setscrews. The straight flat-faced median portion of the bar serves to adjustably mount a hanger clip which is carried by the junction box.

3,597,890

CONSTRUCTION ASSEMBLY

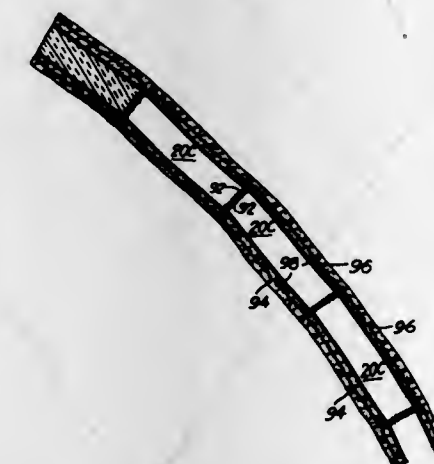
Alfred A. Hala, 28 Meeks Lane, Islip, N.Y.

Continuation-in-part of application Ser. No. 647,463, June 20, 1967, now abandoned. This application Sept. 15, 1969, Ser. No. 868,956

Int. Cl. E04b 1/32, 2/14; E04c 2/16

U.S. Cl. 52—86

9 Claims



A construction assembly comprising a plurality of individual construction units connected together. Each of the construction units comprises a pervious resin-impregnated fibrous mesh material. The walls of the construction units have a cementitious material secured to the exterior surface thereof by permeating the pervious resin-impregnated fibrous mesh material and forming an integral structure therewith.

3,597,891

INTERIOR ABSORPTIVE PANEL

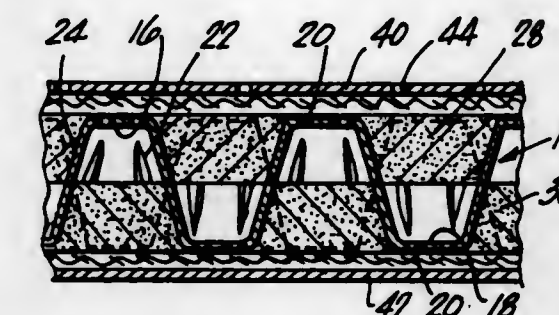
Flyodd A. Martin, Fountain Valley, Calif., assignor to McDonnell Douglas Corporation

Filed Oct. 2, 1969, Ser. No. 863,239

Int. Cl. E04b 1/82; E04c 2/32

U.S. Cl. 52—145

3 Claims



Perforated blankets of fiberglass material are fitted on each side of a double-dimpled core material having perforations therethrough. A backing sheet and face sheet of panel material is bonded to the outer surfaces of the dimples. Sound passing through the face sheet material enters the panel and is dissipated in the fiberglass material in the core. The panel has no resonant frequency and has a high coefficient of absorption over a broad band of frequencies in the speech frequency range.

3,597,892

REFRACTORY BRICK

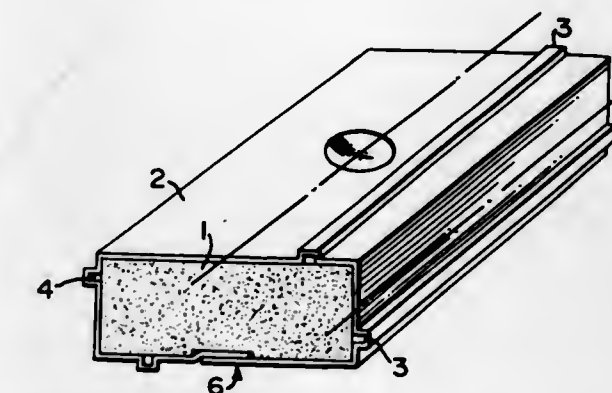
Grant M. Farrington, Jr., Marlton, N.J., assignor to General Refractories Company, Philadelphia, Pa.

Filed Jan. 8, 1969, Ser. No. 789,896

Int. Cl. E04b 2/30; F27d 1/06

U.S. Cl. 52—599

4 Claims



A refractory brick adapted for use in furnace roof construction and having bonding faces and nonbonding faces and a casing sheet of oxidizable metal carried on at least one of the bonding faces, the casing including a sheet characterized by at least one spacing rib projecting from at least one surface, the rib or ribs being disposed longitudinally along the longest dimension of the bonding faces of the brick and along a line or lines to one side of the centerline and at least one-half the distance from the centerline to one edge of the bonding faces. Preferably, the spacing ribs are disposed in surface engagement with the brick side face and function to space the one surface of the sheet therefrom. The relative size, configuration and positioning of the spacing ribs of the sheet permits substantially complete oxidation of the steel during use without resulting in growth in overall sheet thickness, and maintains uniform bearing stress conditions in furnace roof brick joints.

3,597,893

CONCRETE INSERT APPARATUS

Abram N. Spanel, 344 Stockton St., Princeton, N.J.

Filed Jan. 21, 1969, Ser. No. 792,731

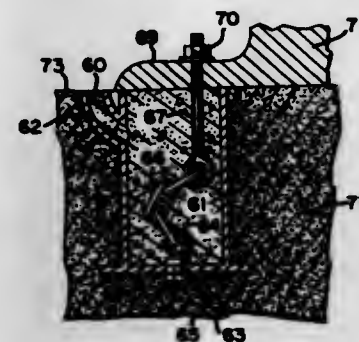
Int. Cl. E04b 1/38; E04c 5/12

U.S. Cl. 52—707

5 Claims

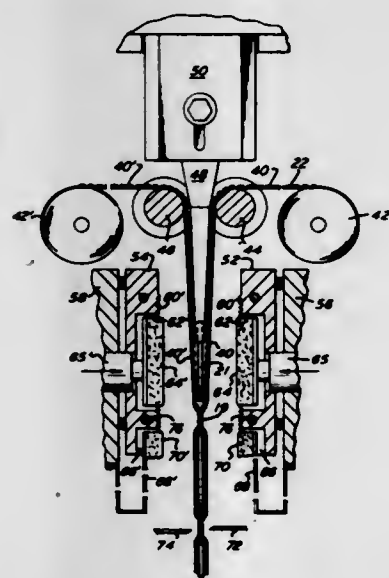
A concrete insert device utilizes a longitudinal tubular member disposed about a given axis. A bolt member of a

length less than the height of the tubular member is secured within the tubular member by coupling means. The coupling means permit positioning of the bolt in said tubular member along any axis intersecting an open face area bounded by the top periphery of the tubular member, which axes are parallel



to the given axis. The coupling means further assures that the threaded portion of the bolt as desirably positioned, also extends about the height of the tubular member; to which threaded portion a machine member to be mounted on a concrete floor is thus secured.

3,597,894
METHOD FOR PACKAGING FLAT OBJECTS
Brian G. Harrison, Drexel Hill, Pa., assignor to The Franklin Mint, Inc., Yeadon, Pa.
Filed July 22, 1969, Ser. No. 843,526
Int. Cl. B65b 9/02; B65d 85/54
U.S. Cl. 53—28

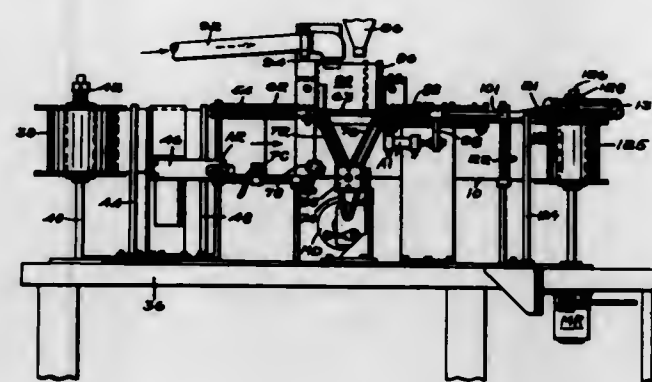


Coins or other generally flat objects are packaged by being sandwiched between plastic layers at least one of which has an embossed surface juxtaposed to the coin or object to prevent tracing the surface contour thereof through said one layer. The plastic layer is of stiff plastic material such as polystyrene so that it cannot be opened by heat or will rupture or crack if tampered with. Indicia on a paper layer joined to the plastic layer is printed with ink which is soluble in aromatic hydrocarbon solvents such as toluol.

3,597,895
PACKAGING METHOD AND MACHINE
Harold A. Jensen, Brockton, Mass., assignor to The Linvure Company, Inc., Boston, Mass.
Filed Sept. 8, 1969, Ser. No. 856,092
Int. Cl. B65b 43/12, 43/30, 43/36
U.S. Cl. 53—29

The packaging method involves forming a continuous strip of connected bags by folding a sheet longitudinally, and forming a series of transverse seams extending only partially across the strip from the fold toward the unfolded edge of the strip. The strip is fed lengthwise to position a bag at a loading

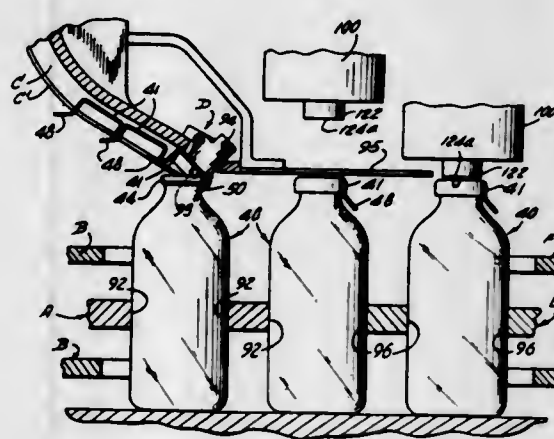
station; then a portion of the strip is retracted to open that bag for loading, aided by a collapsible tube and a blower. A reversal of the retraction recloses each bag after loading, and it is then sealed by a longitudinal seam joining the transverse



seams between the edges of the strip. The excess material at the unfolded edge of the strip is removed before the bags are separated.

3,597,896
METHOD AND APPARATUS FOR SECURING CAPS TO CONTAINERS
Stanley J. Koll, Keansburg, N.J., and John M. Rocus, Elk Grove Village, Ill., assignors to American Flange & Manufacturing Co., Inc., New York, N.Y.
Division of Ser. No. 473,987, July 22, 1965, Pat. No. 3,460,311.
Filed Feb. 18, 1969, Ser. No. 800,202
Int. Cl. B65b 7/28
U.S. Cl. 53—42

17 Claims

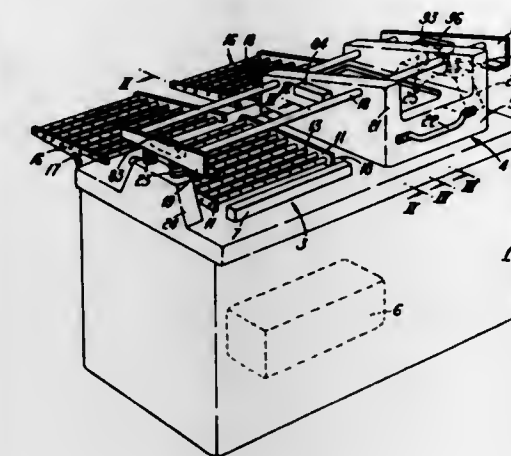


A crimping apparatus and method for securing lightweight metal hand-removable closure caps on to bottles. The apparatus includes cap and bottle conveying and positioning mechanisms for placing caps on to bottles and crimping heads for sealing the closure caps in place.

3,597,897
METHOD OF AND APPARATUS FOR VACUUM SEALING PACKS
Alain Gerard, Saint-Coud, France, assignor to W. R. Grace & Co., New York, N.Y.
Filed Oct. 21, 1969, Ser. No. 868,065
Int. Cl. B65b 31/02
U.S. Cl. 53—84

This invention relates to a method of and apparatus for vacuum sealing packs. Primarily, there is provided a cover movable in a first direction from a position adjacent a first sealing station to a position adjacent a second sealing station, and then in a second direction substantially perpendicular to the first direction to form a closed vacuum sealing chamber at the second station whereat a vacuum sealing operation is

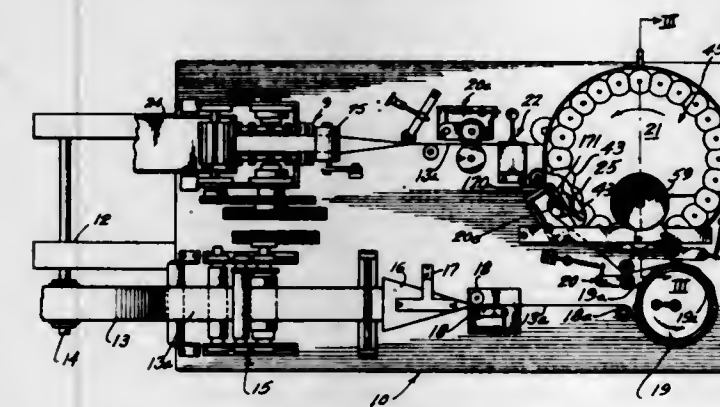
conducted. Preferably an electromagnetic arrangement is provided so that the cover can be precisely positioned ad-



jacent the sealing station at the end of movement in the first direction.

3,597,898
PACKAGING MACHINE
Charles E. Cloud, Wilmette, Ill., assignor to Cloud Machine Corporation, Skokie, Ill.
Continuation-in-part of application Ser. No. 504,709, Oct. 24, 1965, now abandoned. This application May 7, 1969, Ser. No. 852,518
Int. Cl. B65b 9/08
U.S. Cl. 53—183

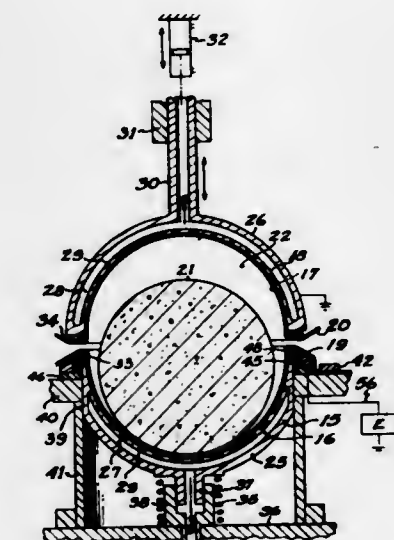
33 Claims



The machine and method is concerned with several different features including an apparatus for cutting uniform size articles from a continuous strip which comprises a rotating indexing wheel for supporting the strip at the transverse seals, a ganged rotary rotating slicer having a plurality of blades for intermeshing at a strip slicing zone, means comprising a holddown arm mounted over the rotating indexing wheel for holding the strip thereagainst in a centered position on the indexing wheel as the strip advances into the strip slicing zone, and biasing means operatively engaged against the holddown arm urging the arm into engagement with the strip and the strip against the indexing wheel. In addition, a method of cutting off packages from a strip having spaced filled pouches separated by heat seals is disclosed, which method comprises the steps of feeding the strip into a series of traveling annularly arranged elements, moving a series of traveling annularly arranged knives sequentially into cooperative package severing association with the series of traveling elements, capturing a free leading end portion of the strip restraining the captured portion while and after the trailing edge of the package is severed at the trailing heat seal and then controllably releasing the severed package to deposit the package onto an adjacent surface.

3,597,899
METHOD AND APPARATUS FOR ENCAPSULATING FLUID AND OTHER MATERIAL IN SEALED CONTAINERS
Donald LeRoy Hanson, Sylmar, Los Angeles, Calif., assignor to American Foods Machinery Corporation
Filed Nov. 21, 1966, Ser. No. 595,742
Int. Cl. B65b 3/02
U.S. Cl. 53—184

3 Claims



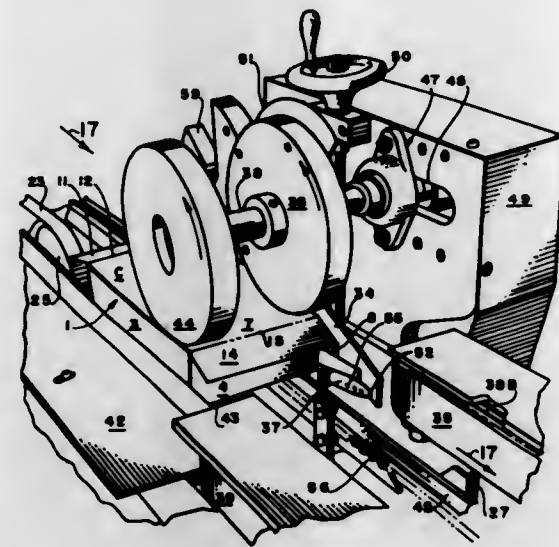
This invention provides a means and method whereby materials, either liquid, plastic or solid, (e.g. foods) are encapsulated between vertically opposed sheets of plastic film such as polyvinyl chloride, by vacuum-drawing one or both of the sheets into pocket form of oversize dimensions with relation to the dimensions of a container capsule which is subsequently formed from the opposed sheets after depositing the content material into the pocket formed in the lower sheet. After deposition of the content material the sheets are brought together at the pocket margin and sealed to one another around the margin to develop a sealed capsule containing the content material. The plastic film material around the sealed margin is then severed from the capsule, preferably by heat-cutting performed as an incident to heat sealing of the margin, the suction that has been applied to form the pocket or pockets, is released, and the encapsulating film is permitted to shrink by plastic memory, into clinging contact with the enclosed contents of the capsule. In many applications, air is evacuated from the capsule during the encapsulating process, and for some foods a preservative gas is substituted.

3,597,900
MACHINE FOR BONDING TOGETHER A PAIR OF THERMOPLASTIC COATED PANELS
Dale K. Scott, Jonesboro, Ga., assignor to The Mead Corporation
Filed July 28, 1969, Ser. No. 845,382
Int. Cl. B65b 7/20, 51/20
U.S. Cl. 53—375

3 Claims

For binding in face-contacting relation a pair of box panels coated with thermoplastic material, the machine and method of this invention utilize transport means for moving the box and panels along a predetermined path, positioning and holding means for moving one of the panels into a position of spaced relationship to the other of said panels and for holding the panels in spaced relation for a brief period of time, nozzle means interposed between the panels for directing a blast of hot air in the direction of the panels and at an angle so as to scavenge atmospheric air whereby the thermoplastic coating on the panels is quickly heated. Thereafter the panels

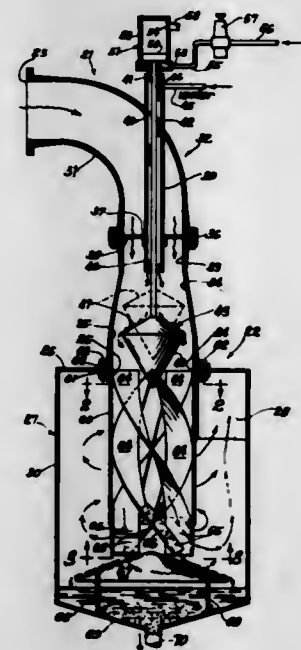
are quickly and firmly forced into face-contacting relation while still under the influence of the stream of hot air, the



3,597,901
GAS SCRUBBER, ENTRAINMENT SEPARATOR AND COMBINATION THEREOF
John M. Heeney, Chicago, Ill., assignor to Fuller Company
Filed July 30, 1968, Ser. No. 748,846
Int. Cl. B01d 47/00

U.S. Cl. 55-241

7 Claims



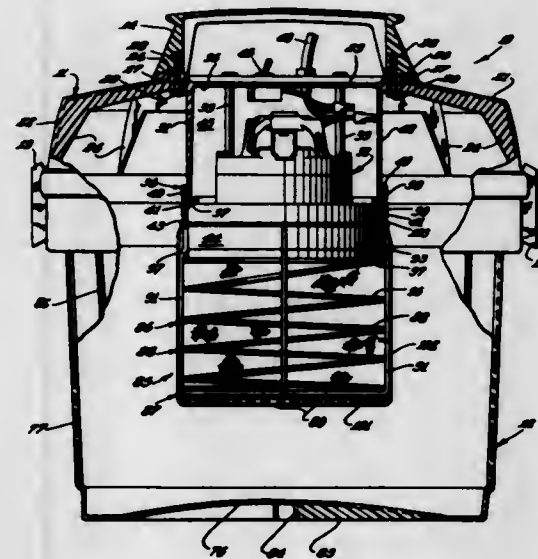
A gas scrubber for removing particles carried in suspension by gas is used with or without a specific entrainment separator. The scrubber has (1) a gas-conducting conduit with a portion having an inner surface that diverges in the direction of gas flow, (2) a diverter that is disposed in this portion of the conduit and that has an opposed diverging surface with a greater degree of divergence, and (3) a pipe that feeds scrubbing liquid to that surface of the diverter for flowing liquid into the downward flow of gas. Preferably, the diverter is supported from above and is resiliently urged upwardly so that the diverter is automatically moved by a change in the rate of gas flow. The scrubber provides an annular flow of gas that is changed to a helical downward flow by the specific entrainment separator, disposed below the diverter and having helically extending elongated plates in a vertical conduit within a chamber. A frustoconical diverter is disposed below the bottom open end of that vertical conduit to change the direction of the gas leaving the vertical conduit. The elongated plates are radially disposed within the vertical conduit

and extend in a helical manner about the longitudinal axis of that conduit. Another conduit communicates tangentially with a sidewall opening of the chamber adjacent its top to exhaust the gas from the annulus between the chamber and the vertical conduit. Accumulated liquid is removed from the bottom of the chamber.

3,597,902
UTILITY VACUUM CLEANER
Clyde H. Williams, Coldwater, Mich., assignor to The Scott & Fetzer Company, Bronson, Mich.
Filed Nov. 13, 1968, Ser. No. 775,282
Int. Cl. B01d 50/00

U.S. Cl. 55-337

3 Claims

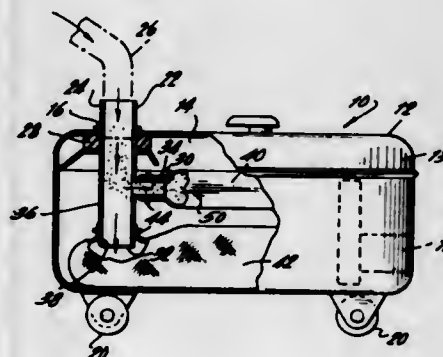


A utility vacuum cleaner having a two-piece housing including an upper portion forming a lid for a lower-canister portion in which dirt is directly collected. The lid portion is an integrally formed unit providing a mounting for a motor fan unit and means for attaching a filter element thereto. The lid portion further provides an upwardly directed outlet from an increased pressure chamber formed between the motor fan unit and the inner surface of the lid. The filter unit provides a spring-biased framework for supporting a cloth baglike filter to prevent the collapse thereof when air is drawn therethrough. The lower canister is characterized by a baffled inlet arranged to prevent the inlet flow of collected dirt and dust particles from directly impinging against the filter unit and to promote the even distribution of the collected particles around the canister portion by spiraling the dirt laden airstream in the canister.

3,597,903
MEANS FOR MAINTAINING THE SUCTION CAPACITY OF A VACUUM CLEANER
Robert Schaaf, Brooklyn, N.Y., assignor to Mil-An Mfg. Corp.
Filed Sept. 27, 1968, Ser. No. 763,315
Int. Cl. B01d 46/02

U.S. Cl. 55-341

5 Claims



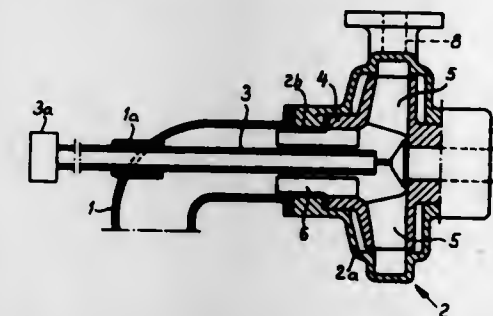
Means for maintaining the suction capacity of a vacuum cleaner by providing inlet means into the internal compart-

ment of the vacuum cleaner comprising a manifold conduit disposed through an inlet opening into said compartment and having at least two outlet ports in clearance position with respect to the inlet opening, the outlet ports being disposed in spaced relation to each other and also in-line and offset relation to the inlet opening, a filter receptacle being associated with each of the outlet ports, whereby the receptacle associated with the in-line port is adapted to first separate the dirt from an incoming stream of dirt-laden suction-induced air to be followed, if required, by the receptacle associated with the offset port.

3,597,904
APPARATUS FOR LIQUID-GAS SEPARATION
Karl Folke Olof Jakobsson, and Bo Albert Voss-Schrader, both of Taby, Sweden, assignors to Aktiebelaget Cellico, Tumba, Sweden
Filed May 12, 1969, Ser. No. 823,836
Claims priority, application Sweden, May 14, 1968, 6461/68
Int. Cl. B01d 52/24

U.S. Cl. 55-408

2 Claims

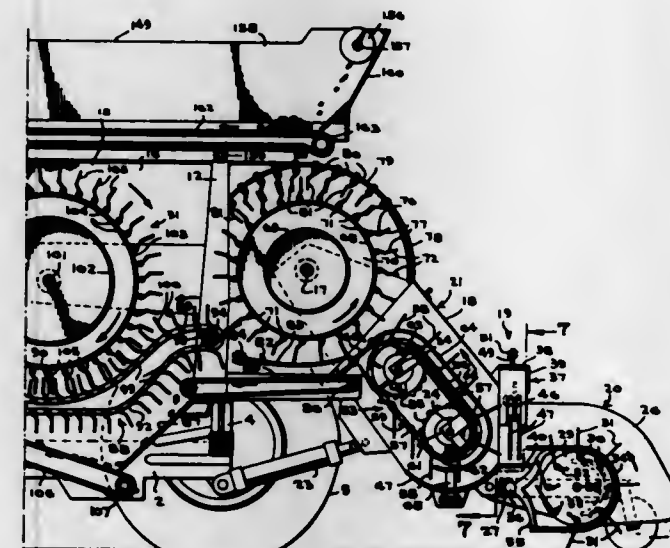


A liquid with entrained gas is fed through a supply pipeline connected coaxially to the suction side of a centrifugal pump, and a gas-discharge pipe has one end portion extending coaxially into the supply pipeline, there being wings arranged to be driven so as to rotate in a path extending around the axis of the gas-discharge pipe and concentric to the pump shaft. The other end portion of the gas-discharge pipe is connected to a vacuum source, and the wings have portions extending axially along this discharge pipe in the vicinity of its opening which receives the gas to be discharged.

3,597,905
POD-STRIPPING MACHINE
Virgil N. Jarrell, West Evans Road, Viola, Del.
Filed Apr. 21, 1969, Ser. No. 817,811
Int. Cl. A01d 45/22, 45/24

U.S. Cl. 56-11.9

23 Claims



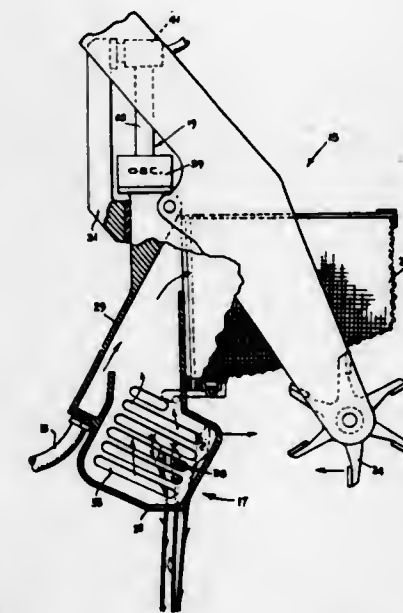
A self-propelled machine for stripping pods from vines, which has means for lifting cut vines from the field and feeding them sequentially to a plurality of drums having spring fingers to engage vines and carry them through spaced fingers of a stationary, or movable, concave about part of the

drum, to shred the vines and strip the pods from them. Pods are collected on conveyors below the drum stations and carried to a storage bin. The bin has means to unload the pods to a transporting vehicle, or place of storage.

3,597,906
THRESHING DEVICE
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif.
Filed Feb. 14, 1969, Ser. No. 799,424
Int. Cl. A01d 41/08

U.S. Cl. 56-13.3

11 Claims

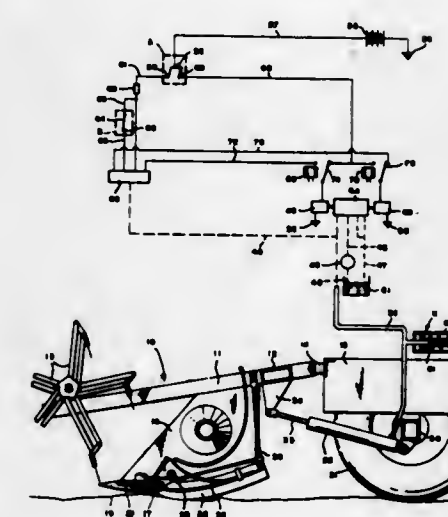


A device for utilization in the threshing of crop elements such as grain which effectively removes the seed from the chaff in the field, comprising means for engaging individual grains or heads, subjecting such grains to resonant sonic vibration whereby they are easily separated from the stock and chaff, and means for drawing the separated grains into a hopper or similar storage portion of the machine.

3,597,907
HEADER ELEVATIONAL CONTROL SYSTEM FOR CROP-HARVESTING MACHINE
Archie E. Neal, Garfield, Wash., assignor to J. E. Love Company, Garfield, Wash.
Filed Feb. 15, 1965, Ser. No. 432,600
Int. Cl. A01d 67/00

U.S. Cl. 56-208

5 Claims



An elevational control system for the header of a crop-harvesting machine wherein the header is pivotally connected to the machine and a hydraulic cylinder is used to vertically position the header. A floating cutting platform is connected to the header and has a ground-engaging portion which acts to yieldably transfer a portion of the weight of the header to the ground. A pressure-responsive switch in the hydraulic

system controls the supply of fluid to the cylinder so that a change in the system pressure caused by the header riding too high or too low results in vertical adjustment of the header so as to restore the predetermined load distribution between the hydraulic system and the ground.

3,597,908

TREE-PRUNING APPARATUS

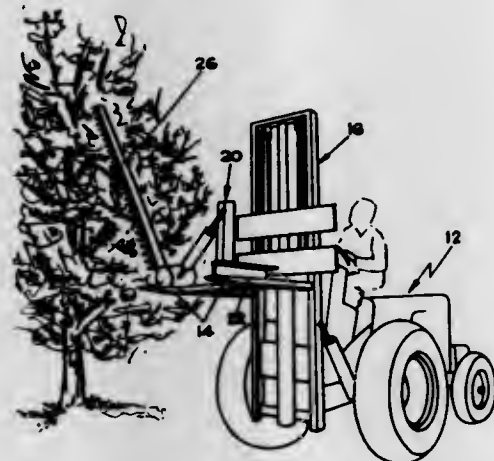
William A. Schaefer, Sparta; Donald W. Zufelt, Casanova, and Donald Grossman, Grant, all of, Mich., assignors to Spar Jet Pruner, Inc., Grant, Mich.

Filed Dec. 27, 1968, Ser. No. 787,522

Int. Cl. A01d 55/00

U.S. Cl. 56-233

5 Claims



This disclosure relates to a tree-trimming cutter for trimming the branches of orchard trees, for example. the cutter has a longitudinal blade with reciprocating cutting teeth and is mounted on a forklift tractor which raises and lowers the cutter. An arm supports the blade for movement between upright and downwardly extending positions. The arm is laterally adjustable relative to the base so as to move the cutter out from the tractor as desired for cutting.

3,597,909

MACHINE FOR HARVESTING ONIONS AND THE LIKE

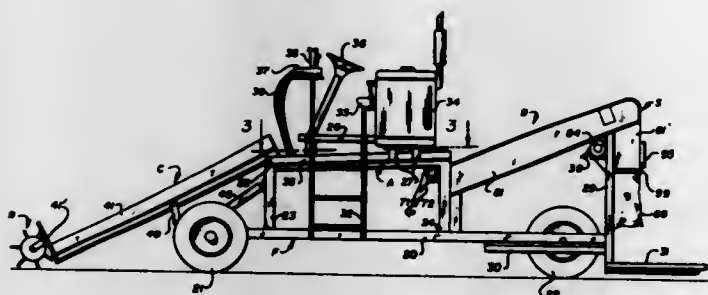
Fred E. Lauridsen, Sr., and Fred E. Lauridsen, Jr., both of 1001 D Street, Greeley, Colo.

Filed Dec. 2, 1968, Ser. No. 780,445

Int. Cl. A01d 45/00

U.S. Cl. 56-327 R

3 Claims



The machine includes an alignment section, such as including oppositely rotating pairs of spiral rolls, which receive the onions from a front conveyor and move the onions toward a cutter for removing the tops and placing the onions, top down, during such movement. a paddle wheel having flexible blades, beneath the alignment rolls, urges the tops toward the cutter, while a flexible skirt is engaged by the blades to wipe the onion tops off the blades. A conveyor, which receives the topped onions from the cutter, is used as a picking table, for culling purposes, while the onions are delivered through hollow, upright chutes into sacks, with reversible plates in the chutes for directing the onions to alternate sacks, and handle-operated bars for moving a sack off hooks, at the lower edge of the chute opposite the operator.

3,597,910

RESILIENT RAKE TOOTH

David N. Stewart, Box 111, Erskine, Alberta, Canada

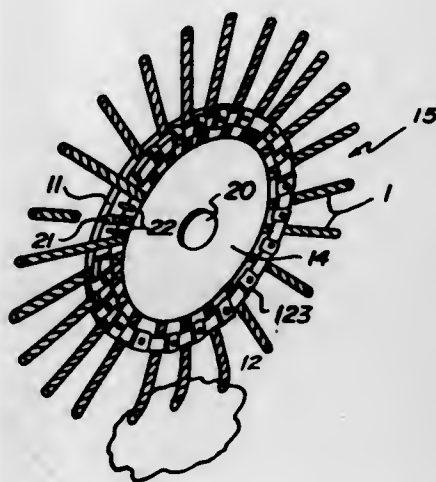
Filed Sept. 3, 1969, Ser. No. 855,159

Claims priority, application Canada, Mar. 14, 1969, 045-768

Int. Cl. A01d 77/00

U.S. Cl. Ryan

3 Claims



A resilient raking tooth having an elongated body formed from a plurality of twisted strands having the ends thereof secured from unrolling and an annular support for said tooth.

3,597,911

METHOD AND APPARATUS FOR CLEANING OPEN-END SPINNING DEVICES

Adolf Schiltknecht, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland

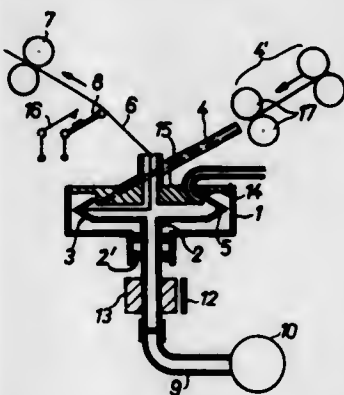
Filed Aug. 17, 1967, Ser. No. 661,332

Claims priority, application Austria, Aug. 24, 1966, A 8043/66

Int. Cl. D01h 11/00, 7/00

U.S. Cl. 57-56

19 Claims



The fiber collecting surfaces are cleaned by an intensive brief stream of fluid such as air or cleaning solvent. A retractable brush is used with the solvent to aid in the removal of any dirt from the fiber collecting surface. The cleaning process is carried out automatically in response to the production of a certain yarn length or in response to a yarn break.

3,597,912

DAY-OF-THE-WEEK INDICATING MECHANISM

Tatsuro Akahano, Suwa-shi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha

Filed Dec. 8, 1969, Ser. No. 883,048

Claims priority, application Japan, Dec. 30, 1968, 43/96,533

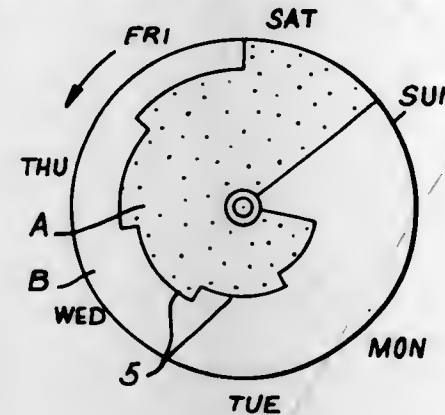
Int. Cl. G04b 19/24

U.S. Cl. 58-5

5 Claims

A Days-of-The-Week Indicating Mechanism for a timepiece wherein a day disc is provided, divided into two portions by a boundary line extending along a substantially spiral path along said day disk, each of said day disk portions

being of a different color and being transparent or semitransparent. A radially extending window opening is provided in a



calendar window of the dial plate, said boundary line being positioned so that the days of the week are indicated by the position of said boundary line in said window.

3,597,913

BATTERY-CARRYING MEANS FOR ELECTRIC OR ELECTRONIC TIMEPIECE

Motoyuki Fujimori, Suwa-shi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

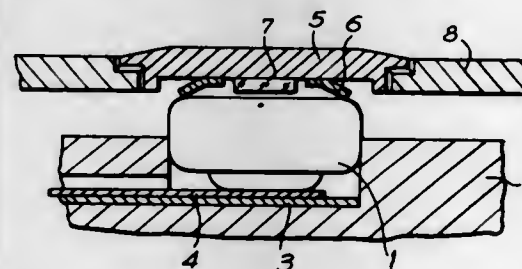
Filed Dec. 29, 1969, Ser. No. 888,772

Claims priority, application Japan, Jan. 10, 1969, 44/2358

Int. Cl. G04c 3/00

U.S. Cl. 58-23 BA

3 Claims



A battery-carrying means for an electric or electronic timepiece wherein the elastic contact means projecting from the cover providing access to a battery-receiving means in said timepiece are positioned on the cover so as to be out of contact with the projected portion of the battery should said battery be inserted with said projected portion facing said cover. An insulating member or a space is provided between said cover and said projected portion to prevent contact therebetween should said battery be so inserted.

3,597,914

WATCH BALANCE WHEEL

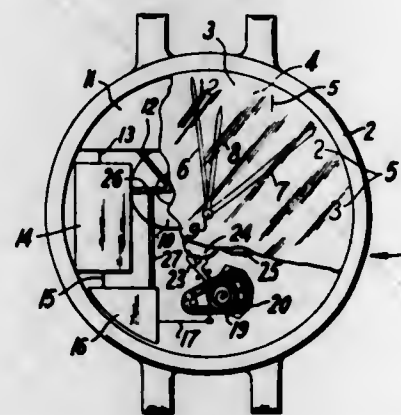
Heinz Meitinger, Pforzheim, Germany, assignor to Timex Corporation, Waterbury, Conn.

Filed Sept. 11, 1969, Ser. No. 857,165

Int. Cl. G04c 3/04

U.S. Cl. 58-28 R

8 Claims



An electric-powered watch includes a balance wheel assembly which drives time display means. The balance wheel

assembly includes a pivoted balance wheel staff, a central member fixed to the staff, and a balance wheel rim consisting only of a bundle of wires which are adhered together and self-supporting. The wires form a coil which cooperates with one or more magnetic fields to impulse the balance wheel assembly.

3,597,915

DRIVING DEVICE OF ELECTRONIC WATCH

Susumu Aizawa, 10616 Takagi, Shimosuwa-machi Suwa-gun, and Yoshifumi Gomi, 6248-1, Nishichino, Miyagawa, Chino-shi, both of Nagano, Japan

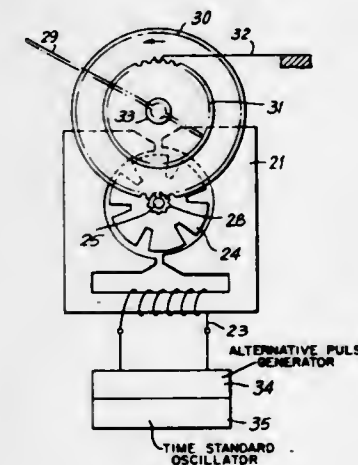
Filed Nov. 3, 1969, Ser. No. 873,224

Claims priority, application Japan, Nov. 5, 1968, 43/80514

Int. Cl. G04c 3/00

U.S. Cl. 58-23 D

2 Claims



A driving device for an electronic timepiece including a multipole stepping motor driven by an alternative pulse generator operating under the control of a time standard oscillator. The timepiece includes a time indicating gear train including an indexing mechanism having a pawl and a ratchet wheel attached to the second wheel of said train to insure the incremental step action of said stepping motor.

3,597,916

DAY AND DATE CORRECTOR MECHANISM FOR A WATCH

Yasuichi Nakagawa, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

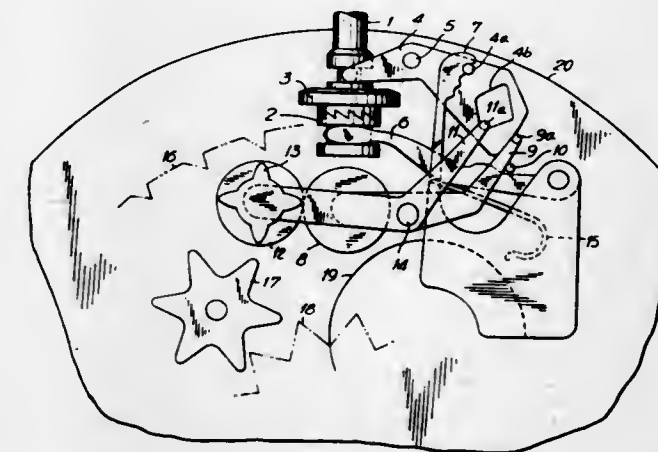
Filed June 13, 1969, Ser. No. 833,053

Claims priority, application Japan, June 20, 1968, 51836

Int. Cl. G04b 19/24

U.S. Cl. 58-58

3 Claims



A day and date corrector mechanism mounted for pivotable displacement from outside said watch and having a quadrilateral aperture therein. A corrector wheel lever cooperatively engages said quadrilateral aperture for the selective positioning of a day and date corrector wheel mounted on said corrector wheel lever. The setting lever is pivotably displaceable between three positions, at one of

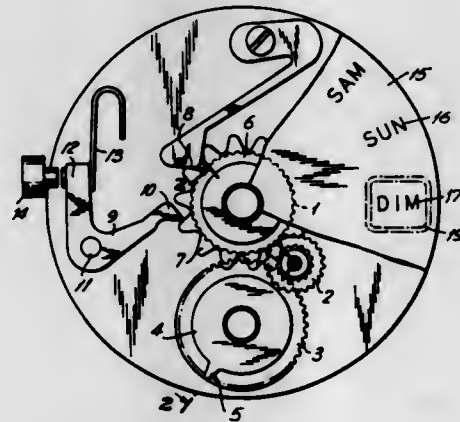
which said corrector wheel lever may rock between one operative engagement of said corrector wheel for day correction and another operative connection of said corrector wheel for date correction. At the other of the two positions of said setting lever, said corrector wheel lever is restrained with the corrector wheel in a neutral position, while winding and hand setting functions are respectively performed.

3,597,917

DAY-INDICATING SYSTEM OF A CALENDAR WATCH
Hideo Odagiri, Nagano-ken, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Mar. 26, 1969, Ser. No. 810,582
Claims priority, application Japan, Mar. 29, 1968, 43/20219
Int. Cl. G04b 19/24

U.S. Cl. 58—58

6 Claims



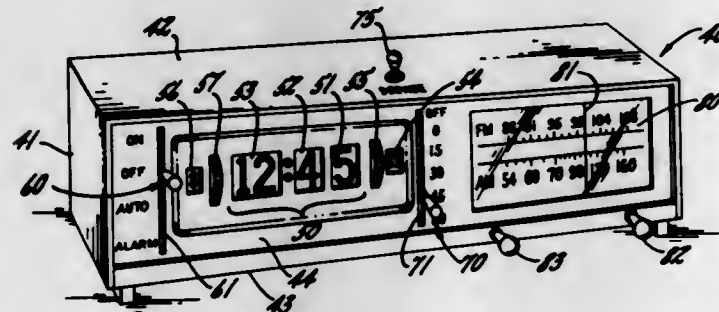
A day-indicating system of a calendar watch including a day dial having the days of the week indicated thereon in at least two forms, the day star wheel secured to said day dial for rotation therewith being adapted for advancement through a plurality of increments during each day, one of said increments being associated with each of said day indications. Means is provided for advancing said day star wheel, each day, a number of increments equal to the number of forms of day indications disposed on said day dial. Adjustment means is provided for manually advancing said day star wheel an increment at a time to select the desired form of day indication.

3,597,918

DIGITALLY INDICATING CLOCK-TIMER
Ralph C. Robinson, Mooresville, N.C., assignor to General Time Corporation, Stamford, Conn.
Filed Oct. 6, 1969, Ser. No. 863,886
Int. Cl. G04b 19/02

U.S. Cl. 58—125

14 Claims



A digitally indicating clock-timer having endless loops of tape, each carrying a cycle of numerals for direct time indication, with the tapes being driven by drums of small diameter which are coupled together by geneva-type mechanisms so constructed that each tape is advanced one unit only upon completion of passage of a complete cycle of numerals on the tape of next lower order. In the preferred embodiment, such "cycle stepping" is achieved by employing two geneva stages in series with one another. The tape is disposed in a folded, reentrant arrangement for maximum compactness

with the driving drums in alignment in central position. A transparent guide member enables illumination of the tape by transmitted light. A synchronous motor serves to drive the minute tape via a timing train and geneva mechanism for stepped advancement of the "minutes" drum. An hour wheel coupled to the minutes drum, and cooperating with an alarm set wheel under the control of a function lever, serves to operate a switch for turning on the associated radio and, a short time thereafter, for sounding an alarm. A settable "sleep" lever cooperating with the timing train permits the user to fall asleep with the radio on with subsequent automatic turnoff. The "sleep" lever, by disabling of the alarm, also serves upon actuation of the associated "drowse" button, to give the user the option of a few minutes of additional sleep after the alarm goes off.

The tape display and driving arrangement and a particular form of positive locking geneva mechanism have features of general utility not limited to clocks or timers.

3,597,919

LINEAR GAS GENERATOR ACTUATED LATCHING AND THRUSTING DEVICE

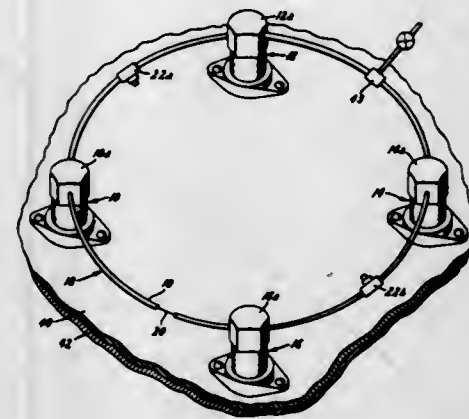
James L. Lilly, Wayne, Pa., assignor to General Electric Company

Filed Mar. 24, 1969, Ser. No. 809,724

Int. Cl. F01b 29/08, 31/00, 9/00

U.S. Cl. 60—26.1

10 Claims



Apparatus for providing fluid actuation of a plurality of devices by the use of a combustible cord continuously extending through fluid actuation chambers for each of the devices. One or more ignition means are provided for the combustible cord. After the cord is ignited, combustion of the cord propagates down its length. When combustion of the cord within a fluid actuation chamber occurs, the gases formed thereby effect actuation of the device.

3,597,920

TURBINE INLET TEMPERATURE SENSOR AND COMPUTER

Harold A. Wadman, West Hartford, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed Aug. 21, 1969, Ser. No. 851,817

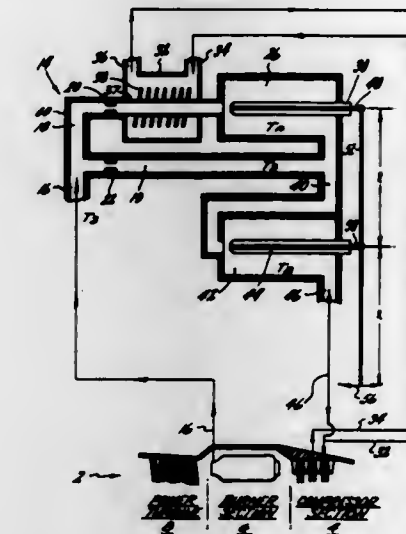
Int. Cl. G01k 5/50, 13/02; F02c 7/10

U.S. Cl. 60—39.52

10 Claims

A device for measuring the temperature of hot gases from a gas turbine burner section having a first duct which introduces the gases to a heat exchanger which cools the gases by means of air circulated from a high-pressure stage of a compressor to a low-pressure stage of the compressor and two spaced temperature probes downstream of the exchanger. A second duct interconnects the first duct portion upstream of the heat exchanger and a first duct portion intermediate the temperature probes. The outlet of the first duct portion, downstream of the second temperature probe, also communicates with the compressor section so as to establish

a pressure differential between the inlet and outlet of the device. A mechanical linkage is pivotably secured to the out-



puts of the two temperature probes and yields a reading that is proportional to the temperature of the hot gases.

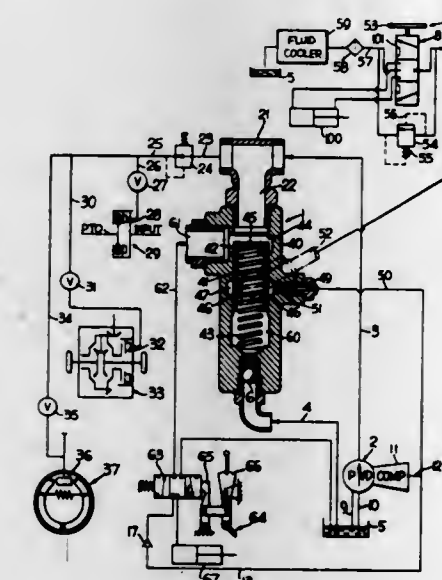
3,597,921

PRIORITY FLOW CONTROL VALVE

James R. McBurnett, Stillwater, Okla., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Nov. 19, 1969, Ser. No. 877,934
Int. Cl. F15b 11/16

U.S. Cl. 60—52 VS

10 Claims



A flow control valve in a hydraulic system having a single source of pressurized fluid. The flow control valve provides priority of flow for predetermined actuators and pressure control for a plurality of hydraulic actuators.

3,597,922

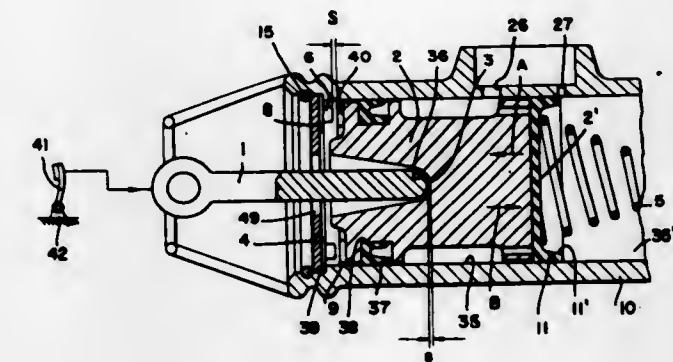
MASTER CYLINDER

Gert Schrader, Schwelm, Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Germany
Continuation-in-part of application Ser. No. 731,055, May 22, 1968, now Patent No. 3,509,722. This application Mar. 12, 1970, Ser. No. 18,819
Int. Cl. F15b 7/00

U.S. Cl. 60—54.6

7 Claims

The piston of an automotive master brake cylinder is progressively rotated about its longitudinal axis. The intermittent rotation, occurring during each stroke, is designed to eliminate premature furrowing of the primary sealing cup of the piston at that part of its circumference which repeatedly



fluid. Through the rotation the entire periphery of the primary cup is uniformly exposed to the unevenness in the wall.

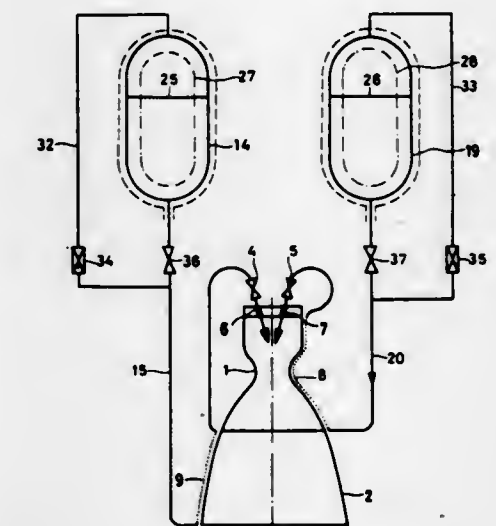
3,597,923

ROCKET PROPULSION SYSTEM

Michael Simon, 3 Enkendorfstrasse, 2 Hamburg-Othmarschen, Germany
Division of Ser. No. 704,480, Feb. 9, 1965, abandoned.
Filed Oct. 2, 1969, Ser. No. 871,028
Int. Cl. F02k 9/02, 11/02

U.S. Cl. 60—260

1 Claim



For starting a rocket engine, a plurality of liquefied gases are first gasified at ambient temperature and fed to the combustion chamber. Then the liquefied gases are brought into heat exchange with the walls of the combustion chamber and exhaust nozzle for being gasified before being mixed and then fed into the combustion chamber.

3,597,924

FLOATING OIL BARRIER AND METHOD OF CONTAINING A FLOATING SUBSTANCE

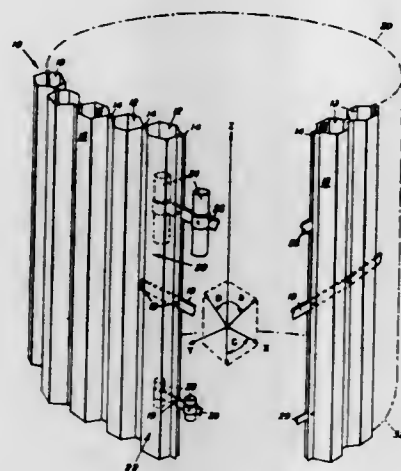
Murray Risin, Palm Beach Gardens, and Robert M. Snyder, Jupiter, both of Fla., assignors to Ocean Science and Engineering, Inc., Washington, D.C.
Filed Feb. 7, 1969, Ser. No. 797,523
Int. Cl. L02b 15/04

U.S. Cl. 61—1

14 Claims

A system for circumscribing and impounding oils floating on the surface of water which includes a water-impervious,

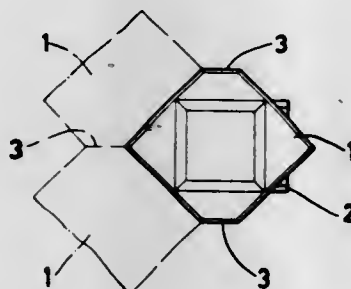
floating enclosing barrier presenting a substantially rigid vertical surface to the oil with means permitting limited movement of the barrier in the horizontal and vertical planes to compensate for constantly changing wave shapes and forms.



3,597,925
RETAINING WALL BLOCK
Sugiaki Kusatake, No. 132, Hachiken-cho, Nishikitsuji, Nara City, Nara Prefecture, Japan
Filed Sept. 30, 1968, Ser. No. 763,573
Int. Cl. E02b 3/12

U.S. Cl. 61—4

4 Claims



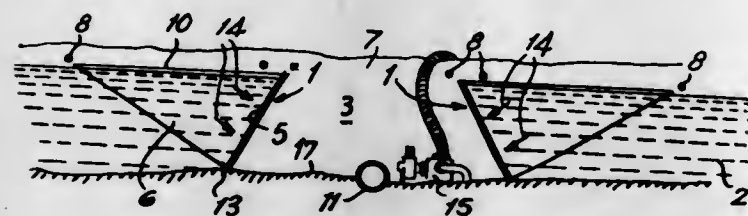
A retaining wall block has a base portion and one or more bracing struts integral therewith. As the blocks are stacked, the struts overlap to thereby provided self-support for the wall. The sides of the base portion also have interengaging portions which provide support.

3,597,926
METHOD OF RESTRICTING THE FLOW OF BODIES OF LIQUID

Peter Riddett, Southampton, England, assignor to Hovercraft Development Limited, London, England
Continuation-in-part of application Ser. No. 680,167, Nov. 2, 1967, now abandoned. This application Jan. 20, 1970, Ser. No. 4,349

U.S. Cl. 61—30 Int. Cl. E02b 3/10, 7/00

12 Claims



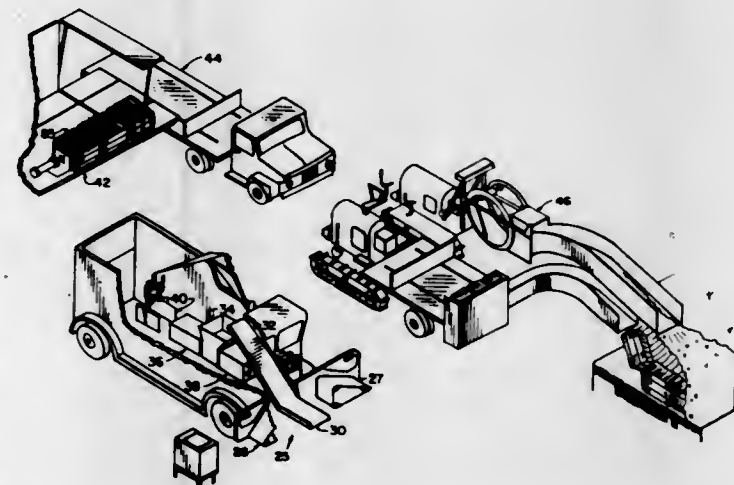
To form a water dam a succession of wall members of flexible sheet material of generally U-section, are spread across and immersed in the water, and contiguously arranged and constrained against deflection by pressure of the water they are to retain, so that the pressure distends the members into sealing engagement with each other. The wall members may

be arranged in either horizontally or vertically extending rows. In addition to being used completely to dam water basins or courses, the wall members may be arranged to form cofferdams and lock gates, or to restrict the flow of any body of liquid.

3,597,927
METHOD AND APPARATUS FOR DISPOSING OF REFUSE
Charles Wayne Hemphill, Lubbock, Tex., assignor to Concentric Engineering Company, Dallas, Tex.
Filed Aug. 15, 1966, Ser. No. 572,520
Int. Cl. B60p 1/00; B65t 3/02

U.S. Cl. 61—35

2 Claims

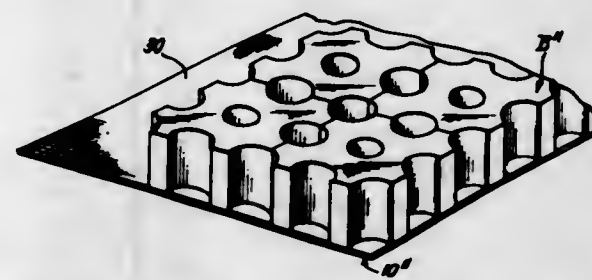


Method and apparatus for collecting and disposing of refuse by collecting refuse from a multiplicity of garbage cans which are adapted to be automatically dumped into a compacting unit where the refuse is compacted into a bale. The bales are transported to a digging apparatus which provides a ditch by digging two parallel spaced-apart vertical slots within the earth and removing the earth therefrom by passing a knife edge blade perpendicularly to and at the lower extremity of the slots to thereby continuously remove an elongated rectangular disengaged portion of the earth. The bales are placed below the surface of the ground and covered with the removed earth so as to provide the ground with improved moisture retention characteristics.

3,597,928
EROSION CONTROL
Jan Carel Pilaar, Boslaan 3, Warnsveld, Netherlands
Continuation-in-part of application Ser. No. 564,167, July 11, 1966, now Patent No. 3,421,417. This application Sept. 12, 1968, Ser. No. 759,263
Claims priority, application Netherlands, Dec. 22, 1967, Jan. 3, 1968, Jan. 23, 1969, Mar. 20, 1968, 6717542, 6800032, 6800961, 6803917

U.S. Cl. 61—38

26 Claims

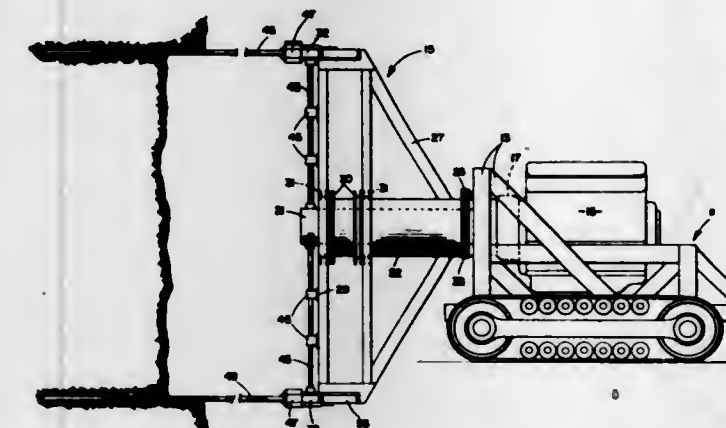


The invention relates to an erosion-controlling protective surfacing for the soil comprising flexible liquid-permeable supporting sheet means conforming to the contour of the soil and a mat of blocks on said supporting sheet means, said mat having drainage passageways therethrough so that water can pass through the surfacing. Preferably, the surfacing includes filter means and the blocks are secured to the supporting sheet means.

3,597,929
METHOD AND DEVICE FOR TUNNELING
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif.
Filed Aug. 2, 1968, Ser. No. 749,686
Int. Cl. E01g 5/06

U.S. Cl. 61—42

2 Claims



A method and device for tunneling comprising driving a plurality of interlocking staves into the earth about a chosen circumference, by resonantly sonically vibrating the staves as they are being driven. After a circumference of the staves are formed the core of earth therebetween is removed to form the tunnel.

3,597,930
METHOD AND APPARATUS FOR REINFORCING IN SITU IN PILE CASING
William R. Rochelle, Houston, Tex., and Ronald Lee Wycoff, Rolla, Mo., assignors to Brown & Root, Inc., Houston, Tex.
Filed Apr. 4, 1969, Ser. No. 813,479
Int. Cl. E02b 17/00; E02d 5/64

U.S. Cl. 61—46

9 Claims



A method of reinforcing, in situ, a piling comprising the steps of: gaining access into the pile casing, cleaning mud and debris from the interior of the casing and simultaneously removing the debris, inserting stiffening or reinforcing material into the casing and sealing the pile casing access opening. The step of simultaneously cleaning and removing is essentially performed by a pile cleanout device comprising a fluid jetting portion operable to dislodge and fragment sediment and other debris within the jacket pile casing, and a gas lift portion integral therewith to remove the fragmented matter from the interior of the pile casing.

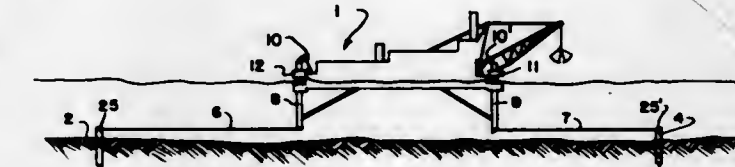
3,597,931
ANCHORAGE SYSTEM AND METHOD OF USE
Carl G. Hard, 14 Spring Lane, Framingham, Mass.
Filed Oct. 9, 1969, Ser. No. 865,103
Int. Cl. B63b 21/00

U.S. Cl. 61—46.5

7 Claims

The invention relates to marine anchorage systems and their use. The anchorage system is a mooring spud having a

detachable shoe that is fastened to a mooring cable leading from the spud shoe to a winch, having an adjustable drag, on board the vessel. By means of drawing in and paying out the mooring cable the vessel may be moved in an accurately

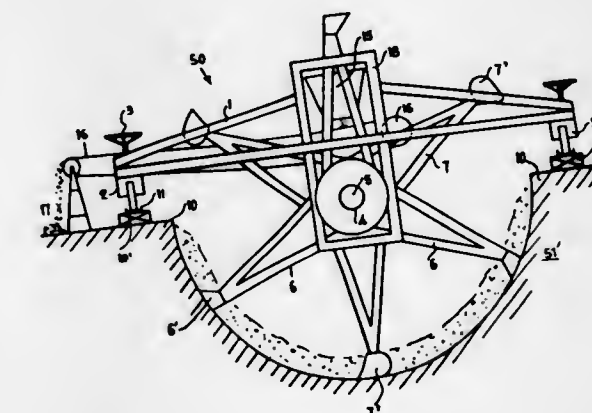


traced path so as to cover a marine floor in a manner consistent with precision dredging operations. A modification includes a shoe provided with a vibrator to effect deeper penetration of the shoe into the marine floor.

3,597,932
MEANS AND METHOD FOR CONSTRUCTION OF HYDRAULIC CHANNELS
Manuel B. y Sebastian, Virgen Maria 7, Madrid, Spain
Division of Ser. No. 661,627, Aug. 8, 1967, Pat. No. 3,491,466, which is a continuation-in-part of application Ser. No. 584,649, Oct. 6, 1966, now abandoned. Filed July 28, 1969, Ser. No. 845,344
Int. Cl. E02b 5/02

U.S. Cl. 61—63

4 Claims



A means and method for constructing hydraulic channels of semicircular or circular cross section is provided where two parallel lines define side edges of the channel. Guide means are mounted on the parallel lines forming a track for a set of wheels and a mobile carriage having wheels is positioned on the guide means. The carriage carries a shaft tube positioned parallel to the two parallel lines and lying in a position corresponding to the axis of the channel to be formed. The shaft tube mounts means for digging of the channel by motion in planes perpendicular to the axis whereby earth or other dug materials can be dropped to the side of the parallel lines.

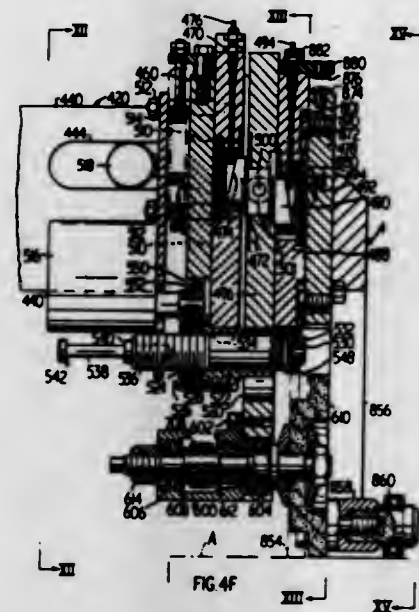
3,597,933
REMOTE GRINDING HEAD
Cyril J. Astill, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Sept. 17, 1968, Ser. No. 760,213
Int. Cl. B24b 49/00

U.S. Cl. 51—165.87

5 Claims

There is provided an apparatus for the automatic compensation for deterioration or reduction in diameter of a cutting tool, such as a grinding wheel, whereby machining may be

resumed, without further adjustment after such compensation. The invention is particularly suitable for remote operation.



tion under hazardous conditions such as might be experienced in highly radioactive environments.

3,597,934

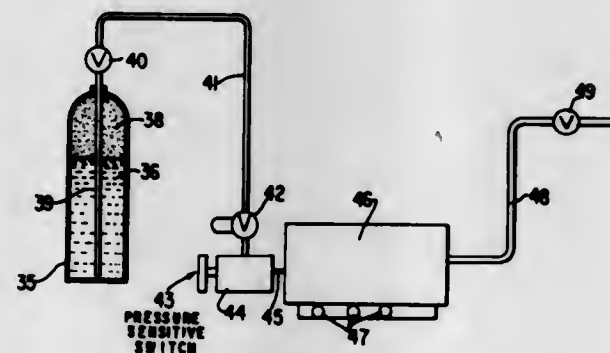
METHOD AND APPARATUS FOR SUPPLYING MEASURED QUANTITIES OF A VOLATILE FLUID
Harold Willids Andersen, Oyster Bay; Harold W. Andersen, Laurel Hollow, and Charles H. Harrison, Oyster Bay, all of N.Y., assignors to H. W. Andersen Products, Inc., Oyster Bay, N.Y.

Continuation-in-part of application Ser. No. 561,777, June 30, 1966, now Patent No. 3,516,223, dated June 23, 1970. This application Sept. 15, 1969, Ser. No. 857,803

Int. Cl. F17c 7/02

U.S. Cl. 62-52

7 Claims



The method and apparatus for controlling the delivery from a source of supply to a point of utilization of accurately measured quantities of volatile fluids, supplied as liquids and delivered as gases wherein a liquid under pressure is fed to a chamber where it remains a liquid under lower pressure and thence to an expansion chamber where the liquid is completely evaporated and maintained as a gas under relatively uniform constant pressure, and from which chamber the gas is delivered in measured quantities as required; heat being supplied to said expansion chamber to ensure evaporation of the liquid and to replace the heat lost through delivery of the gas.

3,597,935

AUTOMOTIVE AIR CONDITIONING
Michel A. Pierrat, Andover, Mass., assignor to Automatic Radio Mfg. Co., Inc., Melrose, Mass.

Filed Apr. 20, 1970, Ser. No. 29,871

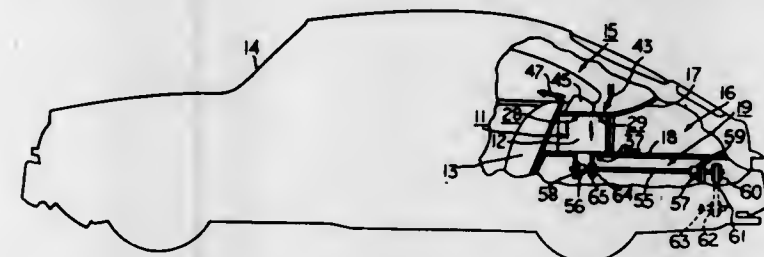
Int. Cl. B60h 3/04

U.S. Cl. 62-243

12 Claims

A self-contained factory-assembled and sealed air-conditioning unit is arranged for inconspicuous floor-mounted in-

stallation at the rear of the passenger compartment of a compact car, forwardly of the firewall ahead of a rear engine. The usual separate conditioned-air circulation path is provided at the top of the relatively small unit, in sealed relation to lower coolant-air paths running between laterally spaced bottom openings which communicate with corresponding floorboard openings for intake and discharge of ambient coolant air. Major power requirements, for the compressor and



for a fan associated with the coolant-air path, are efficiently satisfied by a single universal-jointed mechanical coupling with an auxiliary power shaft extending forwardly from a pulley-driven relationship with the rear engine. Auxiliary ducting, body openings, separate sources of power for the compressor and fan, separate installations of system components, and disturbance of sealed refrigerant lines, are all advantageously avoided.

3,597,936

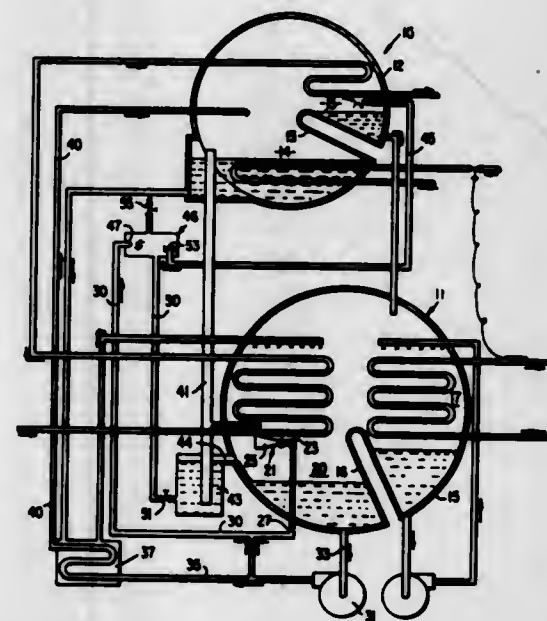
PURGE SYSTEM FOR LITHIUM BROMIDE ABSORPTION WATER CHILLER
Eddie L. Dyre, and John A. Grescen, both of Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 13, 1969, Ser. No. 865,812

Int. Cl. F25b 15/06

U.S. Cl. 62-474

4 Claims



Solution is pumped from the low-pressure side of the system for operating a jet eductor which functions to entrain noncondensable gases in the low-pressure side in the solution passing through the eductor. The solution and entrained gases are discharged from the eductor into a passage means operable to separate the gases from the solution and discharge the gases into the high-pressure side. Purge means is connected to the high-pressure side for venting the gases to the atmosphere.

3,597,937

SELF-COOLING DEVICE FOR BEVERAGE CONTAINER
Eugene H. Parks, 6841 Almaden Road, San Jose, Calif.

Filed June 6, 1969, Ser. No. 831,156

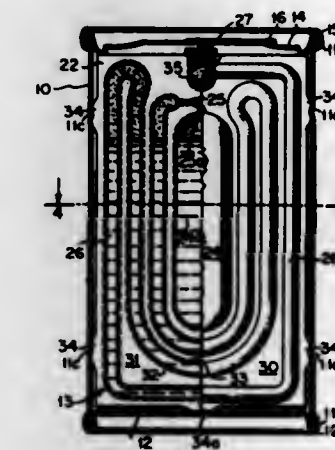
Int. Cl. F25d 3/10

U.S. Cl. 62-294

10 Claims

A device for cooling the contents of a container compris-

ing a compressed gas chamber and a heat exchanger in heat-conducting relationship with the contents whereby in per-



mitting the gas to expand into the heat exchanger, heat is absorbed for cooling the contents.

3,597,938

FLEXURE JOINT

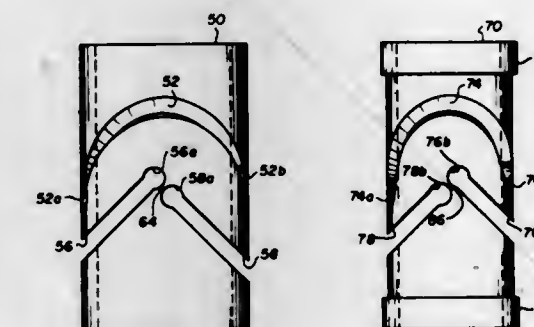
James S. Hellen, Wayne, N.J., and John C. Stiles, Thousand Oaks, Calif., assignors to Singer-General Precision, Inc., Little Falls, N.J.

Filed May 21, 1969, Ser. No. 826,556

Int. Cl. F16d 3/52

U.S. Cl. 64-15

3 Claims



A flexure joint and a method of manufacturing same, in which one or more pairs of slots are formed through the wall of a unitary tubular member, the ends of one slot of each pair terminating a predetermined circumferential distance from the corresponding ends of the other slot of the same pair to form at least two flexure portions.

3,597,939

CONTROL ASSEMBLY FOR A NUCLEAR REACTOR INCLUDING AN OFFSET COUPLING

Charles C. Ripley, and Frederick L. Suckow, both of San Jose, Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission

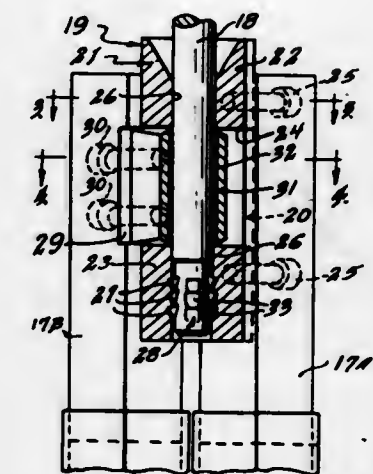
Filed June 25, 1969, Ser. No. 836,360

Int. Cl. F16c 3/00

U.S. Cl. 64-1 R

6 Claims

A control assembly for a nuclear reactor including two control rods operated by a single drive shaft. The control rods and drive shaft are linked by coupling members extending radially from the control rods, one of the coupling members including two spaced arms and the other coupling member including a single arm adapted to fit between the two spaced arms, the drive shaft extending through holes in the coupling members to serve as the hinge pin of the hinge formed by the coupling members, the lower end of the drive shaft and the lowermost arm of the coupling member mating



3,597,940

YARN TENSION CONTROL MEANS FOR WARP-KNITTING MACHINE

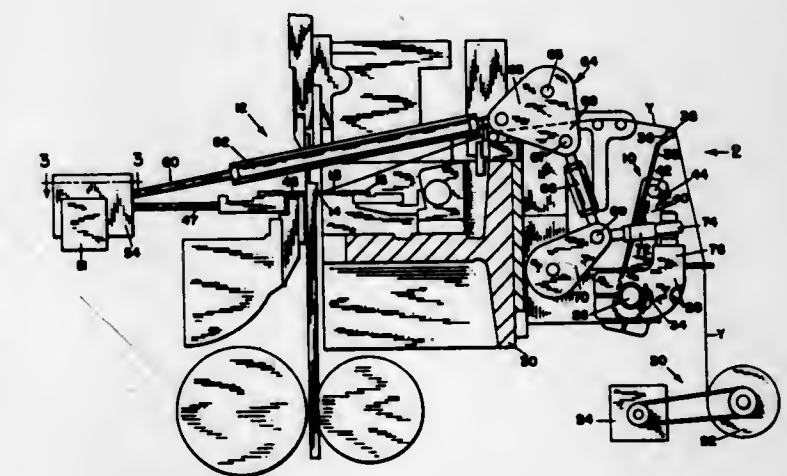
Robert H. Dupuis, Leicester, Mass., assignor to Crompton and Knowles Corporation

Filed June 23, 1969, Ser. No. 835,628

Int. Cl. D04b 27/14

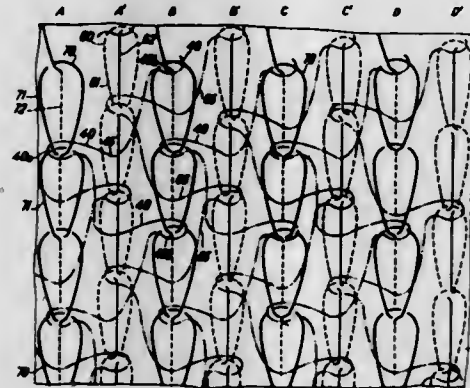
U.S. Cl. 66-86 R

7 Claims



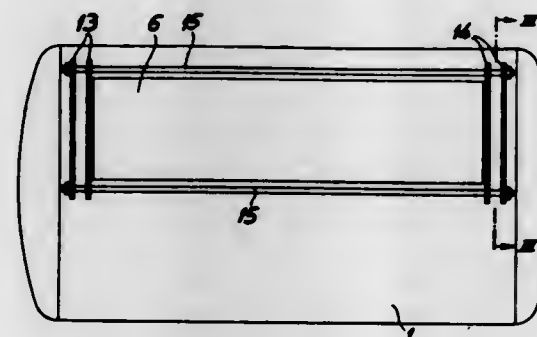
A compensator for the knitting of yarn in warp knitting machines in which one or more springs are anchored at one of their ends to a movable support and in turn support a tension roll at their other ends. The tension roll is yieldable against the bias of the springs in response to increase in tension of yarn trained around the roll. Actuating means are operated in timed relation with the knitting needles to move the support in a manner which moves the tension roll in a direction for releasing yarn to the knitting needles during peak yarn consumption and in a direction for taking up slack yarn during periods of little or no consumption, the relative positions of the springs and tension roll remaining the same with respect to the support so that the stress on the springs remains the same for a given yarn tension.

3,597,941
BASE FABRIC WITH BILATERAL PILES
 Frantisek Jindra, Domazlice; Richard Boruta, As, and Bohumil Barton, Kdyne, all of, Czechoslovakia, assignors to Elitex-Lavody Textilnko Strojrenstol, Liberec, Czechoslovakia
 Continuation-in-part of application Ser. No. 858,935, Sept. 18, 1969. This application Sept. 22, 1969, Ser. No. 861,547
 Claims priority, application Czechoslovakia, Sept. 20, 1968, 6595/68
 Int. Cl. D04b 23/08
 U.S. Cl. 66—194 10 Claims



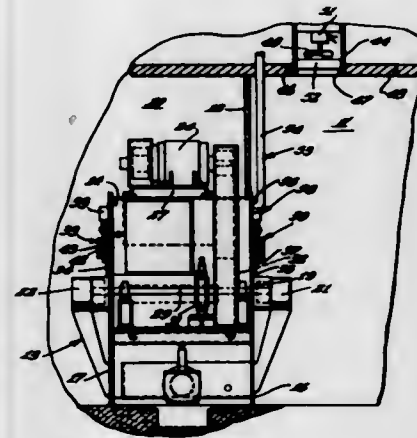
Bilateral pile fabrics in which a base fabric, such as a fibrous fleece sheet, has on both sides staggered courses and aligned wales, and including pile threads on both sides extending in successive courses between adjacent wales.

3,597,942
DEVICE FOR DYEING OR WASHING CARPETS
 Erich Grimme, and Leonhard Klierriem, both of Erbach, Odenwald, Germany, assignors to Bruckner-Apparatebau Michelstadt GmbH, Erbach, Odenwald, Germany
 Filed July 10, 1969, Ser. No. 840,781
 Claims priority, application Germany, July 18, 1968, July 18, 1968, P 17 60 909.5; P 17 75 236.2
 Int. Cl. D06f 17/00
 U.S. Cl. 68—196 5 Claims



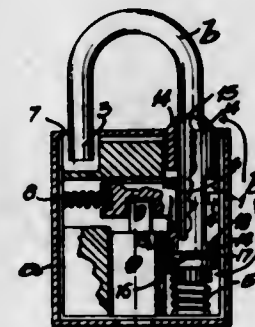
An elongated cylindrical pressure vessel has a longitudinally extending door in the cylindrical wall of the vessel, through which a carpet can be introduced or removed. A bolt for securing the door is divided into at least three axially aligned portions each of which is wholly receivable in a socket in which it is also axially movable, at least one of such sockets being secured to the door, and at least one of such sockets being secured to the vessel. The bolt portions are movable in unison between a position in which each bolt portion is wholly received in its socket and a position in which at least two bolt portions are engaged both in a socket secured to the door and in a socket secured to the vessel.

3,597,943
STERILIZED LAUNDRY SYSTEM
 Wallace F. Gayring, Minoa, N.Y., assignor to G. A. Braun, Inc., Syracuse, N.Y.
 Filed June 17, 1969, Ser. No. 834,083
 Int. Cl. D06f 39/14
 U.S. Cl. 68—210 11 Claims



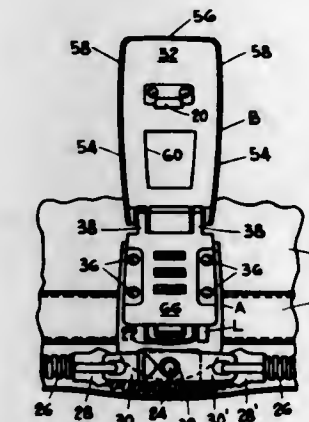
A sterilized laundry system utilizes a washing machine sealingly mounted in a common wall of a soiled area and a sterilized area and includes first and second door means respectively providing access from the soiled and the sterilized areas into an interior of a washing drum horizontally disposed within the washing machine, releasable locking means normally maintaining the pair of doors in a locked position and control means selectively releasing the locking means only to permit opening the doors in a manner to prevent cross infection between the separate rooms. The sterilized area is maintained at a constant positive pressure relative to the soiled laundry area and other areas ambient the sterilized room, thereby preventing flow of contaminated air into the sterilized area.

3,597,944
PADLOCKS
 Noel Litvin, Washington 1945, Buenos Aires, Argentina
 Continuation-in-part of application Ser. No. 759,865, Sept. 16, 1968, now abandoned. This application Jan. 27, 1970, Ser. No. 6,059
 Int. Cl. E05b 67/22, 67/06
 U.S. Cl. 70—38 C 7 Claims



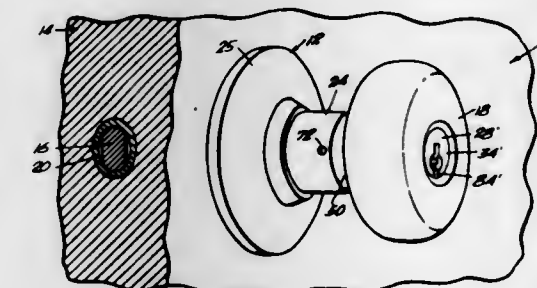
A padlock includes a housing having a U-shaped locking bolt with a pair of legs extending into the housing. One of the legs is of increased diameter and a recess is defined in the increased diameter portion of the leg which is arranged to receive a movable latching member. The recess and the latching member interlock to prevent inadvertent unlocking of the padlock, except by operation of the operating mechanism of the lock.

3,597,945
LATCHING DEVICE AND COMBINATION LOCKING MEANS
 Irving Feinberg, Saddle Brook, N.J., assignor to Presto Lock Co., Inc., Garfield, N.J.
 Filed July 11, 1969, Ser. No. 840,993
 Int. Cl. A45c 13/10; E05b 37/02, 65/52
 U.S. Cl. 70—74 19 Claims



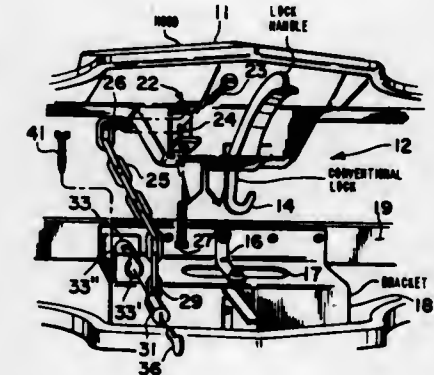
A latching device of the type which includes a latch pivotally connected to a body member employs a resiliently mounted, manually operable plug connected to the body member for longitudinal sliding movement with respect thereto. Cooperable means are provided by the latch and the plug to releasably connect the latch to the plug. The latch overlies the body member in the latched condition of the device and, in such condition, the exposed side of the device provides a flat, continuous surface. Combination locking means of the type to permit the selection of a combination of one's own secret choice is associated with the plug to releasably lock the plug in its latched position. The means for selecting or changing the combination is covered by the latch in the latched condition of the device. In the unlatched position of the latch, the means for changing the combination is exposed at the front of the device and on the same side that one views the dials of the combination locking means.

3,597,946
BURGLAR FOILING LOCK
 Irene Mikkelsen, 16001 N.E. 9th Ave., North Miami Beach, Fla.
 Filed Jan. 8, 1970, Ser. No. 1,364
 Int. Cl. E05b 35/10
 U.S. Cl. 70—224 6 Claims



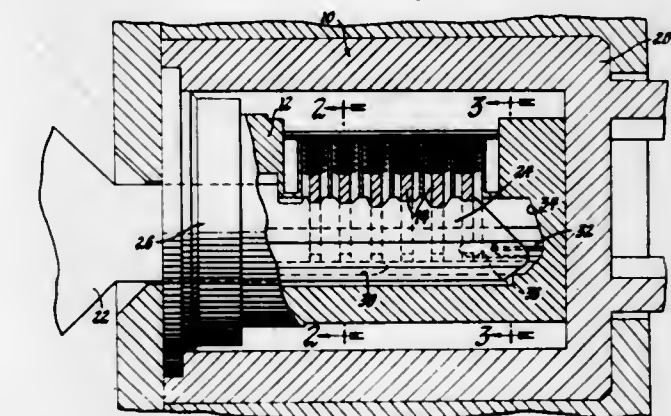
Lock improvement means particularly for use in the operating mechanism of a building door lock of the type having an outside doorknob enclosing a cylinder lock assembly and wherein the lock assembly may be removed by removing the doorknob which typically is removed through use of a room key or master key and when the door lock is in an unlocked disposition. The invention provides cylinder keylock means releasably operative in clockwise movement by use of either a room key or master key and also is operative in counterclockwise movement through use of a grand master key; the lock assembly of the invention is operative normally by use of the room key or master key when turned respectively in a clockwise direction, and is counterclockwise turnable only through use of a grand master key for removing the doorknob and keylock cylinder structure.

3,597,947
AUTOMOBILE HOOD-LOCKING DEVICE
 Joseph Solow, Box 116, Plainview, N.Y.
 Filed June 30, 1969, Ser. No. 837,659
 Int. Cl. E05b 65/19; E05c 17/36
 U.S. Cl. 70—240 3 Claims



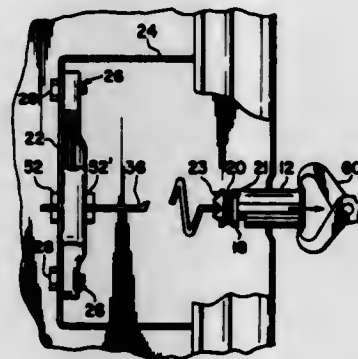
An automobile hood-or trunk-locking device formed of disengaging parts and so fashioned that the parts can be readily secured between the underside of a hood and frame parts of the automobile thereunder for any different type of vehicle which includes a chain with a lock barrel attached to the hood and frame parts by the simple drilling of undersize holes therein, and securing the attaching parts thereto by means of thread-cutting screws. One of the attaching parts being of cylindrical shape adapted to slidably receive a lock barrel and a chain link and secured to the cylinder by a key-operating latch, making necessary the use of the owner's key to disengage the lock barrel and the chain from the attached parts to allow the hood to be raised its full extent.

3,597,948
LOCK CYLINDER ASSEMBLY
 Theodore H. Johnstone, New Baltimore, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Jan. 14, 1969, Ser. No. 791,112
 Int. Cl. E05b 15/08, 19/06
 U.S. Cl. 70—364 R 1 Claim



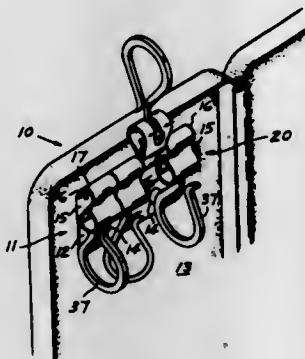
A core of a conventional tumbler-type lock cylinder assembly includes an additional rib which receives only an additional groove in the free end of the bitted portion of the key to increase the number of usable lock combinations.

3,597,949
ANTITHEFT LOCK DEVICE
 Gus T. Nigrelli, 8871 19th Ave., Brooklyn, N.Y.
 Filed Apr. 28, 1970, Ser. No. 32,555
 Int. Cl. E05b 15/16, 63/00
 U.S. Cl. 70—422



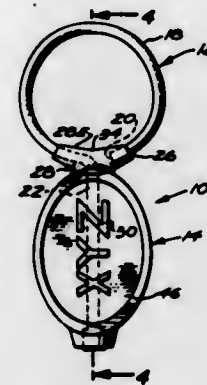
A vehicle trunk-locking system having a latching mechanism and including a frangible tail extension member coupled to a lock cylinder, the tail extension being adapted to engage the latching mechanism to operate a locking latch. Unauthorized removal of a lock cylinder from the vehicle will fracture the tail extension member leaving a portion thereof within the latching mechanism to thereby prevent insertion of an instrument into the latching mechanism for operating the locking latch.

3,597,950
KEY-HOLDING ATTACHMENT FOR KEY CASES
 Charles W. Elsenheimer, Meriden, Conn., assignor to Prentice Corporation, Kensington, Conn.
 Filed Jan. 15, 1969, Ser. No. 791,355
 Int. Cl. A44b 15/00
 U.S. Cl. 70—456 B



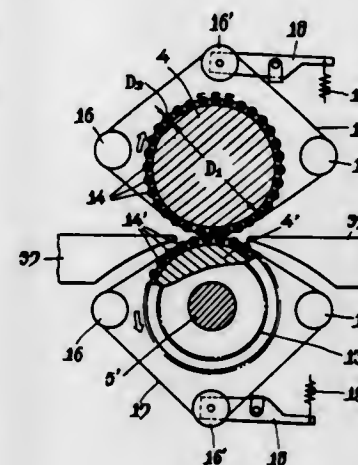
The keyholders to which the key hooks are attached each consist of a single piece of metal bent to form a pivotal body provided with a slot starting at the free end of the body and extending up the back thereof so that no portion thereof is observable at the front of the holder. The metal piece is also bent to form an inner spring finger, the free end of which coacts with the upper rear portion of the slot to control the insertion and removal of the key hook.

3,597,951
KEYHOLDER
 Jack Nadel, Los Angeles, Calif., assignor to Republic Corporation, Beverly Hills, Calif.
 Filed Sept. 18, 1969, Ser. No. 859,083
 Int. Cl. A44b 15/00
 U.S. Cl. 70—459



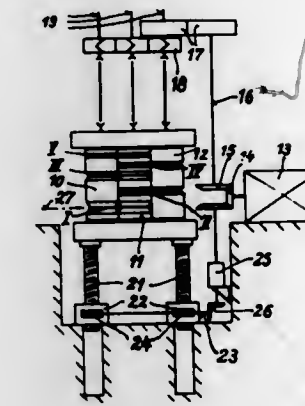
A keyholder comprising a ring with a gap, a frame for receiving the ring to bridge the gap, and a spring for holding the ring against the frame. The ring is formed by a length of stiff wire, one end being bent into the ring shape and the other end being straight. The frame has a hole for receiving the straight wire portion, and a groove for receiving the ring to resist rotation of the ring so it has to be pulled out and rotated 90° to allow access to the gap.

3,597,952
PLANETARY ROLLER LEVELER FOR SHEET METALS
 Chotchiro Soda, Tokyo, Japan, assignor to Agency of Industrial Science & Technology, Tokyo, Japan
 Filed July 22, 1969, Ser. No. 843,305
 Claims priority, application Japan, July 24, 1968, 43/52290
 Int. Cl. B21d 1/02
 U.S. Cl. 72—163



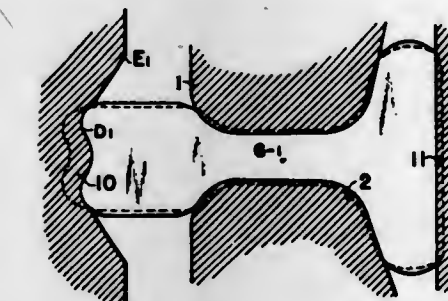
Two backup rolls having work rollers arranged on the peripheral surface thereof and adapted to roll thereon are arranged adjacently one above the other. The ends of said work rollers on each said backup roll are supported by a pair of holding disks, and a certain relative speed of rotation is given to said pair of holding disks and the backup roll so that the work rollers simultaneously rotate about their own axis and about the axis of the backup roll. The machine operates as a leveler which levels metal sheet passing between the rotating work rollers.

3,597,953
ROLLING-MILL STAND FOR REVERSING ROLLING
 Karl Josef Neumann, Ingbert-Saar, Germany, assignor to Moeller & Neumann G.m.b.H., Ingbert-Saar, Germany
 Filed Aug. 7, 1968, Ser. No. 750,955
 Int. Cl. B21b 39/14
 U.S. Cl. 72—223



A rolling mill stand having at least three rolls for reversing rolling of rods or bars whose rolls are disposed vertically. From pass to pass either the rolling mill stand or the oppositely disposed tilting or lifting tables are vertically adjusted.

3,597,954
METHOD AND APPARATUS FOR ROLLING STEEL MATERIAL AND RAILS OR SIMILARLY SHAPED PRODUCTS
 Koe Nakajima; Hisashi Naot; Kanichi Kishikawa; Hidehiko Abe, and Kazunari Tanaka, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
 Filed Jan. 13, 1969, Ser. No. 790,766
 Claims priority, application Japan, Jan. 16, 1968, 43/2,213
 Int. Cl. B21b 13/10
 U.S. Cl. 72—225



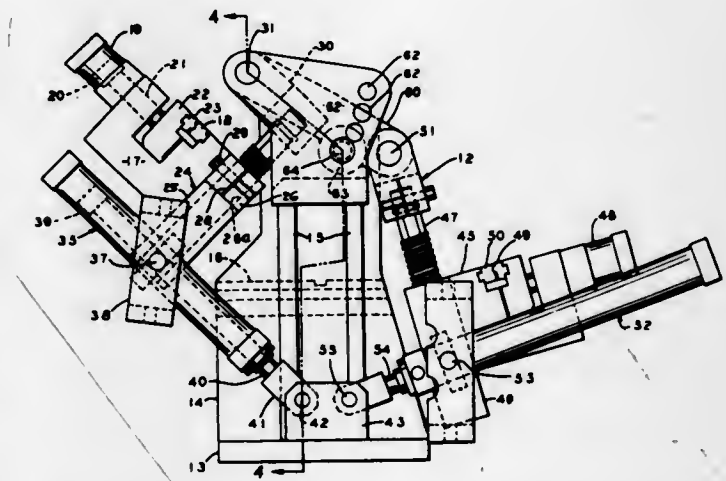
A method and apparatus for rolling steel material into steel products having flanges such as rails and H-shaped products by use of a universal rolling mill wherein the cross section along the direction of axis of the vertical roll of the universal rolling mill has a convex shape. Therefore, the rolling by such vertical roll gives a reduction of nearly V-shaped concentration to the part of the steel material contacting said vertical roll and to be made into a flange.

3,597,955
APPARATUS FOR STRETCH DRAWING SHEET STOCK UNDER CONTROLLED TENSION
 Robert A. MacKenzie, Chagrin Falls, Ohio, assignor to The Cyril Bath Company, Cleveland, Ohio
 Filed Jan. 13, 1969, Ser. No. 790,519
 Int. Cl. B21d 11/04
 U.S. Cl. 72—305

An apparatus for stretch drawing sheet metal between complementary male and female dies arranged between two

stretch heads which grip opposite margins of the sheet and tension it unidimensionally into its yield range independently of die closure.

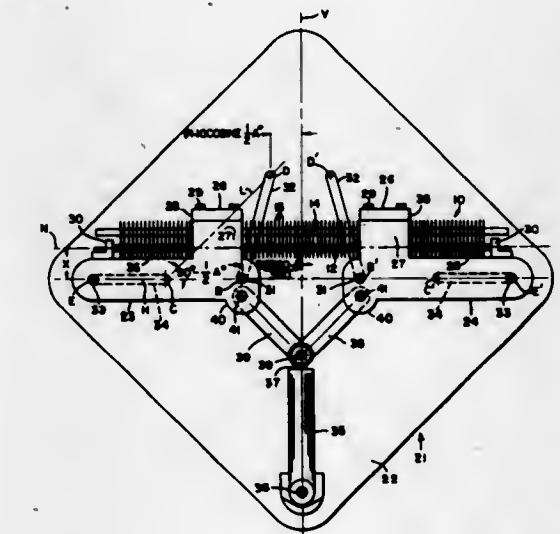
While maintaining the sheet so tensioned with its lateral margins unconfined, the heads wrap the sheet about the male die prior to closure of the dies. Beginning at the end of the wrapping operation and continuing during final closure of the dies, the gripping pressure exerted by the heads on the gripped margins of the sheet is reduced sufficiently to eliminate the independent tensioning by the heads while holding the sheet steady. The reduction is such as to permit



the margins to slip between the gripping jaws of the head under the tensioning force imposed by closure of the dies at some portions along the width of the sheet whereat die configuration requires that additional stock exteriorly of the dies at the ends thereof be drawn or fed in between the dies, while other portions where additional stock is not required are held firmly in place but free from the independent tensioning by the heads.

The final drawing by the dies occurs before the sheet can work harden as a result of having been independently tensioned into the yield range.

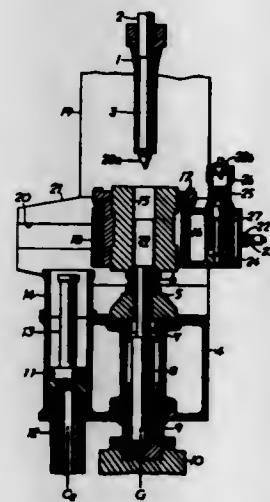
3,597,956
APPARATUS FOR CONSTRUCTING A FIN-AND-TUBE HEAT EXCHANGER HAVING A BEND FORMED THEREIN
 Dale R. Clausen, LaCrescent, Minn., assignor to The Trane Company, LaCrosse, Wis.
 Division of Ser. No. 641,940, May 29, 1967, Pat. No. 3,468,009.
 Filed Mar. 7, 1969, Ser. No. 825,473
 Int. Cl. B21d 11/04
 U.S. Cl. 72—305



A method and apparatus for constructing a fin-and-tube heat exchanger having a bend formed therein by bending the

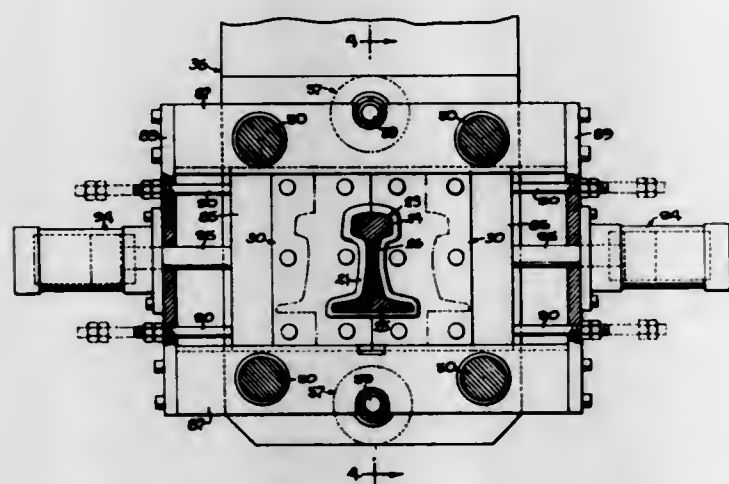
heat exchanger with apparatus which does not support or contact the heat exchanger fins at the situs of the bend, and a method for constructing a multirow fin-and-tube heat exchanger having a bend formed therein to facilitate the bending operation by initially expanding the tubes of only one row to fix the spacial relation of the fins during the bending step and allowing the tubes of the other rows to move freely relative to the fins during the bending operation, to thereby eliminate adverse distortion of the fins especially in the bend area.

3,597,957
METAL BILLET PIERCING PRESS
Akira Asari, Osaka, Japan, assignor to Kobe Steel Ltd.
Filed Apr. 29, 1969, Ser. No. 820,046
Claims priority, application Japan, May 11, 1968, 43/31487
Int. Cl. B21d 31/02; B21c 23/00; B21d 37/16
U.S. Cl. 72-325 7 Claims



A metal-piercing press. The press is of the type having a piercing operation centerline, an auxiliary operation centerline parallel thereto, and piercing means and auxiliary means disposed on the respective centerlines. A single container is adapted to be moved between said centerlines. The container is provided with piercing preparatory means having piercing-tool-attaching means adapted to be brought into alignment with the piercing operation centerline when the container holder is in alignment with the auxiliary operation centerline.

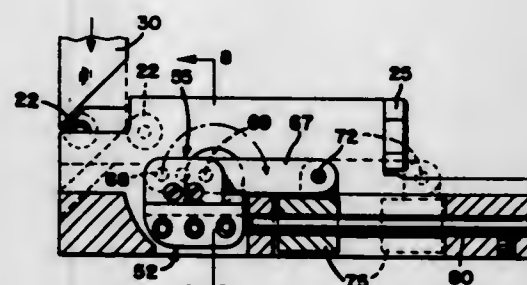
3,597,958
MACHINE FOR REMOVING THE BEAD FROM THE JOINT OF A WELDED RAILWAY RAIL
Maurice J. Gross, Rockford, Ill., assignor to Rock-Mill, Inc., Rockford, Ill.
Filed Feb. 4, 1969, Ser. No. 796,527
Int. Cl. B21d 31/00, 7/06, 13/00
U.S. Cl. 72-331 17 Claims



Combined die and shearing members are shifted toward one another and into pressing engagement with opposite end

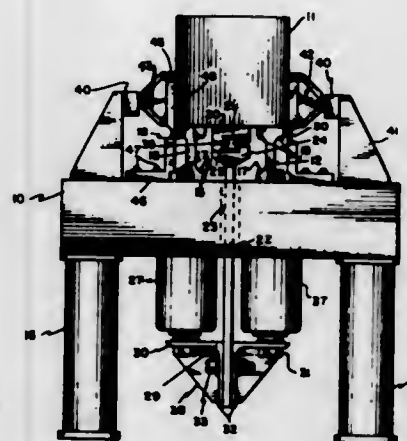
faces of the bead to deform and reduce the cross section of the latter adjacent the joint while applying a compressive force to the rail to improve the quality of the weld at the joint. Thereafter, the members are shifted in unison in one direction along the rail to shear through the bead area of reduced cross section to cut the bead away from the rail. Finally, the members are retracted laterally away from the rail to tear the detached bead into two pieces and to pull the pieces away from the rail.

3,597,959
STOCK FEEDER
Arthur F. Leis, c/o A. F. Leis Co., Inc., 4316 Webster St., Dayton, Ohio
Filed Apr. 8, 1969, Ser. No. 814,281
Int. Cl. B21d 43/10; B65h 17/26
U.S. Cl. 72-419 14 Claims



A strip of metal is intermittently advanced into a metal forming or punching machine by a reciprocating gripper which moves in simple harmonic motion between predetermined limits in response to uniform movement of an actuating member operated by a reciprocating press member. The limits of movement of the gripper can be precisely adjusted without changing the sinusoidal movement of the gripper.

3,597,960
HIGH INTENSITY MECHANICAL SHOCK TESTING MACHINE
John M. Otera, Palos Verdes Peninsula; James R. Dowling, Monterey Park, and Rudolph V. Mendoza, Monterey Park, all of, Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Feb. 14, 1969, Ser. No. 799,280
Int. Cl. G01m 3/08, 29/00
U.S. Cl. 73-12 9 Claims

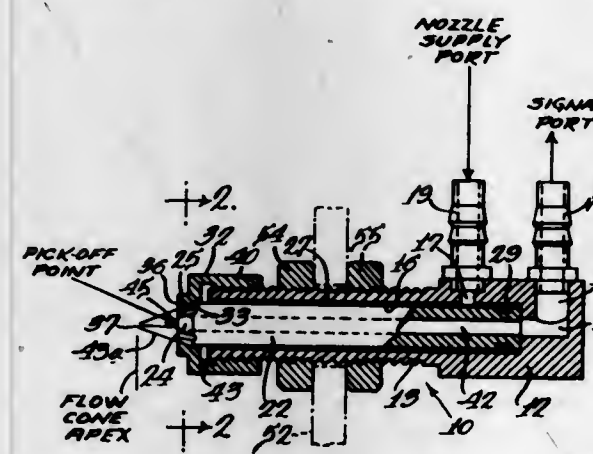


A mechanical shock testing machine for shock testing an object with high intensity forces over a wide frequency spec-

trum. The machine includes a test platform connected to a rigid support by a pair of columns having a predetermined mechanical resonance. These columns provide a restraining force. The shock is applied by exerting a large force on an extruded piece of metal having a predetermined yield point and having a reduced central portion defining a rupture area. By applying sufficient force to the extruded metal piece until it breaks, a predetermined force of short duration is applied to the test platform. The platform now vibrates in accordance with the mechanical resonance of the system. The system may be damped by applying a damping force to the platform.

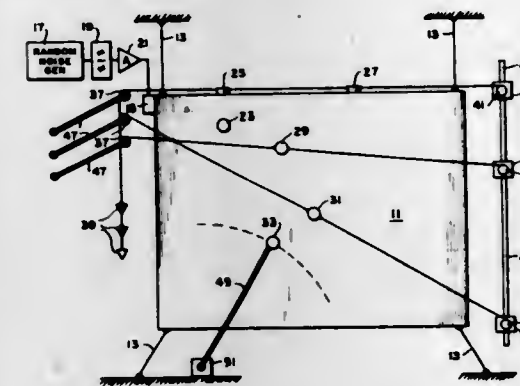
The invention herein described was made in the course of or under a contract or subcontract thereunder with the Department of the Air Force.

3,597,961
FLUID OPERATED SENSING DEVICE
Carlos D. Pinkstaff, Hammond, Ind., assignor to I-T-E Imperial Corporation
Filed July 26, 1968, Ser. No. 748,047
Int. Cl. G01b 13/12
U.S. Cl. 73-37.5 16 Claims



A sensor for sensing the presence of an object or an opposed fluid jet which operates on air or other gases including a nozzle for directing supply fluid in a generally conical flow pattern and a pickoff or sensing passage opening within the conical flow adapted to sense pressure increases therein when the flow pattern is resisted or interrupted.

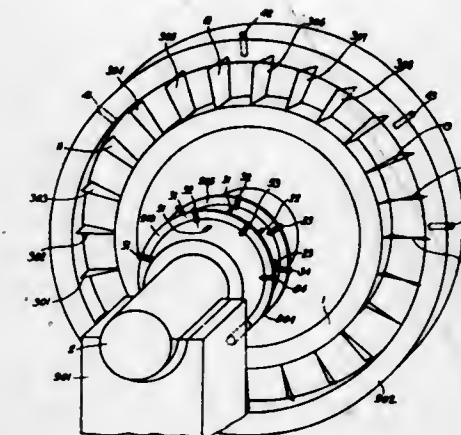
3,597,962
TRAVELING-TRANSDUCER METHOD OF MEASURING CROSS CORRELATION
Leslie C. Holtz, W. Hyattsville, Md.
Filed Nov. 26, 1968, Ser. No. 779,002
Int. Cl. G01h 1/00
U.S. Cl. 73-71.4 9 Claims



An arrangement for investigating the behavior of vibration in structures in a continuous manner rather than at discrete points. A plurality of reference and traveling transducers are positioned magnetically on a body which is subjected to vibration. As each traveling transducer is moved continuously, its output is correlated with that of the reference transducer and the resulting correlation function plotted, displayed, or recorded. The readouts of several transducers may be correlated with one or more appropriate reference transducers and recorded on a precision multichannel recorder.

3,597,963
APPARATUS FOR SWITCHING PULSES IN MEASURING THE VIBRATION OF ROTATING PARTS DURING OPERATION OF A MACHINE
Jaromir Smejkal, Pizen; Miroslav Jindra, Malesice, and Zdenek Brezina, Stary Pizenec, all of, Czechoslovakia, assignors to Skoda, oborovy podnik, Pizen, Czechoslovakia
Filed July 25, 1969, Ser. No. 844,900
Int. Cl. G01h 11/00 8 Claims

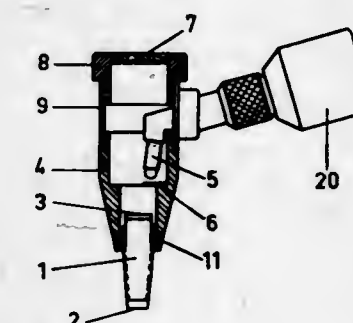
U.S. Cl. 73-71.4



A plurality of measuring pickups, reference pickups and auxiliary pickups are mounted on stationary parts of a machine. Parts to be measured are mounted on a rotating part of the machine. Reference elements and auxiliary elements are mounted on the rotating part. Each part to be measured induces a pulse in each measuring pickup as they pass each other. Each reference element induces a pulse in each reference pickup as they pass each other. Each auxiliary element induces a pulse in each auxiliary pickup as they pass each other. When an output pulse from a measuring pickup coincides with a pulse from a corresponding reference pickup an output pulse is produced which is supplied to a corresponding input of a switching circuit. The output pulse from each auxiliary pickup is supplied to a control circuit to control the switching circuit so that output pulses of a specific amplitude corresponding to one rotating part to be measured are supplied to one and the same output of the switching circuit.

3,597,964
DEVICE FOR TESTING BY APPLANATION
Helmut Heine, Herrsching, Upper Bavaria, Germany, and Joergen Bruus Jensen, Slagelse, Denmark, assignors to Optotechnik G.m.b.H. and Proper Manufacturing Company Inc.
Filed Feb. 18, 1969, Ser. No. 800,192
Claims priority, application Germany, Mar. 8, 1968, P 1 66 896.0
Int. Cl. A61b 3/16 3 Claims

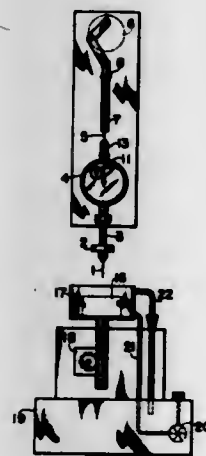
U.S. Cl. 73-80



A device for testing intraocular pressure by applanation. The device includes a testing body of precisely determined

weight which has a bottom end surface adapted to rest directly on the cornea so that as the result of the weight of this testing body a flattened area will be provided between the bottom end surface of the testing body and the cornea. This testing body is held and guided in such a way that no appreciable frictional forces are encountered when it rests upon the cornea. By way of a suitable illuminating means and indicating means it is possible to view the flattened cornea area and to make a comparison which will determine whether or not the intraocular pressure deviates from a given normal value.

3,597,965
METHOD AND APPARATUS FOR MEASURING PENETRATION AUTOMATICALLY
Toshihiko Kawamura, Tokuyamashi, Japan, assignor to Idemitsu Kosan Co., Ltd., Tokyo, Japan
Filed Oct. 2, 1969, Ser. No. 863,304
Claims priority, application Japan, Oct. 14, 1968, 43/74198
Int. Cl. G01n 3/48, 25/02; G08b 21/00
U.S. Cl. 73-81 2 Claims

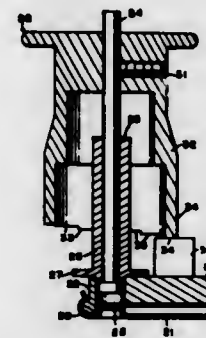


Method and apparatus for measuring penetration of pasty materials, such as petroleum asphalt. The apparatus consists of a measuring needle and standard weight associated with a penetration gauge. The needle and weight are fixedly attached to the stem of the penetration gauge then the combination is movable in the vertical direction by an elastic yarn. The entire operation is controlled by a timer so as to eliminate human errors in the measurement process. First the needle, weight and stem are raised by vertical motion of the yarn to a predetermined point. The position of the needle, weight and stem cause the penetration gauge pointer to indicate slightly greater than a zero reading. This position is sensed by photoelectric means which stops the upward motion of the yarn, needle, weight and stem. At the same time a worktable carrying the sample to be measured contact the needle a shock is transmitted through the needle to the stem causing the pointer of the penetration gauge to move to the zero reading position and at the same time expose one of the photoelectric cells. This stops the upward motion of the worktable and through the action of a timer releases the needle, weight and stem for the penetration measurement. At the end of the predetermined measurement phase the penetration can be read off the penetration gauge dial.

3,597,966
LID-FITTING GAUGE
Albert A. Heyman, Owings Mills, Md., assignor to Maryland Cup Corporation, Owings Mills, Md.
Filed July 15, 1969, Ser. No. 841,793
Int. Cl. G01b 5/30, 19/08
U.S. Cl. 73-88 13 Claims

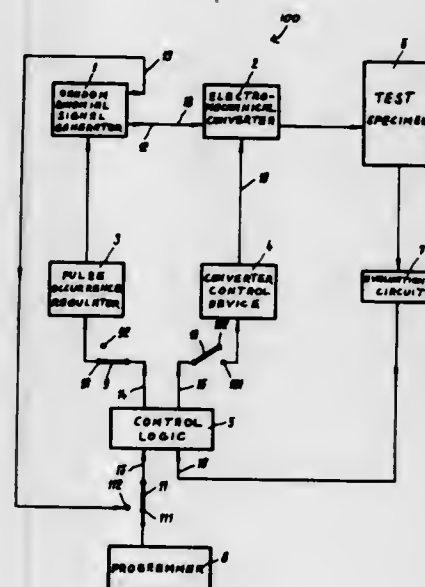
A lid-fitting gauge comprises a member supported in a horizontal position having an annular beaded edge to simulate the beaded edge of a cup. The member has a vertical opening through which a plunger is disposed. The rotatable plunger carries a weight which has a skirt and to which it is

secured, the lower edge of which slopes and is provided with graduated index marks. In one form of the invention the sloping edge comprises a series of vertically stepped downwardly facing shoulders. In another form it is simply a gradually sloping helical edge. A post is secured to the disc below the



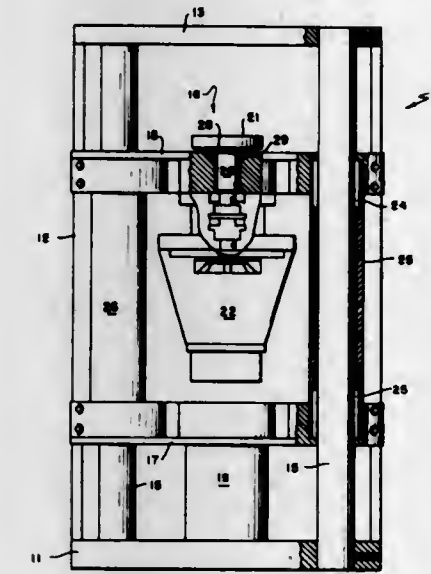
skirt edge for supporting the weight initially on its lowest downwardly facing step. Rotation of the weight is then effected until the post abuts the skirt edge at a point which is evaluated by markings on the skirt as a function of the degree of stretch of the lid.

3,597,967
APPARATUS FOR APPLYING RANDOM MECHANICAL LOADS TO A TEST SPECIMEN
Jan Drexler, and Jan Havel, both of Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia
Filed Feb. 25, 1969, Ser. No. 802,276
Claims priority, application Czechoslovakia, Feb. 26, 1968, 1473
Int. Cl. G01n 3/36
U.S. Cl. 73-91 6 Claims



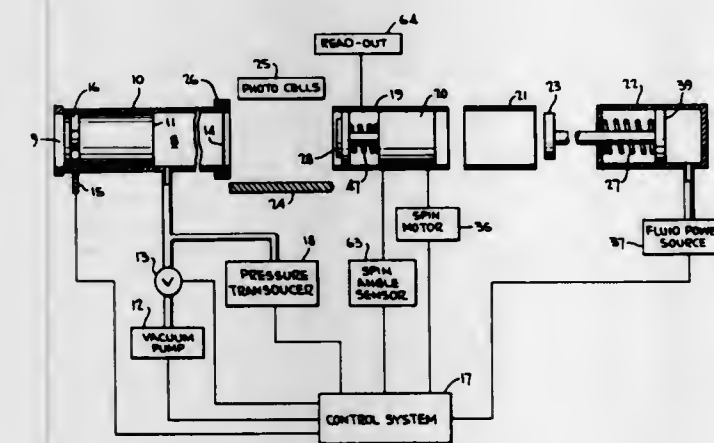
An improved flexible fatigue testing apparatus for stressing a specimen yields a probability density of stress load amplitudes that is controlled in accordance with a random binomial pulse sequence having a variable probability of pulse occurrence and/or a variable pulse repetition rate. Analog control voltages uniquely corresponding to the pulse patterns occurring during successive test intervals operates a hydraulically driven ram coupled to the specimen. The ram imparts to the specimen a load having an amplitude determined by the then-occurring control signal.

3,597,968
ROCKET ASSISTED PROJECTILE-SPIN STATIC FIRING STAND
James W. Bon, Margate, Fla.
Filed Nov. 21, 1969, Ser. No. 878,736
Int. Cl. G01f 5/12
U.S. Cl. 73-117.4 2 Claims



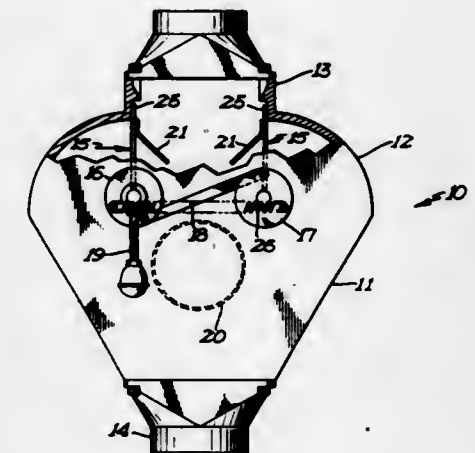
A thrust test stand for spin testing a solid propellant motor in which the spin drive motor is isolated from the thrust of the propellant motor.

3,597,969
DYNAMIC TESTER FOR PROJECTILE COMPONENTS
Herbert D. Curchack, Rockville, Md.
Filed Feb. 2, 1970, Ser. No. 7,929
Int. Cl. G01m 19/00
U.S. Cl. 73-167 6 Claims



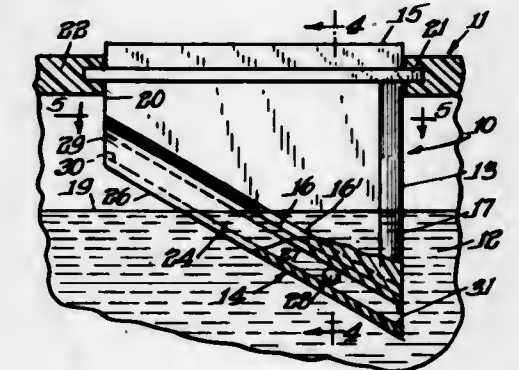
Projectile component testing. A modified projectile, containing components to be tested, is accelerated by means of a vacuum air gun into a spinning tube where it is set in spinning motion while simultaneously being decelerated. Deceleration is accomplished by means of a hydraulic mitigator capable of imparting rotational spin to the projectile while applying a predetermined rate of deceleration. The system is designed for rapid production line testing by means of a control system which starts the spin tube in motion and releases the projectile when a predetermined pressure has been established within the air gun. The control system also terminates the spin and actuates a fluid operated component to replace the mitigator to its start position within the spin tube. In order to provide a check on the polarity of power supplies being tested, a spin angle sensor is provided to transmit a signal for release of the projectile only when the spin tube is in a predetermined angular orientation.

3,597,970
GRANULAR SOLIDS FLOWMETER
William R. Carter, 5021 Wooddale Lane, Minneapolis, Minn.
Filed Apr. 13, 1970, Ser. No. 77,920
Int. Cl. G01f 1/00
U.S. Cl. 73-194 M 8 Claims



A mass flow-measuring device for finely divided solids is provided which comprises a smooth cylinder rotating at a predetermined velocity on an axis transverse to the direction of flow of the falling solids. The change in required power to maintain the predetermined velocity when material is flowing over the power required when the cylinder is rotating freely provides the measure of flow.

3,597,971
COMBINED LEVEL INDICATOR AND HYDROMETER
Walter Erlenbach, Hoffman Estates, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.
Filed Sept. 8, 1969, Ser. No. 855,817
Int. Cl. G01n 9/18; G01f 23/02
U.S. Cl. 73-291 7 Claims

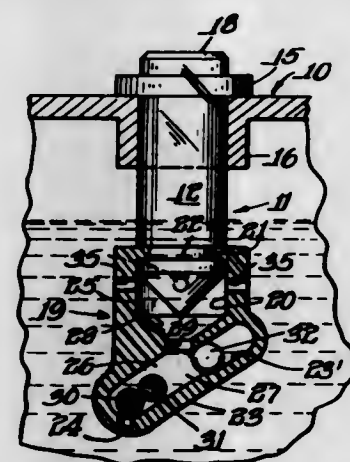


An optical liquid level indicator having a wedge-shaped transparent platelike light transmitting member for receiving and transmitting light to visually provide an observer a determination of liquid level in a container and hydrometer, in the form of an open access chamber containing one or more controlled density balls, so arranged relative to the indicator that it will simultaneously provide a direct readout through the indicator to the observer as to the condition of the specific gravity of the liquid at the same time as the checking of its level.

3,597,972
COMBINED LEVEL INDICATOR AND HYDROMETER
Francis E. Ryder, Lake Zurich, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Sept. 8, 1969, Ser. No. 855,917
Int. Cl. G01n 9/18; G01f 23/02
U.S. Cl. 73-291 7 Claims

A liquid level indicator and hydrometer for use in determining the liquid level of a fluctuating liquid as well as determining simultaneously the specific gravity thereof. The device contemplates a hollow body operatively mounted on

the lower extremity of a light-transmitting liquid level indicator with a plurality of colored float means having differing



specific gravities which are optically visible through the light-transmitting liquid level indicator simultaneously with the readout of the liquid level.

3,597,973

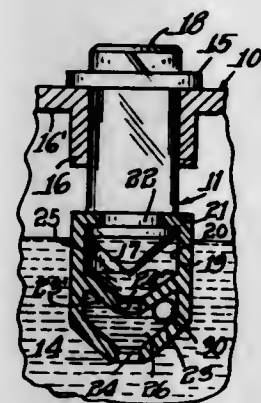
COMBINED LEVEL INDICATOR AND HYDROMETER
Francis E. Ryder, Lake Zurich, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Sept. 8, 1969, Ser. No. 855,928

Int. Cl. G01n 9/18; G01f 23/02

U.S. Cl. 73-291

9 Claims



The present invention relates generally to a combined liquid level indicator for indicating levels of liquid subject to fluctuation and hydrometer means for indicating the specific gravity of the liquid with the device adapted to be mounted in the upper wall of a liquid container, as for example the upper wall of a conventional storage battery. The embodiments of the invention disclosed in the present application include a visual liquid level indicating device having a reflecting surface at the inner end of a transparent body member and the upper end of the transparent body member is adapted to the concentrate light rays reflected from the inner end of the body member from different positions. The liquid level indicator is provided with a groove at its lower end and adapted to receive a pair of identical halves of the hollow body section of the hydrometer means. In another embodiment the hollow body section of the hydrometer means comprise two identical halves which are hinged together to accept a grooved indicator and having a female and male fastening means on the respective halves. The hydrometer means of the various embodiments are provided with chamber means and means for admitting liquid thereto and indicating ball float means operatively mounted within the chamber means for indicating the specific gravity of the liquid within which the hydrometer means is inserted. The different chamber means of the various embodiments comprise substantially parallel and inclined walls between which the indicating ball float means is operatively mounted for indicating the specific gravity of the liquid. When the liquid level of the battery or radiator with which the combined liquid level indicator and hydrometer means is utilized covers

the end of the indicator one will obtain a normal black or dark pattern at the upper end. If the specific gravity is low, the orange or red colored ball will not float and will drop down and provide an indicia at the end of the indicator.

3,597,974

FLUIDIC TEMPERATURE SENSOR FOR GAS TURBINE ENGINES

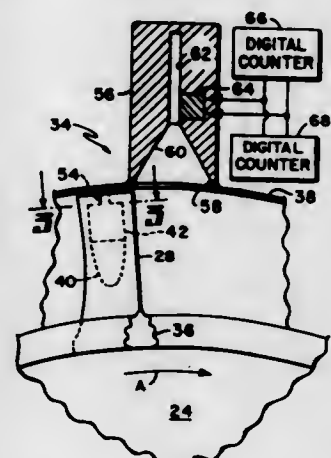
Jay I. Black, Orange, and Robert A. Hatch, Stratford, both of, Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Apr. 20, 1970, Ser. No. 30,035

Int. Cl. G01k 1/14, 1/26

U.S. Cl. 73-339 A

10 Claims



The disclosure illustrates a fluidic temperature sensor comprising a fluidic oscillator mounted in a blade of the turbine assembly of a gas turbine engine. The oscillator has an inlet which receives hot gas through which the blade rotates. An open-ended signal output tube extends from the oscillator to the periphery of the blade. A generally conical stationary receiver port is positioned in a circumferential shroud which surrounds the turbine blade and receives the pressure oscillation signals emanating from the fluidic oscillators in the blade. The period of response for the oscillator is selected so that the resultant pressure frequency signal at the receiver port is an average of the temperature of the gas through which the blade passes in between successive passes over the receiver port.

3,597,975

APPARATUS FOR INTRODUCING A DROP-IN THERMOCOUPLE INTO A BASIC OXYGEN FURNACE

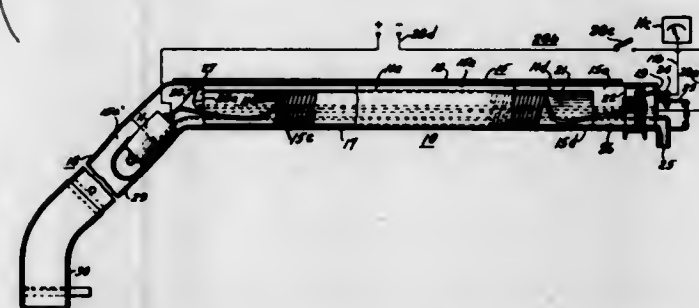
David W. Kern, Slatedale, and Philip D. Stelts, Center Valley, both of, Pa., assignors to Bethlehem Steel Corporation

Filed Aug. 16, 1968, Ser. No. 753,187

Int. Cl. G01k 1/08

U.S. Cl. 73-343

3 Claims



An apparatus for introducing a drop-in thermocouple into a molten ferrous bath in a basic oxygen furnace, said apparatus includes a combination closed-compartmentized holding box and charging chute. Each compartment of the box is provided with a restraining means, anchoring means, means for introducing a coolant gas therein and means for electrically connecting the thermocouple cable to an outside recording device. The charging chute includes a wide holding portion whose sides converge to form a restricted funnel-like charging portion by which the thermocouple is guided downwardly into the furnace.

3,597,976

CLINICAL TEMPERATURE BANDAGE

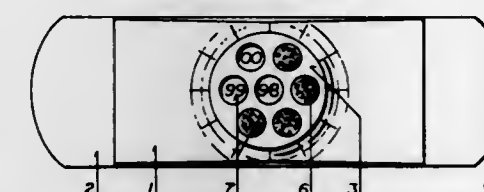
Paul J. Fryar, 4359 Rutgers Ave., Long Beach, Calif.

Filed July 3, 1969, Ser. No. 839,809

Int. Cl. G01k 11/08

U.S. Cl. 73-358

4 Claims



A Clinical Temperature Bandage to be applied to the skin, usually under the arm, which has as an integral part thereof, a chemical holder containing, in separate small recesses, a plurality of chemicals having different melting points, each of which will become fluid at a different temperature thus making possible the estimation of body temperature. The plurality of chemicals used in this invention are essentially pure 2-ethoxy naphthalene and mixtures of 2-ethoxy naphthalene and lauric acid.

3,597,977

TEMPERATURE SENSOR

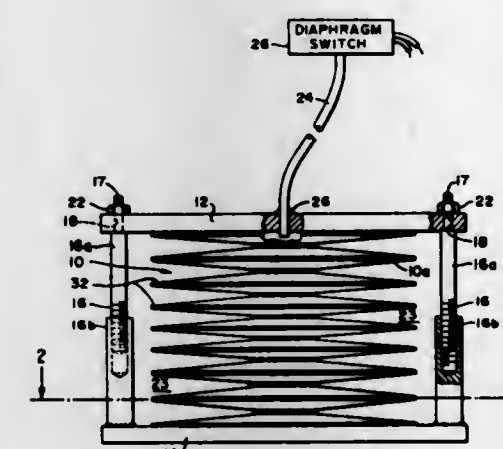
Stephen J. Zlerak, Westwood, Mass., assignor to Metal Bellows Corporation, Sharon, Mass.

Filed Sept. 19, 1969, Ser. No. 859,359

Int. Cl. G01k 5/42; H01h 37/36

U.S. Cl. 73-368.7

10 Claims



A temperature sensor having fast response employs a fluid-tight, thin-walled bellows made of a thermally conductive material. The bellows has a number of relatively wide annular diaphragms so that its surface-to-volume ratio is a maximum and it is held rigid. A fluid passage communicates between the interior of the bellows and the device to be actuated and the bellows and passage are filled with an expansible fluid. When the bellows is subjected to a heated medium, heat is immediately conducted to substantially all of the fluid which expands rapidly through the passage and actuates an associated pressure responsive device.

3,597,978

DEVICE FOR SAMPLING LIQUIDS FROM VACUUM OPERATING EQUIPMENTS

Francesco Siclari; Franco Magnoni, and Battista Morandi, all of Cesano Maderno, Milan, Italy, assignors to Sna Viscosa Società Nazionale Industria Applicazioni Viscosa, Milan, Italy

Filed Dec. 11, 1969, Ser. No. 884,244

Claims priority, application Italy, Dec. 30, 1968, 25702/68

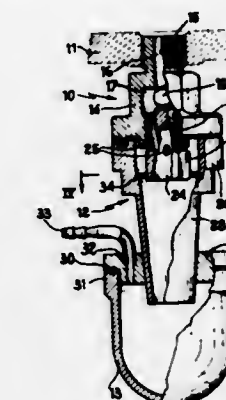
Int. Cl. G01n 1/14

U.S. Cl. 73-422 R

7 Claims

A device for sampling liquids from reaction equipments and particularly from vacuum operating reaction equipments,

comprising a body fixedly secured to the bottom of the equipment and having an outlet duct fitting with a check valve, which movable component is kept closed by the atmospheric pressure. A movable assembly, comprising a sampling container and a feeding duct therefor, may be sealingly



connected with said body in such a manner as to mechanically control the engagement of said check valve movable component with a related seat, means being provided to reach a given vacuum value in said container and said feeding duct.

3,597,979

METERING VALVE FOR INTRODUCING A FLUID UNDER PRESSURE INTO AN ANALYTICAL APPARATUS

Etienne Bonnet, Boussens, France, assignor to Entreprise de Recherches et d'Activités Pétrolières (ELF), Paris, France

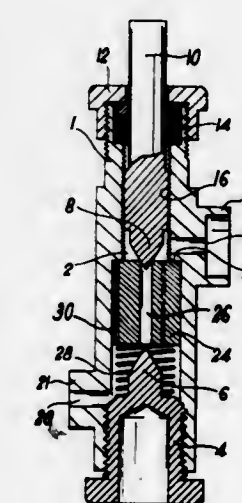
Filed Apr. 6, 1970, Ser. No. 25,730

Claims priority, application France, Apr. 10, 1969, 6910998

Int. Cl. G01h 1/00

U.S. Cl. 73-422

9 Claims



Metering valve in which the metering volume is defined within a passage which is pierced in a movable slide-block and closed by a stationary pintle and a movable pintle. The slide-block is urged towards the movable pintle by an elastic system and is stopped by an abutment so that the movement of withdrawal of the movable pintle has the effect of opening the metering passage in proximity to the stationary pintle and permits the discharge of the fluid dose, then puts the passage into communication with the inlet.

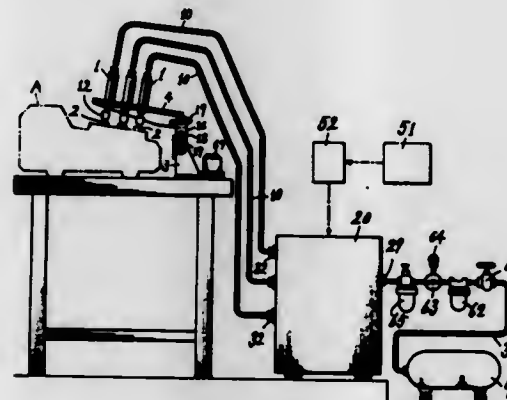
Ducts for the flow of a scouring fluid are pierced in the slide-block around the metering passage and are closed by the abutment during introduction of the fluid to be metered.

3,597,980
GRAIN PROBE
 Edmund Beuker, Melfort, Saskatchewan, Canada
 Filed July 8, 1969, Ser. No. 839,911
 Int. Cl. G01n 1/16
 U.S. Cl. 73—425.2



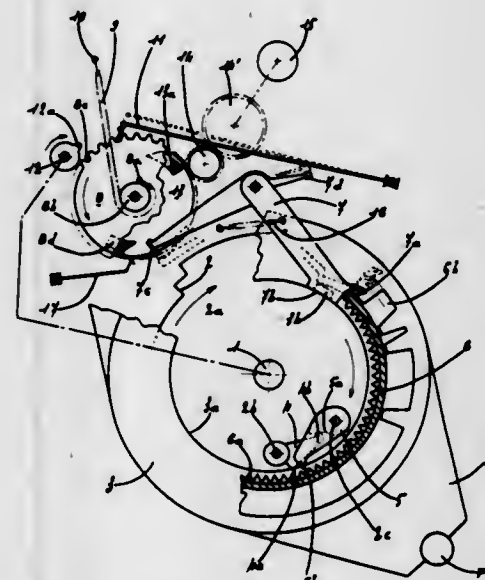
A grain probe according to the invention consists of a sampling tube having a closed lower end, and a series of openings spaced along the length of the tube on one side, each opening being shaped so as to prevent loss of grain through the openings when the tube is in its normal upright position.

3,597,981
KEYBOARD-TESTING DEVICE FOR CALCULATING MACHINE OR THE LIKE
 Hiroyoshi Wakabayashi, and Yousuke Fukui, both of Osaka-shi, Japan, assignors to Asahi Automatic Machine-Tool Works Co., Ltd., Osaka-shi, Japan
 Filed Oct. 14, 1969, Ser. No. 866,347
 Claims priority, application Japan, Oct. 15, 1968, Nov. 7, 1968, 43/75161; 43/81793
 Int. Cl. G01m 19/00
 U.S. Cl. 73—432



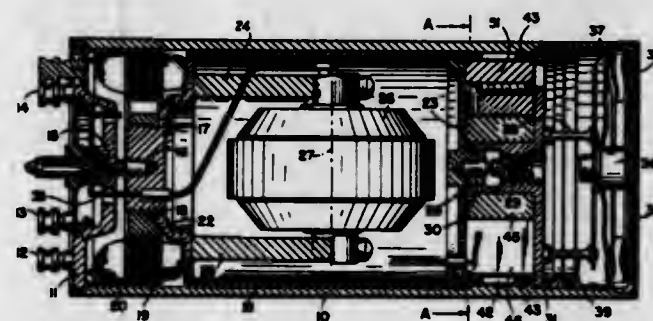
A keyboard-testing device for a calculating machine having keys on its keyboard or the like. A plurality of air cylinders are mounted on a panel board just above the keyboard of the calculating machine to be tested so as to depress any one of the keys. A plurality of control valves are connected to the respective air cylinders so as to supply and cut off compressed air from a compressor. An order system and electric control means is provided for controlling the operation of each of said control valves.

3,597,982
PROGRAMMERS
 Jean Jullien-Davin, Valence, France, assignor to Crouzet, Paris, France
 Filed June 9, 1969, Ser. No. 831,367
 Claims priority, application France, June 13, 1968, July 4, 1968, 753; 158220
 Int. Cl. G05g 5/02
 U.S. Cl. 74—3.52



A programmer for automatic washing machines or the like, including a constant-speed reversing programming cam, an operating cam driven in stepwise manner by the programming cam, and means to selectively block the stepwise advancing of the operating cam for a predetermined length of time, whereby the operation of the machine may include a comparatively long rest period intermediate successive operating sequences within a cycle, as for a lengthy soaking stage. Following expiration of the predetermined time, the blocking means is released and the operating cam resumes its stepwise advancement for the remainder of the operating cycle.

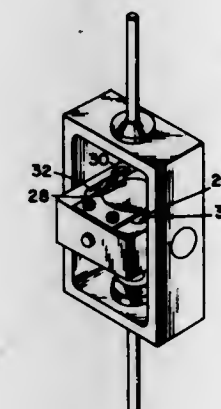
3,597,983
GYROSCOPE DAMPING MECHANISM
 Gunter J. Schwarzschild, Stamford, Conn., assignor to The United States Time Corporation, Waterbury, Conn.
 Filed Feb. 24, 1969, Ser. No. 801,696
 Int. Cl. G01c 19/04; G01d 11/14
 U.S. Cl. 74—5.5



A gyroscope includes a motor-driven rotor mounted on a rotatable gimbal. The gimbal has paddles which pump a fluid through controlled orifices for damping of the gimbal. A temperature-responsive bellows is connected to a plurality of valve plungers which move within the orifices to control their effective size.

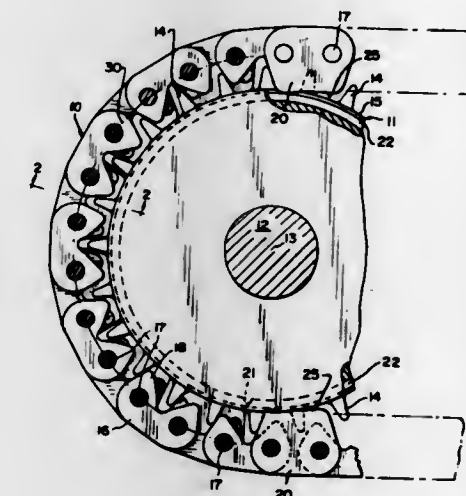
3 Claims

3,597,984
GYROSCOPE CONTROL DEVICE
 Henry P. Lichte, Jr., Houston, Tex., assignor to Sperry Sun Well Surveying Company, Sugar Land, Tex.
 Filed May 1, 1968, Ser. No. 725,664
 Int. Cl. G01c 19/50
 U.S. Cl. 74—5.43



Utilizing air current generated by the rotating spinner of a gyro for stabilizing the position of the rotor relative to the outer gimbal of the gyro. An opening is formed in the rotor cover, which permits the escape of air from the rotor housing, and directs such air against a baffle element which is mounted on the rotor housing. Such air currents impinging upon the baffle generate a torque in a plane perpendicular to the spin axis of the rotor, thus generating a precessing torque for urging the rotor housing towards a position perpendicular to the outer gimbal.

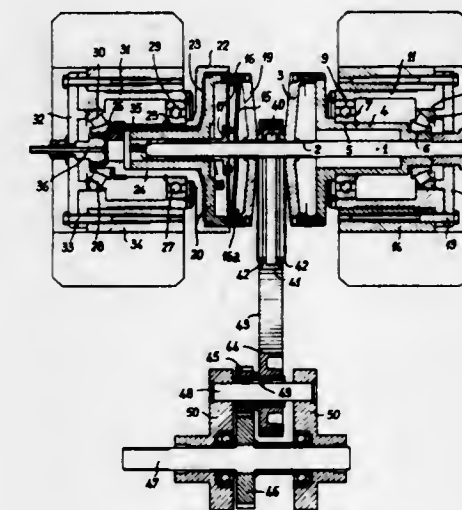
3,597,985
FLEXIBLE POWER TRANSMISSION DRIVE
 Joseph O. Jeffrey, Ithaca, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.
 Continuation of application Ser. No. 782,859, Dec. 11, 1968, now abandoned. This application Feb. 5, 1970, Ser. No. 7,403
 Int. Cl. F16h 7/00, 55/30; F16g 13/02
 U.S. Cl. 74—229



For the purpose of illustrating the present invention, a flexible power transmission drive is disclosed herein which includes a flexible band that can be a chain, a belt, or the like, which is adapted to drivably encircle and engage a sprocket. The sprockets and cooperating band structures disclosed herein have a mismatched pitch and are provided with complementary engaging surfaces to provide a smooth transitional engagement between the band and the sprocket and to cause the band to move with the sprocket along a constant sprocket-pitch radius.

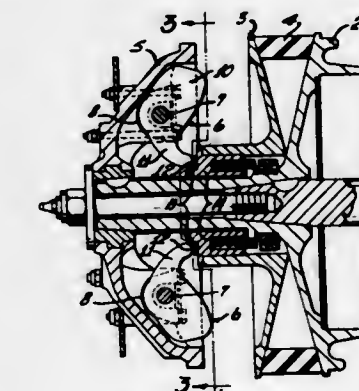
889 O.G.—17

3,597,986
FRICTION-RING VARIABLE-SPEED TRANSMISSION MECHANISMS
 Pierre Bouthors, Quéméné, Philippe, Billancourt, France, assignor to Régie Nationale Usines Renault, Billancourt (Hauts de Seine) France and Automobiles Peugeot, Paris, France
 Filed Mar. 18, 1970, Ser. No. 20,513
 Claims priority, application France, Mar. 24, 1969, 69/08575
 Int. Cl. F16h 55/52, 15/00, 9/00
 U.S. Cl. 74—230.17 F



Friction-ring variable-speed transmission mechanism comprising parallel input shaft and output shafts, the input shaft carrying a pair of frustoconical plates having interposed therebetween a ring member adapted to coact with said plate through corresponding friction surfaces, one plate being adapted to move axially under adequate control means, this variable-speed transmission mechanism being characterized in that said rings are formed with external teeth, and that said teeth are drivably connected through a meshing flexible member to corresponding teeth formed on a twin pinion mounted for free rotation on a support movable about the output shaft, the other set of teeth of this twin pinion meshing with those of a pinion rotatably solid with said output shaft, the change in the transmission ratio being obtained by causing a controlled angular displacement of said movable support.

3,597,987
VARIABLE SPEED SHEAVE
 Elmer Carl Kiekhäfer, 2408 Cypress Gardens Road, Winter Haven, Fla.
 Filed Apr. 25, 1969, Ser. No. 819,178
 Int. Cl. F16h 55/52
 U.S. Cl. 74—230.17 E



A variable speed sheave employing centrifugal flyweights actuating an axially movable sheave half, utilizes a replaceable washer to take the thrust of the weights, and offsetting or skewing the flyweights to avoid fixed wear tracks under the cams of the flyweights engaging the washer. A die-cast

2 Claims

4 Claims

8 Claims

5 Claims

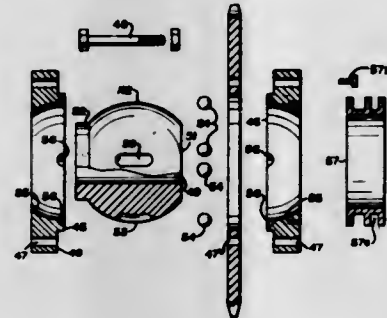
replaceable bushing is employed to support the flyweight pinals and thereby avoid expensive machining of the bearing parts. Six circumferentially spaced positions are provided for flyweights whereby either two, three, four or six flyweights may be employed without disturbing the dynamic balance of the sheave.

3,597,988 SELF-ALIGNING SPROCKET

Herbert G. Hecketsweller, Florence, Colo., assignor to Portec, Inc.

Filed Oct. 27, 1969, Ser. No. 869,593
Int. Cl. F16h 55/30

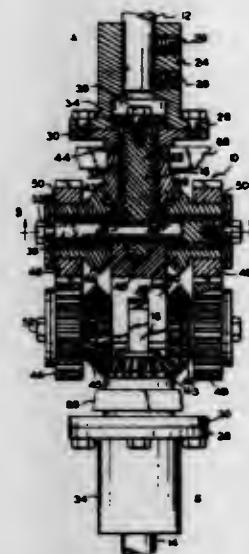
U.S. Cl. 74-243 C



A sprocket-chain drive for use with a conveyor system having a straight conveyor belt and a conveyor belt turn and including an adjustable sprocket to operatively connect the shafts of the straight conveyor and turn which do not lie in spaced parallelism. The adjustable sprocket, mounted upon a spherical head secured to the shaft, is adapted to tip out of the plane of the normal of the shaft to align itself with the chain and other sprocket of the drive. A guide is used to hold the adjustable sprocket in its proper position with respect to the chain.

3,597,989
ANGULAR DRIVE MECHANISM
Everett H. Benson, Rte 1, Box 429, Eagle Creek, Oreg.
Filed Feb. 16, 1970, Ser. No. 11,642
Int. Cl. F16h 35/06, 1/26, 1/48

U.S. Cl. 74-385



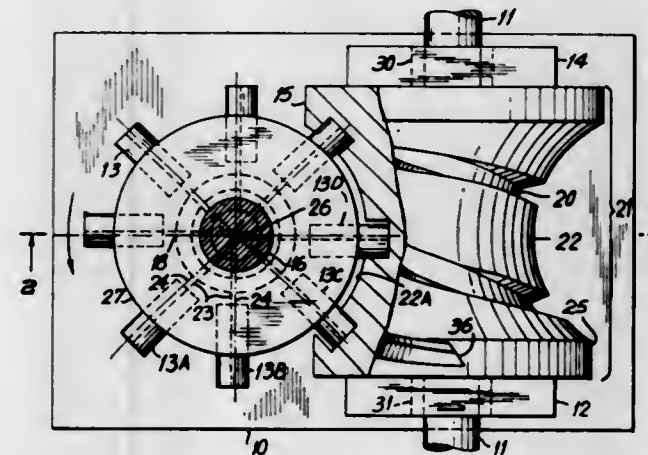
An angular drive mechanism between two rotatable shafts includes a shaft connection member on the end of each shaft which is relatively rotatable with respect to such shaft about the axis of rotation of such shaft. A pivotal connection structure between these shaft connection members includes either one or two pivot elements with axes at right angles to the axes of rotation of the shafts. A bevel gear secured to the end of each shaft is journaled on a shaft connection member and meshes with bevel gears on the opposite ends of a pivot element.

ment. A direct drive modification has an intermediate connection member pivotally connected between the shaft connection members by two spaced pivot elements having parallel axes. Spur gears secured to the bevel gears on the respective ends of the pivot elements mesh with each other. A reverse drive modification has a single pivot element. An angular relationship between the longitudinal axes of any two of the connection members about the axis of a pivot element will prevent rotation of the pivotal connection structure about the axis of either shaft.

3,597,990
ZERO-LASH RIGHT-ANGLE MOVEMENT
Joseph P. McCartin, 43-39 158th St., Flushing, N.Y.
Filed May 1, 1970, Ser. No. 33,561
Int. Cl. F16h 1/04, 1/16, 55/10

U.S. Cl. 74-415

9 Claims

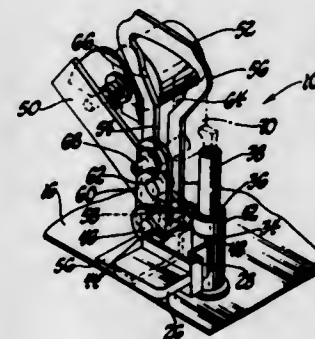


A right angle mechanical power transfer apparatus for transmitting a force from its input to its output consisting of an input rotary member having a contoured thread which is in engagement with an output rotary member having a plurality of offset rotatable members which engage opposite sides of the thread in order to eliminate side motion play or backlash.

3,597,991
TRANSMISSION SELECTOR
James A. McCormick, Jr., Northville, and Julius Hezler, Jr., Bellaire, both of, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Feb. 18, 1970, Ser. No. 12,253
Int. Cl. G05g 13/00

U.S. Cl. 74-476

3 Claims

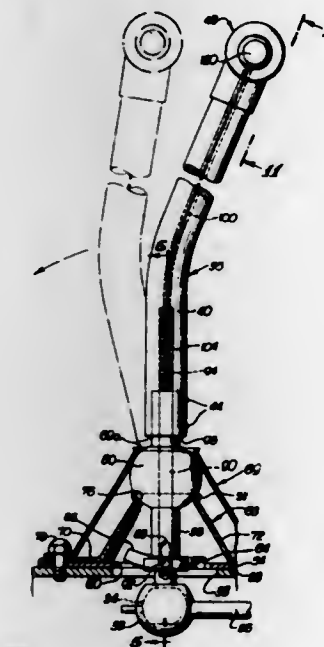


Disclosed herein is a control mechanism including a first manual lever adapted to select one mode of operation and a second manual lever adapted to select another mode of operation and a linkage connecting the two selector levers to prevent simultaneous movement of the two levers. The interconnecting linkage also provides automatic cancellation of the mode selected by the second lever when the first lever is actuated.

3,597,992
REVERSE GEAR LOCKOUT MECHANISM
Dean G. Lowry, Tustin, and Leland K. Lowry, Garden Grove, both of, Calif., assignors to Deano Dyno-soars, Inc., Santa Ana, Calif.
Filed Aug. 6, 1969, Ser. No. 848,017
Int. Cl. F16h 57/06

U.S. Cl. 74-476

5 Claims U.S. Cl. 74-492

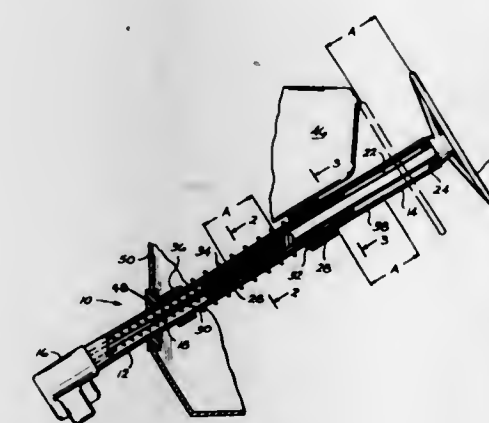


A manual transmission reverse gear lockout mechanism for a rear drive vehicle. The reverse gear lockout mechanism on the gear shift lever is spring loaded to override the shift lever's normal forward gear position, and is activatable by finger control means on the shift lever.

3,597,993
COLLAPSIBLE STEERING COLUMN MOUNT ARRANGEMENT
Marion M. Ripley, 19 Compass Road, Baltimore, Md.
Filed Nov. 4, 1969, Ser. No. 873,789
Int. Cl. B62d 1/18

U.S. Cl. 74-492

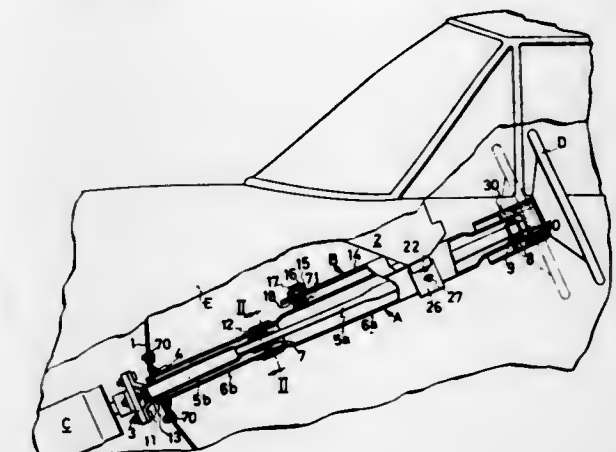
4 Claims U.S. Cl. 74-523



A safety steering column mount arrangement for motor vehicles arranged to collapse upon an impact is provided. The lower and upper sections of the housing and the lower and upper sections of the steering shaft are each telescopic and separately bias with compression coiled springs.

3,597,994
STEERING DEVICE WITH ENERGY ABSORBER
Masanao Shiomi, Toyota-shi, and Tadataka Narumi, Kariya-shi, both of, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed Sept. 30, 1969, Ser. No. 862,254
Claims priority, application Japan, Oct. 5, 1968, 43/72548
Int. Cl. B62d 1/18

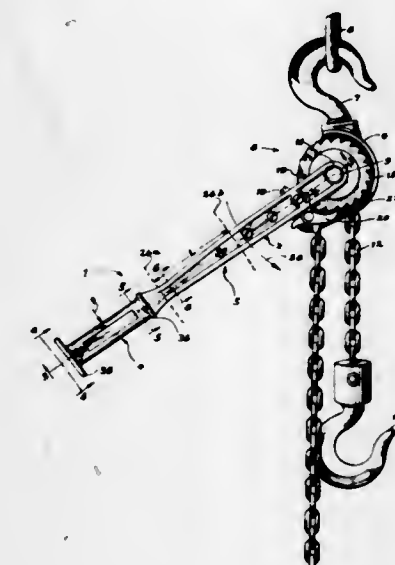
5 Claims



A steering wheel assembly including an extensible steering shaft whose upper end is connected to a steering wheel and the lower end is connected to a gearbox, a tubular steering column also having telescopic portions arranged coaxially about the steering shaft and movable in the axial direction thereof with the shaft, and an energy-absorbing member capable of plastic deformation in one direction only, either under tension or compression, and being rigid in the opposite direction, said energy-absorbing member positioned beside the steering column and fixed at its lower end to a portion of the tubular steering column and fixed at the other end to a portion of the vehicle. Preferably, said energy-absorbing member is mounted at an angle to the axis of the steering shaft so as to kinetically balance an angular collision force and thereby prevent bending of the shaft.

3,597,995
OVERLOAD-PREVENTING HANDLES
Harold V. Hawkins, and Ralph A. Dick, both of Williamsville, N.Y., assignors to Columbus McKinnon Corporation, Tonawanda, N.Y.
Filed Dec. 29, 1969, Ser. No. 888,555
Int. Cl. G05g 1/04

8 Claims



A handle of the type adapted to prevent overloading of a mechanism with which it is operably associated, wherein a significant length of the handle is designed such that all

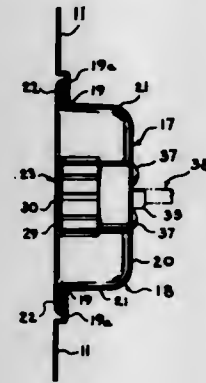
points lengthwise thereof will simultaneously experience the same bending stress when a mechanism-operating load is applied to the handle, thereby resulting in a noticeably bending deformation of the length of handle before failure of the handle.

3,597,996 RECESSED CONTROL KNOB FOR COOKING EQUIPMENT

Harry A. Gouwens, South Holland, and Thomas R. Rehberg, Chicago Heights, both of, Ill., assignors to General Electric Company

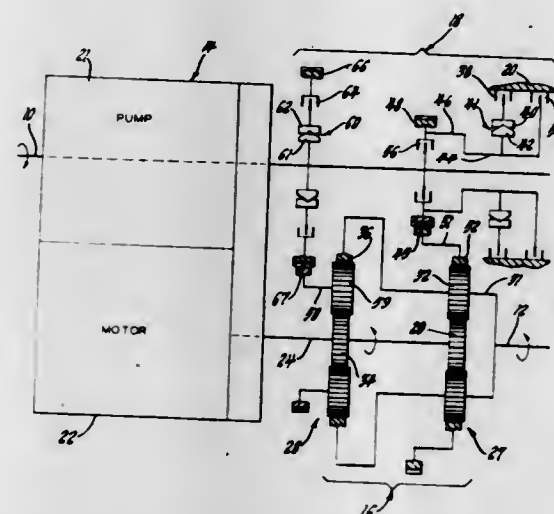
Filed Apr. 10, 1970, Ser. No. 27,313
Int. Cl. G05g 1/10

U.S. Cl. 74-553



A recessed control knob assembly, preferably for use with commercial cooking equipment having a control panel, including a generally cup-shaped skirt positioned in a suitable recess provided therefor in the control panel, the cup-shaped skirt having a base with outwardly and forwardly sloping sidewalls terminating in an annular flange, the base of the skirt having a knob secured thereto which projects forwardly thereof but which is entirely contained within the skirt with the forward end surface of the knob displaced slightly inwardly of a plane defined by the annular flange of the skirt so that the knob is protected against accidental jarring, suitable indicia being stamped or otherwise marked upon the annular flange of the skirt, and the knob being attached to a suitable thermostat or control, the knob and skirt being manually rotatable as a unit relative to the control panel.

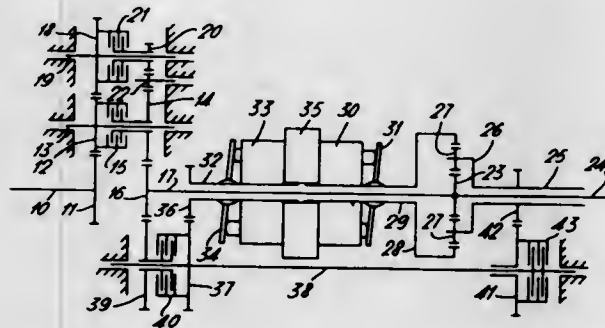
3,597,997
HYDROMECHANICAL TRANSMISSION
Ronald L. Phillips, Orchard Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 30, 1970, Ser. No. 23,573
Int. Cl. F16h 47/04
U.S. Cl. 74-687



A hydromechanical transmission having a variable-ratio hydrostatic drive unit, two planetary gearsets and a plurality

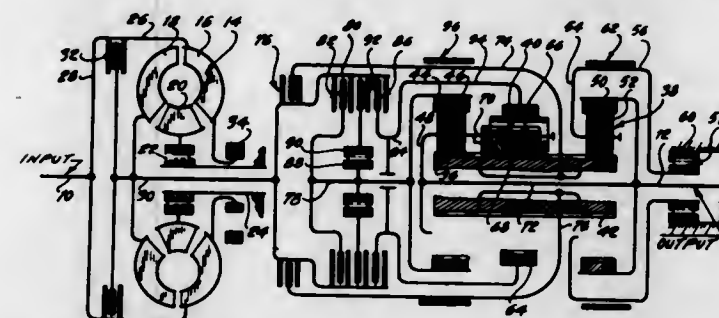
of drivemestablishing devices including a one-way brake and a one-way clutch combined to provide three forward speed range drives and a reverse speed range drive with each such drive established by engagement of only one drive-establishing device and with the one-way devices permitting the lower speed range drive-establishing devices to remain operational in higher forward speed ranges.

3,597,998
POWER TRANSMISSION MECHANISM
Heinrich Ebert, Furth, Bavaria, Germany, assignor to David Brown Gear Industries Limited
Filed Dec. 16, 1968, Ser. No. 783,888
Int. Cl. F16h 47/04



A mechanical transmission and a hydrostatic transmission both drivable by a power unit and interconnected to drive a common hollow output shaft in such a manner that torque may be transmitted wholly by the mechanical transmission or partly by the mechanical transmission and partly by the hydrostatic transmission in varying proportions or wholly by the hydrostatic transmission, and a power takeoff shaft drivably connected to the power unit coaxial to both the input shaft and the hollow output shaft.

3,597,999
EXTREME RATIO OVERDRIVE POWER TRANSMISSION MECHANISM
Alan R. Fisher, Highland Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 21, 1969, Ser. No. 878,721
Int. Cl. F16h 47/08, 57/10
U.S. Cl. 74-688

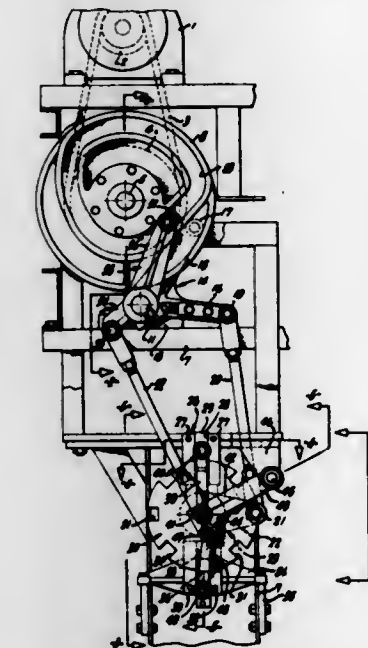


A geared, multiple-ratio power transmission mechanism capable of providing torque delivery paths between a power input shaft and a power output shaft in an automotive vehicle driveline, said mechanism being characterized by four forward-driving speed ratios and a single reverse speed ratio, one of the forward-driving ratios being an overdrive with extreme ratio, said torque delivery paths being defined by two simple planetary gear units and a single compound planetary gear unit, said gear units having elements common to each other.

3,598,000
INDEX ASSEMBLY
Konrad Emil Meissner, Lafayette, Calif., assignor to Filper Corporation, San Ramon, Calif.
Filed May 15, 1969, Ser. No. 824,789
Int. Cl. B23b 29/32

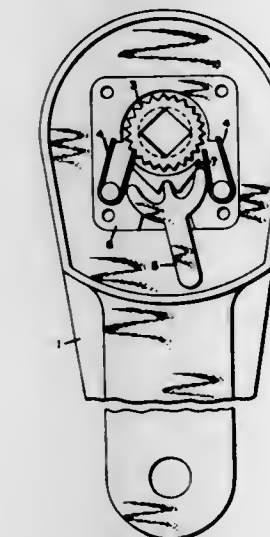
U.S. Cl. 74-822
An index assembly including a camshaft continuously driven at a uniform rate, having an index-actuating cam and

an index-locking cam secured thereon, and an indexing disc is secured on a work shaft that is separate from said camshaft. Said indexing disc is formed with radially outwardly opening equally spaced recesses, and separate index-moving and index-locking elements or plungers operatively connected with said index-actuating cam and with said index-locking cam, respectively, for positive reciprocable movement into and out of separate of said recesses and for rotation of said indexing disc and work shaft through part of each 360° rotation of said camshaft under the influence of movement of said index-actuating cam and movement of said



index-locking cam, said indexing disc being positively engaged by said index-moving and index-locking plungers against movement relative to said disc circumferentially of the latter in either of two opposite directions when in engagement with the latter. A control member connects the separate operative connections between said index-actuating cam and said index-moving plunger, and between said index-locking cam and said index-locking plunger, for simultaneous opposite reciprocable movement of said plungers into and out of said recesses under the influence of movement of said index-locking cam to insure alternate locking and release of said indexing disc.

3,598,001
REVERSIBLE RATCHET HANDLE FOR SOCKET WRENCH
Harvey A. Thomasian, Northboro, Mass., assignor to Lowell Corporation, Worcester, Mass.
Filed Feb. 14, 1969, Ser. No. 799,421
Int. Cl. B25b 13/46
U.S. Cl. 81-63.1



A socket wrench handle with a reversible ratchet mechanism comprising a pair of U-shaped leaf springs to

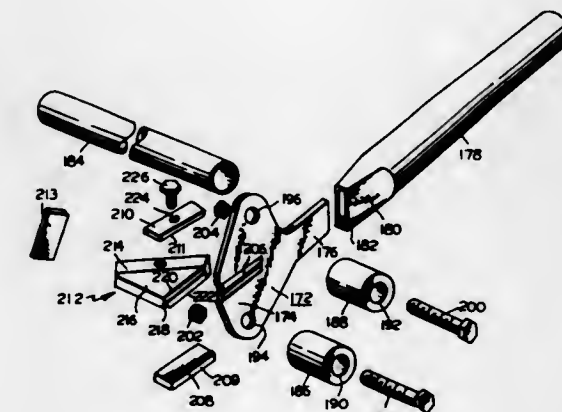
serve as pawls positioned on opposite sides of a ratchet wheel with a polygonal central opening and symmetrically shaped ratchet teeth and a tiltable reversing lever which can be swung into either one of its two terminal positions to disengage the one or the other of the two springs from the teeth of the ratchet wheel.

3,598,002
WRENCH SET
Joseph G. Garvey, Neptune City, N.J., assignor to The United States of America as represented by the Secretary of the Army.
Filed Jan. 8, 1970, Ser. No. 1,480
Int. Cl. B25b 13/48
U.S. Cl. 81-71



A holder and handle for Allen and/or Bristol type wrenches that includes a hollow holder in which several different sized chucks can be held. A different size wrench can be fitted into each chuck which in turn is held firmly in the end of the handle by a knurled threaded nut.

3,598,003
SELECTIVELY ADJUSTABLE REAMER FOR USE WITH A ROTATING PIPE
Donald E. Blake, 761 Chestnut Ridge Road, Morgantown, W. Va.
Division of Ser. No. 627,694, Apr. 3, 1967, Pat. No. 3,445,871.
This application Feb. 18, 1969, Ser. No. 840,552
Int. Cl. B23b 5/16
U.S. Cl. 82-1.2

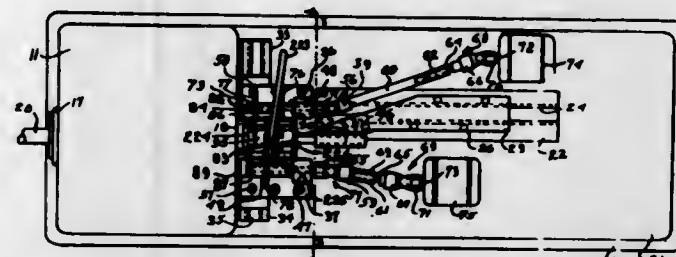


An apparatus for use in combination with pipe-working tools for the cutting, reaming and threading of pipe of larger

3,598,005
MACHINE TOOLS
Donald S. Shafer, Cincinnati, Ohio, assignor to Watkins Manufacturing Company, Cincinnati, Ohio
Continuation-in-part of application Ser. No. 431,003, Feb. 8, 1965, now abandoned, Continuation of application Ser. No. 460,795, June 2, 1965, now abandoned. This application Dec. 15, 1967, Ser. No. 690,827
Int. Cl. B23b 5/14, 3/04

U.S. Cl. 82-46

21 Claims



The pipe is rotatably supported on a head or platform by means of a roller vise, and the head in turn is rotatably mounted on a stand for rotation about two axes. A tool support arm is carried by the rotatable head and moves in unison with the head upon movement of the head about its axes. An adapter ring and universal joint drivingly connect one end of the pipe to the rotary power source. The universal joint eliminates the need of alignment between the axis of rotation of the pipe and the axes of rotation of the power source and, as the pipe is rotatably driven, the rotatable head moves about its axes in response to any eccentric rotation of the pipe and thereby affords automatic alignment between the rotating pipe and the roller vise.

A conventional pipe cutter is used in combination with the apparatus to cut the pipe, and the pipe is reamed by a novel reamer which can be selectively adjusted to ream pipe of several different sizes. Threading is accomplished by the use of a conventional geared threader.

Methods are also provided for the cutting, reaming and threading of pipes of such larger diameters wherein a portable rotary power source such as a power vise may be employed to rotatably drive the pipe. The methods involve establishing a universal driving connection between a pipe to be worked and a rotary power source, rotatably securing the pipe in a vise means supported for rotation about multiple axes, and then rotatably driving the pipe and applying cutting, reaming and threading tools to the portion thereof to be worked. The methods when combined constitute another method of sequentially cutting, reaming and threading a pipe in a single work setup using a portable rotary power source, such as a power vise to rotatably drive the pipe.

3,598,004 AUTOMATIC MACHINE FOR CHAMFERRING WIRE ROD ENDS

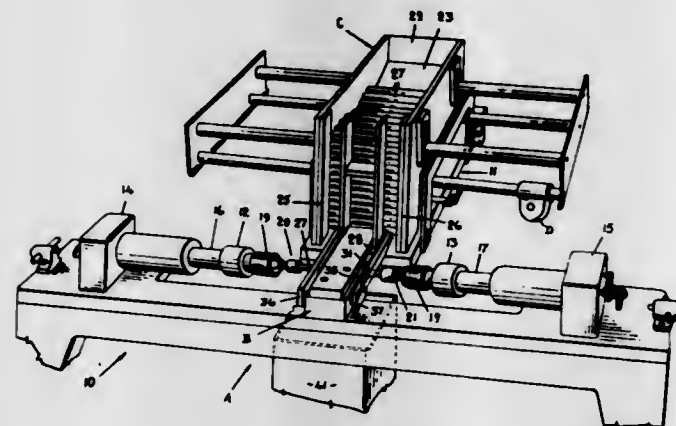
John E. Hopkins, 76 Gracefield Avenue, Toronto 389, Ontario, Canada

Filed June 16, 1969, Ser. No. 833,409

Int. Cl. B23b 13/10

U.S. Cl. 82-2.7

2 Claims



A machine for automatically chamfering the ends of pieces of wire, particularly the wire which is used in making such articles, for example, as wire dishracks for use in dish washing machines, etc. The machine is operated by pressurized fluid such as air. It employs a piston actuated pusher which feeds pieces of substantially straight wire, one-at-a-time, into position where it is coaxial with a pair of spaced apart bits carried by conventional air motors which are reciprocated back and forth to chamfer the wire ends. Valve means actuated by pulsators and also by the reciprocating pusher and air motors carry out the sequence of moving the wire into position, chamfering and releasing the wire and then repeating the operation.

3,598,006 METHOD FOR WORKING ON SHEET MATERIAL AND OTHER OBJECTS

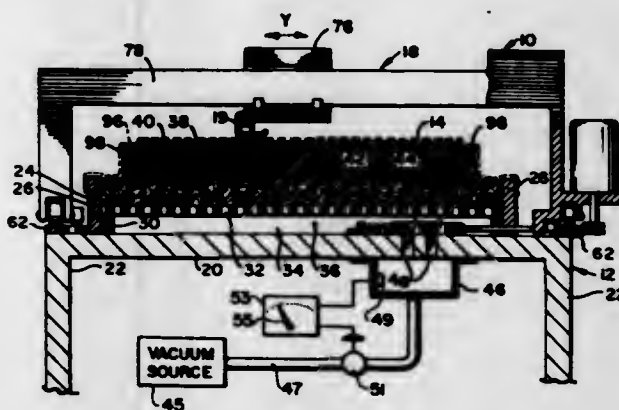
Heinz Joseph Gerber, and David R. Pearl, both of West Hartford, Conn., assignors to Gerber Garment Technology, East Hartford, Conn.

Division of Ser. No. 821,780, May 5, 1969, Pat. No. 3,495,492. This application Feb. 2, 1970, Ser. No. 7,544

Int. Cl. B26d 7/02

U.S. Cl. 83-14

6 Claims



A method for working on sheet material or other objects uses a vacuum holddown device having a material-supporting surface including a plurality of vacuum openings passing therethrough. A vacuum chamber associated with the supporting surface applies a vacuum through the vacuum openings to the sheet material or other object received thereon. A sheet or panel of substantially air-imperious sheet material, such as a sheet of thin polyethylene, is spread over the exposed surface of the work, and cooperates with the vacuum to draw it toward the supporting surface and into a more compact condition. The air-imperious panel used with the vacuum may be an expendable sheet of such material spread entirely over the surface of the work prior to the

performance of work thereon and/or may be one or two continuous belts of such material located in front of and/or behind the work tool. The vacuum and air-imperious panel may also be used to hold a layup of sheet material to be cut in a compact condition for a long period of time between the laying up process and the cutting process to prevent the various layers of the layup from shifting, flowing or otherwise moving relative to one another so as to depart from their relative positions as initially laid up.

larger punch to form a hole in the blank into which a cylindrical hammer-supporting rod can be loosely and freely received, and then punching the blank again with a second punch to form a recess in the wall of the hole made in the first punching to form an enlarged finished hole, the second punch having a certain side surface portion in the form of the convex outer surface of the cylinder of the same size as the hammer rod so that a hammer rod passing laterally of itself can pass through said hole from its larger part into the recess for snug engagement with the wall of the recess.

3,598,007 SHEARING METHOD

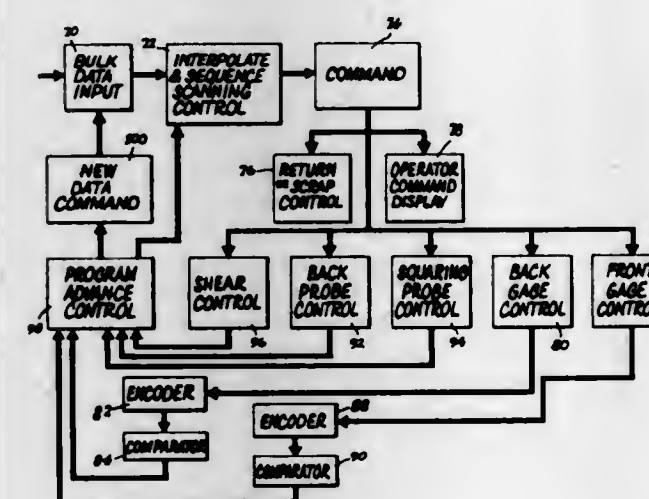
Ronald S. Williams, Lexington, Ky., and John J. Erhart, Cincinnati, Ohio, assignors to The Cincinnati Shaper Co., Cincinnati, Ohio

Filed Mar. 14, 1968, Ser. No. 713,088

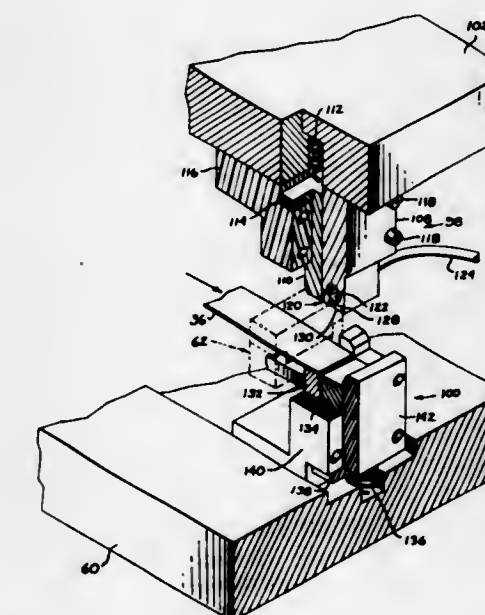
Int. Cl. B26d 3/00

U.S. Cl. 83-36

8 Claims



A method of shearing a stated quantity of each of a number of different sized parts from sheet stock wherein the orientation of stock feed alternates in a predetermined pattern, and wherein the parts to be produced are laid out on the stock so that the first two cuts yield a parts blank and at least one cutoff. The parts blank is then sheared into parts, and the cutoff is sheared in two cuts into a second parts blank and the sequence repeated until the starting sheet is consumed.



Apparatus and method for performing the title functions with thick film resistor or capacitor material. The material is fed in discrete increments to a cutting head which severs selected portions and transports the same to a remote location where it is deposited across conductors formed on an insulating substrate.

3,598,008 PROCESS OF MANUFACTURE OF HAMMERMILL HAMMERS

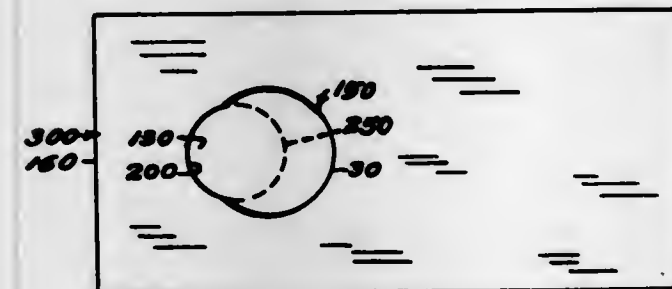
Calvin L. Jacobson, Harlan, Iowa; Robert E. Morken, Crystal, Minn., and Norman C. Silver, St. Louis Park, Minn., assignors to Harlan Manufacturing Company, Inc., Harlan, Iowa

Filed Sept. 17, 1969, Ser. No. 858,679

Int. Cl. B02c 13/00

U.S. Cl. 83-39

3 Claims



The process of manufacture of a hammermill hammer from a blank which comprises punching the blank with a

3,598,010 ROTARY CUTTER AND FOLD LINE MARKER

Louis Jean Chambon, Paris, France, assignor to Societe D'Etudes De Machines Speciales Societe Anonyme, Paris, France

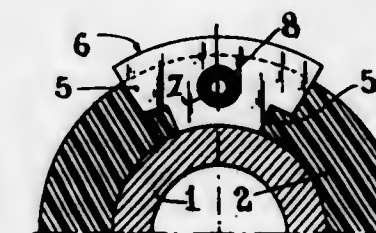
Filed Sept. 9, 1968, Ser. No. 758,455

Claims priority, application France, Sept. 18, 1967, 121,344

Int. Cl. B23d 35/00

U.S. Cl. 83-675

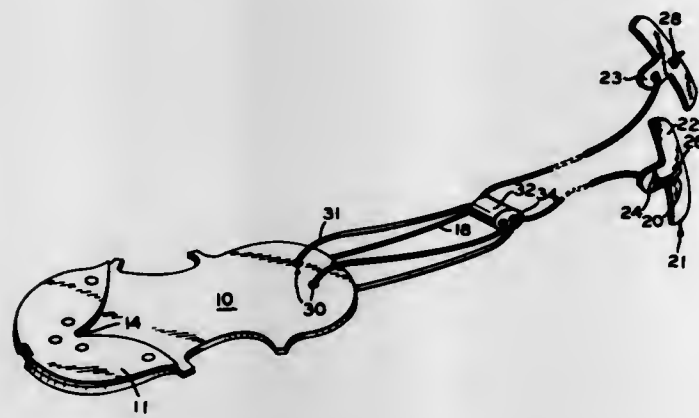
3 Claims



Rotary tool for cutting and/or marking fold lines comprises a cylindrical layer of hard plastic material having embedded

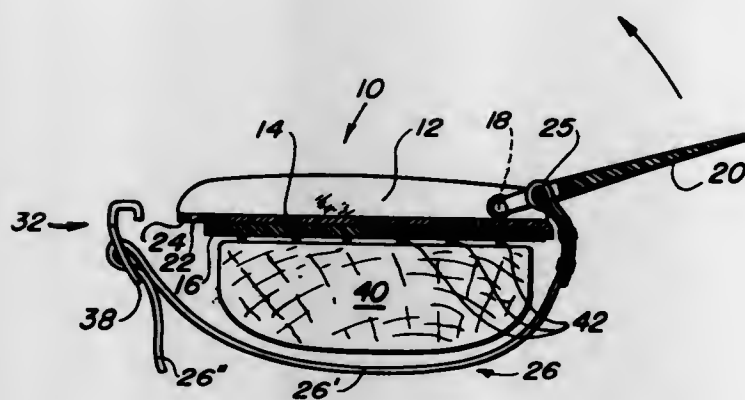
therein at least one metal blade of which the outer edge projects from the outer surface of said plastic layer. The blade is locked in place by a metal bar received in a hole in the blade and aligned bores in the plastic layer on opposite sides of the blade.

3,598,011
STOP FOR CELLO END PIN
Theodore Henkle, 240 Broughton St. West, Savannah, Ga.
Filed Mar. 12, 1970, Ser. No. 18,972
Int. Cl. G10d 1/02
U.S. Cl. 84—280



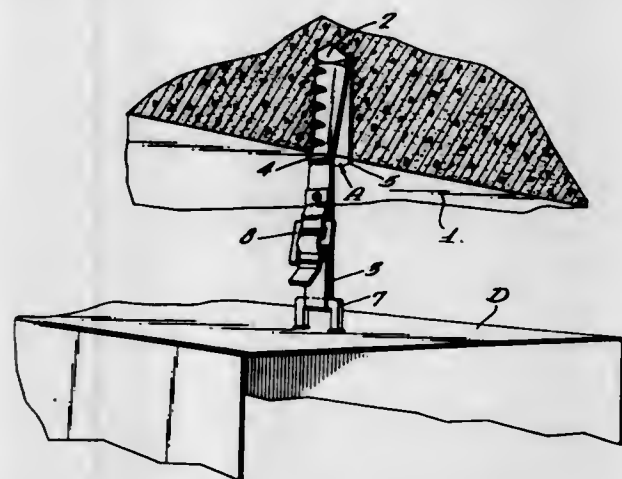
A stop for a cello end pin. It comprises a baseplate provided at its outer end with an abutment to receive and be engaged by the end pin of a cello or base violin or any other instrument, and at its inner end it has cord engaging means, and a cord of adjustable length with its free ends extending from the baseplate to the leg or legs of a chair on which the player sits.

3,598,012
ADJUSTABLE CAPOTASTO
James Dunlop, 625 37th st., Richmond, Calif.
Filed June 29, 1970, Ser. No. 50,696
Int. Cl. G10d 3/00
U.S. Cl. 84—318



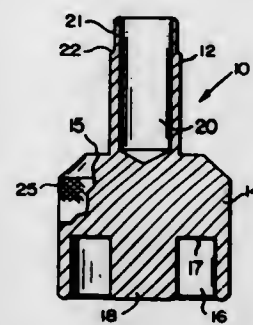
A capotasto for stringed instruments consisting of a pressure member and means for attaching the pressure member to the neck of an instrument in a manner that exerts dependably the proper amount of pressure upon its strings, comprising a band, a self-locking slide buckle engaged over one end of said band to precisely adjust its effective length and having means for pivotally attaching it to one end of the pressure member, and tensioning means preferably in the form of a toggle lever interposed between the opposite end of said band and the pressure member, to tension the band after its effective length has been adjusted. Thus, upon actuation of the toggle lever, precisely the proper amount of pressure will be exerted by the pressure member of the capotasto upon the strings of the instrument irrespective of what the size or conformation of its neck may be.

3,598,013
ANCHORING DEVICE
Georg Broberg, Solna, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden
Continuation-in-part of application Ser. No. 856,600, Sept. 10, 1969. This application Mar. 13, 1970, Ser. No. 19,272
Int. Cl. E21f 17/02; F16b 2/00
U.S. Cl. 85—79



An anchoring device is disclosed for mounting in a vertical hole in a horizontally disposed building member to secure a tension member from which a length of ventilation duct is suspended. The device comprises complementary wedge-shaped elements dimensioned to be received axially in the hole, one element being fixedly mounted with its base disposed adjacent the top of the hole and the other element being movably mounted with its base disposed near the bottom of the hole. The fixed element has a series of downwardly facing transverse teeth in its outer surface engaging the side of the hole and the movable element has a smooth outer surface engaging the side of the hole, each element having smooth parallel confronting surfaces inclined with respect to the axis of the hole for frictionally engaging a portion of the tension member when the movable element is driven upwardly with respect to the fixed element. In one embodiment, the elements are solid and the tension member is a thin, flat strip or wire. In another embodiment, the elements have U-shaped transverse cross sections with parallel legs, the confronting surfaces being formed on the legs and the tension member being a thin, flat strip frictionally engaged between the legs.

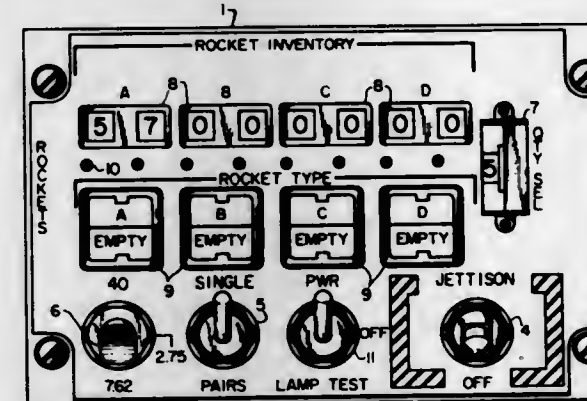
3,598,014
METHOD AND TOOL FOR REFILLING SPENT SHELLS WITH SHOT
John F. Vadas, Webster, N.Y., assignor to Crosman Arms Company, Inc., Fairport, N.Y.
Filed Apr. 30, 1969, Ser. No. 820,444
Int. Cl. F42b 33/02, 33/12
U.S. Cl. 86—28



The refilling tool has a tubular stem at one end, and in its opposite end has an annular recess which surrounds a cylindrical boss that is disposed coaxially of the stem. The stem will hold just enough shot to fill one shell. After the stem is loaded with shot, a plastic wad is positioned over the outer end of the stem, and an empty shell is pressed over the stem to force the wad into the shell to a predetermined depth. The assembly is then inverted and the tool is withdrawn. A

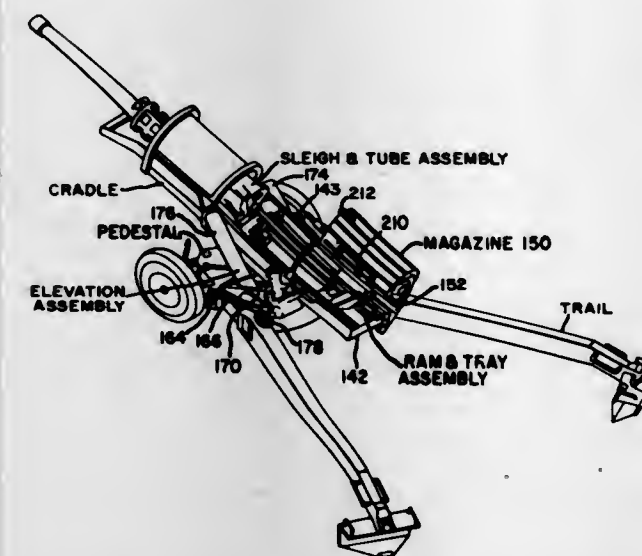
6 Claims

3,598,015
MIXED POD ROCKET RELEASE SYSTEM
John Delistovich, Jersey City; Edward J. Golden, Hamburg; Roger J. Talish, Fairfield, and Kenneth J. Urgovitch, Clifton, all of N.J., assignors to The Bendix Corporation
Filed Apr. 2, 1969, Ser. No. 812,735
Int. Cl. F41f 5/02
U.S. Cl. 89—1.814



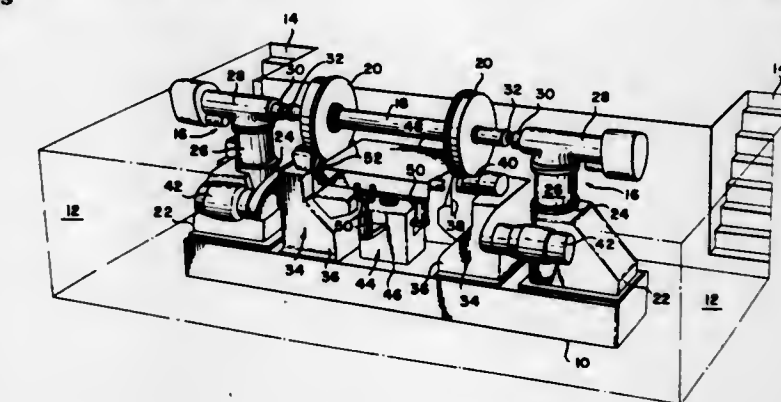
A rocket release system, for an aircraft, having rocket pods randomly loaded with mixed rocket types and having provisions for selecting the type, release mode and quantity of rockets to be released. The rocket release is programmed so that the weapons remain balanced on each side of the aircraft and only safe combinations of rockets may be released. A continuous display of rocket inventory is provided along with a warning when the inventory of a particular type of rocket is depleted.

3,598,016
AUTOMATIC BURST FIRING GUN HAVING REVOLVING CHAMBERS
Robert Ernest Chibrandy; John Leonard Amidon, and James Dexter Scanlon, all of Burlington, Vt., assignors to General Electric Company
Filed Mar. 18, 1969, Ser. No. 808,155
Int. Cl. F41d 7/04
U.S. Cl. 89—157



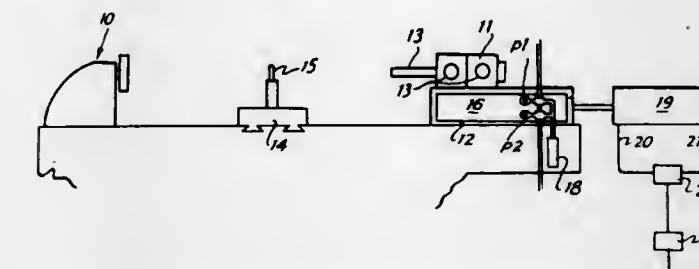
An automatic, burst-firing howitzer is provided having a single tube or gun barrel, and two alternatively and sequentially utilized firing chambers which reciprocate with the tube in recoil and counterrecoil. A loading system is provided to load rounds of ammunition sequentially into the next respective firing chamber during recoil, and to extract the previously fired case from the preceding firing chamber during counterrecoil. The loading system includes a floating, double-ended, spring- and gas-loaded, hydraulic piston system for continuously monitoring the recoil velocity of the recoil-

3,598,017
WHEEL TRUING MACHINE
Oliver E. Saarl, Niles, Ill., assignor to Stanray Corporation, Chicago, Ill.
Filed Mar. 10, 1969, Ser. No. 805,523
Int. Cl. B23c 1/14; B24b 5/46
U.S. Cl. 90—20



Apparatus for truing the wheels of a railway vehicle wheel-and-axle assembly. The vehicle axle is maintained in a fixed alignment by means of retractable centers, and the truing tool rotates about an axis which is maintained parallel to the vehicle axle. Drive rollers are provided to support and drive the vehicle wheels. The drive rollers are carried by a platform mounted for limited universal movement on a hydraulic lift mechanism which supports the weight on the vehicle wheels. Resilient means are provided to damp the universal motion of the platform. The truing tool is a milling cutter having a body contoured to the shape of the vehicle wheel, with cylindrical cutting buttons affixed to the body in diagonal ranks to form a helical pattern. The buttons in the wheel flange cutting portion of the cutter body are disposed with their longitudinal axes substantially normal to a radius of the cutter body, while the buttons in the tread cutting portion are disposed with their longitudinal axes substantially coincident with a radius of the cutter body. The flange cutting buttons may be arranged in ranks which are offset from the ranks containing the tread cutting buttons, and next adjacent buttons in the helical pattern may be spaced by staggering the ranks.

3,598,018
CONTROL MEANS FOR A MACHINE TOOL
John M. J. Varga, Lytton Cottage, Toothhill Lane, Brighouse, Yorkshire, England
Continuation-in-part of application Ser. No. 657,649, Aug. 1, 1967. This application May 21, 1969, Ser. No. 826,635
Int. Cl. F15b 21/02
U.S. Cl. 91—37



Control means for a machine tool having a member which needs to be moved in accordance with a predetermined program, said control means comprising a magnetizable surface adapted to be prerecorded with a pair of magnetic wavelength modulated waveform tracks, and a pair of pickup heads adapted to detect the waveforms and thus cause the member to be moved at speed which are dependent upon the ratio of the frequencies detected by the pickup heads.

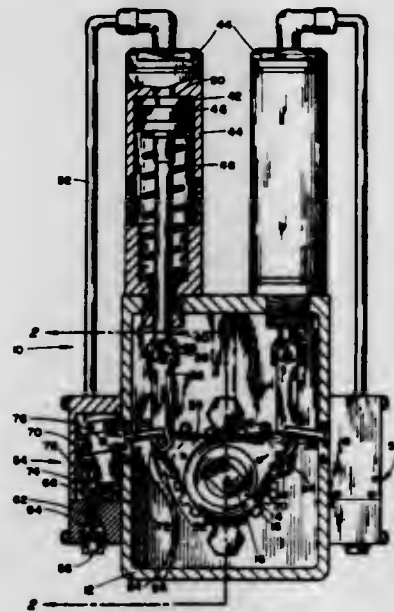
8 Claims

6 Claims

11 Claims

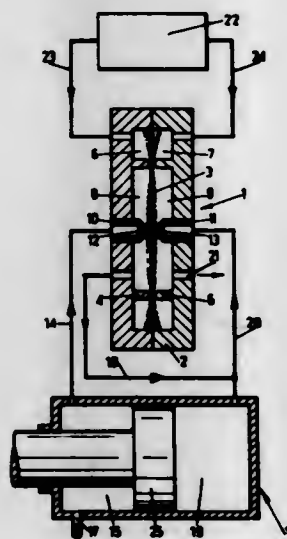
13 Claims

3,598,019
PRESSURE FLUID ACTUATOR
 Henry R. Killian, Greensburg, Pa., assignor to Walworth Company, New York, N.Y.
 Filed Aug. 19, 1969, Ser. No. 851,379
 Int. Cl. F011 31/02; F15b 13/042
 U.S. Cl. 91-347



An intermittent drive mechanism comprising a piston which is selectively driven to reciprocate a link carrying a pawl to turn a ratchet wheel through an angular increment. Pressure fluid, when introduced to the piston inlet line, forces a check valve to seal against an exhaust port and close the fluid system to start the piston stroke. At the end of the stroke, a switch is tripped to back the check valve from the exhaust port and against the inlet port to seal it off. With pressure off, a spring returns the piston and then the switch is again tripped to release the check valve for another cycle.

3,598,020
MAIN CONTROL SYSTEM FOR HYDRAULIC SERVOMOTORS
 Petrus Blok, Coymansstraat 7, Moerkapelle, and Taco J. Vier-sma, Julianalaan 26, Pijnacker, both of, Netherlands
 Filed May 19, 1969, Ser. No. 825,869
 Claims priority, application Netherlands, May 31, 1968, 6807776
 Int. Cl. F15b 15/11, 9/10; F01b 15/00
 U.S. Cl. 91-416

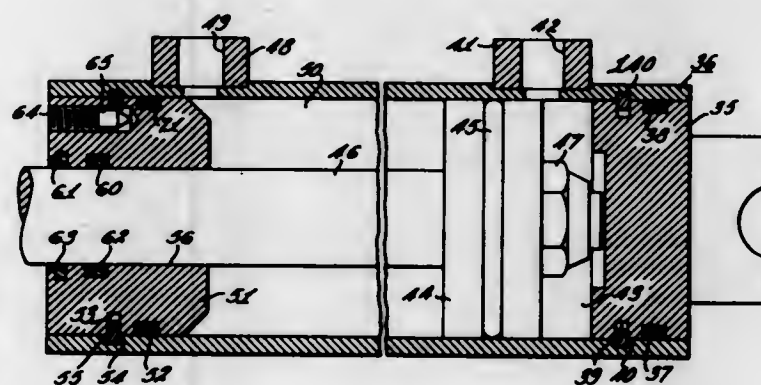


A control system for a hydraulic servomotor, comprising a cylinder chamber containing a diaphragm which is borne,

7 Claims

between two circular bearing edges so that a central and an annular compartment are produced on either side of the diaphragm, each of the annular compartments being connected to a pilot system, the first central compartment being connected to a cylinder of a servomotor, and the second to a discharge, in each central compartment an outflow member discharging towards the center of the diaphragm the member in the first compartment connected to a high-pressure supply and the other member to said cylinder.

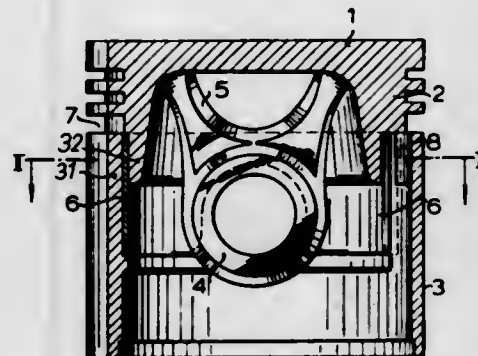
3,598,021
HYDRAULIC CYLINDER ASSEMBLY
 Herbert Z. Langland, Topeka, Kans., and John R. Plate, Milwaukee, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
 Filed Apr. 4, 1969, Ser. No. 813,528
 Int. Cl. F16j 13/10
 U.S. Cl. 92-169



A hydraulic cylinder comprising an assembly of easily manufactured and conveniently assembled components.

7 Claims

3,598,022
LIGHT METAL PISTON HAVING HEAT EXPANSION CONTROL INSERTS
 Rudolf Maier, Deidesheimer Str. 27, 7 Stuttgart-Well im Dorf, Germany, MAHLE Komm.-Ges., Stuttgart-Bad Cannstatt, Germany
 Filed Sept. 4, 1969, Ser. No. 855,138
 Claims priority, application Germany, Oct. 18, 1968, P 18 03 832.9
 Int. Cl. F16j 1/06
 U.S. Cl. 92-228

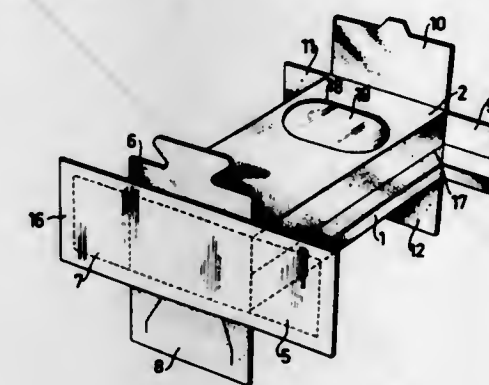


The skirt of a light metal piston is divided into a short inner portion and a long outer portion between which heat expansion controlling inserts are embedded. The inner and

1 Claim

outer skirt portions are separated from each other to form cavities midway between the wristpin bosses and the ends of the inserts are spaced by the cavities. The cavities and inserts extend up to the lowermost piston ring groove.

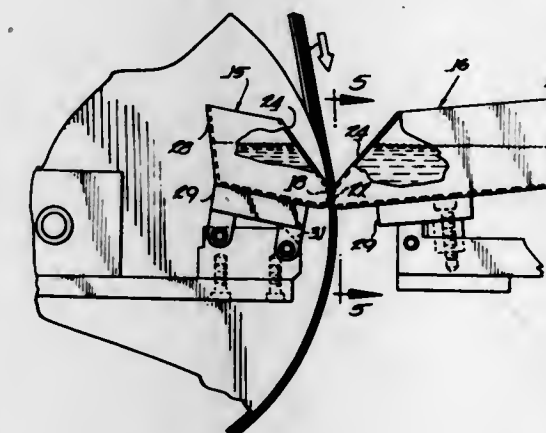
3,598,023
METHOD OF MAKING A TIGHT PACKAGE PROVIDED WITH WINDOWS
 Tolvo-Artturi Hakala, Kauttua, assignor to AB Akerlund & Rausing, Lund, Sweden
 Filed May 8, 1969, Ser. No. 822,923
 Claims priority, application Sweden, May 8, 1968, 6197/68
 Int. Cl. B31b 7/00
 U.S. Cl. 93-36.01



A method for making a carton which is lined with an impervious transparent material and is provided with a window over which the transparent material is disposed to permit viewing of contents.

3 Claims

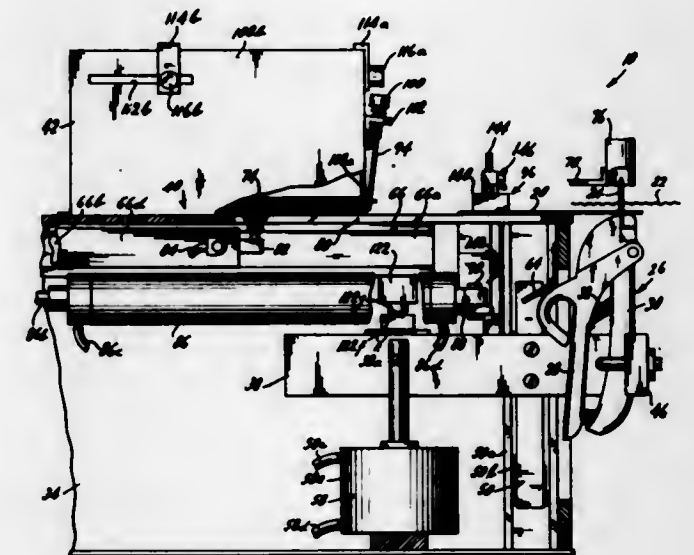
3,598,024
ENVELOPE MANUFACTURE
 Ernst C. Sauerman, Chicago, Ill., assignor to Gaw-O'Hara Envelope Co., Chicago, Ill.
 Filed June 20, 1969, Ser. No. 835,014
 Int. Cl. B31b 21/26
 U.S. Cl. 93-62



Means for and method of producing envelopes from preformed envelop blanks in which these blanks are passed in closely spaced overlapping or shingled relation between closely spaced and opposed gum boxes which simultaneously apply ribbons of latex or adhesive to an exposed area at an end of the inner and outer surfaces of the envelop blanks forming at one end a sealing flap and at the other end an auxiliary sealing flap which, when folded with the latex on these flaps aligned and engaged in pressure contact, seals the envelope. These blanks after passing between the opposed gum boxes for simultaneous applications of the ribbons of latex, are then fed between heating chambers or zones for drying, and, subsequently scored and folded to provide an upper sealing flap and a reversely folded auxiliary sealing flap.

2 Claims

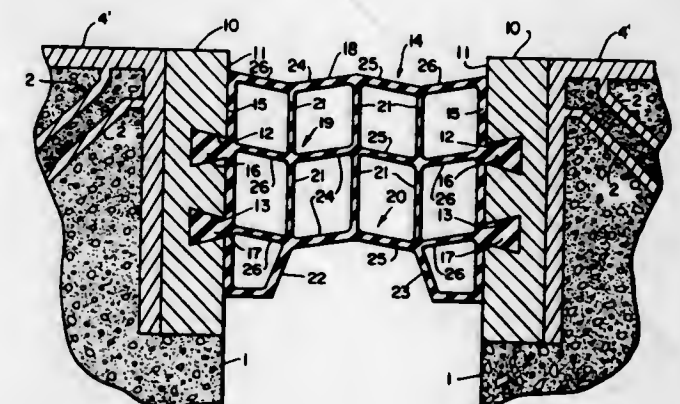
3,598,025
TAGGING MACHINE
 Abe Cotton, Jamaica, N.Y., assignor to Fairfield-Noble Corporation, Farmingdale, N.Y.
 Filed May 5, 1969, Ser. No. 821,815
 Int. Cl. B31f 7/00
 U.S. Cl. 93-87



Hang-tags are frequently attached to cloth garments by means of a hand-operated bar-lock-dispensing assembly which deposits a bar-lock attachment intermediate the cloth and the tag. Apparatus automating this process comprises a traditional bar-lock-dispensing assembly supported for movement through a reciprocal power stroke and a reciprocating tag feed assembly including a tag storage bin. The bar-lock dispenser and the tag feed assembly are powered by a combined power and timing system which positions a tag beneath the dispensing assembly prior to the insertion of a bar-lock.

7 Claims

3,598,026
JOINT-SEALING APPARATUS
 Harry W. Johnson, Chicago, Ill., assignor to W. R. Grace & Co., Cambridge, Mass.
 Filed Jan. 31, 1969, Ser. No. 795,630
 Int. Cl. E01c 11/10
 U.S. Cl. 94-18



A joint-sealing device for use primarily in road or bridge deck joints in which an anchor is fixed to each side of the joint, each anchor presenting confronting abutments inside the joint and a compressible, resilient, elastic sealing member seated between the abutments for a watertight seal. Each abutment has a cavity extending the length of the joint and the joint-sealing member has a mating projection extending into the cavity to retain the joint-sealing member in its proper position. In addition, a method of installing such an apparatus is described.

14 Claims

3,598,027

METHOD OF ROAD CONSTRUCTION

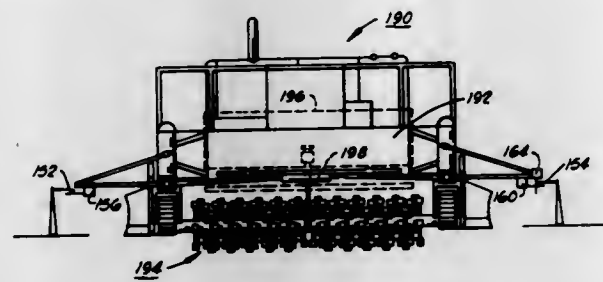
George W. Swisher, Jr., Oklahoma City, Okla., assignor to CMI Corporation, Oklahoma City, Okla.

Filed Feb. 5, 1969, Ser. No. 796,853

Int. Cl. E01c 21/00

U.S. Cl. 94—22

13 Claims



A method of stabilization of earth material to a controlled depth to form a roadway base material or subgrade, the method consisting of cutting and comminuting native or prepared earth material to an automatically controlled depth whereupon cut material is spread to an automatically controlled thickness above the controlled depth line to form an even layer of the comminuted material for utilization as a roadway base capable of receiving and supporting paving material thereupon. Depending upon the suitability of the earth material for base purposes, additional steps may be taken to add specified liquid or dry materials to the comminuted earth material to adjust the plasticity index to a proper value for utilization as a paving material support substance.

3,598,028

EARTH COMPACTOR FEET

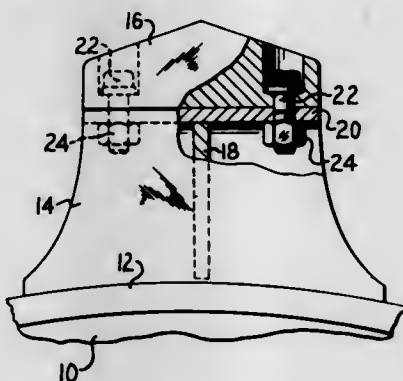
Gerald E. Grant, Oswego; Charles R. Jefferson, Pekin; Victor Randour, Aurora, and Austin G. Skromme, Jr., Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed June 5, 1969, Ser. No. 830,793

Int. Cl. E01c 19/24

U.S. Cl. 94—50

3 Claims



Tamping feet for an earth compactor comprising a pedestal and tip for each foot and bolts securing the tip to the pedestal with the head ends of the bolts countersunk but exposed for wear when the tip wears to a point approaching the end of its useful life. The nuts of the bolts are behind the outer surface of the pedestals and are positioned to be removed with a burning torch when desirable.

3,598,029

VIBRATORY MACHINE, ESPECIALLY INTENDED FOR COMPACTING GROUND

Michel Paramythioti, Chantilly, France, assignor to Albaret S. A., Rantigny, France

Filed Aug. 1, 1969, Ser. No. 846,667

Claims priority, application France, Aug. 12, 1968,

162,659

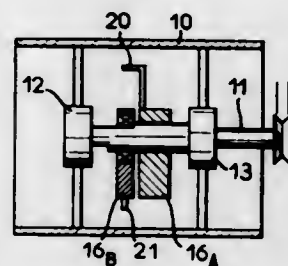
Int. Cl. E01c 19/28

U.S. Cl. 94—50

8 Claims

A vibratory machine, especially intended for compacting ground, comprising a vibrating body subjected to the action

of a rotating vibrator shaft carrying two eccentric flyweights, one of which is fixed for rotation on said vibrator shaft while the other is free for rotation thereon, the effects of said flyweights over a determined range of frequencies have a geometric resultant which varies in a continuous manner as a



function of the speed of rotation, and irrespective of the direction of rotation. The vibratory machine is associated with a chassis adapted for coupling to the machine by suspension and isolating means, the weight of the chassis carried by the machine being at least of the same order as that of said machine.

3,598,030

ELECTRIC GENERATOR DRIVE MECHANISM

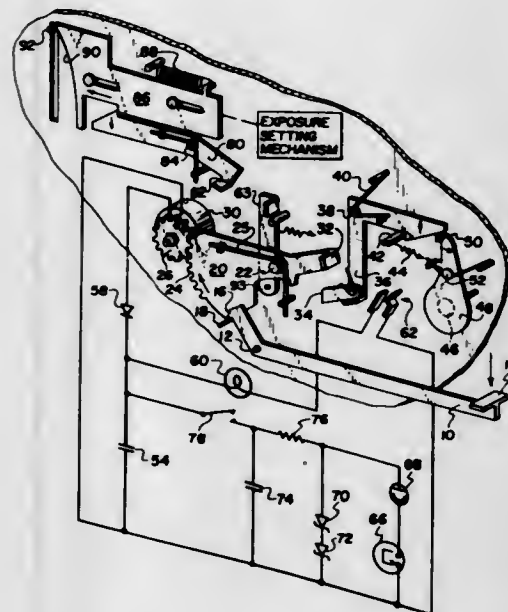
David E. Beach, Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 29, 1969, Ser. No. 861,942

Int. Cl. G03b 7/12, 15/03

U.S. Cl. 95—10 C

4 Claims



Devices for driving the rotor of an electric generator which include spring-biased members drivingly connected to the generator rotor and movable between a first, "cocked" position and a second position to drive the generator. The output of the generator may supply power to a camera flashlamp circuit or an exposure control mechanism. A reset mechanism is provided to return the generator-driving member to its first, "cocked" position against the spring bias. After being set in motion, the generator rotor may continue to move independent of the driving member.

3,598,031

PHOTOGRAPHIC CAMERA WITH MEANS FOR VARYING A FOCUS ADJUSTMENT TO PHOTOGRAPH AN ARTIFICIALLY ILLUMINATED SUBJECT

Donald M. Harvey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 6, 1967, Ser. No. 614,086

Int. Cl. G03b 17/12

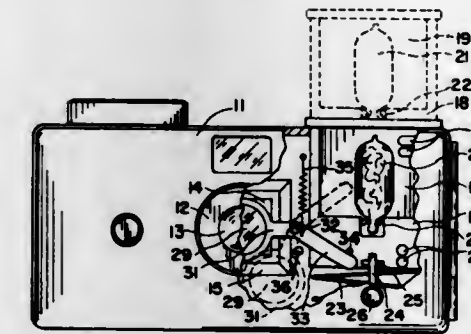
U.S. Cl. 95—11

15 Claims

A camera having an optical lens system for automatically changing the focal distance of the objective lens in response

to movement of an artificial illuminating device between an operative and an inoperative position on the camera. The illuminating device may be a built-in flash unit, a flashbulb, or a detachably mounted flash unit. The optical lens system

limiting clutch to the film takeup spool. The device includes a mechanism which releasably and alternatively couples the takeup spool and the rewind member to the electric motor and consists of a film advance control first network, a film re-



consists of a fixed lens component and a movable lens component which is moved into or out of registry with the fixed lens component when the illuminating device is moved between the operative and inoperative positions.

3,598,032

PRODUCING STEREOPHOTOGRAPHS WITH A CLOSED CIRCUIT TELEVISION SYSTEM

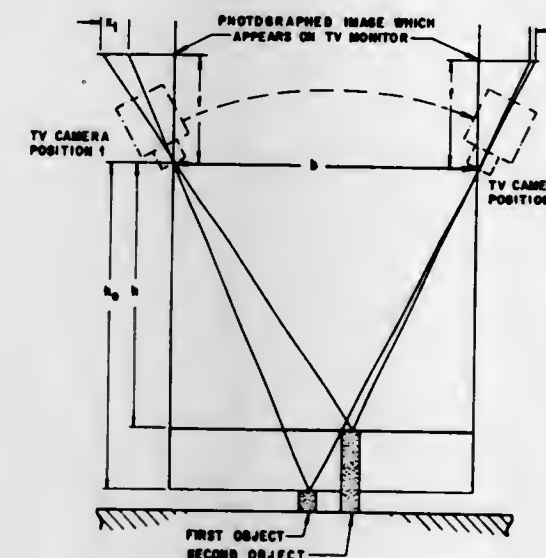
Stanley W. Bohn, Bethel Park, and William J. Dimond, Allison Park, both of, Pa.

Filed Nov. 14, 1969, Ser. No. 876,933

Int. Cl. G03b 35/08

U.S. Cl. 95—18 P

2 Claims



A method of producing a three-dimensional stereo effect. A television camera is moved in an arc about the objects to be photographed. The images appearing on a television monitor are photographed at each of two camera positions. Stereophotographs are produced from the monitor images by use of an offset contact-printing technique. The two resultant stereophotographs are examined simultaneously through a stereoviewer.

3,598,033

CAMERA FILM AUTOMATIC WIND AND REWIND MECHANISM

Tetsuo Sasaki, Iruma-gun, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Nov. 1, 1968, Ser. No. 772,613

Claims priority, application Japan, Nov. 20, 1967,

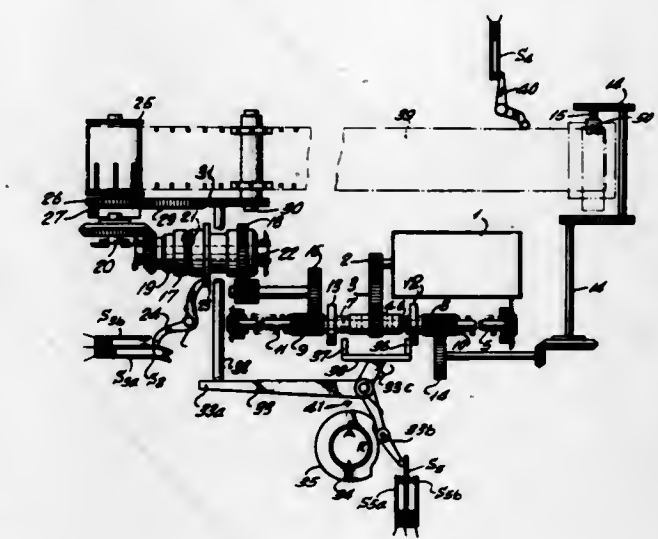
42/74559

Int. Cl. G03b 1/12, 19/04

U.S. Cl. 95—31 EL

8 Claims

A camera automatic wind and rewind mechanism which includes an electric motor coupled through a first clutch to the rewind spindle and through a second clutch and a torque



wind control second network, a battery, and a first switch for alternatively connecting the battery through the first and second networks simultaneously with the coupling of the takeup spool and rewind member to the motor.

3,598,034

ELECTRIC MOTOR DRIVEN AUTOMATIC FILM ADVANCE

Minoru Suzuki, Tokyo-to, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

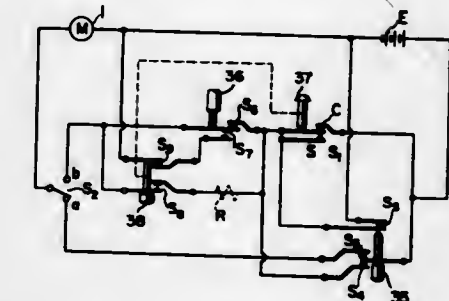
Filed Dec. 2, 1968, Ser. No. 780,501

Claims priority, application Japan, Dec. 2, 1967, 42/77,093

Int. Cl. G03b 19/04

U.S. Cl. 95—31 EL

11 Claims



An automatic film advance includes a motor connected through a coupling which is disengaged upon a frame advance and actuates a double-throw switch from an automatic motor-energizing circuit to a manual shutter release switch circuit. Actuation of the shutter release switch energizes the motor to release the shutter and switch to automatic circuit, the shutter release opening the energizing circuit and shunt braking the motor during shutter opening and reverses the condition upon shutter closing to advance a film frame. A switch network permits rapid sequence frame advance and shutter operation. Another switch network permits a bulb exposure during which the motor is shunt braked and the energizing circuit opened.

3,598,035

LENS ASSEMBLY

Jacob S. Haller; Hans Kist, and Andor Fleischman, all of Northbrook, Ill., assignors to Identification Development Corporation

Filed Apr. 8, 1968, Ser. No. 719,586

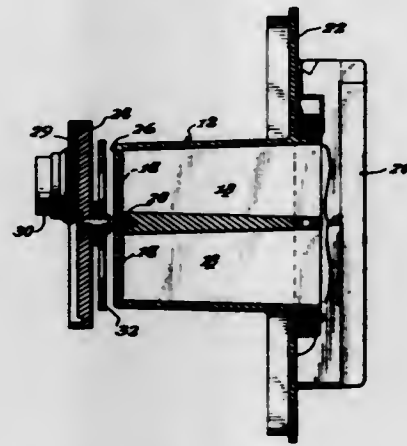
Int. Cl. G03b 19/02

U.S. Cl. 95—38

9 Claims

A lens assembly for exposing a plurality of different regions within a fixed area through a single lens mounted on a rotatable lens turret. Upon initiation of a cycle of operation, a region corresponding to the position of the lens is exposed

and the turret is automatically rotated to index the lens into position for exposure of another region. In a configuration where the area is rectangular in shape and four rectangular



regions are disposed two by two within the area, the disk is rotated through different angles after alternate exposures to properly align the lens with the next region to be exposed.

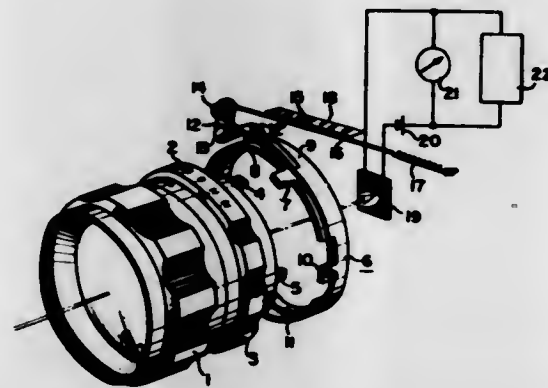
3,598,036

DIAPHRAGM VALVE INDICATOR

Mimoru Suzuki, Tokyo-10, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-10, Japan
Filed May 28, 1969, Ser. No. 828,524

Claims priority, application Japan, June 12, 1968, 43/40350
Int. Cl. G03b 17/20

U.S. Cl. 95-64 R



A single lens reflex camera provided with interchangeable objective lenses has a diaphragm aperture indicator element and scale observed through the camera viewfinder. The indicator element is coupled to the diaphragm ring by a motion transmission wherein the rate of movement of the indicator element relative to that of the diaphragm adjustment varies in the vicinity of the fully open diaphragm to compensate for the vignetting effect. The transmission includes a string engaging the indicator and releasably connected to the diaphragm ring, and engaged by a guide mounted on a lever which is rocked by a cam in the area of the diaphragm open position.

3,598,037

FILM-DEVELOPING APPARATUS

Herbert W. Houston, Sr., 655 East 20 St., Yuma, Ariz.
Filed Feb. 6, 1970, Ser. No. 9,345

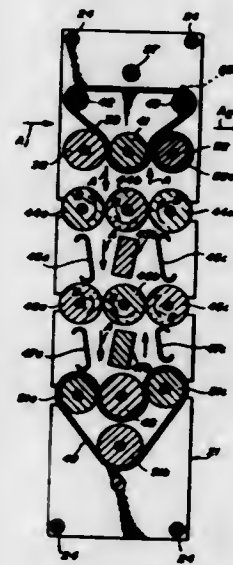
Int. Cl. G03d 3/12

U.S. Cl. 95-89 R

3 Claims

An improved continuous film-developing apparatus particularly adapted for developing sheet or cut films. The necessity for washing the film free of chemicals between each processing stage is obviated and film is automatically threaded through the apparatus by means of a film-drive assembly carried in the upper portion of each chemical tank. The film-drive assembly includes three spaced horizontal rollers, the axes of rotation of which are arranged in a triangular pattern, and a film-drive web around the triangularly spaced rollers. A film-receiving roller and film-ejecting roller are spaced on either side of the apex of the triangle and bear in-

wardly against the film-drive web. Film inserted between the film-receiving roller and the web is transported partially around the film-receiving roller and downwardly into the chemical tank. Rollers in the lower portion of the tank return the film upwardly to the ejecting roller. Film passing between the ejecting roller and the web is wiped free of the chemical,



3,598,038

FLUID DAMPER AND NOISE ATTENUATOR

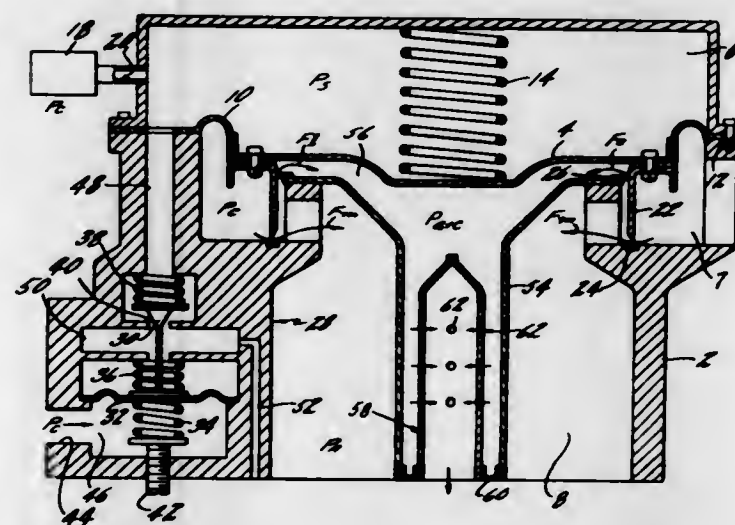
John F. Maher, Enfield, and William A. Watson, Vernon, both of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 21, 1969, Ser. No. 878,733

Int. Cl. B64d 13/04

U.S. Cl. 98-1.5

5 Claims



A fluid valve in which flutter of the pressure-responsive member is eliminated is provided with a tube with holes in the wall thereof in the outlet area of the valve to reduce pressure fluctuations on the undersurface of the pressure-responsive member.

3,598,039

MOVABLE PAPER MACHINE HOOD

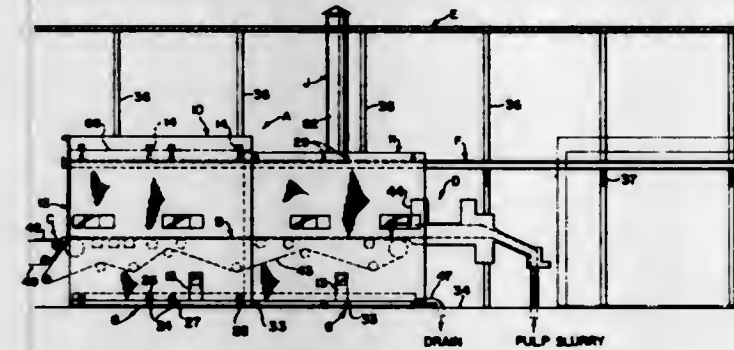
James L. Bryant, Dorval, Robert Baldwin County, Quebec, Canada, assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Oct. 4, 1968, Ser. No. 765,105

Int. Cl. F24f 13/00

U.S. Cl. 98-33 R

6 Claims



The fourdrinier section of a papermaking apparatus is isolated from the remainder by a completely removable encompassing hood cover or housing, having disengaging vent means, isolating the moisture-generating initial period. The hood is of one or several sections where each is movable, one telescoping into another, and the single or telescoped unit adapted to be powered for movement in a desired direction to provide full access to the uncovered section.

3,598,040

CONTINUOUS-WORKING PRESS, PARTICULARLY FOR THE MANUFACTURE OF FIBER PLATES, AND PLANT PROVIDED WITH SUCH A PRESS

Albert DeMets, 105, Hogestraat, Kachtem, Belgium

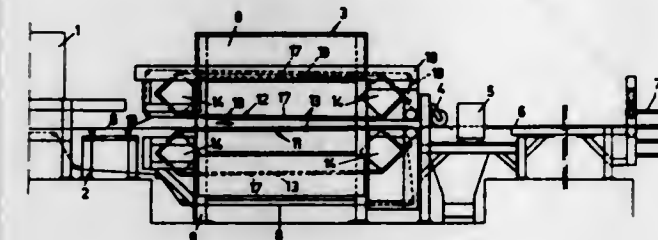
Filed June 14, 1968, Ser. No. 737,125

Claims priority, application Belgium, June 16, 1967, May 31, 1968, 700,055;59,119

Int. Cl. B30b 5/06

U.S. Cl. 100-154

6 Claims



A press having relatively movable frames and rollers is provided for manufacturing fiber plates and the like. The movable upper frame is connected to the bearings supporting the first and last upper rollers and provides relative adjustment of pressure and belt tension. Hydraulic cylinders and pistons suspend the movable frame from the stationary frame of the press.

3,598,041

OFFSET CALENDER ROLLS

Donald B. De Noyer, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed July 25, 1969, Ser. No. 844,962

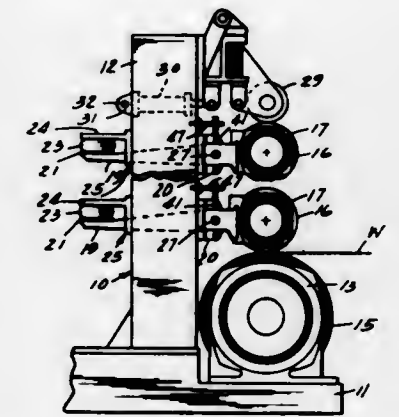
Int. Cl. B30b 3/00

U.S. Cl. 100-163

10 Claims

Stabilizing mounting for calender rolls, compensating for horizontal deflection of the rolls by offsetting the roll axes horizontally. Stabilizing of the rolls is attained by mounting the lift arms of the rolls on vertically extending swing arms on individual pivots extending transversely of the lift arms. Each swing arm is pivoted to a pivot bracket for the roll at one end, pivotally supports the lift arm intermediate its ends,

and is adjustably connected to the pivot bracket at its opposite end by an eccentric pin, movable in an open slot in the swing arm to offset the roll axis as required and to accom-



3,598,042

BRAILLE PRINTING SYSTEM

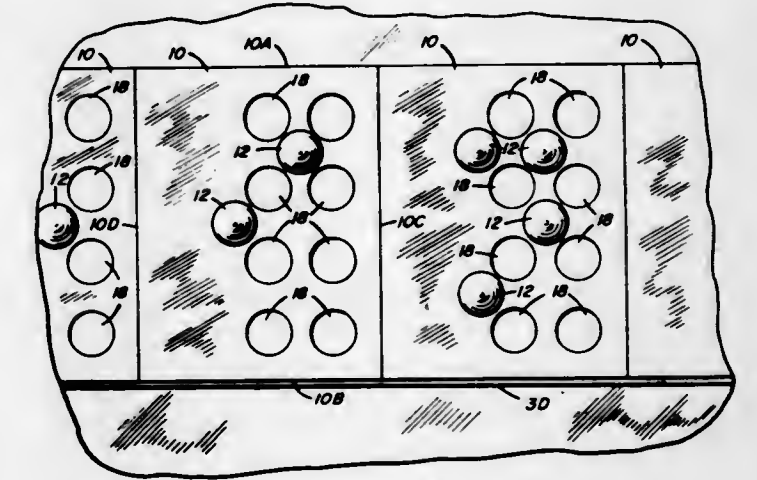
Harry S. Boyd, 6409 South Knoxville, Tulsa, Okla.

Filed Mar. 17, 1969, Ser. No. 807,672

Int. Cl. B44b 5/00

U.S. Cl. 101-3

1 Claim



This invention relates to an element for embossing a braille character into paper. More particularly, the invention relates to a means of printing braille characters into both sides of paper at the same time. Each of the embossing elements includes one or more indentations therein arranged in rows and columns according to an established braille system and spaced apertures aligned in rows and columns, there being a total number of apertures equal to the products of the number of rows times the number of columns, the rows and columns of the apertures being displaced from the rows and columns of indentations and adaptable to receive therein the indentations of opposed embossing elements as the elements are utilized in a printing press.

3,598,043

PRINTING MACHINE FOR CONICAL CUPS

Richard William Schuff, Phoenix, Ariz., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed June 20, 1969, Ser. No. 835,001

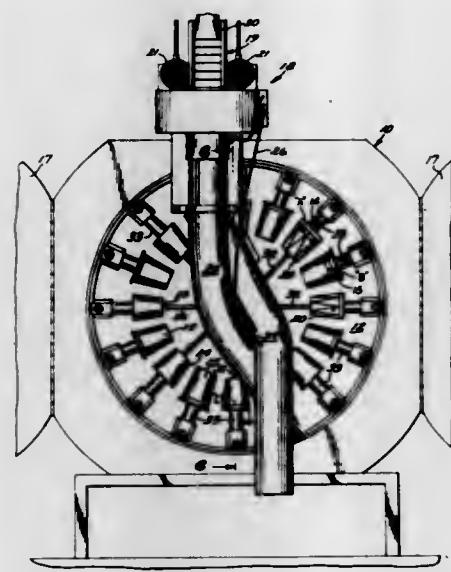
Int. Cl. B41f 17/28

U.S. Cl. 101-40

4 Claims

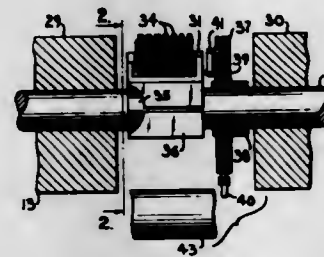
A printing machine for conical cups including a turret and individual cup-holding means mounted on the turret. The cup-holding means are rotated with the turret in a single plane to permit high speed printing. Alternate ink applicator

rollers are spaced between the cup-holding means. To prevent sliding of the cup surface on the printing plate, the oriented position in which the shaft can be nested in the receptacle. Detent means are provided to retain the shaft in



cup-holding means are positioned such that they will rotate the cup surface over the printing surface.

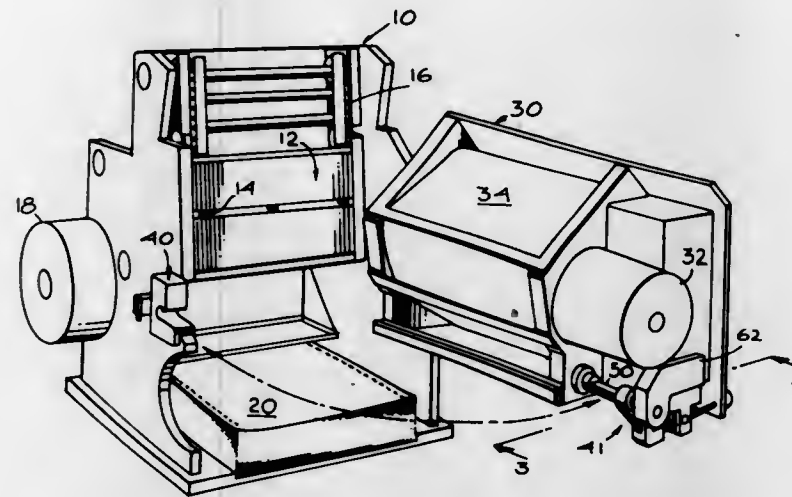
3,598,044
CONSECUTIVE NUMBER PRINTING IN THE FOLDING SECTION OF A ROTARY ENVELOPE MACHINE
Joseph M. Hutchinson, Fort Worth, Tex., assignor to Tension Envelope Corporation, Kansas City, Mo.
Filed Sept. 22, 1969, Ser. No. 859,836
Int. Cl. B41 49/02
U.S. Cl. 101-76 4 Claims



In the envelope blank folding and sticking section of a conventional rotary envelope machine, one of the lower bed rollers is axially split on the shaft and a standard sequential number-printing head mounted between the split sections for rotation on the shaft into the paper plane. The printing head cooperates with the upper cylinder normally engaging the bed roller for printing consecutive numbers on the blanks as they pass through the section in the usual manner. The shaft carrying the printing head is reduced in effective diameter at the head-mounting position to permit the correct radial distance from the shaft axis to the plane of the blanks, otherwise not obtainable with a standard printing head.

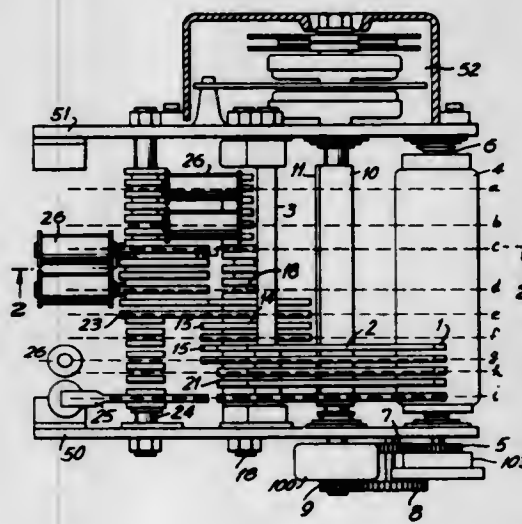
3,598,045
ASSEMBLY FOR LATCHING A HINGED PRINTING DRUM INTO ALIGNMENT WITH A HAMMER BANK
Richard H. Miller, Chatsworth, Calif., assignor to Data Products Corporation, Culver City, Calif.
Filed Feb. 7, 1969, Ser. No. 797,446
Int. Cl. B41j 9/00; E05c 3/04
U.S. Cl. 101-93 R 5 Claims

A latch assembly useful in a high speed printing apparatus for latching a hinged drum gate into alignment opposite to a hammer bank. The latch assembly is comprised of a bracket fixedly mounted on the hammer bank frame. The bracket defines a slightly inclined entrance ramp leading to a substantially semicylindrical vertically oriented shaft receptacle. A substantially semicylindrical shaft is mounted for rotation on the drum gate. A lever is provided for rotating the shaft between a horizontally oriented position and a vertically



either position. A switch is mounted on the hammer bank frame for sensing the shaft orientation and position.

3,598,046
PRINT HAMMER INTERPOSER AND ACTUATING MEANS IN FLYING PRINTERS
Shigeyoshi Hirabayashi, Nagano-ken, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed May 12, 1969, Ser. No. 823,892
Claims priority, application Japan, May 13, 1968, 43/31816
Int. Cl. B41j 9/36
U.S. Cl. 101-93 3 Claims

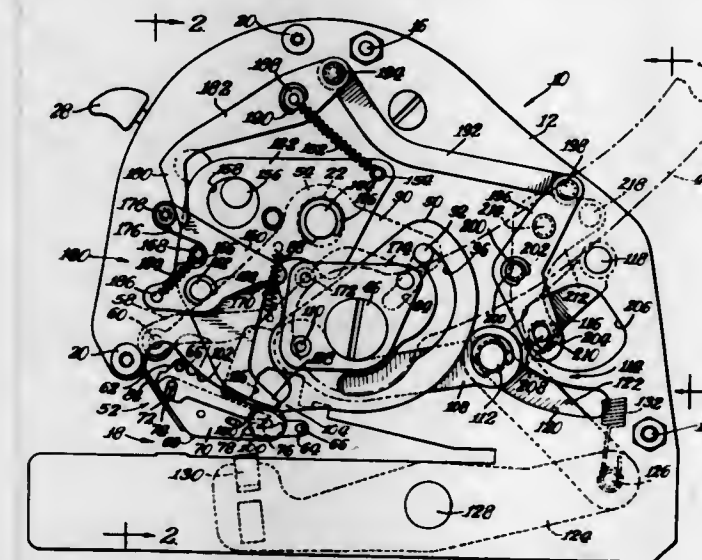


A flying printer having a plurality of printing columns disposed and supported between a pair of spaced main plates and having printer-driving means, timing and synchronization means and paper-feeding means disposed outside of said main plates and mounted thereon. The flying printer preferably includes a continuously rotating ratchet wheel having at least one tooth extending therefrom and a print drum rotated in synchronization with said ratchet wheel, both mounted between said main plates. Each printing column includes a trigger lever adapted for rotational and linear displacement, a print hammer adapted to effect printing in response to the linear displacement of said trigger lever and means including an electromagnet for selectively rotating said trigger lever into and out of the path of said ratchet wheel tooth, said trigger lever being linearly displaced when disposed in said path.

3,598,047
CHECKWRITER-INKING CONTROL MEANS
Ardath A. Gopperton, Mount Prospect, Ill., assignor to Theodore B. Hirschberg, Jr., Chicago, Ill.
Filed Aug. 28, 1969, Ser. No. 853,715
Int. Cl. B41j 03/00, 05/00
U.S. Cl. 101-95 10 Claims

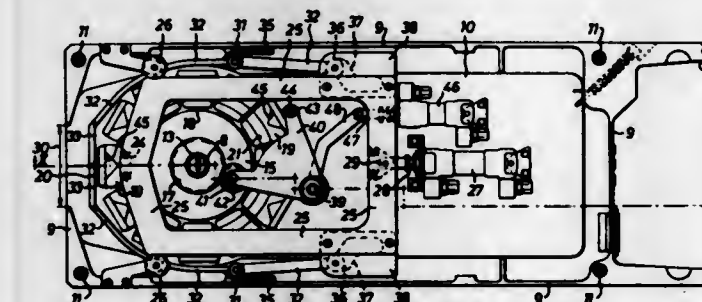
A machine for printing money orders and like instruments including a frame, means defining a printing line, individually

adjustable type segment members supported by the frame and having numerical printing characters thereon ranging from zero to numbers greater than zero positionable on the printing line, an inking roller supported for movement into contact with printing characters disposed on the printing line, a platen underlying the printing line and movable to engage an instrument disposed between the platen and printing



characters on the printing line, an operating handle movable from a nonprinting to a printing position for effecting operative movement of the inking roller and platen, and control lever means for preventing movement of the inking roller into contact with the printing characters on the printing line unless at least one of the type segment members is positioned such that a printing character thereon greater than zero is disposed on the printing line.

3,598,048
PRINT WHEEL SETTING AND ACTUATING MEANS
Per-Olov Hellstrom, Malmo, Sweden, assignor to AB Turnkey-Projekt, Malmo, Sweden
Filed Nov. 14, 1968, Ser. No. 775,830
Int. Cl. B41j 1/60
U.S. Cl. 101-106 3 Claims

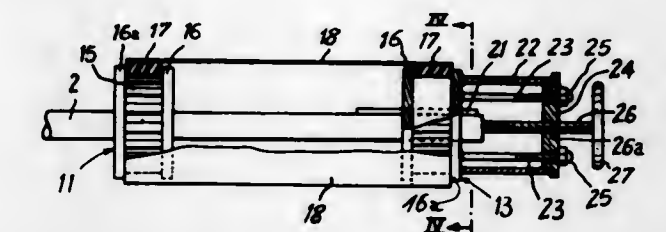


In a stamping apparatus having a frame and at least one printing type which is mounted on a support and is pressed against a print receiving surface after contact with an inking-pad device, the printing type is rectilinearly mounted on the support which is mounted on the frame in a fixed position thereon, and a slide on the frame engages the printing type by means of a cam on the slide for moving the printing type towards and away from the print receiving surface.

3,598,049
ENDLESS BAND STENCILING APPARATUS
Madiane Gilbert De Souza Dias, Alfortville, France, assignor to Societe Vitos Etablissements Vitoux, Troyes, France
Filed Feb. 10, 1969, Ser. No. 797,998
Claims priority, application France, Feb. 8, 1968, 139064
Int. Cl. B41 13/08
U.S. Cl. 101-122 12 Claims

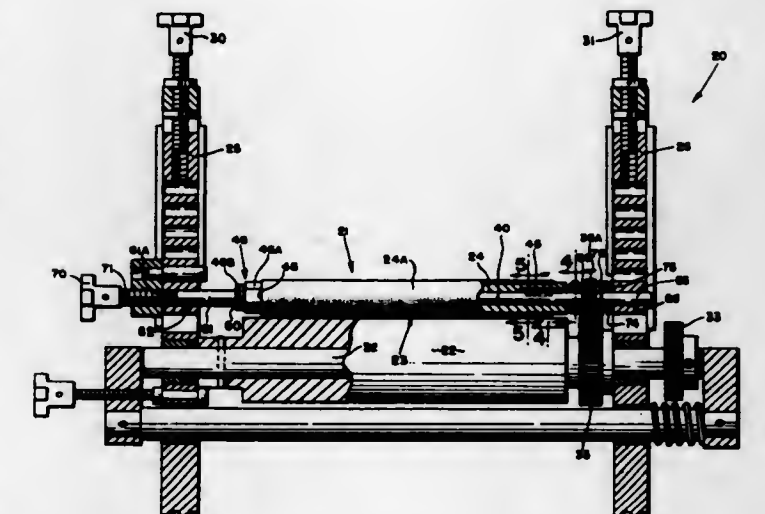
A stenciling apparatus is provided with a screen formed as an endless band trained about and tensioned on four sprockets and driven by a shaft on which two of said

sprockets are mounted. The sprockets are adjustable to vary the longitudinal and transversal tension of the screen. The objects to be printed on are brought into contact with the



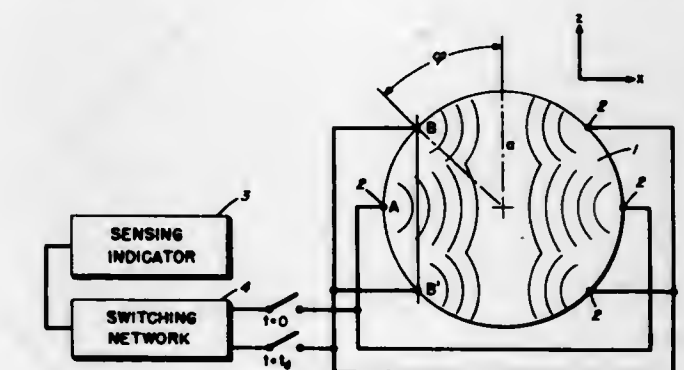
outer face of one flight of the screen band, while a scraper, in contact with the inner face of said flight, urges printing ink across the screen and onto the object.

3,598,050
MOUNTING MEANS FOR A PRINTING ROLL AND ASSOCIATED DRIVING APPARATUS
John R. Thompson, Cincinnati, Ohio, assignor to International Machine Products, Inc., Cincinnati, Ohio
Filed July 18, 1968, Ser. No. 745,823
Int. Cl. B41f 13/10, 5/00
U.S. Cl. 101-216 7 Claims



In printing apparatus a plate roll means employing a standard shaft means including interconnecting means enabling use of standard shaft means interchangeably and having standard gear means including interconnecting means to said standard shaft means to be used to drive said plate roll means.

3,598,051
DIRECTIONAL WARHEAD
William H. Avery, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy
Filed July 25, 1968, Ser. No. 747,603
Int. Cl. F42d 1/06
U.S. Cl. 102-23 9 Claims



The present invention comprises a spherical explosive device that, by selective multipoint initiation, concentrates its

energy in a beam along any of several aiming axes. Aiming is accomplished by electronically selecting the proper group of detonators, thereby eliminating the necessity of physically aiming the charge as is required in all other focused blast devices. Once fired, these initiators cause a nearly cylindrical detonation wave, converging on the focusing axis, which forces the explosion products out along this axis and causes the warhead energy to be concentrated in the direction of a target rather than being omnidirectionally dissipated as in conventional warheads.

3,598,052

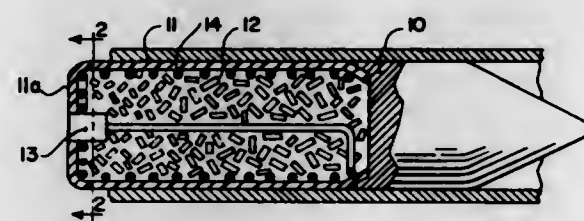
CARTRIDGE WITH FRAGMENTABLE CASE

Jules J. Schwartz, Wilmington; Robert E. Black, Jr., Newark; Harry G. Jones, Newark, Del., and Kenneth D. Rubin, Dover, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

Filed Sept. 23, 1969, Ser. No. 860,318
Int. Cl. F42b 5/30

U.S. Cl. 102—38

15 Claims



A gun cartridge or round of ammunition and a method for its preparation is presented having a flexible case which is caused to be broken into fragments in the gun firing chamber by a linear train of explosive included in or adjacent to the case. The explosive train is arranged in a predetermined geometric pattern which will efficiently break up the case into small fragments upon firing of the projectile's cartridge initiator and will be discharged from the gun barrel by the force of the explosion and by the force generated by the bore evacuator if one is provided.

3,598,053

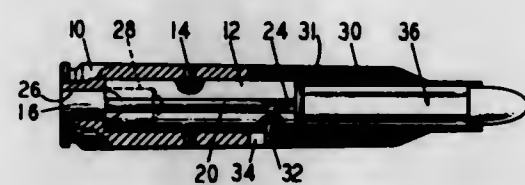
CARTRIDGE ADAPTER

Irving W. Glater, 277 North Quaker Lane, West Hartford, Conn.

Filed Nov. 12, 1969, Ser. No. 875,986
Int. Cl. F42b 5/22, 9/20, 13/20

U.S. Cl. 102—41

10 Claims



A cartridge adapter permitting the use of rimfire ammunition in center-fire weapons. The adapter comprises a cartridge-shaped housing with an upper casing for supporting a rimfire cartridge and a lower casing containing a firing pin assembly.

3,598,054

RECOIL ATTENUATING MUNITION

George Webb, Richmond, and Reginald Winterburn, South Richmond, both of Ind., assignors to Avco Corporation, Richmond, Ind.

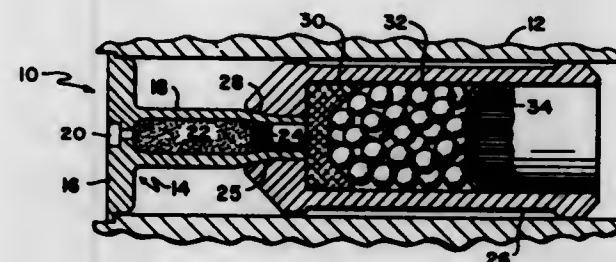
Filed Feb. 24, 1969, Ser. No. 801,365
Int. Cl. F42b 7/06

U.S. Cl. 102—42 C

11 Claims

A unique munition is disclosed which will isolate the forces of the propellant system from the gun. Slidable coaxial cas-

ings are formed to provide shock absorbing formations



therebetween. The shock absorbing formations absorb gun recoil forces formed by the ignition of the propellant.

3,598,055

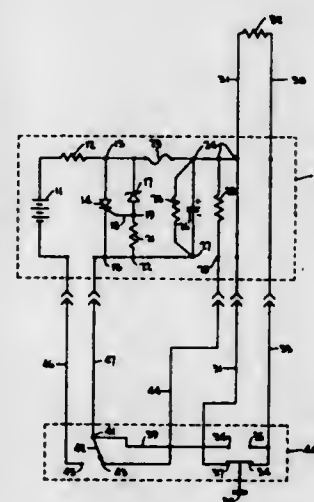
CAPACITIVE DISCHARGE FUZE

Dennis E. Gunderson, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Army

Filed Oct. 31, 1968, Ser. No. 772,330
Int. Cl. F42c 15/40

U.S. Cl. 102—70.2

1 Claim



This invention relates to a fuzing device and, more particularly, to a capacitive discharge fuze for an explosive embedment anchor. This fuze device makes use of a battery, the voltage of which is in excess of the maximum working voltage of the capacitor, to reduce the charging time to an acceptable minimum. A first switch connects the battery to the capacitor. A Zener diode acting in conjunction with a silicon controlled rectifier and a replaceable fuse element control the charging of the capacitor. At the rated voltage of the capacitor, the Zener diode triggers the silicon controlled rectifier causing a short circuit through the fuse element across the capacitor. The excessive current through the short circuit path melts and permanently opens the fuse element thereby permanently isolating the charged capacitor from the charging circuit. A second switch discharges the capacitor through a detonator.

3,598,056

FUZE

Gaylon L. West; Robert H. Forster, and Bernard M. Jones, all of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy

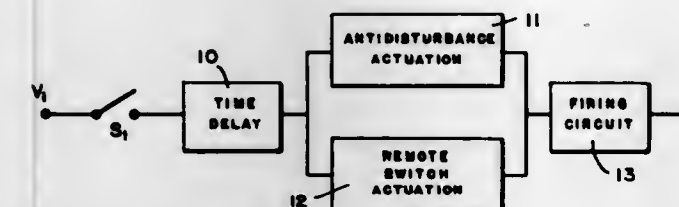
Filed Dec. 19, 1968, Ser. No. 786,838
Int. Cl. F42c 11/06

U.S. Cl. 102—70.2

4 Claims

A fuze having an electronic arming delay timer, an anti-disturbance firing mechanism and a remote firing

mechanism, wherein either firing mechanism is capable of



causing detonation of a squib.

3,598,057

CANISTER SMALL ARMS CARTRIDGE

Richard R. Potter, Dahlgren, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 25, 1968, Ser. No. 762,464
Int. Cl. F42b 13/18

U.S. Cl. 102—91

3 Claims



A cylindrical canister sized so that it will fit into a standard cartridge case and thereby can be fired from a rifled gun barrel. The canister contains a plurality of primary pellets stacked along its longitudinal axis and a plurality of secondary pellets spaced symmetrically about its longitudinal axis. The rifled gun barrel causes the canister to spin as it is ejected from the barrel, the centrifugal force thereby imparted to the secondary pellets acting on the forward end of the canister and tearing it open allowing aerodynamic forces to strip away the canister and free the pellets.

3,598,058

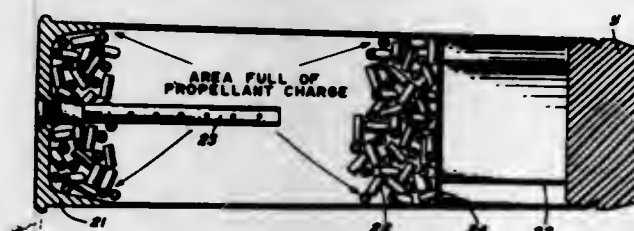
CARTRIDGE CASE PLUG FOR SEMIFIXED GUN AMMUNITION

Alvin Smith, Ooletic, Ind., assignor to The United States of America as represented by the Secretary of the Navy

Filed Apr. 24, 1969, Ser. No. 819,058
Int. Cl. F42b 9/18, 9/28

U.S. Cl. 102—95

2 Claims



A cartridge case plug for semifixed gun ammunition having a skirt portion adaptable for fitting into a mouth of a cartridge case and having a tapered crown portion adjacent to said skirt portion, said plug being made of a rigid polyurethane foam having a density range of between 12 and 14.5 pounds per cubic foot after molding.

3,598,059

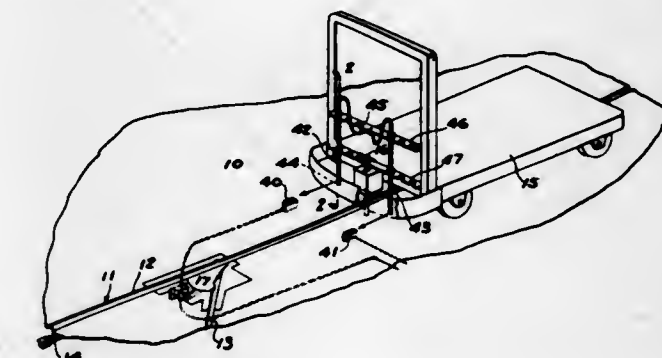
TOW TRUCK CONVEYOR SYSTEM

Edward J. Carney, Pittsburgh, Pa.; Karl R. M. Karlstrom, Roseville, Mich., and Ivan L. Ross, Birmingham, Mich., assignors to American Chain & Cable Company Inc., New York, N.Y.

Filed June 13, 1968, Ser. No. 736,781
Int. Cl. B65g 17/44

U.S. Cl. 104—88

15 Claims



The tow truck conveyor system wherein a switch tongue is pivotally mounted at the area of juncture of a slotted main track portion and a slotted branch track portion and is movable from a first position, wherein it is held by a permanent magnet, which permits a tow truck having a tow pin extending downwardly in the slot to be carried by engagement with a chain conveyor undisturbed past the area of juncture. Upon signal from signal means on the tow truck as it approaches the area of juncture, an electromagnet is energized which counteracts the force of the permanent magnet to permit a spring to move the switch tongue to a second position causing the tow truck to be deflected along the branch track portion.

3,598,060

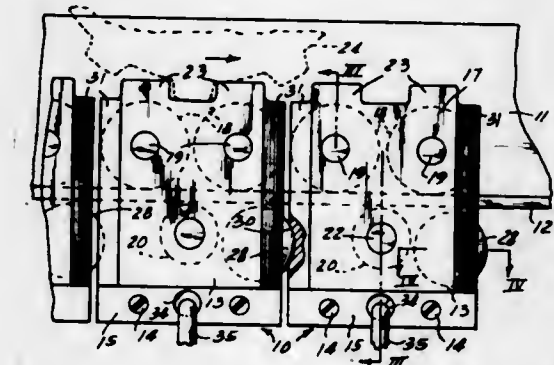
CONVEYOR STRUCTURE

John Chitra, Jr., 5801 S. Francisco, Chicago, Ill.

Filed July 22, 1969, Ser. No. 843,498
Int. Cl. B65g 35/08

U.S. Cl. 104—168

10 Claims



For a conveyor system having track means and conveyor driving means, a train of freely separable conveyor units is means for guided running along track means. Means such as rack teeth on the units are engageable with driving gears for moving the train along the track. Each unit has means such as a ball for freely separable articulated thrusting contact with the next adjacent unit to enable movement around turns in the track. Any one or more of the units in the train may be freely switched from one track to another.

3,598,061

TORSIONALLY FLEXIBLE MINE CAR

Henry Fort Flowers, 3023 Del Monte Drive, Houston, Tex.

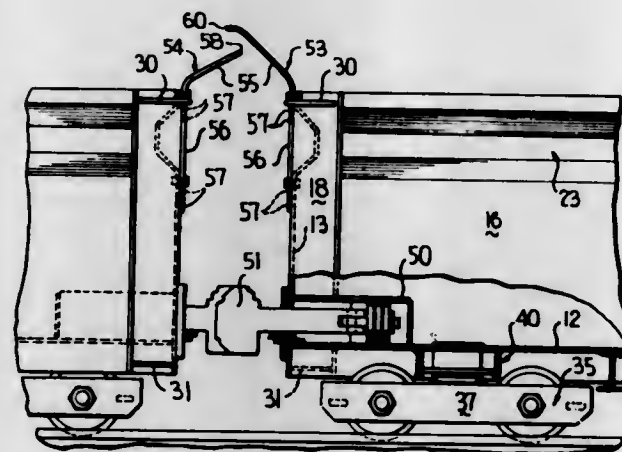
Filed Sept. 18, 1968, Ser. No. 760,476
Int. Cl. B61d 11/02

U.S. Cl. 105—364

15 Claims

This disclosure relates to a mine car having an outwardly opening wall at each of the four corners thereof for per-

mitting relative torsional flexing of the car body, and further functioning to provide an area where a switchman can ride the car in a safer position than is presently conventionally

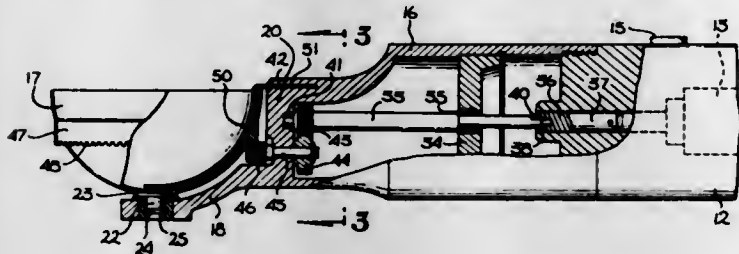


provided, the latter function being produced by a supporting platform and a handle positioned within said outwardly opening wall.

3,598,062
FOOD PRODUCT SCOOPER
Edward Weinstein, 20310 Clark St., Woodland Hills, Calif.
Filed June 6, 1969, Ser. No. 830,937
Int. Cl. A47j 43/28

U.S. Cl. 107—48 H

5 Claims



A powered scooper is disclosed having a tubular handle enclosing an electric motor for rotatably driving a bowl member mounted on the extreme end of the handle. A gear train is provided comprising a pinion gear driven by the drive shaft of the motor which is engaged with a ring gear carried about the midsection of the bowl. The circular periphery of the bowl is formed with a cutting edge adapted to separate a portion of the food bulk from its surrounding bulk.

ERRATUM

For Class 107—48 see:
Patent No. 3,598,202

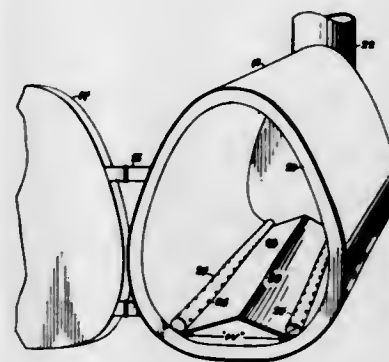
3,598,063
FILLER PLATE FOR INCINERATOR
Lyle F. Kalkhof, Wellsville, N.Y., assignor to The Air Pre-heater Company, Inc., Wellsville, N.Y.
Filed Nov. 18, 1969, Ser. No. 877,713
Int. Cl. F23g 5/00

U.S. Cl. 110—8 R

3 Claims

A high temperature incinerator having a combustion chamber with a temporary hearth inclined downwardly

toward air supply pipes at the sides thereof whereby combustible material placed thereon will slide or roll down the

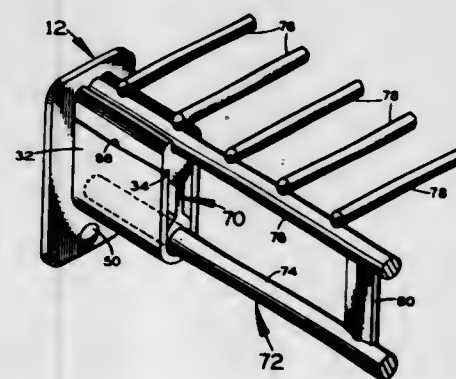


hearth toward said air supply pipes to effect its through combustion and subsequent elimination.

3,598,064
SHELVING
Edward H. Stempel, Lighthouse Point, Fla., assignor to Belaco, Inc., Debray Beach, Fla.
Filed Aug. 11, 1969, Ser. No. 849,060
Int. Cl. A47b 3/00; A47l 5/08

U.S. Cl. 108—42

4 Claims

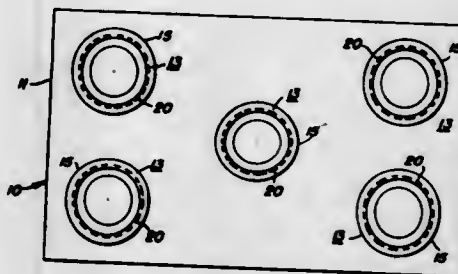


A shelf with a mounting structure for removable mounting of the shelf on walls of a room, the shelf including vertically spaced rods or bars at the front thereof, and the mounting structure including a wall mounting channel receiving the vertically spaced bars or rods. A spacer is provided between the rod or bar portions within the channel to brace the same.

3,598,065
PALLET STRUCTURE WITH SELF LOCKING LEG
Gerald H. Young, Closter, N.J., assignor to Westvaco Corporation, New York, N.Y.
Filed Aug. 15, 1969, Ser. No. 850,593
Int. Cl. B65d 19/18

U.S. Cl. 108—53

6 Claims



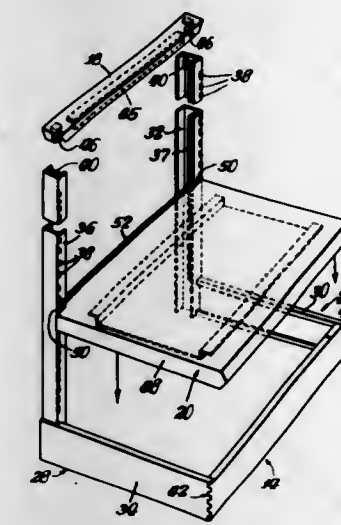
The pallet comprises a deck sheet to which is secured a plurality of spaced legs arranged in a pattern to permit handling of the pallet by a forklift truck or other material handling equipment. Each leg comprises a reinforced synthetic support which is preferably shaped like the frustum of a cone and which includes a flange area and locking slot at the upper end thereof. The pallet is formed by forcing the legs

through openings in the deck sheet where the legs are automatically locked in position.

3,598,066
DISPLAY RACK
Andrew Polezoe, Oak Lawn; Bert S. Ostring, Olympia Fields, and Nick Chura, Calumet City, all of Ill., assignors to Stampco Metal Products Company, Chicago, Ill.
Filed Dec. 13, 1968, Ser. No. 783,600
Int. Cl. A47b 57/24

U.S. Cl. 108—111

1 Claim

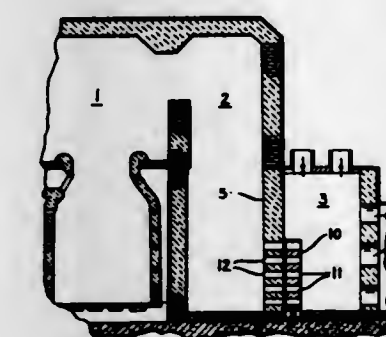


A display rack having a front base member, and L-shaped side frame assemblies pivotally connected to the front base member. The side frame assemblies may be resolved to positions along the forward face of the front base member for rack shipment and storage, and may be revolved to positions extending perpendicularly rearwardly from the front base member for rack assembly. A removable bottom shelf member serves to maintain the side frame assemblies and the front base member in rack assembled position, a rectangular vertical display board is engageable in the side frame assemblies and the shelf member, and a cap member is releasably secured across the upper ends of the side frame assemblies.

3,598,067
DAMPER FOR HIGH TEMPERATURE OR CORROSIVE GASES
Allen J. Jones, Fall Creek, Oreg., assignor to Michel Lumber Company, Lake Oswego, Oreg.
Filed Apr. 6, 1970, Ser. No. 25,974
Int. Cl. F23i 13/06

U.S. Cl. 110—163

10 Claims

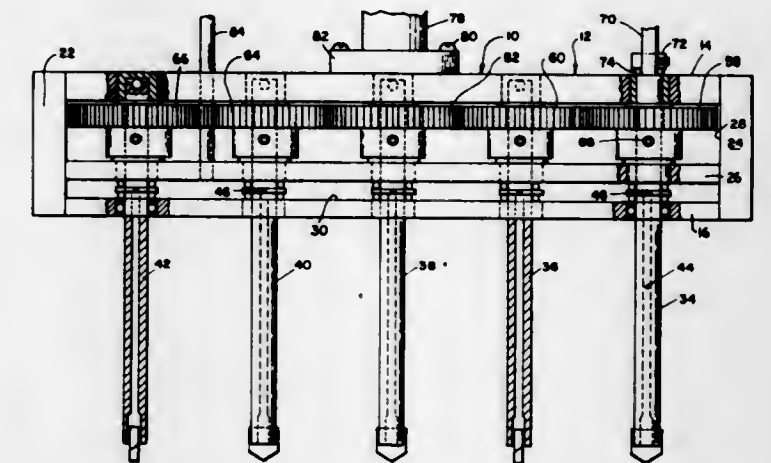


A damper of refractory material has spaced openings to register with similar openings in a furnace wall when the damper is in open position. A short horizontal movement of the damper shifts the damper openings out of register with the wall openings to modulate or shut off the gas flow. The damper is moved by a cylinder and piston actuator. The damper is preferably suspended by long vertical rods having pivotal support a considerable distance above the damper or it may be supported on rollers or other suitable means.

3,598,068
SOIL TREATING APPARATUS
Carl O. Rosendahl, 2426 33rd Ave, San Francisco, Calif., and Lynn L. Hursh, San Francisco, Calif., assignors to Clyde J. Smart, Reno, Nev., by said Rosendahl
Filed May 19, 1969, Ser. No. 825,700
Int. Cl. A01c 23/02; A01b 45/02

U.S. Cl. 111—7.1

2 Claims

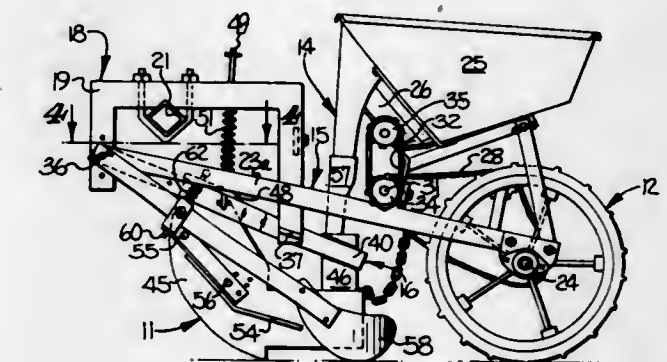


Soil treating apparatus including a body defining a chamber, a plurality of rotatably mounted drills carried by the body and projecting downwardly therefrom, each of the drills having a central bore communicating with the body chamber, handle means fixed to the body and projecting upwardly therefrom, means for rotatably driving the drills, and means for supplying fluid to the body chamber for flow through the central bores of the drills.

3,598,069
PLANTER WITH INDEPENDENTLY MOVABLE PRESS WHEEL AND FURROW OPENER
John C. Hatcher, 7525 Valley Brook Drive, Charlotte, N.C., and Ferrel Sansbury, 2934 Temple Lane, Charlotte, N.C.
Filed Nov. 26, 1968, Ser. No. 779,034
Int. Cl. A01c 5/06; A01b 49/06

U.S. Cl. 111—85

4 Claims

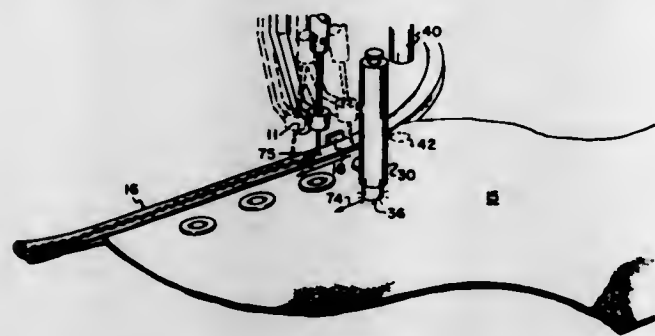


An agricultural seed planter in which independent mounting of a press wheel means and a planting furrow opening means facilitates movement of the planter over uneven ground while mounting of a seed dispensing means, for depositing seed into a planting furrow opened by the furrow opening means, to overlie the press wheel means imposes a gravitational force downwardly thereon to aid in maintaining traction and in tamping closed furrows into which seed has been dropped.

3,598,070

DRAG-STEERING WALKING-NEEDLE MACHINE
Edward D. Rosenberg, Levittown, N.Y., assignor to Ivanhoe Research Corporation, New York, N.Y.
Filed Mar. 25, 1970, Ser. No. 22,625
Int. Cl. D05b 27/20, 27/26
U.S. Cl. 112-205

11 Claims

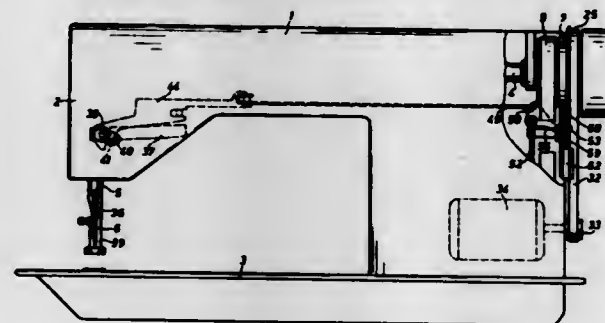


In a walking-needle sewing machine or the like having a cyclically moving work point or tool, means for automatically feeding a curvilinear edge of a workpiece beneath the tool including means adapted to establish the position of the curvilinear edge with respect to the work point, and a drag-steering means activated thereby. The drag-steering means comprises in a preferred embodiment a spring-loaded contact face that reciprocates synchronously with the needle, normally lightly contacting the surface of the workpiece at a point laterally spaced from the work point. When activated, the drag-steering means exerts a firm restraining force on the workpiece so that the workpiece is retarded by and traces a shortened path under the point of contact of the drag-steering means as the workpiece is advanced through the machine by the walking needle and advancement mechanism, and the edge thereof rotates towards the work point. The material is guided or caused to rotate in the opposite direction as may be required by means of a guide or fence on the side of the needle opposite from the drag-steering means.

3,598,071

ELECTRICALLY DRIVEN SEWING MACHINE WITH MEANS FOR STOPPING THE MACHINE IN A PREDETERMINED POSITION OF THE NEEDLE BAR
Lucian Luczak, Karlsruhe, and Gunter Meier, Weingarten, both of Germany, assignors to Firma G. M. Pfaff Ag, Kaiserslautern/Pfalz, Germany
Filed Mar. 11, 1970, Ser. No. 18,623
Claims priority, application Germany, Mar. 29, 1969, G 69 12 817
Int. Cl. D05b 69/22
U.S. Cl. 112-219 A

5 Claims



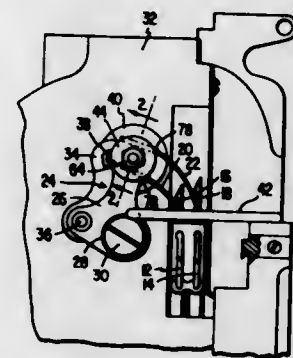
Arrangement for stopping the needle bar in a predetermined position on sewing machines with electrical motor drive means, where upon turning off the machine in a random position of the needle bar with a hand lever by way of a transfer lever of limited range of movement and a switch lever, a disconnecting element connected therewith is swung into the path of rotation of a retarding member that rotates with the arm shaft and a switch in the motor circuit are actuated so that by way of the switch 62 which is secured thereto

the switch lever 60 rests in a force transmitting manner against the transfer lever 55 and the retarding member 11, 14 has an annular abutment surface 15, 16 that is interrupted by a disconnecting groove 69 for the disconnecting element 68.

3,598,072

NEEDLE CARRIER FOR TANDEM NEEDLE SEWING MACHINE
George B. Armstead, Jr., Glastonbury, Conn., assignor to The Merrow Machine Company, Hartford, Conn.
Filed Feb. 12, 1970, Ser. No. 10,708
Int. Cl. D05b 55/02
U.S. Cl. 112-226

5 Claims

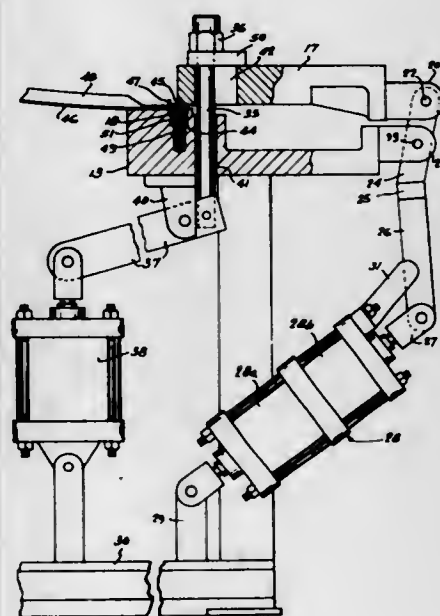


A needle carrier for an overseaming machine having a pair of spaced needles aligned in the direction of feed of the workpiece through the machine. The needle carrier includes a head portion having a flat vertical face with an elongated keyway formed therein, and a clamping plate having an elongated key formed on one surface is releasably mounted on the head with the key projecting into the keyway. A pair of grooves are formed in the plate, one on each side of the key, to engage and position the shanks of the pair of needles for clamping between the plate and the flat face on the head portion of the carrier. Any desired needle spacing may readily be obtained by employing a clamping plate having grooves appropriately spaced.

3,598,073

ASSEMBLING MACHINE
Edouard R. St. Denis, 8787 Riverside Drive, East Windsor, Ontario, Canada
Filed June 16, 1969, Ser. No. 833,405
Int. Cl. B21d 39/02
U.S. Cl. 113-54

6 Claims



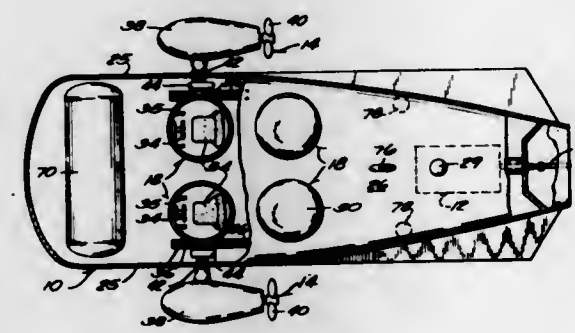
A machine for securing two-preformed metal panels together into a unitary hollow structure, consisting of a table upon which the panels are laid in superimposed nested rela-

tionship with an upstanding locking flange of one panel encompassing a marginal edge of the other panel. A flange bending member is supported above the table by means of a spring biased guide member projecting out of the table surface and includes both a bevelled and a horizontal flange engaging surface. The flange bending member is movable laterally and vertically by means of levers and air cylinders.

3,598,074

SUBMERSIBLE VEHICLE
James M. Schubert, 2764 N.E. 14th St., Fort Lauderdale, Fla.
Filed Feb. 11, 1969, Ser. No. 798,319
Int. Cl. B63g 8/00
U.S. Cl. 114-16

11 Claims

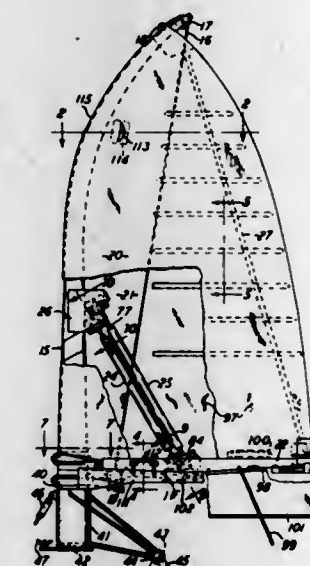


A high speed marine vehicle which has a hydrodynamically balanced hull capable of being submerged with a first propulsion system for high speed surface operation, a second propulsion system for underwater propulsion and maneuvering, and a number of releasable hermetically sealed high wall strength compartments. Each compartment may have appropriate controls for the operation of the vehicle.

3,598,075

SAILBOAT AIRFOIL SAIL AND MAST ASSEMBLY
Clarence E. Kenney, 119 Stuart Road, Racine, Wis.
Filed Feb. 13, 1970, Ser. No. 11,051
Int. Cl. B63b 35/00; B63h 9/00
U.S. Cl. 114-39

10 Claims

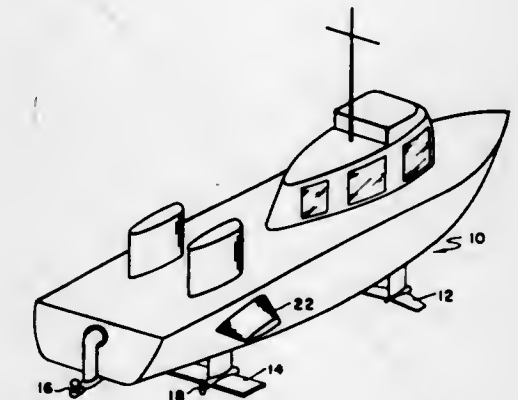


A sailboat mast assembly including a curved mast and a sail draped thereon to extend to both sides of the mast and leewardly thereof. Two booms are pivotally mounted at the base of the mast and are attached to the lower edges of each portion of the sail on each side of the mast, and the booms can be pivoted upwardly into compact position with the mast and they can be swung horizontally away from the mast to spread the sails apart for downwind sailing. Struts extend between the mast and the booms for tensioning the sail. Pulley and rope combinations are applied to the mast and booms for aligning these parts with respect to each other in the

3,598,076

AUXILIARY ROLL STABILIZER FOR HYDROFOIL CRAFT
Frederick N. Saxton, 10712 Rock Run Drive, Potomac, Md.
Filed Aug. 27, 1969, Ser. No. 853,446
Int. Cl. B63b 1/18
U.S. Cl. 114-66.5

1 Claim

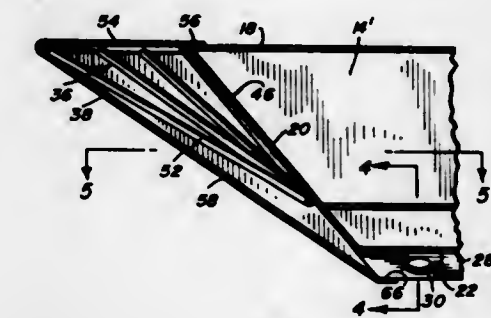


In a high speed watercraft of the hydrofoil type having foil appendages extending beyond and below the perimeter of the hull of the craft, stabilizing members for decreasing the roll angle of the craft in the event of a structural failure of the foil appendages, a control malfunction, or other damage causing the craft to assume an excessive roll angle.

3,598,077

FLEXIBLE BOW CONSTRUCTION
John Van Veldhuizen, 31601 S.W. 197th Avenue, Homestead, Fla.
Filed Oct. 20, 1969, Ser. No. 867,599
Int. Cl. B63b 1/38
U.S. Cl. 114-67 A

11 Claims



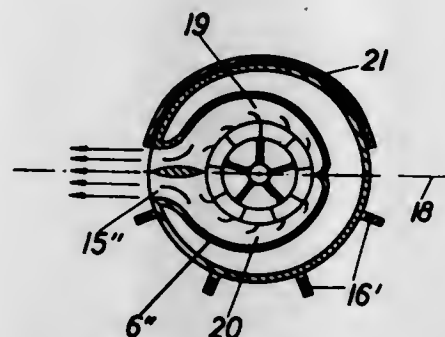
A boat hull including a flexible outer bow supported in forward spaced relation relative to a rigid inner bow structure with a cushion of air under pressure maintained between the rigid inner bow and the inner surfaces of the flexible outer bow. The hull includes generally flat forward bottom surfaces which join with the lower portions of the rigid inner bow structure and opposite side air plenum chambers to which large quantities of air under pressure is supplied. The forward portions of the side plenum chambers are communicated with opposite sides of the bow chamber defined between the inner bow and the flexible bow for inflating the latter and the lower transverse portions of the flexible bow are not sealingly secured to the corresponding portion of the rigid bow whereby air from the bow air chamber is discharged rearwardly beneath the forward bottom surfaces of the hull.

3,598,078

STEERING DEVICE FOR SHIPS AND OTHER CRAFT
Wolfgang Baer, Am Hardt, Germany, assignor to Firma J. M. Voith GmbH, Heidenheim, Germany
Filed Mar. 10, 1969, Ser. No. 805,587
Int. Cl. B63h 25/46

U.S. Cl. 114-151

10 Claims



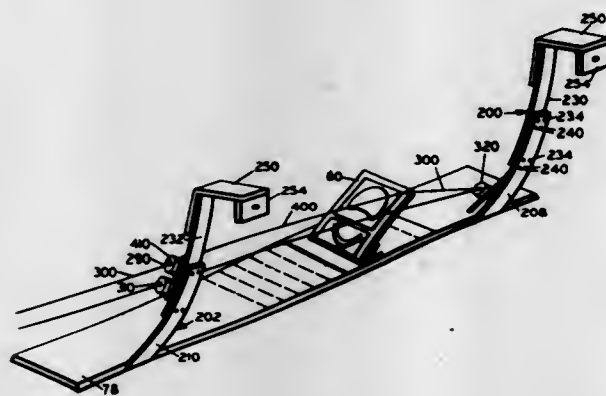
A ship is provided with a bow steering arrangement wherein jets of water are discharged in selected directions in order to turn the ship in the desired direction. A rotary pump is housed in a cylindrical enlargement extending forwardly from the bow at the bottom of the hull. The front of the enlargement is provided with an inlet which communicates with an axial inlet for the rotary pump. The pump discharges a stream in substantially a radial direction through a casing which is rotatable about the rotary axis of the pump and positionable to direct a stream of pumped water in one of at least two different directions.

3,598,079

BOAT STEERING SYSTEM
Marvin A. Cudley, 9465 Emmet, Omaha, Nebr.
Filed Oct. 6, 1969, Ser. No. 863,961
Int. Cl. B63h 21/26

U.S. Cl. 114-153

12 Claims



A boat having a steering system comprising a steering member such as the handle of an outboard motor, a foot pedal disposed in a portion of the boat forwardly of the steering member, the upper portion of the foot pedal being movable forwardly and rearwardly of the boat and a pulley and cable system interconnecting the pedal and steering member in a manner such that as the upper portion of the pedal is moved forwardly or rearwardly, the steering member is moved toward one side or the other of said boat.

3,598,080

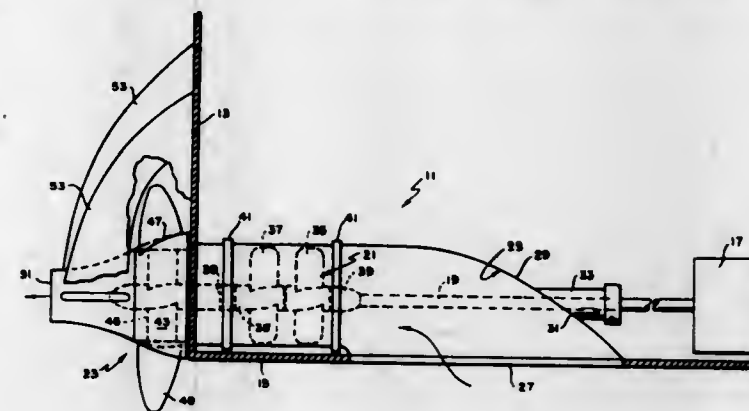
MONOSHAF PROPPELLER WATER-JET
Curtis E. Shields, 1013 Fireside Lane, Virginia Beach, Va.
Filed July 29, 1969, Ser. No. 845,846
Int. Cl. B63h 11/02

U.S. Cl. 115-14

3 Claims

A marine propulsion system providing a semisubmerged

supercavitating propeller rotating coaxially with water jet-



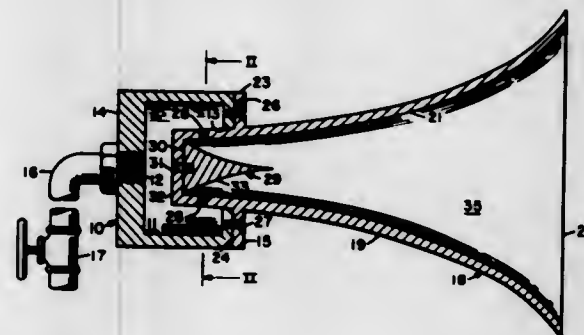
producing impellers mounted on the same shaft.

3,598,081

PNEUMATIC SOUND GENERATOR
John J. Van Houten, Anaheim, Calif., assignor to Advanced Technology Center, Inc., Grand Prairie, Tex.
Filed Nov. 29, 1968, Ser. No. 780,039
Int. Cl. B06b 3/00

U.S. Cl. 116-137

7 Claims



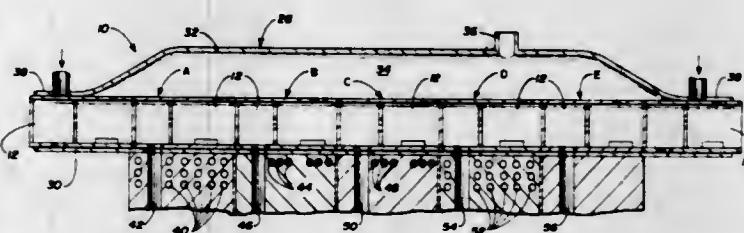
A noise generator capable of producing random, wide-frequency band noise and in which at least one jet of air is directed against a surface of a body such that the air jet is broken up into intense turbulence and such that noise is produced. In a preferred embodiment, the body is immovably located within the throat of an acoustic horn, and air jets directed against the body produce noise which is efficiently coupled, by the horn, with the atmosphere ambient to the horn mouth.

3,598,082

CONTINUOUS EPITAXIAL DEPOSITION SYSTEM
Warren Rice, Tempe, Ariz., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 14, 1969, Ser. No. 850,015
Int. Cl. C23c 11/00

U.S. Cl. 118-48

6 Claims



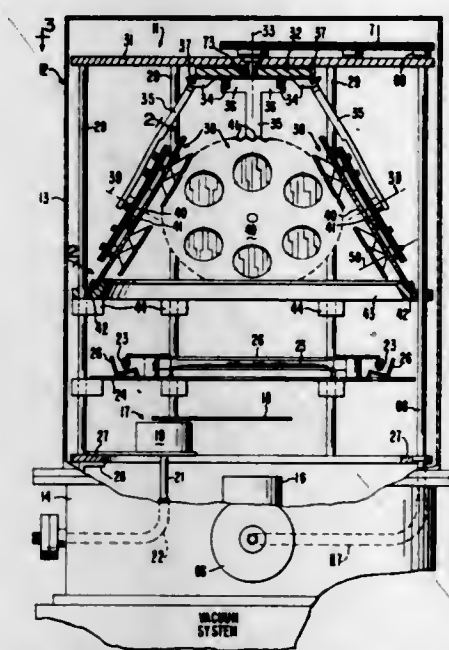
An epitaxial deposition system includes slice transporting boats which index individual slices between work stations. At the work stations, the temperature of the slices is controlled and the boats are sequentially filled with various gases, including an etching gas and a deposition gas. The work stations are surrounded by a sealed enclosure which receives gases discharged from the boats.

3,598,083

COMPLEX MOTION MECHANISM FOR THIN FILM COATING APPARATUS
Robert F. Dort, Palo Alto; James R. Skinner, Cupertino, and Hany E. Cottrell, Los Gatos, all of, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Oct. 27, 1969, Ser. No. 869,746
Int. Cl. C23c 11/00

U.S. Cl. 118-48

9 Claims



Apparatus is described for providing complex rotation about three axes of a plurality of objects being coated by deposition. The apparatus includes a frame adapted to be supported within a conventional deposition coating chamber having a source providing within the chamber an atmosphere of molecularly-sized particles of the desired coating material. A substrate holding disc having a face to which a plurality of substrate objects can be secured is mounted to the frame for rotation with the face in line-of-sight of the material source. The disc is mounted to the frame for orbiting about an axis which extends toward the source and rotation about its own axis. Each of the substrate object supporting members on the face of the disc is rotatably mounted thereon for rotation of the surface of the object to be coated about an axis which is oblique to the source. A prime mover is provided causing rotation about the various axes during the coating operation with the result that the surfaces being coated of the substrate objects will receive a uniform coating irrespective of irregularities in such surfaces.

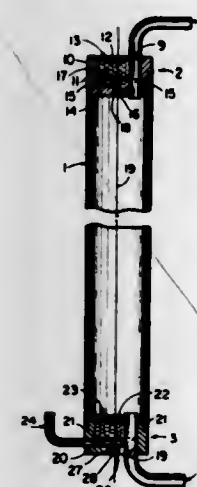
3,598,084

VAPOR DEPOSITION CHAMBER INCLUDING SEALING AND HEATING MEANS
James Y. Whittier, South Glastonbury, Conn.; Roy Fantl, Springfield, Mass., and Asaph U. Merriam, East Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Continuation-in-part of application Ser. No. 549,428, May 6, 1966, now abandoned. This application Dec. 2, 1969, Ser. No. 881,568

U.S. Cl. 118-49.5

Int. Cl. C23c 13/12

5 Claims



There are provided an apparatus, closure means therefore, for continuously effecting the pyrolytic deposition of boron

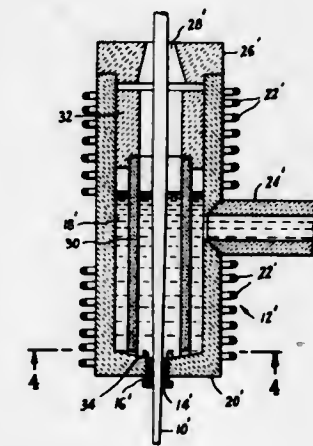
on an electrically conductive substrate. The apparatus comprises a vertical tubular reactor chamber, novel closure means on both the top end and bottom end of the chamber which operate by capillary principle to retain an electrically conductive fluid serving as both a seal and an electrical contact for heating purposes and which include passageways for cooling and reactant gases, inlet means for feeding cooling and reactant gases into the reactor through said closure means, and outlet means for exiting excess cooling and reactant gases and byproduct gases from said chamber.

3,598,085

DIP FORMING APPARATUS
Roland P. Carreker, Jr., Schenectady, N.Y., assignor to General Electric Company
Division of Ser. No. 550,237, May 16, 1966, Pat. No. 3,466,186.
Filed Oct. 11, 1968, Ser. No. 766,782
Int. Cl. B05c 3/12

U.S. Cl. 118-405

1 Claim



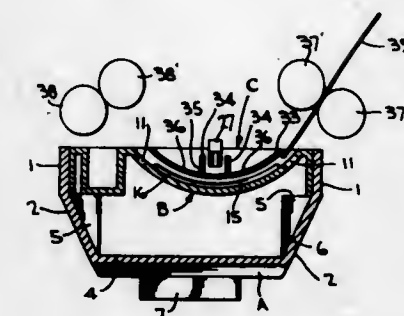
In a dip crucible apparatus for accreting molten metal onto a moving core rod passing through a crucible containing molten metal, an annular baffle is disposed concentrically to the crucible wall defining a reservoir of molten metal and surrounds the core rod. The baffle has a plurality of openings at its lower end, and a feed inlet to the crucible is positioned below the upper edge of the baffle but above the openings in the baffle. Molten metal introduced to the crucible flows downwardly between the crucible walls and the baffle and countercurrently with the baffle.

3,598,086

ELECTRONIC PHOTOGRAPHIC DEVELOPING DEVICE
Teizo Kushima, and Masaya Ogawa, both of Abeno-ku, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Sept. 10, 1968, Ser. No. 758,808
Claims priority, application Japan, Oct. 7, 1967, Jan. 31, 1968, 42/85,549; 43/6,423
Int. Cl. B05c 11/10

U.S. Cl. 118-602

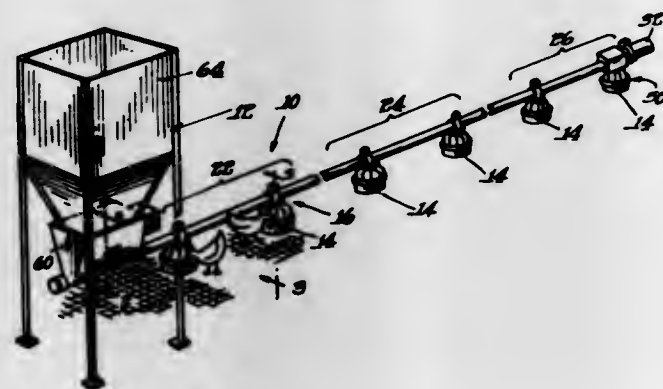
3 Claims



The developing device consists of a developing tank and an arch-shaped developing tray and a similarly arch-shaped developing terminal. The developing solution is sent upwards onto the developing terminal by a pump and the toner in the developing solution is charged with the polarity opposite to the latent image charge on the photosensitive paper. The said toner flows from the developing terminal into the developing tray to a given level, and the photosensitive paper is sent

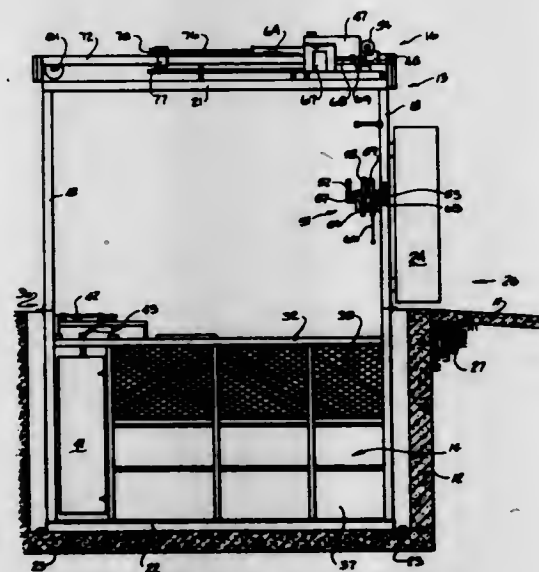
through between the developing tray and the developing terminal. The surface of the developing tray includes ridges which diverge in the direction in which the photosensitive paper is sent, and the ridges are divided into two sets in such a way that the ridges of the first set come in between the ridges of the second set so that the developing solution may flow among the ridges. In the developing terminal on top of the developing tray are cut gutter-shaped holes, through which the developing solution flows in parallel with the longer sides of the developing terminal and approximately at right angles with the direction in which the photosensitive paper is sent. Parting strips are mounted parallel with the gutter-shaped holes.

3,598,087
RESTRICTED FEEDING APPARATUS
Forrest L. Ramser, Milford, Ind., assignor to Chore-Time Equipment, Inc., Milford, Ind.
Filed Mar. 17, 1969, Ser. No. 807,679
Int. Cl. A01k 05/02
U.S. Cl. 119—51.11 14 Claims



Feed dispensing apparatus of the automatic type which provides for the restricted feeding of poultry or the like, viz., the supplying of a predetermined quantity of feed at a preselected period. The apparatus includes a storage hopper, conveyor means, feed dispensing stations and a control system to achieve the desired end result. Said control system provides means whereby feed will be supplied to the poultry on demand, but upon the dispensing of a preselected quantity of feed, the apparatus is disabled until the next feeding cycle. In addition, there are means to achieve equal distribution of the feed along a conveyor line.

3,598,088
LIVESTOCK DIP APPARATUS
Jim H. Bowman, 2052 E. Second St., Fremont, Nebr.; Ralph L. Bowman, 1020 E. 11th St., Emporia, Kans., and Keith A. Moeller, Hooper, Nebr.
Filed Nov. 21, 1968, Ser. No. 777,718
Int. Cl. A01k 29/00; A61d 11/00
U.S. Cl. 119—158 7 Claims



A livestock dip apparatus having an on-ramp, a frame, a tank disposed under the frame, a vertically movable cage

disposed in the frame and over the tank, hydraulic means for raising and lowering the cage into and out of the tank, and a combination drain basin and off-ramp. The cage has at least one swingable door hingedly secured thereto which is operable to agitate the solution contained in the tank, and an emergency hatch formed in the roof to reach the livestock in event of failure of the raising and lowering means.

3,598,089
CIRCULATING WATER HEATER
Erik Henning, Enskede, Sweden, assignor to AB Pulsvarme Nacka, Sweden
Filed July 30, 1969, Ser. No. 845,999
Int. Cl. F22b 7/00
U.S. Cl. 122—165 6 Claims

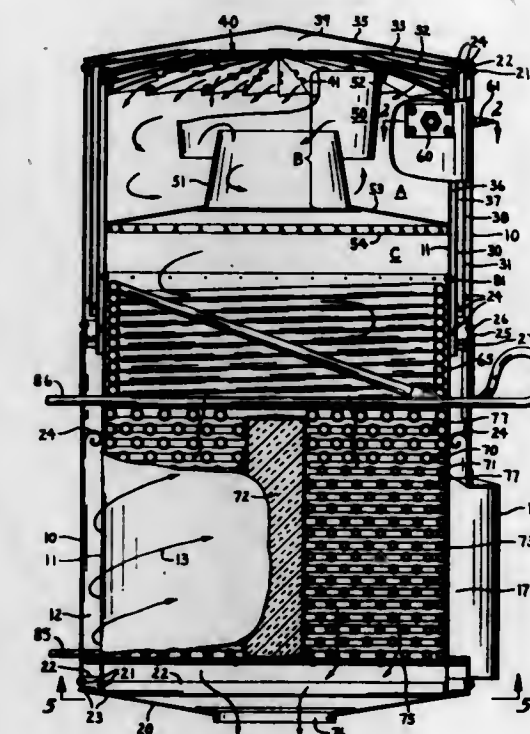


In a circulating water heating system the circulating water is subjected by alternate expansion and contraction of a steam or gas volume to pressure pulses which cause the water to flow through the circulation system. In the heater the steam or gas volume is enclosed in an inner chamber which is actuated by a source of heat and which is in communication with an outer chamber to which the incoming and outgoing conduits of the circulation system are connected. The novel features of the invention reside in the provision of an inlet conduit to the heater which is directly connected to the junction between inner and outer chambers at the lower portion of the heater, while the outlet conduit is connected to the upper portion of the outer chamber and is provided with a check valve arrangement. The upper portion of the inner chamber, which contains the steam or gas volume is contained, is selectively connected to the outer chamber via a controllable valve arrangement.

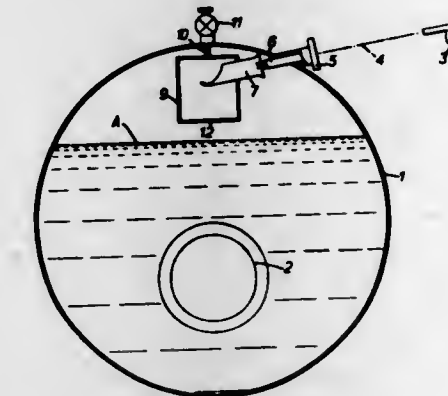
3,598,090
VAPOR GENERATOR
Richard J. Smith, 8591 Pyle Way, Midway City, Calif.
Filed Mar. 11, 1970, Ser. No. 18,650
Int. Cl. F22b 27/08
U.S. Cl. 122—250 11 Claims

A lightweight highly efficient vapor generator having low thermal inertia and fast response to varying load demands, particularly for automotive use. A series of radially spaced concentric heat sleeves surrounds the combustion chambers with incoming air passing between these sleeves for preheating the air used for combustion, this air providing heat insulation for the outer shell. An air register at one end of the shell imparts a swirling circular motion to the incoming air creating a vortex flow in the primary combustion chamber which continues on into secondary and tertiary combustion chambers. The wall of the tertiary combustion chamber is lined

with vapor superheat tubes which receive vapor from banks of vapor generating tubes near mid length position in the shell, and these tubes in turn receive liquid from preheater tubes at the opposite end of the shell. The combustion gases

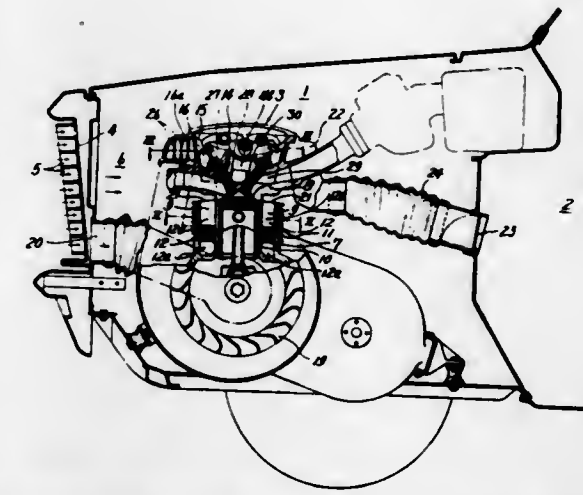


3,598,091
SHELL-TYPE BOILERS
Harold Arthur Page, Annan, Scotland, assignor to Cochran & Company, Annan, Limited, Dumfriesshire, Scotland
Filed Oct. 9, 1969, Ser. No. 865,036
Claims priority, application Great Britain, Oct. 10, 1968, 48136/68
Int. Cl. F22d 1/28
U.S. Cl. 122—414 12 Claims



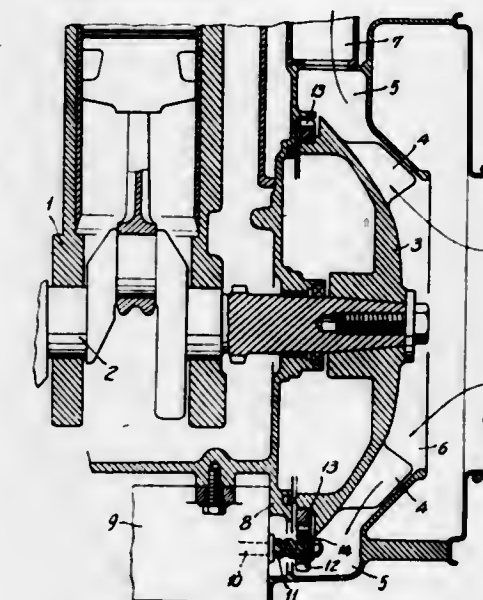
This invention is a feed water supply arrangement for a boiler in which the water is mixed to a chamber in the boiler with steam or hot water for preheating the water prior to entering the water region, and dissolved noncondensable gases in the feed water are released and discharged to atmosphere.

3,598,092
AIR COOLING APPARATUS FOR AN INTERNAL COMBUSTION ENGINE OF A VEHICLE
Soichiro Honda, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 15, 1969, Ser. No. 857,660
Claims priority, application Japan, Sept. 14, 1968, Sept. 20, 1968, 66351;67653
Int. Cl. F02f 1/32, 1/34; F01p 1/02
U.S. Cl. 123—41.28 1 Claim



An engine of a vehicle is positioned in an engine compartment such that airflow, produced upon movement of the vehicle, passes over the engine to cool the same, the engine having inner and outer walls defining a passage extending along the line of engine cylinders for being supplied with separate cooling air from a blower. Heat conducting plates extend in the passage to form a plurality of passageways extending at right angles from the passage for the further flow of cooling air.

3,598,093
IMPELLER-CONNECTED ENGINE STARTING APPARATUS
Minoru Tanaka, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 24, 1969, Ser. No. 860,765
Claims priority, application Japan, Sept. 24, 1968, 82001/68
Int. Cl. F01p 1/06; F02a 11/00
U.S. Cl. 123—41.31 4 Claims



An impeller is connected with a crankshaft of an engine and is positioned in a chamber for the conveyance of air, the impeller being formed with a gear. A starter motor drives a threaded shaft on which a pinion is mounted for travel

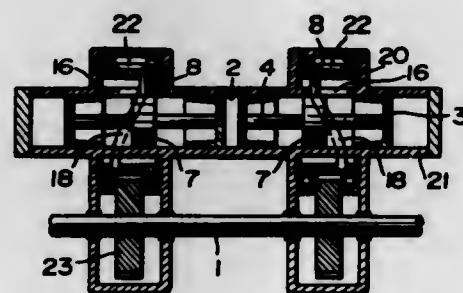
between a first position in engagement with the gear on the impeller and a second position out of engagement with this gear. When the starter motor is actuated the pinion travels to its first position and the crankshaft is driven through the impeller, whereas after the engine has started the pinion is driven to its second position.

3,598,094

CRANKLESS RECIPROCATING MACHINE

Daisaku Odawara, No. 520 Ueno Shiba-cho 5-cho, Sakai-shi, Japan
Continuation of application Ser. No. 717,518, Apr. 1, 1968, now abandoned. This application Mar. 16, 1970, Ser. No. 18,794

Int. Cl. F02b 75/26; F01b 13/06; F16h 33/00
U.S. Cl. 123—58 R 21 Claims



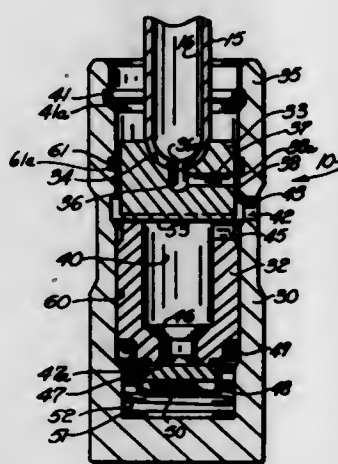
A crankless reciprocating machine which is provided with a mechanism other than a conventional crank mechanism for converting a reciprocating motion into a rotary motion or vice versa. The mechanism comprises at least one pin firmly connected to a piston or pistons so as to be immovable relative thereto and extending radially outwardly therefrom, and an endless cam mounted in a fixed part or a rotating part, said pin and said cam operatively connecting the reciprocating motion of said piston or pistons with the rotary motion of said rotating part.

3,598,095

HYDRAULIC VALVE LIFTER WITH TEMPERATURE COMPENSATING LUBRICANT METERING MEANS

H. Vincent Ayres, Saginaw, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Oct. 2, 1969, Ser. No. 863,081
Int. Cl. F01l 1/24; F01m 9/10, 1/06
U.S. Cl. 123—90.35 3 Claims



An improved hydraulic valve lifter has a socket member and a body member with cooperating surfaces which define a metering passageway therebetween for metering a flow of oil to an associated rocker arm assembly. The socket member has a higher coefficient of expansion than the body member. Therefore, when the temperature of the oil and the socket member increases the socket member will expand relative to the body to decrease the cross-sectional area of the metering passageway. Since the cross-sectional area of the metering

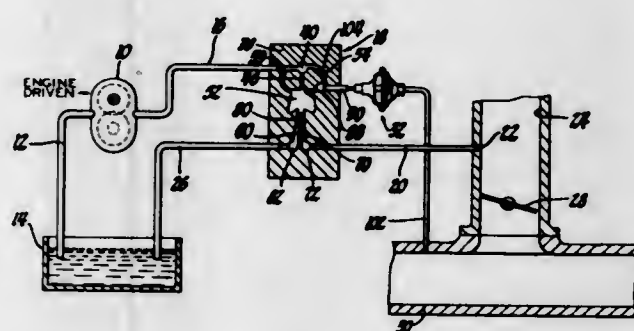
passageway decreases as the temperature of the oil increases, the flow rate of the oil tends to remain constant even though the viscosity of the oil decreases.

3,598,096

FUEL METERING SYSTEM

Fred F. Timpner, Orchard Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 28, 1970, Ser. No. 6,335
Int. Cl. F02n 37/14; E02m 69/00; F02n 55/00
U.S. Cl. 123—119 7 Claims



A fluid amplifier is used as an internal combustion engine fuel metering element, receiving fuel for both main and control fluid streams from a pump having an output flow proportional to engine speed so that the metered fuel output from the amplifier increases upon an increase in engine speed. The control fluid stream of the amplifier is regulated by a manually adjustable valve and by a valve responsive to induction system vacuum so that the metered fuel output from the amplifier increases upon an increase in manifold pressure.

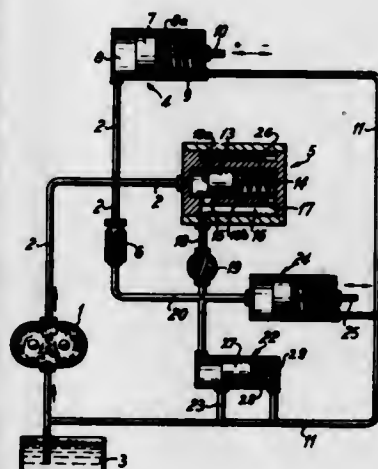
3,598,097

HYDRAULIC REGULAR SYSTEM FOR FUEL INJECTION PUMPS

Franz Eheim, Stuttgart, and Konrad Eckert, Stuttgart-Bad Cannstatt, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 12, 1970, Ser. No. 10,919
Claims priority, application Germany, Feb. 27, 1969, P 19 09 793.9

Int. Cl. F02d 1/00
U.S. Cl. 123—140 FG 3 Claims



For the purpose of varying the extent of pressure response to r.p.m. changes in a hydraulic regulator system that controls the fuel delivery of a fuel injection pump, there is provided a pressure control valve and an arbitrarily variable throttle valve, both disposed in a conduit connecting the inlet and the outlet sides of a regulator pump of said system; said pressure control valve is gradually opened as the r.p.m.-dependent pressure increases; beyond a predetermined r.p.m., such opening is resisted by the pressure prevailing between said pressure control valve and said throttle valve.

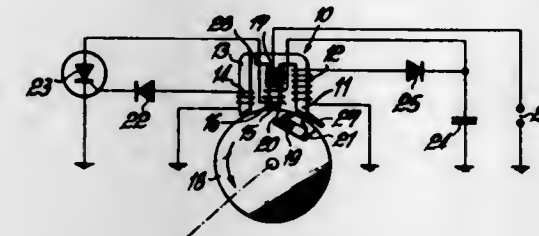
3,598,098

IGNITION ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

Gerhard Sohner, Geradstetten; Gert Strelow, Stuttgart-Stammheim, and Bernd Bodig, Leinfelden, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed May 1, 1969, Ser. No. 821,034
Claims priority, application Germany, May 2, 1968, Nov. 7, 1968, P 17 63 306.6; P 18 07 541.7
Int. Cl. F02p 3/06

U.S. Cl. 123—148 E 12 Claims



An ignition arrangement for internal combustion engines in which a magnetic core member has one pole for carrying the charging winding and another pole for carrying a control winding. The charging winding serves to charge a capacitor which stores the ignition energy for firing the spark plug of the engine. A magnet mounted on a rotatable disc is moved past the poles of the core member and thereby induces voltages, in sequence, within the charging and control windings. The capacitor discharges through the primary winding of an ignition transformer, with the discharge controlled by a control rectifier. The control electrode of the rectifier is connected to the control winding of the magnetic core member. Upon discharge of the capacitor, an ignition pulse for firing the spark plugs is induced in the secondary winding of the ignition transformer.

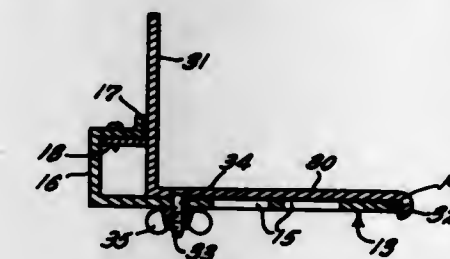
3,598,099

ATTACHMENT FOR THE THROWING ARMS OF TARGET TRAPS

George C. Luebke, 115 Mt. Nebo Road, Cleves, Ohio

Filed Dec. 22, 1969, Ser. No. 886,910
Int. Cl. F41f 5/00

U.S. Cl. 124—43 4 Claims



A conversion attachment for the perforated throwing arms of conventional, portable target traps having a rail for propelling conventional clay "birds," said attachment comprising a detachable imperforate auxiliary plate with a downturned leading edge adapted to overlie the perforated portion of the said throwing arms and an upstanding target propelling flange that renders the rail inoperative whereby the attachment makes the arm capable of throwing unconventionally shaped objects, such as beer cans, or the like, into acceptable trajectories.

3,598,100

DRESSER STRUCTURES

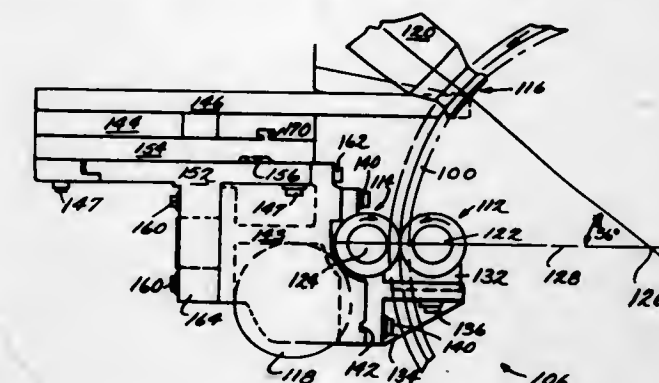
Thomas A. Deprez, and Alvin W. Snook, both of Rochester, N.Y., assignors to The Gleason Works, Rochester, N.Y.

Filed Mar. 3, 1969, Ser. No. 803,751
Int. Cl. B24b 53/00

U.S. Cl. 125—11 17 Claims

Rotary dresser structures are described with specific reference to novel characteristics for dressing cup-shaped grinding wheels of the type which are useful for grinding

teeth in face couplings. The dressing structures include a pair of rotary dressers for shaping and dressing side surfaces of the cup-shaped grinding wheel together with a third rotary dresser which dresses an annular end of the grinding wheel.



The dresser structures which will be described are especially useful for precision dressing and for grooving grinding wheels which are to be used in high heat formation grinding operations.

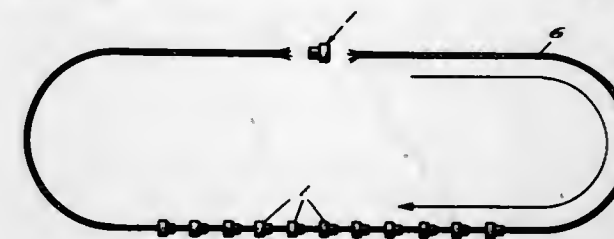
3,598,101

WIRE SAW

James L. Hensley, Knoxville, Tenn., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed Oct. 1, 1968, Ser. No. 764,116
Int. Cl. B28d 1/08

U.S. Cl. 125—21 6 Claims



A wire saw for cutting stone and other materials, having cutting elements sleeved over multiple strand wires spliced together in endless fashion. The cutting elements are provided at intervals along the length of the wire and secured thereto by a forming operation. Each of the cutting elements has a tubular core, one end portion of which is secured to the wire and the opposite end portion is enlarged internally to be spaced from the wire, and this enlarged portion carries the abrasive cutting material. A coating may be applied over the wire and over the cutting elements for protection thereof.

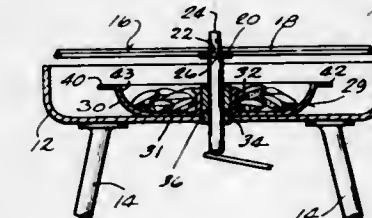
3,598,102

ATTACHMENTS FOR OUTDOOR GRILLS

Edward Gary Fuss, 535 Grove St., Mayville, Wis.

Filed Sept. 29, 1969, Ser. No. 861,844
Int. Cl. A47k 37/07

U.S. Cl. 126—25 4 Claims



A fuel container is provided for an outdoor grill in the form of a pan with a central aperture defined by an upstanding annular flange which receives the grill supporting shaft. The fuel container is provided with handles and a hinged sieve plate, which can be secured in a position partially enclosing the upwardly open fuel container to prevent loss of fuel when tilting the fuel container to facilitate the drainage of water used to extinguish the coals. Also disclosed is a grease receptacle which is adapted to be placed under a cir-

cular wire grill and which comprises two semicircular arrays of parallel spaced troughs. The inner ends of the troughs are connected to a rectangular wire frame which is secured to a central hub which is supported by a shoulder on the grill supporting shaft. The troughs are spaced at a center to center distance equal to the distance between adjacent grill wires. The troughs are inclined downwardly from the rectangular frame and terminate at and drain into an outer ring which has an upwardly open annular channel which surrounds the troughs and forms a common reservoir.

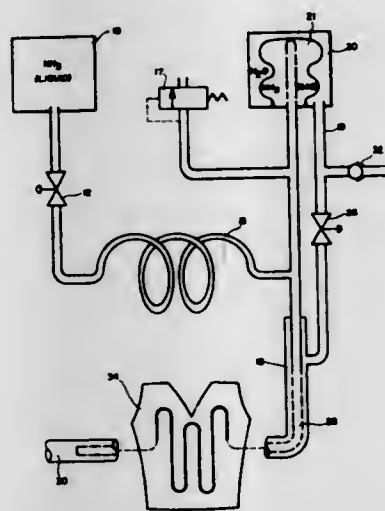
3,598,103

UNDERWATER HEATING SYSTEM

Daniel L. Curtis, Manhattan Beach, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Filed May 19, 1969, Ser. No. 825,814
Int. Cl. A61f 7/06; F24j 1/00

U.S. Cl. 126—204

9 Claims



An underwater heating system for a swimmer or diver operating in frigid underwater environments wherein the heat is produced by reacting two chemicals such as ammonia and water. The chemical reaction takes place throughout the length of a heating tube filled with water located within a swimmer's diving suit or underwater chamber. The heat supplied to the swimmer is controlled by regulating the amount of ammonia mixing with water in the heating tube from a soaker line located within the heating tube.

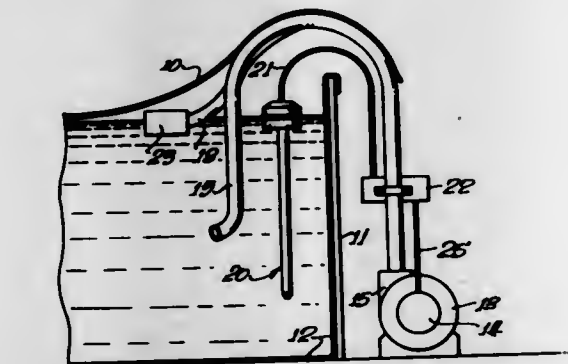
3,598,104

SOLAR HEATING SYSTEM FOR SWIMMING POOLS

Richard M. Trostler, 1730 Woodbend Road, Claremont, Calif.
Filed Mar. 30, 1970, Ser. No. 23,679
Int. Cl. F24j 3/02

U.S. Cl. 126—271

8 Claims



A solar heating system for swimming pools, particularly self-supporting above ground swimming pools, in which system a pool cover is used to absorb solar heat and conduct same to surface water in the pool, a pump is used to draw off

the heated surface water and circulate it to subsurface areas in the pool to mix the heated surface water with cooler subsurface water, a temperature sensing probe and associated electrical circuitry is used to compare surface water temperature with subsurface water temperature, and the pump is activated when the sensing probe detects a surface water temperature higher than subsurface water temperature.

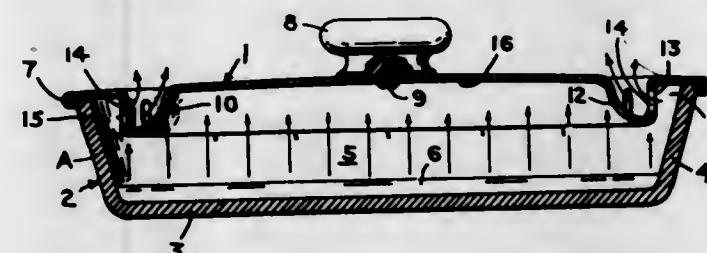
3,598,105

COVER FOR COOKING, HEATING OR FRYING VESSELS WITH FLUID TRANSPORT AND VENTING MEANS

Liborio B. Cristaldi, 148 Ashland Ave., Bloomfield, N.J.
Continuation-in-part of application Ser. No. 731,557, May 23, 1968, now abandoned. This application Feb. 25, 1970, Ser. No. 14,054
Int. Cl. A47j 36/06

U.S. Cl. 126—381

14 Claims



A cover or lid for a vessel designed for cooking or heating liquids and mixtures of liquids and solids which has means adapted both to vent vapor and noncondensable gases from the cooking or heating vessel and to permit additional liquid to be passed into the cooking or heating vessel without the necessity of removing the cover from the vessel. The cover or lid also is constructed to coact with the venting and transport means to condense vapors and return the liquid condensed to the liquid or mixture being cooked, heated or fried in the vessel. The cover or lid may consist of an annular rim section and a middle section. The middle section can be transparent and can be integral with, separable from or detachably connected to the annular rim section of the cover or lid.

Additionally, the cover or lid with the transparent middle section may coact with a wiping means for cleaning the inner face of this section.

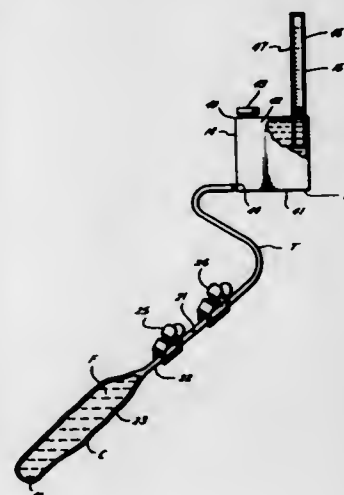
3,598,106

INTRAVAGINAL THERAPEUTIC MUSCLE EXERCISER AND METHOD OF USE

Eric Buning, 8762 Long Point, Houston, Tex.
Continuation of application Ser. No. 659,705, Aug. 10, 1967, now abandoned. This application Mar. 20, 1970, Ser. No. 19,555
Int. Cl. A61b 17/42

U.S. Cl. 128—2 R

2 Claims



A longitudinally extending fluid filled deformable member adapted to be inserted into the vaginal canal to facilitate

voluntary exercise of the muscles of the pelvic diaphragm and a fluid conduit connecting such device to an external indicator means to provide visible indicia of such muscular constrictions.

3,598,107

PUPILLARY MOTION OBSERVING APPARATUS

Satoshi Ishikawa, Tokyo; Masao Okabe, Hamamatsu, and Yuji Hakamata, Hamamatsu, all of Japan, assignors to Hamamatsu T.V. Company, Limited, Hamamatsu, Shizuoka, Japan
Filed July 25, 1968, Ser. No. 747,543
Int. Cl. A61b 3/10

U.S. Cl. 128—2

1 Claim



A television system using an infrared vidicon is used for displaying the pupil of a human eye to provide a measure of pupil size. Line scanning video signals scanned across the pupil may be monitored and clipped at a predetermined threshold level to determine the width of the pupil and therefore the area of the pupil.

Line scans across the pupil are detected by an electronic system to provide an indication of pupil size.

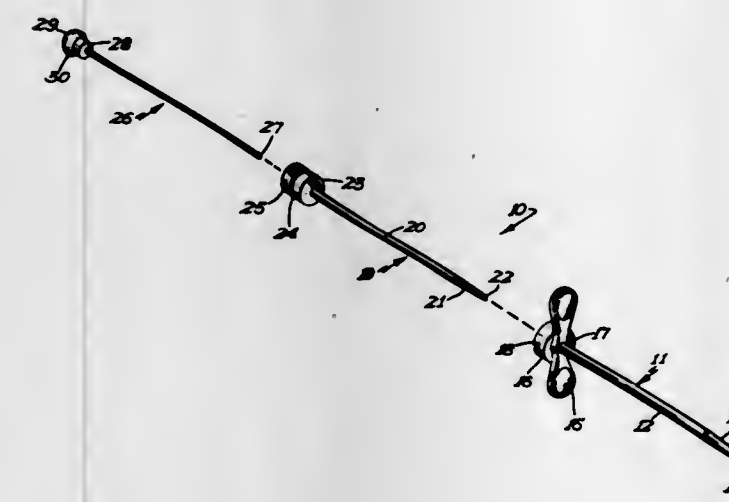
3,598,108

BIOPSY TECHNIQUE AND BIOPSY DEVICE

Khosrow Jamshidi, 3146 Minnehaha Ave., Minneapolis, Minn.; William R. Swalm, 152 Taylor Ave., Fort Snelling, Minneapolis, Minn., and Harold E. Windschitl, 1275 MacArthur Ave., West St. Paul, Minn.
Filed Feb. 28, 1969, Ser. No. 803,193
Int. Cl. A61b 10/00

U.S. Cl. 128—2 B

5 Claims



A biopsy needle device and method of using the same includes an elongate needle having a tapered distal end portion which terminates in a distal cutting edge. An elongate sleeve member is inserted into the needle and corresponds in shape and length to the needle. An elongate stylet is positioned interiorly of the telescopically disposed needle and sleeve member and projects from the needle to close the distal end thereof so that the needle assembly may penetrate exterior tissue when a specimen is to be taken from a deeply located organ or tissue of a patient. The stylet is first removed and

the biopsy specimen is collected in the sleeve member which is then removed from the needle while the needle is allowed to remain in place so that a heat transfer means such as a microcauter or a cryoprobe may be introduced into the needle. The distal end of the microcauter or cryoprobe projects into the biopsy track, and the needle and heat transfer means are removed as a unit whereby cauterization or cooling of the biopsy track occurs and intro-organ bleeding is prevented. The expanding or tapered distal end portions of the sleeve and biopsy needle permit the specimen to be collected in the sleeve with little if any damage to the specimen.

3,598,109

RADIATION DETECTOR FOR INSERTION INTO A BLOOD VESSEL

Tetsuji Kobayashi, Yokohama-shi, and Seiichi Takayanagi, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Sept. 11, 1967, Ser. No. 666,594
Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 F

10 Claims



A radiation detector for medical use to be inserted into the blood vessel is provided with a blood channel disposed in parallel with the blood flow. A semiconductor element is placed in the blood channel to detect the radiations from the radioisotope introduced into the blood vessel, with the radiation-receiving face thereof exposed to the interior of the blood channel.

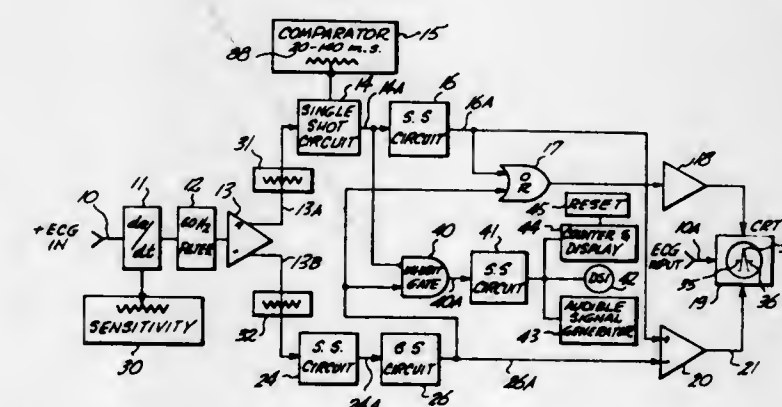
3,598,110

VENTRICULAR ARRHYTHMIA DETECTION SYSTEM

Karl W. Edmark, Seattle, Wash., assignor to Physic Control Corporation, Seattle, Wash.
Filed Apr. 10, 1969, Ser. No. 815,134
Int. Cl. A61b 5/04

U.S. Cl. 128—2.06 A

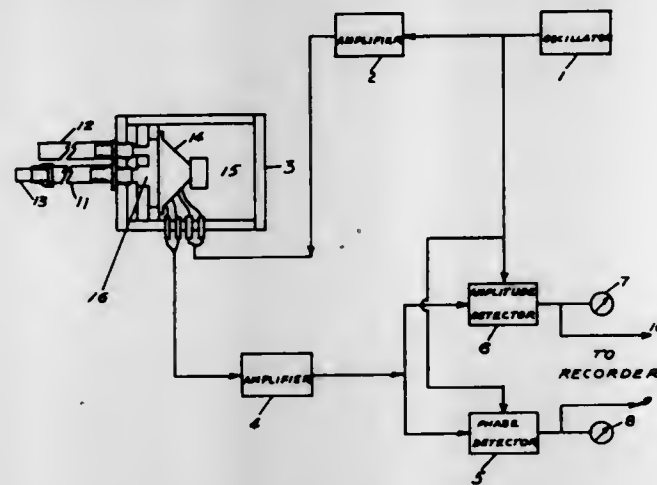
3 Claims



A system is disclosed for detecting the occurrence of a premature ventricular contraction in a patient or in the signals provided by a training apparatus which generates signals representing a premature ventricular contraction (PVC). The electrocardiograph signals from the patient or a training apparatus are applied via a differentiating circuit and filter circuit to a logic system which operates to analyze the QRS signals to determine whether or not the QRS signal is a normal

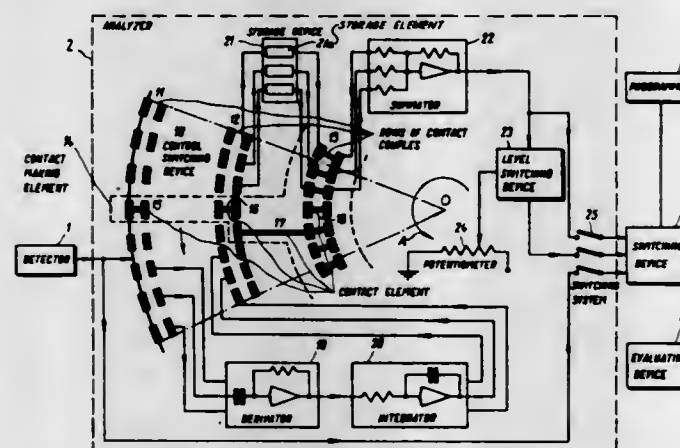
signal or whether it is the result of a PVC. Pulse generating circuits are used to define timing arrangements so that if the signal is the result of or represents a PVC then an alarm circuit is activated. Details of the logic circuitry and of a system wherein horizontal markers are provided on the cathode-ray tube display of the QRS signal to facilitate utilization of the equipment by a person unskilled in the electronic arts are provided.

3,598,111
TECHNIQUE AND APPARATUS FOR MEASURING AND MONITORING THE MECHANICAL IMPEDANCE OF BODY TISSUES AND ORGAN SYSTEMS
 Alan R. Kahn, Cherry Hill, and Warren L. Childs, Willingboro, both of, N.J., assignors to Health Technology Corporation
 Filed Dec. 9, 1968, Ser. No. 782,220
 Int. Cl. A61b 5/08; G01n 29/00
 U.S. Cl. 128-2.08 9 Claims



A technique and apparatus utilizing tuned mechanical and pneumatic principles for assessing the mechanical properties of body tissues and organ systems. The apparatus vibrates at a tuned frequency and is loaded by the specific tissue or organ system being assessed resulting in an impedance and a phase angle shift. From the above data, the resistive and reactive components of the measured impedance may be determined.

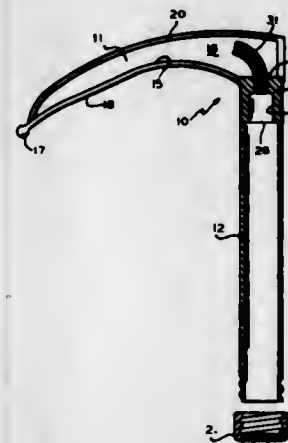
3,598,112
ARRANGEMENT FOR AUTOMATIC PERFORMING AND EVALUATING OF TEST OF THE ACTIVITY OF FUNCTIONAL SYSTEMS OF LIVING BODIES
 Stepan Figar, Prague, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Praha, Czechoslovakia
 Filed Feb. 27, 1969, Ser. No. 802,912
 Claims priority, application Czechoslovakia, Feb. 29, 1968, PV 1593
 Int. Cl. A61b 5/00
 U.S. Cl. 128-2.1 R 8 Claims



An arrangement for automatically performing and evaluating biological tests in which a detector for sensing the activity

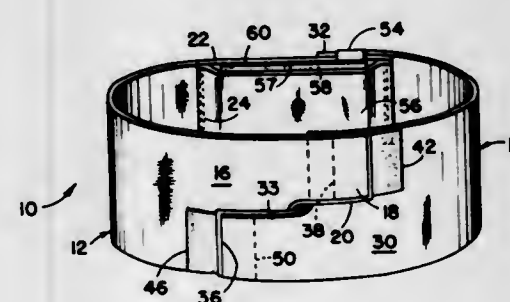
ties is connected to an analyzer. The analyzer having means for differentiating tests performed at predetermined normal conditions and at undesirable conditions. The detector providing variations in voltages and the analyzer having derivator and integrator means for obtaining a planimetric evaluation of the voltages. Final evaluation is obtained in an evaluating device deriving a signal from the analyzer via a switching device.

3,598,113
DISPOSABLE LARYNGOSCOPE CONSTRUCTION
 William C. Moore, Skaneateles, and William S. Pilgrim, Port Byron, both of, N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.
 Filed Oct. 9, 1968, Ser. No. 766,157
 Int. Cl. A61b 1/26, 1/06, 1/24
 U.S. Cl. 128-11 2 Claims



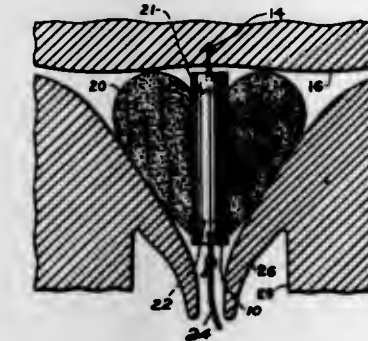
A disposable laryngoscope having a unitary plastic blade and handle. The handle is hollow and in use contains a light unit having batteries, a lamp and an operating switch. The light unit is not disposable and is removed for reuse before the blade and handle assembly is thrown away. The disposable part of the instrument includes a fiber optic bundle which carries light from the lamp within the handle to a point near the distal end of the blade.

3,598,114
ADJUSTABLE RIB BELT
 Sidney Lewis, 108-56 Jewel Ave., Forest Hills, N.Y.
 Continuation-in-part of application Ser. No. 762,292, Sept. 16, 1968. This application Mar. 26, 1969, Ser. No. 810,471
 Int. Cl. A61h 5/02 6 Claims



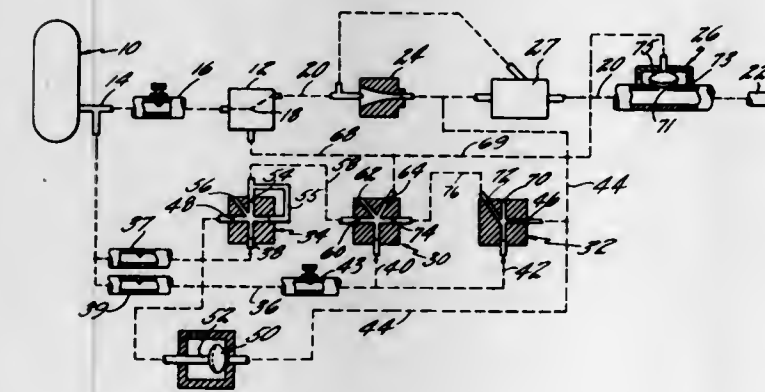
An adjustable two-piece rib belt made of elastic material and provided with fastening means for discrete circumferential size adjustment by overlapping connection of one end of one belt-piece member to one end of the other belt-piece member and a second circumferential size adjustment by overlapping textile adhesive connections of alternate flaps extending from the respective other side ends of the belt piece over the opposite belt piece. A removable back support pad is provided in a pouch arranged for positioning over the sacral or small-of-the-back region of the user.

3,598,115
INTRA-UTERINE CONTRACEPTIVE DEVICE
 Herbert W. Horne, Jr., 1330 Boylston St., Chestnut Hill, Brookline, Mass.
 Filed Apr. 8, 1969, Ser. No. 814,266
 Int. Cl. A61f 5/46
 U.S. Cl. 128-130 14 Claims



A contraceptive device has retaining means comprising a barb arranged to penetrate into the muscular wall of the uterus, to prevent accidental loss or ejection of the device. The device may also have an elongated shaft which is slotted transversely to receive a flexible vane. The vane is rolled on the shaft for insertion, and thereafter unrolls to engage the uterine walls. A ball-and-socket connection of the barb and the shaft permits the vane to unroll. The vane may be made of polyethylene, or a silico-organic rubber impregnated with contraceptive hormone chemicals. The vane is transversely slidable in the slot of the shaft to permit proper self-alignment with the form of the individual uterus.

3,598,116
RESPIRATOR WITH FLUID AMPLIFIERS
 Joseph C. Peters, East Hartford, and Hermann Ziermann, Cheshire, both of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
 Filed June 17, 1969, Ser. No. 834,005
 Int. Cl. A62b 7/04
 U.S. Cl. 128-145.5 8 Claims

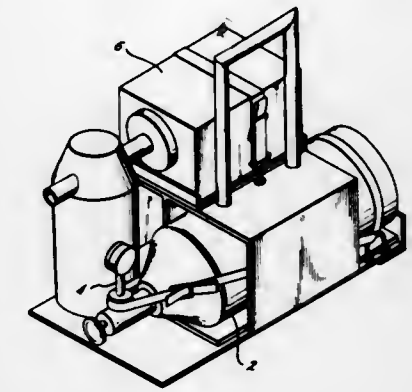


An on-off inhalation valve of a respirator for admitting fluid to the lungs of a patient is controlled by a flip-flop fluid amplifier driven by a fluid amplifier during the exhalation cycle and by another fluid amplifier during the inhalation cycle.

3,598,117
APPARATUS FOR MOUNTING RESPIRATOR EQUIPMENT
 Ralph W. Cearly, Austin, Tex., assignor to South Coast Surgical Supply, Inc., Austin, Tex.
 Filed Jan. 12, 1970, Ser. No. 2,006
 Int. Cl. A61h 31/00
 U.S. Cl. 128-145.8 8 Claims

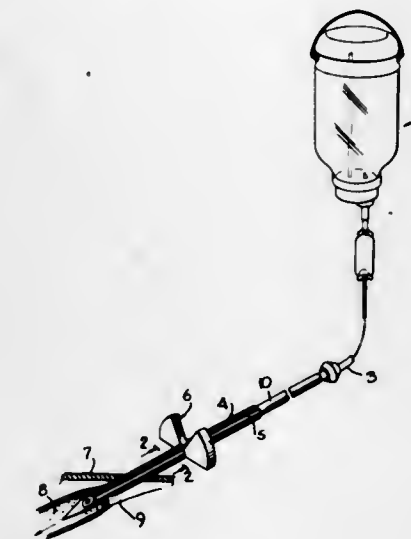
A frame is provided which comprises a base plate, a bin suitable for receiving an oxygen cylinder, a shock-mounted

support plate for a medical respirator unit, a carrying arm, and detachable flexible straps for retaining each the oxygen



cylinder and the respirator unit on the frame but enabling the quick and efficient removal therefrom.

3,598,118
METHOD OF INTRODUCING AN INTRAVENOUS CATHETER INTO THE VASCULAR SYSTEM
 Joseph E. Warren, Old Chester Road, Gladstone, N.J.
 Continuation-in-part of application Ser. No. 564,935, July 13, 1966, now abandoned. This application Nov. 4, 1968, Ser. No. 778,914
 Int. Cl. A61m 05/00
 U.S. Cl. 128-214.4 2 Claims

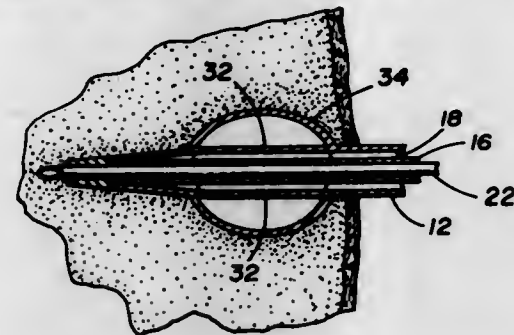


A needle comprising a tube, having a pointed leading end, a longitudinal hairline slot extending the length thereof, collar means spaced from the pointed leading end, and tube walls of sufficient flexibility to permit expansion of the needle upon insertion of a catheter therethrough when the catheter has an outside diameter which is larger than the inside diameter of the tube, is employed to introduce catheters into body cavities. In use, the needle is inserted into the cavity, the catheter is then passed through the needle into the cavity causing expansion of the needle, the needle is withdrawn from the body along the catheter and, by use of the collar to further expand the needle, removed longitudinally from the needle.

3,598,119
CONTINUOUS PARACERVICAL ANESTHESIA METHOD AND DEVICE
 Charles A. White, 328 Highland Drive, Iowa City, Iowa
 Filed Feb. 2, 1970, Ser. No. 7,763
 Int. Cl. A61m 5/00 10 Claims

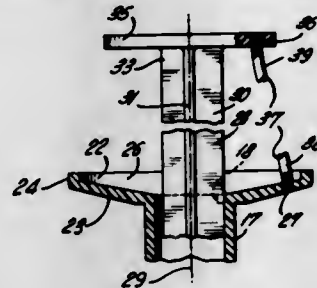
A medical instrument and method for use in obstetrical or gynecological analgesic procedures to allow the administration of a paracervical block continuously or intermittently

with only a single placement. The device has improved retention means, in the form of an inflatable bladder, which in an open position when a liquid is being applied to an eyeball.



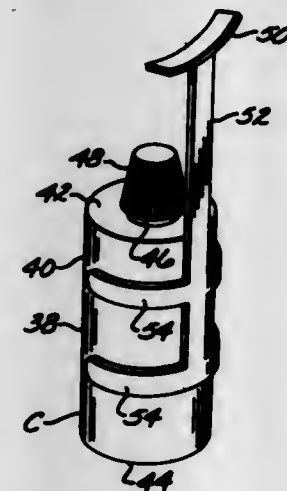
minimizes the trauma of insertion and withdrawal while positively assuring retention once the device is inserted in place.

3,598,120
SYRINGE HAVING LIMITED PLUNGER MOVEMENT
Morris Mass, Kew Gardens, N.Y., assignor to Haematronics, Inc., New Rochelle, N.Y.
Continuation of application Ser. No. 680,172, Nov. 2, 1967, now abandoned. This application June 2, 1970, Ser. No. 41,750
Int. Cl. A61m 5/22
U.S. Cl. 128-218 PA



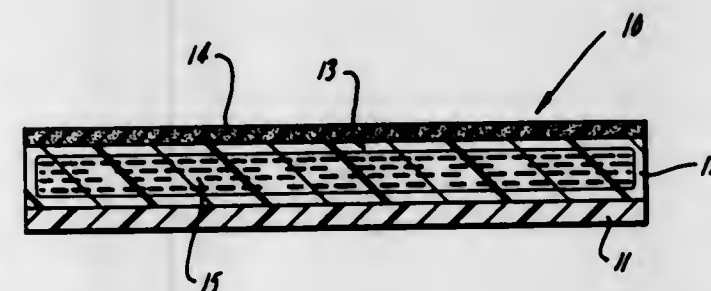
The present invention includes a syringe having a plunger movably mounted in a hollow barrel for reciprocal movement therein in directions along its axis. A flexible elongated member has a maximum length when stretched taut and has one end affixed to the barrel and an opposite end affixed to the plunger in a manner whereby when the plunger is moved a determined distance in a predetermined direction the flexible member is stretched taut and limits further movement of the plunger in the predetermined direction. A cooperating guide device of the barrel and plunger guides the plunger in a manner which prevents it from rotation about its axis.

3,598,121
LIQUID EYEWASH DISPENSING DEVICE INCLUDING EYELID-ENGAGING MEANS
John Lellicoff, 1732 Norfolk Lane, Anaheim, Calif.
Division of Ser. No. 528,491, Feb. 18, 1966, Pat. No. 3,439,674.
This application Dec. 12, 1968, Ser. No. 783,206
Int. Cl. A61m 1/00
U.S. Cl. 128-233



An eyewash liquid dispensing device including a container on which an eyelid-engaging assembly is movably supported

3,598,122
BANDAGE FOR ADMINISTERING DRUGS
Alejandro Zaffaroni, Atherton, Calif., assignor to Alza Corporation
Filed Apr. 1, 1969, Ser. No. 812,116
Int. Cl. A61f 7/02
U.S. Cl. 128-268



Bandage for use in the continuous administration of systemically active drugs by absorption through the skin or oral mucosa comprising a backing member having on one surface thereof a reservoir containing a systemically active drug. The reservoir has a wall distant from the backing member and permeable to passage of the drug. A pressure-sensitive adhesive layer, also permeable to passage of the drug, is carried by the reservoir. The drug is in a form acceptable for absorption through the skin or the mucosa of the mouth.

3,598,123
BANDAGE FOR ADMINISTERING DRUGS
Alejandro Zaffaroni, Atherton, Calif., assignor to ALZA Corporation
Filed Apr. 1, 1969, Ser. No. 812,117
Int. Cl. A61f 7/02
U.S. Cl. 128-268

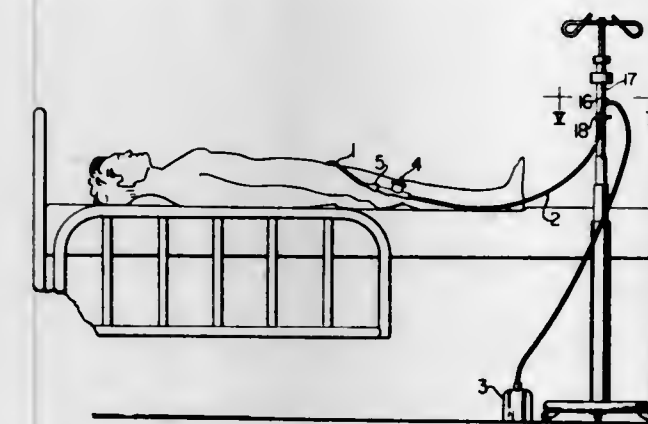


Bandage for use in the continuous administration of drugs by absorption comprising a backing member bearing a pressure-sensitive adhesive layer on one surface thereof. Distributed throughout the pressure-sensitive adhesive are microcapsules comprised of a systemically active drug encapsulated with a material permeable to passage of the drug. The drug is in a form acceptable for absorption through the skin or the mucosa of the mouth.

3,598,124
DRAINAGE CONTROL
Harold Willids Andersen, and Charles Harvey Harrison, both of Oyster Bay, N.Y., assignors to H. W. Andersen Products, Inc., Oyster Bay, N.Y.
Continuation-in-part of application Ser. No. 473,917, July 22, 1965, now abandoned. This application Feb. 1, 1968, Ser. No. 702,391
Int. Cl. A61f 5/44
U.S. Cl. 128-275

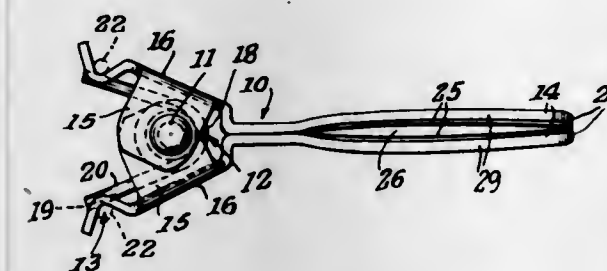
A method and apparatus for urinary drainage in which the normally closed system includes an adjustable upward course between the bladder and the downward course leading to a drainage receptacle, with the provision of venting means in the form of a one-way valve (e.g., flutter valve) in the upper portion of the system designated to admit atmospheric air

cyclically when the flow of liquid in the downward course causes negative pressure in the upward course, whereby the



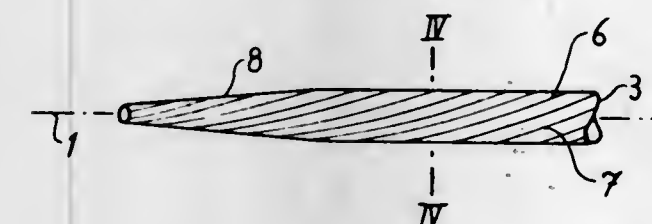
system is periodically emptied and permitted to refill in a simulation of normal physiological filling and emptying of the bladder.

3,598,125
ANEURISM CLAMP
James J. Cogley, 2214 Euclid Ave., Santa Monica, Calif.
Filed June 7, 1968, Ser. No. 735,355
Int. Cl. A61b 17/12
U.S. Cl. 128-346



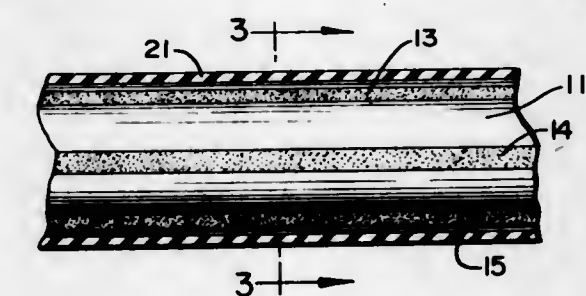
A surgical clamp for application to the neck of an aneurism to clamp the walls thereof to shut off blood flow or seepage from an artery on which such aneurism has formed, the clamp having oppositely, longitudinally concavely bowed, and resiliently biased clamping arms that are also transversely, oppositely convexly bowed, and the opposed faces of said arms being provided with a multiplicity of depressions that are defined by intersecting portions of said opposed faces.

3,598,126
VASCULAR CANULA FOR MEDICAL APPLICATIONS
Josef Hoeltzenbein, Munster, Westfalen, Germany, assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed July 25, 1968, Ser. No. 747,712
Claims priority, application Germany, Apr. 30, 1968, H 62 605/30k Gbm
Int. Cl. A61m 25/00
U.S. Cl. 128-348



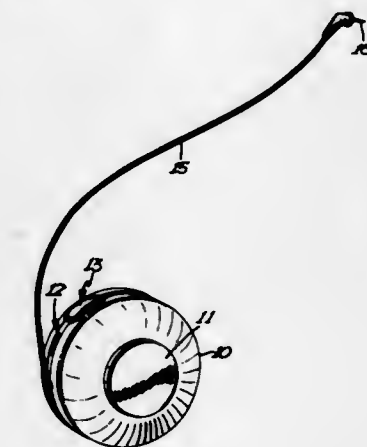
A vascular canula which is intended for insertion into a blood vessel. The canula includes a thin-walled tube made of silicone rubber. The tubing wall is reinforced with thin fibers to provide a canula which combines softness and flexibility with stability of shape.

3,598,127
CATHETER HAVING ANTIBACTERIAL SUBSTANCE THEREIN PROVIDED WITH MEANS PERMITTING SLOW RELEASE OF SAID SUBSTANCE
James G. Wepalc, Massachusetts General Hospital, Boston, Mass.
Filed June 6, 1968, Ser. No. 735,022
Int. Cl. A61m 25/00
U.S. Cl. 128-349



A catheter has an inner tube of nonpermeable rubber formed with V-shaped grooves extending along its length on the outside carrying antibacterial agents permeable through polysiloxane rubber that surrounds the V-shaped grooves. The antibacterial agents are permeable through the polysiloxane rubber. Upon diffusion through the polysiloxane layer the antibacterial agents help prevent infection caused by bacteria moving up the tube toward the bladder or other organ into which the catheter tube leads.

3,598,128
LEAD-STORING PACER
William M. Chardack, Buffalo, N.Y., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Oct. 28, 1968, Ser. No. 771,067
Int. Cl. A61n 1/36
U.S. Cl. 128-419 P

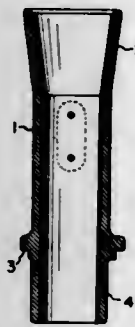


An implantable electrical medical device, especially useful for pediatric implantations, wherein encapsulated electrical circuitry which is adapted to be connected to a lead extending to an electrode connected to the body, has a groove or the like extending around the external periphery of the encapsulating substance, the groove being of sufficient dimension to releasably receive extra lengths of the lead supplied for growth of the body.

3,598,129
COIN RECEIVING AND STACKING DEVICE
Masaru Itoda, Hyogo-ken, Japan, assignor to Kabushiki Kaisha Kokuei Kikai Seisakusho, Hyogo-ken, Japan
Filed Oct. 22, 1968, Ser. No. 769,647
Claims priority, application Japan, Nov. 11, 1967, 43/95078
Int. Cl. G07d 9/00
U.S. Cl. 133-1 A

The inner wall surface of a tubular coin receiving and stacking device is lined with a metal sheet to provide a

passageway of smooth and durable surface for coins passed through it, whereby the coins are smoothly and reliably returned to a supply of rinse water, or otherwise utilized to



stacked, flat sides against flat sides, without nonparallel askew or edge-on orientation of the coins.

3,598,130

VERTICALLY MOVABLE SPRAY MECHANISM FOR WASHING MACHINE

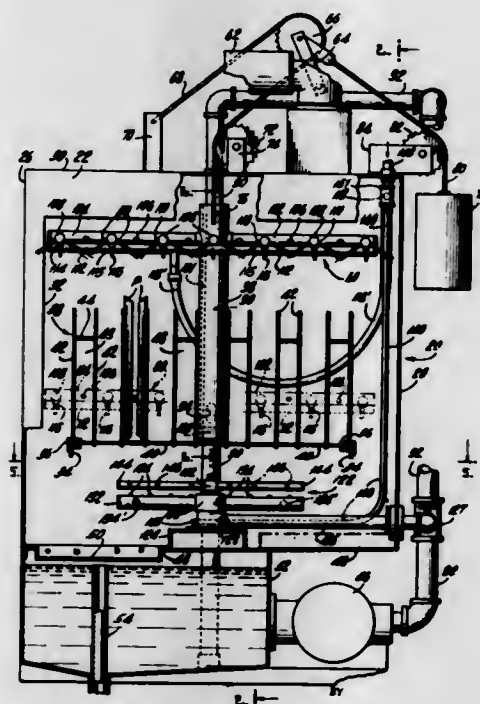
Robert K. Nolte, Chatham, and Edwin Dana Cowles, English-town, both of, N.J., assignors to Metalwash Machinery Corporation, Elizabeth, N.J.

Filed May 10, 1968, Ser. No. 728,161

Int. Cl. B08b 3/02

U.S. Cl. 134—99

31 Claims



A vertically movable mechanism having a plurality of wash and rinse nozzles is moved linearly between pans stacked on edge. The wash and rinse sprays alternately impinge on the surfaces of the pan in order to provide full cleaning coverage. An alternative rotary wash and rinse spray may be used for horizontally disposed bowls and utensils.

3,598,131

STEAM COLLECTION SYSTEM FOR DISHWASHING MACHINES

Clyde R. Welhe, Jr., Needham Heights, Mass., assignor to Adamation Inc., Newton, Mass.

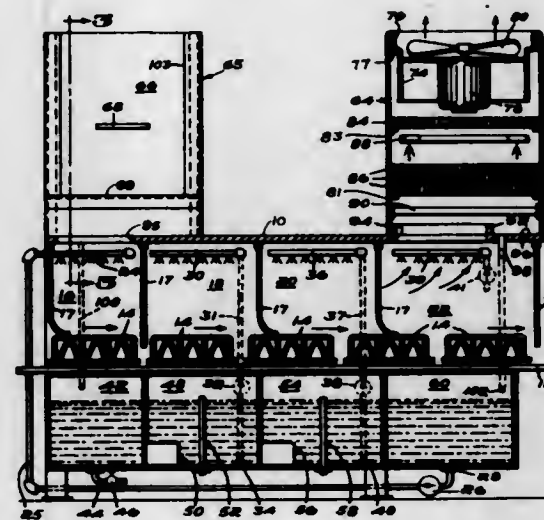
Filed Aug. 12, 1969, Ser. No. 849,381

Int. Cl. B08b 15/02, 3/02

U.S. Cl. 134—107

13 Claims

A system for collecting and condensing steam from dishwashers to recover the heat of condensation and to reduce the humidity in the dishwashing room. Steam is drawn from the dishwasher by a blower into a duct, and through a body of porous material against which sprays of water are directed.



recover the heat of condensation of the steam. The airflow leaving the blower is discharged into the room at a reduced level of humidity.

3,598,132

AUTOMATIC JET-ACTION SWIMMING POOL CLEANER ATTACHMENT DEVICE

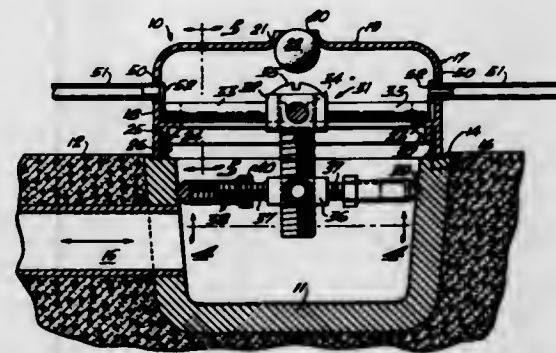
Eldon S. Miller, 6645 S.W. 129th Terrace, Miami, Fla.

Filed June 27, 1969, Ser. No. 837,285

Int. Cl. B08b 3/00

U.S. Cl. 134—167 R

6 Claims



A device for attachment to the bottom drain of swimming pools is described, comprising a cylindrical housing structure seatable and securable over the drain and having a plurality of radially outwardly extending flexible tubes. Operation is effected by directing the inlet flow of pool water in the filtering circulatory system to the bottom drain, whereat it passes under pressure through the housing structure to discharge at the open ends of the tubes with jet action. The resulting whipping about of the tubes at the bottom of the pool serves to maintain dirt particles in suspension for automatic removal by the filtering apparatus instead of settling as dirt and sludge.

3,598,133

LIGHTWEIGHT TENT CONSTRUCTION

Jack C. Abert, 511 East Mulberry, and Fred A. Farnbach, both of Phoenix, Ariz., assignors said Farnbach to said Abert part interest

Filed Dec. 4, 1968, Ser. No. 781,122

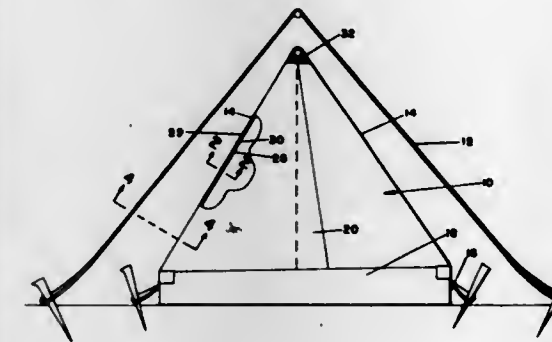
Int. Cl. A45f 1/00

U.S. Cl. 135—1 R

1 Claim

A lightweight tent construction comprising a tent roof having an outer waterproof layer of thin lightweight material and an inner layer of insulating material, such as synthetic foam, or the like, wherein the waterproof layer may be of fabric or

plastic material of high tensile strength ranging in thickness between 0.004 and 0.010 inches, and wherein the insulating



3,598,134

RATIO CONTROLLER FOR GASES

Louis A. Olivier, Menlo Park, Calif., assignor to Veriflo Corporation, Richmond, Calif.

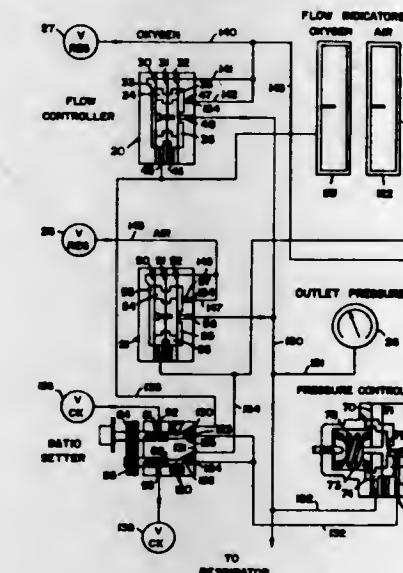
Division of Ser. No. 713,669, Mar. 18, 1968, Pat. No. 3,534,753.

This application Mar. 16, 1970, Ser. No. 19,941

Int. Cl. G05d 11/03

U.S. Cl. 137—7

10 Claims



A mixture of two gases is supplied at any desired ratio, and a ratio once set is maintained over wide variations in pressure and during either continuous or intermittent flow. Two flow controllers are used, one for each gas, and each one comprises three stacked diaphragms to give flow as demanded by superimposing a command signal on a flow based on the differential pressure of each supply gas and the ratio-metering orifice. A chamber on one side of one diaphragm supplies bias based on the supply pressure while the command signal is sent to a second chamber on the other side of the same diaphragm. Two other diaphragms define between them a chamber open to the atmosphere and close off respectively the second chamber and an output chamber. The command signal originates in a pressure controller where the output pressure of the final mixture is measured against a reference pressure to obtain a command signal pressure from the original regulated supply of one of the two gases (both of which are supplied at substantially identical regulated pressure). This command signal is fed to the flow controllers through the ratio setter, and the other flow controller chambers are supplied from supply pressure through a constant orifice.

3,598,135 FLUID PULSE RESPONSIVE IMPACTING STREAM APPARATUS

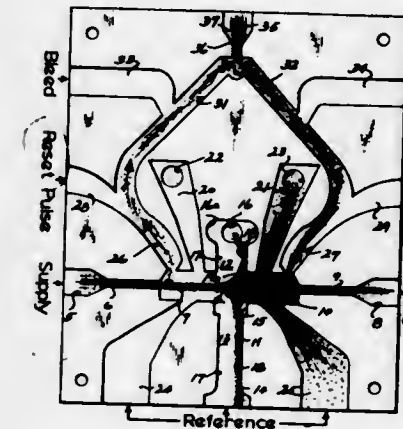
Warren A. Lederman, Milwaukee, and Louis D. Atkinson, New Berlin, both of, Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Filed Jan. 26, 1970, Ser. No. 5,649

Int. Cl. F15c 1/20

U.S. Cl. 137—81.5

11 Claims



A pair of aligned and opposed main stream nozzles in the opposite end of a rectangular chamber establishes a lateral impacting streamflow within an exit chamber portion having lateral parallel boundary layer lock-on walls. Control ports are connected to the opposite sides of the lateral flow chamber and are interconnected by a circulation passageway having a central fluid pulse input port. Output ports are provided to opposite sides of the lateral flow passageway means. Reference ports are connected to the interaction chamber to the opposite sides of the exit chamber. Reference ports are also connected to the circulation passageway.

3,598,136

FLUIDIC INFRARED SENSING DEVICE

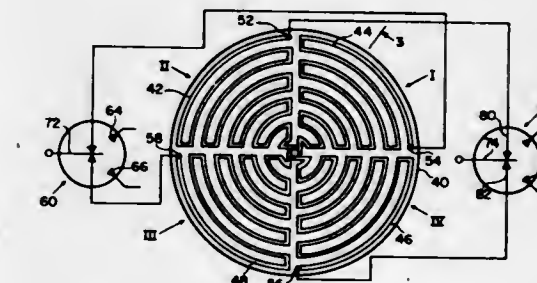
Ralph G. Zaginallott, Beverly, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed Mar. 17, 1969, Ser. No. 807,888

Int. Cl. F15c 1/14; G01j 5/38

U.S. Cl. 137—81.5

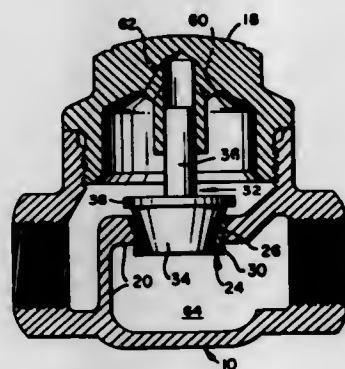
9 Claims



The disclosure illustrates a fluidic infrared sensor comprising a thermally conductive, laminar flow element exposed to infrared energy and series connected with a control jet of a proportional fluidic amplifier. The laminar flow element is heated, thereby varying the flow of the control jet and the deflection of the amplifier's power stream to produce a pressure output proportional to the level of infrared energy. In order to maximize the amplifier output due to very low levels of infrared energy, the laminar flow element is positioned in a thermal insulating chamber having a reflective inner surface. An opening in line with the focus point of a reflective parabolic mirror permits concentrated infrared energy to be applied to the fluidic device positioned in line with the opening. An alternate laminar flow element for this application senses the direction from which the infrared source originates.

which also is comprised of a high-temperature plastic material, the disc member being characterized by a sail which will

chamber in a casing open toward the axis of rotation. The casing is freely rotatably mounted on the rotating member and stationary. Annular, circular grooves in axially opposite walls of the chamber receive sealing rings which may be



be acted upon by fluid in the system to cause rapid and full opening and closing of the valve regardless of the position thereof.

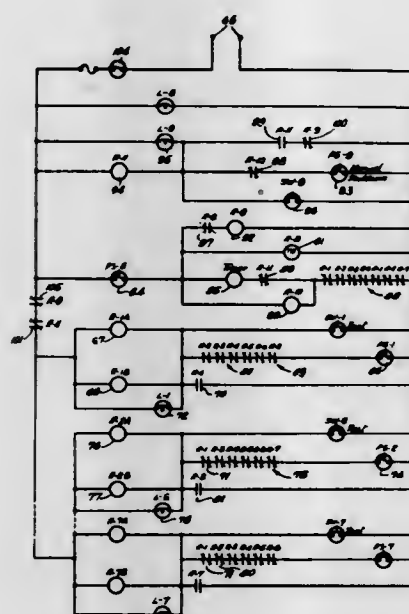
3,598,146 ELECTRICAL FIRST-OUT INDICATOR SYSTEM FOR USE WITH PNEUMATIC CONTROLS ON A PETROLEUM PROCESS

Allen M. Robin, Anaheim, and Dale R. Jesse, Hacienda Heights, both of, Calif., assignors to Texaco Inc., New York, N.Y.

Filed Sept. 29, 1969, Ser. No. 861,762
Int. Cl. F16k 37/00; H04q 3/02

U.S. Cl. 137-552

6 Claims



An electrical indicator system is connected to a petroleum process where pneumatic controls are employed and where automatic shutdown will take place if any one of a plurality of parameters exceeds predetermined limits. The electrical system uses relays that are actuated by the pneumatic controls which indicate when a parameter goes outside limits. Each such relay has interlocking contacts with the circuits for all the other relays, so that the first actuated relay will lock out the remaining relays. This provides an indication of which condition was first outside limits.

3,598,147 MECHANISMS FOR FEEDING AIR INTO A ROTARY MEMBER

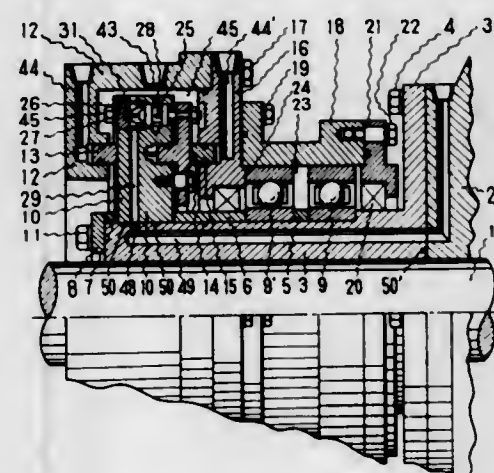
Tadao Kosaka, Ichikawa, Japan, assignor to Nippon Piston Ring Kabushiki Kaisha

Filed Feb. 24, 1970, Ser. No. 13,304
Int. Cl. F16L 39/04

U.S. Cl. 137-580

4 Claims

A mechanism for feeding compressed air from a stationary air line to a rotating, air-operated clutch has a disc mounted on the rotating clutch body and partly enclosed in an annular



forced outward of the grooves into engagement with the disc by compressed air fed to the grooves. A duct in the disc connects the chamber with the hollow interior of the clutch body and is controlled by a valve which is opened when one of the sealing rings is forced out of the associated groove.

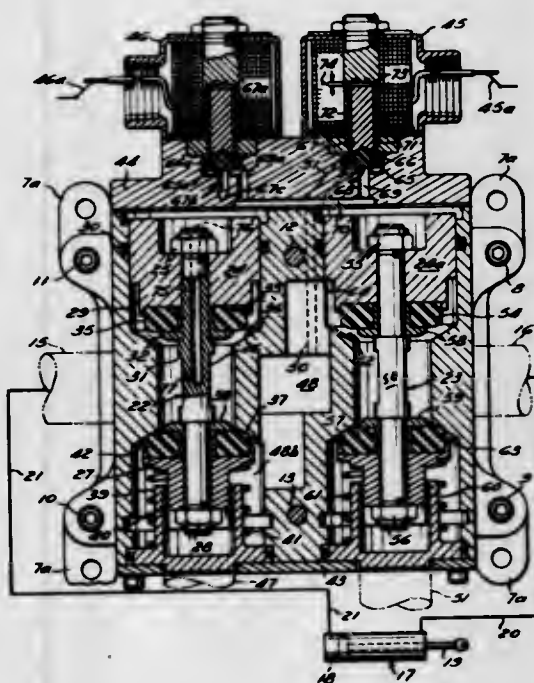
3,598,148 MOMENTARY CONTACT POPPET VALVE

Kenneth K. Kroffke, Cleveland, Ohio, assignor to Airmatic Valve Inc.

Filed Aug. 14, 1969, Ser. No. 850,207
Int. Cl. F15b 21/08

U.S. Cl. 137-596.16

7 Claims



A poppet valve having a poppet assembly mounted for reciprocation to two positions in the valve body. A first position opening one poppet to establish fluid pressure flow from a valve inlet to a valve outlet. A second position closing said one poppet and opening another poppet to establish flow from a valve inlet to a valve outlet. A first solenoid-operated pilot valve momentarily operated to move the poppet assembly from said first position to said second position. A second solenoid-operated pilot valve momentarily operated to restore said assembly to said first position whereby fluid pressure flow is maintained from an inlet to an outlet without the maintenance of current flow in either solenoid.

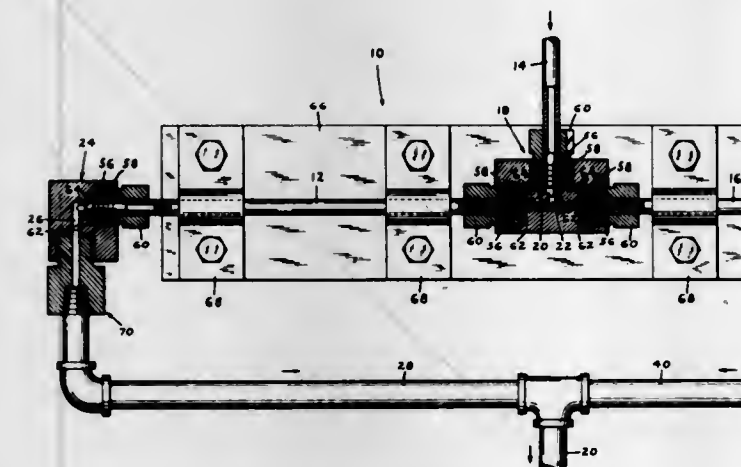
3,598,149 HIGH-PRESSURE METERING VALVE

Donald E. Witkin, Warren, Pa., assignor to National Forge Company, Irvine, Pa.

Filed Aug. 4, 1969, Ser. No. 847,168
Int. Cl. F15d 1/00

U.S. Cl. 137-599

6 Claims



A high-pressure, restriction-flow-metering valve in which a control rod is longitudinally inserted in a hollow cylinder of slightly larger internal diameter having exhaust ports at either end and a high-pressure input port intermediate the cylinder ends.

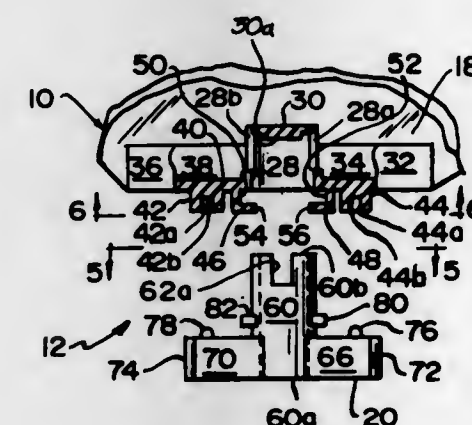
3,598,150 MEDICAL-SURGICAL VALVE ARRANGEMENT

John L. Nolan, Glenview, Ill., assignor to Hollister Incorporated

Filed June 16, 1969, Ser. No. 833,450
Int. Cl. F16k 5/04

U.S. Cl. 137-625.32

7 Claims



A valve arrangement for a medical-surgical conduit means including first and second valve members, one of which has a female valve sleeve with ports therein and the other of which has a matingly received male valve sleeve with ports therein. Each of the valve members has mutually opposing faces with mutually engageable locking means on the faces for preventing relative rotation of the members and axial dislodgement thereof. The ports of the male member are arranged so that when the members are locked in and assembled condition the ports are either in communication or out of communication with the female ports depending upon the mode of intended use of the valve arrangement.

3,598,151 ELECTROHYDRAULIC VALVE SYSTEMS

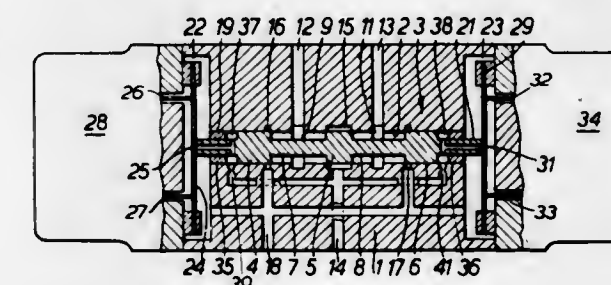
Anthony George Lithgow Shore, Winchcombe, England, assignor to Dowty Technical Developments Limited, Brockhampton, Cheltenham, England

Filed June 23, 1969, Ser. No. 835,683
Claims priority, application Great Britain, June 26, 1968, 30405/68

Int. Cl. F16k 11/07

U.S. Cl. 137-625.61

3 Claims



An electrically operated pressure-reducing valve system comprising a moving coil unit mounted for movement within a magnetic field and carrying an obturator and a nozzle carrying fluid at pressure cooperating the obturator so that the movement of the moving coil unit will determine the escape flow of fluid from the nozzle. The nozzle is supplied with fluid at pressure through a restrictor and the junction of the nozzle and the restrictor may supply reduced pressure to a working space for servo adjustment of a servo valve. The moving coil unit includes at least a pair of windings which are connected individually into two electric supply circuits so that the currents in the two circuits may be varied. The variation of the currents in the two circuits may be differential to obtain a desired control effect or alternatively one circuit may be a duplicate of the other circuit and may be switched into operation when the said other circuit fails.

3,598,152 PISTON VALVES

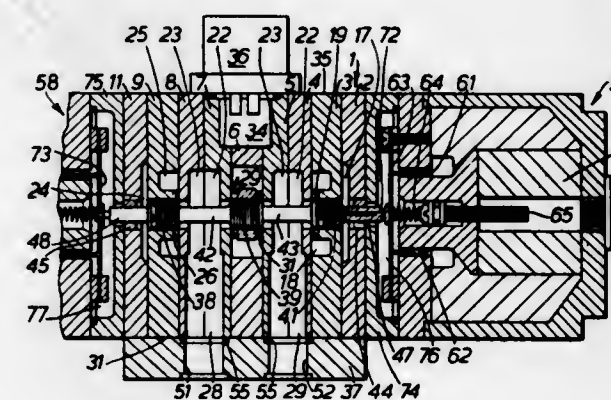
Thomas Desmond Hudson Andrews, Leckhampton Hill, England, assignor to Dowty Technical Developments Limited, Brockhampton, Cheltenham, England

Filed June 23, 1969, Ser. No. 835,686
Claims priority, application Great Britain, June 26, 1968, 30402/68

Int. Cl. F16k 31/06

U.S. Cl. 137-625.61

4 Claims



A piston valve having a body formed of a plurality of metal sheets secured together in surface to surface relation by brazing to form a block, the bore and the ports for the piston valve being formed as holes and recesses in the sheets before brazing whereby a minimum of machining operations are necessary after the brazing has been effected. The surface dimensions of the sheets before brazing are each not substantially less than the axial length of the bore through the finished block whereby the block is of substantial strength to resist distortion which might be applied to it during use.

3,598,153

MASS FLOW RATE EQUALIZER USABLE FOR EXHAUST OR SUPPLY OPENINGS OF A DUCT
Taro Hayashi, Osaka-shi, and Aritsume Moriyma, Nishinomiyashi, both of Japan, assignors to Sanko Air Plant Ltd., Osaka, Japan

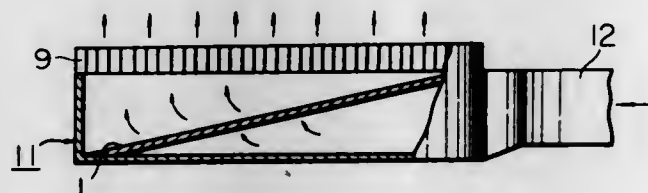
Filed July 28, 1969, Ser. No. 845,189

Claims priority, application Japan, Dec. 2, 1968, Dec. 2, 1968, May 27, 1968, May 27, 1969, 43 88174; 43 105062; 44 41166; 44 41167

Int. Cl. F15d 1/02

U.S. Cl. 138—37

6 Claims



An improved mass flow rate equalizer disposed in a vicinity of opening terminals of a flow duct with inclination against flow direction and having one or more flow passable cutoffs whose flow passable effective area decreases gradually along the flow direction. The equalizer may favorably be provided with one or more perforations having angles with respect to the flow direction.

3,598,154

LINE BLIND VALVE

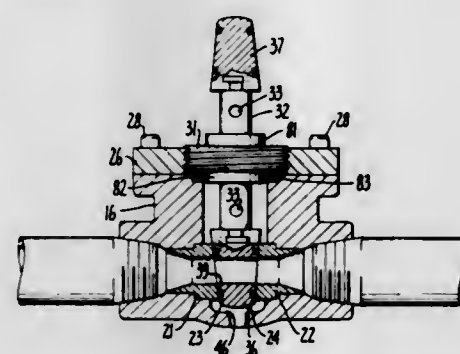
Ben W. Brundage, 4390 Piedmont Ave., Oakland, Calif.

Continuation of application Ser. No. 796,407, Feb. 4, 1969, now abandoned. This application July 15, 1969, Ser. No. 841,913

Int. Cl. F16l 55/10

U.S. Cl. 138—94.3

1 Claim



A valve is provided which has only two positions of adjustment. In one position, complete flow is permitted through the valve while in the other position flow through the valve is positively cut off. Such a valve is highly desirable, for example, in a pipeline feeding a highly combustible fuel to a furnace or the like. When the furnace is not in use so that the workmen enter the furnace to perform various repair operations thereon, possibly using welding torches and the like, it is an absolute necessity that no combustible fuel be admitted to the furnace proper. If the flow of fuel is controlled only by a valve capable of movement between various positions of adjustment it is possible, and, unhappily, this has happened that any fuel entering the furnace may be ignited with disastrous results.

3,598,155

FLEXIBLE MEMBER

Thomas E. Burkley, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Summitt, Ohio

Filed Nov. 1, 1967, Ser. No. 679,731

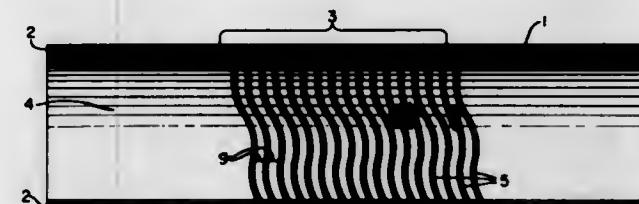
Int. Cl. F16l 11/00

U.S. Cl. 138—119

12 Claims

An improved flexible member of the type designed for use in a fluid pressure system having the predetermined flex

wrinkle pattern or a modification thereof imparted to its surface to improve the flexing properties while the member is operating in such system. This pattern may consist of a simulation of the actual flex wrinkle pattern of a previously operating flexible member or be a compromise which em-



plays a plurality of grooves having substantially the same pitch as the wrinkles. Also, the method by which the pattern is imparted to the surface of the flexible member. This invention results in the increased flex life and improved low temperature performance of the flexible member.

3,598,156

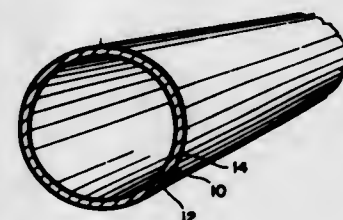
BIMETAL TUBING AND METHOD OF MAKING SAME
William L. Ulmer, and Harry W. McQuaid, both of Cleveland, Ohio, assignors to Jordan Band, Trustee, Cleveland, Ohio

Division of Ser. No. 491,590, Sept. 30, 1965, Pat. No. 3,397,445. This application July 15, 1968, Ser. No. 764,353

Int. Cl. F16l 9/14

U.S. Cl. 138—143

8 Claims



An improved elongated bimetal tubing comprised of a first outer shell and a second inner shell, each formed from different metals, and having therebetween a third bonding metal metallurgically bonded to each. The third metal includes three strata; the first comprising an alloy of the outer shell metal and the bonding metal; the second comprising primarily the bonding metal; and, the third comprising an alloy of the inner shell metal and the bonding metal.

3,598,157

INSULATION FOR PIPE FITTING

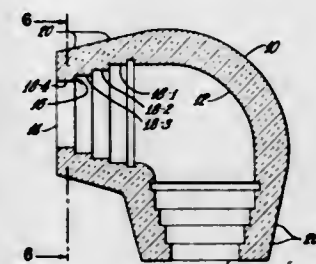
Alfred S. Farr, Granville, Ohio; James Michael Long, Pataskala, Ohio, and Roger W. Soltis, Waynesville, N.C., assignors to Owens-Corning Fiberglas Corporation

Filed Aug. 4, 1969, Ser. No. 847,221

Int. Cl. F16l 59/02

U.S. Cl. 138—157

19 Claims



Pipe fitting insulation which can be used to insulate fittings of several different pipe sizes. Each piece of insulation has a central cavity large enough to accommodate the largest size fitting intended to be covered, and two openings commu-

3,598,158

YARN CLAMPING AND CUTTING DEVICE

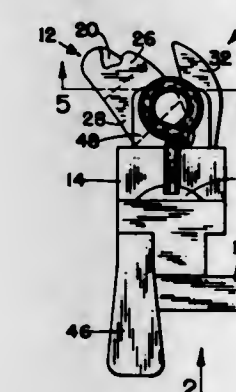
Kenneth J. Hall, Auburn, Mass., assignor to Crompton & Knowles Corporation, Worcester, Mass.

Filed Nov. 10, 1969, Ser. No. 875,156

Int. Cl. D03d 47/36, 45/50

U.S. Cl. 139—263

7 Claims



A yarn clamping and cutting device in which a flat resilient clamping blade abuts a clamping support blade and extends across a groove in the support blade. A combination blade has a cutting edge for cooperating with a cutting blade and a clamping edge for cooperating with the flat clamping blade to clamp a yarn at a point on the clamping blade which extends across the groove.

3,598,159

MULTILAYER FABRIC

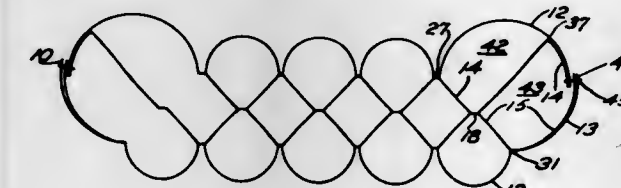
John A. MacIntyre, Barrington, R.I., assignor to U.S. Plush Mills, Inc.

Filed Sept. 8, 1969, Ser. No. 855,935

Int. Cl. D03d 1/02

U.S. Cl. 139—384

2 Claims



A woven fabric having a plurality of layers, there being outer layers and one or more intermediate layers between the outer layers, tying the outer layers together in such a way as to provide pockets extending warpwise in a generally honeycomb relation to prevent the outer layers from spreading beyond a limited distance when inflated, the opposite edges of the fabric being brought together by one outer layer joining another outer layer opposite it and providing a larger chamber which when inflated will provide a bulge at the opposite edges of the fabric extending lengthwise or warpwise of the fabric.

3,598,160

POUR CONTROL SYSTEM

Richard M. Quinn, and Donny W. Candiotto, both of Muncie, Ind., assignors to Ball Corporation, Muncie, Ind.

Filed Apr. 30, 1968, Ser. No. 725,347

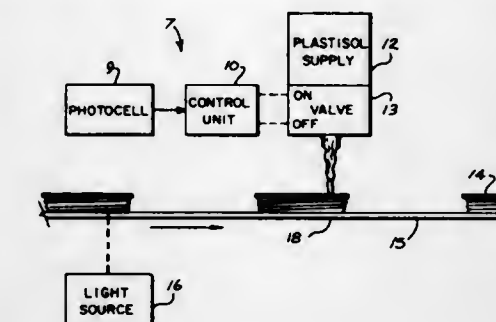
Int. Cl. B65b 43/42; B67c 3/00

U.S. Cl. 141—156

11 Claims

An electronic unit for accurately timewise controlling the occurrence and duration of a predetermined event—co-

ntrolling the flow of liquid-state gasket material into a container lid being specifically shown. The unit includes bistable multivibrators and timewise adjustable delay circuits con-



nected to positively control a variable device—a valve governing the flow of gasket material into a lid being shown, with the unit being actuated by a photo cell sensing the presence of the lid as it is conveyed to the pouring station.

3,598,161

LAYOUT FRACTION COLLECTOR

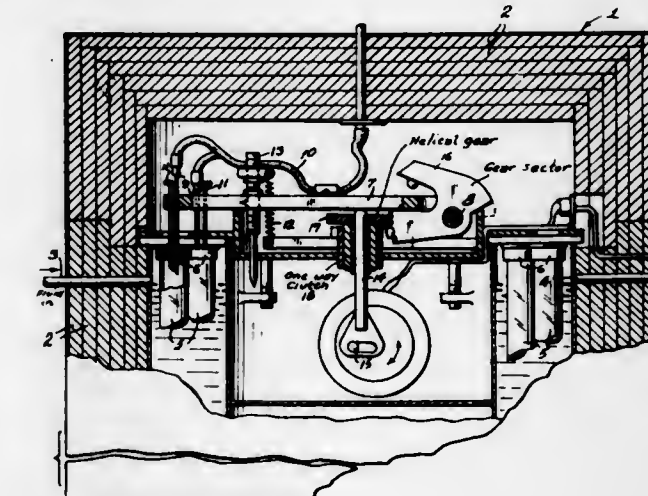
William C. Baldwin, Anaheim, Calif.

Filed Apr. 14, 1969, Ser. No. 815,759

Int. Cl. B65b 1/28

U.S. Cl. 141—284

8 Claims



A circular base unit supports a plurality of small containers in a circle about the center. An arm is pivoted on a first pivot to rotate about the center of the base unit and is pivoted about a second pivot to swing up from and down toward the small containers. A hollow needle mounted on the arm vents a container while another feeds fluid to it or extracts fluid from it.

3,598,162

SWITCH INTERLOCK

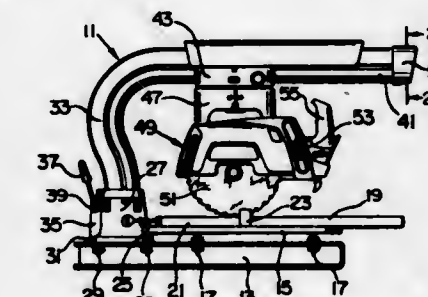
Francis J. Rosenthal, Jr., Fork, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Filed June 9, 1969, Ser. No. 831,569

Int. Cl. B27b 5/20

U.S. Cl. 143—6 A

7 Claims



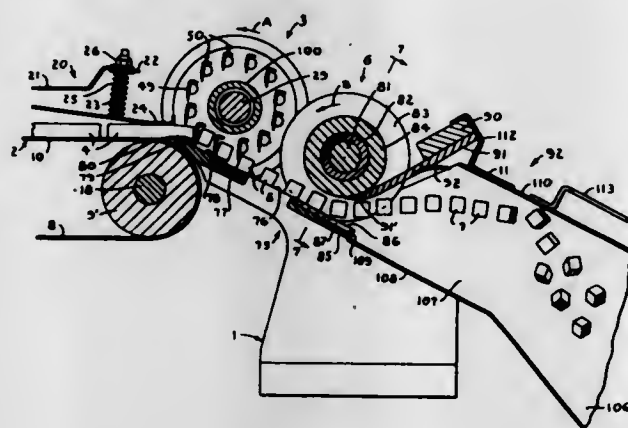
The device disclosed herein is a radial arm saw which includes a base frame having an upstanding column pivoted

thereon about a generally vertical axis. A radial arm is rigid with the column and has a saw carriage supported thereon for movement longitudinally thereof. An electric motor driven saw is suspended from the carriage and is adapted to cut workpieces situated on a table supported upon the base frame. The motor is controlled by a switch on the arm, and means is provided to prevent inadvertent or accidental actuation of the switch.

3,598,163

MACHINE FOR CUTTING A PRODUCT INTO PIECES
Gerald W. Urschel, 1614 Napoleon, and Joe R. Urschel, 202 Michigan Ave., both of Valparaiso, Ind.
Filed June 7, 1968, Ser. No. 735,235
Int. Cl. A23n 15/00

U.S. Cl. 146—78

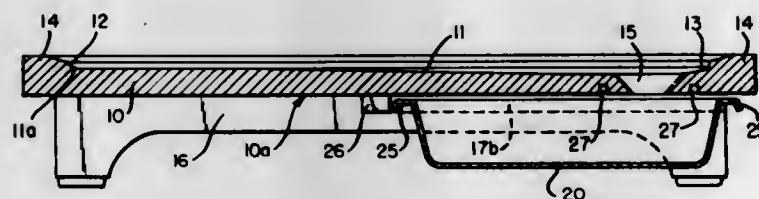


The invention involves locating inclined guide means between a conveyor and a rotatable knife assembly whereby to facilitate efficient cutting of a product into pieces.

3,598,164

CUTTING BOARD WITH IMPROVED RESERVOIR
George S. August, 9225 Colesville Road, Silver Spring, Md.
Filed June 13, 1969, Ser. No. 832,891
Int. Cl. A47j 47/00

U.S. Cl. 146—215



A carving or cutting board is provided with an inclined upper surface, an aperture in said inclined surface, and a relatively large serving receptacle removably attached to the underside of the cutting board below said aperture for accumulating liquids or cut materials.

3,598,165

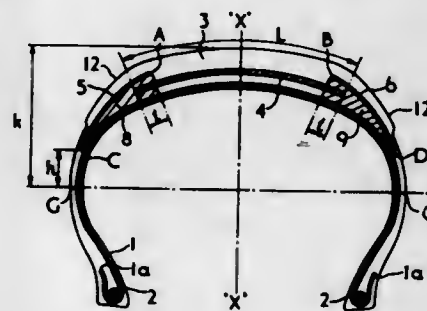
PNEUMATIC TIRES WITH REINFORCED BREAKER ASSEMBLY
Jean Hanus, Montlucon, France, assignor to The Dunlop Company Limited, London, England
Filed July 15, 1968, Ser. No. 745,023
Claims priority, application France, July 31, 1967, Apr. 1, 1968, 116287; 146656
Int. Cl. B60c 9/08

U.S. Cl. 152—361

13 Claims

A pneumatic tire comprising a carcass, a breaker assembly, and a reinforcement layer disposed in each shoulder region

of the tire in directly overlapping relationship with said carcass and an edge of the breaker assembly such as to reduce



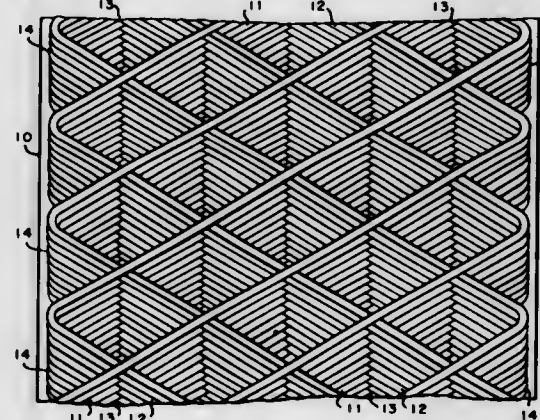
6 Claims the possibility of separation of the layers of the breaker assembly of which the following is a specification.

3,598,166

ENDLESS REINFORCEMENT FOR PNEUMATIC TIRES
Thomas A. Wells, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed June 6, 1968, Ser. No. 734,919
Int. Cl. B60c 9/18

U.S. Cl. 152—361

23 Claims



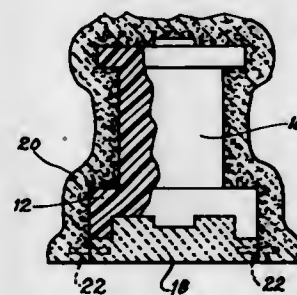
An endless reinforcement strip for a pneumatic tire which comprises continuous cord forming a generally zigzag pattern and being positioned across the width of the strip from one side to the other at an angle to the edges of the strip with reversals at the edges. Lengths of the cord between reversals are interleaved with lengths disposed at an opposite angle along at least one line substantially parallel to and intermediate the edges of the strip.

3,598,167

METHOD AND MEANS FOR THE PRODUCTION OF COLUMNAR-GRAINED CASTINGS
Michael H. Snyderman, Parsippany, N.J., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Nov. 1, 1968, Ser. No. 772,754
Int. Cl. B22c 9/00

U.S. Cl. 164—26

11 Claims



A method and materials for producing shell molds for casting columnar grained metal components wherein a pattern is

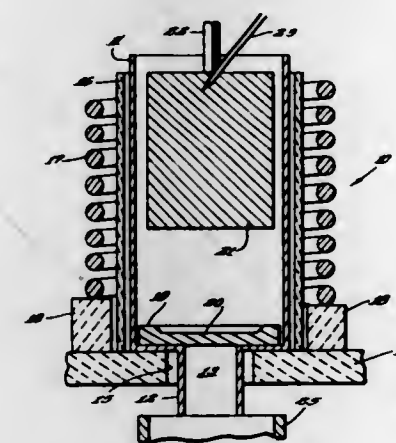
prepared corresponding to the shape of casting to be formed. The pattern is then combined with a base formed of a material selected from the group consisting of graphite and a refractory of high thermal conductivity. A shell mold is formed around the assembly comprising the pattern and base followed by removal of the pattern material to provide the shell mold. The base operates to conduct heat away from molten metal poured therein at a rate greater than the surrounding mold walls whereby nucleation will begin in the area adjacent the base and columnar grain growth will occur. The base included in the assembly of the pattern and base can also be used for connecting supporting rods to lend stability to an arrangement which includes a plurality of the assemblies whereby dip coating for formation of the shell mold can proceed without the need for a supporting baseplate.

3,598,168

TITANIUM CASTING PROCESS
Clyde C. Clark, Euclid, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed Oct. 14, 1968, Ser. No. 767,168
Int. Cl. B22d 27/02

U.S. Cl. 164—51

4 Claims



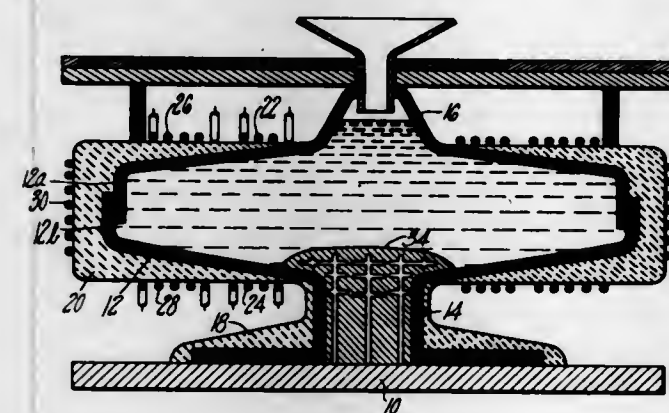
Method and apparatus for casting a titanium alloy which involves suspending a slug of the alloy in spaced relation to the walls of a refractory crucible, inductively heating the slug while so suspended to eventually melt the same, collecting the molten alloy on a disc of titanium alloy positioned in the crucible, and then continuing the application of heat to the molten metal while supported on the disc until the molten metal melts the disc and can then be directed to a mold.

3,598,169

METHOD AND APPARATUS FOR CASTING DIRECTIONALLY SOLIDIFIED DISCS AND THE LIKE
Stephen M. Copley, Madison; Anthony F. Giamel, Middletown; Merton F. Hornbecker, Woodbury, and Bernard H. Kear, Madison, all of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 13, 1969, Ser. No. 807,637
Int. Cl. B22d 25/06

U.S. Cl. 164—60

14 Claims



Apparatus and method for inducing radial directional solidification in parts having a relatively large dimension at

right angles to the major axis such as discs and the like, in which, for example, a [010] radial and [100] tangential orientation is generated.

3,598,170

FLUID-MOLD CASTING PROCESS
James E. Roberts, Huntington, W. Va., assignor to The International Nickel Company, Inc., New York, N.Y.
Division of Ser. No. 583,911, Oct. 3, 1966, Pat. No. 3,444,010.
This application Sept. 19, 1968, Ser. No. 798,481
Int. Cl. B22d 27/00; B22c 3/00

U.S. Cl. 164—72

5 Claims

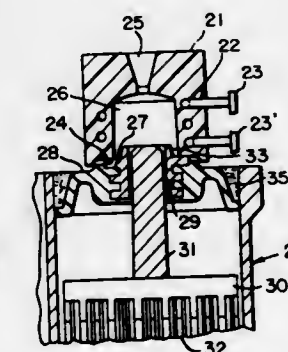
A fluid-mold casting process produces nickel and nickel alloy ingots having improved surface and other metallurgical characteristics using a slag composition containing special amounts of alumina, lime, magnesium oxide, sodium oxide and alkaline earth metal fluoride.

3,598,171

PROCESS FOR BONDING POLE CONNECTIONS AND THE LIKE TO BATTERY POSTS AND THE LIKE
Jurgen Schulz, Berlin, Germany, assignor to Accumulatorenfabrik Sonnenschein G.m.b.H., Bidingen am Oberhessen, Germany
Filed Feb. 21, 1968, Ser. No. 707,208
Int. Cl. B22d 19/00

U.S. Cl. 164—109

3 Claims



Metal parts of a storage battery as, for instance, terminal posts, plates, etc. are connected together by inserting them into a mold, and either before or during pouring of molten metal (lead) into the mold, generating a high frequency current in the mold to strip any oxide film from the parts. During pouring this current will create a turbulence in the molten metal to aid in film-stripping. The molten metal fuses to the metal parts. After the mold has been filled it can be cooled to harden the cast bonding metal onto the metal parts that are to be connected. A copper tubular conductor mounted in the mold acts both as an electrical current conductor and as a conveyor for the coolant.

3,598,172

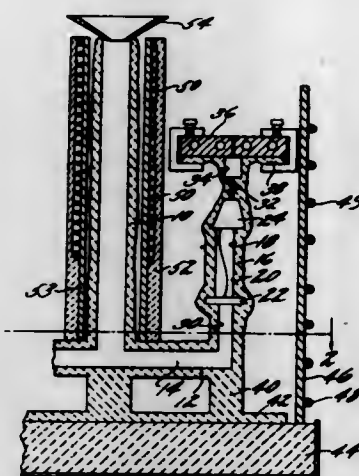
PROCESS OF CASTING WITH DOWNWARD-UNIDIRECTIONAL SOLIDIFICATION
Stephen M. Copley, Madison, and Anthony F. Giamel, New Haven, both of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Oct. 30, 1969, Ser. No. 872,562
Int. Cl. B22d 25/06

U.S. Cl. 164—127

4 Claims

Unidirectionally solidified castings are produced by inverted solidification using a chill plate at the top of the mold

and controlling the temperature gradient to cause solidification to be capable of remaining in communication with said tank at the same time as it is shifted longitudinally in relation



tion to occur from the top downwardly through the mold.

3,598,173

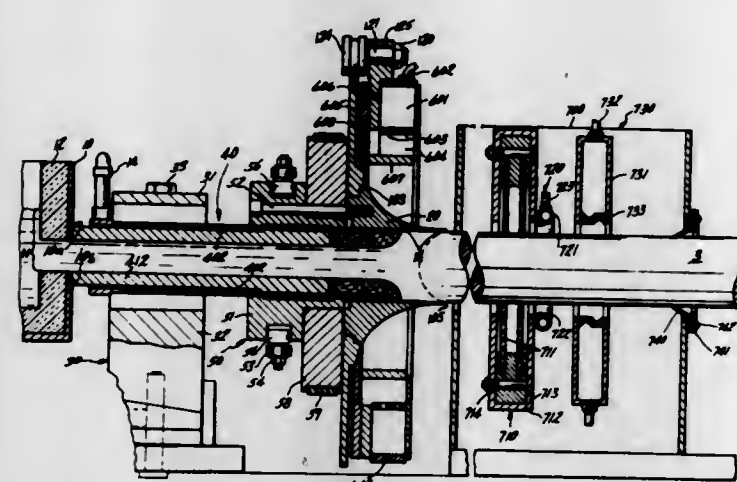
CONTINUOUS CASTING MACHINE HAVING A VARIABLE MOLD LENGTH AND ADAPTED FOR CASTING IN A VARIETY OF SIZES AT HIGH SPEED
James E. Dore, Milford, Conn., and William O. Stauffer, Woodsfield, Ohio, assignors to Olin Mathieson Chemical Corporation

Filed Oct. 17, 1968, Ser. No. 768,354

Int. Cl. B22d 11/10, 11/12

U.S. Cl. 164-268

59 Claims



A continuous casting machine comprising means for holding a body of molten metal, a feed nozzle connected to said means, a mold assembly including a mold rotatable about the feed nozzle, means for moving the mold assembly back and forth upon the feed nozzle, and means for forcing a lubricant through the nozzle to lubricate casting. Means for applying a cooling medium to the mold and means for withdrawing the casting are additionally included.

3,598,174

CONTINUOUS CASTING INSTALLATIONS
Rudolf Plesche, Selestat, France, assignor to Etablissements Martel-Catala et Cie, Selestat, France

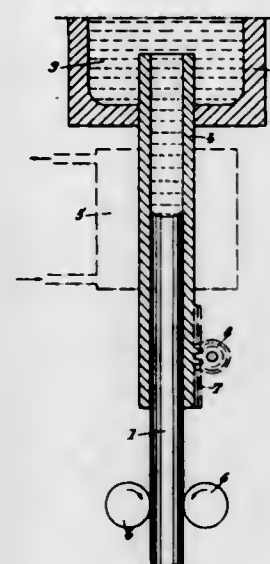
Filed July 22, 1968, Ser. No. 746,420

Claims priority, application France, July 28, 1967, 116,238
Int. Cl. B22d 11/10

U.S. Cl. 164-281

4 Claims

The continuous casting installation according to the present invention comprises a tank for receiving the liquid material to be cast communicating with at least one diestock positioned between said tank and extractor means, said diestock being subjected to the effects of cooling means capable of solidifying said material in a zone of the diestock termed the "solidification zone." The diestock is so devised



3,598,175

APPARATUS FOR CASTING METAL SLABS AND BILLETS

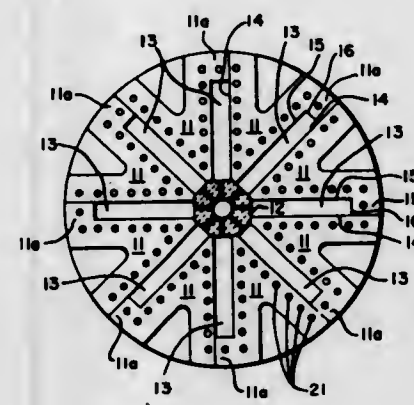
Erik A. Olsson, Zurich, Switzerland, and Carl-Erik Foogde, Mt. Lebanon, Pa., assignors to Olsson International Inc., Pittsburgh, Pa.

Filed Nov. 17, 1967, Ser. No. 683,870

Int. Cl. B22d 17/00

U.S. Cl. 164-321

11 Claims



The present invention discloses a mold wherein molten metal is introduced to a riser communicating with the mold so that the level at which the molten metal flows into the mold is progressively raised as the mold cavity fills, and simultaneously pressure is applied to a movable bottom for the mold to slowly lift and compress the solidifying metal so that the solidifying metal is constantly rising against newly introduced molten metal to thereby eliminate or substantially reduce shrinkage defects.

3,598,176

APPARATUS FOR PRODUCING DOUBLY ORIENTED SINGLE CRYSTAL CASTINGS

Bernard H. Kear, Madison, Conn., and Larry W. Slink, Milwaukee, Oreg., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 13, 1969, Ser. No. 806,869

Int. Cl. B22d 25/06

U.S. Cl. 164-353

5 Claims

An apparatus to produce single crystal parts in which the orientation of the dendrite growth in two planes at right an-

gles to one another is described. In effect this produces an

3,598,178

HEAT PIPE

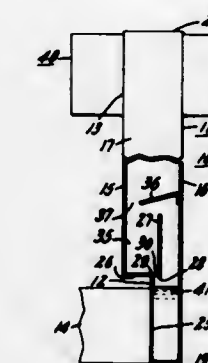
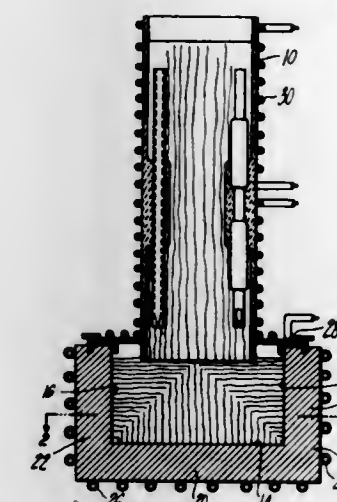
Fred W. Staub, Scotia, N.Y., assignor to General Electric Company

Filed May 26, 1969, Ser. No. 827,566

Int. Cl. F28d 15/00

U.S. Cl. 165-105

6 Claims



orientation in all three right-angle planes of the cast article.

3,598,177

CONDUIT HAVING A ZERO CONTACT ANGLE WITH AN ALKALI WORKING FLUID AND METHOD OF FORMING

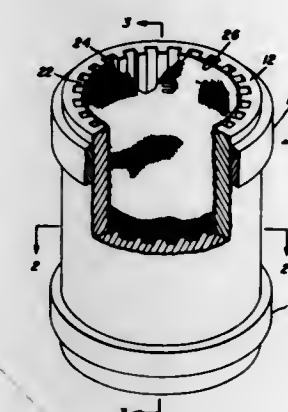
Harold F. Webster, Scotia, N.Y., assignor to General Electric Company

Filed Oct. 29, 1968, Ser. No. 771,426

Int. Cl. F28d 15/00

U.S. Cl. 165-1

9 Claims



A heat pipe capable of operation at temperatures above 900° C. is described characterized by an alkali metal working fluid contained within a conduit having a crystal face orientation only in selected planes to maximize the wetting between the sidewall and the working fluid. Preferably the conduit containing the working fluid is provided with a plurality of circumferentially disposed inwardly extending teeth overlaid with a thin wire mesh screen to define a plurality of capillary passages for liquid transport and the surface of the capillary passages contains the metal only in planes having work functions below a fixed value, e.g. 4.8 ev. for a sodium working fluid with the desired orientation of the capillary passage surface being formed by a hydrogen reduction of a metal fluoride. The zero contact angle between the working fluid and the conduit permit the initiation of operation of the heat pipe without prior warmup and eliminates localized "hotspots" destructive to the sidewall structure.

A heat pipe including a sealed container having a pair of opposed sidewalls and a pair of ends, one of the ends being located below the other of the ends. A portion of one sidewall of the container is recessed from the remainder thereof adjacent the aforementioned one end, and is thermally conductive to provide a heat transfer surface inside of the container. A baffle located in the container has an edge spaced from the upper edge of the heat transfer surface to form an elongated aperture therewith. The baffle extends in the direction of the other end of the container and forms a reservoir with the sidewalls of the container.

3,598,179

HEAT EXCHANGER

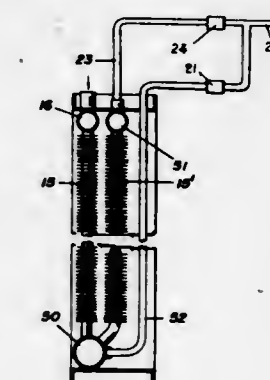
Louis F. Giauque, 50 Dominion Avenue, Kapuskasing, Ontario, Canada

Filed Sept. 10, 1968, Ser. No. 758,812

Int. Cl. F28b 1/06, 9/08, 9/10

U.S. Cl. 165-111

5 Claims



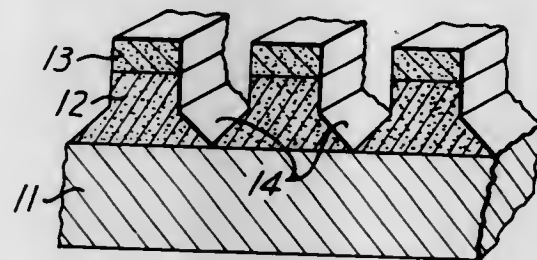
The invention provides a heat exchanger comprising first and second rows of vertically arranged tubes, the outlets of the tubes in each row being connected to separate condensate headers, to which separate traps are connected, and the steam inlets of the second row of tubes being connected to the steam outlets of the first row of tubes whereby the tubes of the first row are automatically purged and air binding is prevented.

3,598,180
HEAT TRANSFER SURFACE STRUCTURE
 Robert David Moore, Jr., 817 W. Camino Road, Arcadia, Calif.

Filed July 6, 1970, Ser. No. 52,609
 Int. Cl. F28f 13/06

U.S. Cl. 165-133

28 Claims



A heat transfer surface structure is described wherein both heat and vaporizable liquid are conveyed through a capillary material to a free vaporizing surface of the capillary material where the liquid vaporizes. Heat is conducted from a heat source wall through a portion of the capillary material to the vaporizing surface where it escapes as heat of vaporization along with the vapor. The liquid flows through the pores of the capillary material from a liquid source to the vaporizing surface under the influence of capillary forces. The vaporizing surface is divided into a large number of regions which are close to the heat source wall and are connected by way of vapor passages to a region external to the capillary material. Thus, the heat conducting paths through the capillary material are very short, and vapor can escape freely through relatively large passages rather than having to force its way through the pores of the capillary material where it would interfere with the liquid flow. Such a vented capillary vaporizer is capable of handling much higher heat flux densities than previous capillary vaporizers. Four examples of capillary vaporizer are set forth, two of these for operation where the liquid and vapor are comingled as in a boiler tube or evaporator tube. One of these has separated areas of capillary material in thermal contact with the heat source surface, thereby defining passages therebetween. The other is similar with added portions of porous materials to form a manifold having a hierarchy of vapor passages of decreasing number and increasing cross section, thus increasing the separation between the regions of liquid input and vapor output. The third example accepts liquid from a capillary structure or wick as in a heat pipe, and also has a pair of manifolds in the form of a hierarchy of passages for vapor flow and capillary paths for liquid flow. The fourth example receives bulk liquid through a channel, and delivers the vapor through a separate passage. Thermal insulation maintains the bulk liquid relatively cool, and active cooling may be provided. This latter embodiment is unique in its ability to pump the heat transfer fluid since the output vapor can be at a higher pressure than the incoming bulk liquid.

3,598,181
OIL RECOVERY EMPLOYING VISCOSIFIERS PRODUCED BY THE ACTION OF ANIONIC SURFACTANTS ON BACTERIAL CULTURES
 Eugene H. Wegner, and Charles A. Stratton, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Feb. 17, 1970, Ser. No. 12,119
 Int. Cl. E21b 43/22

U.S. Cl. 166-246

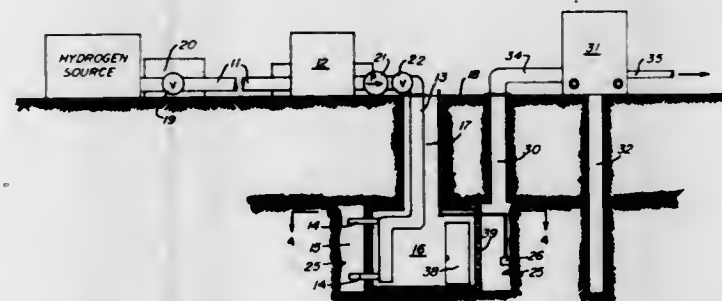
6 Claims

Bacterial cultures are treated with anionic surfactants to form a viscosifier for use in preparing a thickened aqueous medium for employment in the recovery of oil from oil-bearing stratum by waterflood methods.

3,598,182
METHOD AND APPARATUS FOR IN SITU DISTILLATION AND HYDROGENATION OF CARBONACEOUS MATERIALS
 Clarence I. Justheim, Salt Lake City, Utah, assignor to Justheim Petroleum Company, Salt Lake City, Utah
 Continuation-in-part of application Ser. No. 550,343, May 16, 1966, now abandoned. This application Apr. 25, 1967, Ser. No. 641,089

Int. Cl. E21b 43/24
 U.S. Cl. 166-247

17 Claims

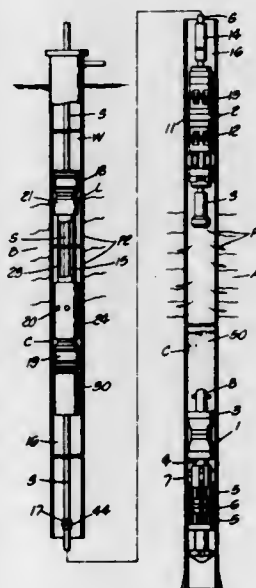


A method of distilling and hydrogenating the hydrocarbon content of carbonaceous materials wherein hot hydrogen is introduced into the carbonaceous material in sufficient quantity and at sufficient temperature to concurrently release and distill the hydrocarbon content. Preferred apparatus for practicing the method includes a source of hydrogen, means for varying the temperature of the hydrogen, an underground cavern in the carbonaceous material, and temperature modulating means at the face of the shale for regulating the temperature of the hydrogen.

3,598,183
METHOD AND APPARATUS FOR TREATING WELLS
 Lyle B. Scott, South Gate, Calif., assignor to Byron Jackson, Inc., Long Beach, Calif.
 Division of Ser. No. 703,983, Feb. 8, 1968, Pat. No. 3,499,486. This application Sept. 29, 1969, Ser. No. 871,016

Int. Cl. F21b 43/16
 U.S. Cl. 166-305

5 Claims



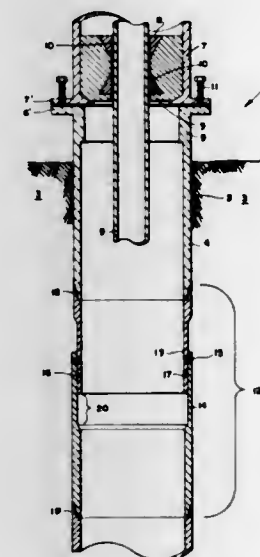
A method of preventing the flow of fluid into a low-pressure zone of earth formation traversed by a well bore when said fluid is placed in the well bore, in which a liner is temporarily employed to block off said low pressure zone. Apparatus for performing such method in which the liner is provided with a bypass valve, opposing packers, and a releasable connection with a running in string of pipe.

3,598,184
METHOD AND APPARATUS FOR PRODUCING A WELL THROUGH A PERMAFROST ZONE
 Frank J. Schuh, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Nov. 5, 1969, Ser. No. 874,238

Int. Cl. E21b 17/08, 33/04
 U.S. Cl. 166-315

10 Claims



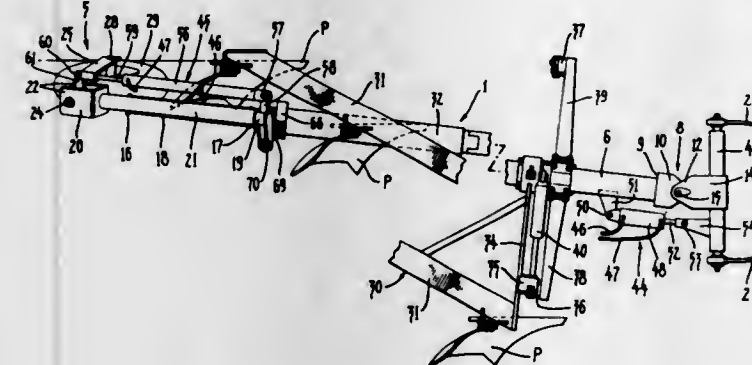
A method and apparatus for producing a well in the earth through a zone of permafrost which is subject to subsidence on thawing, wherein casing is set in the permafrost subsidence zone and then allowed to subside at least one point along the length thereof with the permafrost.

3,598,185
SEMIMOUNTED TURNOVER PLOW HAVING CAM-TILTED AND INDEPENDENTLY HYDRAULICALLY STEERED REAR WHEEL
 Clarence B. Richey, Fresno, Calif., assignor to Massey-Ferguson Inc., Des Moines, Iowa

Filed May 9, 1968, Ser. No. 728,021

Int. Cl. A01b 3/44, 69/00
 U.S. Cl. 172-212

6 Claims



A semimounted turnover plow having a tail wheel supported on the trailing end of the plow frame in such a manner that the wheel is automatically tilted to an inclined position to counteract side forces acting on the plow bottoms in the plowing position of the plows, and returns to a vertical position when the plows are in a transport position. The wheel is tilted about an inclined axis such that it also changes direction relative to the plow frame as it is tilted.

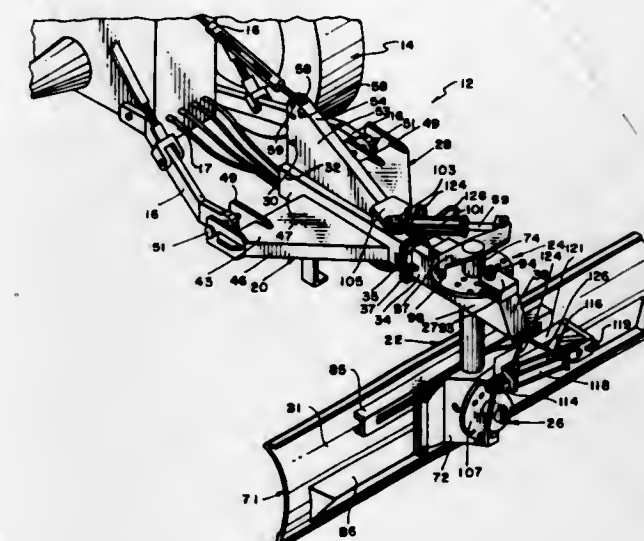
3,598,186
ADJUSTABLE BLADE MEANS
 John G. Coontz, P.O. Box 104, Kiowa, Kans.
 Filed Mar. 17, 1969, Ser. No. 807,483

Int. Cl. A01b 65/00
 U.S. Cl. 172-666

3 Claims

This invention is a blade means readily attachable to a tractor and having a blade structure interconnected to an

angle adjustment means and a tilt adjustment means to rotate the blade means about horizontal and vertical axes to achieve the desired angular relationship. More particularly, this in-



vention is a blade means readily raised in a common horizontal plane and actuated by hydraulic means for rotation of a blade member about vertical and horizontal axes.

3,598,187
TURBODRILL
 Jean Mothre, Le Vesinet, France, assignor to Entreprise De Recherches Et D'Activites Pétrolières (ELF), Paris, France
 Filed May 7, 1970, Ser. No. 35,514

Claims priority, application France, May 13, 1969, 69.15506

Int. Cl. E21b 3/12

6 Claims



A turbodrill in which the hydraulic power unit consists of a rotor which is centered within a cylindrical stator by an axial thrust bearing, the forces exerted on said axial thrust bearing being balanced irrespective of the nature of the formation by virtue of two systems of vanes separated by a baffle for reversing the direction of flow of the driving fluid. Since the entire quantity of fluid passes successively through the two sets of vanes in opposite directions, the axial thrust forces are balanced on the thrust bearing which centers the rotor irrespective of the variations in loss of load on the drilling head.

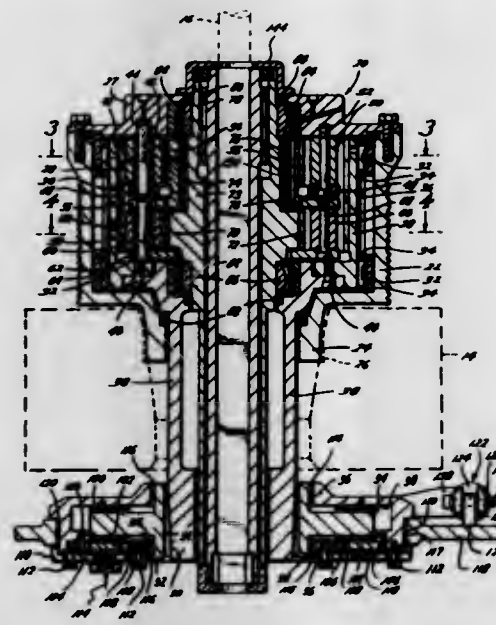
3,598,188
KELLY SPEED BUSHING
 James Foster, P.O. Box 1351, Wichita Falls, Tex.
 Filed May 22, 1969, Ser. No. 826,885

Int. Cl. F21b 3/04
 U.S. Cl. 173-165

25 Claims

An apparatus and method for rotating a kelly and drill string by the rotary of a drilling apparatus at a speed different

than the speed of the rotary. The apparatus generally includes a housing or bushing spaced about the kelly which passes through the table, the housing or bushing being adapted to be received and rotated by the rotary. An anchor ring gear is provided concentrically within the housing and



extends therefrom for attachment to the drilling apparatus structure. Epicyclic or planetary gear means couple with the bushing or housing and mesh with the anchor ring gear to transmit rotary motion from the housing to the kelly. Additionally, holding means secure the anchor ring gear to the drilling apparatus structure.

3,598,189

RAISE DRILLING MACHINE

Charles K. Presley, Las Vegas, Nev., and William A. Glass, Oklahoma City, Okla., assignors to Shaft Drillers, Inc., Las Vegas, Nev.

Filed July 3, 1969, Ser. No. 838,903
Int. Cl. E21b 3/02

U.S. Cl. 175—53

9 Claims



A rotary drilling rig employs a drill string suspended and rotated by a power head guided for longitudinal movement within a mast mounted on a base. A power-driven spooling drum receives a cable which passes between a crown block on the mast and a travelling block supporting the power head. The mast is proportioned to absorb the reaction torque of the power head and to transmit it to the base. A first bit on the lower end of the rotary drill string forms a pilot hole in the earth as the drill string descends by gravity under control of a brake on the spooling drum as it unspools the cable. The pilot hole intersects a shaft in the earth, where a larger bit is installed on the lower end of the drill string, to cut upwardly. Torque is then applied to the drum to turn it at a speed between a stalled condition and very low r.p.m. to keep a

tension on the cable, thereby applying a lifting force to the rotary drill string and larger bit to enlarge the pilot hole from the bottom up.

3,598,190

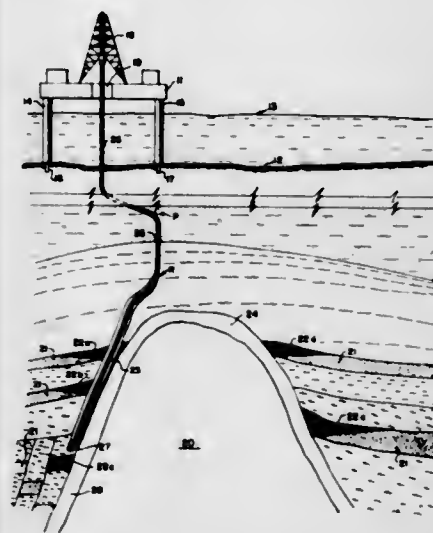
SALT DOME DRILLING METHOD

Donald J. Pfau, Metairie, La., assignor to Shell Oil Company, New York, N.Y.

Filed Feb. 3, 1970, Ser. No. 8,225
Int. Cl. E21b 7/06

U.S. Cl. 175—61

6 Claims



A method of drilling or testing for potential hydrocarbon-producing zones adjacent a salt dome, shale dome, fault plane, or other geologic surface or features including the steps of drilling vertically, deviating the direction of drilling to a slant from vertical, drilling at said slant to a predetermined position above the geological surface where the hole is returned to vertical (or near vertical), and then deviated to a slant approximately paralleling the geologic surface in order to penetrate a maximum number of potential objectives at optimum positions.

3,598,191

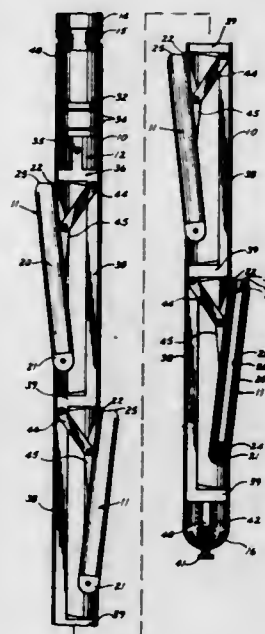
MULTIPLE UNIT WELL BORE SIDEWALL SAMPLER TOOL

Luther Bullard, Casper, Wyo., assignor to Slimhole Sample Service, Casper, Wyo.

Filed Mar. 18, 1970, Ser. No. 20,655
Int. Cl. E21b 49/02

U.S. Cl. 175—77

8 Claims



A well bore sidewall-sampling tool comprises a casing, adapted to be secured to the end of a drill pipe, and contain-

ing a plurality of sample core cutter heads, each of which encases a clear plastic disposable liner tube for receiving and protecting a collected sample of the well bore wall. An actuating mechanism within the casing is operated by fluid pressure applied through the drill pipe. This mechanism includes a rigid operating bar connected to each head for moving each cutter head outwardly into sampling engagement with the sidewall of the well bore when fluid pressure is applied to the casing. The drill pipe is then lifted to cause the heads to bite into the sidewall and cut a sample. A compression spring retracts the sample heads into the casing when the sampling operation is completed.

3,598,192

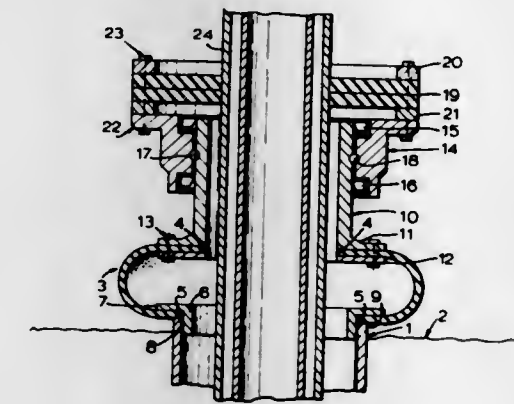
CASING SEAL FOR A ROTARY DRILL APPARATUS

Floyd W. Becker, Calgary, Alberta, Canada, assignor to Becker Drills Limited, Calgary, Alberta, Canada

Filed Nov. 13, 1969, Ser. No. 876,417
Int. Cl. E21b 21/00

U.S. Cl. 175—210

6 Claims



An apparatus for sealing a rotary drill to an encased hole which consists of an annular resilient member secured to the hole casing and a cylindrical body mounted above the resilient member. A rotatable housing is mounted on the cylindrical body which has a flexible annular member coaxial therewith. A channel is provided through the casing, resilient member, cylindrical body and rotatable housing for the passage of a drill pipe. The flexible annular member is capable of clamping the drill pipe and providing a seal therewith while the rotatable housing permits rotation of the drill pipe.

3,598,193

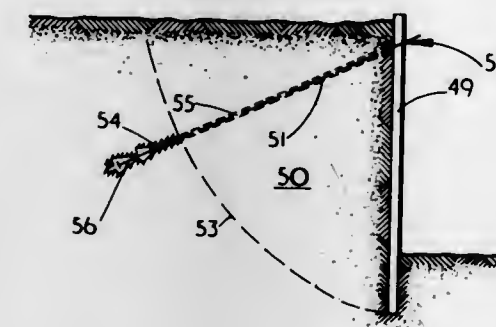
CUTTER BITS WITH RADIALLY EXTENDABLE CUTTER ELEMENTS

Allan Richard Hilton, Westhoughton, England, assignor to Navenby Limited, Bolton, Lancashire, England
Continuation of application Ser. No. 736,371, June 12, 1968, now abandoned. This application Jan. 29, 1970, Ser. No. 7,389

Int. Cl. E21b 9/26

U.S. Cl. 175—285

6 Claims



A cutter for enlarging a hole in clay, soil, rock or the like comprising a use means which can be moved from an out of

use position to allow removal from the hole or to an in use position in which rotation of the cutter causes undercutting or enlargement of the hole.

3,598,194

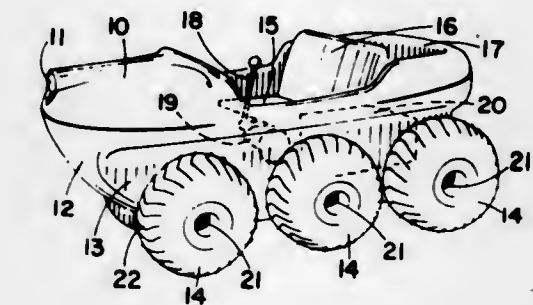
FINAL DRIVE FOR TERRAIN VEHICLE

Joachim Wappler, 11 Clayhall Crescent, Downsview, Ontario, Canada, and Arno C. Schwarz, 55 Oakmount Road, Apt. 1503, Toronto 5, Ontario, both of, Canada

Filed June 10, 1968, Ser. No. 746,717
Int. Cl. B62d 11/06

U.S. Cl. 180—6.2

5 Claims



A side drive train system for motor driven vehicles with wheels having a belt and pulley system associated with the axles of the wheels for rotating the same where one axle is driven directly or indirectly from the side drive train system.

3,598,195

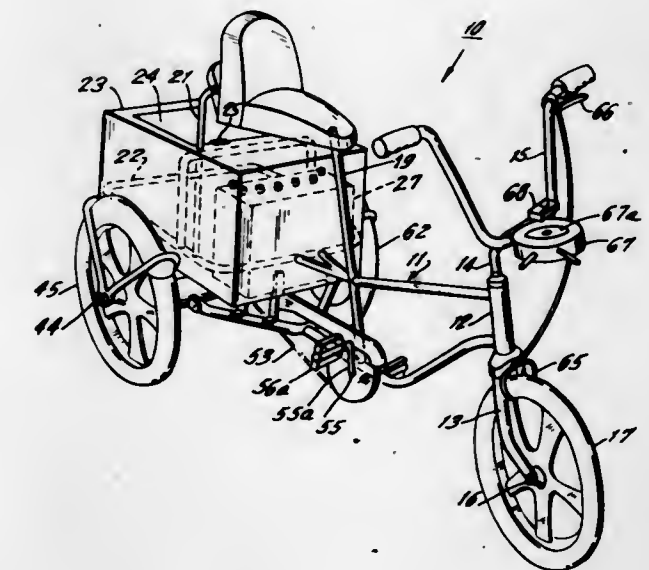
ELECTRIC TRICYCLE

Phillip Steller, Great Neck, N.Y., assignor to Stelber Industries, Inc., Elmhurst, N.Y.

Filed Apr. 23, 1969, Ser. No. 818,499
Int. Cl. B60i 11/18; B62k 11/00

U.S. Cl. 180—27

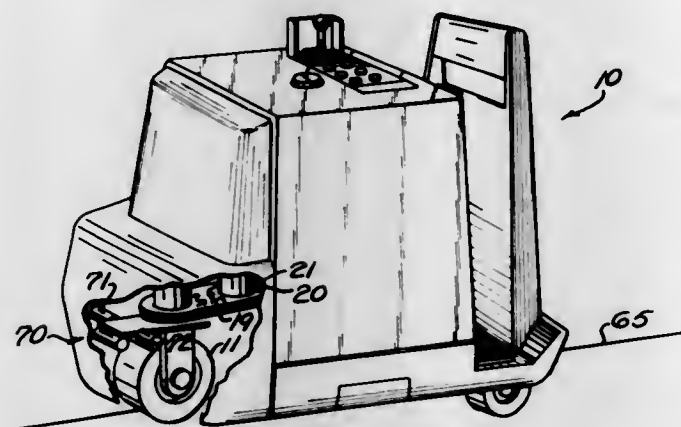
4 Claims



A tricycle is provided with a battery-powered drive motor as well as pedal-operated drive means so connected that either of the drive means may be used alone or may be used in combination to supplement each other. Both drive means supply power to the rear axle and the rear wheels are mounted so as to rotate at different speeds when the tricycle is being turned.

3,598,196
STEERING MECHANISM
 Thomas J. Ballantyne, Jenkintown, and Bernard W. Jalbert, Fallsington, both of Pa., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio
 Filed May 23, 1969, Ser. No. 827,383
 Int. Cl. B62d 5/04
 U.S. Cl. 180—79.1

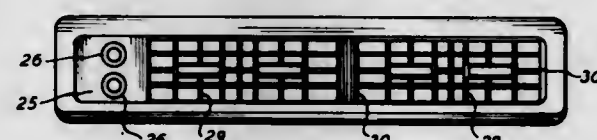
13 Claims



A vehicle-steering mechanism operates to cause a vehicle to follow a current-carrying wire. The steering mechanism includes a driven member and a pair of electromagnetic clutches having output members drivingly connected with the driven member for applying oppositely directed driving forces thereto. These driving forces are substantially equal when the vehicle is properly positioned relative to the current-carrying wire. Sensor means senses deviation of the vehicle from the wire and through a control circuit operates to control the clutches to change the driving torque applied to the driven member. As a result, the driven member is rotated to effect movement of a wheel for vehicle steering purposes.

3,598,197
ABSORBENT BEZEL FOR AIR CONDITIONER
 Roy M. Neece, Fort Worth, Tex., assignor to Dynaplastics, Inc., Fort Worth, Tex.
 Filed June 11, 1969, Ser. No. 832,356
 Int. Cl. B60r 21/04
 U.S. Cl. 180—90

4 Claims



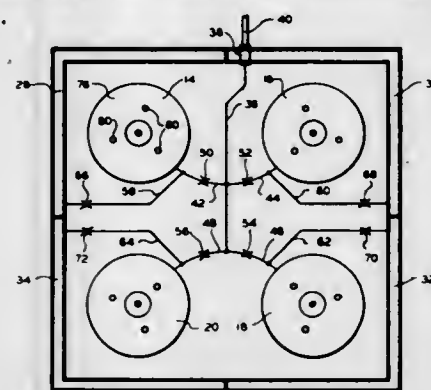
A front panel assembly for automobile air conditioners and comprised of a generally rectangular open frame and a flexible open cover around the frame. In one form of the invention the rearwardly extending edges of the cover are secured to the frame by screws and in another form of the invention the cover is secured to the frame by bonding. In both forms the front of the cover is spaced from the frame to form a projecting sealed air pocket to provide a cushion for protecting passengers in the automobile.

3,598,198
MATERIAL HANDLING DEVICE WITH INFLATABLE AIR PADS
 Elgin S. Williams, Athens, Mich., assignor to Clark Equipment Company
 Filed Jan. 12, 1970, Ser. No. 2,214
 Int. Cl. B60n 1/00
 U.S. Cl. 180—121

4 Claims

An air film pallet with a plurality of inflatable air pads connectable to a source of pressurized air through separate sonic

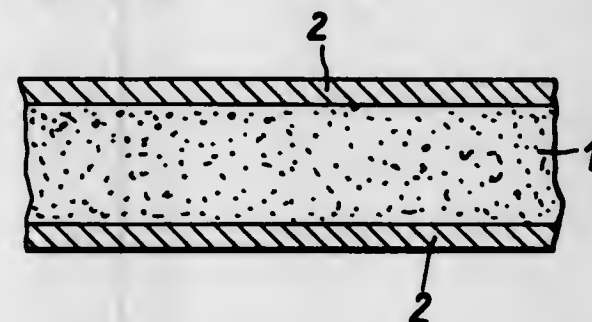
flow restrictors. Each pad is connected to a separate air chamber through a separate flow restrictor located



downstream of the associated sonic flow restrictor so that vertical oscillation is prevented.

3,598,199
REFLECTOR AND METHOD OF MAKING SAME
 Peter Mertens, and Ernst August Winkelholz, both of Bremen, Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany
 Filed Aug. 12, 1968, Ser. No. 751,875
 Claims priority, application Germany, Aug. 12, 1967, P 15 72 400.2
 Int. Cl. G10k 11/00
 U.S. Cl. 181—.5 R

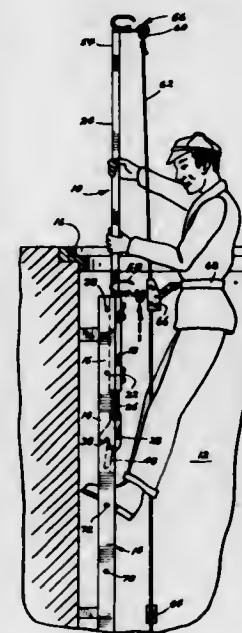
3 Claims



Article for reflecting sound waves in water in which polyurethane foam is watertightly embedded in an outer casing formed of polyurethane casting resin embedding it in a casing of polyurethane casting resin. Method for producing such an article including heating the polyurethane foam to about 120° C.

3,598,200
EXTENSIBLE SAFETY APPLIANCE FOR MANHOLE LADDERS
 Harvey L. Thompson, Red Wing, Minn., assignor to Meyer Manufacturing, Inc., Red Wing, Minn.
 Filed July 9, 1970, Ser. No. 53,523
 Int. Cl. A62b 1/16; E06c 7/18
 U.S. Cl. 182—8

8 Claims



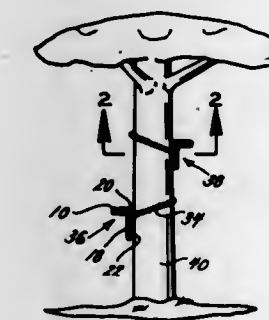
A sleeve attached to the rungs of a manhole ladder has a slidable rod therein which is extendable upward from the

manhole to provide a vertical railing for workman on the ladder. A support at the lower end of the rod releasably engages a ladder rung to retain the rod in extended position; when unneeded the rod can be stored wholly within the manhole.

The purpose of the foregoing abstract is to enable the Patent Office and the public generally, and especially the scientists, engineers, or practitioners in the art who are not familiar with patent or legal terms of phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,598,201
CLIMBING DEVICE
 James A. Thurmond, 1305 Honeywood Drive, Crestwood, Mo.
 Filed May 21, 1969, Ser. No. 826,423
 Int. Cl. E06c 7/08
 U.S. Cl. 182—92

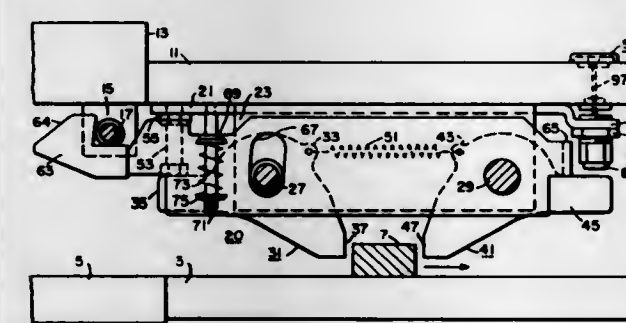
2 Claims



An L-shaped step is releasably securable to a tree, by a flexible band, to facilitate the climbing of that tree.

3,598,202
ELEVATOR DOOR CONTROL
 Andrew F. Kirsch, Edison, and William M. Ostrander, Hackensack, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Dec. 30, 1968, Ser. No. 787,979
 Int. Cl. B66b 1/00
 U.S. Cl. 187—48

18 Claims

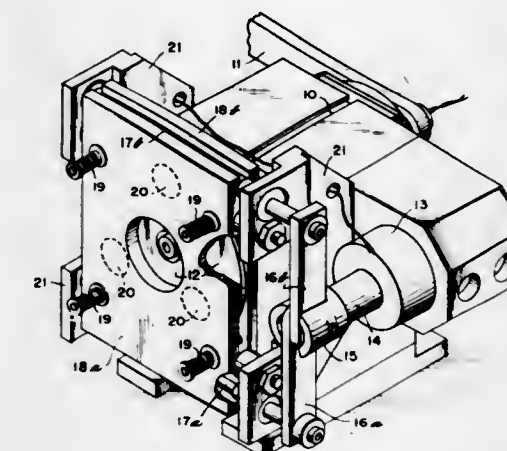


In response to excessive heat on the corridor side of an elevator hatch door, a spring-loaded plunger is released which repositions the hatch door driving block associated with the master door operator so that the hatch door is not automatically unlocked and opened by the vane carried on the car door when the car door is opened adjacent the associated landing. The hatch door can still be opened manually by an occupant of the car who releases the locking

mechanism by rotating the driving block against the force exerted by the plunger.

3,598,203
SPRING APPLIED, ELECTRIC RELEASED BRAKE
 Earl J. Donaldson, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy
 Filed Mar. 3, 1969, Ser. No. 803,765
 Int. Cl. B60t 13/04
 U.S. Cl. 188—171

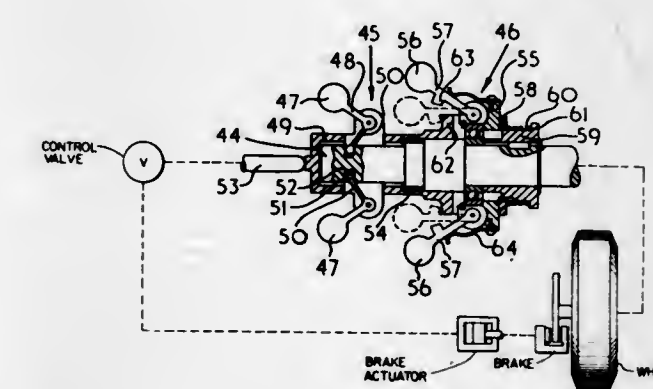
1 Claim



A rotary motion brake comprising two spring-loaded parallel plates which are separated by means of a cam capable of turning to permit the plates to come together to cage a disc placed therebetween. The operation of the cam is controlled by solenoid means.

3,598,204
VEHICLE ANTISKID BRAKING SYSTEMS
 John Walter Davis, Coventry, England, assignor to The Dunlop Company Limited, Birmingham, England
 Filed Oct. 25, 1968, Ser. No. 770,739
 Claims priority, application Great Britain, Oct. 31, 1967, 49342/67
 Int. Cl. B60t 8/16
 U.S. Cl. 188—181 A

15 Claims



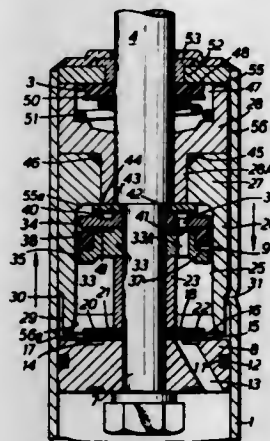
A skid-sensing means comprising a first governor positively driven by a shaft and arranged to collapse and displace a valve member when its rate of rotation falls below a predetermined value and a second governor frictionally driven by the shaft and arranged to collapse and prevent displacement of the valve member when its rate of rotation falls below a predetermined value, of which the following is a specification.

3,598,205 SHOCK ABSORBER INCLUDING PLURAL CONTROL MEANS

Dennis Kenyon, Mirfield, England, assignor to Woodhead Manufacturing Company Limited, Yorkshire, England
Filed Mar. 24, 1969, Ser. No. 809,516
Claims priority, application Great Britain, Apr. 1, 1968, 15543/68

Int. Cl. F16f 9/48
U.S. Cl. 188—284

1 Claim

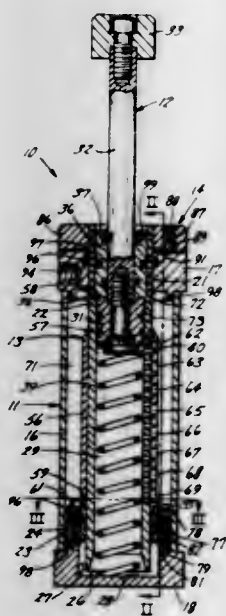


A shock absorber which comprises a working cylinder, a piston arranged to slide in the cylinder and main fluid control means controlling flow of fluid from one side of the piston to the other. Subsidiary fluid control means are provided which are arranged to impose a threshold resistance to movement of the piston with respect to the cylinder in at least one direction, and to reduce or eliminate the threshold resistance after an initial movement of the piston with respect to the cylinder.

3,598,206
ADJUSTABLE SHOCK ABSORBERS
Ransom J. Hennells, Plymouth, Mich., assignor to W. E. Hennells Company, Inc., Plymouth, Mich.
Filed Mar. 24, 1969, Ser. No. 809,637
Int. Cl. F16f 9/44

U.S. Cl. 188—287

8 Claims



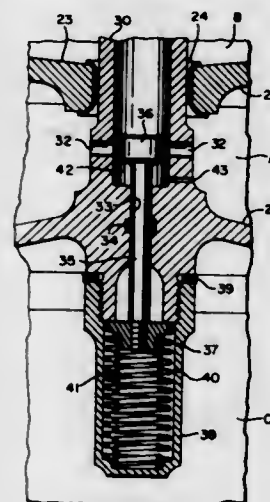
An adjustable energy absorber including a housing having a ram slideably extending therefrom. The housing includes a first control sleeve which divides the housing into a pair of fluid chambers, the sleeve having an axially extending row of openings providing communication between the two chambers. A further control sleeve surrounds the first sleeve and also contains a substantially axially extending row of

openings therethrough, one of the rows of openings being slightly angularly inclined relative to the other row. One of the control sleeves is rotatable to adjust the relative angular position between the control sleeves to vary the area of overlap between the two rows of openings. Imposition of a force on the ram causes the ram to force fluid from one chamber through the openings into the other chamber, the ram sequentially covering the openings as it moves axially of the housing. The amount of energy absorbed can be controlled by varying the overlap area of the two rows of openings.

3,598,207
DUAL MODE SHOCK STRUT
Erwin Horst Hartel, Brunswick, Ohio, assignor to Penumo Dynamics Corporation, Cleveland, Ohio
Filed Jan. 28, 1969, Ser. No. 794,681
Int. Cl. F16f 9/342

U.S. Cl. 188—289

9 Claims

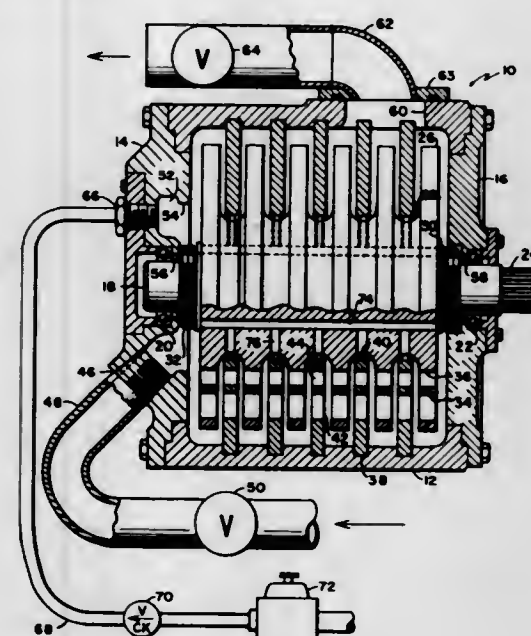


Increase in static internal pressure in the strut after landing of the aircraft opens a bypass valve paralleling the standard flow area to provide a softer vertical load response for taxiing.

3,598,208
LIQUID BRAKE DYNAMOMETER
Joachim C. Brondor, Stratford, Conn., assignor to Avco Corporation, Stratford, Conn.
Filed June 25, 1969, Ser. No. 836,411
Int. Cl. F16d 57/02

U.S. Cl. 188—290

2 Claims



The disclosure illustrates a liquid brake dynamometer having a rotor comprising a series of spaced perforated disks

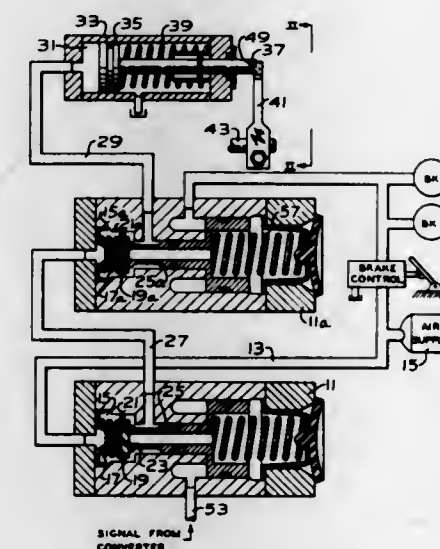
journaled in a chamber. Water is passed through the chamber at a given rate set by flow control valves so that the resistance to rotation of the rotor is primarily a function of the water flow. Air at a predetermined pressure level is injected into the housing to eliminate cavitation. The pressure of the injected air is adjustable to provide a vernier effect on the dynamometer's power absorption.

3,598,209
DOWNSHIFT PREVENTION DEVICE WITH BRAKE OR CONVERTOR OVERRIDE
Shairyl I. Pearce, Tazewell, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 16, 1968, Ser. No. 784,119
Int. Cl. F16h 57/10

U.S. Cl. 192—4 A

10 Claims

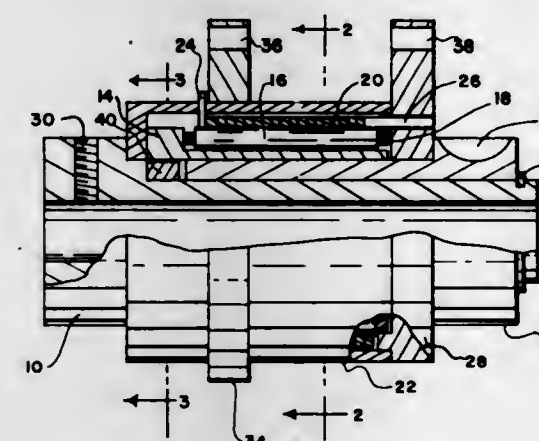


A system for the prevention of a downshift of a transmission in a direct or overdrive mode wherein a pneumatically actuated pin, acting upon a cam, prevents the shifting of a transmission to a lower gear. When a directional valve is actuated by a signal responsive to the transmission being in the torque converter mode, the pin is biased away from the cam allowing such a downshift. When the operator must stop the vehicle at all costs to insure his own safety, a directional valve is actuated by the brake system so as to release the pin, allowing the transmission to be downshifted.

3,598,210
CLUTCH COMPRISING A HELICAL SPRING ACTUATOR
William H. Barr, 51 Liberty Pole Road, Hingham, Mass.
Filed Mar. 10, 1969, Ser. No. 805,550
Int. Cl. F16d 13/12, 13/20

U.S. Cl. 192—38

14 Claims



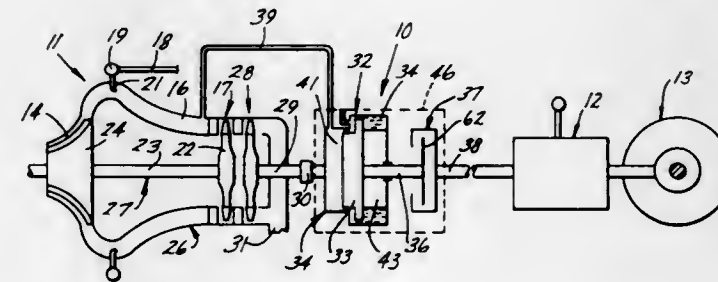
A friction clutch or brake having a cylindrical drum within a close fitting tubular collet, a set of rollers surrounding the

collet, a helical spring circumscribing the rollers and means for circumferentially tightening the spring. When the spring is tightened it acts radially on the rollers which in turn compress the collet into frictional engagement with the drum, thereby transmitting torque between the collet and the drum. The transmitted torque will gradually increase as the rollers rotate after the spring is tightened, permitting clutching of heavy inertia loads without heavy torsional impact. Various functional and structural modifications employing this principle are also disclosed.

3,598,211
SPEED-RESPONSIVE CLUTCH
Donald J. Fergle, St. Clair Shores, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Sept. 30, 1968, Ser. No. 763,669
Int. Cl. F16d 43/00

U.S. Cl. 192—.032

16 Claims

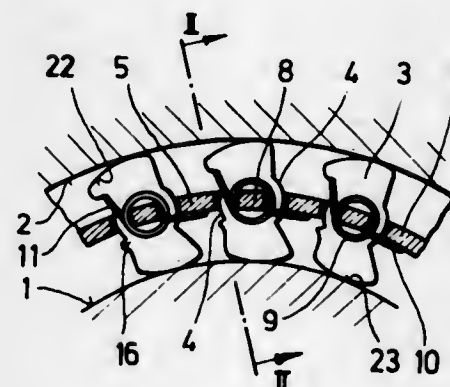


A torque-adjusting system for an engine-to-load, ratio-shiftable power train, wherein either the engine or the load has a sufficiently high speed or high inertia as to cause a shock in the power train upon effecting a ratio shift therein, said torque-adjusting system including a variable capacity clutch connected in the power train having (a) reactive means sensitive to the torque delivered by the engine and capable of regulating the torque output capacity of said variable capacity clutch as a function of the engine torque together with (b) means effecting a further regulating of said torque output capacity as a function of the speed of rotation of said output shaft of said engine.

3,598,212
RETAINER RING FOR A FREEWHEEL CLUTCH
Emil Giese, Bad Homburg vor der Höhe, Germany, assignor to Ringspann Albrecht Maurer K.G., Bad Homburg vor der Höhe, Germany
Filed Jan. 12, 1970, Ser. No. 2,321
Claims priority, application Germany, Mar. 27, 1969, P 19 15 567.0
Int. Cl. F16d 41/07

U.S. Cl. 192—45.1

8 Claims



A retainer ring for insertion between the coaxially arranged driving member and the driven member of a freewheel clutch comprises a central ring portion having elongated holes wherein tiltable sprags are disposed, and two ring portions extending in radial direction from the central ring portion to the convex-cylindrical bearing surface of the

inner clutch member and to the concave-cylindrical bearing surface of the outer clutch member. The retainer ring is of Z-, H- or U-shaped cross section and the sprags are supported in the holes of the central ring portion by helical springs mounted on lugs projecting to the inside of the holes. One spring end is bent over for engaging the sprag in a groove, thereby securing it against displacement in radial clutch direction.

3,598,213

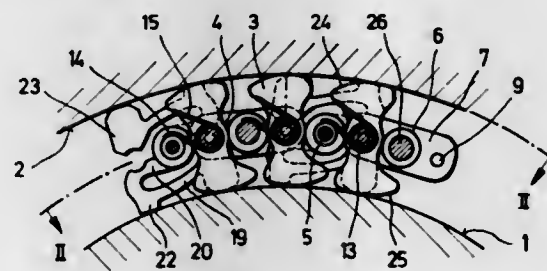
METAL RETAINER RING FOR FREEWHEEL CLUTCH
Emil Giese; Ruprecht Maurer, and Albrecht Maurer, all of Bad Homburg, vor der Höhe, Germany, assignors to Ring-spann Albrecht Maurer K.G., Bad Homburg vor der Höhe, Germany

Filed Jan. 12, 1970, Ser. No. 2,323
Claims priority, application Germany, Mar. 25, 1969, P 19 15 099.3

Int. Cl. F16d 41/07

U.S. Cl. 192—45.1

12 Claims



A retainer ring for freewheel clutches is assembled from metal ring links which are pivotably connected to one another and support tiltable sprags between them. The links comprise flanges arranged in pairs opposite to one another and connected by bolts. Studs project from the flanges to the inner side of each link, and the sprags are tiltable mounted between the studs. Two different embodiments of such retainer rings are disclosed. In one embodiment first-type links, on which the tiltable sprags are mounted, are arranged in alternating order with second-type links not provided with sprags. In a second embodiment ring links of one type only are used which hold the sprags between studs on one side of the bolt while they are hinged with the other side on the studs of the adjacent link.

3,598,214

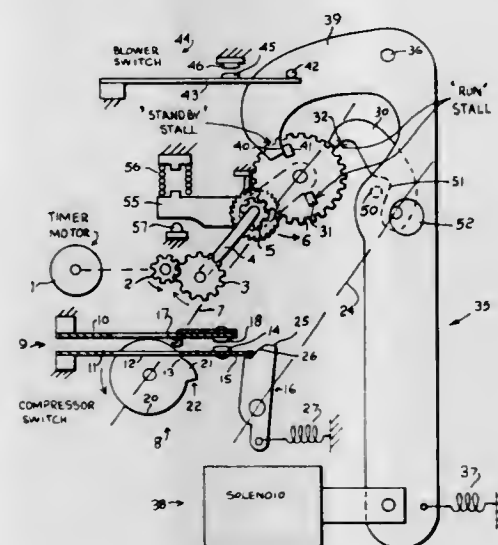
CONDITION CONTROL DEVICE AND SYSTEM

John L. Harris, Delafield, Wis., assignor to Deltrol Corp., Bellwood, Ill.

Filed Aug. 14, 1969, Ser. No. 849,961
Int. Cl. F16d 71/00; H01h 7/00, 43/10

U.S. Cl. 192—148

11 Claims



Protection against refrigeration compressor burnout by short cycling is provided by a delay timing mechanism having

a motor and solenoid. The motor is constantly energized and the solenoid controlled by a thermostat stalls or releases the mechanism causing timer operation through its cycle. The timer runs through its delay period during the normal off period, allowing fast restart of the compressor. Also the timer provides a longer delay following a short cycle then following a normal cycle. This is accomplished by operating the timer for a period of time after the compressor is started.

3,598,215

INFLATABLE ESCAPE SLIDE

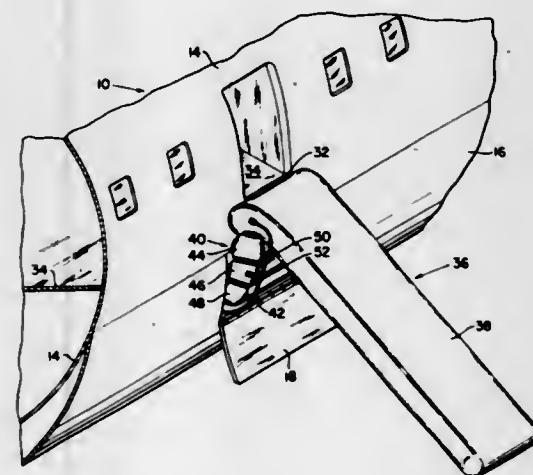
James R. Summer, Brielle, and Henry C. MacLaughlin, New Shewsbury, both of, N.J., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Aug. 28, 1968, Ser. No. 755,987

Int. Cl. B65g 11/10

U.S. Cl. 193—25

10 Claims



An inflatable escape slide stowed in an exterior aircraft compartment has an inflatable column structure attached to one end of the inflatable slide structure. The column structure is secured to the aircraft at a point distal of the egress door of the craft and securely positions the upper end of the slide immediately adjacent the door sill upon inflation. The column structure thus secures and supports the slide end for passenger egress.

3,598,216

APPARATUS FOR THE IMPROVEMENT OF BOWLING SKILLS

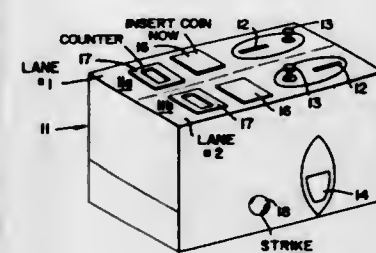
Richard W. Munroe, 1275 El Camino Road, Millbrae, Calif., and Ronald G. Munroe, 27 Hastings Road, Old Bridge, N.J.

Filed June 26, 1968, Ser. No. 740,256

Int. Cl. G07f 5/10

U.S. Cl. 194—9

9 Claims



Apparatus for use in a bowling game having an automatic pinsetter. If the bowler bowls a strike after a coin is inserted in the apparatus visual indicating means are actuated. Time delay means ensure that the coin must be inserted before the ball is thrown.

3,598,217

COIN-SELECTING ASSEMBLY FOR SERRATED COINS

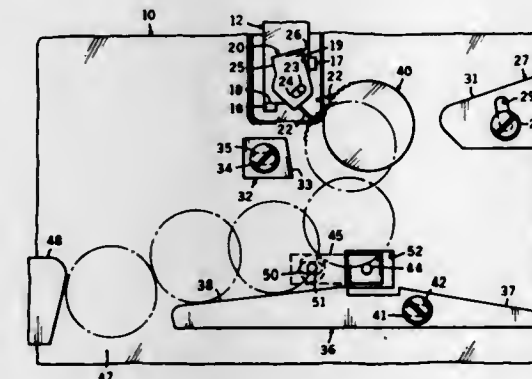
Kenneth E. Hammond, Scarborough, Ontario, Canada, assignor to Coin Acceptors, Inc., St. Louis, Mo.

Continuation-in-part of application Ser. No. 758,745, Sept. 10, 1968. This application Mar. 28, 1969, Ser. No. 811,401

Int. Cl. G07f 3/02

U.S. Cl. 194—97

14 Claims



The selector assembly includes a support plate and a rail adjacent thereto which directs a coin into a coin serration detector assembly. The serration detector assembly includes a serration detector balance means pivotally mounted to the support plate and having a sensing feeler projecting outwardly from the balance means and into the trajectory of the coin. Engagement of a nonserrated coin deflects the feeler and balance means in an upward direction, the coin being thereby directed into contact with, and rebound from, a kicker plate below the detector assembly. Engagement of a serrated coin rotates the feeler and balance means and moves the feeler in a downward direction, the coin being thereby directed onto a second kicker from which it rebounds in a different path from that taken by a nonserrated coin.

3,598,218

MECHANICAL TYPE-PRINTING APPARATUS

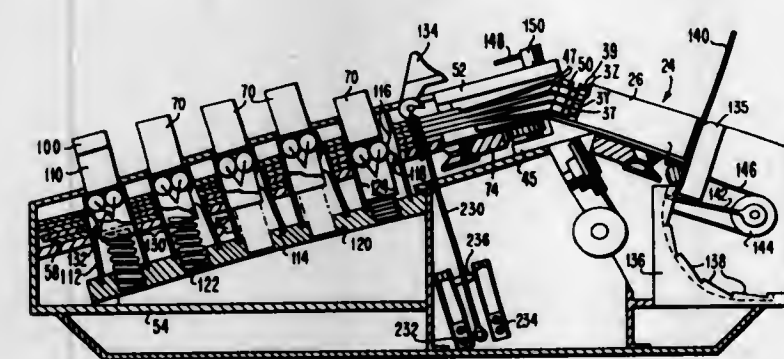
Paul Anthony Gilovich, San Jose; Reynold Benjamin Johnson, Palo Alto; Edward Everett Long, San Jose; David Harwood McMurtry, Portola Valley; Ernie George Nassimbene, San Jose; Thomas Frank O'Rourke, San Jose, and George Edmund Price, San Jose, all of, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 2, 1969, Ser. No. 829,653

Int. Cl. B41j 5/00

U.S. Cl. 197—1

6 Claims



The use of Computer Assisted Instructional Systems and other electronic data processing systems is enhanced by a simple, low-cost, key-responding mechanical type-printing apparatus for printing human and machine readable characters of a family of type of which each character has no more than 12 segments. The generic type family format is a medianly quartered parallelogram (MQP) embracing both slanted and upright printing, the latter being more specifically in the format of an orthogonally quartered rectangle (OQR). The printing apparatus comprises a multiple of printing blade elements arranged as a subassembly for printing short straight line segments by impressing the ends of the blade elements

on the record medium against a platen. Liquid ink is fed to the blade elements made up of several leaves between which the ink flows by way of capillary action. The proper blades are selected for printing the corresponding segments making up a desired character by means of a stack of selector plates. There is one selector plate individual to each blade element and a 13th, spacing, plate. Each of the selector plates are of integral construction having a selecting section, the front edge of which is to be moved in a direction forcing the associated printing blade element forward for printing the corresponding line segment, and two guiding sections for insuring parallel movement of the selecting section. Each of the selecting sections of the selector plates has a multiple of substantially square apertures in registry with corresponding apertures in all of the other plates. Keys are extended through the apertures in all of the selector plates in registry. The keys in the plates have surfaces cooperating with edges of the apertures of the plates defining the forward direction of the plates of two different characteristics distributed in predetermined permutation for all of the keys. Depressing a key shifts the selector plates relative to one another in accordance with the distribution of the two different characteristics. The guiding sections of the plates are pivoted at central points so that the selecting sections move directly forward regardless of the location of the particular key which is actuating the plates. The leading edge of the selector plates for the particular character desired may bear directly against the ends of the blade elements remote from the printing ends, but preferably linking elements are interposed between the printing blade elements and the selector plates. These linking elements are particularly desirable when the direction of travel of the printing blade element is at an angle with respect to the direction of travel of the selector plates. Specifically, the square apertures of the plates which are to remain at rest for the selection of a given character are enlarged so that depressing the associated key will not move them forward. A camming element is arranged in the apertures between the actuating surface of the keys and the actuating surfaces of the selector plates to provide more uniform motion. The subassembly of printing blade elements and the subassembly of linking elements are arranged in a carrier which is stepped across the leading edge of the selector plates in response to actuation of the 13th or spacing selector plates. When the carrier has arrived at the end of the line, it is manually returned to the beginning of the travel and the record medium is advanced automatically one line in readiness for the next line of printing. Preferably, the printing blade element assembly, the escapement mechanism, and record-medium-advancing mechanism are designed so that different sized characters may be printed and spaced accordingly.

3,598,219

APPARATUS FOR POSITIONING RECORDS

Ronald Henry Lee, Stevenage; Dennis Frank Edwin Pidgeon, Letchworth; Thomas Drew Powrie, Stevenage, and John Henry Coyne, Letchworth, all of, England, assignors to International Computers and Tabulators Limited, London, England

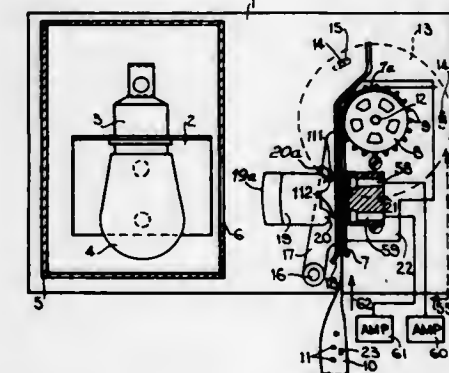
Filed Feb. 28, 1968, Ser. No. 708,922

Claims priority, application Great Britain, Mar. 8, 1967, 10,793/67

Int. Cl. B41j 15/00

U.S. Cl. 197—133

2 Claims



An arrangement for controlling the positioning of a record, typically for controlling the position of a sheet in relation to a

line printer, by means of a program tape advanced in synchronism with the record is described. The program tape is advanced under control of an impulse-driven electric motor, the driving pulses for the motor being derived from a pulse generator included within the record feeding arrangement. The program tape carries perforations indicative of those positions in which the record is to be stopped for the purpose, for example, of receiving lines of print. The perforations in the tape are sensed photoelectrically to control the record feeding arrangement.

A two-speed drive is used to feed the record and in one embodiment, which uses two tape-sensing stations, the record, if it is being fed at the higher speed, is slowed down in response to the output from one (advanced) sensing station and is finally brought to rest in response to the output from the second sensing station. In starting up the record-feeding device, a circuit arrangement using a counter is employed. The record movement is started at the slower speed and the counter permits the movement to continue at the higher speed provided that a stop signal is not sensed from the tape within a distance determined by the capacity of the counter.

In another embodiment a third tape-sensing station is added to provide more advanced information on the occurrence of a stop signal in the tape, and the record-feeding device is coupled to the higher speed drive upon starting unless a stop signal is detected within the area of tape scanned by the advanced sensing stations.

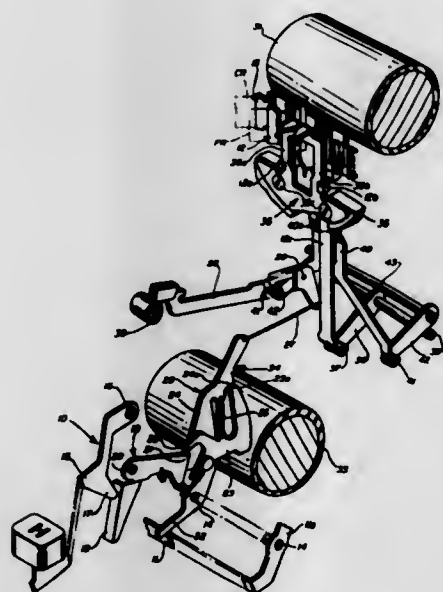
3,598,220

RIBBON-LIFTING MECHANISM FOR A TYPEWRITER
Robert E. McGrath, Rocky Hill, Conn., assignor to Litton Business Systems, Inc., New York, N.Y.

Filed Mar. 19, 1969, Ser. No. 808,570
Int. Cl. B41j 35/22, 33/56

U.S. Cl. 197-156

5 Claims



A ribbon-lifting mechanism for a typewriter comprising a toggle mechanism the common ends of whose links are pivotally mounted on a drive arm, the other end of one link is fulcrumed on a bistable shiftable support, and the other end of the other link is pivotally connected to a ribbon lift crank. The drive arm is operable on each forward stroke to open or straighten and on each rearward stroke to close or break the toggle about its fulcrum. A bistable trip lever also pivotally mounted on the drive arm is conditioned on each forward stroke of the drive arm to shift the position of the bistable support on each rearward stroke of the drive arm, and as a result of the shifting movement of the bistable support a ribbon vibrator connected to the toggle mechanism is elevated alternately through full and partial strokes on succeeding forward strokes of the drive arm whereby in combination with ribbon movement a zigzag pattern is defined on a carbon ribbon to utilize the maximum area of the carbon ribbon.

3,598,221

TRANSFER APPARATUS FOR EXCHANGING ARTICLES BETWEEN TWO CONVEYORS

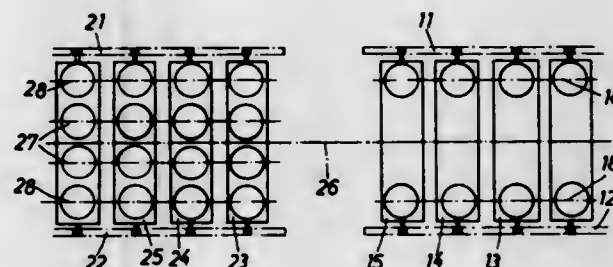
Norbert Kilmaschka, Selb, Bayern, and Josef Pollmann, Reichenbach, Bayern, both of, Germany, assignors to Gebrüder Netzsch Maschinenfabrik, Bayern, Germany
Filed Sept. 8, 1969, Ser. No. 855,994

Claims priority, application Great Britain, Sept. 12, 1968, 43448/68

Int. Cl. B65g 47/26, 47/52

U.S. Cl. 198-20

24 Claims



Apparatus for transferring molds for ceramic blanks or the like between a first conveyor associated with a molding machine, and a second conveyor which is associated with a drier and receives molds filled with blanks from the first conveyor and delivers empty molds back to it, twice as many molds being disposed one beside the other on the second conveyor as on the first conveyor.

3,598,222

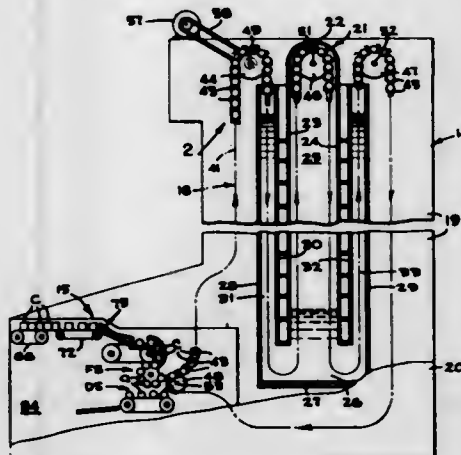
HIGH-SPEED FEED MECHANISM

Samuel A. Mencacci, Wilrijk, Antwerp, Belgium, assignor to International Machinery Corporation S. A., St. Niklass-Waas, Belgium

Filed Apr. 3, 1969, Ser. No. 813,814
Int. Cl. B65g 47/24

U.S. Cl. 198-30

23 Claims



A high-speed feed mechanism for feeding rows of containers into elongated carriers of a processing conveyor. The mechanism moving containers that are supported on their ends and are divided into independent lanes between timing belts driven at or slightly less than the desired feed rate. The containers in each lane being separated and twisted into horizontal position for combining with other containers from other lanes in a transfer conveying means to form full or partial rows of containers moving at the same speed as the carriers of the processing conveyor. Independently controlled arresting means are provided for each lane of containers to momentarily terminate movement of the containers in a portion of the lane in the event the supply of containers in that lane is not as desired.

3,598,223

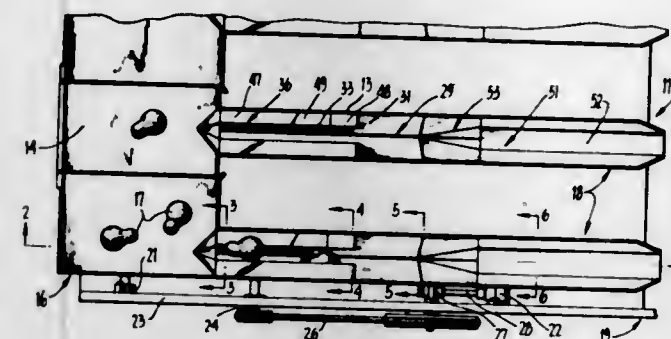
PEAR ORIENTATION APPARATUS

George E. Lauer, 2960 Chapman St., Oakland, Calif.
Filed Sept. 15, 1969, Ser. No. 858,076

Int. Cl. B65g 37/00

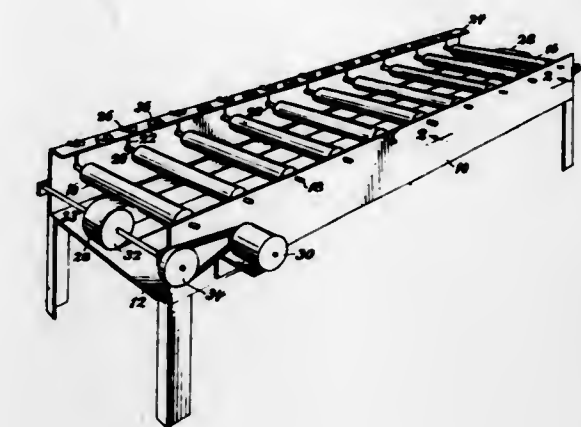
U.S. Cl. 198-33 AA

5 Claims



Apparatus for orienting pear halves, or similar irregularly contoured objects, with the cut flat face down and in longitudinal alignment with their direction of travel along the apparatus. The apparatus is such as to cause a pear half preliminarily oriented in a generally face down position to gravitationally align itself at both its enlarged and narrow ends and be maintained in a final position of face down longitudinal alignment.

another are supported on driven rollers. The articles on the rollers being so moved from one location to another are subject to stoppage or intermittent movement on the surface of the conveyor without causing congestion and pileup of such articles which might effect their jamming and breakage.



3,598,226

CONVEYORS

Lawrence Frederick Hayman, England, assignor to Stone-Platt Crawley Limited, London, England

Filed May 27, 1969, Ser. No. 828,228

Claims priority, application Great Britain, June 6, 1968, 27047/68

Int. Cl. B65g 15/10

U.S. Cl. 198-129

8 Claims

3,598,224

BOOM MOUNTED CONVEYING MEANS

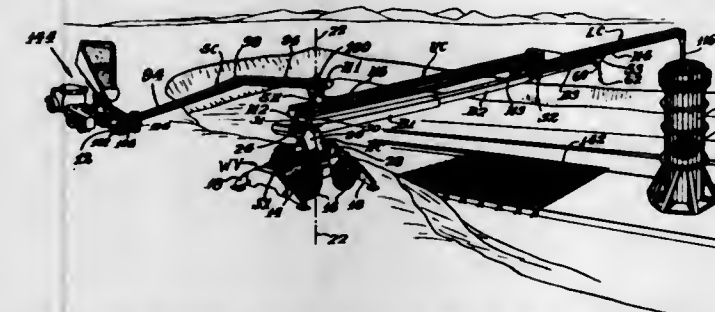
Robert F. Oury, Elmhurst, Ill., assignor to Rotec Industries, Inc.

Filed Nov. 22, 1968, Ser. No. 778,242

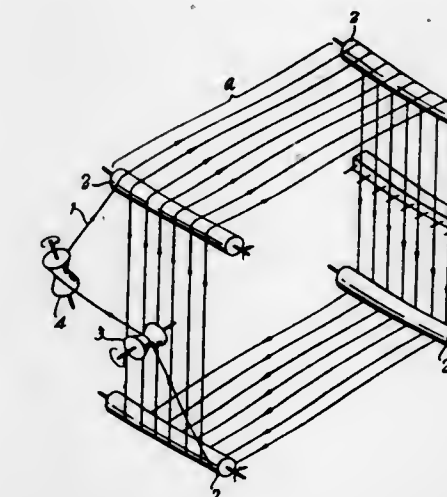
Int. Cl. B65g 15/26

U.S. Cl. 198-65

14 Claims



Conveying means is mounted on an extensible boom of a wheeled vehicle in such manner that one end of the conveyor system is adapted to receive materials such as concrete or the like from a delivery truck and the other end is adapted to discharge the materials, as through a tremie, into a wall form or the like. The arrangement is such that the boom of the wheeled vehicle can be extended and retracted, inclined and swung from side to side during a continuous materials delivery operation so that the tremie can follow the outline of the wall form for evenly distributing the materials therein. The extension, elevation and wing of the boom can be effected by the operator without interrupting the flow of materials, and the form filling job can therefore be completed in a minimum of time.



The invention concerns a continuous article-carrying conveyor, particularly a conveyor for carrying textile articles through a processing machine. The conveyor consists of individual filament flights disposed at predetermined intervals across the conveyor and forming a continuous helical or spiral coil. The term filament is to be understood to include thread.

3,598,227

BELT-TRACKING COMPENSATOR

Arthur Stanford, Richmond, Va., assignor to A M F Incorporated

Filed June 2, 1969, Ser. No. 829,689

Int. Cl. B65g 15/14, 15/30

U.S. Cl. 198-165

10 Claims

Materials-handling apparatus, which comprises means for advancing an article along a predetermined path, conveyor means provided at the sides of said predetermined path for guiding products therealong, means for varying the spacing

3,598,225

ACCUMULATING CONVEYOR

Lee Merrick, Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Apr. 10, 1969, Ser. No. 817,259

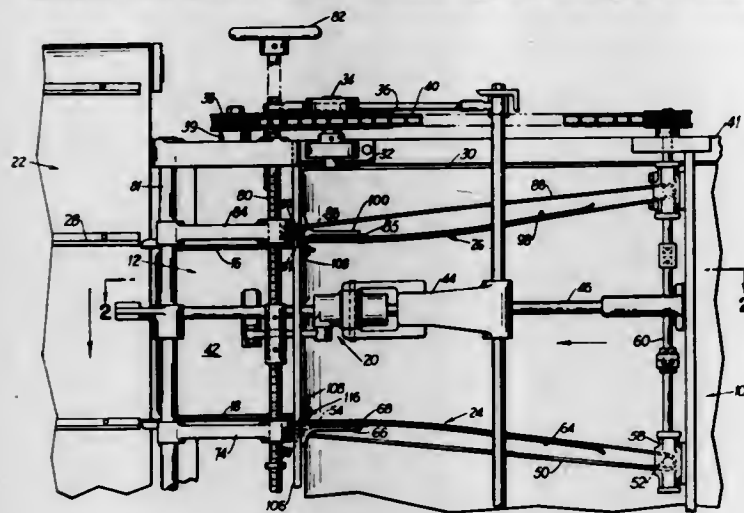
Int. Cl. B65g 13/02

U.S. Cl. 198-127

4 Claims

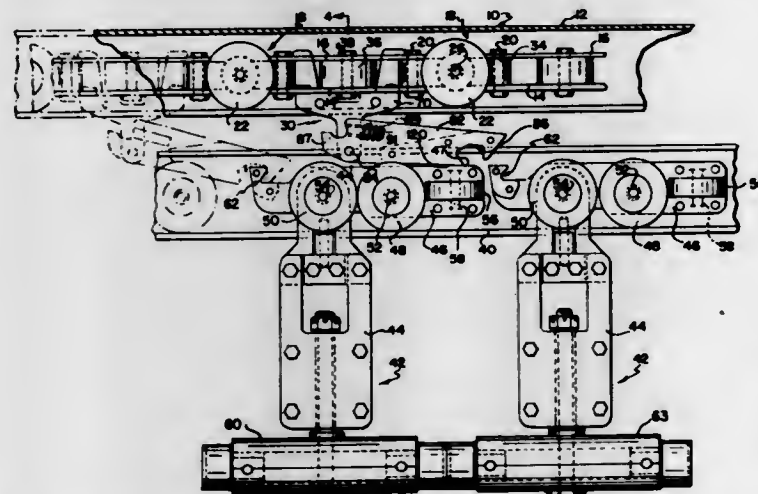
A roller conveyor of the accumulation type by which articles such as cartons to be conveyed from one place to

between at least certain portions of said side conveyor means, and means for compensating for changes in tension in



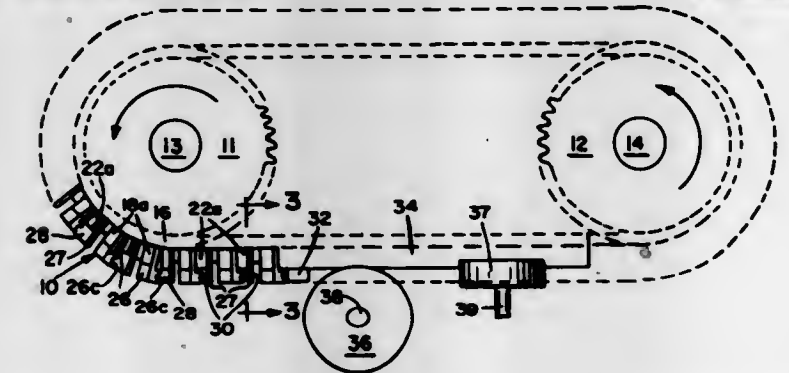
said side conveyor means as the spacing between portions thereof is varied.

3,598,228
CONVEYOR CHAIN
George R. Pipes, South Euclid, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Dec. 24, 1969, Ser. No. 887,862
Int. Cl. B65g 17/20
U.S. Cl. 198—177 12 Claims



A conveyor chain includes a pair of spaced-apart links. A pair of bifurcated load-conveying hanger members have arms which are received in openings formed in the links. The arms are secured together and have surfaces which engage surfaces of the links in an abutting relationship and thereby support the hanger members.

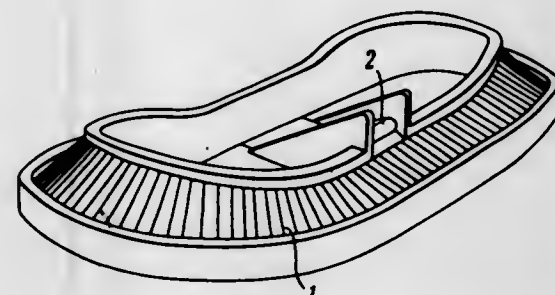
3,598,229
ARTICLE CONVEYOR
Anthony A. Spycher, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Dec. 1, 1969, Ser. No. 881,231
Int. Cl. B65g 15/00
U.S. Cl. 198—179 10 Claims



A conveyor for transporting or conveying a succession or plurality of relatively elongate articles through a looped path

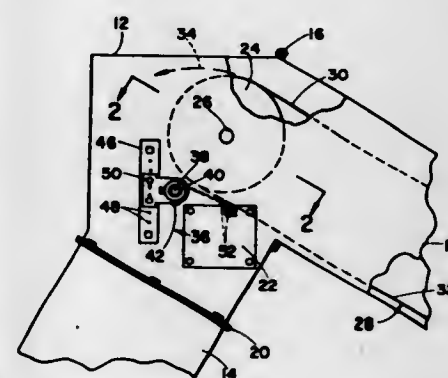
of travel for operations or work to be performed thereon. Each such article may comprise, for purposes of example only, a bundle of fiber optics at least one end of which is to be trimmed and thereafter polished to provide a suitable light-transmitting optical surface thereon. The conveyor comprises a pair of first and second articulated chains which carry, respectively, a succession of article support members each of which have channels therein for receiving an end portion of one of said articles to be transported or conveyed and inserted therein, and a succession of article clamping members, one associated with each said support member, for clamping each said article inserted in the channel of the respectively associated support member to generally maintain the article in its respective support member in the general attitude in which it is initially inserted in the channel of the support member.

3,598,230
APPARATUS FOR DISTRIBUTING LUGGAGE PARCELS AND THE LIKE
Dennis Arnold Riley, Erith, England, assignor to Sovex Limited, Kent, England
Filed May 23, 1969, Ser. No. 827,182
Claims priority, application Great Britain, June 13, 1968, 28282/68
Int. Cl. B65g 17/24
U.S. Cl. 198—181 8 Claims



This invention relates to luggage distribution apparatus in the form of an endless moving conveyor comprising a number of slats which slope transversely to the direction of movement of the conveyor. Bracing members are connected between the slats to facilitate the driving and guiding of the conveyor.

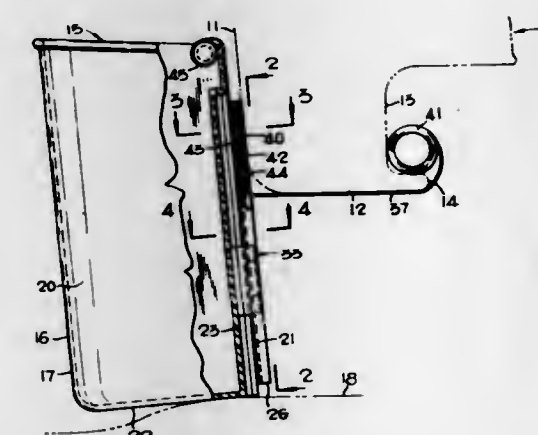
3,598,231
CONVEYOR CLEANER WITH INDIVIDUALLY MOUNTED BLADES
Carl G. Matson, 401 E. Central Blvd., Kewanee, Ill.
Filed Feb. 9, 1970, Ser. No. 9,823
Int. Cl. B65g 45/00
U.S. Cl. 198—230 12 Claims



A conveyor cleaner for scraping a conveyor belt, constructed so that each scraper blade is individually mounted and includes a floating connection to a support so that the blades may individually accommodate themselves to differing configurations of the belt. Preferably, each blade is mounted

on an elongated, steel, rodlike arm having its blade-remote end formed as a coil spring encircling the support and provided with a free end adjustably connected to the support for varying the arm bias toward the conveyor.

3,598,232
LITTER DISPOSAL UNIT IN AN AUTOMOBILE ASSEMBLY
Earl M. Trammell, Jr., c/o E.M.T. Enterprises, Inc., P.O. Box 435, St. Louis, Mo.
Continuation-in-part of application Ser. No. 724,509, Apr. 26, 1968, now Patent No. 3,547,326, which is a continuation-in-part of application Ser. No. 744,482, July 12, 1968, now Patent No. 3,526,314, which is a continuation-in-part of application Ser. No. 791,940, Jan. 17, 1969, now Patent No. 3,504,830. This application Nov. 12, 1969, Ser. No. 875,753
Int. Cl. B60n 3/08
U.S. Cl. 206—19.5 R 14 Claims

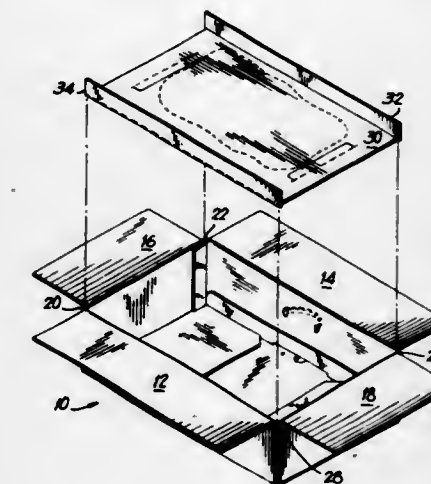


A utility device, such as a litter container or the like, is held against the front side of the automobile seat that is selectively adjustable in position forwardly, rearwardly, upwardly or downwardly. The mounting means connecting the container to the seat includes a key means that interfits guideways formed on the container rear wall and on a support plate located adjacent the container rear wall, the key means being slidably movable upon vertical adjustment of the container to accommodate the underseat height. Clamping means interconnects the support plate with a rearwardly facing shoulder formed on the bottom side of the seat adjacent the lower edge of the front seat side, whereby to hold the support plate and hence the container against the front side of the seat. Resilient means interconnects the support plate and the container and tends to urge the container downwardly. In one embodiment, the clamping means includes a pair of brackets interconnected by an adjustable fastener, one bracket being secured to the support plate and the other bracket engaging the shoulder. In another embodiment, the clamping means includes a flat coil spring having one end fixed to the support plate and the opposite coiled end engaging the seat shoulder to urge the support plate and container against the front seat side.

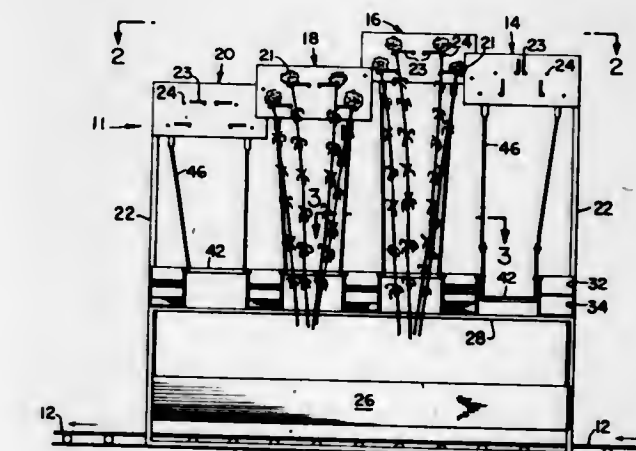
3,598,233
CONTAINER
Robert Jasino, 21 Culver Court, Huntington Station, N.Y.
Filed Feb. 19, 1970, Ser. No. 12,773
Int. Cl. B65d 5/50, 13/00
U.S. Cl. 206—45.19 1 Claim

A container suitable for transporting and displaying a plurality of variously shaped articles is shown. It includes a conventional die-cut, corrugated fiberboard, shipping container having four regular, slotted bottom flaps. The two end panel flaps are offset to the thickness of a platform to which the articles are "skin filmed." The platform has two edge flaps and four offset stems located at each of its corners. The stems rest upon the bottom edges of the container during assembly, the container and platform both being inverted, and the edge flaps are snugly wedged against the offset end flaps and sand-

wich between the end panel flaps and the side panel flaps of the container. The container is easily assembled and is a



3,598,234
CENTRAL GRADING SYSTEM FOR CUT FLOWERS
Gerald L. Gregoire, San Rafael; Kenneth R. Duff, Petaluma, and George E. Kemper, San Francisco, all of, Calif., assignors to Gregoire Flowers, Inc., San Francisco, Calif.
Filed Feb. 26, 1970, Ser. No. 14,616
Int. Cl. B42f 17/00
U.S. Cl. 209—123 9 Claims

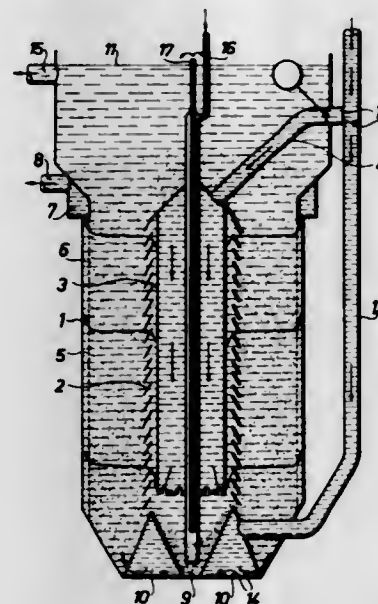


A rack for grading cut flower material includes a bar element and a shelf element which support the flower heads. The shelf element is pivotally mounted for swinging movement about one edge to a vertical position. This increases the space between the bar element and the shelf element and permits easy removal of the bunch.

3,598,235
PROCESS AND EQUIPMENT FOR THE PURIFICATION OF LIQUIDS BY FILTRATION
Laszlo Demeter, Budapest, Hungary, assignor to Nikex Nehézipari Kiskereskedelmi Vállalat, Budapest, Hungary
Filed June 10, 1969, Ser. No. 831,854
Int. Cl. B01d 23/10, 29/38
U.S. Cl. 210—80 2 Claims

Liquid to be filtered enters a distributor and then passes through a wall comprised of downwardly inclined shutters into a vertical filter column for horizontal flow through the filter material and thence through a sieve to the filtrate outlet. To wash the filter, wash liquid is forced into the column from below with the outlet closed, so that the column

backwashes through the shutters to the distributor, below which the washed-out material collects. An air lift raises this valve is provided to bypass fluid directly to the outlet when the pressure at the inlet becomes excessive. A magnetized

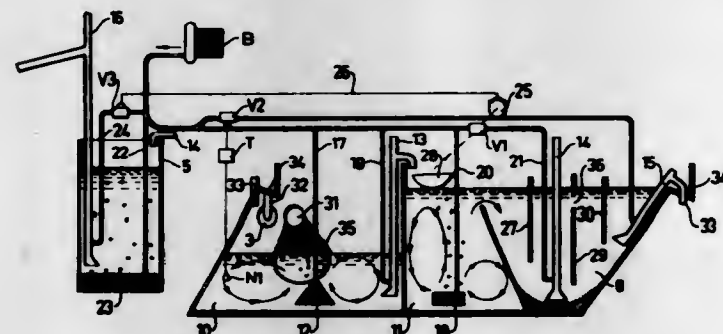


collected material to the top of the filter column, from which the material other than the filter medium is decanted.

3,598,236
SYSTEM FOR PURIFYING SEWAGE WATER BY MEANS OF FLOCCULATION AND AERATION
Nils-Olof Nordlander, Sigtuna; Sixten Englesson, Djursholm, and Sven Gustaf Yngve Gerner, Norrköping, all of Sweden, assignors to Stenberg-Flygt AB, Solna, Sweden
Filed Feb. 18, 1969, Ser. No. 800,155
Claims priority, application Sweden, Aug. 8, 1968, 10,727
Int. Cl. C02c 5/10

U.S. Cl. 210-104

11 Claims



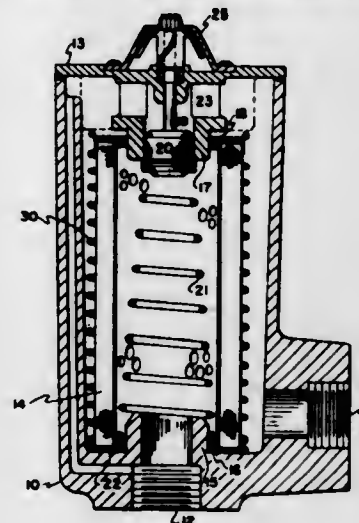
A system for purifying sewage water by flocculation and aeration using a buffer chamber, a flocculating chamber, a sedimentation and sludge concentration chamber and a regenerating and sludge activating chamber. The system uses activated sludge as a flocculating agent. The system further comprises a mammoth pump between the buffer and flocculating chambers and another between sedimentation and regenerating chambers. A tiltable bucket regulates the sludge feed to the regenerating chamber permitting a part of the fluid flow to pass by the side. The bucket by means of a valve, further controls a driving air supply to another mammoth pump, the transmitted quantity of activated sludge to the regenerating chamber being thus adjusted to match the quantity of sewage water measured by the bucket.

3,598,237
FILTER
Ronald A. Aspinwall, Detroit, and MacKellar K. Graham, Birmingham, both of Mich., assignors to Sperry Rand Corporation, Troy, Mich.
Filed Sept. 5, 1969, Ser. No. 855,693
Int. Cl. B01d 27/10

U.S. Cl. 210-130

8 Claims

A filter including a cylindrical filter element which is arranged to normally have fluid pass therethrough. A bypass

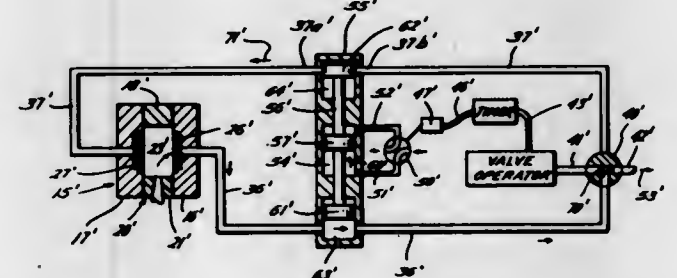


helical coil is provided adjacent the filter element to attract metal particles.

3,598,238
APPARATUS FOR CLEANING ANALYZER AND OTHER FILTERS
Henry R. Collins, Jr., 4507 Hemlock, Baytown, Tex.
Filed July 30, 1969, Ser. No. 846,200
Int. Cl. B01d 29/38

U.S. Cl. 210-138

3 Claims



There are two preferred embodiments to this invention. In one preferred embodiment a dual filter screen, small particle bypass filter is secured with a timing device and valve-switching means to permit sample analyzer stream flow through alternate sides of the filter. The swirling action of the stream flow in the body alternately washes and cleans the small particle filter screen not in use. In the other preferred embodiment a double actuating piston is positioned between the outlet streams of each of the filter caps of the filter body and a timing mechanism actuates the piston to alternately block one of the filtered streams. As the cylinder heads of the piston move into the respective filtered stream, the head moves fluid in the stream back toward the filter body and through the respective filter screen associated with each stream to back wash the respective small particle filter screen and remove clogged materials on the filter screen.

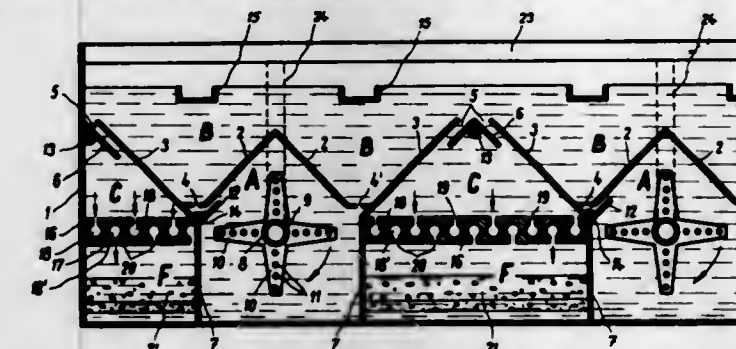
3,598,239
APPARATUS FOR WATER TREATMENT
Svatopluk Mackrle, and Vladimir Mackrle, both of Prague, Czechoslovakia, assignors to Hydroconsult Bratislava, Bratislava, Czechoslovakia
Continuation of application Ser. No. 822,383, May 7, 1969, now abandoned. This application Oct. 2, 1969, Ser. No. 868,266
Int. Cl. B01d 21/01

U.S. Cl. 210-203

9 Claims

A high-output arrangement for water treatment combining in a single housing a number of spaces for coagulation and homogenization, spaces where a perfectly fluidized sludge blanket is maintained, sedimentation spaces and high-rate filter spaces. The spaces for the fluidized sludge blanket have bottoms formed by downwardly converging walls extending over the entire width of the housing and alternately forming roof-shaped tops of homogenizing spaces and of sedimentation spaces as well as the bottoms for the sludge blanket spaces above them. Filter spaces are provided below the

homogenizing spaces, separated therefrom by horizontal walls composed of adjacent beams with first channels provided with openings into the sedimentation spaces and connected with the drain, and second channels provided with

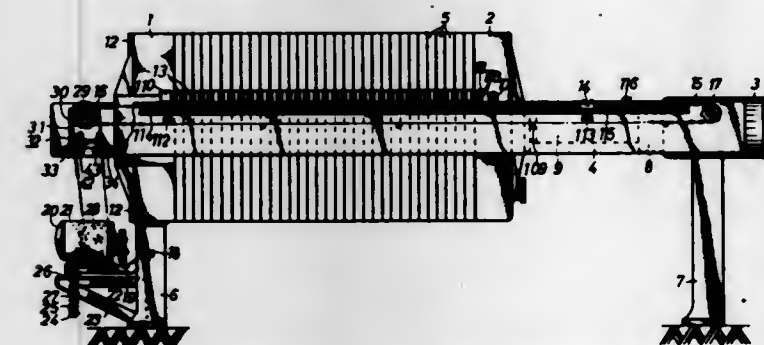


openings into the filter spaces and connected to collecting means for clear water. The homogenizing space is provided with agitator means, and raw water with a coagulation agent is supplied into said space.

3,598,240
FILTER PRESS
Ikuya Abe; Akio Kaga, and Hideo Eoka, all of Taisho-ku, Osaka, Japan, assignors to Noritake Iron Works Co., Ltd., Osaka, Japan
Filed Apr. 10, 1969, Ser. No. 814,975
Claims priority, application Japan, Apr. 17, 1968, 43/25981
Int. Cl. B01d 25/00

U.S. Cl. 210-230

14 Claims

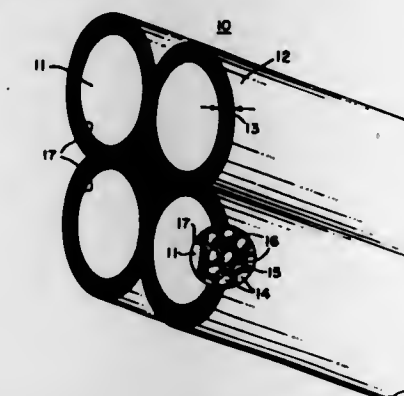


This filter press includes filter-plate-feeding members adapted for moving a plurality of filter plates backward one by one by passing the plates under the hangers of said train of filter plates and catching the same. The filter-plate-feeding members each have an opposed pair of pawls that can be freely raised, the front pawl thereof passing under the hanger and catching the same, the rear pawl abuts against said hanger and brings the same into a halt. The pair of pawls of the members are retreated and changed in operation in order to advance the plates one by one.

3,598,241
SUPPORT SYSTEM FOR MEMBRANES USED IN THE REVERSE OSMOSIS PROCESS
Charles H. Vondracek, Pittsburgh, and Andrew S. Calderwood, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 22, 1968, Ser. No. 754,581
Int. Cl. B01d 13/00

U.S. Cl. 210-321

8 Claims



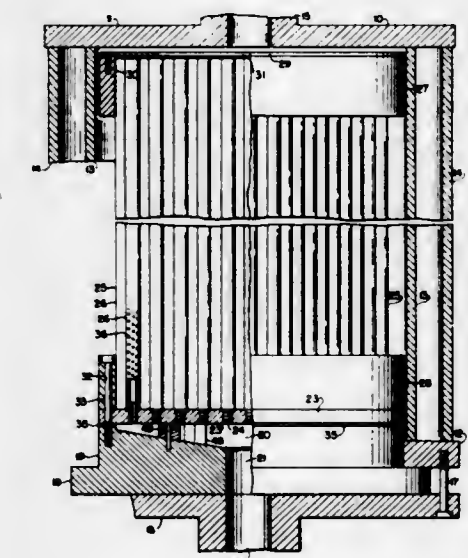
An open pore tube for use with reverse osmosis water pu-

rification membranes is made of bonded resin coated filler particles.

3,598,242
MULTIPLE ELEMENT FILTER FOR POLYMERS
Lambert H. Mott, c/o Mott Metallurgical Corp., P.O. Drawer "L", Farmington Industrial Park, Farmington, Conn.
Filed Dec. 19, 1969, Ser. No. 886,546
Int. Cl. B01d 29/24

U.S. Cl. 210-323

5 Claims

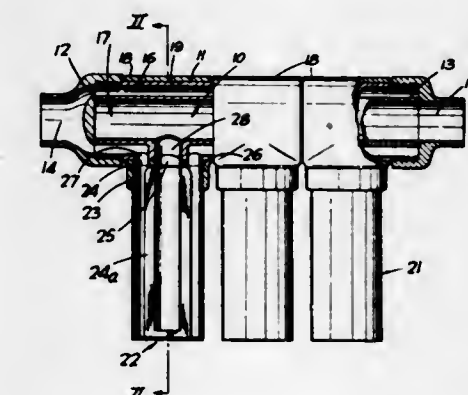


A high differential pressure filter with a large filter area has a base plate containing threaded apertures over which there is secured a bundle of perforated tubes fixed together in a hexagonal pattern. Each perforated tube has a capped porous metal tube with a threaded base inserted therein and screwed into the base plate. The threaded base has an angular channel therethrough allowing each porous tube to be tightened into the base plate by a wrench inserted from below into the channel. A collector plate is fixed below the base plate and a filter body is disposed about the tube bundle so that viscous material introduced into the filter body passes through the perforated tubes and the porous tubes to be gathered in the collector plate.

3,598,243
PLURAL PARALLEL FILTERS AND FLOW CONTROL MEANS
Janusz Gutkowski, 7 Rufus Close, Lewes, England
Filed June 3, 1969, Ser. No. 830,015
Claims priority, application Great Britain, June 4, 1968, 26501/68
Int. Cl. B01d 29/24

U.S. Cl. 210-340

12 Claims



A fluid treatment apparatus having a plurality of treatment units, one of which units can be isolated from a stream of

fluid flowing through the apparatus by rotation of the unit about galleries through which fluid normally flows to and from that unit.

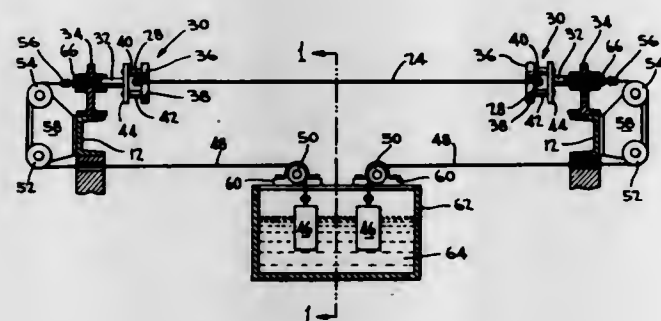
3,598,244

FILTER BELT ALIGNING

Richard E. Babcock, Jr., Waterloo, Va., assignor to Komline-Sanderson Engineering Corporation, Peapack, N.J.
Filed Oct. 14, 1969, Ser. No. 866,300
Int. Cl. B01d 33/04

U.S. Cl. 210-401

7 Claims



A porous flexible filter media in the form of an endless belt, having beads along and coextensive with its opposite side edges is guided in an endless circuit around various rollers rotating about horizontal axes and including a filter drum and a discharge roll spaced from the drum. For tensioning the media transversely to its movement and for maintaining it centered axially with respect to the drum, a pair of weights are suspended normally at a common level partially immersed in a body of liquid, being supported by cables guided over pulleys or sheaves and connected to the opposite side edges of the filter media by suitable guides respectively mounted in alignment with each other for horizontal movement transverse to the movement of the filter media through its circuit.

3,598,245

SEPARATION MEDIUM FOR GEL FILTRATION AND A METHOD FOR ITS PREPARATION

Helmut Determann, Frankfurt am Main, and Theodor Wieland, Mainz, both of, Germany, assignors to Pharmacia Fine Chemicals A B, Uppsala, Sweden
Filed Oct. 27, 1969, Ser. No. 869,795
Claims priority, application Sweden, Oct. 30, 1968, 14668/68
Int. Cl. B01d 15/08

U.S. Cl. 210-500

10 Claims



A separation medium for gel filtration having an exclusion limit within the molecular weight range of from 10,000 to 10

million consisting of grains of certain water-insoluble copolymers reinforced with a rigid hydrophilic macroporous material, and method for the preparation thereof. The rigid hydrophilic macroporous material can be grains of regenerated cellulose having a bulk density of 2-25 g./dl., and a pore size in the range of from 2 to 2,000 μ .

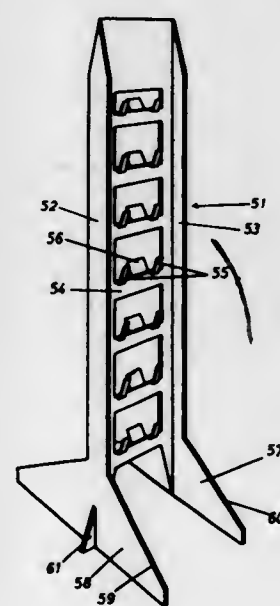
3,598,246

SALES DISPLAY STANDS FOR PACKAGED GOODS, ESPECIALLY PACKAGED CHOCOLATES

Manfredo Galli, Frankfurt am Main, Germany, assignor to Ferrero G.m.b.H.
Filed Nov. 15, 1968, Ser. No. 776,165
Claims priority, application Germany, Jan. 22, 1968, F 33569
Int. Cl. A47I 7/00

U.S. Cl. 211-49 R

8 Claims



A sales display stand for packaged sweet stuffs (candies) consists of a substantially upright flat support mounted on a pedestal with sloping top surfaces the support having a series of vertically spaced flaps on both sides obliquely projecting outwardly and upwardly. A candy package is attached at one end to each flap by slitting between the lid and base of the package a sufficient portion to be hooked over the flap. The lowermost package of the stack thus secured rests on the sloping base.

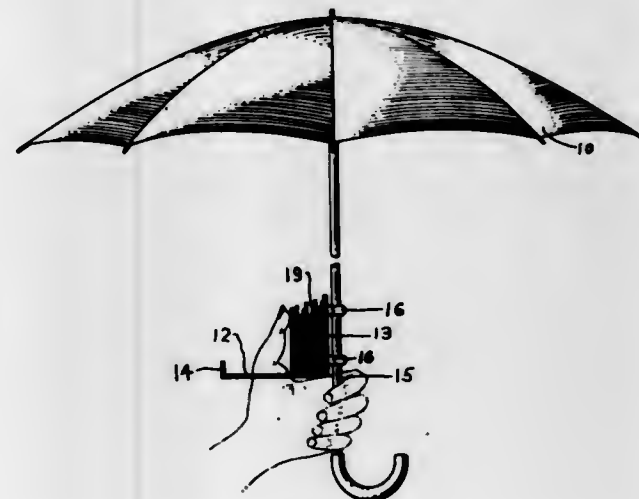
3,598,247

THUMB TRAY

Garry G. Papers, P.O. Box 297, Denville, N.J.
Filed Nov. 24, 1969, Ser. No. 879,350
Int. Cl. A47I 7/00

U.S. Cl. 211-50

1 Claim



A tray for holding data sheets, mail and the like in which a bottom portion of the tray has a slot for a thumb to be in-

serted to press the data sheets against a back wall, leaving the other fingers free to grip a handle to which the tray is attached.

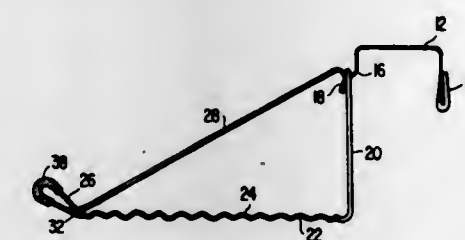
3,598,248

GARMENT HANGER SUPPORT KIT

Frank M. Black, 1425 Grove St., Huntington, W. Va.
Filed Sept. 8, 1969, Ser. No. 856,109
Int. Cl. A47I 5/08

U.S. Cl. 211-106

3 Claims



A laterally stable garment hanger support kit means for supporting a plurality of garment hangers from an upright and top edge of a door or wall moulding and the like. The support means is composed of a desirable suitable material, such as, fairly heavy metal wire having a certain degree of elasticity but at the same time sufficient rigidity to retain its original shape under load, even when heavily loaded. The hanger support means is generally triangular in shape and consists essentially of a basic rod or wire section, an angular upright section and a hypotenuse section interconnecting the above sections together, such that the top end of the upright section is generally looped around a U-shaped portion of the upper end of the hypotenuse section joined to an inverted channellike portion to clampingly engage the top edge of a door to reduce vertical and lateral turning moments of the support means when heavily loaded. Also a support of maximum strength is uniquely obtained by forming the wire sections in part of a flat metallic shape and inverted channel portion rigidly and suitably connected to the height portion of the triangular shape of the hanger support portion and having an additional transverse lateral section bisecting the triangular plane of the triangle shape and substantially bridging the width of the triangular zone for maximum rigidity of the garment hanger support means.

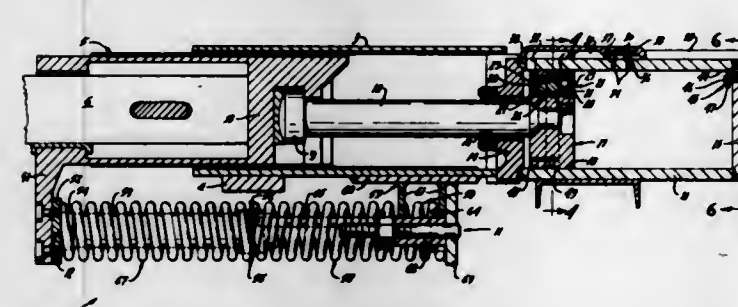
3,598,249

RAILWAY DRAFT APPLIANCE

Harold E. Vickerman, Milwaukee, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.
Filed Jan. 27, 1969, Ser. No. 794,125
Int. Cl. B61g 9/12, 11/12

U.S. Cl. 213-8

8 Claims



A railroad car draft appliance has a hydraulic cushion assembly with a valving system including high-pressure responsive, buff metering valves set in the piston heads, and low-pressure responsive, one-way fluid passage through the cylinder walls for buff strokes. The hydraulic assembly includes one-way, high-pressure responsive valving which conducts hydraulic fluid from the draft end of the cylinder through a passage chamber disposed along the cylinder

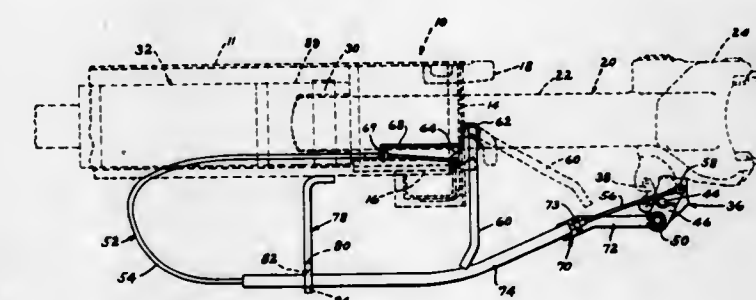
3,598,250

UNCOUPLING ARRANGEMENT FOR RAILWAY FREIGHT CARS

Boris S. Terlecky, St. Louis County, and Jan D. Holt, St. Charles, both of, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.
Filed Oct. 14, 1969, Ser. No. 868,285
Int. Cl. B61g 1/16, 3/08

U.S. Cl. 213-162

14 Claims



An uncoupling arrangement for unlocking the coupler of a railway freight car and particularly a long length freight car having a long overhang. A flexible cable or cablelike member extends between a linkage connected to the lift lifter assembly beneath the coupler and a manual operator adjacent a side of the railway car for actuating the flexible cable and unlocking the coupler. The flexible cable extends from the manual operator first beneath the underframe to the center sill, and then outwardly beneath the coupler shank to the coupler head. Supporting means for the flexible cable react against forces which result from the actuation of the operator thereby to permit an actuating movement of the cable relative to the supporting means for effecting unlocking of the coupler.

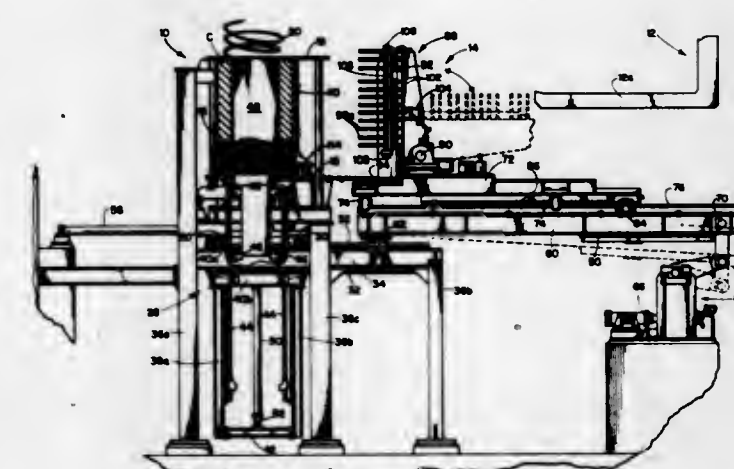
3,598,251

COIL-HANDLING APPARATUS

Donald Sieurin, Northboro, Mass., assignor to Morgan Construction Company, Worcester, Mass.
Filed Dec. 8, 1969, Ser. No. 882,922
Int. Cl. B65g 7/00

U.S. Cl. 214-1 Q

11 Claims



An apparatus for transferring product coils from a coil-forming station to a transport means, for example a hook conveyor. The apparatus includes a carriage movable along a track extending between a first position adjacent to the coil-forming station and a second position underlying the path travelled by the hook conveyor. A cradle is carried by the carriage. A coil is transferred from the coil-forming station into the cradle and the carriage is then traversed to the second position. While the carriage is moving away from the

coil-forming station, the cradle is tilted to position the coil for axial insertion over an awaiting hook on the hook conveyor. Thereafter, the track is lowered to deposit the coil on the hook. The carriage and cradle are then returned to their original positions and the coil is carried away by the hook conveyor.

3,598,252

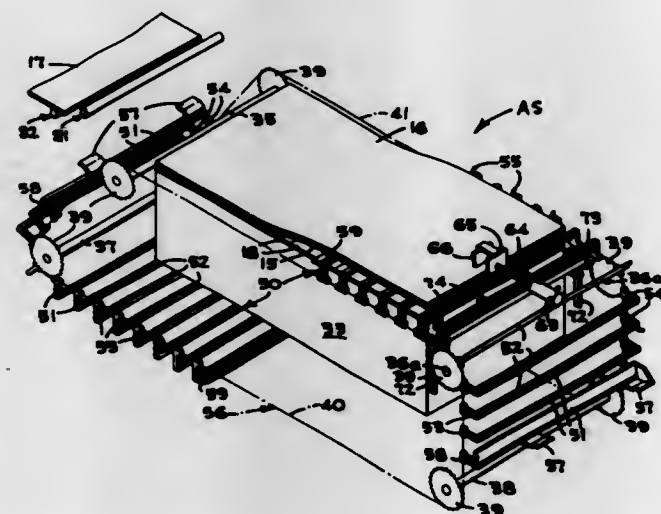
APPARATUS FOR ASSEMBLING VENEER INTO PLYWOOD SHEETS

Ronald J. Billett, Sunnyvale, and Velko K. Vitanen, San Jose, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Apr. 1, 1969, Ser. No. 813,812
Int. Cl. B65g 57/06

U.S. Cl. 214-6 DK

3 Claims



Apparatus for assembling veneer into plywood sheets is disclosed. Two sources of veneer, one above the other, are adjacent an assembly station. The assembly station has a lift table to receive the veneer for assembly. An interrupted slat conveyor takes, alternately, two sheets of veneer from the top source of veneer, and one sheet from the bottom source of veneer. The veneer on the conveyor engages a stop above the lift table as the slats of the conveyor move out from under the veneer. After each deposit of veneer on the lift table, core pieces are taken from gluing rolls and laid on the deposited veneer, the end core sheet being supported by a retractable support member.

3,598,253

BAG STACKER

John Worndl, Brampton, Ontario, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada

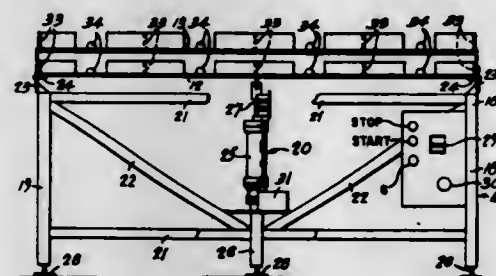
Filed Oct. 13, 1969, Ser. No. 865,735

Claims priority, application Canada, Oct. 30, 1968, 33,960

Int. Cl. B65g 57/11

U.S. Cl. 214-6 D

2 Claims



A bag-collecting device for use at the delivery end of a bagmaking machine comprising, in combination, two bag-collecting platens assembled in vertically spaced substantially parallel relationship, each of said platens having a front end and a rear end being coextensive with the other platen at its

front end, and means for supporting the platens and reciprocatably moving at least the front ends of said platens between two vertically spaced positions whereby the two platens can be brought into alternative registration with the delivery end of the bagmaking machine, said means for reciprocatably moving the front end of the platens being automatically responsive to a bag counter unit.

3,598,254

PAN FEEDING APPARATUS

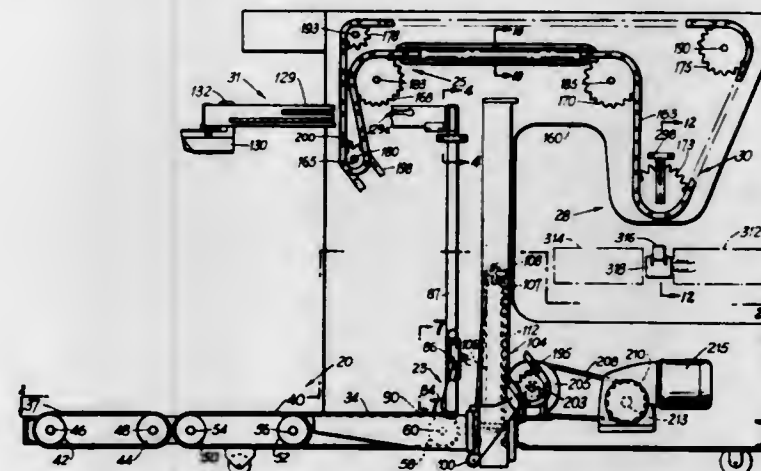
Robert F. Melsell, Henrico County, Va., assignor to AMF Incorporated

Filed Sept. 27, 1968, Ser. No. 763,101

Int. Cl. B65g 59/02

U.S. Cl. 214-8.5 A

8 Claims



Pan feeding apparatus comprising means for supporting a stack of pans, means for raising said support means to a position whereat the topmost pan is at a predetermined height, means for lifting said topmost pan from the stack and transporting it to a position spaced from a collection area, means for maintaining the topmost pan of the stack at said predetermined height as the pans are removed therefrom and means mounted adjacent said predetermined height for engaging and supporting the last few pans of said stack independently of said support means.

3,598,255

EQUIPMENT FOR HIGH LINE TRANSFER

Stephen G. Schneller, Laval, Quebec, and David G. Lake, Chateauguay Ctr., P. Q., both of Canada, assignors to Peacock Brothers Limited, La Salle, Quebec, Canada

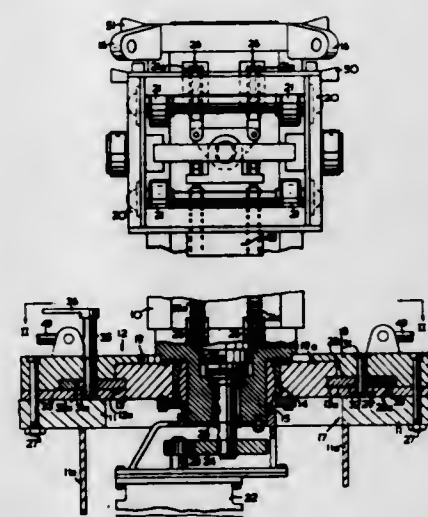
Filed Dec. 26, 1968, Ser. No. 787,164

Claims priority, application Canada, Oct. 28, 1968, 33,722

Int. Cl. B63b 27/18

U.S. Cl. 214-13

9 Claims



A deck fitting for releasably engaging and supporting the base member of a kingpost which is used in high line ship to ship transfer has an aperture for receiving the base member and one or more keys mounted at the side of the aperture. Each key has at least a portion which is movable towards and

away from the center of the base member between a first position in which said portion protrudes from the side of the aperture to engage and support the base member and the second position in which the key is clear of engagement of the base member and allows a kingpost to be withdrawn to the deck fittings.

3,598,256

CONTAINER SHIP CRANES

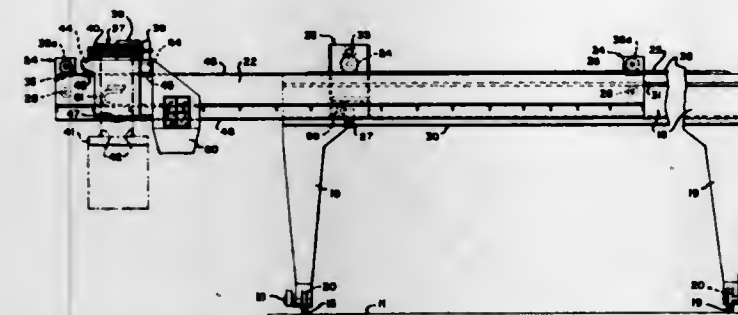
Edward J. Kinkopf, Alliance, Ohio, assignor to The Alliance Machine Company

Filed July 17, 1969, Ser. No. 842,470

Int. Cl. B63b 27/12

U.S. Cl. 214-15

6 Claims



A container ship crane having a single main girder adapted to be carried by spaced apart trackways along each side of ship deck and substantially parallel to the centerline of the ship preferably by inverted substantially T-shaped leg means and having an extensible single girder positioned side by side with said main girder adapted to be extended over a cargo area of the ship and docks on either or both sides of the ship and being supported and guided along said main girder by support means adapted to extend across top portions and down side portions of said main girder, positioned adjacent end portions and intermediate end portions of said extensible girder and having drive means for moving said extensible girder along said main girder mounted on said support means intermediate end portions of said extensible girder and engaging said main girder, and having a hoist means adapted to be driven along the extensible girder preferably by said drive means simultaneously with said extensible girder.

3,598,257

APPARATUS FOR CHARGING SHAFT-TYPE FURNACES

Heinz-Dieter Pantke, Essen-Frintrop, and Herbert Hickmann, Oberhausen, both of Germany, assignors to Huttenwerk Oberhausen A.G., Oberhausen, Germany

Filed July 7, 1969, Ser. No. 839,451

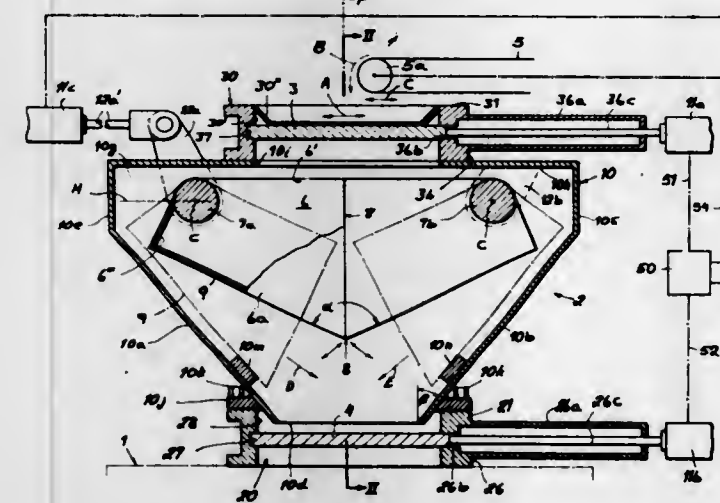
Claims priority, application Germany, July 10, 1968, P 17 58

637.7

Int. Cl. F27b 1/20

U.S. Cl. 214-35 R

8 Claims



An apparatus for charging shaft-type furnaces in which a pair of gas-lock gates are provided in vertically spaced rela-

tionship at the top of the furnace and above the upper gate a conveyor or the like delivers green pellets of metal or for charging the furnace. Between the two gates, there is provided a clamshell charging arrangement having two halves together forming an upwardly open bucket and adapted to swing apart to release the pellets into the chamber. The device has a funnellike configuration with downwardly convergent walls against which the bottom walls of the bucket lie when the shell halves are swung apart.

3,598,258

APPARATUS FOR CHARGING SHAFT-TYPE FURNACES

Rudolf Grever, Oberhausen, Germany, assignor to Huttenwerk Oberhausen A.G., Oberhausen, Germany

Filed July 8, 1969, Ser. No. 839,951

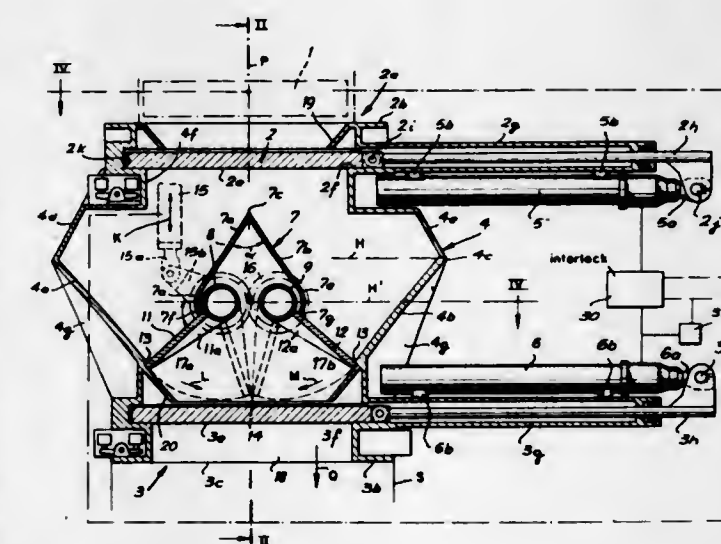
Claims priority, application Germany, July 10, 1968, P 17 58

636.6

Int. Cl. F27b 1/20

U.S. Cl. 214-35 R

9 Claims



An apparatus for the charging and sealing of shaft-type furnaces in which a pair of sliding-plate gas locks are provided above and below a roof-shaped distributor in the charging housing. The distributor coacts with a pair of swingable flaps to prevent free flow of the charge, the flaps being simultaneously swung in opposite senses to open chutes for the charge into the furnace when the lower gate is open.

3,598,259

AIRCRAFT TOWING APPARATUS

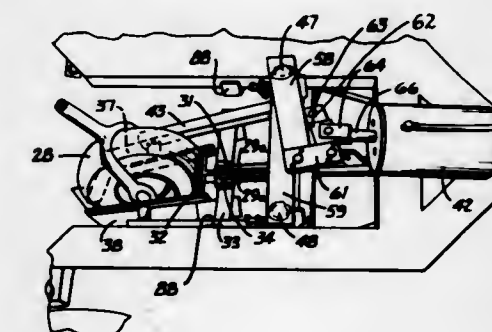
Preston M. Wright, R. R. 2, Box 110A, Syracuse, Ind.

Continuation-in-part of application Ser. No. 804,818, Mar. 6, 1969. This application Mar. 4, 1970, Ser. No. 16,383

Int. Cl. B60s 9/16

U.S. Cl. 214-332

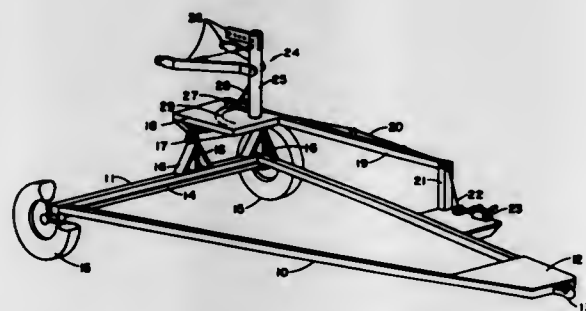
3 Claims



The present invention is embodied in a powered towing apparatus for aircraft in which the aircraft and the driving

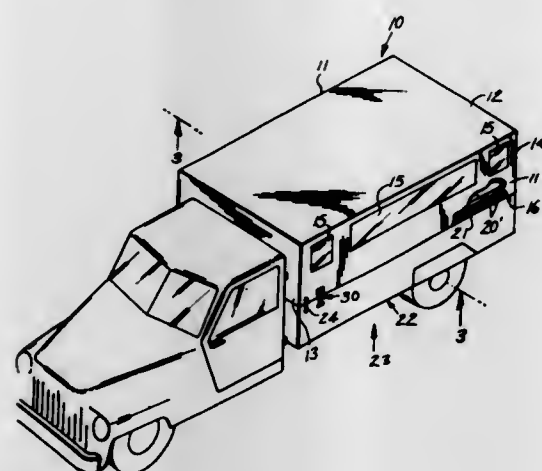
wheels of the prime mover, or tractor component, are connected by a linkage which transfers a portion of the aircraft weight to the driving wheels to aid traction. The linkage sequentially grasps the nose wheel tire on the aircraft and then lifts the aircraft nose wheel through this tire grip. The tire gripping components clasp the tire, prior to lifting, even though the nose wheel tire is not centered or accurately aligned between the gripping components of the linkage.

3,598,260
EQUIPMENT TRAILER
Randall E. Hutson, Hernando, Minn., assignor to General Metals Corp.
Filed Jan. 5, 1970, Ser. No. 591
Int. Cl. B60p 3/06
U.S. Cl. 214-501



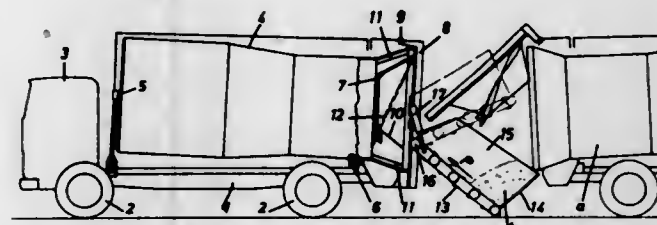
An elongated two-wheel trailer having a substantially vertical hoist near one rear corner, the hoist being mounted so as to raise and lower, rotate about its vertical axis, and pivot in a plane defined by its vertical axis and the longitudinal axis of the trailer.

3,598,261
CAMPER BODY FOR TRUCKS
Laroy A. Anderson, 1417 E. Bellevue St., Phoenix, Ariz.
Filed Jan. 6, 1970, Ser. No. 864
Int. Cl. B60p 1/64
U.S. Cl. 214-515



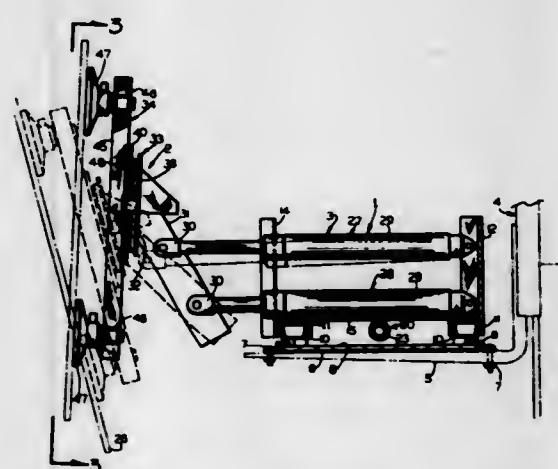
An easily removed camper body for trucks. This camper body includes a plurality of ball type wheels on its underside which when properly positioned upon the truck will seat themselves in with the rubber surfaced edge will cause the assembly to be weather proof. The camper body is also secured in place by straps. The camper body also includes a lever arrangement for unseating the ball type wheels in order to easily remove the camper body from the truck.

3,598,262
GARBAGE COLLECTION VEHICLES
Johann Kraus, Kissing near Augsburg, Germany, assignor to Keller & Knappich GmbH, Augsburg, Germany
Filed July 14, 1969, Ser. No. 841,199
Claims priority, application Germany, Mar. 21, 1969, P 19 14 382.9
Int. Cl. B60p 1/42
U.S. Cl. 214-522



A garbage transport truck apparatus having a collection container which extends longitudinally along the length of the truck and includes a rotatable garbage-collecting device having an opening for receiving garbage at its lower portion. A conveyor extends from the vehicle to define a garbage transfer-receiving container.

3,598,263
PLATE GLASS HANDLING DEVICE
Robert J. Ehmke, 3307 N. 84th St., Milwaukee, Wis.
Filed Jan. 9, 1969, Ser. No. 790,007
Int. Cl. B66c 1/02
U.S. Cl. 214-652

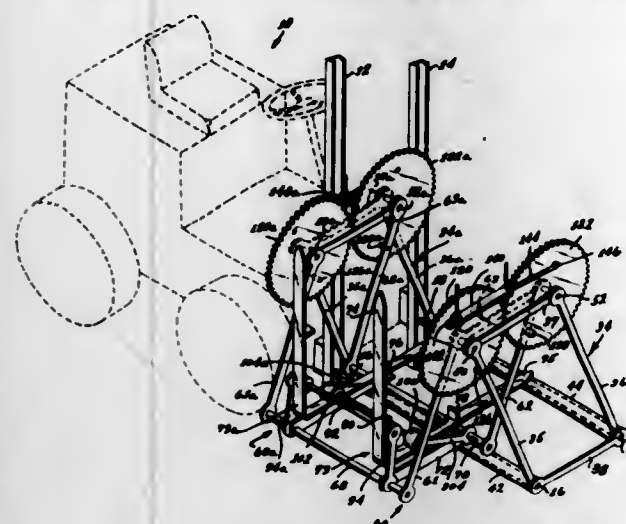


A handling apparatus for lifting, transporting, tilting and positioning heavy workpieces, such as plate glass, or other large, cumbersome objects which require accurate placement and smooth, precision handling. The apparatus includes a lift vehicle having an elevatable member on which are mounted a plurality of hydraulically controlled interacting, extendible struts for positioning a workpiece holding frame, whereby the apparatus can be controlled by a single operator.

3,598,264
PARALLEL BAR LINKAGE LOAD TRANSFER APPARATUS
Philip E. Massie, 4220 Irving Place, Culver City, Calif.
Filed Mar. 27, 1969, Ser. No. 811,108
Int. Cl. B66f 9/14; B65g 1/06
U.S. Cl. 214-730

The invention is an apparatus or equipment adapted particularly for transferring palletized loads to and from warehouse storage racks. The equipment is provided with forks like a fork lift which are swingable between two positions to adapt the equipment for loading and unloading laterally to and from either side of the equipment to eliminate the need of turning the transporter equipment in an aisle. The load support means for the fork members is suspended like a pendulum by means of parallel bar linkage

frames whereby the load can be translated horizontally at the same level. Intermeshing gears with hydraulic drive means



are provided for deforming or warping the suspension frames and to effect the lateral transfer of the load.

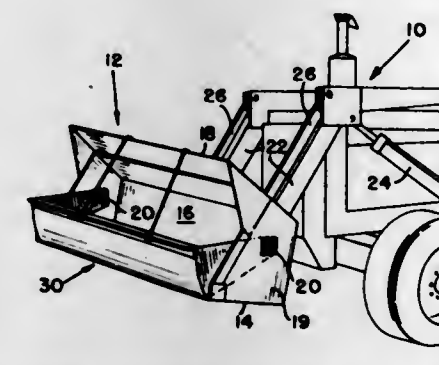
3,598,265
LATERALLY MOVABLE SHUTTLE ASSEMBLY WITH AN ARTICLE PROBE DEVICE
Stephen F. Aaronson, 605 Laramie Place, Philadelphia, Pa., and Harry Y. Jackson, 414 Cherry Hill Blvd., Cherry Hill, N.J.
Filed Jan. 5, 1970, Ser. No. 870,643
Int. Cl. B66f 9/14

U.S. Cl. 214-730



An improved shuttle assembly is operable from a retracted condition to an extended condition by moving a load-supporting section outwardly relative to an intermediate section while the intermediate section moves outwardly relative to a base section. A probe assembly for detecting the presence of a container or other obstruction in a storage area is mounted on the intermediate section. The probe assembly includes a base which is movable relative to the intermediate section by an operator assembly to extend a probe member on the base outwardly of the load-supporting section in response to relative movement between the intermediate and load-supporting sections. Upon engaging an obstruction in a storage area, the probe member cams or forces an actuator member sideways to operate a switch mounted on the intermediate section and thereby interrupts operation of the shuttle assembly toward the extended condition.

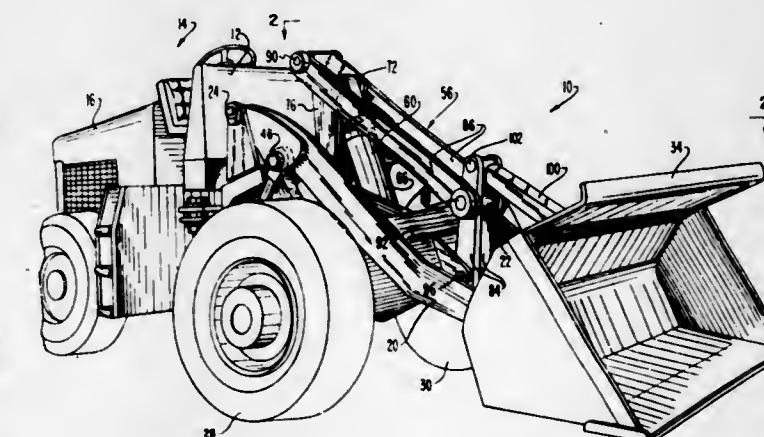
3,598,266
BUCKET ATTACHMENT FOR FRONT END LOADERS
Carl Manning Fisher, 540 Old Spartanburg Road, Hendersonville, N.C.
Filed June 19, 1969, Ser. No. 834,742
Int. Cl. E02f 3/70
U.S. Cl. 214-767



A curved plate extending the width of the bucket is relatively fixed with respect to the boom so that as the bucket is

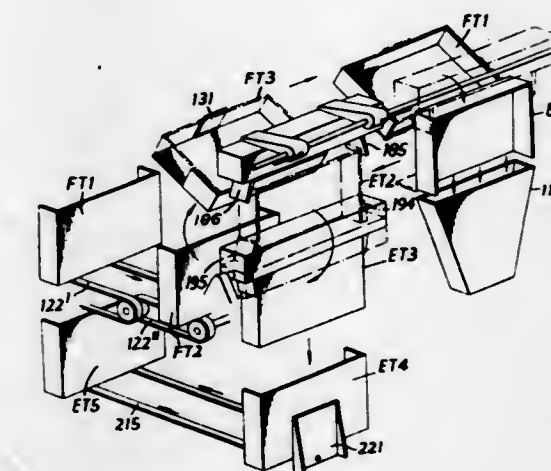
rotated the size of the opening between the bucket and plate can be varied to control the rate of flow of material from the bucket. A funneling mechanism directs the material dispensed from the bucket to a restricted material discharge opening.

3,598,267
LOADER ASSEMBLY
Paul H. Whitcomb, Attica, N.Y., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed June 19, 1969, Ser. No. 834,746
Int. Cl. E02f 3/74
U.S. Cl. 214-776



An improved front end loader includes a pair of spaced-apart lift arms which are pivotally mounted on an articulated vehicle. Piston and cylinder assemblies pivot the lift arms to raise and lower a bucket. The bucket is pivoted between a plurality of operating positions upon actuation of a tilt linkage by a single piston and cylinder assembly. The tilt linkage and associated piston and cylinder assembly are located midway between the lift arms along a vertical plane extending through a longitudinal axis of the vehicle.

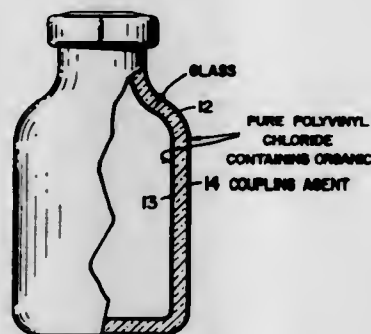
3,598,268
ARTICLE CONVEYING AND LOADING MACHINE
Timothy Wallace, Andover, England, assignor to AMF Incorporated, New York, N.Y.
Filed May 14, 1969, Ser. No. 824,599
Claims priority, application Great Britain, May 15, 1968, 23106/68
Int. Cl. B65g 65/34
U.S. Cl. 214-306



The machine is a loader for a cigarette packer in which a pivoted container conveyor is capable of swinging down to a loading position and swinging up to an inclined position and thereafter to a ready position adjacent a discharge position.

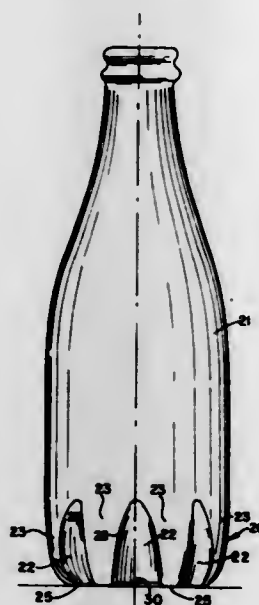
A clamp arrangement is provided for holding a container at the discharge position while it is emptying and for conveying an empty tray from the discharge position to a take away path. Turning mechanism is provided so that the tray in the ready position is pivoted into the discharge position as soon as the empty tray has cleared the discharge position on removal therefrom.

3,598,269
LINED GLASS CONTAINER
Raleigh A. Carmen, Concord, Calif., assignor to Cutter Laboratories, Inc., Berkeley, Calif.
Filed Aug. 2, 1968, Ser. No. 749,790
Int. Cl. B65d 23/02, 23/08
U.S. Cl. 215—1



Glass containers lined with polyvinyl chloride containing a bonding agent.

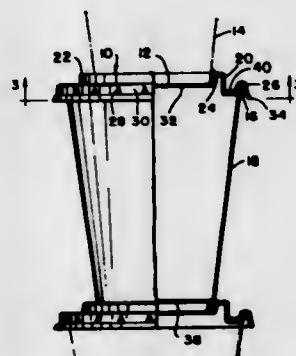
3,598,270
BOTTOM END STRUCTURE FOR PLASTIC CONTAINERS
Domas Adomaitis, Chicago, and Howard M. Turner, Oak Forest, both of, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Apr. 14, 1969, Ser. No. 815,745
Int. Cl. B65d 1/02
U.S. Cl. 215—1 C



This disclosure relates to a plastic container, particularly a bottle suitable for carbonated beverages. The bottom end of the container comprises portions conformed to meridian elements of a hemisphere with a downward pole and a plurality of hollow legs terminating in feet in a plane below the pole of the hemisphere. In blow-molding the bottle, the mold halves pinch the bottom end of the parison closed along an arcuate

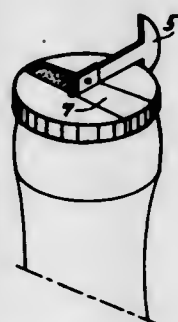
weld line constituting the midportion of a semicircular element of a hemispherically contoured portion of the bottom.

3,598,271
COMBINATION DISPOSABLE CUP LID AND COASTER
Danforth Holley, Gross Pointe Shores, Mich., assignor to Holley Plastics Company, Warren, Mich.
Filed May 29, 1969, Ser. No. 828,987
Int. Cl. B65d 41/22, 23/06
U.S. Cl. 215—41



A cup lid for use with disposable cups or the like, including a circular recess in the cup lid centrally thereof for receiving the bottom of a cup to permit vertical stacking of a plurality of cups having the cup lid thereon. The cup lid further includes an annular recess at the periphery thereof, including indentations spaced angularly thereabout on the exterior thereof and extending for part of the depth of the annular recess for locking the top of a cup within the annular recess. A hat-shaped section is provided between the circular recess and annular recess of the lid for receiving the bottom of a corresponding disposable cup with the lid inverted and used as a coaster. The circular recess may be provided with an offset portion adjacent the bottom thereof to provide a reduced diameter bottom section for snugly receiving the bottom of a corresponding cup with the lid in use as a cup holder. Angularly spaced apart radially extending ridges are provided between the hat-shaped section and the annular recess to provide lid strength and inhibit fluid movement around the lid and angularly spaced apart axially extending ribs are provided on the hat-shaped section to further space a portion of the hat-shaped section from a cup bottom position therein, thereby providing a cool gripping surface for the lid in use as a cup holder.

3,598,272
SELF-OPENING BOTTLE CAPS
Jose A. Bustamante, Agua 868 Jardines del Pedregal, Mexico City, 20, and Joaquin Iturriga, Cerro de Sta. Isabel 123, Frac. Campestre Churubusco, Mexico City, 21, both of, Mexico
Filed June 17, 1969, Ser. No. 834,109
Claims priority, application Mexico, July 24, 1968, Aug. 9, 1968, Aug. 12, 1968, May 8, 1969, 104,773; 105,127; 105,187; 110,989
Int. Cl. B65d 43/02
U.S. Cl. 215—46 A

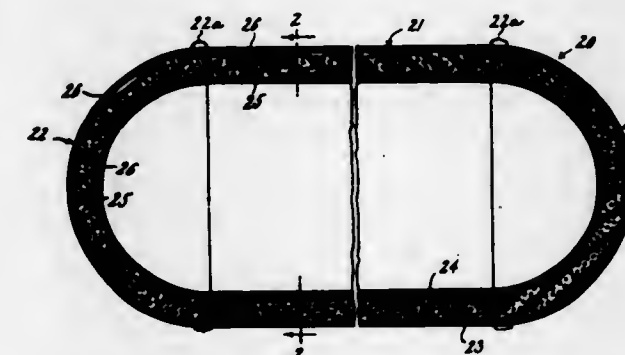


A self-opening bottle cap with a central depression defined by a raised peripheral ridge over the bead of the bottle that has a narrow U-shaped or V-shaped tab extending across the greater part of its upper surface and joined to the remainder of the upper surface, and to the skirt on each side by partially

cut lines of increased weakness in the metal of the cap. The ridge is flattened when applied to the bead. When the cap is to be removed this weakened strip is either peeled off by means of a rotatable key or pulled off by means of a ring, the key or the ring having been previously riveted to one end of the removable tab. The key is pivotable in the horizontal plane. The cap will then spring partly open of its own accord and can be completely removed by the fingers of one hand without the use of any other tool.

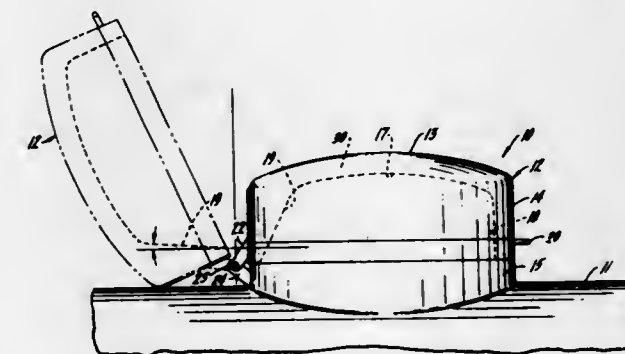
uniquely formed flanges for securely holding separate front and rear panels.

3,598,275
RADIAL-FILAMENT CYLINDERS
Edgar Francols, Wayne, N.J., assignor to Unifroyal, Inc., New York, N.Y.
Filed May 21, 1969, Ser. No. 826,649
Int. Cl. B65d 25/18
U.S. Cl. 220—9 A



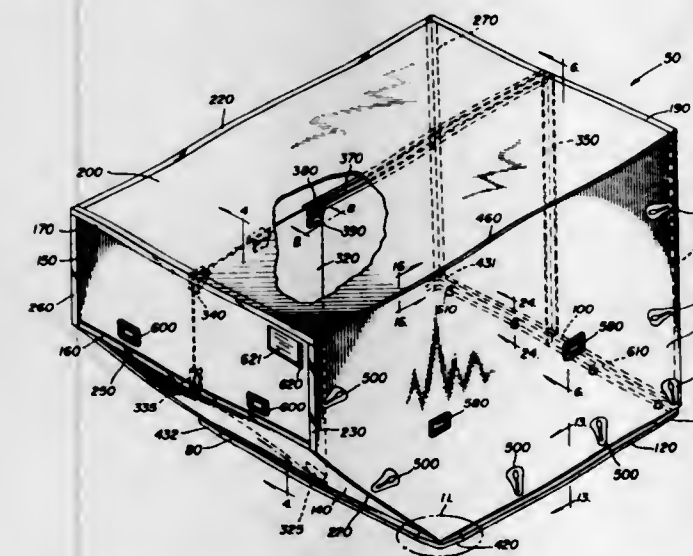
Hollow cylindrical bodies, the walls of which include a shell construction made of resin reinforced by short length, high modulus filaments extending substantially normal to the inner and outer shell surfaces, i.e. generally radially, are disclosed. The body wall may be composed of a single such shell reinforced by internal coaxial stiffening rings distributed along its length, or it may be composed of a sandwich structure consisting of a pair of identically constructed concentric shells with a low density core confined therebetween. Such bodies, when closed at their opposite ends by means of end caps, are particularly suited for use as deep submergence vessels, being characterized by high resistance to external hydrostatic pressures, a low weight-to-displacement ratio, and high compressive strength and elastic stability. Various methods of constructing such bodies are also disclosed.

3,598,276
SELF-DRAINING HOUSING AND MANWAY COVER
Fred Brown, Chicago, Ill., assignor to Union Tank Car Company
Filed Dec. 3, 1969, Ser. No. 881,778
Int. Cl. B65d 43/16, 51/10
U.S. Cl. 220—31



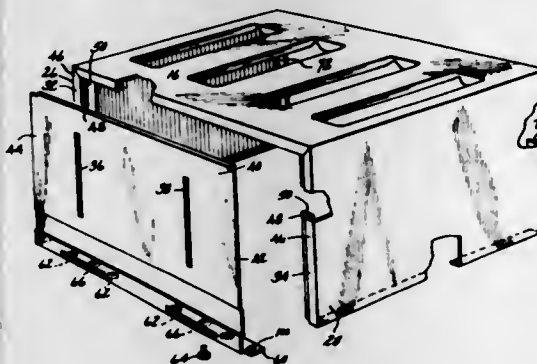
A cover assembly for a manway in railway tank cars. The invention provides a cover pivotally mounted to a manway on a tank car so as to permit the cover to assume an open

3,598,273
CONTAINER
Blase C. Rau, Skokie; John M. Buday, Park Ridge; Donald W. Feddersen, Northbrook, and Everett L. Markowski, Morton Grove, all of, Ill., assignors to Air Cargo Equipment Corporation, Tulsa, Okla.
Filed Dec. 6, 1968, Ser. No. 781,859
Int. Cl. B65d 87/00
U.S. Cl. 220—1.5



There is disclosed a container adapted to be carried in an airplane and used to transport either cargo or baggage, the container comprising a plurality of panels, a plurality of frame members removably interconnecting the panels, each of the panels including a pair of spaced-apart sheet metal walls and a body of rigid cellular construction therebetween, a rigidifying panel and a set of stiffeners removably mounted in the container, a door removably mounted in the container by means of a hinge mechanism, a plurality of latching mechanisms in the door for engaging keeper structure in the container and being constructed to prevent inadvertent opening and subsequent removal of the door, handles housed by the door for removing the door from the container and including venting ports, a bumper mounted on the base panel of the container and extending therearound to protect the container from damage, and removable shelves in the container separated one from the other.

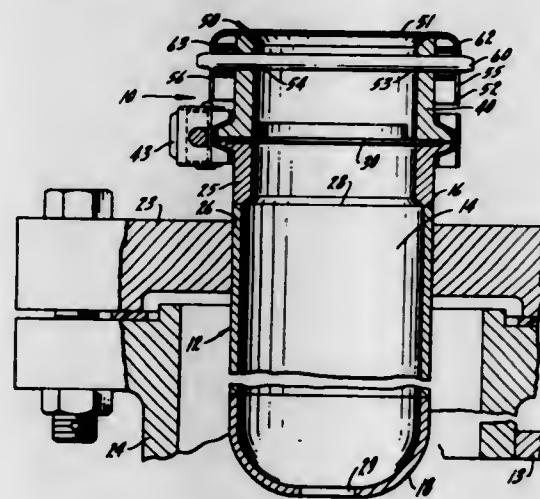
3,598,274
ELECTRIC TOASTER CONSTRUCTION
Paul V. Snyder, Whitehall, Pa., assignor to General Electric Company
Filed July 25, 1969, Ser. No. 844,938
Int. Cl. B65d 7/30; A47j 37/08
U.S. Cl. 220—4 R



An electric toaster construction wherein a one-piece toaster shell includes top and sidewalls and also includes

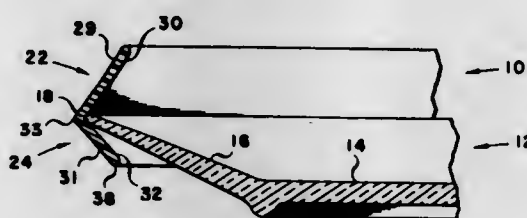
and closed position. The cover being of generally inverted U-shaped diametrical or rectangular cross section having a top portion and a side portion extending around the outer periphery of the top portion. The cover when in its closed position is located on one side of a vertical plane passing through the pivotal mounting and when in its opened position is located on the other side of the vertical plane. The cover includes an inner shell and an outer shell. The outer shell has a top portion and a side portion generally perpendicular to and disposed about the outer periphery of the top portion. The inner shell has a top portion substantially parallel to the outer shell top portion and a side portion having a lower section, located near the pivotal mounting, that inclines downward to the horizontal independent of the position of the cover, thereby preventing accumulation of liquid within the cover.

3,598,277
SAFETY VENT DISCHARGE ARRANGEMENT
John W. Adelman, Chicago, Ill., assignor to Union Tank Car Company
Filed Nov. 6, 1969, Ser. No. 874,425
Int. Cl. B65d 51/16
U.S. Cl. 220-44 R 2 Claims



A safety vent structure for pressure vessels. A body defines a chamber having first and second openings, the latter communicating with an opening in the vessel. Associated with the first opening is a seat member adapted to receive a frangible element in closing relationship to the first opening. A retainer ring, secured to the seat member, serves to hold the frangible element against the seat. A closure cap is supported exteriorly of the retainer ring by a horizontal pin passing through apertures in the retainer ring and vertical slots in the closure cap. The closure cap rises when the escaping commodity makes contact therewith and permits flow to atmosphere. When the pressure within the chamber is reduced to approximately atmospheric pressure, the closure cap will automatically lower itself and close off the opening in the vessel.

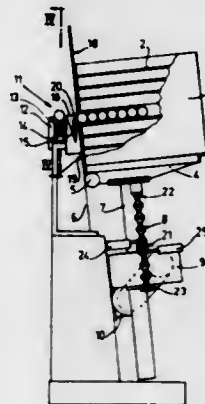
3,598,278
FOOD-RETAINING DEVICE
John C. Vann, Jr., 2234 Channel Road, Balboa, Calif.
Filed May 15, 1969, Ser. No. 824,876
Int. Cl. B65d 25/00
U.S. Cl. 220-85-R 9 Claims



A food-retaining device adapted for removable mounting to an ordinary food plate. The device comprises a split ring shaped singular piece of flexible material having a substantially V-shaped cross section, adapted to receive and be

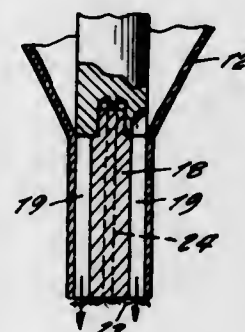
mounted upon a food plate which is equal to or slightly larger in diameter than the diameter of the device itself. Mounting of the retainer device upon a plate is accomplished via a twisting and/or prying action exerted upon the ends of the split ring and thereupon inserting of the plate therein. When mounted circumferentially around a plate, the upper section of the retainer is disposed such that it slants upwardly and inwardly toward the center of the plate so that the inner surface thereof acts as a barrier to food which is urged against it, and thus prevents spilling of the food over the edge of the plate or the retainer device itself.

3,598,279
APPARATUS FOR THE STORAGE AND DISTRIBUTION OF CYLINDRICAL ARTICLES
Georges Duffau, Bordeaux-Cauderan, France, assignor to Societe De Conditionnement En Aluminium, Paris, France
Filed Aug. 6, 1969, Ser. No. 847,836
Claims priority, application France, Mar. 25, 1969, 6908650
Int. Cl. G07f 11/12
U.S. Cl. 221-11 5 Claims



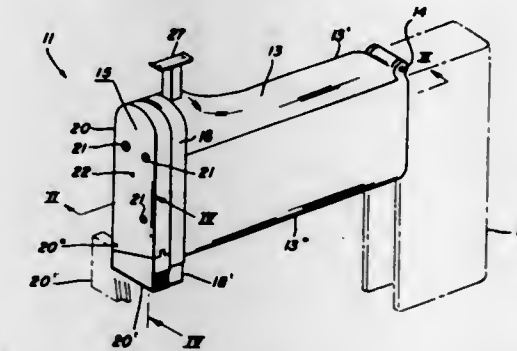
Apparatus for storing and dispensing cylindrical articles to a transport line located alongside the apparatus comprising a storage unit which is mounted for vertical movement and is provided with a plurality of horizontally disposed vertically spaced shelves which are inclined towards the transport line and a transfer unit located between the shelves and the transport line having a member mounted for vertical movement between blocking and unblocking position with the member blocking the exit from the aligned shelf when in blocking position and freeing the exit when in unblocking position to permit transfer of an object from the shelf onto the surface thereof and which is adapted to effect transfer of said object from the surface thereof when the adjacent portion of the transport line is free, and means controlling vertical movement of the shelves responsive to the absence of an object on a shelf aligned with the transfer unit, said means being responsive to contacts to reverse the movement of the shelf when in its upper position and in its lower position and to control shelf movement by an increment corresponding to the spaced relationship between the shelves in the absence of an article on the aligned shelf.

3,598,280
SEED HILLER
Ross Hukill, Box 346, Scottsbluff, Nebr.
Filed July 30, 1969, Ser. No. 846,081
Int. Cl. B23q 7/12
U.S. Cl. 221-167 1 Claim



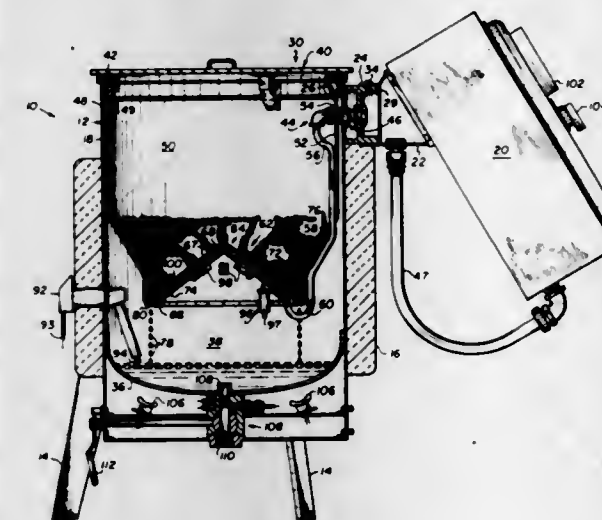
A planter for beet seeds, the device comprising a unit wherein the seeds are discharged from a pair of parallel and vertically extending chutes, and wherein the seeds are di-

3,598,281
PORTABLE LOADING MECHANISM FOR HEMOSTASIS CLIPS
Michael J. Watermeier, Memphis, Tenn., assignor to Richards Manufacturing Company, Inc., Memphis, Tenn.
Filed Sept. 18, 1969, Ser. No. 859,037
Int. Cl. B65h 5/00
U.S. Cl. 221-198 4 Claims



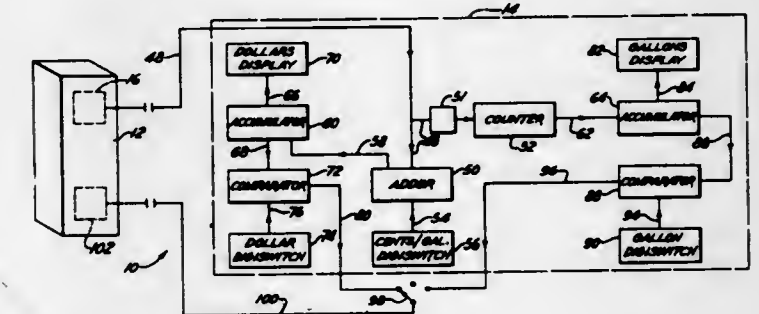
A portable loading mechanism for use by nurses, doctors, or others, to load applicator forceps with hemostasis clips to be used in tying off blood vessels during surgery. The loading mechanism includes a base adapted to be held in the hand and a clip-receiving head mounted on top of the handgrip base. In the interior of the base is a magazine mechanism which delivers the clips one at a time to a preloading position in the head from where they are pushed by a finger-operated plunger mechanism to the bell-shaped mouth of the head for delivery to the end of the applicator forceps which are placed in the delivery mouth.

3,598,282
APPARATUS FOR MELTING AND FEEDING SOLIDIFIED MATERIAL
Henry A. Phillips, 1340 New Brunswick Ave., Placataway, N.J., and Reynold E. Minnich, 1309 Washington Valley Road, Martinsville, N.J.
Filed Nov. 25, 1969, Ser. No. 879,677
Int. Cl. B67d 5/62; F27b 14/06
U.S. Cl. 222-146 HE 18 Claims



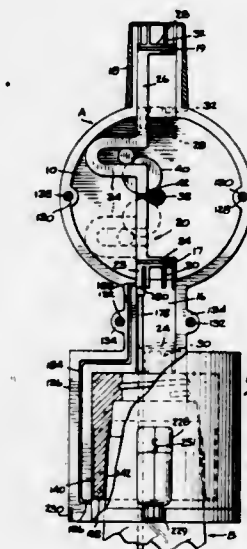
Apparatus for melting solidified material and feeding the resultant liquid including a vertically disposed hopper for receiving the solidified material and heating means for melting the solidified material. The heating means comprises a heating member disposed across the bottom of the hopper and shaped to promote flow of the liquid towards its outer perimeter where liquid passage means receive the liquid as it flows over the outer perimeter. The heating means may also comprise means for applying a greater amount of heat to the lower portion of the heating member disposed adjacent the liquid passage means than to the remaining top portion of the heating member to promote liquid flow along the upper sur-

3,598,283
GASOLINE PUMP COMPUTER
Ronald L. Krutz, Irwin, and Thomas J. Vilella, New Kensington, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Apr. 14, 1969, Ser. No. 815,838
Int. Cl. B65d 5/30
U.S. Cl. 222-14 14 Claims



A solid-state binary coded decimal computer for use in modifying existing consumer marketing gasoline pumps so that the pump will automatically stop after dispensing either a preset number of gallons or a preset money value of gasoline.

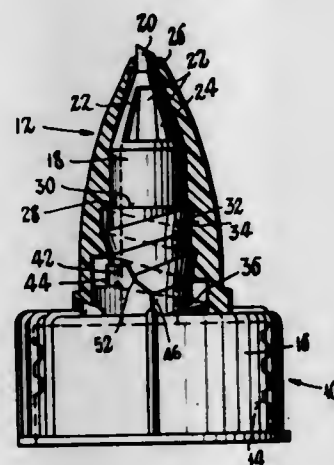
3,598,284
DRINK METERING AND INDICATING DEVICE FROM A BEVERAGE BOTTLE
Frank L. Wessely, 360 W. 45th St., New York, N.Y.
Filed July 7, 1969, Ser. No. 839,291
Int. Cl. B67d 5/22
U.S. Cl. 222-38 9 Claims



This invention relates to a device for metering and indicating individual drinks dispensed from a beverage bottle comprising a housing having an inlet and an outlet, a U-shaped member carrying valves for said inlet and outlet activatable by an operating shaft through pin means sliding in the U-shaped portion, means for releasably locking an operating cover to said operating shaft, ratchet means for indexing a numbering wheel, and locking means for preventing unauthorized removal of the device from the neck of a bottle.

3,598,285
CAPTIVE DISPENSING AND METERING CAP
 Morton B. Stull, c/o Stull Engraving Co. 2132 81st Gulf,
 Marathon, Fla.
 Filed Nov. 14, 1969, Ser. No. 876,834
 Int. Cl. B67d 5/22
 U.S. Cl. 222-48

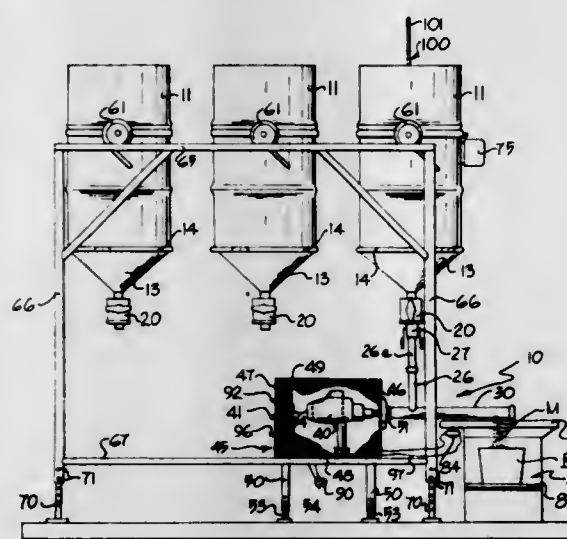
7 Claims



A dispensing and metering cap construction comprising a threaded tubular spoutlike cap body and an orifice-type screw cap both of molded plastic composition. In addition to the screw threads on the cap and cap body, the cap has a stop lug which is especially arranged to constitute a cam follower whereby it also serves somewhat like a thread element adapted to engage a cam track at the base of the cap body. Both the screw threads and the cam track and follower lug serve to raise the cap on the cap body in response to unscrewing movement. The extent of unscrewing determines the size of the opening of the discharge orifice in the cap. The cam track constitutes a positive or nonyielding lead means for the cap, whereas the screw threads are yieldable and impositive. Thus the cam track is the dominating one of the two lead means. By providing a hump or depression in the cam track, an accurate raised axial position of the cap can be readily effected for a given rotative position, without requiring an accurate corresponding relative positioning of the screw threads, since the latter can be made to yield a lesser or a greater amount under the influence of the cam track. The provision of the hump or depression thus can be used to attain an accurate metering position of the cap, and is easier to accomplish than accurate reorientation of the screw threads.

3,598,286
APPARATUS FOR AUTOMATICALLY AND UNIFORMLY FEEDING NONLIQUID MATERIAL
 Winnifred A. Wardell, Charlotte, N.C., assignor to Gaston County Dyeing Machine Company, Stanley, N.C.
 Filed Apr. 14, 1969, Ser. No. 815,868
 Int. Cl. B67d 5/22
 U.S. Cl. 222-51

7 Claims

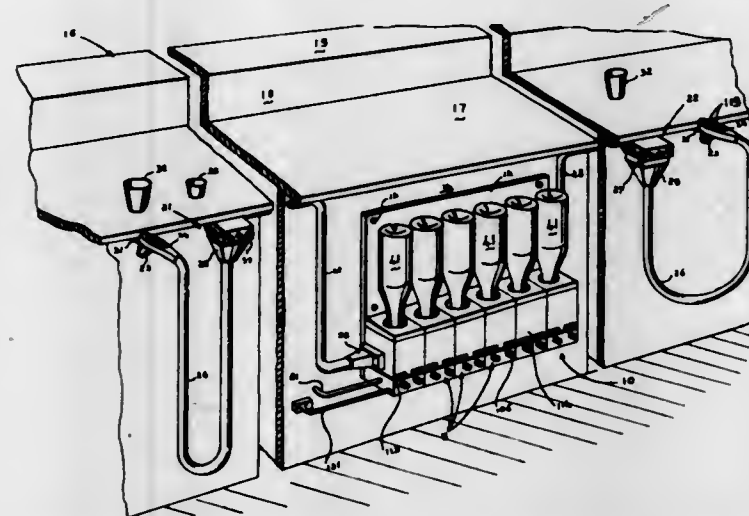


Apparatus for automatically and uniformly feeding powder, crystalline, paste, pellet and the like nonliquid

material directly from the container in which the material is shipped or other container and characterized by being substantially air and moisture tight to prevent damage to the material being fed and by having components thereof detachably secured together for ease in assembly and disassembly and including an improved float gauge means therefor. The apparatus broadly comprises a hopper means attached to the open bottom end of the container of material, vertically extending valve means attached to the bottom of the hopper means, vertically extending conduit means detachably secured to the bottom of the valve means, horizontally extending conduit means secured to the bottom of the vertically extending conduit means, and driven variable-speed spiral conveying means disposed within the horizontally extending conduit for uniformly feeding the material therethrough and out of a dispensing opening in the horizontally extending conduit means.

3,598,287
LIQUID DISPENSER WITH LEVEL CONTROL
 Heiko T. de Man, 10 Sullivan Drive, Moraga, Calif.
 Filed Aug. 1, 1969, Ser. No. 846,852
 Int. Cl. B67d 5/08
 U.S. Cl. 222-64

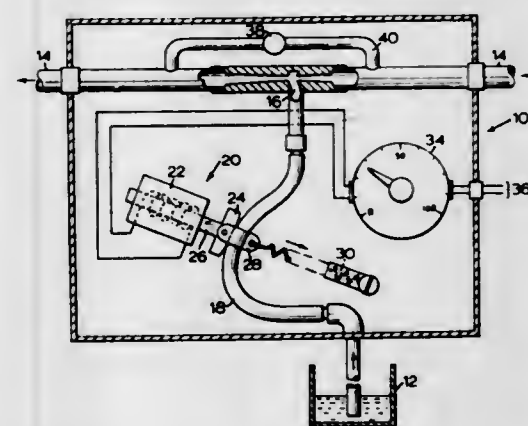
7 Claims



Apparatus for dispensing in discrete, measured volumes liquid from a bottle inverted in a reservoir and connected with a pair of compressed-gas-operated pumps supplies liquid to one or more dispensing faucets. Pump delivery volumes may be varied. A control circuit insures delivery of the selected full volume with each pump stroke recorded on a counter and double volumes without counter actuations are precluded. An indicating bulb lights to signify an empty bottle. Liquid flow rate to the faucet is variable to obviate liquid splashing.

3,598,288
FLEXIBLE TUBE-METERING DEVICES
 Edward S. Fosgate, 82 West Deane Park Drive, Islington, Ontario, Canada
 Filed June 26, 1969, Ser. No. 836,887
 Int. Cl. G04c 23/38
 U.S. Cl. 222-70

3 Claims

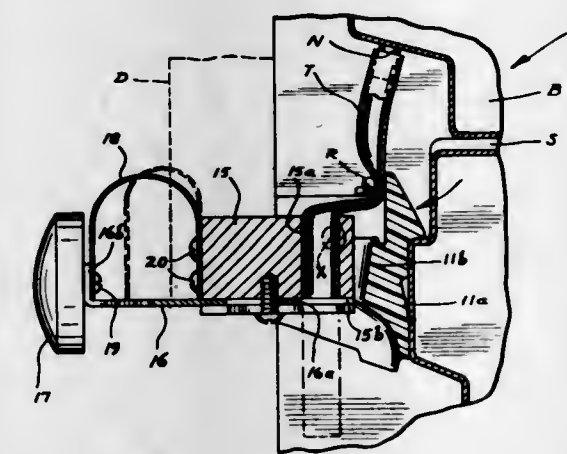


A fluid-metering device for injecting measured quantities of additive liquids into hydraulic systems and characterized

by a length of flexible tubing, with means for bending the tubing so that it acts as a shutoff valve or a variable flow rate valve.

3,598,289
DISPENSING TUBE VALVE WITH CUTTER
 Lannie F. Norris, Hot Springs, Ark., assignor to Norris Dispensers, Inc., Minneapolis, Minn.
 Filed June 19, 1969, Ser. No. 834,739
 Int. Cl. B67b 7/30
 U.S. Cl. 222-80

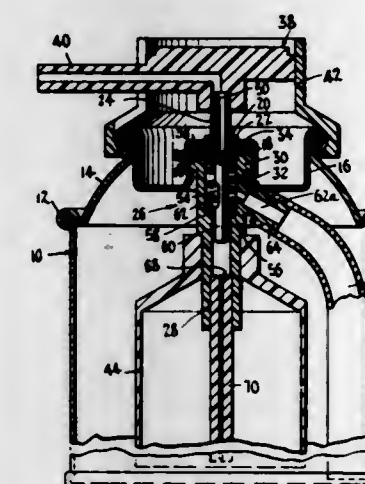
5 Claims



In the art of flexible, originally closed, dispensing tubes controlled by a pinchcock valve mechanism, such as are employed in refrigerated bulk drink dispensers, a quickly attachable cutting device having a body which is readily connectable with certain elements of the overall pinchcock valve mechanism. In its preferred form the body of the cutting device (after removal of the swingable pinchcock valve body from its seat), temporarily replaces the valve body and thereby positions a movable cutter element in a predetermined relation closely below the normal valve-pinch area of the dispensing tube. The structure of this invention positively prevents irregular severing of dispensing tubes far below the pinchcock seat, which often occurs in the usual operation of bulk milk and other liquid dispensers.

3,598,290
MIXING TYPE LIQUID DISPENSER WITH CAPILLARY DIP TUBE
 Wolf Steiman, Fairfield, Conn., assignor to Valve Corporation of America, Bridgeport, Conn.
 Filed June 13, 1969, Ser. No. 832,939
 Int. Cl. B65d 35/24
 U.S. Cl. 222-94

4 Claims

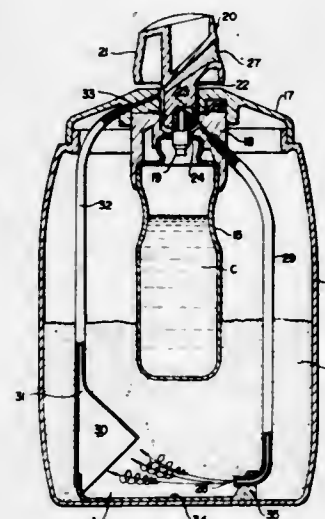


A dispenser comprising a can containing pressurized liquid and having a valve to control the discharge. Connected with

the valve and disposed inside the can is a second valve and a collapsible container, the latter having flexible walls and a watery product therein such as hydrogen peroxide which is pressurized due to the pressure existing against the flexible container walls. The second valve controls the outflow of the watery product from the container as effected by the pressure against the walls thereof. In this environment the invention provides, within the said container and connected to the second valve, a capillary tube constituting a discharge passage. The capillary tube may constitute a dip tube, and has the effect of smoothing out the rate of discharge of the watery product from the container under conditions of different pressures.

3,598,291
AEROSOL-TYPE DISPENSER FOR DISPENSING A POWDERED MATERIAL
 Felix Rousselot, St. Benoit, France, assignor to Geigy Chemical Corporation, Ardsley, N.Y.
 Filed Mar. 27, 1969, Ser. No. 811,109
 Claims priority, application France, Mar. 29, 1968, 146,330
 Int. Cl. B65d 83/14; B05b 7/04
 U.S. Cl. 222-193

2 Claims



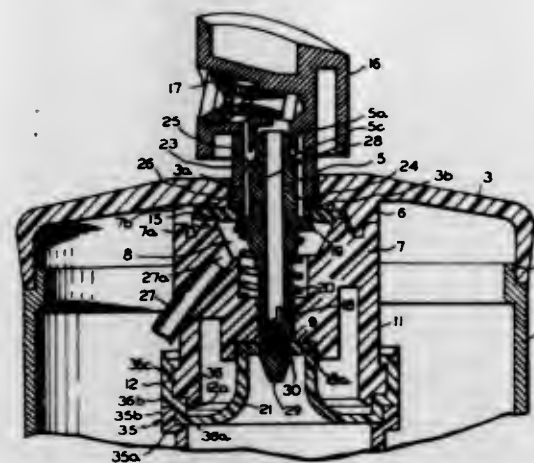
An aerosol-type dispenser for dispensing a powdered material. The dispenser comprises a propellant container, valve means operatively associated with said propellant container for controlling release of propellant from said propellant container, and a product container for containing the powdered material to be dispensed. A propellant intake tube extends from said valve means into the lower part of said product container and has at least one opening at the end thereof opening out near the bottom of said product container. A discharge tube extends from near the bottom of said product container and out of the product container. A fluidization chamber is provided between said tubes and powder from the product container is fluidized and in said fluidization chamber by flow of propellant therethrough.

3,598,292
AEROSOL DISPENSER WITH PLASTIC PROPELLANT CARTRIDGE
 Joseph W. Kiliany, Prospect, Conn., assignor to Geigy Chemical Corporation, Greenburgh, N.Y.
 Filed June 12, 1969, Ser. No. 832,660
 Int. Cl. B67d 5/54
 U.S. Cl. 222-193

3 Claims

An aerosol-type dispenser for fluent products. A cap for a container for a fluent product has a plug valve assembly de-

pending from the under surface of said cap. The plug valve assembly has a depending flange and a propellant cartridge of a different plastic material than said depending flange has

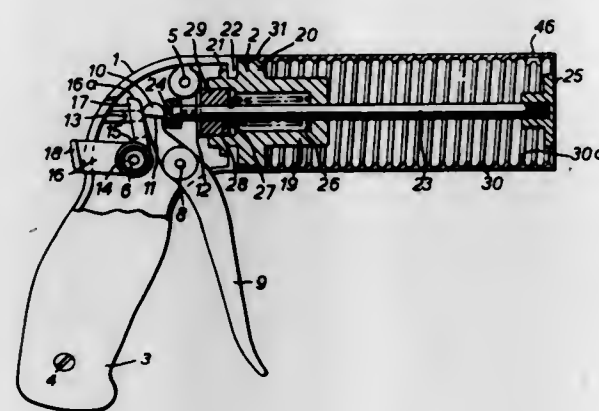


the open end thereof joined to the bottom of said flange with the plug valve assembly sealing the said open end of said propellant cartridge.

3,598,293
DISPENSING DEVICE
Ronald H. D. F. Lee, Berkhamsted, England, assignor to Cooper, McDougall & Robertson Limited, Berkhamsted, England

Filed May 26, 1969, Ser. No. 827,738
Claims priority, application Great Britain, May 28, 1968, 25581/68

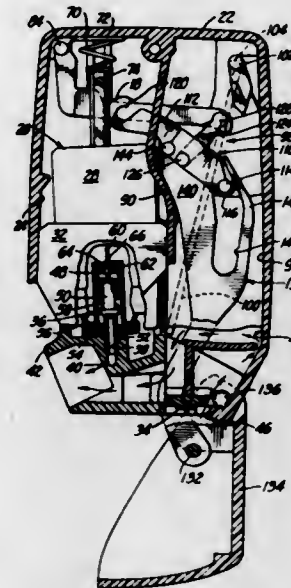
Int. Cl. G01f 11/22
U.S. Cl. 222-327 6 Claims



A device for dispensing liquid or semiliquid material from a screw-threaded cylindrical reservoir having a discharge opening and a piston, which device comprises a supporting structure having an actuating member arranged to move between two predetermined points to cause axial movement of said piston and the discharge of a dose of material from said reservoir. The device includes an operating member mounted on said supporting structure having an inoperative position and an actuated position and the operating member is arranged to impart movement to said actuating member between the said predetermined points. The device is provided with a member for locking the operating member in said actuated position.

3,598,294
INHALATION-RESPONSIVE AEROSOL DISPENSER
Nathan D. Hedrick, Granada Hills; Albert M. Hughes, Jr., Calabasas; Paul B. McKeehan, Canoga Park, and Charles G. Thiel, Chatsworth, all of Calif., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Nov. 13, 1969, Ser. No. 876,263
Int. Cl. B65d 83/06

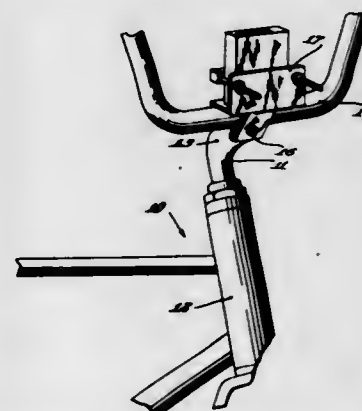
U.S. Cl. 222-402.2 10 Claims



An inhalation-responsive medicament dispenser provided with a housing having therein an aerosol-dispensing device comprising a container equipped with a metering valve spring biased outwardly toward a charging position and movable inwardly into a discharging position. A main spring engages the housing and the aerosol container to bias the metering valve toward its discharging position. A charging lever opposes the action of the main spring to enable the container to move to a position permitting the metering valve to occupy its charging position, and a latch releasably retains the charging lever in a position corresponding to the charging position of the metering valve. An inhalation-responsive vane releases the latch, upon inhalation by the patient through a mouthpiece with which the dispenser is equipped, whereupon the main spring moves the container into a position corresponding to the discharging position of the metering valve, the latter then discharging a metered amount of medicament from the aerosol container into the mouthpiece for inhalation by the patient. Pivotaly connected to the housing is a cover which encloses the mouthpiece when the dispenser is not in use. An actuating cam pivotaly connected to the cover, and responsive to closing movement thereof, sets the charging lever, the latch and the vane in positions corresponding to the charging position of the metering valve. Subsequently, the cover may be opened so that the patient may inhale through the mouthpiece to obtain a metered amount of medicament in the manner previously recited.

3,598,295
BICYCLE RADIO BRACKET
Herbert Seegers, 480 Holley Lane, Plantation, Fla.
Filed Nov. 6, 1969, Ser. No. 874,497
Int. Cl. B62j 11/00

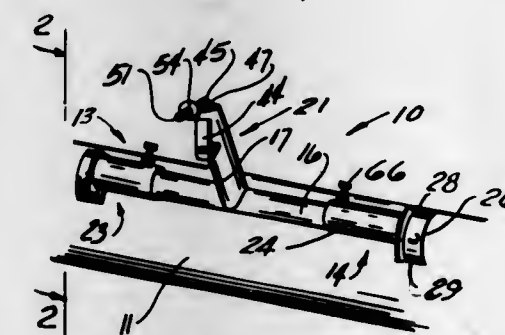
U.S. Cl. 224-41 3 Claims



An accessory bracket for bicycles which is attachable to the hub joint between the steering column and the han-

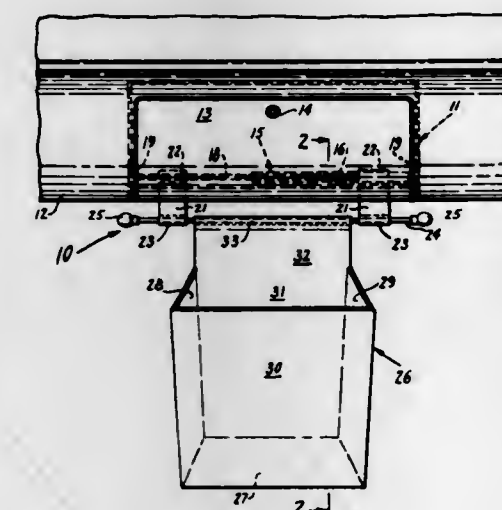
dlebars and which includes an L-shaped bracket having one leg thereof disposed parallel with the ground and the other disposed vertically with an adjustable enclampment member operatively carried by the vertical leg. A scuff-resistant coating is placed on the top of the horizontal member and on the opposed faces of the enclampment member and the vertical leg. The enclampment member and the vertical leg are so disposed towards one another that a radio resting atop the horizontal leg can be enclamped therebetween for stability. This allows a radio to be detachably attached to the bicycle.

3,598,296
UNIVERSAL WHEEL CARRIER APPARATUS
Frank T. Gostomski, Wahoo, Nebr. 68066
Filed May 12, 1969, Ser. No. 823,633
Int. Cl. B62d 43/02
U.S. Cl. 224-42.06 9 Claims



This invention relates to an apparatus for mounting a spare tire and wheel to the bumper of a vehicle, the apparatus comprising a shaft extending substantially parallel to the bumper and rotatably mounted to a pair of spaced apart mounting members, the members having a concave surface, thus being adapted to be fastened to the bumper; a support arm axially connected to the shaft and extending therefrom; a lock pin connected to the extended end of the arm and extending outwardly from the vehicle to lock the wheel; a bolt device for removably mounting the wheel to the arm, and a device reciprocally attached to the mounting members for maintaining the arm in a fixed position.

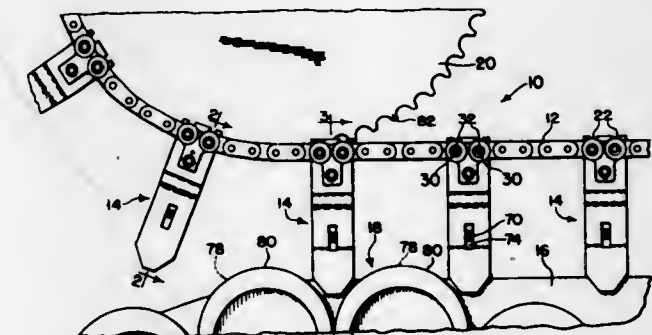
3,598,297
AUTOMOBILE LITTER BAG SUPPORT
Irene P. Welch, 2001 Maple Glen Road, Sacramento, Calif.
Filed Oct. 3, 1969, Ser. No. 863,628
Int. Cl. B60r 11/00; B65b 67/12
U.S. Cl. 224-42.46 R 1 Claim



An automobile litter bag support having an adjustable horizontal support rod releasably mounted in the glove com-

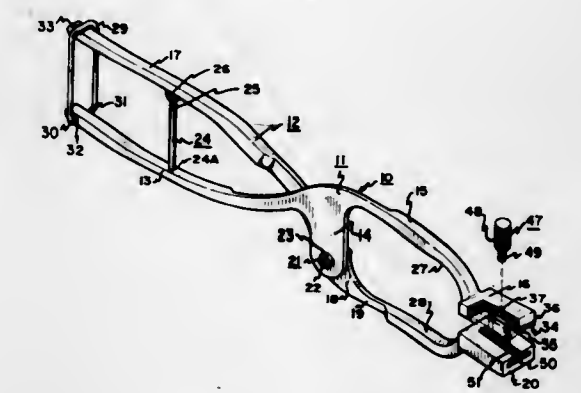
partment of the vehicle supporting a pair of depending flexible straps which extend out of the bottom front edge of the glove compartment below the glove department door. The flexible straps support a transverse horizontal rod on which is mounted the back of the litter bag. The rod has a removable cap to prevent its being inadvertently detached from the flexible straps.

3,598,298
WEB CONVEYOR APPARATUS
Walter C. Diener, Oak Park, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Nov. 12, 1969, Ser. No. 875,880
Int. Cl. B65h 17/34
U.S. Cl. 226-173 4 Claims



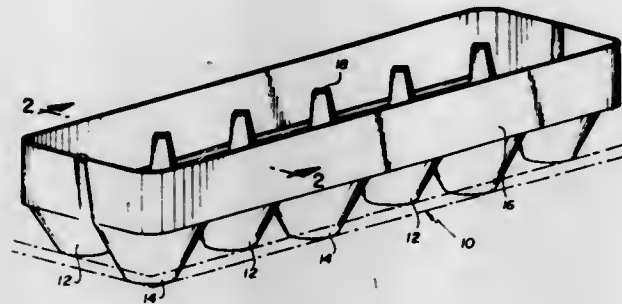
Web conveyor apparatus for use in feeding a generally vertically oriented heated web of thermoplastic material to a container molding station wherein there is provided a plurality of conveyor clip devices which are mounted for movement along a predetermined path immediately above the upper margin of the web of thermoplastic material, each conveyor clip device including positive gripping and release features which assure accurate predetermined feeding of the web.

3,598,299
STAPLING TOOL FOR CATTLE
Mark S. Johnson, R.F.D. Holden, Utah
Filed Jan. 2, 1970, Ser. No. 268
Int. Cl. B25c 5/02
U.S. Cl. 227-144 4 Claims



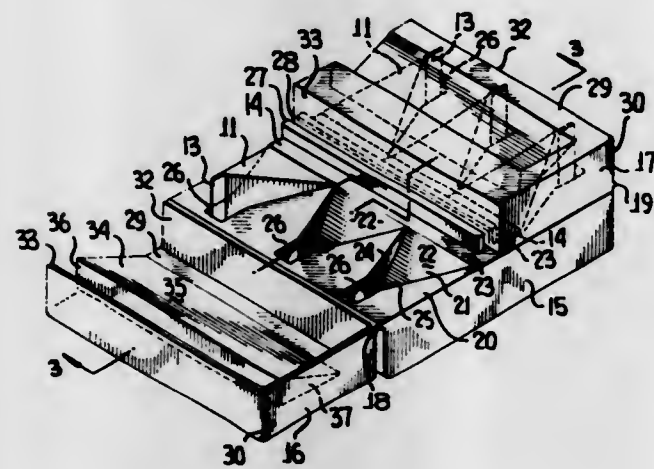
The present invention comprises a veterinary stapling tool or implement, and stapling means therefor, useful for maintaining the vagina of an animal in place during labor. The implement resembles a long-handled pliers, but includes a relief area for vagina tissue and, among other features, unique, spaced, nose or lip portions which are constructed to receive and subsequently release a unique staple assembly; the latter comprises a staple having a plate and also a corresponding, apertured plate over which the staple legs are crimped.

3,598,300
EGG CARTON
 Henry B. Katz, 33 Westview Road, Short Hills, N.J.
 Filed Oct. 31, 1969, Ser. No. 873,026
 Int. Cl. B65d 1/00
 U.S. Cl. 229-2.5



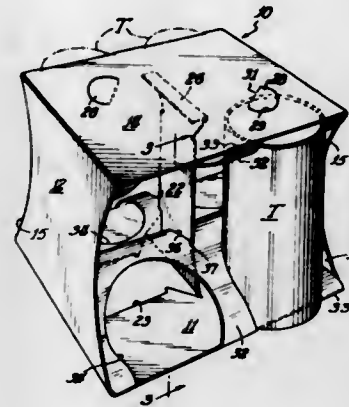
There is provided a novel form of container for eggs. This container is substantially of the same size as ordinary egg containers but is characterized in that the height of the base of each alternate egg receptacle in a row of egg receptacles in the container is raised from the common ground plane of the remaining receptacles in the container. This form of container reduces the risk of breakage of thin shelled, so called "jumbo" eggs, while retaining a size of container which is substantially the same as that utilized in the trade.

3,598,301
CARTON FOR TETRAHEDRAL PACKAGES
 Fred B. Shaw, Hinsdale, and Florren E. Long, La Grange, both of, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
 Filed Mar. 5, 1969, Ser. No. 804,633
 Int. Cl. B65d 1/36, 81/16, 85/30
 U.S. Cl. 229-15



This disclosure relates to cartons for packaging a plurality of individual tetrahedral articles in such a manner as to protect the articles from damage during shipment and rough handling. The carton is provided with individual compartments which conform generally to the shape of the tetrahedral articles intended to be packaged and which serve to restrain the tetrahedral articles against relative movement. The carton closure flaps are further provided with wedge-shaped walls which are adapted, upon closure of the flaps, to press against a side of each tetrahedral article packaged within the carton thereby forming a tight package.

3,598,302
CARRIER FOR DISPLAY OF CYLINDRICAL OBJECTS, SUCH AS GLASS TUMBLERS, OR THE LIKE
 William W. Nowak, Broadview Heights, Ohio, assignor to Container Corporation of America, Chicago, Ill.
 Filed July 23, 1969, Ser. No. 844,033
 Int. Cl. B65d 5/48, 71/00
 U.S. Cl. 229-28 R



A carrier for the display of a plurality of cylindrical or oblatelly spheroidal objects such as water tumblers, the carrier being formed from a cut and scored blank and folded to provide connected top, bottom and end panels, a central support panel with or without locks cut and folded from either the top or bottom panel and secured to the other of such panels, locking flaps foldably extending from the sides of said top and bottom panels and having partly elliptical openings therein to receive the upper and lower ends of the tumblers, and adapted to be folded inward to occupy planes angularly related to the planes of the top and bottom panels while holding the tumblers in position, the distal portions of said flaps being preferably locked to the central locking panel.

3,598,303
VARIABLE SIZED BOX FORM
 George W. Folz, 124 East 57th Place, Tulsa, Okla.
 Filed Feb. 20, 1969, Ser. No. 801,012
 Int. Cl. B65d 5/22
 U.S. Cl. 229-34

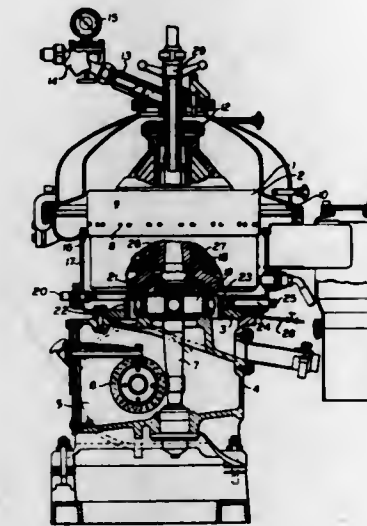


A base pattern or form which may be selectively folded and locked together in such a manner as to provide a great variety of sizes for a box. A combination of variable fold and cut or trim lines with tab and slot arrangements which provide a multiplicity of sizes in both lateral and transverse directions and in height for boxes or packaging device.

6 Claims

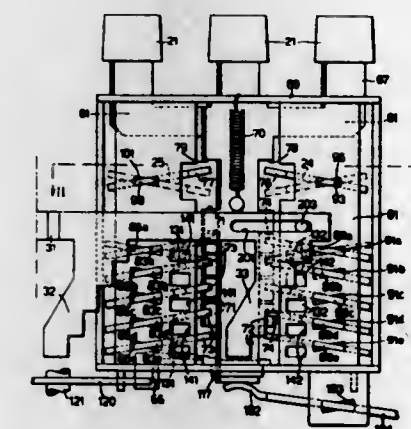
1 Claim

3,598,304
SEPARATOR STERILIZABLE BY SUPERHEATED STEAM
 Heinrich Hemfort, Oelde, Westphalia, Germany, assignor to Westfalia Separator A.G., Westphalia, Germany
 Filed Feb. 3, 1970, Ser. No. 8,260
 Claims priority, application Germany, Feb. 28, 1969, P 19 10 211.5
 Int. Cl. B01d 21/26
 U.S. Cl. 233-1 A



A centrifugal separator comprising a drum whose driving spindle is rotatably mounted in a frame, a casing surrounding the drum and attached to the frame, a sealing means between the drum and casing and the drum to prevent passage of steam used for sterilizing, from the casing to within the frame. The sealing means can be in sliding sealing engagement with the frame and can be moved axially upwardly so that the upper end thereof is placed in sealing engagement with a sealing ring on the drum.

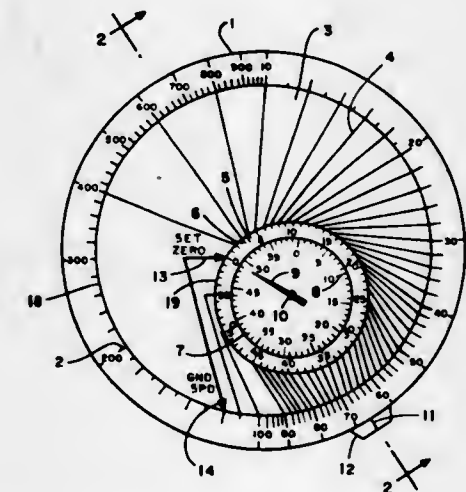
3,598,305
NUMBER-SETTING MECHANISM FOR A CALCULATING AND SUCH MACHINES
 Ettore Abbiati, Turin, Italy, assignor to Ing. C. Olivetti & Co., S.p.A., Ivrea, Turin, Italy
 Filed May 1, 1969, Ser. No. 820,769
 Claims priority, application Italy, May 4, 1968, 51532A68
 Int. Cl. G06c 29/00
 U.S. Cl. 235-60 TK



A number-setting mechanism for a calculating or like machine in which decimal numbers are entered comprising: a mechanical setting store with a plurality of decimal orders having in each order at least one settable member adapted to be set in a plurality of different positions, a pair of complementary stepped profiles adapted to be shifted variably according to the position which the settable member is to

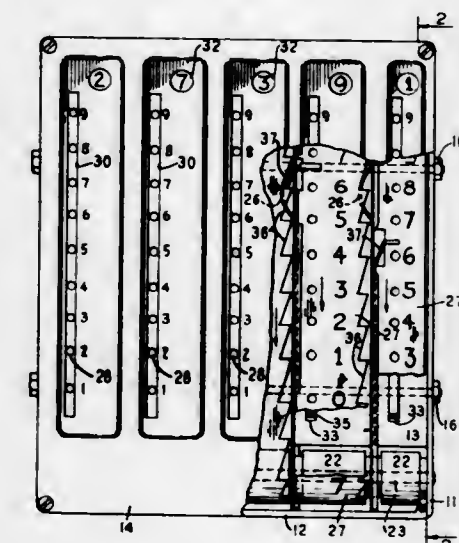
reach, a pair of reading elements for the stepped profiles movable for complementary strokes and two positioning members shiftable in opposite directions under the control of the reading elements to bring positively the settable member from any previously occupied position to the position to be reached, said stepped profiles being shifted under the control of at least an encoding device actuated by numerical keys.

3,598,306
TIME-SPEED-DISTANCE COMPUTER INSTRUMENT
 Thomas Lawrence Osborne, 5 Spring Valley Drive, Holmdel, N.J.
 Filed Feb. 2, 1970, Ser. No. 7,461
 Int. Cl. G04b 37/12; G06c 3/00
 U.S. Cl. 235-61 NV



A time-speed-distance computer instrument is described which uses coupled logarithmic and linear scales and a continuously indicating clock mechanism to allow computation of travel time, estimated time of arrival, actual time of arrival, speed, elapsed time, distance traveled, current time, and other associated quantities, without reference to any other instrument or use of mental arithmetic, and without restriction on the magnitude of the variables.

3,598,307
BELT-TYPE CALCULATOR WITH TRANSFER MECHANISM
 Harry A. Burgess, 41 Coleman Ave. West, Chatham, N.J.
 Filed Dec. 9, 1969, Ser. No. 883,572
 Int. Cl. G06c 15/26, 27/00
 U.S. Cl. 235-71 R



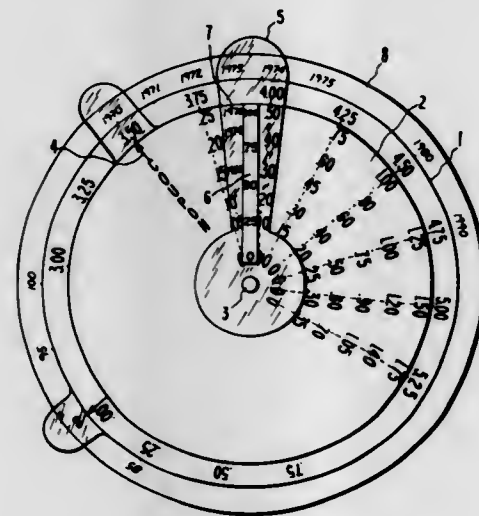
A belt-type adding machine has a transfer mechanism using teeth along the edge of a belt and a pawl on the ad-

10 Claims

10 Claims

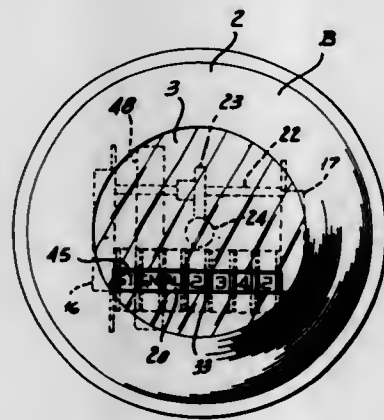
adjacent belt for engaging a tooth on every tenth step and moving the belt one tooth space. The pawl moves into position on the ninth step. If it rests there, the teeth are free to move past it if necessary, due to resilient mounting of the pawl.

3,598,308
MEANS FOR CALCULATING MARKET YIELD ON DISCOUNT BONDS
Anthony F. Garcia, Jr., 241 Polhemus, Atherton, Calif.
Filed Feb. 24, 1969, Ser. No. 801,298
Int. Cl. G06c 3/00
U.S. Cl. 235—88



Means for calculating market yield on discount bonds comprising a graduated scale of numbers indicative of interest rates and a numerical table mounted for relative movement with respect to said scale. The table comprises a plurality of diverse, numerical scales indicative of differences between coupon and basic yield interest rates. A cursor having an index comprising a graduated series of numbers indicative of percentages is mounted for relative movement with respect to the graduated scale and table.

3,598,309
HUBODOMETER WITH RESETTABLE SIGNAL
Charles H. Engler, Murray Hill, and Robert Fulvio, Secaucus, both of, N.J., assignors to Engler Instrument Company, Jersey City, N.J.
Filed June 10, 1970, Ser. No. 45,031
Int. Cl. G01c 22/00; G01d 21/00
U.S. Cl. 235—95 B



A closed casing adapted to be affixed to a rotatable element has a window and a registering mechanism inside the casing mounted to permit the casing to rotate around it having indicator wheels visible through said window, and drive

4 Claims

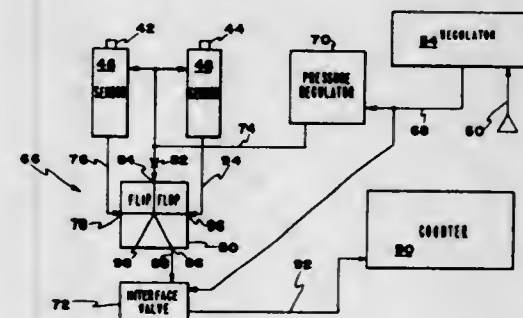
U.S. Cl. 235—201

10 Claims

means for said indicator wheels. A signal inside the casing is normally disposed in a first position and includes an element juxtaposed to said window and normally engaged with said drive means to move said signal in timed relation to the movement of said indicator wheels into a second signaling position. Said element is disengageable from said drive means by a force, for example, magnetism, applied externally of and through said window and is automatically reset to said normal first position.

3,598,310
COUNTING APPARATUS AND METHOD
Joseph P. Bingham, and Terry E. Nish, both of Salt Lake City, Utah, assignors to Servi-Tech Inc., Salt Lake City, Utah
Filed Sept. 18, 1969, Ser. No. 859,005
Int. Cl. G06m 7/04
U.S. Cl. 235—201

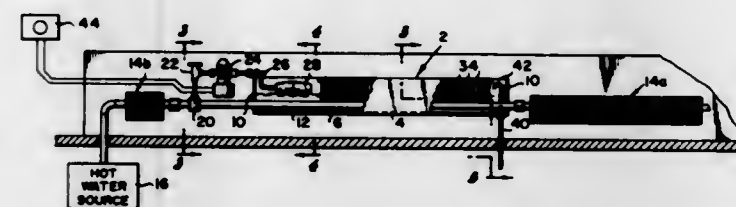
6 Claims



Spaced fluidic sensors serially sense relatively moving containers, the first sensor being actuated to direct fluid pressure to a counter and the second sensor being actuated to divert fluid pressure away from the counter. The counter registers one-half count in response to the fluid pressure and another one-half count when the pressure is removed.

3,598,311
HUMIDIFYING APPARATUS
Robert F. Lauffenburger, 726 Cobham Park Road, Warren, Pa., and Edmund H. Waszkiewicz, Eglin Air Force Base 5010 Civil Engineering Squad, APO Seattle, Wash.
Filed Sept. 26, 1969, Ser. No. 861,243
Int. Cl. F24f 3/14
U.S. Cl. 237—78

3 Claims

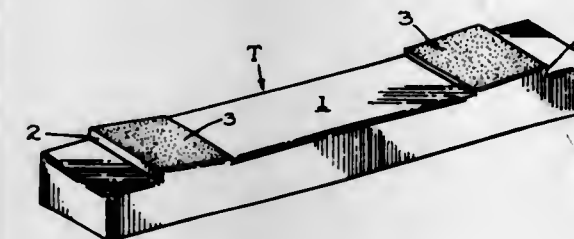


Humidifying apparatus for use in connection with a hot-water system such as a baseboard radiator system, characterized in that the means for supplying hot water to the hot water demand (i.e., load) includes a series-connected conduit section that extends longitudinally completely through an open-topped humidifying trough adjacent the bottom wall thereof. Means are provided for supplying liquid to a given level in the trough above the conduit section, and evaporator means supported by the sidewalls of the trough are partially submerged in the liquid, whereby the heat of the fluid supplied to the hot-water demand via the conduit section is used to heat the liquid in the trough for vaporization by said evaporator means. In accordance with one modification of the invention, the hot water demand comprises a first baseboard radiator element and the trough is arranged in heat exchange relationship vertically above an additional baseboard radiator element connected in parallel with the

first radiator element, whereby the heat of convection of the additional radiator element assists in heating the liquid in the humidifier trough.

3,598,312
SYNTHETIC CROSSTIE
William R. Hamilton, Jr., Naperville, Ill., assignor to Portec, Inc., Chicago, Ill.
Filed Dec. 16, 1968, Ser. No. 783,895
Int. Cl. E01b 3/10, 3/44
U.S. Cl. 238—29

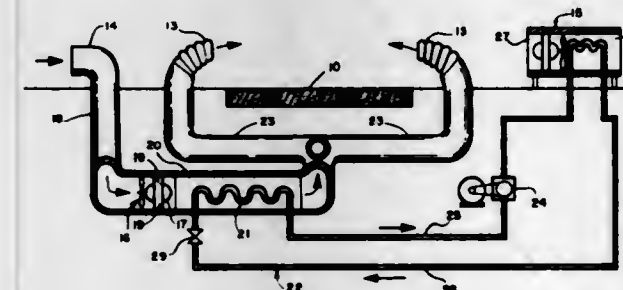
5 Claim



A synthetic crosstie for railway track having integral canted rail-supporting portions and also having cross-sectional shapes adapted to adequately embed themselves into the ballast while taking into account minimum interference with ballast-tamping apparatus.

3,598,313
FOG REMOVAL AND PREVENTION METHOD UTILIZING COOL DRY AIR
Milton Plattner, Silver Spring, Md., assignor to Fairchild Hiller Corporation, Montgomery County, Md.
Filed Oct. 28, 1969, Ser. No. 871,842
Int. Cl. E01n 13/00
U.S. Cl. 239—2 R

2 Claims



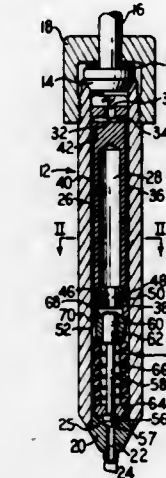
A method for removing or preventing fog that includes taking ambient air into the confined area of a cooling chamber and subjecting the air in the confined area to cooling to reduce the temperature of the air and injecting the air that has been subjected to temperature reduction into the atmosphere above the area that is to be cleared of fog.

3,598,314
ACCUMULATOR-TYPE INJECTION VALVE
John M. Bailey, Dunlap; Waldemar A. Staniek, and Donald J. Waldman, both of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Continuation of application Ser. No. 680,824, Nov. 6, 1967, now abandoned. This application Jan. 30, 1970, Ser. No. 7,200
Int. Cl. F02m 41/16
U.S. Cl. 239—96

19 Claims

An accumulator-type injector nozzle providing a case defining a valve chamber, an inwardly opening spring-loaded check valve being positioned within the chamber for controlling a fuel outlet, a sleeve defining a fuel accumulator chamber being positioned within the case to receive pres-

surized fuel having leaked behind the check valve, the sleeve also serving as an edge-type fuel filter, the sleeve further



serving to align the check valve with the outlet and to adjust the load on the valve spring.

3,598,315
FLEXIBLE SPARGERS IN APPARATUS FOR PRODUCING AMMONIUM PHOSPHATE FERTILIZERS
James E. Seymour, Virginia Beach, Va., assignor to Royster Company, Norfolk, Va.
Filed July 30, 1969, Ser. No. 846,072
Int. Cl. B05b 3/00
U.S. Cl. 239—229

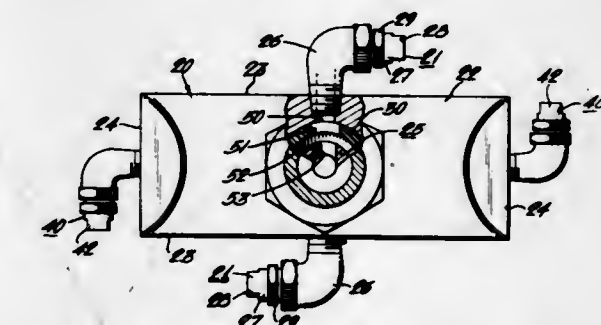
7 Claims



Flexible sparging devices for distributing ammoniating liquids in apparatus for manufacturing ammonium phosphate fertilizer compositions comprising flexible tubing or hose with multiple escape apertures in the walls thereof. The tubing or hose is closed at the end opposite the inlet and at least the inlet end is secured to a fixed support. Such flexible sparging devices provide infinite loci of distribution due to propulsive force of ammonia ejection and the propensity of such spargers to move from areas of higher to lower fluid density.

3,598,316
ROTARY FLUID-SPRAYER
Harold C. Johnson, 40 Linwood Ave., Ardmore, Pa.
Filed Feb. 25, 1970, Ser. No. 14,020
Int. Cl. B05b 3/06
U.S. Cl. 239—251

9 Claims



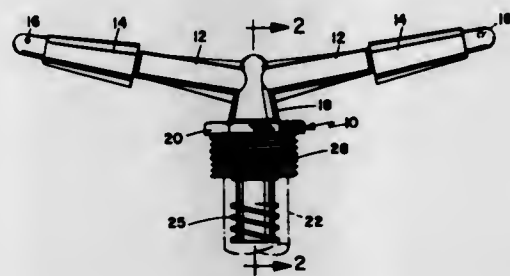
A rotary spray head is disclosed for effecting a washing action on inside surfaces of enclosures or for washing dust from gas or air streams. The head comprises a body mounted for

rotation on a spindle and driven by reaction forces created by the effluence of fluid from nozzles on the body. The rotational velocity of the body is controlled by means of control nozzles mounted on the body to issue fluid in a direction counter to the drive nozzles when a free ball mounted in a valve chamber is unseated by the action of centrifugal forces and fluid is discharged from the control nozzles. The rotational velocity of the body may be adjusted by varying the pressure of the fluid supplied to the head or by altering the dimensions of the nozzles and the ball.

3,598,317
ROTATABLE SPRINKLER ASSEMBLY
James C. Roberts, 1860 Jeffrey, Escondido, Calif.
Filed Feb. 27, 1970, Ser. No. 14,959
Int. Cl. B05b 3/06

U.S. Cl. 239—251

9 Claims

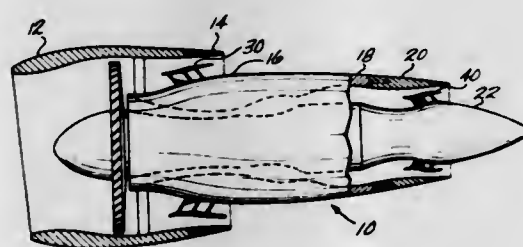


A sprinkler head that is rotated by liquid pressure passing through the head, which sprinkler head has a tubular support inserted in a tubular base for rotational movement on a bearing positioned therebetween. The tubular base has a disc positioned therein immediately adjacent the lower end of the tubular support, which disc has a small diameter hole. The lower end of the tubular support has an outer diameter slightly smaller than the inner diameter of the tubular base and with an internal diameter that is substantially larger than the hole through the disc. The liquid passing through the tubular base is projected up and through the channel in the tubular support and is restricted from passing between the tubular support and the tubular base, thereby restricting the depositing of impurities from the liquid into the bearing. The wall of the lower end of the tubular support has impeller means that upon rotation pulls liquid through the tubular support to the sprinkler head and pulls liquid away from the bearing.

3,598,318
MOVABLE ACOUSTIC SPLITTER FOR NOZZLE AREA CONTROL AND THRUST REVERSAL
Theodor J. Schiel, Cornelius, Oreg., assignor to The Boeing Company, Seattle, Wash.
Filed Apr. 10, 1970, Ser. No. 27,274
Int. Cl. B64d 33/04

U.S. Cl. 239—265.13

9 Claims



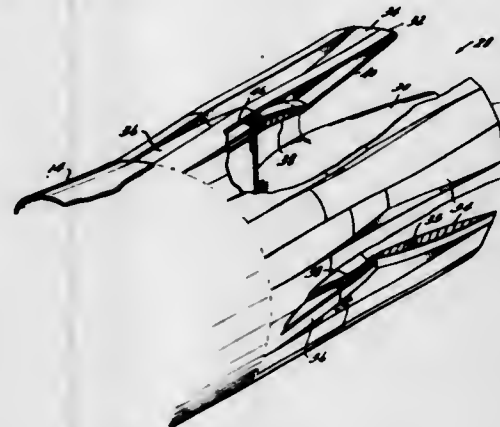
An aircraft engine nozzle foil means comprising a plurality of segmented foil members which are movable from a cruise or stowed position along a wall of the nozzle duct at the exit plane to a first position well forward of the exit plane within the duct to split the flow of acoustic attenuation and to increase the nozzle passageway exit plane area for low speed flight. The foil members are movable to a second operative

position wherein they block the nozzle flow to divert exhaust gases through a lateral passageway through the outer cowl which is opened by a translating aft portion of the cowl.

3,598,319
PROPULSION NOZZLES
Werner E. Howard, and Elmore Verne Sprunger, both of Cincinnati, Ohio, assignors to General Electric Co.
Filed July 14, 1969, Ser. No. 841,247
Int. Cl. B63h 11/10

U.S. Cl. 239—265.19

24 Claims

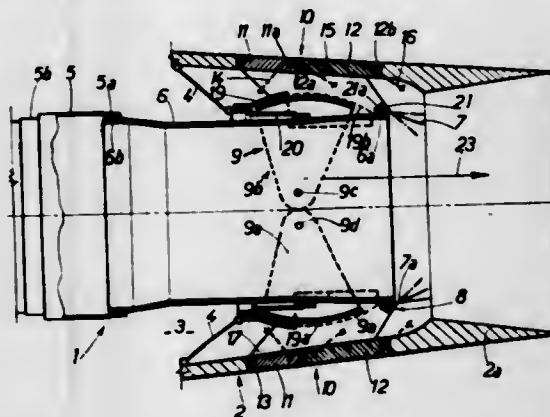


The disclosure shows a propulsion nozzle having angularly spaced afterbodies projecting downstream of the convergent portion of the nozzle. Secondary flaps are pivotally mounted between the afterbodies, forming, in combination therewith, a divergent nozzle portion for maximum supersonic exhaust gas velocities. The flaps are pivoted inwardly to aerodynamically reduce the nozzle exit area for reduced exhaust gas velocities, particularly for subsonic flight. The flaps may be pivoted further inwardly against a central plug to block rearward gas flow and produce reverse thrust. The pivotal mountings of the flaps form a structural hoop, and the actuators for the flaps are mounted within the afterbodies. Alternate forms of flaps and hoop means are shown as well as features of cooling air conservation.

3,598,320
NOZZLE DEVICE HAVING A REVERSE THRUST SYSTEM
Rene Babin, les Clayes-Sous-Bois; Andre Alphonse Mederic Leon Camboulives, Billancourt, and Jean Lucien Simonin, Issy-les-Moulineaux, all of, France, assignors to Societe Nationale D-Etude Et De Construction De Moteurs D'Aviation, Paris, France
Filed Dec. 15, 1969, Ser. No. 885,219
Claims priority, application France, Dec. 16, 1968, 178,414
Int. Cl. B64c 15/04

U.S. Cl. 239—265.25

7 Claims



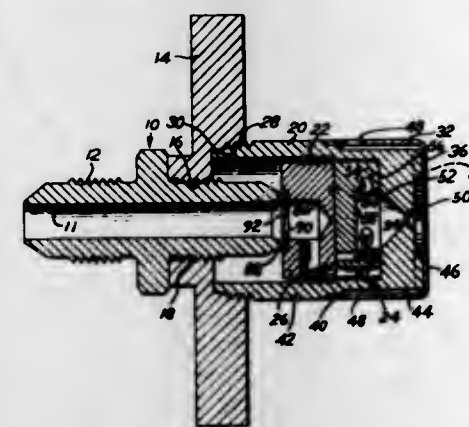
A jet engine nozzle device comprising a primary nozzle system, a fairing surrounding said primary nozzle system and defining in relation thereto an annular duct for flow of air, and a thrust-reversing system carried by the fairing and constituted by reverse thrust obstacles adapted to be displaced into an operative position in which they are disposed in the path of the hot gases flowing through said primary nozzle

system and thus deflect said gases towards openings distributed over the wall of the fairing, the primary nozzle system comprising at the rear a movable jet pipe section having a rear edge which is normally located to the rear of the thrust-reversing system, while means are provided to displace said movable jet pipe section forwardly in order to permit said obstacles to move into their positions for reverse thrust and deflect the hot gases towards said openings, which are associated with obturating elements which uncover them in the reverse thrust condition and form walls of ducts which channel the thus deflected hot gases across said annular duct.

3,598,321
LEAF SPRING NOZZLE FLOW CONTROL
Darrel G. Bobzin, West Des Moines, Iowa, assignor to Delavan Mfg. Co.
Filed Jan. 31, 1969, Ser. No. 795,642
Int. Cl. B05b 7/10

U.S. Cl. 239—400

18 Claims

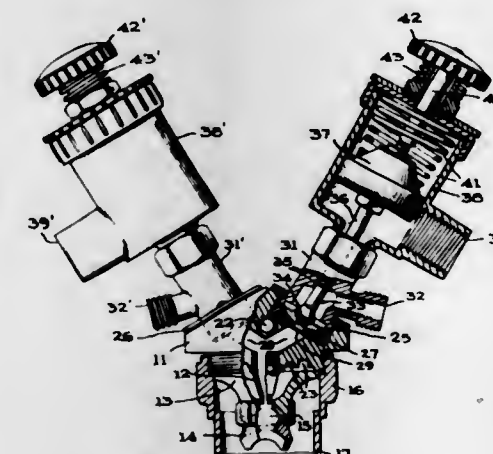


A leaf spring nozzle flow control which is positioned in the nozzle body controls the flow of fluid to a fixed restriction nozzle such that the flow varies substantially in direct linear relationship with the pressure of the fluid. The flow control includes a plate having a plurality of leaf spring valves which are biased by the fluid pressure from a first position in which flow to the nozzle is blocked to a second position in which the fluid flows to the nozzle when the pressure of the fluid exceeds a predetermined minimum magnitude as determined by the leaf spring.

3,598,322
TWO-MATERIAL SPRAY GUN
Frank M. Rupert, Alexandria; Frank E. Miller, Huntingdon; Wayne R. Mitchell, Huntingdon, and Frederick E. Coffman, State College, all of, Pa., assignors to Prismo Universal Corporation, Huntingdon, Pa.
Continuation of application Ser. No. 634,275, Apr. 27, 1967, now abandoned. This application Feb. 27, 1970, Ser. No. 15,272
Int. Cl. B05b 7/00

U.S. Cl. 239—410

6 Claims



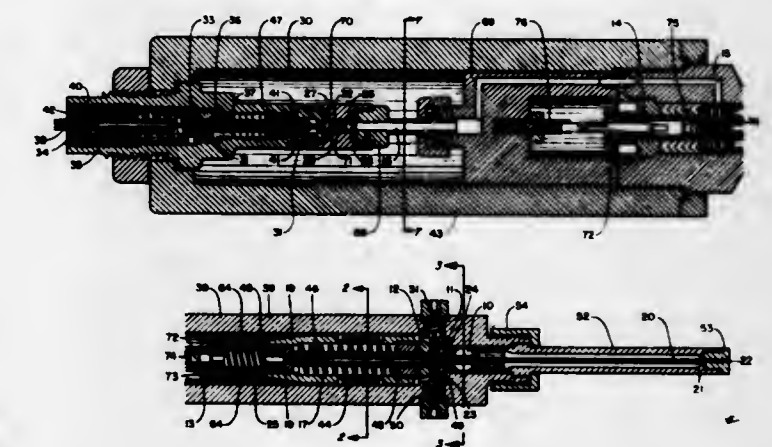
A spray gun for separately spraying two materials through the same fluid tip with the inputs controlled through separate

air-controlled needle-type valves mounted at angles to each other on the body of the spray gun assembly with an additional input to the assembly for the atomizing air.

3,598,323
PRESSURE ACCUMULATOR
Douglas Johnston, and Harold Scott Parker, both of Decatur, Ala., assignors to Continental Oil Company, Ponca City, Okla.
Filed July 22, 1969, Ser. No. 843,431
Int. Cl. B05b 1/30

U.S. Cl. 239—533

2 Claims

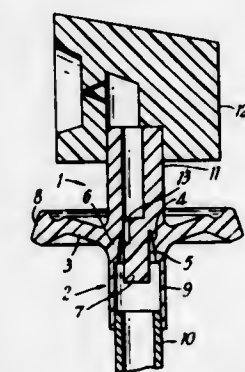


An ejector device is disclosed which receives liquid from a high-pressure source, accumulates the liquid until its volume is built up sufficiently to compress a portion thereof and, after taking up lost motion, a lifter spring, at which time a valve is snapped open to a detent position; when a predetermined volume of liquid has been discharged, a return spring snaps the valve shut to complete the cycle.

3,598,324
VALVE DEVICES
Richard Terence Macguire-Cooper, Navron House, St. Helens Ave., Benson, Oxfordshire, England
Filed Feb. 19, 1969, Ser. No. 800,402
Claims priority, application Great Britain, Feb. 19, 1968, May 14, 1968, 7913/68; 22733/68
Int. Cl. B05b 1/32

U.S. Cl. 239—541

18 Claims



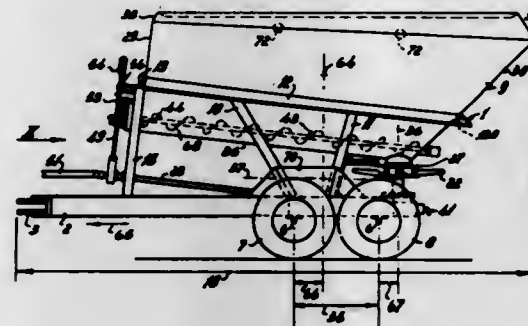
An aerosol valve device which is a single moulding including opposed, preferably annular, walls relatively movable from an abutting, valve closure, position to a position in which the valve device is open by applying a deforming force

to the moulding, the moulding also including a dip-tube or provision for the attachment of a dip-tube and a nozzle or provision for the attachment of a nozzle.

3,598,325
IMPLEMENTS FOR THE SPREADING OF MATERIALS OVER THE GROUND

Cornelis Van der Lely, Bruchsehl 7, Zug, Switzerland
Continuation of application Ser. No. 609,880, Jan. 17, 1967, now abandoned. This application Sept. 26, 1969, Ser. No. 861,516

Int. Cl. A01c 17/00
U.S. Cl. 239—665

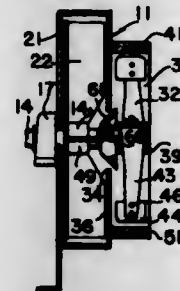


This invention relates to implements for the spreading of materials over the ground, such implements being of the kind comprising a frame supported by rotatable ground wheels, a hopper or other container for material to be spread and a distributor rotatable about a substantially vertical axis.

The distributor is located beneath the hopper but above the wheels so that material can be spread unimpeded laterally of the implement. An agitator in the hopper can be adjusted to move varying amounts of material towards the distributor. The distributor can be adjusted to vary the amount and direction of the material being spread.

3,598,326
ORE GRINDING MECHANISM AND METHOD
Linus E. Pennell, 1341 Lamar St., Denver, Colo., and Harvey H. Onstott, 4801 E. 23rd Ave., Denver, Colo.
Filed Jan. 21, 1969, Ser. No. 792,453
Int. Cl. B02c 13/09, 13/288

U.S. Cl. 241—19



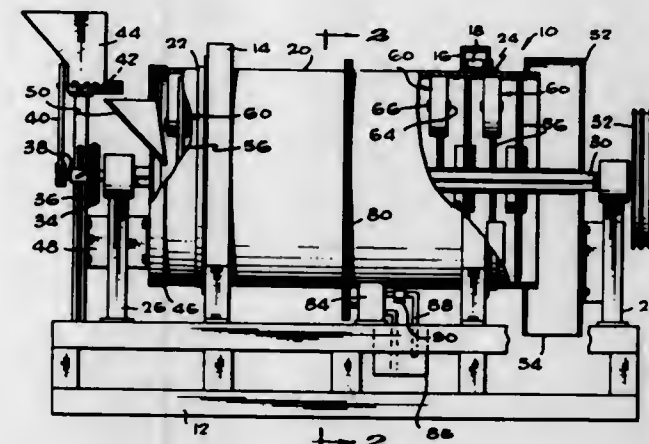
A mechanism for reducing the size range of solid materials utilizing a motor powered impeller having a plurality of blades rotating within a chamber into which the solid materials are introduced for impact contact with the blades and wear plates disposed thereon. A surface of said chamber is covered with resilient material of substantial thickness with the clearance between said blades and plates and said resilient element being less than the initial size of the largest solid particles introduced. Reduced materials of regulated size as determined by adjustable exit passages are conveyed out of the mechanism by a fan unit. A method for the impact grinding of solids materials utilizing a resilient surface and an impacting element moving at relatively high speed past such surface and disposed at contact angles assuring interaction of impelled particles and the resilient surface.

3,598,327
ROLLER MILL
John G. Brandes, 12160 Youngdale Ave., San Fernando, Calif.

Filed Mar. 20, 1969, Ser. No. 808,856
Int. Cl. B02c 15/08

U.S. Cl. 241—33

8 Claims



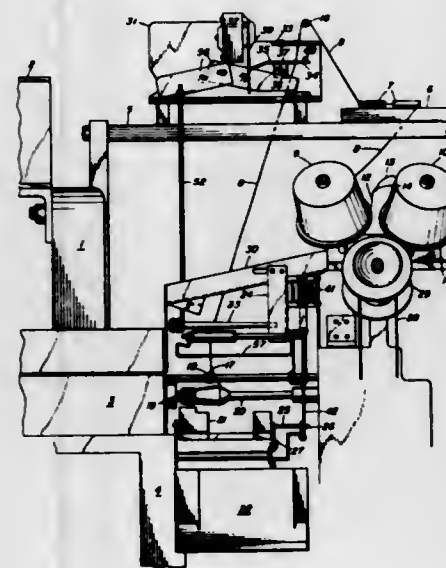
The roller mill is principally useful as a crushing device for geologic material. The main central shaft is power rotated and carries a plurality of spaced discs rotating therewith. Arms swingably mounted on the discs carry rotatable crushing rollers. The discs and crushing rollers are surrounded by a rotatable shell or drum. Drum speed is controlled by a hydraulic pump which incorporates flow control to limit drum speed. Geologic material, such as ore, is broken to a manageable size and is fed into one end of the drum. Airflow or waterflow controls material flow rate through the drum and the central shaft speed controls the fineness of grinding as the crushing rollers are centrifugally engaged on the geologic material against the inner drum surface.

3,598,328
KNOT DETECTING AND REJECTING ATTACHMENTS FOR UNIFIL-TYPE BOBBIN WINDING MACHINES
Albert Joseph Richards, and Henry Eugene Gaillardetz, both of Lowell, Mass., assignors to J. P. Stevens & Co., Inc., New York, N.Y.

Filed Mar. 19, 1970, Ser. No. 21,087
Int. Cl. B65h 54/14, 63/06

U.S. Cl. 242—28

4 Claims



A bobbin-winding machine for automatic bobbin change looms of the "Unifil" type winds bobbins from a series of yarn packages, the end of one package being tied to the beginning of another so that winding continues without inter-

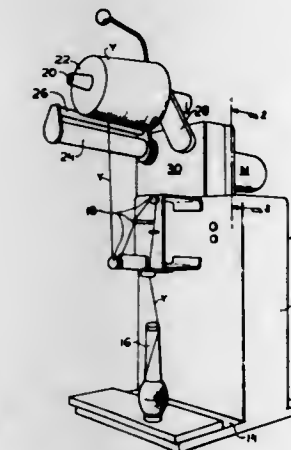
ruption. Wound bobbins are doffed when full by a doffing cycle, which stops winding, transfers the wound bobbin through a guide track into a magazine, cuts threads, and at the end of the cycle restarts winding. Knots are avoided by passing the yarn through an opening, such as a slot, large enough to pass yarn but smaller than a knot, so that when a knot passes the plate having the opening trips actuating switches to start a doffing cycle even though a bobbin is not completely wound and includes tilting of the guide track so that bobbins containing knots are fed into a separate magazine, from which they can be removed by hand, the knot cut off, and the bobbin introduced into the main magazine with the other wound bobbins. The end of the doffing cycle actuates the switches and resets the trip plate with its opening for yarn.

3,598,329
SPEED CONTROL MECHANISM FOR STRAND WINDING APPARATUS
Richard J. Savageau, Seneca, and Richard R. Pierce, Easley, both of S.C., assignors to Maremont Corporation, Chicago, Ill.

Filed Oct. 15, 1969, Ser. No. 866,779
Int. Cl. B65h 59/38

U.S. Cl. 242—45

1 Claim



A mechanism for selectively controlling the speed of a precision yarn winder or other strand winding apparatus so as to alternatively realize during a winding operation either constant yarn speed or constant takeup spindle speed, or constant spindle speed during any desired initial part of the operation and constant yarn speed during the remainder thereof. The mechanism also permits automatic termination of the winding operation when desired. The mechanism includes a drive-motor control circuit having a first subcircuit and second subcircuit alternately connectable with the variable speed drive motor of the winding apparatus. The first subcircuit includes a variable resistor and another resistor arranged in parallel relationship. During a winding operation, a mechanical linkage increases the resistance of the variable resistor in response to the increasing diameter of the strand package being formed upon the takeup spindle. When the first subcircuit is connected to the drive motor, the resulting increase in its effective resistance decreases the speed of the drive motor and therefore of the takeup spindle hyperbolically in relation to the increasing package diameter, so that constant strand speed is maintained. The second subcircuit is employed, either throughout a winding operation or during only an initial part thereof, when constant speed of the takeup spindle is desired.

3,598,330
RECORD MEDIUM HANDLING APPARATUS
Paul O. Gotschewski, Glenview, Ill., assignor to SCM Corporation, New York, N.Y.

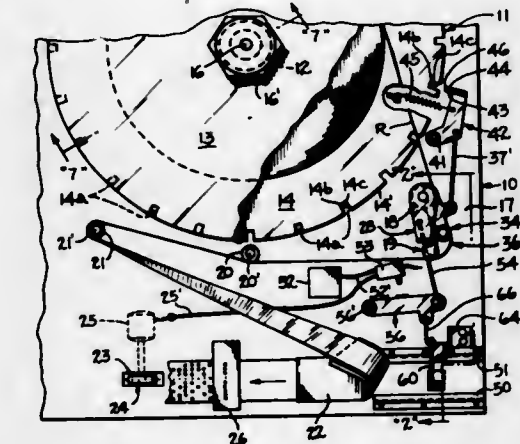
Filed Feb. 14, 1969, Ser. No. 799,310
Int. Cl. B65h 75/02

U.S. Cl. 242—55

11 Claims

There is disclosed record medium handling apparatus including a record medium supply reel, record feeding ap-

paratus for drawing record medium off the supply reel through a first path, a device for preventing rotation of the supply reel while slack exists in the record medium in the first path, a second and alternate path through which a

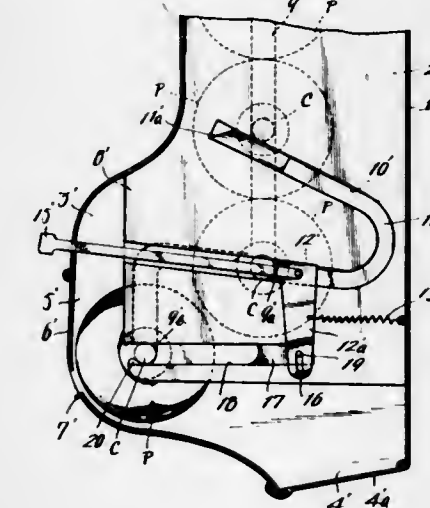


record medium can be drawn by the record feeding means, and an alarm and/or means for interrupting record medium feed operable when there is no record medium in at least one of the first and second paths, or when a tight-tape condition exists.

3,598,331
TOILET PAPER HOLDING DEVICE
Tadasu Okamura, No. 79, 2-Chome, Honcho, Kawaguchi, Saitama, Japan
Filed Dec. 17, 1969, Ser. No. 885,693
Int. Cl. B65h 19/04

U.S. Cl. 242—55.3

2 Claims



A toilet paper holding device comprising a housing, a pair of spaced guide members each having a paper roll core guide groove on the inner side and at least one pusher guide groove on the outer side, an elastic pusher member slidably received in said pusher guide groove, an elastic weir slidably received in said pusher guide groove and connected to said pusher member for movement together with the latter, said weir having a through bore adapted to communicate with said core guide groove, and a manual operation member connected to said pusher member for moving said through bore of the weir into and out of communication with the core guide groove whereby the core of a paper roll which is retained by the weir is freed from the holding action of the weir and fed into a service chamber and the core is retained by the weir.

3,598,332

WEB-SUPPORTING ROLLER ASSEMBLY

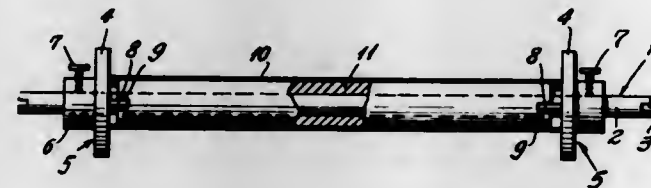
Melvin Sharkey, 1614 Hereford Road, Hewlett, Long Island, N.Y.

Filed Feb. 5, 1969, Ser. No. 796,654

Int. Cl. B65h 75/14

U.S. Cl. 242-71.8

5 Claims U.S. Cl. 242-84.41



Web-supporting roller assembly adapted to support a wide web of sheet material in perfect edge alignment for transport through web-processing equipment. The roller assembly comprises a central shaft, a web-supporting cylindrical tube thereon, flanges adapted to make locking engagement with each end of said tube and with said shaft. The web on said tube is greater in width than said tube and the flanges are greater in diameter than said tube so that the web, in loosely-wound form, can be tapped into perfect edge alignment on the tube by the flanges which can then be locked to said tube and said shaft to secure the web for transport through the apparatus.

3,598,333

APPARATUS FOR WINDING WASTE MATERIAL

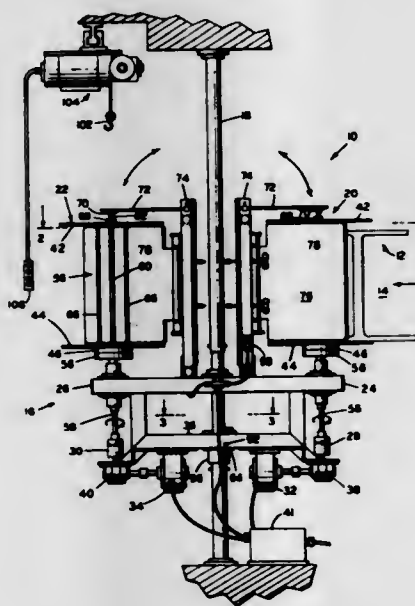
James F. Beeman, and Glenn H. Roberts, both of Towanda, Pa., assignors to Sylvania Electric Products Inc.

Filed June 24, 1969, Ser. No. 836,035

Int. Cl. B21c 47/02, 47/06

U.S. Cl. 242-78.1

2 Claims



A pair of torque motor driven, constant tension, spools is provided on a rotatable table to receive waste material from a continuously operating line. A first one of the spools, which have demountable cores, is positioned to receive waste material and is wound until full. Thereafter, the table is rotated 180° to position a second spool to receive the waste material. Subsequently, the first wound spool is removed, the coiled waste material is emptied from the spool and the spool is then replaced on the table. Thus the waste material is handled without the necessity of stopping the continuously moving line.

3,598,334

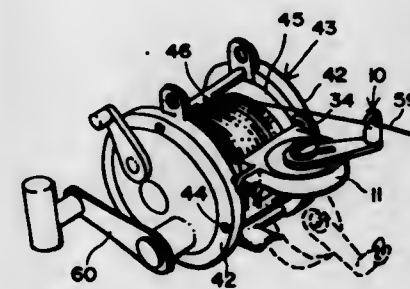
LEVEL WIND GUIDE ATTACHMENT FOR FISHING REELS

Oscar Fleischer, 2610 S.W. 21st St., Miami, Fla.

Filed Jan. 20, 1970, Ser. No. 4,216

Int. Cl. A01k 89/04

6 Claims



A level wind guide attachment for fishing reels having a support adapted to be pivotally secured between the end housings of the fishing reel with a gear housing mounted on the support. Within the housing are a gear and a worm gear in mesh engagement with each other, the worm gear being mounted on a shaft that extends beyond the housing and having a spring-loaded friction wheel mounted thereon. The friction wheel is adapted to engage and rotate with one of the flanges of the line-receiving spool which causes the rotation of the gear and an arm attached thereto at whose end is swiveled eyelet through which the fishing line extends and upon the revolving of the arm during the winding action of the fishing line, the latter is placed evenly on the spool.

3,598,335

SEATBELT RETRACTOR

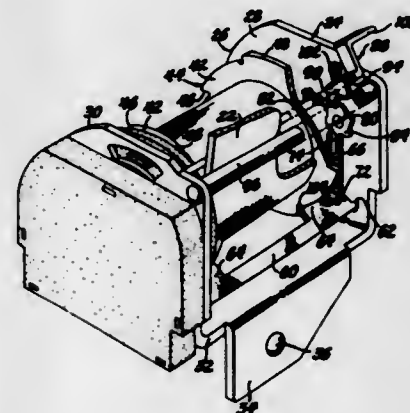
Gerald Seeger, Farmington, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 27, 1970, Ser. No. 23,412

Int. Cl. B65h 75/48

U.S. Cl. 242-107.2

7 Claims



An automatic retractor of the self-locking type includes a pawl movable into and out of engagement with ratchet shoulders on the end plate of the reel to selectively lock and unlock the reel against movement in an extending direction. A slide is engageable by the pawl each time that the pawl is engaged with the ratchet shoulders to control the rotation of a lobed cam wheel. The cam wheel is engageable with successive lobes of a locking member to move the locking member from either clamped or unclamped position toward the other position. An overcenter spring controls the final movement of the clamping member from a point intermediate either position to the other.

3,598,336

SEATBELT RETRACTOR

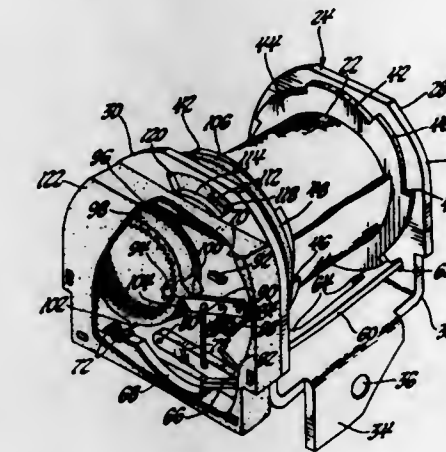
George Edward Frost, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 7, 1970, Ser. No. 1,197

Int. Cl. B65h 75/48

U.S. Cl. 242-107.4

7 Claims



An automatic locking seatbelt retractor includes a rotatable reel biased in a belt retracting direction and having its end plates provided by circular peripherally toothed like ratchet members engageable by a rotatable spring biased pawl to block movement of the reel in an extending direction. A rotatable cam plate frictionally driven by the reel between two limit positions includes two spaced peripheral shoulders. Each shoulder is engageable with the pawl in alternate limit positions to hold the pawl out of engagement with the teeth of the ratchet members. A pivoted blocking lever is movable between blocking and unblocking positions with respect to the pawl. A pivoted control lever is linked to the blocking lever and biased to either of two positions by an overcenter torsion spring. A reel-driven ring gear includes peripherally spaced abutments engageable with the control lever. When the reel is in a fully belt-retracted position, the cam plate is in one limit position and the blocking lever is in blocking position. One of the cam plate abutments and the blocking lever engage the pawl to hold the pawl out of engagement with the teeth of the ratchet members. When the reel is rotated in a belt-extending direction and a predetermined length of belt is extended, the cam plate is frictionally driven to the other limit position and the other abutment of the cam plate engages the pawl. An abutment of the ring gear engages and then passes the control lever to move the control lever from one position to the other and in turn move the blocking member from blocking to unblocking position. Upon slight retraction and then extension of the belt after buckled to another belt to form a belt assembly, the cam plate is rotated toward the one limit position and the other abutment of the cam plate thereupon moves out of engagement with the pawl. The pawl is then spring biased into engagement with like teeth of the ratchet members and prevents further extension of the belt. As the belt is retracted, the cam plate is moved to the one limit position and the one plate abutment engages the pawl to hold it out of engagement with the ratchet members. The one abutment of the ring gear passes the control lever, and the other abutment of the ring gear engages the control lever immediately adjacent the fully retracted position of the belt to move the control lever to the one position and move the blocking lever to blocking position.

3,598,337

TAPE WINDING MACHINE

John Kay Pringle Mackie, Belfast, Northern Ireland, assignor to James Mackie & Sons Limited, Belfast, Northern Ireland

Filed Oct. 31, 1968, Ser. No. 772,088

Claims priority, application Great Britain, Nov. 2, 1967, 49818/67

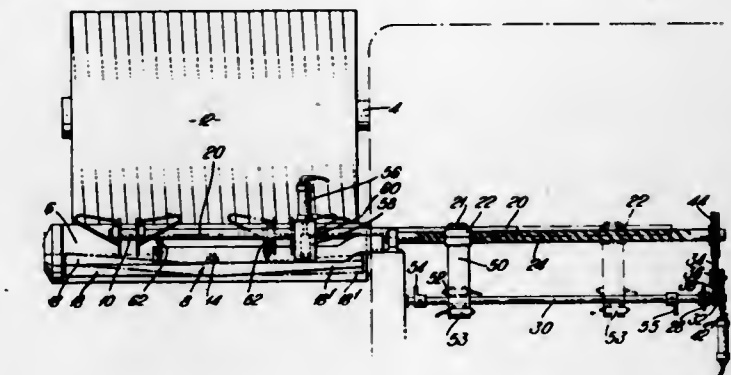
Int. Cl. B65h 54/28

U.S. Cl. 242-158 R

7 Claims

The provision winding machine for tape includes a takeup spindle on which the tape from a letoff source is wound, a

reciprocating traverse guide having sidewalls for guiding the tape in passing to the takeup spindle, a tape guide bar movably positioned in the tape path leading from the letoff source, and means for altering the relative positions between the tape guide bar and the takeup spindle during winding to



assist the tape to move with the traverse guide away from its natural straight line path on the outward strokes, and to retard the movement of the tape back towards the natural straight line path on the return strokes, thereby preventing the tape from being crushed against the sidewalls of the traverse guide.

3,598,338

FILAMENT LAYER ALIGNING DEVICE

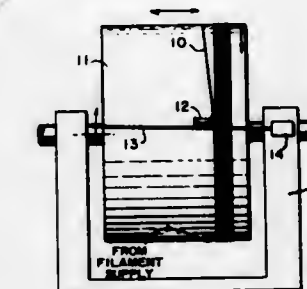
Anatoli Brushenko, Du Page County, Ill.

Filed Dec. 6, 1968, Ser. No. 781,739

Int. Cl. B65h 75/00, 57/00

U.S. Cl. 242-158

1 Claim



This invention relates to a technique and device for accurately aligning filaments of varying size that are wound on a drum and is particularly useful in winding glass filaments for optical use. As the filamentary material is wound on a rotating steel drum, it is held in place next to the preceding winding by means of a magnetically coupled rider whose contacting surfaces are made of materials having low sliding friction. The rider is prevented from rotating with the drum by means of a rod positioned axially with respect to the rotating steel drum. The force with which the rider presses against the preceding winding or layer may be controlled by an electromagnet in the rider or by varying the alignment of the rod with respect to the axis of the steel drum.

3,598,339

TAPE CASSETTE FOR USE IN TAPE RECORDERS

Shoichi Saito, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Feb. 4, 1969, Ser. No. 796,470

Claims priority, application Japan, Feb. 5, 1968, Feb. 9, 1968, Feb. 9, 1968, June 29, 1968, 43/7778;43/8947;43/8948;43/54796

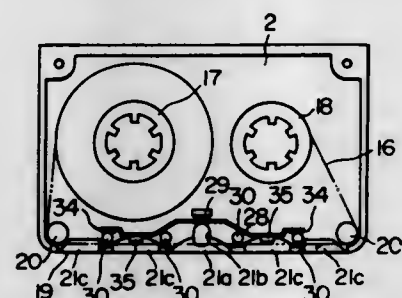
Int. Cl. G11b 23/10; B65h 27/00

U.S. Cl. 242-199

7 Claims

A tape cassette for use in tape recorders comprises a casing formed by two upper and lower half portions and three guide pins adapted to be engaged with the lower half portion. A faceplate covers each of the portions, and a plurality of recesses are formed in the portions and are covered by the

faceplate. A leaf spring and guide rollers are mounted in the cassette for guidably engaging the tape. These members are caused to cooperate with each other such that locking and releasing operation of the cassettes can be simply made whereas a pinch roller and heads each having a comparative-

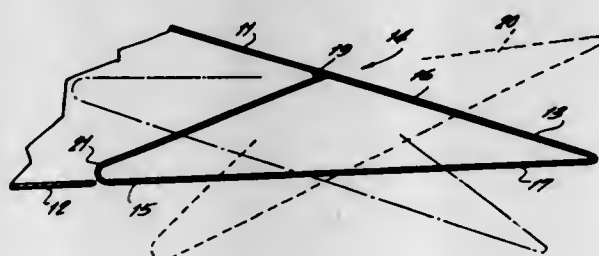


ly large width can be used within a casing which is extremely thin in thickness, and also the tape can be urged against the heads with a constant pressure and that portion of the tape which is located between the two guide rollers can be maintained under tension.

3,598,340
AIRPLANEAILERON SYSTEM
David B. Thurston, Springvale, Maine, assignor to Thurston Aircraft Corporation, Sanford, Maine
Filed Oct. 8, 1969, Ser. No. 864,626
Int. Cl. B64c 5/08

U.S. Cl. 244-90

4 Claims

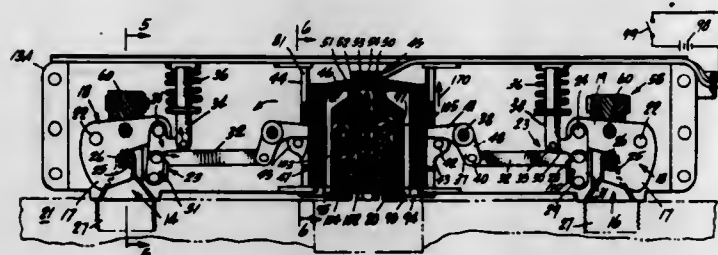


The ailerons of an airplane are specially designed to permit better control of the aircraft. The aileron is provided with an integral or attached extension portion which moves, below the wing, in coordination with the movement of the aileron.

3,598,341
AIRCRAFT STORE CARRIER
Emmett T. La Roe, Los Angeles, and Jess W. Lockhart, Torrance, both of Calif., assignors to McDonnell Douglas Corporation
Filed Aug. 26, 1968, Ser. No. 755,030
Int. Cl. B64d 1/02

U.S. Cl. 244-118

7 Claims



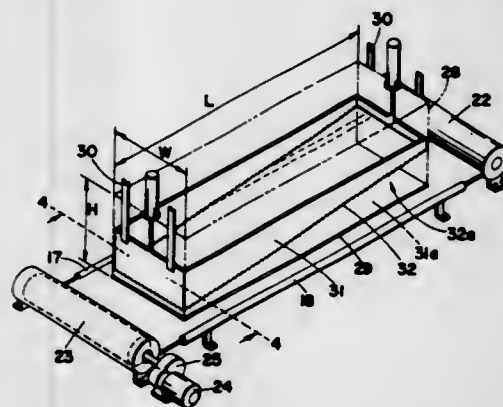
A store carrier supports a store from two store lugs. The store is supported from a substantially central point with one end of each of a pair of hooks being pivotally mounted to a carrying vehicle such as an aircraft, and the other end of each hook being linked to a latch means. A reaction force

necessary to activate the hooks is related to a downward force applied thereto by the store. Clamps are provided at each suspension hook to urge each store lug against a portion of the vehicle structure to eliminate sway in the store. A thruster means is positioned adjacent the store to impart downward force to the store when released from the suspension hooks. Propellant means are provided for unlocking the latch of each hook, to activate the suspension hooks and the thruster means.

3,598,342
RELEASE DEVICE FOR WATER BOMBING FROM AIRCRAFT
John K. Hawkshaw, Brampton, Ontario, Canada, assignor to Field Aviation Company Limited
Filed Apr. 14, 1969, Ser. No. 815,834
Int. Cl. B64d 1/16

U.S. Cl. 244-136

6 Claims

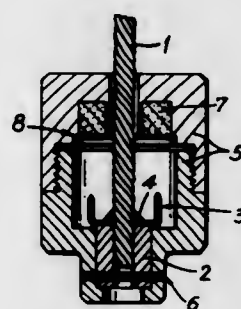


The specification describes a method and apparatus for releasing a water bomb from an aircraft by means of which water is released progressively by a separable support in such manner as to provide a controllable water bomb mass adapted for different bombing requirements.

3,598,343
PYROTECHNIC DEVICE FOR RELEASE OF PARACHUTE CENTRAL SHROUD
Eugene Robert Gencey, Bourges, France, assignor to Etat Français DMA Direction Technique Des Armements Terrestres, Saint Claud, France
Filed Dec. 19, 1969, Ser. No. 886,702
Claims priority, application France, Dec. 19, 1968, 179,259
Int. Cl. B64d 17/38

U.S. Cl. 244-152

9 Claims

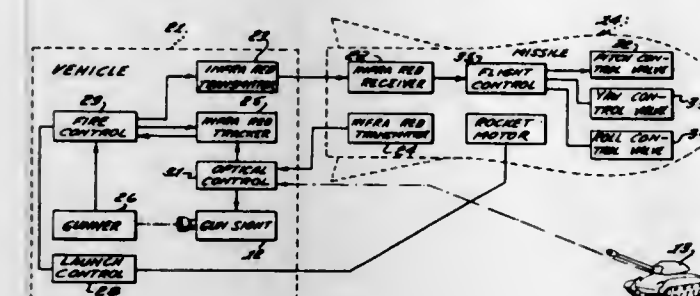


A pyrotechnic device for releasing the central shroud of parachutes. The central shroud is soldered to a knockoff ring held in place by a low-tensile retaining pin. The solder also supports a pronged firing pin in front of which is a priming compound, preferably slightly gaseous, which ignites through impact and friction and is able to melt the solder. The priming compound may be composed of a mixture of zirconium and lead chromate.

3,598,344
MISSILE COMMAND SYSTEM
Louis G. Walters, Santa Ana; Carl H. Smith, Newport Beach, and Robert Grossman, Santa Ana, all of Calif., assignors to Philco Ford Corporation, Dearborn, Mich.
Continuation of application Ser. No. 371,715, June 1, 1964, now abandoned. This application Feb. 2, 1968, Ser. No. 707,355

U.S. Cl. 244-3.11

4 Claims



A command-type guided missile system wherein a gunner launches a missile and guides it during flight solely by maintaining the cross hairs of his sight reticle trained on the target. A source on the missile emits, rearwardly to the command station, modulated (coded) infrared (IR) light. Visible light from the target and IR light from the source are received at the command station through a common optical system. A beam splitter then sends the visible light to the gunner's sight and sends the IR light through a nutator to a quadrant-type IR detector, which is coupled to the gunner's sight so that the axis of symmetry thereof is always aligned on target. Error signals from the detector indicate the direction of deviation of the image of the source from the axis of the detector and hence the direction of deviation of the missile from the gunner's line of sight to the target. A transmitter, responsive to the error signals, sends modulated IR control signals to the missile to correct its flight path.

3,598,345
ROCKET WITH FOLDING FINS AND BRAKING DEVICE
Xaver Suter, Ruschlikon, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland
Filed Sept. 6, 1968, Ser. No. 758,067
Claims priority, application Switzerland, Sept. 6, 1967, 12471
Int. Cl. F42b 13/32

U.S. Cl. 244-3.27

6 Claims



Rocket having a nozzle body with a unit of folding fins arranged around the body. Means are provided for swinging the fins out of a normal position into an operating position. A braking device varies the flight path of said rocket and has

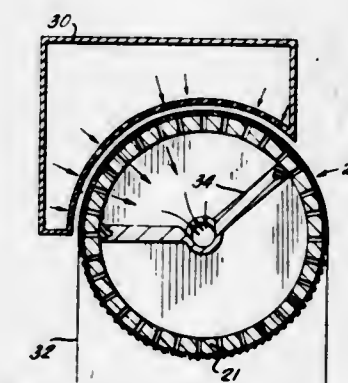
swiveling flaps which in the normal position of the fins are located between the fins and the nozzle body in an inactive position. When the rocket is launched the forces that come into action swing the flaps into a braking position. Latch members cooperate with the flaps and are displaced by the fins to release the flaps.

3,598,346
APPARATUS FOR DRYING
John Gordon Buchanan, Pointe Claire, Quebec, Canada, assignor to JWI Ltd., Montreal, Quebec, Canada
Filed July 24, 1969, Ser. No. 844,331
Claims priority, application Great Britain, July 31, 1968, 36557/68

U.S. Cl. 245-8

Int. Cl. B21f 27/18

10 Claims

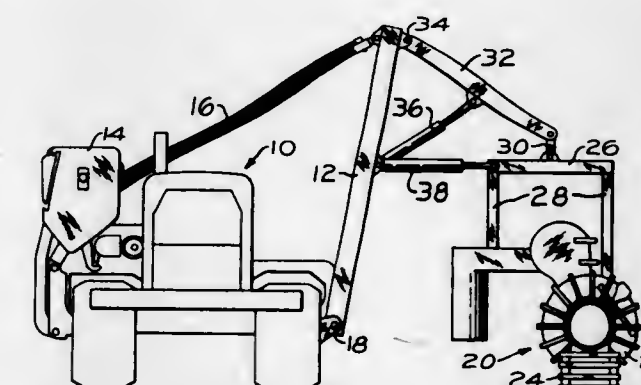


A woven wire cloth for forming the surface of a drier drum and composed of warp and weft strands of 0.003- to 0.015-inch diameter and having a projected open area of 10 to 40 percent with the strands being made of a metal alloy having a mean coefficient of expansion of less than 2×10^{-6} inches/inch/ $^{\circ}$ F. in a temperature range of 0° F. to 400° F.

3,598,347
APPARATUS FOR SUPPORTING AND POSITIONING PIPE WELDERS
Lloyd J. Marburger, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Oct. 7, 1969, Ser. No. 864,356
Int. Cl. B66c 23/54

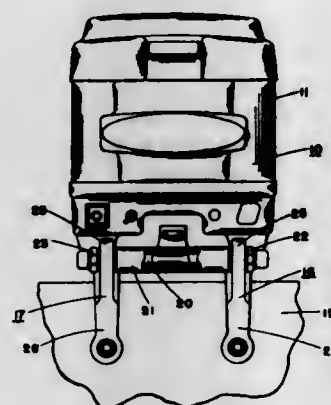
U.S. Cl. 248-2

1 Claim



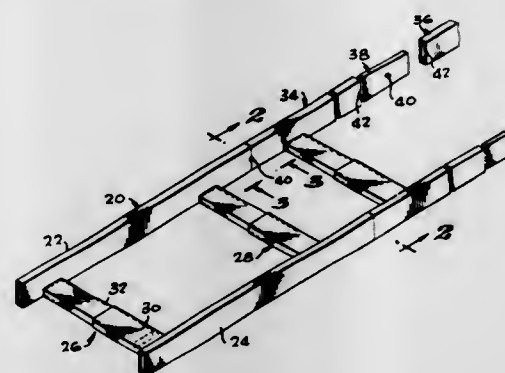
A tractor-mounted support for a pipe-welding device which comprises a boom on the tractor, a frame supported by the boom and supporting the welder and adjusting means between the boom and the frame to position the welder precisely with respect to the pipe to be welded.

3,598,348
CLAMP BRACKET FOR OUTBOARD MOTOR
 Elmer Carl Klekhafer, Winter Haven, Fla., assignor to Brunswick Corporation, Chicago, Ill.
 Filed Dec. 5, 1969, Ser. No. 882,490
 Int. Cl. B63h 21/26
 U.S. Cl. 248-4 8 Claims



A clamp bracket for mounting an outboard motor on the transom of a boat, the bracket has two inverted U-shaped clamp members connected by pivot pin. The inside leg of each clamp member is resiliently biased toward an open position to facilitate mounting the motor on transoms of varying thicknesses. The legs of each clamp member are clamped into bearing engagement with the transom by means of an interconnecting clamp screw.

3,598,349
CABLE TROUGH
 King B. Drake, Los Angeles, Calif., assignor to Dracon Industries, Chatsworth, Calif.
 Filed Nov. 13, 1969, Ser. No. 876,480
 Int. Cl. H02g 3/04; F16l 3/22
 U.S. Cl. 248-49 9 Claims

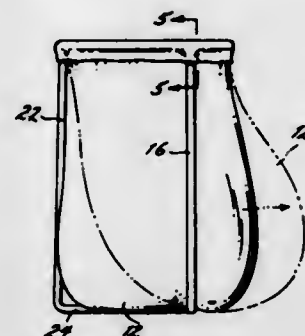


A cable trough comprising hollow side rails and hollow crossbars, both rectangular in configuration, with the crossbars being edgewise arranged in the longitudinal direction of the side rails. One side surface of each of the crossbars is substantially flush with one edge of each of side rails so that a trough is formed on top of the crossbars and between the side rails. The crossbars may be telescoping for width adjustment. The side rails may be endwise joined with similar side rails by means of a connecting bar positioned within the hollow structure.

3,598,350
BAG HOLDER
 Charles W. Kaufman, Wyncote, Pa., assignor to Westmoreland Mfg. Co., Philadelphia, Pa.
 Filed July 30, 1969, Ser. No. 846,098
 Int. Cl. B65b 67/12
 U.S. Cl. 248-97 3 Claims

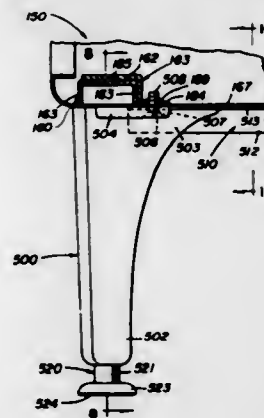
A support for retaining a flexible bag in an open position is disclosed. The support includes three legs which are joined

together at a common juncture and an upper frame member which defines an opening having dimensions approximately



equal to the peripheral dimensions of the flexible bag. Two of the legs of the support define a discharge portal through which filled bags can be easily removed.

3,598,351
PEDESTAL AND LEG CONSTRUCTION
 Kenneth D. Schreyer, Doylestown, Pa., assignor to Lyon Metal Products, Inc., Aurora, Ill.
 Division of Ser. No. 635,939, Apr. 5, 1967, abandoned, which is a division of Ser. No. 503,157, Oct. 23, 1965, Pat. No. 3,363,955. Filed Jan. 17, 1969, Ser. No. 835,825
 Int. Cl. A47b 13/02
 U.S. Cl. 248-188.4 7 Claims

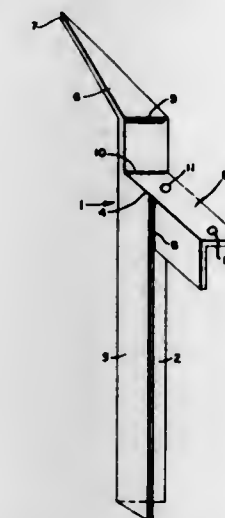


The present invention is directed to a furniture leg construction comprising an upstanding body having a lower end and a substantially rearwardly extending elongated upper end, a substantially cylindrical recess in the lower end of the body and having threads formed on the inner periphery thereof, a pair of outwardly extending wings on the upper end of the body and disposed toward the forward edge thereof, the upper end having a channel-receiving notch in the rear portion thereof and extending forwardly and into at least a portion of the wings, the portion of each of the wings with the notch therein having an opening therein for receiving mounting fasteners therethrough, and a foot having an integral shank extending upwardly therefrom and carrying an integral molded threaded portion engaging the threads in the body.

3,598,352
APPARATUS TO FACILITATE LAYING OF BRICKS
 Irvin H. Harris, Route 2, Bumpass, Va.
 Filed Dec. 6, 1968, Ser. No. 781,798
 Int. Cl. E04g 3/00
 U.S. Cl. 248-235 5 Claims

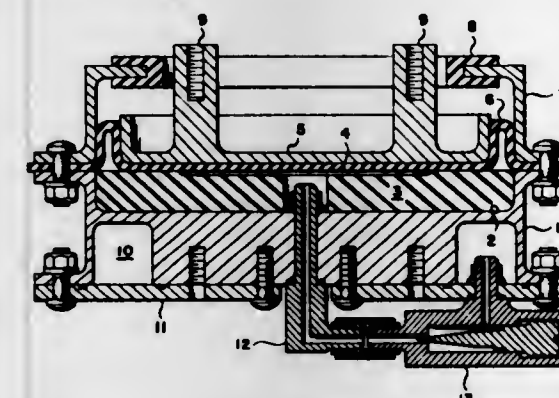
Apparatus to facilitate laying of bricks, comprising two or more identical brackets held in horizontally spaced aligned relation by attachment to a common platform or board. The assembly is supported in temporary position at a height convenient for the mason, by tangs one of which extends horizontally from each bracket and is embedded in mortar

between the bricks of two superposed courses. Bricks to be laid are placed on this platform and used as required. When the wall has been erected by a few more courses the as-



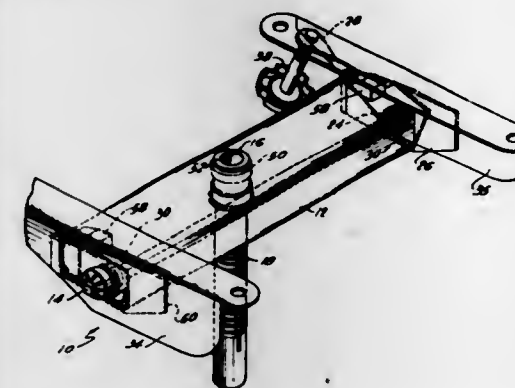
sembly is withdrawn, the tangs are rested on the bricks of the presently uppermost course, and the platform is again used as aforesaid.

3,598,353
AIR-DAMPED SHOCK MOUNT
 Richard Paul De Grey, Pasadena, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
 Filed Mar. 16, 1970, Ser. No. 19,744
 Int. Cl. F16f 15/08
 U.S. Cl. 248-358 2 Claims



An air-damped shock mount wherein the object support pad rests on a rubber bumper at normal atmospheric pressure; e.g., sea level and is supported on a volume of air at low atmospheric pressure; e.g., high altitude.

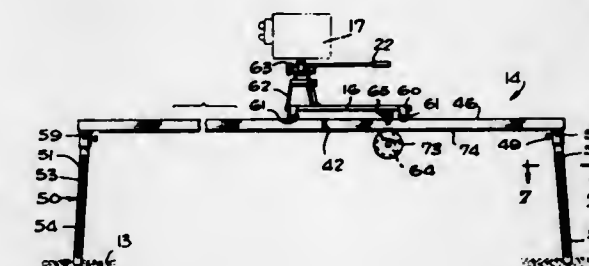
3,598,354
CHAIR CONTROL STRUCTURE
 Philip J. Williams, Bridgeport, Conn., assignor to Stewart-Warner Corporation, Chicago, Ill.
 Filed Aug. 27, 1969, Ser. No. 853,345
 Int. Cl. A47c 3/023
 U.S. Cl. 248-373 11 Claims



The following specification describes a support body having a rectangular cross section for a torsion-bar chair control

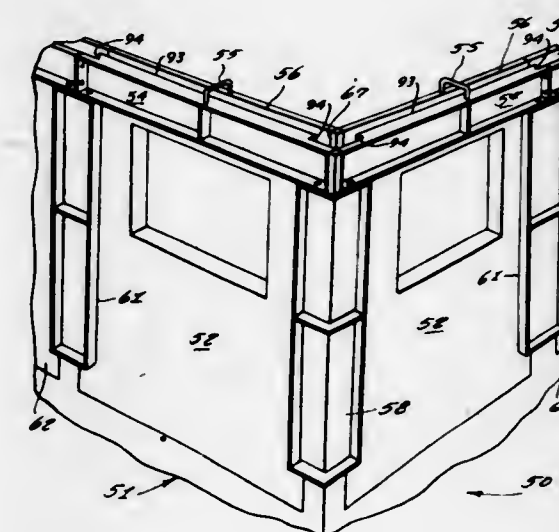
utilized in office type chairs with the post-support member located behind the torsion bar and engaged with the lower and upper support body walls.

3,598,355
CAMERA DOLLY
 Helen V. Bryan English, 16725 Knollwood Drive, Granada Hills, Calif.
 Filed Aug. 21, 1968, Ser. No. 754,381
 Int. Cl. F16m 11/20
 U.S. Cl. 248-430 10 Claims



The camera dolly disclosed herein includes a frame having a pair of spaced-apart parallel rails carried on adjustable height leg supports for rollably mounting a camera carriage. The carriage includes a universal mount for releasably mounting a motion picture camera. Power means are provided for controllably moving the carriage on the rails via a drive train interconnecting the carriage on the rails. The camera dolly is adapted for employment for filming underwater scene sequences that are adapted to be viewed in a panoramic theater.

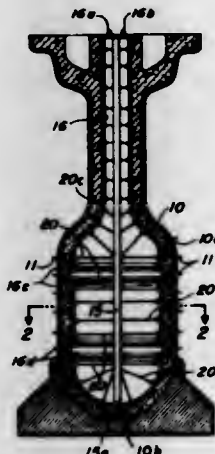
3,598,356
KEY CAST CONCRETE CONSTRUCTION SYSTEM
 Robert C. Amann, 3465 South 108th St., c/o R. W. Industries, Inc., West Allis, Wis.
 Filed July 12, 1967, Ser. No. 652,779
 Int. Cl. E04g 15/00
 U.S. Cl. 249-35 2 Claims



A system for precasting concrete panels of a uniform modular dimension and erection of the same using a tapered keyslot and forming system so to speed production on single and multistory buildings.

3,598,357
APPARATUS FOR CONSTRUCTING A BOTTLE-SHAPED MODULE
 William B. McLean, 3532 Lowell Way, San Diego, Calif.
 Filed June 12, 1969, Ser. No. 832,566
 Int. Cl. B28b 7/32
 U.S. Cl. 249—65

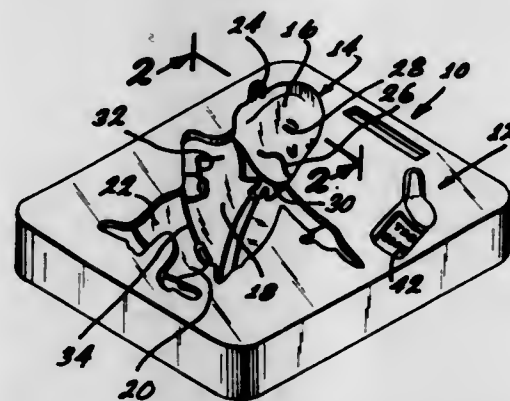
1 Claim



Casting a unitized bottle-shaped module having no seams or unsecured junctures is provided by forming a shell-shaped casting void between a conventional, external shell mold and a similarly shaped flexible baglike inner form carried on an elongate support member. A plurality of trammeling tie wires of discrete lengths joins the bag and the support member to limit the degree and manner of extension of the flexible bag as fluids fill its interior. The bag, performed according to the inner dimensions of a bottle-shaped module, provides an inner surface for mold and is equal-distantly spaced from the inside of the outer form. As a casting material, e.g., concrete is poured into the casting void, water and/or pressurized air is passed to the bag's interior to provide a sufficiently strong retaining wall capable of counteracting the lateral force produced by the casting material before it hardens. After the concrete hardens, removal of the fluid from the interior of the bag allows its collapse, and the support member, tie wires, and bag are withdrawn from the cast module. Thusly, a unitized cast flotation module is provided having no seams, lines of joiner, or similar areas structurally weaker than the remainder of the casting.

3,598,358
TOY-MOLDING APPARATUS
 Wanda L. Clearwater, Hermosa Beach; Thomas G. Frickanisce, Hawthorne, and Christie M. Matson, Los Angeles, all of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
 Filed Sept. 11, 1969, Ser. No. 857,062
 Int. Cl. B29c 1/14
 U.S. Cl. 249—117

2 Claims

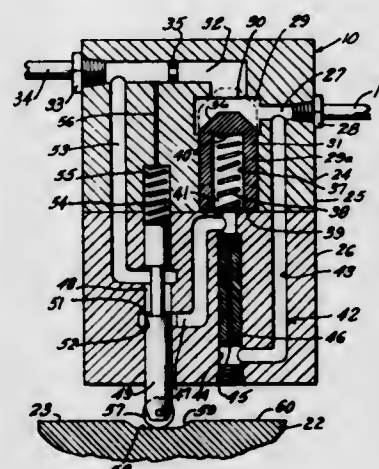


A toy mold which enables children to form plastic characters and other items with accurately formed facial features and with different colored sections clearly separated from each other. The mold comprises deep narrow depressions in the cavity walls that define the mouth and other facial features, and which serve as dividing lines at the collar and

other areas. A child can fill these small depressions with black molding material, wipe away any excess that overflows the depression, and allow the material to set. He can then place lighter colored molding material in the rest of the cavity to form the rest of the character.

3,598,359
BISTABLE HYDRAULIC VALVE
 Beldon L. Rich, Buffalo Grove, Ill., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
 Filed Mar. 18, 1969, Ser. No. 808,088
 Int. Cl. F16k 31/12
 U.S. Cl. 251—44

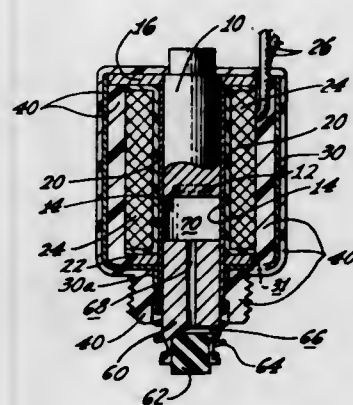
2 Claims



a bistable hydraulic valve for controlling fluid flow in a hydraulic line having a main spool valve cooperating with a valve seat in the valve housing to instantaneously stop or permit flow of fluid through the housing. A control circuit disposed in the housing bypassing a portion of the fluid in the hydraulic line from passing through the valve seat and to act on a surface of the main spool valve member to urge the main spool valve against the valve seat with virtually a snap action comparable to a mechanical over center toggle linkage. The control circuit includes a control spool valve actuated by a cam follower on the outside of the housing for regulating the pressure of the fluid acting to close the main spool valve for example, in response to positioning of the steering linkage of a dirigible vehicle. The control circuit further includes a restricted orifice preferably formed in a metal insert which orifice forms a passageway having a length approximately 20 times the diameter of the orifice.

3,598,360
SOLENOID VALVE
 Delbert L. Merriner, Glendale, and Woodrow W. Miller, Los Angeles, both of, Calif., assignors to Richdel, Inc., Los Angeles, Calif.
 Filed Aug. 27, 1969, Ser. No. 853,402
 Int. Cl. F16k 31/06; H01f 3/00
 U.S. Cl. 251—129

10 Claims

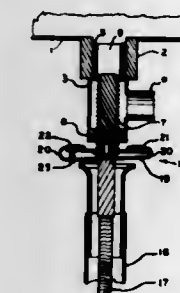


An improved solenoid valve is provided which is encapsulated in a thermosetting plastic to minimize the corrosive ac-

tion of soil, fertilizers, or chemicals, when the valve is used, for example, in conjunction with a lawn sprinkling system, or the like. The solenoid valve is constructed to be encased in a molded thermosetting plastic housing, and which is formed to eliminate air voids around the energizing coil of the solenoid and which would have a tendency to produce a wicking action with resulting short circuiting of the coil. The solenoid valve also is constructed to minimize electrolytic action with its resultant deteriorating effects; this being achieved by maintaining similar metals throughout the structure, and by using epoxy adhesive, rather than soldered or brazed connections, to hold various components of the assembly together.

3,598,361
APPARATUS FOR REMOTELY OPERATING DRAIN VALVES
 Raymond W. Crowe, 7625 Alaska, Bridgeport, Mich.
 Filed June 2, 1969, Ser. No. 829,228
 Int. Cl. F16k 31/46
 U.S. Cl. 251—144

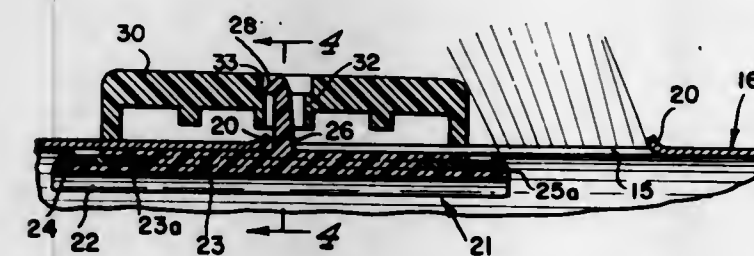
8 Claims



Apparatus for remotely operating a drain valve associated with a container such as a vehicle radiator, oil sump or the like and having a rotary valve stem provided with a handle having channel-shaped ends, the operating apparatus having a rotary actuator joined by a flexible cable to a coupling having fingers fitted into the channel-shaped members and removably clamped to the valve handle. The rotary actuator is mounted at a level above the drain valve so as readily to be accessible to a person desiring to manipulate the drain valve.

3,598,362
DIRECTIONAL CONTROL IRRIGATION VALVE
 Willis Allen Heidemann, Wilcox, Nebr. 68982
 Continuation-in-part of application Ser. No. 808,538, Mar. 19, 1969, now abandoned. This application Sept. 22, 1969, Ser. No. 864,264
 Int. Cl. F16k 3/28
 U.S. Cl. 251—145

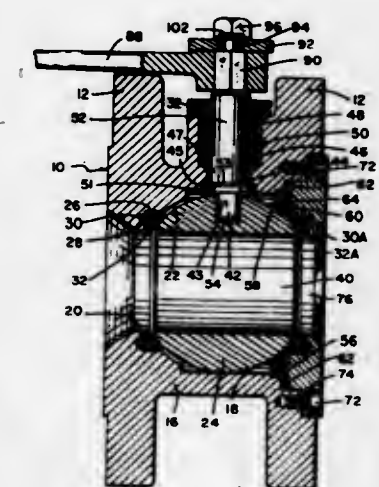
11 Claims



The invention relates to an improved, three-piece noncorrosive slide valve which may be assembled without tools in an opening cut in the sidewall of an irrigation pipe. The valve has an inner portion shaped to conform to the inside of the pipe, with a removable, replaceable gasket, and an outer portion shaped to conform to the outside of the pipe and a centrally located clamping member.

3,598,363
BALL VALVE
 Harry N. Shaw, Chicago, Ill., assignor to The Golconda Corporation, Chicago, Ill.
 Filed Sept. 4, 1969, Ser. No. 855,086
 Int. Cl. F16k 25/00
 U.S. Cl. 251—172

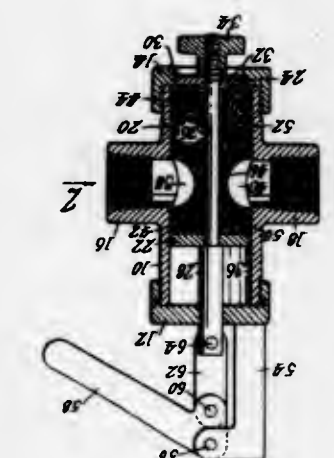
19 Claims



A ball valve having fireproof spring-pressed bearing rings serving as secondary seals on both sides of the ball with a primary chevron-shaped flexible plastic seal between the secondary seal bearings adjacent to the inlet side of the valve as back by a seal support ring with some lost motion so that when the valve is closed, the inner edge of the primary is marginally pressed flat against the ball by pressure on one side of the valve, and when pressure is on the other side of the ball the V-shape of the chevron is flattened substantially to press the chevron edge against the ball.

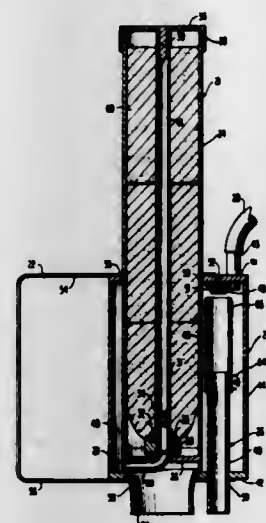
3,598,364
EXPANSIBLE PLUG VALVE HAVING A RECTILINEAR MOTION
 Wilfred J. Grenier, Rutland, Mass., assignor to General Industries, Inc., Worcester, Mass.
 Filed Apr. 16, 1969, Ser. No. 816,554
 Int. Cl. F16k 3/16
 U.S. Cl. 251—189

2 Claims



A valve including a valve body with a chamber therein and a removable elastomeric valve member in the chamber including means for expanding the valve member under normal usage thereof whether open or closed, said valve body member having an open end with a removable closure therefor allowing removal of said valve member from the valve body.

valve through the water container impinges upon the lower portion of the shaped chemical composition so that the lower exchange tube system located in the free board space of the reaction chamber, exposed to the heat of the reaction gases

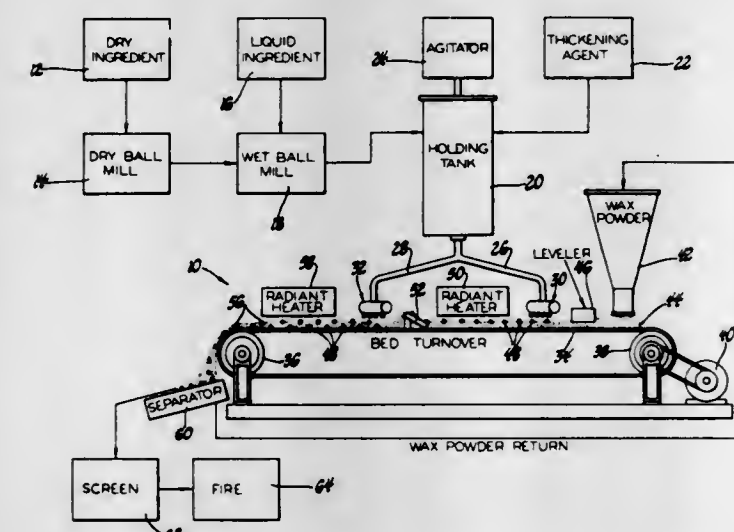


portion of the shaped chemical composition erodes and is mixed with the makeup water.

3,598,373
METHOD AND APPARATUS FOR MAKING SMALL CERAMIC SPHERES
Edward A. Inman, Lakewood, Colo., assignor to Coors Porcelain Company, Golden, Colo.
Filed Mar. 26, 1970, Ser. No. 22,976
Int. Cl. F27b 9/14

U.S. Cl. 263-6

12 Claims



A method of making small ceramic spheres by discharging drops of ceramic slip onto a moving bed of powdered material. Maximum sphere density in the bed is achieved by orienting the drop nozzles angularly across the bed and inverting the bed after receiving a first layer of spheres to form a new bed surface. A simple ramp device performs the inversion.

3,598,374
FLUIDIZED BED REACTOR WITH PREHEATING OF FLUIDIZING AIR
Robin G. F. Nauta, Stamford, Conn., assignor to Dorr-Oliver Inc., Stamford, Conn.
Filed Oct. 6, 1969, Ser. No. 863,815
Int. Cl. F27b 15/00

U.S. Cl. 263-21 A

13 Claims

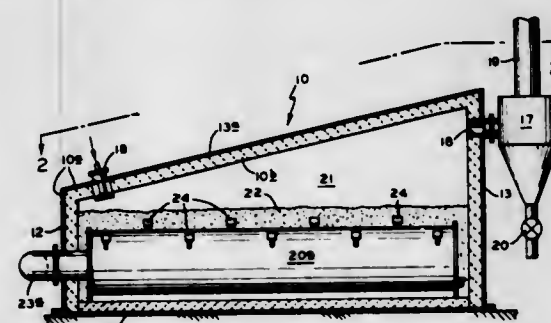
A fluidized bed reactor for carrying out an oxidizing reaction of materials maintained in a fluidized state on a constriction plate, by fluidizing air forced upwardly through the constriction plate, and preheated by being forced through a heat

in the free board space as well as to radiation heat from refractory-lined reactor walls.

3,598,375
FLUIDIZED BED REACTOR
Robin G. F. Nauta, Stamford, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn.
Filed Oct. 6, 1969, Ser. No. 863,816
Int. Cl. F27b 15/00

U.S. Cl. 263-21 A

31 Claims



A fluidized bed reactor featuring a self-contained prefabricated wind box structure.

3,598,376
PLANT FOR DRYING, FIRING AND STACKING BRICKS
Enrico Putin, via P. Trevisan 2, Villaveria, Vicenza, Italy
Filed Aug. 27, 1969, Ser. No. 853,406
Claims priority, application Italy, Sept. 7, 1968, 61626-A/68
Int. Cl. F27b 9/00

U.S. Cl. 263-28

8 Claims



An automatic plant is provided for the continuous drying, firing and stacking of bricks and the like. The plant includes

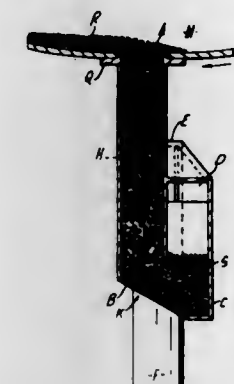
a tunnel. The drying of the material takes place in a first section of the plant in several stages with the bricks to be dried being spaced apart and subsequently reassembled. Then the bricks are moved through a next section in which they are superimposed and may be reassembled again. This movement takes place at a variable speed to compensate for any temporary stoppages in the working cycle. When the drying is completed the bricks enter into a firing kiln. From there, they move to a discharge surface upon which stacks of bricks are formed.

sheath within and spaced from the pressure chamber. The sheath is formed of three concentric annular walls forming between them substantially closed inner and outer shells. The interior of the inner shell constitutes the furnace chamber. The spaces between the walls are filled with insulating material, and the spaces between the walls open into the furnace chamber and the space between the pressure chamber and the sheath. The inner annular wall is formed of a material having a smaller coefficient of expansion than the material of the other annular walls.

3,598,377
ROTARY KILN SAMPLER
Martin John Gallers, Kent, England, assignor to The Associated Portland Cement Manufacturers Limited, London, England
Filed Sept. 16, 1969, Ser. No. 858,464
Claims priority, application Great Britain, Sept. 26, 1968, 45,705/68
Int. Cl. F27b 7/20; G01n 1/00

U.S. Cl. 263-33 R

7 Claims

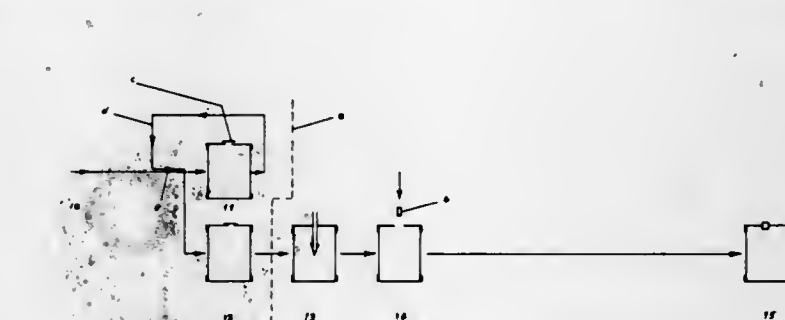


A sampler is attached to a porthole in the side of a rotary processing chamber such as cement kiln so as to describe a circle and revolve as the chamber rotates. During such rotation, sample material falls from the chamber into an inlet segment of a conduit in the sampler, passes round a loop in the conduit and discharges from an outlet segment at the completion of a revolution. The sampler may take the form of a single continuous curved tube or may be formed by joining separate sections of pipe or tube.

3,598,379
METHOD OF ASEPTICALLY PACKAGING METAL CONTAINERS
Martin Laupheimer, Braunschweig, Germany, assignor to Schmalbach-Lubeca-Werke, A.G., Braunschweig, Germany
Filed Aug. 25, 1969, Ser. No. 852,579
Claims priority, application Germany, Sept. 6, 1968, P 17 92 481.1
Int. Cl. F27b 9/04; F26b 7/00

U.S. Cl. 263-52

7 Claims

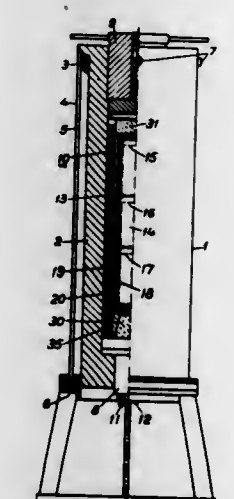


A method for forming aseptic cans and includes the step of temporarily sealing the containers at the manufacturing site. The temporarily sealed container is then subjected to heat for sterilizing. The container is subsequently filled with a product at the site of the container user.

3,598,378
FURNACE FOR HEAT-TREATING OBJECTS UNDER HIGH PRESSURE
Hans Lundstrom, Robertsfors, Sweden, assignor to Allmanns Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Sept. 8, 1969, Ser. No. 855,911
Claims priority, application Sweden, Sept. 12, 1968, 12,258
Int. Cl. F27b 5/00

U.S. Cl. 263-41

8 Claims

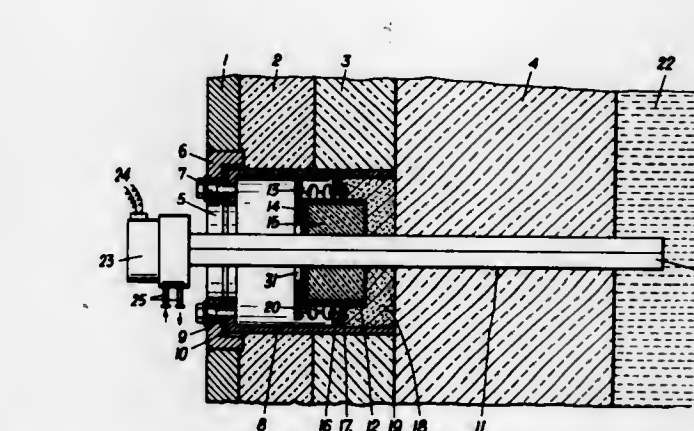


A furnace for treating material at high pressure and high temperature includes a pressure chamber and a cylindrical

3,598,380
DEVICE FOR INSERTING MEASURING INSTRUMENTS INTO A METALLURGICAL VESSEL
Walter Jilek, and Wilhelm Muller, both of Linz, Austria, assignors to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria
Filed Dec. 4, 1969, Ser. No. 882,075
Claims priority, application Austria, Dec. 19, 1968, 12343/68
Int. Cl. F27d 21/04

U.S. Cl. 266-1 R

5 Claims



The invention relates to a device for inserting measuring instruments into a metallurgical vessel. The measuring instrument which may comprise a guiding tube containing a thermocouple serving to measure the bath temperature or a mea-

asuring rod serving to measure the conductivity of the metal bath, penetrates the shell and the refractory lining of the metallurgical vessel and is supported by a bushing which is inserted in the vessel shell and penetrates the outer lining and the rammed lining, said measuring instrument being connected to the bushing by means of wave compensating means, e.g., concertina walls extending between annular flanges provided on the bushing and on a sleeve surrounding the measuring instrument, respectively. In the area of the rammed lining the interspace between the bushing and the measuring instrument is filled with particulate refractory material. The new arrangement affords the great advantage that the measuring instrument may follow the movements of the inner lining in any direction without being subjected to shearing stresses.

3,598,381

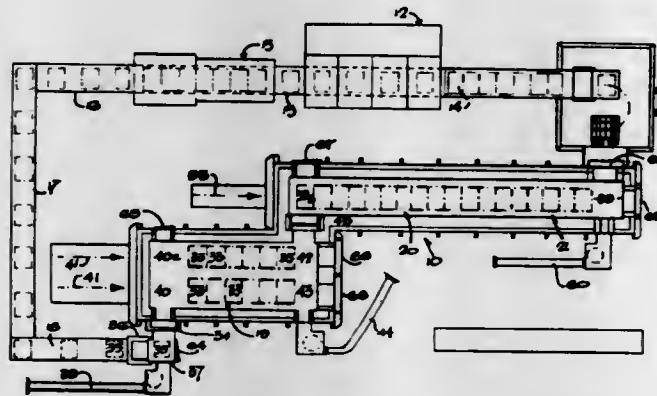
CONTINUOUS CARBURIZING FURNACE

Donald J. Schwalm, Northville, and Edward C. Bayer, Dearborn, both of Mich., assignors to Holcroft & Company, Livonia, Mich.

Filed Feb. 26, 1969, Ser. No. 802,434
Int. Cl. C21d 9/00

U.S. Cl. 266-5

10 Claims



A continuous carburizing furnace comprising a heating chamber having inlet door means through which, when open, work can be fed into the chamber, a carburizing chamber, interconnecting door means between the chambers through which, when open, work can be fed from the heating chamber to the carburizing chamber, first feeding means for feeding work fed into the heating chamber into a transfer position within said chamber, second feeding means for feeding work from the transfer position through the interconnecting door means when open to a feed position in the carburizing chamber, third feeding means for feeding work from the feed position towards outlet door means of the furnace and means for operating the interconnecting door means when at least the inlet door means are closed.

3,598,382

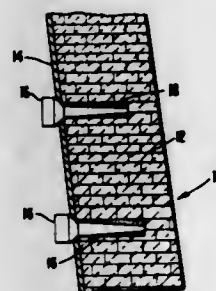
FURNACE WALL COOLING

Edward J. Ostrowski, Steubenville, Ohio, assignor to National Steel Corp.

Filed July 9, 1969, Ser. No. 840,272
Int. Cl. C21b 7/10

U.S. Cl. 266-32

22 Claims



Blast furnace walls are cooled by circulation of water through cooling plates provided with baffles to control cool-

ing water flow. The baffles include a J-shaped baffle, a central baffle, and two stub baffles. Streamlined protrusions on the baffles, the stub baffles themselves, and a flared water passage minimize whirlpool action within the plate, thereby avoiding low water throughput, sedimentation and resultant overheating which leads to failure of the cooling plate. An aperture in the central baffle vents air to a water discharge outlet, to prevent entrapment of air within the plate and concomitant production of water-void areas which also promote plate overheating.

3,598,383

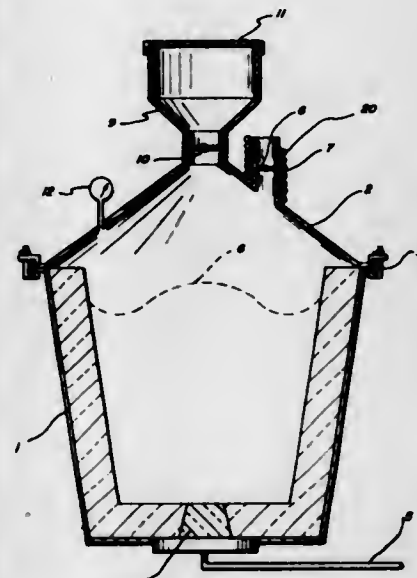
METHOD AND APPARATUS FOR INCORPORATING ADDITIVES IN A MELT

William H. Moore, Meadow Lane, Purchase, N.Y., and Harry H. Kessler, 7 Dromara Road, Ladue, Mo.

Filed Jan. 14, 1969, Ser. No. 791,062
Int. Cl. C21c 7/00

U.S. Cl. 266-34 T

5 Claims



A method and apparatus for incorporating a normally oxidizable and/or volatile additive into a molten metal bath disposed in a vessel with a relatively gas tight cover thereover. A gas which is normally nonreactive with the additive is introduced, in one form of the invention, through a porous refractory plug in the bottom of the vessel and this gas bubbles up through the molten metal agitating the metal and fills the space above the metal and under the cover with at least a small positive pressure of the gas. This gas substantially excludes air from the space above the metal. A gas outlet is provided in the cover and is controllable for the purpose of regulating the outflow of gas to atmosphere thereby regulating the gas pressure above the metal surface. An additive container or hopper directly communicates by way of a valve with the space above the metal so that when desired an additive can be introduced into the molten metal. Cooling means are disclosed to condense any volatilized additive.

3,598,384

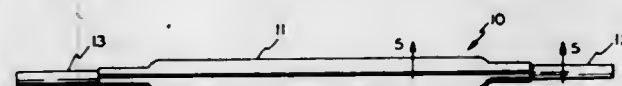
METAL VAPOR GENERATORS

Mario Zucchinielli, Milan, Italy, assignor to S.A.E.S. Getters S.p.A., Milan, Italy

Filed Sept. 10, 1969, Ser. No. 856,529
Claims priority, application Italy, Sept. 13, 1968, 21,185A/68
Int. Cl. C22b 61/00

U.S. Cl. 266-39

10 Claims



A particle free device for releasing a metal vapor comprising: a container having walls defining a chamber; an opening

in at least one of said walls; a particulate, metal vapor releasing substance within the chamber; and a member within the chamber and adjacent to the opening whereby the opening is rendered permeable to metal vapor but impermeable to the particulate substance.

3,598,385

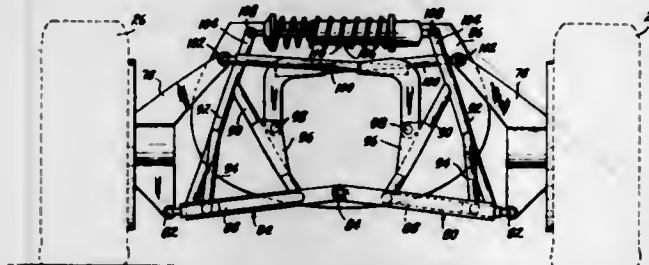
VEHICLE WHEEL SUSPENSION SYSTEM

Charles F. Parsons, Jr., 520 Briarhill Road, Deerfield, Ill.

Filed Mar. 27, 1969, Ser. No. 811,130
Int. Cl. B60g 3/18, 3/26

U.S. Cl. 267-20 A

3 Claims



Independently mounted wheel supports on opposite sides of a vehicle are each mounted by a pair of upper and lower links. Corresponding main links of each pair are pivoted on a single common axis on the vehicle. The other link of each pair is pivoted to the main link of the opposite pair, at a point vertically displaced from said common axis, to hold the wheels parallel and coaxial at all times with their camber unaffected by lateral forces on the vehicle. The system is equally applicable to steerable or driven wheels.

3,598,386

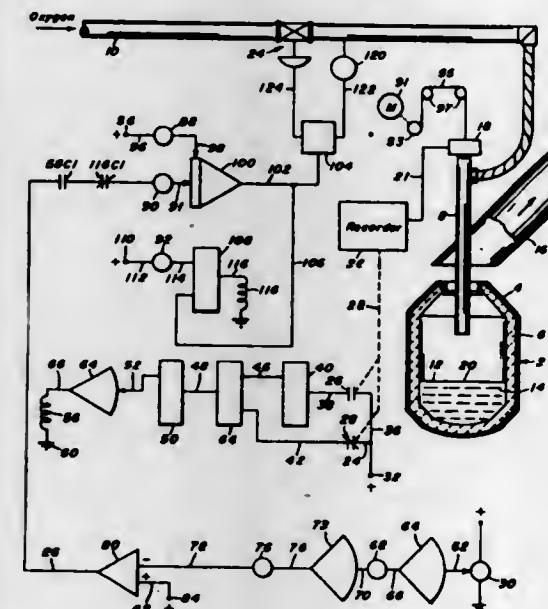
APPARATUS FOR MAKING STEEL

Joseph A. Murphy, Murraysville, Pa., assignor to Crucible Steel Company of America, Pittsburgh, Pa.

Filed Oct. 9, 1967, Ser. No. 673,666
Int. Cl. C21c 5/32

U.S. Cl. 266-35

4 Claims



This invention relates to a method and apparatus for making steel in a converter top-blown with oxygen. In particular, the invention relates to operating a converter top-blown with oxygen by monitoring the temperature on the area of the bath surface contacted by the oxygen jet, which is the reaction zone, determining the reaction-zone temperature decrease indicating the end of desiliconization of the bath, and thereupon increasing the amount of oxygen and preferably also decreasing the height of the oxygen lance above the bath surface during the carbon-removal portion of

oxygen blowing. The increased oxygen flow rate and decreased lance height is maintained for the remainder of the Steelmaking operation.

3,598,387

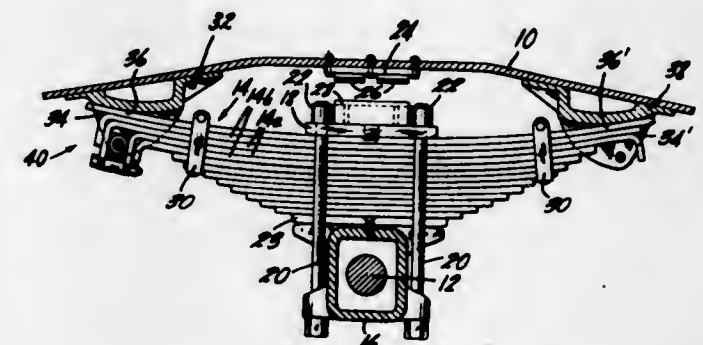
SPRING END ASSEMBLY

Robert M. Webster, Jr., Emmaus, Pa., assignor to Mack Trucks, Inc., Allentown, Pa.

Filed July 1, 1969, Ser. No. 838,191
Int. Cl. F16f 1/26

U.S. Cl. 267-54

7 Claims



A spring end assembly for use in suspension systems of trucks and other vehicles including spring leaves of which two or more adjacent leaves are formed so that their end portions provide an enclosure or pocket for a rectangular spacer which is rotatably pinned to a spring bracket secured to the vehicle body. The pocket is closed by a bolt and spacer secured to the ends of the two leaves adjacent the rectangular spacer.

3,598,388

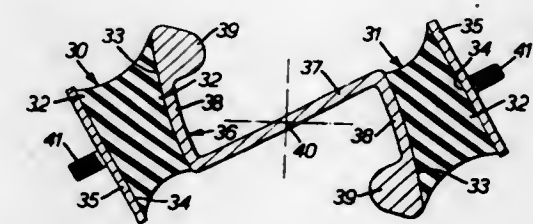
SPRING AND BEARING ASSEMBLIES

Archie John Hirst, 18 Saint Philips Road, Leicester, England

Continuation-in-part of application Ser. No. 633,509, Apr. 25, 1967, now abandoned. This application Dec. 31, 1969, Ser. No. 889,743
Int. Cl. B60g 11/24

U.S. Cl. 280-57.1

13 Claims



A combined spring and bearing assembly for a pivotal arm (e.g. for a motor vehicle wheel suspension) comprises a plurality of rubber spring sandwich units having a common attachment part disposed generally between the units and constrained to rotate under torsional load on the assembly to load the rubber in shear and in compression to give a rising load deflection characteristic for pivotal movement of the arm.

3,598,389

SPRING DISC FOR A MULTIRING VALVE

Robert Kohler, Schongau, Lech, Upper Bavaria, Germany, assignor to Hoerbiger Ventilwerke Aktiengesellschaft, Vienna, Austria

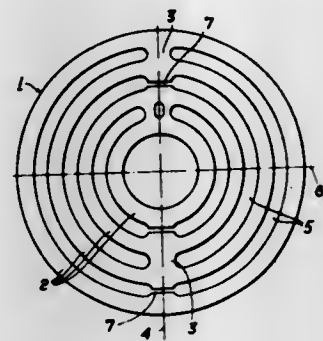
Filed Jan. 28, 1969, Ser. No. 794,692
Claims priority, application Austria, Jan. 31, 1968, A940/68
Int. Cl. F16f 1/34

U.S. Cl. 267-161

7 Claims

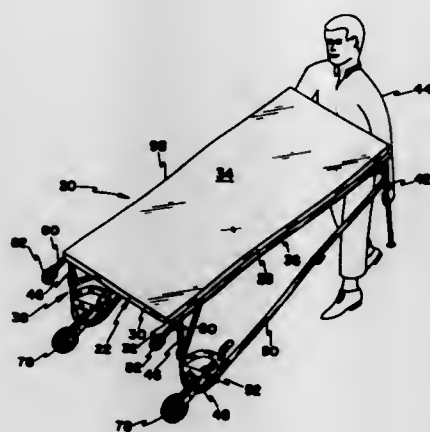
A spring disc for a multiring valve, the disc having concen-

tric disc rings connected together by radial webs, all webs is automatically retracted unless the device is fully actuated; an elastically deformable member exposed to fluid within the



being arranged substantially on one diameter of the spring disc, while the disc itself is curved.

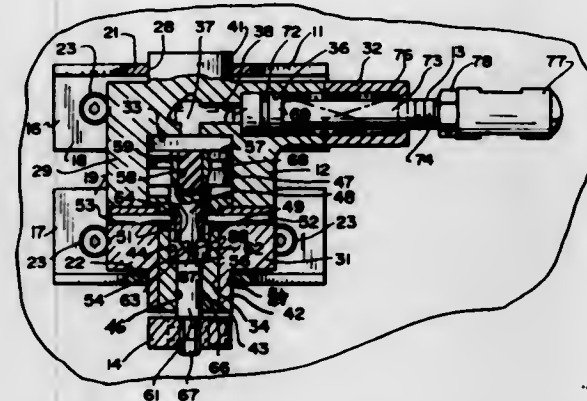
3,598,390
ADJUSTABLE WORK TABLE
Firth Kay Armitage, 3317 South 3130 East, Salt Lake City, Utah
Filed Oct. 15, 1969, Ser. No. 870,002
Int. Cl. B23g 3/06
U.S. Cl. 269-17



Apparatus for preparing wall covering prior to placement of the wall covering on a wall, the apparatus having a laterally expandable frame and a plurality of work surface panels removably mounted upon the frame. The frame can be oriented in either a generally horizontal or an upright position disposed at any one of a plurality of angles with respect to the vertical. Wheels mounted upon one end of the frame accommodate lateral movement of the apparatus when the frame is in the upright orientation and are restrainable so that in the upright orientation, the apparatus can be easily displaced in only a side-to-side direction. A guide for the wall covering dispenses wall covering over the assembled work surface segments at a controlled rate.

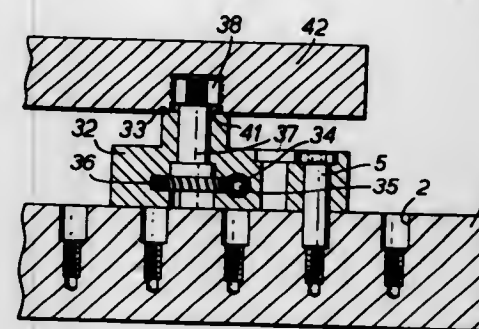
3,598,391
WORK HOLDING FIXTURE
Otis L. Butler, Decatur, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Oct. 20, 1969, Ser. No. 867,616
Int. Cl. B23q 3/08
U.S. Cl. 269-23

A hydraulic work-holding fixture is arranged and constructed such that initial arcuate movement of an operating lever is effective to swing a work-engaging plunger into a predetermined plane for alignment with a workpiece, while further arcuate movement is effective to hydraulically extend the plunger for engagement with the workpiece, the plunger



device provides variation in the extension of the plunger in order to accommodate tolerances in the workpiece.

3,598,392
FIXING DEVICES
David T. N. Williamson, and Peter G. Davis, both of Deptford, London, England, assignors to Molins Machine Company Limited, London, England
Filed Aug. 13, 1968, Ser. No. 752,390
Claims priority, application Great Britain, Aug. 22, 1967, 38,579/67
Int. Cl. B23q 3/06
U.S. Cl. 269-47

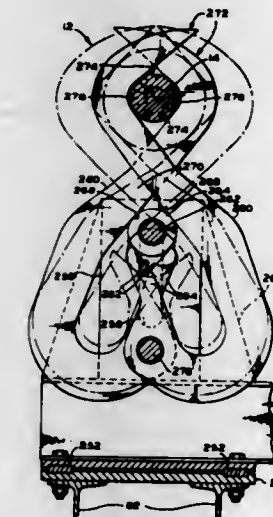


A method and apparatus for securing a workpiece to a support by a fixing device having a portion of noncircular cross section capable of entering a hole of noncircular cross section in the workpiece and rotatable to grip against a sidewall of the hole or recess. The fixing device is retained by, and may be mounted in, the support which may be fixed to a pallet.

3,598,393
POLE-BORING MACHINE
Milton H. Mater, 1415 Brook Lane, Corvallis, Oreg.
Division of Ser. No. 672,064, Oct. 2, 1967, Pat. No. 3,502,124.
This application July 18, 1969, Ser. No. 843,043
Int. Cl. B25b 1/08
U.S. Cl. 269-234

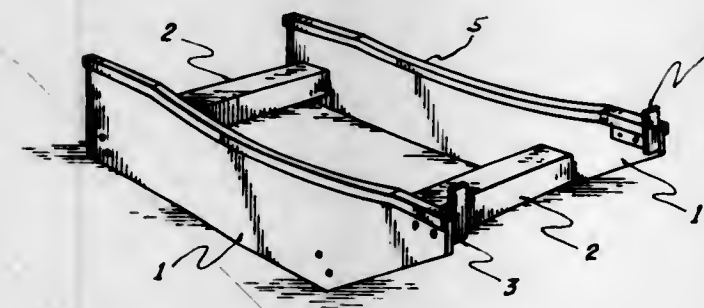
A pair of aligned drills each includes a drill tube carrying a drill bit including a forward pilot pin, forward cutters of a smaller diameter and rearward cutters of a larger diameter. The drill tube is rotated and drills an axial hole in a pole slightly larger than a guide tube, which extends to a point just behind the rearward cutters and journals the drill tube. Pressurized air fed into the guide tube through a rotary coupling travels through a venturi passage at the forward end of the guide tube and carries chips from the drill bit back through the drill tube. The guide tube is rotated slowly to dislodge chips and facilitate movement of the guide tube into the bore being formed. A carriage slidable on tubular ways and guides slidable on the ways support the guide tube and is moved forwardly slowly by a cable drive to feed the drill and is

returned rapidly by the cable drive. The drills are moved forwardly from opposite ends of the pole to be drilled until one drill reaches the end of its feed stroke and then this drill is retracted while the other drill completes its stroke. A slidable interlock prevents the drills from coming together and reverses the motion of the carriage of one of the drills when the



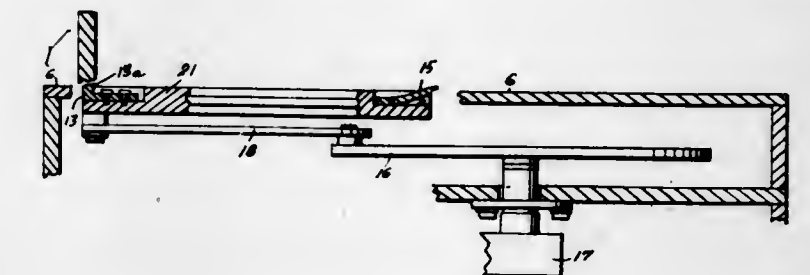
drills closely approach each other. Opposed clamps having generally V-shaped jaws on the ends of tongs grip and center the pole relative to the drills. The rotary coupling forms pressure-tight seals both with the drill tube and the guide tube. Spiders in the guide tube mount ball bearings journaling the drill tube and permit flow of air along the space between the drill tube and the guide tube.

3,598,394
TELEVISION REPAIR HOLDER
Leo C. Miller, 11110 Dodson Lane, Wheaton, Md.
Filed July 28, 1969, Ser. No. 845,453
Int. Cl. B23q 3/00
U.S. Cl. 269-296



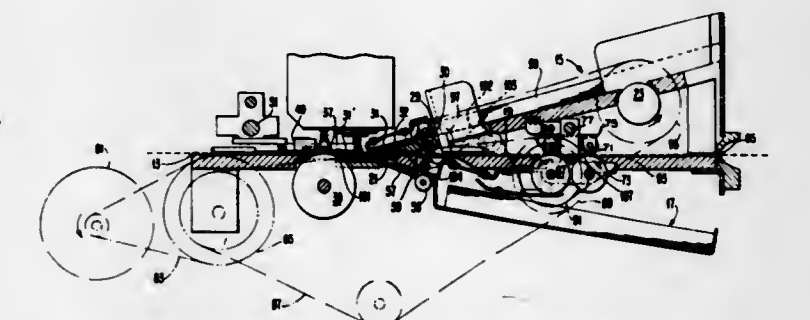
The present invention relates to a device capable of supporting a table-size television set, or other device of similar size and weight distribution, in two positions advantageous to the performance of service and adjustment operations. More specifically, the proposed support device includes a pair of rail members which are arranged in parallel, spaced-apart relationship. One edge of these rail members is slightly concave, to conform to the convex shape of the television picture-tube or safety mask; whereas, the opposite edge of these rail members is angled so as to support the television set in at least two distinct servicing positions. Additionally, the concave edges are covered by a protective strip, and a metal angle bracket is attached to the angled end of each rail to support the bottom of the television set during repair operations.

3,598,395
EDUCATIONAL TESTING APPARATUS
Nicholas J. Carrero, Churchville; Lawson F. Narvell, Port Deposit, and Fred N. Newcomb, Kingsville, all of, Md., assignors to The United States of America as represented by the Secretary of the Army
Filed Oct. 24, 1968, Ser. No. 770,186
Int. Cl. B65h 3/24, 3/44
U.S. Cl. 271-3



For educational and student testing purposes, questions are printed on question punchcards and the student records his answers on answer cards. The cards are then moved on to a receiving hopper and new cards are presented before the student with a new question for him to answer on a corresponding answer card.

3,598,396
RECORD CARD HANDLING DEVICE WITH MULTIPLE FEED PATHS
Donald R. Andrews, Lexington, Ky., and Larry H. Robbins, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 10, 1969, Ser. No. 831,948
Int. Cl. B65h 1/06
U.S. Cl. 271-9

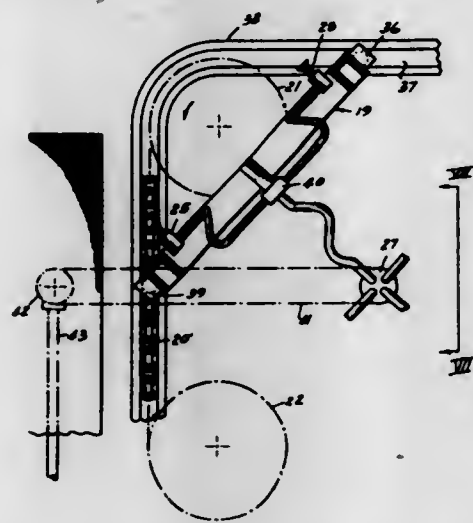


A record card handling device incorporating multiple feed paths for automatic and manual card feeding operations and multiple feed paths for automatic and manual card ejection operations. Cards are automatically fed from a card hopper over a first feed path or from a manual entry station over a second feed path to a card transport for data processing operations. Cards are ejected from the card transport to a card stacker over a third feed path or to the manual entry station over the second feed path in accordance with the operation specified. Each of the feed paths are vertically oriented with respect to one another. A card-sensing device coacts with the card-feeding means to insure cards cannot be entered onto the transport through the manual entry station when a card is present on the card transport and is further utilized to control card motion on the card transport.

3,598,397
SHEET FEEDER
Roland Preisig, Lausanne, Switzerland, assignor to J. Bobst et Fils S.A.
Filed June 13, 1969, Ser. No. 833,118
Claims priority, application Sweden, June 13, 1968, 9140/68
Int. Cl. B65h 5/08
U.S. Cl. 271-12

Sheet feed mechanism particularly adapted to pick off individual sheets from vertical stock of such sheets one at a

time and carry them to and deposit them in a horizontal position. The sheet feed apparatus comprises a flat sucker unit leading document on the upper part of the feed bed. Thus the combined action of the step and the holdback member is

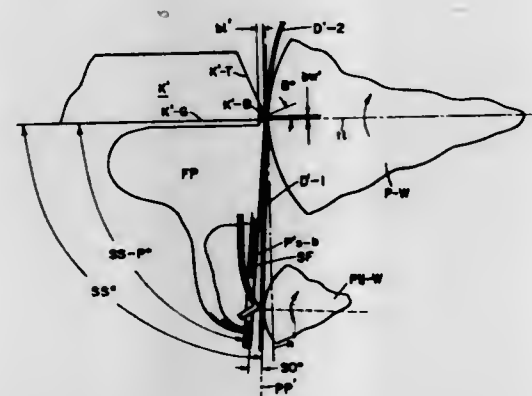


which is carried by a pair of endless chains which, in turn, are trained over a series of sprockets.

3,598,398
DOCUMENT FEED ASSEMBLY
Richard W. Carman, Foxboro; Vince G. Dempsey, Framingham Centre, and St. John Merrill Hall, Jr., Sharon, all of, Mass., assignors to Honeywell, Inc., Minneapolis, Minn.
Filed Jan. 2, 1968, Ser. No. 695,210
Int. Cl. B65h 1/08

U.S. Cl. 271-39

8 Claims



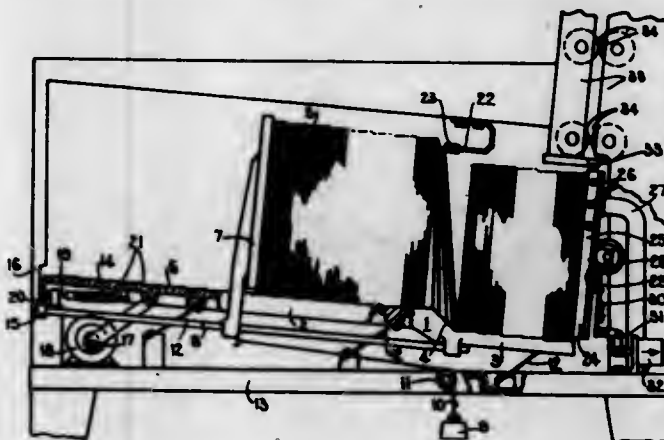
In a unit-record handling apparatus, an improved record injection and separation combination comprising, in a preferred embodiment, improved throat-separating means including a "single-record" guiding bevel; improved stack-pusher means adapted to squeeze a record stack into the throat area and improved picker means including a "floating" pusher wheel arrangement adapted to accommodate irregularities in the shape, the position and the size of the record stack engaged.

3,598,399
DOCUMENT FEEDING APPARATUS
Gordon Reginald Cottrell, Langford, England, assignor to International Computers Limited, London, England
Filed Mar. 12, 1969, Ser. No. 806,656
Claims priority, application Great Britain, Mar. 22, 1968, 13,954/1968
Int. Cl. B65h 1/02

U.S. Cl. 271-62 B

6 Claims

Apparatus is disclosed for feeding documents. The apparatus includes a feed bed having an upper and a lower part connected by a step. Documents are fed along the feed bed from the upper part to the lower part. Positioned above the step is a holdback member which engages the top edge of the

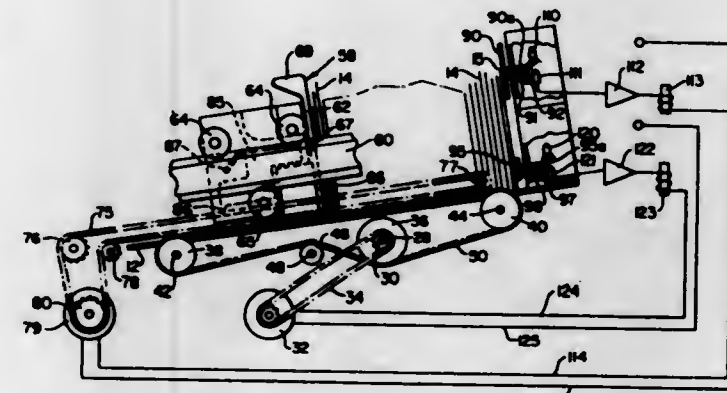


to allow a trickle feed of documents from the upper to the lower part to maintain a substantially constant number of document on the lower part.

3,598,400
DOCUMENT INPUT MECHANISM
Carl R. Nelson, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed June 16, 1969, Ser. No. 833,554
Int. Cl. B65h 7/02

U.S. Cl. 271-62 B

23 Claims



A feeding device for a sorting machine including means for uniformly advancing a plurality of documents toward a pickup station and means for sensing surface forces on the face of the forwardly traveling document to maintain planar attitude of the documents in relation to the pickup station. Both belt drive means and paddle drive means are employed to advance the documents along a feed table to the pickup station, each drive means having its own element for sensing such planar attitude by responding to the position and surface pressure of the documents to maintain them substantially perpendicular to the table as they are being advanced and to present these documents at the pickup station in parallel fashion. The sensing elements include upper and lower sensing arms contactable with the face of the forward document for detecting forces existing at the upper and lower portions of the forward document. Each arm independently energizes its individual drive means for controlling the rate of document advancement.

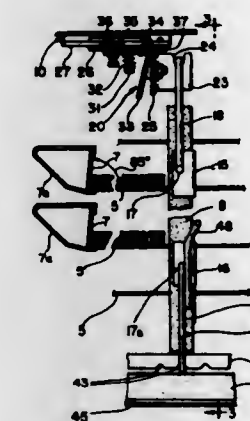
3,598,401
SHEET JOGGING DEVICE
Donald L. Seelmann, Seattle, Wash., assignor to Norfin, Inc., Seattle, Wash.
Filed Feb. 24, 1969, Ser. No. 801,624
Int. Cl. B65h 31/38

U.S. Cl. 271-89

6 Claims

A foam rubber belt is mounted adjacent the plurality of shelves of a collator bin. Sheets of paper fed into the shelves

contact the belt and are deflected backward against a restraining member or backstop. The belt is pivotally mounted at both ends by double pivot joints to enhance belt

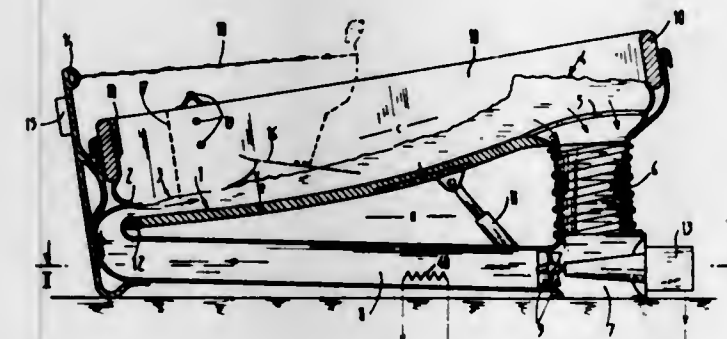


vibrations caused by the impact of the moving sheets with the belt. The vibrating belt thus performs the sheet-jogging function by urging the sheets against the backstops.

3,598,402
APPLIANCE FOR PRACTICING AQUATIC SPORTS
Otto Frenzl, 11, Avenue Foch, Pavillon 41, 77 Dammarie-les-Lys, France
Filed July 1, 1968, Ser. No. 741,473
Claims priority, application France, Aug. 11, 1967, 117,810
Int. Cl. A63g 31/16

U.S. Cl. 272-17

18 Claims



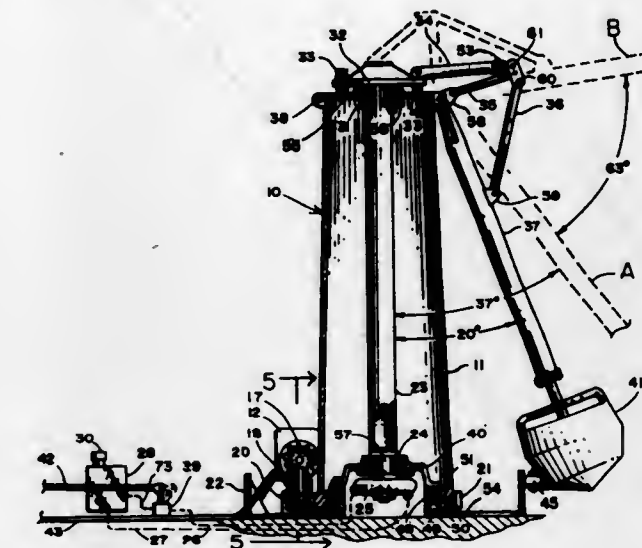
An appliance for the practicing within a reduced area of aquatic sports such as surf-riding and water-skiing, said appliance including a vat the bottom of which is sloping and has a longitudinal section which shows a concavity facing upwards while a stream of water is caused to flow upslope over said bottom as produced by a nozzle discharging water onto the surface of the lower end of said bottom.

3,598,403
AMUSEMENT RIDE ROTATING ABOUT VERTICAL AND HORIZONTAL AXES
Norman Bartlett, North Miami Beach, Fla., assignor to Marjorie Bartlett, North Miami Beach, Fla., a part interest
Filed May 23, 1969, Ser. No. 827,364
Int. Cl. A63g 1/28

U.S. Cl. 272-36

3 Claims

A rotating amusement ride having a vertical hollow column carrying a plurality of arms pivoted at one end to the top portion of the column with passenger cars secured to the ends of the arms. Power means rotates the column and swings the passenger cars about a vertical axis and maintains the cars a short distance away from the column. An inner shaft which rotates with the column is provided with a disc on which a plurality of pivoted posts are mounted with a linkage and struts connecting the pivoted posts with each of the

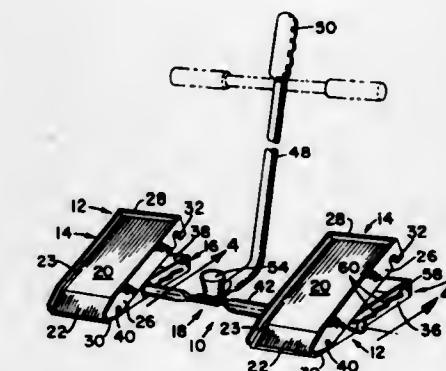


linkages and cause the upward swinging movement of the arms and cars as they rotate about the column.

3,598,404
EXERCISING APPARATUS INCLUDING PIVOTALLY CONNECTED WEIGHT-SUPPORTING UNITS
George E. Bowman, 4631 W. 189th, Country Club Hills, Ill.
Filed July 7, 1969, Ser. No. 839,174
Int. Cl. A63b 23/04

U.S. Cl. 272-57 D

9 Claims



Calf-exercising apparatus including a unit for each leg, with each unit including a foot-engaging platform for supporting the weight of the user. The elevational and lateral angles of each platform are independently adjustable, so that the attitude of each platform can be varied and controlled, and thereby provide a wide range of settings whereby the user can selectively choose the degree of difficulty and amount of stress that is required to perform the exercises. The foot-engaging platforms are provided on separate units that are pivotally connected to one another, and the structures are collapsible to a relative compact form for convenience of storage.

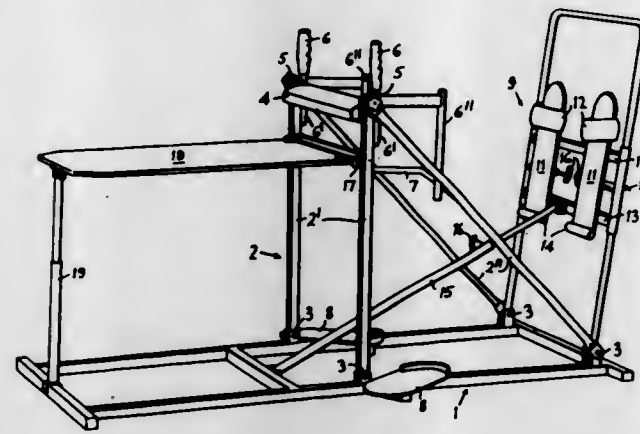
3,598,405
STATIC EXERCISING DEVICE FOR THE HUMAN BODY
Harry Burns, Epping, Essex, England
Filed June 10, 1968, Ser. No. 735,863
Claims priority, application Great Britain, June 12, 1967, 27,532/67
Int. Cl. A63b 21/02

U.S. Cl. 272-58

8 Claims

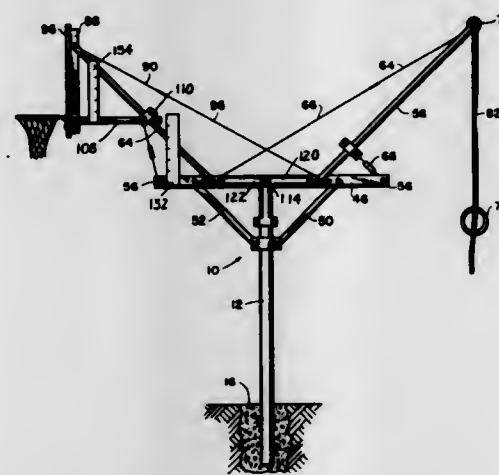
This invention relates to a static exercising device for the human body, which, in use, does not rely upon any moving parts. The device includes a base carrying a raised pelvic support member, foot-locating means, and a body support surface, which enable the execution of exercises in a prone or

semiprone position. The pelvic support member also defines part of a raised, upwardly and downwardly opening, open-



work frame for locating and stabilizing the pelvic region of the body in directions transversely and longitudinally of the base when exercising in an upright position.

3,598,406
GYMNASTIC APPARATUS
Edward J. Robinson, P.O. Box 398, Velma, Okla.
Filed Feb. 15, 1968, Ser. No. 705,700
Int. Cl. A63b 1/00, 7/04, 63/04
U.S. Cl. 272-61

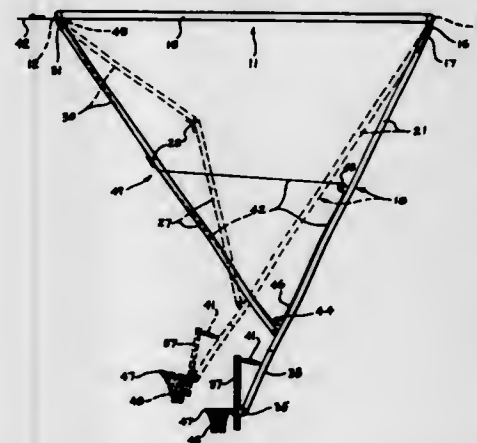


A gymnastic apparatus having a pair of spaced parallel upright posts, each post having a horizontally extending crossmember independently secured thereto at the upper end of the post. The crossmembers are in substantially coplanar alignment, and together with the upright posts form a pair of parallel T-shaped members. A plurality of spaced horizontal bars are interposed between the crossmembers and are connected at the opposite ends to the crossmembers. The crossmembers and spaced bars thus form a horizontal ladder for exercising. The crossmembers and upright posts provide a common support structure for a plurality of exercising devices, including a punching bag and heavy training bag, each secured at opposite sides to the crossmembers and a basketball backstop and a climbing rope each secured to the outer ends of, and held in place by, a pair of upwardly and outwardly inclined bars whose inner ends are secured to the crossbars at opposite ends of the device. Each upright post is adjustable with respect to its height.

3,598,407
BACKBOARD-MOUNTING STRUCTURE
Eugene M. Sorensen, Lake Forest, Ill., assignor to Sorensen-Christian Industries, Inc., Angier, N.C.
Filed June 17, 1968, Ser. No. 737,559
Int. Cl. A63b 63/04
U.S. Cl. 273-1.5 R

A basketball backboard is supported at the lower end of a first generally downwardly and forwardly inclined superstruc-

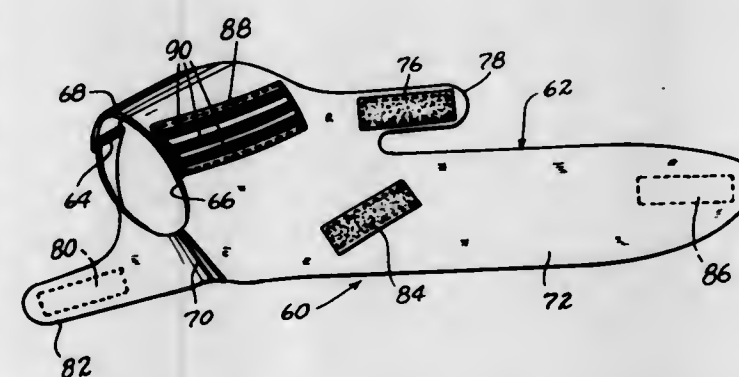
ture. The first superstructure is mounted at its upper end for pivotal movement. Hingedly connected to the superstructure adjacent to the backboard is a second generally upwardly and forwardly inclined superstructure, or brace member, having a knee joint. The upper end of the brace member is also mounted for pivotal movement. A first pulley is mounted adjacent the upper mounting point of the brace member, a second pulley is mounted on the first superstructure adjacent the mounting point of the brace member, and a third pulley is mounted to the first superstructure at about the level of the knee joint in the brace member. A cable extends from a



takeup device, over the first pulley, along the brace member, around the second pulley, along the first superstructure, around the third pulley, and is fastened to the brace member adjacent the knee joint. A stop member is mounted on the cable between the second and third pulleys. On takeup, tension along the full length of the cable causes the knee joint to break and starts raising the backboard. When the stop member engages the second pulley it changes the effective point of attachment from adjacent the knee joint to the second pulley, thereby reducing the amount of cable which needs to be taken up.

3,598,408
WRISTLET AND WEB PROTECTOR WITH ATHLETIC ITEM ENGAGING PAD
Alfred P. Klose, 2736 Sidney St., St. Louis, Mo.
Continuation of application Ser. No. 554,067, May 31, 1966, now abandoned. This application Mar. 18, 1970, Ser. No. 20,818
Int. Cl. A63b 71/14
U.S. Cl. 273-54 B

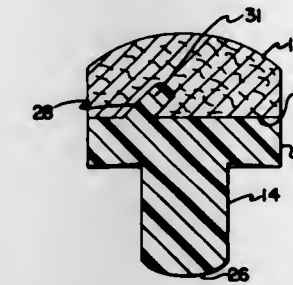
1 Claim



A wrist strap-type device which is an aid in sports comprising an elongated main body having a portion for wrapping around a wrist and a portion for covering the palm of a wearer, a thumb aperture at one end of the body, a tab portion extending from the body beyond the thumb aperture and a second opposed tab portion paralleling the main body intermediate its ends, securing means for holding the palm portion in position, separate securing means for holding the palm portion in position, and a selected pad secured to and within the area of the palm portion for engaging a bowling ball, golf club, and the like.

3,598,409
INTEGRAL BILLIARD CUE TIP AND BACKING MEMBER
Irvin Stephan Nemecek, Chicago, Ill., assignor to Kleckhefer Manufacturing Corporation, Chicago, Ill.
Filed Aug. 26, 1968, Ser. No. 755,067
Int. Cl. A63d 15/12
U.S. Cl. 273-70

6 Claims



An integral billiard cue tip and backing member wherein the backing member is provided with one or more locking studs which are respectively fixed within one or more cavities in the tip. In forming the integral cue tip and backing member, at least one cavity is formed in the tip and a molten plastic is then injected into said cavity simultaneously while forming the backing member.

3,598,410
FILAMENT WOUND STRUCTURE AND METHOD OF MAKING SAME
Nick Costopoulos, Hartville, Wyo., assignor to Darrell L. Offe, Salt Lake City, Utah and William R. Jones, Wheatland, Wyo., part interest to each
Filed Feb. 11, 1969, Ser. No. 798,306
Int. Cl. A63d 9/00
U.S. Cl. 273-82 R

25 Claims

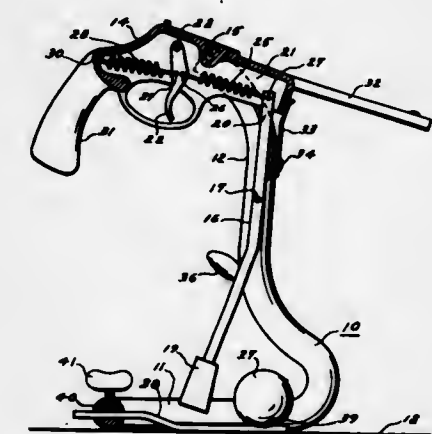


A wooden bowling pin core has a continuous helical groove cut into the surface thereof. The groove begins near the bottom of the core, has a smooth transition between its sides and its bottom spirals upwardly about the pin at about 10 revolutions per inch and terminates near the top of the core. A nylon roving filament comprised of a plurality of individual unbonded fibers is fastened at the lower end of the groove and wound therein around the pin at about 30 pounds of tension until it reaches the top portion of the groove where it is fastened. The ratio of the cross sectional area of the groove to the cross sectional area of the thusly wound filament is about 0.55. The filament fibers are not bonded nor is the filament itself bonded to the surfaces of the groove. Hence, when stressed, the filament and its fibers are permitted to undergo limited sliding motion within the groove. In this manner, impact on any portion of the pin is more evenly distributed so as to result in a considerable increase in pin life.

If desired, after the filament is wound and fastened, it is annealed at about 150° F. and then permitted to cool. The entire structure is then dipped in a suitable plastic coating material of a type having a limited tendency toward chemical or other bonding with the filament. The coated pin is then fitted with a conventional nylon sleeve or tube having a predetermined denier fineness gradient. If desired, this sleeve can also be annealed at about 150° F.

3,598,411
APPARATUS FOR PLAYING MINIATURE GOLF
Henry E. Lippert, 130 S.W. Twelfth St., Miami, Fla.
Filed July 28, 1969, Ser. No. 845,309
Int. Cl. A63b 71/00
U.S. Cl. 273-129

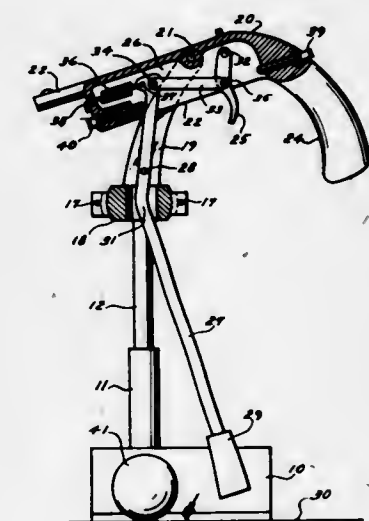
5 Claims



A stand, comprised of a unitary base and upright stem portion, pivotally mounts a gun which has its trigger operatively connected to a golf club also pivotally carried by the stand, and the club is adapted to drive golf balls to the gun's point of aim.

3,598,412
APPARATUS FOR PLAYING MINIATURE GOLF
Henry E. Lippert, 130 S.W. Twelfth St., Miami, Fla.
Filed July 31, 1969, Ser. No. 846,458
Int. Cl. A63b 71/00
U.S. Cl. 273-126

7 Claims

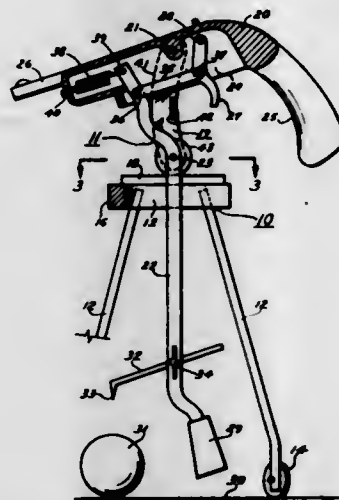


An extendable boom, that can swing in a horizontal plane, universally mounts a suspended golf club and related gun, so that the club and gun unit can swing in any direction. The club is actuated by the trigger of the gun and is adapted to drive golf balls to the gun's point of aim.

3,598,413
APPARATUS FOR PLAYING MINIATURE GOLF
 Henry E. Lippert, 130 S.W. Twelfth St., Miami, Fla.
 Filed Aug. 13, 1969, Ser. No. 849,691
 Int. Cl. A63b 71/00

U.S. Cl. 273-129

10 Claims



A ball driving unit, comprising a gun and a trigger-actuated club, is mounted to travel horizontally on the top of a rotatable stand. The club is suspended from the top of the stand and arranged to drive golf balls to the gun's point of aim.

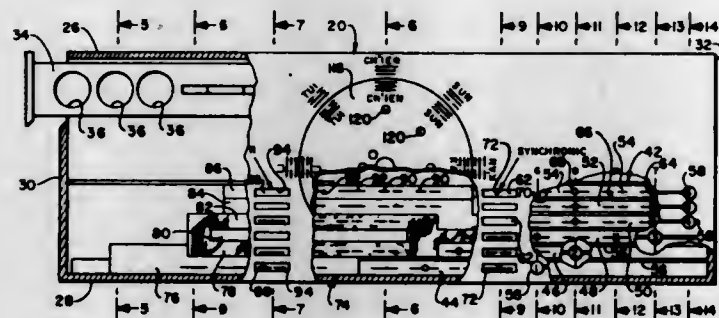
3,598,414
METHOD AND APPARATUS FOR DETERMINING AND STUDYING PHILOSOPHICAL AND ORACLE RESPONSES
 Khigh Abx Dhiagh, Los Angeles, Calif., assignor to William L. Seay, Los Angeles, Calif. and Jere Bayard, Los Angeles, Calif., part interest to each

Filed Jan. 9, 1969, Ser. No. 790,068

Int. Cl. A63f 9/18

U.S. Cl. 273-161

16 Claims



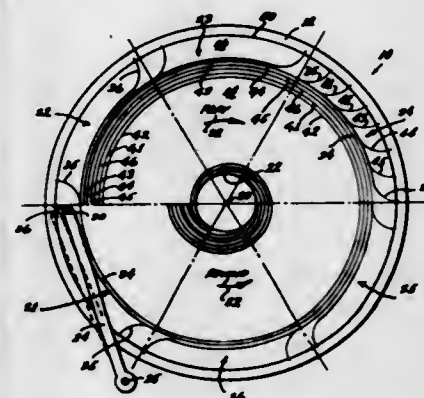
A first group of symbols, preferably six, are individually visually indicated in order, each of said symbols being taken from a predetermined plurality of symbols, preferably two basic symbols each divided into two subsymbols, preferably as determined by a previous set order of determination including the commonly called element of chance. Simultaneously with the first symbol group indication, a second symbol group of like number is automatically visually indicated, the second symbol group being altered from the first symbol group by use of only a portion of the same individual basic symbol indications of said first symbol group, but the alteration being in an exact predetermined manner. Also, a third symbol group may be simultaneously visually indicated with the first symbol group and of like number, certain of the symbols of the third symbol group being altered from the basic symbols of the first symbol group where said first group symbols are of particular subsymbol forms and not being altered when said first group symbols are not of said particular subsymbol forms. The apparatus may include interconnected first, second and third group slides simultaneously and automatically carrying out the predetermined symbol conversions or alterations upon the mere setting of the first group indicat-

ing slides, all of said group slides visually indicating the symbols of that particular group through windows of an apparatus frame.

3,598,415
RECORD FOR USE IN A SOUND-REPRODUCING DEVICE IN A TOY OR THE LIKE
 William F. Summerfield, Huntington Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Jan. 17, 1969, Ser. No. 792,111
 Int. Cl. G11b 3/78

U.S. Cl. 274-42 R

8 Claims



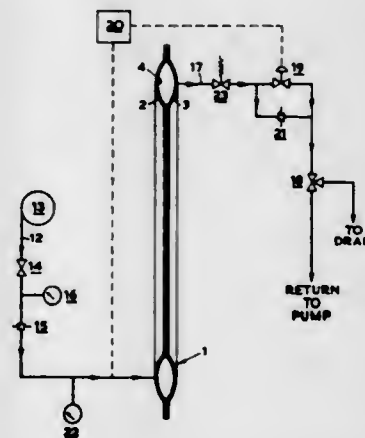
A record for use in a sound-reproducing device in a toy or the like, the record having a circular surface defining a plurality of congruent spiral sound grooves. Surrounding the circular surface is a ringlike annular surface, divided into a plurality of annular sectors, each defining a plurality of radial lead-in grooves, all of which are in communication with an arcuate lead-in groove which is in turn in communication with the outer convolution of a different spiral sound groove.

3,598,416
FLEXIBLE BELLOWS ARRANGEMENTS
 Frederick Ernest Stock, Winnipeg, Manitoba, Canada; Keith Norman Hitchcock, and Geoffrey Bernard Thomas, Rugby, England, assignors to The English Electric Company Limited, London, England
 Continuation-in-part of application Ser. No. 692,116, Dec. 20, 1967, now abandoned. This application Oct. 10, 1969, Ser. No. 871,449

Int. Cl. F21b 33/00; F16j 9/00, 15/00

U.S. Cl. 277-2

10 Claims



In order to detect perforation of a flexible seal provided between two relatively movable members, the seal includes a flexible bellows arrangement comprising a pair of flexible walls defining between them a tubelike enclosure and each extending between the members, and means is provided for feeding a fluid through the enclosure monitoring means being provided for detecting a change in a parameter of the fluid flow whereby to indicate leakage of fluid through one of the walls. The monitoring means may be sensitive to pressure or flow rate.

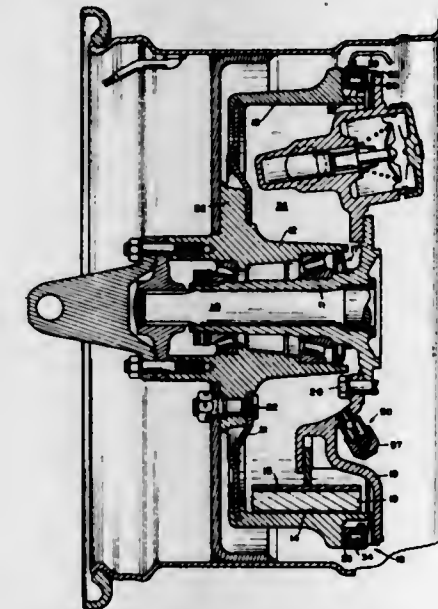
Where the seal separates two regions at different pressures, the pressure within the enclosure may be an intermediate

value. Thus by detecting whether fluid leakage is occurring into or out of the enclosure it is possible to conclude which wall has been perforated.

3,598,417
NONFRICTION SEAL
 Peter A. Mueller, Oak Park, Ill., assignor to Mueller Seal Company, Lyons, Ill.
 Continuation-in-part of application Ser. No. 748,131, July 15, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 600,418, Dec. 9, 1966, now abandoned. This application June 19, 1969, Ser. No. 843,893
 Int. Cl. F16j 15/16, 15/40

U.S. Cl. 277-74

7 Claims

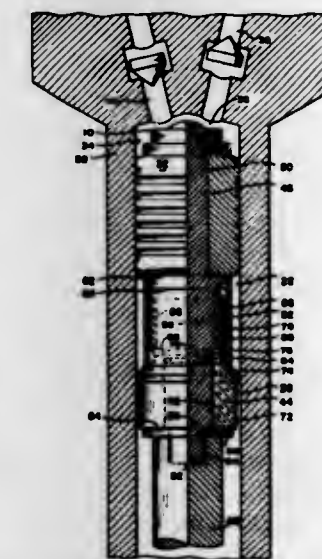


A seal comprising mating parts yieldably biased to mutual sealing contact but including means for introducing fluid under pressure between said parts to separate said parts, to establish a flowing-fluid barrier against entry of foreign materials between said parts and to establish and maintain a superatmospheric pressure in a chamber bounded by said parts. In a preferred form of the invention, one of said mating parts is a lipped washer capable of a hinging action and readily removably supported in the assembly. In some applications means may be provided for periodically scavenging from said chamber fluent material which may accumulate therein.

3,598,418
SLEEVE SEAL SHAPE CONTROL
 John R. Ward, Owings; Harry J. Skruch, Baltimore, and Joseph H. Morris, Stevensville, all of, Md.
 Filed Sept. 30, 1969, Ser. No. 862,200
 Int. Cl. F16j 9/06, 15/00

U.S. Cl. 277-165

4 Claims



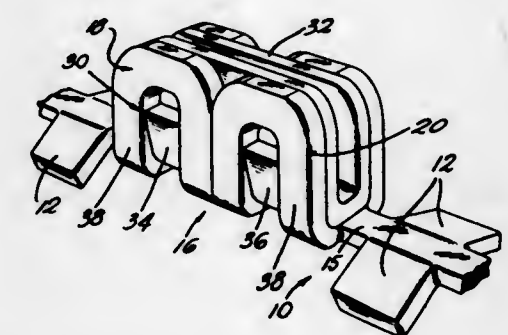
An apparatus for controlling the curved or contoured ends

of sleeve seals by altering the natural belled shape of the seal to thereby obtain the desired seating and sealing pressures.

3,598,419
RING LATCHES
 Kenneth J. Nisner, Spring Lake, and Robert Lakanen, Muskegon, both of, Mich., assignors to Muskegon Piston Ring Company, Muskegon, Mich.
 Filed July 22, 1969, Ser. No. 843,592
 Int. Cl. F16j 9/12

U.S. Cl. 277-219

11 Claims



A latching device for accurately abutting parted ends of a piston ring by engaging the expander-spacer of the ring, the device comprising a flexible molded or stamped body dimensioned so as to fit between the sides of the expander-spacer adjacent the part, the body having two pairs of ears projecting outwardly so as to engage said adjacent sides of said ring in their openings, but not so far as to extend out beyond the faces of the sides of the expander-spacer.

3,598,420
GARBAGE CAN CARRIER
 Jules Edlin, 330 East 59th St., New York, N.Y.
 Filed Sept. 12, 1969, Ser. No. 857,447
 Int. Cl. B62b 1/06

U.S. Cl. 280-47.24

4 Claims



A carrier for garbage cans or the like comprising an elongated post including a can-handle-grasping pair of hooks mounted toward the upper end thereof and a can-seating straplike cradle mounted toward the lower end thereof. An elongated wheel axle extends transversely through the post and the post-mounted portion of the cradle. Ground-engaging wheels are mounted on the outer extremities of the axle whereby a rolling support for the carrier is provided.

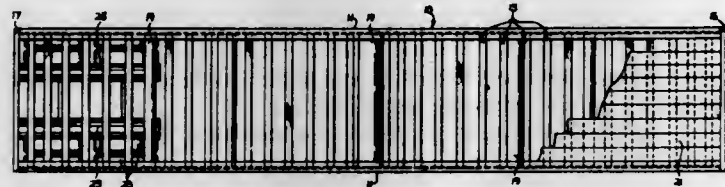
3,598,421
PLATFORM TRAILER
 Wylie A. Mason, Jr., Thousand Oaks, Calif., assignor to Wells Industries Corporation, North Hollywood, Calif.
 Filed July 17, 1968, Ser. No. 745,553
 Int. Cl. B62d 21/02

U.S. Cl. 280-106

6 Claims

The present disclosure pertains to a platform trailer having a plurality of crossbeams and torque tubes adjoined between

a pair of elongated side rails so as to provide a load path between parallel hard points on each side of the trailer thereby, absorbing the bending and torsional loads acting

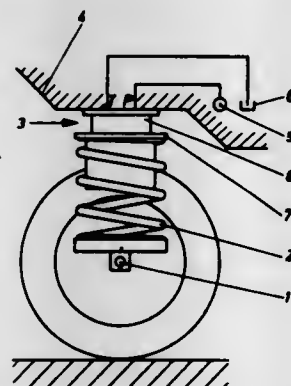


thereon. The trailer also has a kingpin supported by a plurality of bars to distribute any inertial loads acting on the kingpin over a wide area.

3,598,422
SPRING SUSPENSION SYSTEM FOR VEHICLES PROVIDED WITH AUTOMATIC LOAD COMPENSATION
Gunter Strauff, Kaarst, Germany, assignor to Langen & Co., Germany

Filed Jan. 9, 1970, Ser. No. 1,646
Int. Cl. B60g 17/00
U.S. Cl. 280-124

6 Claims



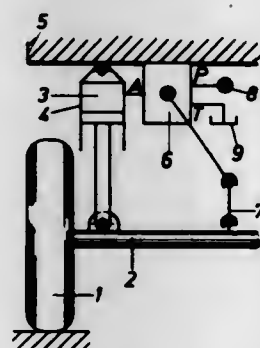
A resilient suspension assemblage for vehicles provided with automatic load compensation means in which a compression spring operably connected with a wheel axle or guide rail is related to the vehicle chassis via the moving component of a piston-cylinder unit including a fixed component secured to the chassis and the moving component and a liquid cushion of variable size contained within the pressure space of the piston-cylinder unit, with the pressure chamber being so connected in dependence on load variations via a level-regulating device either with a pressure source or a drain or outlet that the distance between the chassis and the axle or guide rail is set to a predetermined value.

3,598,423
LEVEL-REGULATING VALVE OF THE PISTON VALVE TYPE PARTICULARLY FOR USE WITH ROAD VEHICLES

Willi Clarenbach, Wuppertal-Barmen, Germany, assignor to Langen & Co., Düsseldorf, Germany
Filed Feb. 11, 1969, Ser. No. 798,359
Int. Cl. B60g 17/00

U.S. Cl. 280-124

8 Claims



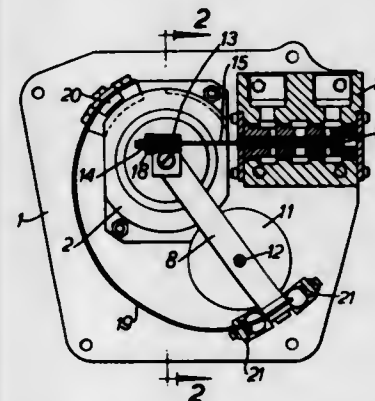
A level-regulating valve of the piston valve type for road vehicles which, in dependence upon the distance variations

between sprung and unsprung bodies, connects a pressure space of an adjusting component positioned between such bodies in a first regulating position with a source of pressure, in a second regulating position with a discharge and in a third regulating position which corresponds to the level position of the vehicle a blockage of such connections with the distance variations being transmitted via linkages to the level-regulating valve.

3,598,424
CONTROL UNIT FOR VEHICLE SUSPENSIONS
Stephen J. Crouch; Peter W. R. Stubbs, and Michael W. Lewis, all of Warwick, England, assignors to The Rover Company Limited, Solihull, Warwickshire, England
Filed Aug. 19, 1969, Ser. No. 851,245
Claims priority, application Great Britain, Aug. 20, 1968, 39773/68

Int. Cl. B60g 21/06
U.S. Cl. 280-124 F

7 Claims



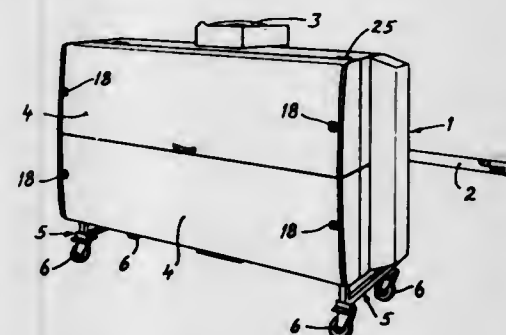
A control unit for an active vehicle suspension system of the kind in which hydraulic struts acting on the wheel suspension linkages are in series with springs and have hydraulic fluid fed to and from them in response to vehicle body movements comprises a pendulum device connected to a rotary damper which is in parallel with a spring. The body of the damper is rotatably mounted in bearings in a mounting plate for securing to the vehicle bodywork and adapted to be rotated by movements of the suspension linkage and the damper spindle carries the pendulum and acts on hydraulic valves controlling the fluid flow. The spring can be a leaf spring interconnecting the damper body and the pendulum.

3,598,425
WHEELED RACK
Bjerne Solle, Jar, Norway, assignor to Wideroe Industri A.S., Oslo, Norway

Filed Apr. 15, 1969, Ser. No. 816,321
Claims priority, application Norway, Apr. 18, 1968, 1473/68
Int. Cl. B60v 27/00

U.S. Cl. 280-150 A

3 Claims

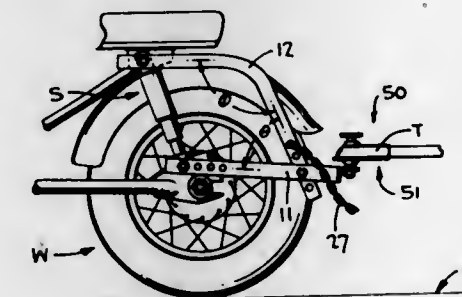


The present invention relates to a wheeled rack for mounting on the side of a trailer for pushing the trailer on edge during stowing, the rack comprising two identical members each having a plurality of rollers and a means for attachment to the frame of the trailer by means of a slidable rod which rigidly secures the frame to the trailer.

3,598,426
TRAILER HITCH FOR MOTORCYCLE
Nathan E. Spiess, East Petersburg, Pa., assignor to Wheel Mate Corporation, East Petersburg, Pa.
Filed Oct. 29, 1969, Ser. No. 872,177
Int. Cl. B62k 27/00

U.S. Cl. 280-204

10 Claims

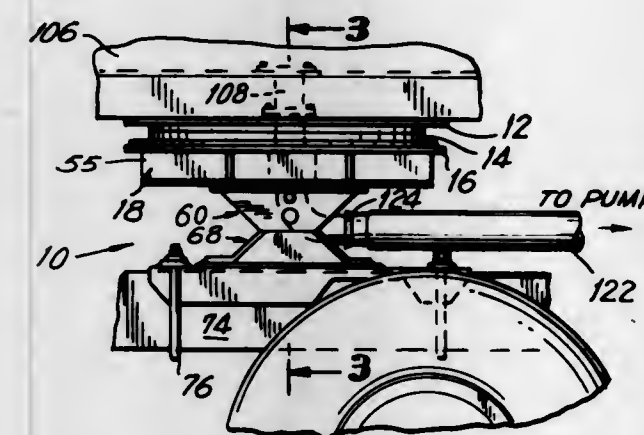


A hitch particularly adapted to fit a motorcycle or other sport vehicle with rear mounted shock absorbers is disclosed. A U-shaped frame extends forwardly along the sides of the rear wheel and is connected at the lower mount of the shock absorber. Forwardly and upwardly extending braces are connected to the top mounts for the shock absorber; shock loads from the trailer being thereby transmitted to the shock absorber of the vehicle for dissipation. The braces have an obtuse angle at a midpoint to avoid interference with the exterior of the shock absorbers and adjustment of the frame and the braces at two points allows adaptation to different vehicles.

3,598,427
LIQUID FIFTH WHEEL ASSEMBLY
James Owen Lavery, Setauket, N.Y., assignor to Garsite Products Inc., Deer Park, N.Y.
Filed Dec. 17, 1968, Ser. No. 784,394
Int. Cl. B60d 1/08

U.S. Cl. 280-421

28 Claims

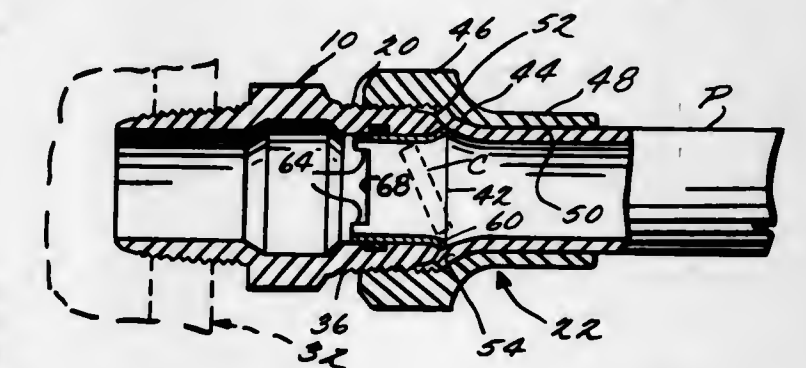


The present invention pertains to a liquid fifth wheel assembly for use with tractor and trailer combinations wherein the trailer includes a tank body for the storage and transportation of fluids, and the tractor includes a pumping station adapted to deliver the fluid stored in the tank. The fifth wheel assembly which is secured to the underside of the trailer comprises upper and lower mounting plates, an annular ball bearing assembly disposed between the mounting plates and secured therebetween, a subframe member having an upper mounting bracket secured thereto and descending therefrom and adapted to be placed in bearing secured engagement with a lower mounting bracket secured to the tractor, wherein the entire assembly has a central opening therein through which passes an enclosed pipe structure interconnecting the tank and the pump station; the pipe structure including a swivel joint for permitting rotational movement of the enclosed pipe.

3,598,428
PIPE COUPLING
John J. Smith; Lawrence F. Luckenbill, and Peter N. Cassimatis, all of Decatur, Ill., assignors to Mueller Co., Decatur, Ill.
Continuation-in-part of application Ser. No. 708,314, Feb. 26, 1968, abandoned. Continuation-in-part of application Ser. No. 796,506, Feb. 4, 1969. This application Jan. 19, 1970, Ser. No. 3,841
Int. Cl. F16l 35/00

U.S. Cl. 285-3

25 Claims

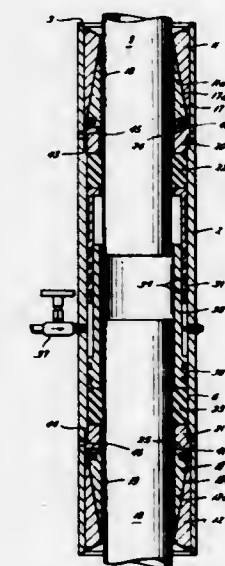


A pipe coupling for connecting an end of a pipe into a water distribution system while there is pressure on the system. The pipe may have either a flared end or a flareless end. The pipe coupling is provided with a temporary sealing means which allows initial connection of the pipe into the system so that delivery of water may be provided at a later time upon complete makeup of the coupling or after the elapse of a predetermined amount of time necessary to dissolve the temporary sealing means when the same is water soluble. If immediate delivery of water from the water distribution system to the pipe is desired, the coupling may be completely made up immediately so that the cutter means carried within the coupling is actuated to cause removal of the temporary sealing means.

3,598,429
HYDRAULIC COUPLING
James F. Arnold, P.O. Box 7197, Shreveport, La.
Filed Apr. 14, 1969, Ser. No. 815,831
Int. Cl. F16l 35/00

U.S. Cl. 285-18

8 Claims



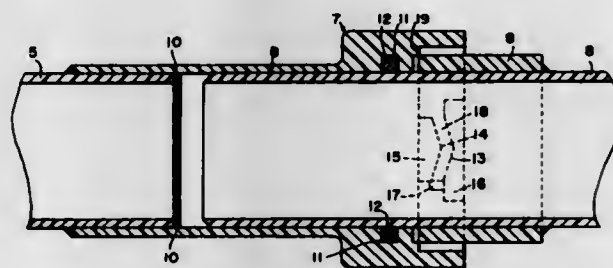
The coupling disclosed includes a housing for sliding over the end of a pipe length. Fluid under pressure is introduced into the housing to act against a piston therein. The piston moves axially of the housing and forces slips into gripping engagement with the pipe and compresses packing between the piston and the slips into sealing engagement with the housing and the pipe. When the coupling is to connect two pipe sections together or to repair a leak in one pipe section, two pistons are employed. The pistons move in opposite

directions under the influence of fluid pressure, force-opposed sets of slips into engagement with the two pipe sections, and compress packing elements between each piston and its associated slips into sealing engagement with the outside surface of the two pipe sections or the outside surface of the pipe being repaired on opposite sides of the leak, if the coupling is being used for that purpose.

3,598,430
PIPE CONNECTOR
Daniel J. Maher, Fort Lauderdale, and Robert W. O'Halloran, Hollywood, both of, Fla., assignors to Hurricane Pipe Manufacturing, Inc., Ft. Lauderdale, Fla.
Filed July 24, 1969, Ser. No. 844,537
Int. Cl. F16l 35

U.S. Cl. 285-24

1 Claim

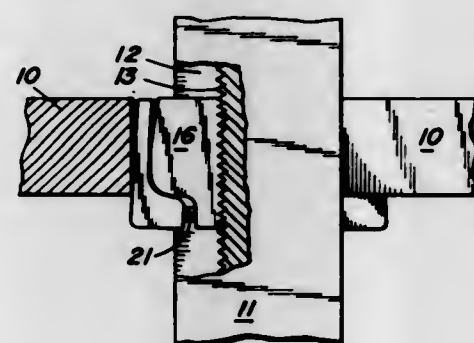


A pipe connector in which a section of the connector is attached to the ends of each of two pieces of pipe and in which the ends are locked together by turning the two sections relative to each other.

3,598,431
ADJUSTABLE WEDGE CONSTRUCTION
Joseph Giambalvo, 1118 Willoughby Ave., Brooklyn, N.Y. Division of Ser. No. 790,293, Jan. 10, 1969, Pat. No. 3,545,387, which is a continuation-in-part of application Ser. No. 659,937, July 28, 1967, now Patent No. 3,437,060. This application May 14, 1970, Ser. No. 37,270
Int. Cl. F16b 12/20

U.S. Cl. 287-20.3

5 Claims



An adjustable wedge for use in adjustable furniture construction made up of two halves adapted to pivotally fit together to form a rectangular shape, and an adjusting screw adapted to be turned to cause relative rotation between the halves to form a wedge.

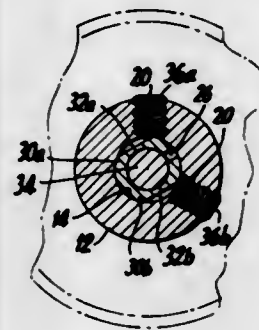
3,598,432
HUB CLAMP
Melvin F. Walker, Dix Hills, N.Y., assignor to Designatronics, Inc., Mineola, N.Y.
Filed Oct. 20, 1969, Ser. No. 867,765
Int. Cl. F16d 1/06

U.S. Cl. 287-52.04

4 Claims

A bushing, having a deflectable tab provided with a flattened portion on the outside surface thereof, is inserted in the bore

of a rotatable hub and is brought into gripping engagement with a shaft by means of a setscrew which extends through

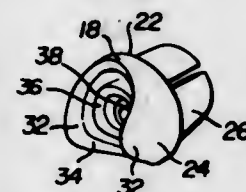


the hub and which bears against the flattened portion of the deflectable tab.

3,598,433
MOLDED PLASTIC FITTING
Anthony P. Savickas, 2713 N.E. 27th Ave., Pompano Beach, Fla.
Filed Sept. 16, 1969, Ser. No. 858,329
Int. Cl. F16b 7/00

U.S. Cl. 287-54 C

2 Claims

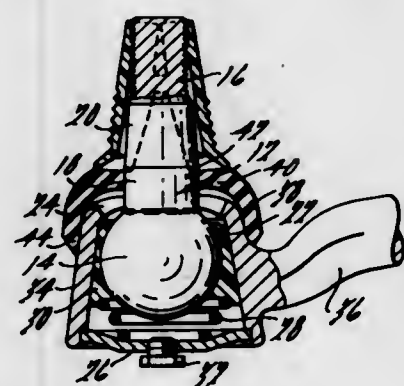


A molded plastic fitting particularly useful for joining together two tubular members. The fitting is a generally cylindrical molded plastic body having first and second ends, the first end being recessed axially to fit the outside of one tubular member, and the second end being radially inwardly offset from the first end by a circumferential step and dimensioned to fit inside the end of the other tubular member with the step abutting that end of the tubular member. Both ends of the molded body are bonded to the tubular members. A fastener passes through a transverse wall inside the molded body to clamp the molded body against the first tubular member. Both ends of the tubular member are constructed to give resiliently for proper fitting with the respective tubular members.

3,598,434
BALL JOINT HAVING DISPOSABLE RETAINER
De Lane D. Patton, Keiser; William J. Worthington, Maughan, and B. Garth, Columbus, all of, Ohio, assignors to Columbus Auto Parts Company, Columbus, Ohio
Filed June 8, 1970, Ser. No. 44,304
Int. Cl. F16c 11/06

U.S. Cl. 287-87

8 Claims



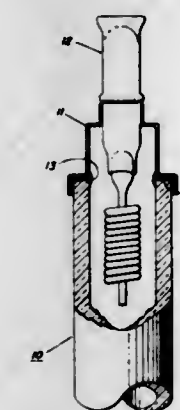
A ball joint for an automotive-steering linkage or the like which is assembled prior to its installation on a vehicle with a

special plastic retainer sleeved over the ball stud. The retainer protects the threads of the stud and holds the usual dust cover in place. The retainer is removed and discarded upon the installation of the ball joint onto the vehicle. The retainer has the shape of a tapered open-ended sleeve with internal ribs to grip the stud threads. The retainer is slotted at its opposite ends and has integral hinge portions between the slots so that the application of radial forces at one end of the retainer will produce opposite radial movement of the opposite end of the retainer.

3,598,435
CERAMIC-METAL BONDING COMPOSITION AND COMPOSITE ARTICLE OF MANUFACTURE
Paul J. Jorgensen, Cupertino, Calif., assignor to General Electric Company
Continuation-in-part of application Ser. No. 749,069, July 31, 1968, which is a continuation-in-part of application Ser. No. 500,311, Oct. 21, 1965. This application Nov. 14, 1968, Ser. No. 825,086
Int. Cl. F16b 11/00

U.S. Cl. 287-189.365

11 Claims

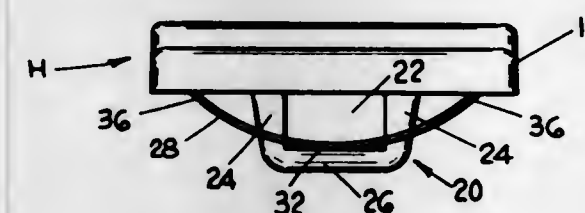


An improved seal or bond between a refractory metal body and a translucent alumina ceramic body is disclosed wherein the metal surface to be bonded to the alumina body is comprised of zirconium, either as a metallic coating thereon, diffused therein by "metallizing," as an alloying constituent, or as the major constituent of the metal body. The bond is effected by means of an alumina glass between the zirconium present at the surface and the adjoining alumina ceramic surface, at least a portion of the zirconium being oxidized by the molten glass during the formation of the seal.

3,598,436
HASP
Stephen Salvatore Scelba, Clifton, N.J., assignor to Presto Lock Co., Inc., Garfield, N.J.
Filed Sept. 3, 1969, Ser. No. 854,834
Int. Cl. E05c 19/08; E05b 65/52

U.S. Cl. 292-283

9 Claims

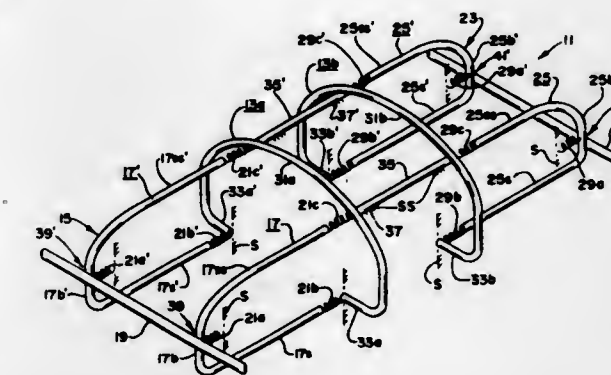


A hasp cooperable with a latching member of a latching device employs a convexly shaped spring member to automatically eject or separate the hasp from the latching device when the latching member is moved from latched to unlatched position. The spring member is formed with means for connecting it to the portion of the hasp adapted to receive the latching member in its latched position.

3,598,437
AUTOMOBILE COLLISION GUARD MEANS
Mary V. Montgomery Harris, 491 North Highlands Apt. 15, Memphis, Tenn.
Filed Aug. 6, 1969, Ser. No. 847,876
Int. Cl. B60r 19/08

U.S. Cl. 293-62

4 Claims

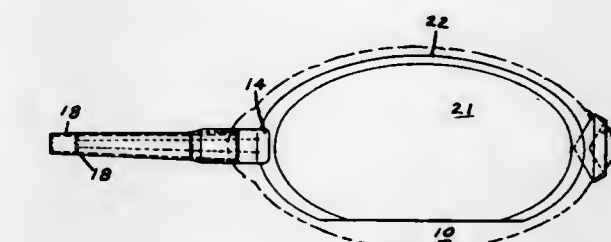


Guard bar and rod members are supported from the frame structure of an automobile and are arranged outwardly of the skin of the automobile body at strategic impact-prone areas of the body. The guard structure includes crossbars extending over the top midsection of the automobile operative mainly for preventing damage in an accident overturning the automobile. The guard structure includes also a forward and a rearward guard rod assembly arranged respectively around the front cap and rear deck sections of the automobile and with each assembly being rigidly or resiliently mounted for cushioning impacts forwardly and rearwardly of the automobile.

3,598,438
HOLDER FOR HOT CASSEROLE DISH
Edmund Taft, 703 Madison Ave., Daytona Beach, Fla.
Filed May 23, 1969, Ser. No. 827,430
Int. Cl. A47j 45/00

U.S. Cl. 294-29

2 Claims



This specification discloses a holder for a hot dish. The holder is made up of a flat base with a loop on the front end to receive the end of a dish and a fingerlike member attached to a spring-loaded handle. The handle may be moved down to bring a finger attached to the handle into engagement with the inside of the dish whereby the dish is held positively to the base. The handle is urged to move with this finger away from the dish by a compression spring. A lug is fixed to the handle and the thumb of an operator can engage the lug and force the finger down into engagement with the dish.

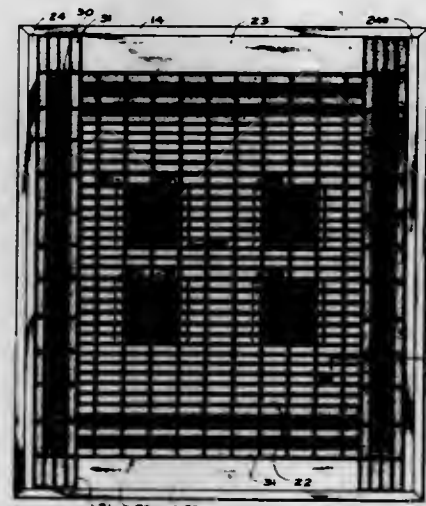
3,598,439
LIFTING HEADS FOR PALLETIZERS
Ernest A. Dahlquist; Stanley J. Polakowski, and Teunis Vaalburg, all of Grand Rapids, Mich., assignors to Rapistan Incorporated, Grand Rapids, Mich.
Filed Dec. 6, 1968, Ser. No. 781,823
Int. Cl. B66c 1/02

U.S. Cl. 294-65

10 Claims

The invention is directed to a device of the type frequently used in palletizers for lifting, by air pressure differential, articles arranged in any of a number of different patterns. The

device consists of a head having a primary chamber from which the air is exhausted. The bottom of the primary chamber is formed by a grate creating a number of small individual air passages. A number of these individual openings are equipped with valves, each individually operable. These



valves open and close in response to a predetermined amount of air pressure differential across the valve. The valves close to shut off the flow of air into the primary chamber through those individual air passages not closed off by the articles to be lifted.

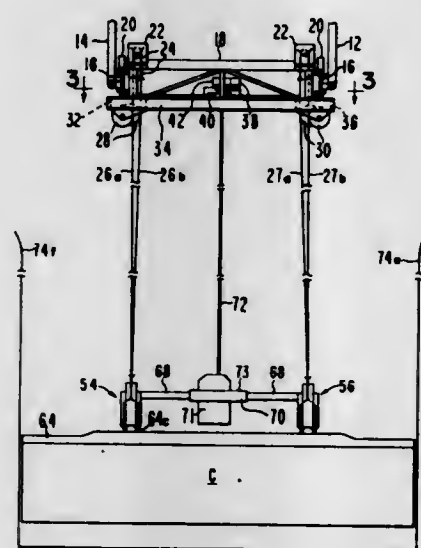
3,598,440

ROTATABLE CONTAINER-HOISTING APPARATUS
Charles D. Ramsden, Alameda, and George W. Cooper, San Leandro, both of, Calif., assignors to Fruehauf Corporation, Detroit, Mich.

Filed Mar. 18, 1969, Ser. No. 808,183
Int. Cl. B66c 1/00

U.S. Cl. 294-67

5 Claims



Hoisting apparatus for cargo containers that permits the containers to be oriented in any rotative position so that containers can be positioned as desired in container cells, on dock surfaces, and like locations. A cable guiding system in which the spacing between the several vertical cable runs in the system can be altered between a relatively widely spaced, highly stable position and a relatively closely spaced position at which the cable guiding structure can enter into container cells without contacting the walls that define the cell. An auxiliary frame adapted to be mounted between the cable guiding structure and a conventional container-engaging spreader frame, which auxiliary frame is adapted to rotatively position a spreader frame and container engaged thereby. The auxiliary frame includes sensors to determine the degree of load imbalance, if any, of a container engaged thereby, and a counterweight and a drive system for the counter-

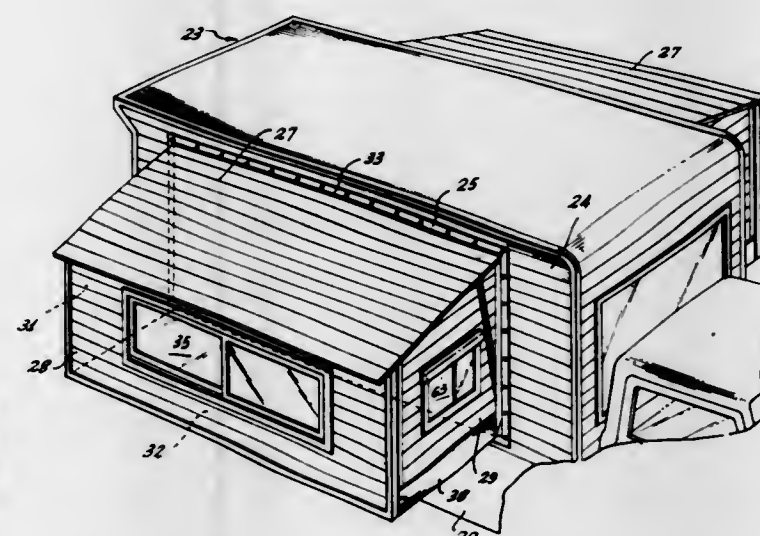
weight that positions the counterweight so as to compensate for any imbalance arising from an eccentrically loaded container.

3,598,441

WALL-MOUNTED EXTENDABLE BED
John H. Damiani, 15633 Arrow Hwy., Irwindale, Calif.
Filed July 18, 1969, Ser. No. 842,977
Int. Cl. B60p 3/38

U.S. Cl. 296-23

22 Claims



A foldable or exteriorly extendable bed and vehicle body construction comprised of a roof panel, which forms a part of the sidewall of the vehicle, and inwardly folding side and end panels interlocked to prevent entrance from the outside whether the bed is folded or extended, and with the unit preassembled into a frame and inserted as a unit into a frame opening in the sidewall of the vehicle and secured therein by screws or the like. Tension springs and torsion bars counterbalance the bed panels so that minimum force is required to operate them, and, if released, the unit will not continue a moving cycle to damage. A longitudinal hinge between the side and bottom panel is articulated to prevent binding of the parts and the loaded, extended bed is supported mainly through the end panel to stationary brackets.

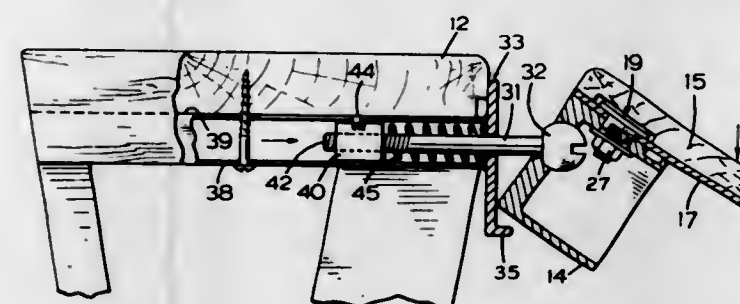
3,598,442

COLLAPSIBLE TABLET ARM ASSEMBLIES
John William Miller, Toronto, Ontario, Canada, assignor to Canadian Seating Company Limited, Toronto, Ontario, Canada

Filed Aug. 6, 1969, Ser. No. 847,878
Int. Cl. A47b 39/00

U.S. Cl. 297-162

9 Claims



The invention provides a collapsible writing tablet arm pivotally attached to the arm of a chair, such as those commonly found in lecture halls. The tablet arm is movable from a position alongside and below the chair, to a horizontal writing position in front of the chair. When in its horizontal position, the tablet will deflect in any direction on application of excessive force to the tablet, and restore to its horizontal position on removal of the force.

3,598,443

SEAT BELT CONNECTOR
Robert W. Stoffel, Ferndale, Mich., assignor to Jim Robbins Seat Belt Co., Mt. Clemens, Mich.
Filed June 5, 1969, Ser. No. 830,735
Int. Cl. A62b 35/60

U.S. Cl. 297-389

20 Claims



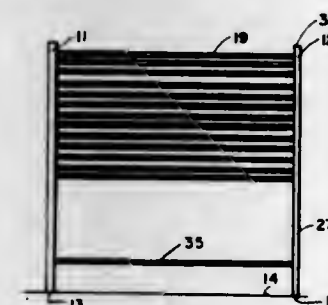
A seat belt assembly having a connector for releasably fastening a diagonally positioned shoulder belt to a lap belt, and both belts to a floor mounting fitting. The connector allows the user to either fasten or release the belts from their connection to the fitting as part of the same motion in which he positions or removes the belts from about his body.

3,598,444

BODY SUPPORTER
Sarah H. Seiter, c/o Adams, 20 Teton Court, Lafayette, Ind.
Filed Dec. 9, 1968, Ser. No. 782,016
Int. Cl. A47c 4/02, 7/00

U.S. Cl. 297-440

9 Claims



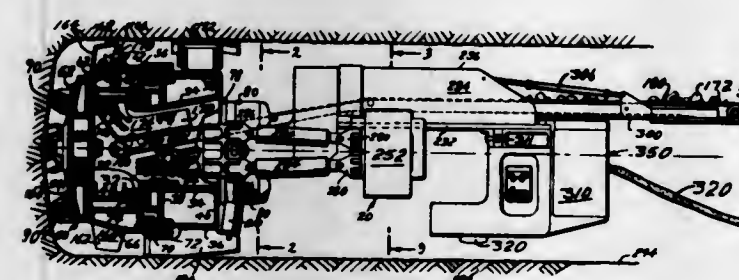
A pair of horizontally spaced rectangular members of plastic impregnated wood has a plurality of identical apertures in parallel horizontal and vertical rows and columns receiving dowel rods in apertures selected to form a seat and foot rest of desired size, location, and configuration.

3,598,445

TUNNEL-BORING MACHINE
Douglas F. Winberg, 9861 Vineyard Crest, Bellevue, Wash.
Filed May 8, 1969, Ser. No. 822,921
Int. Cl. E01g 3/04

U.S. Cl. 299-31

19 Claims



This invention is for a tunnel-boring machine which can be used for boring circular tunnels through rock. The machine

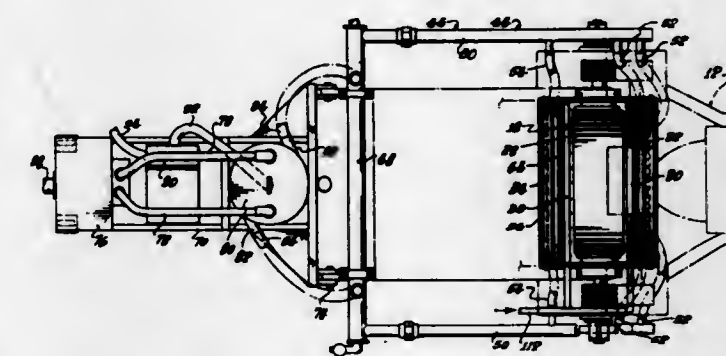
comprises a rotary cutterhead, a cutterhead support, a main beam, and a gripper. On the front of the cutterhead there are mounted cutters which fracture the rock. The cutterhead support provides journal mounting for the cutterhead, and is centrally connected to the forward end of the main beam by ball and socket joint means. The ball and socket joint permits angular movement in all directions, viz., X-Y-Z axis, between the cutterhead support and the main beam. The main beam extends rearwardly and is connected by slide way means to the gripper, which permits the main beam to move in a longitudinal direction. The gripper which is a force reaction member of the machine, bridges across the tunnel, providing a rear pivoting support means about the X and Y axis for the main beam, and rigidly fixes the location of the pivot axis at the approximate center of the tunnel.

3,598,446

PAVEMENT SURFACING MACHINE WITH VACUUM WATER RECOVERY SYSTEM
Cecil W. Hatcher, West Covina, Calif., assignor to Concut, Inc., Toledo, Ohio
Filed June 11, 1969, Ser. No. 832,120
Int. Cl. E01c 23/09

U.S. Cl. 299-39

1 Claim



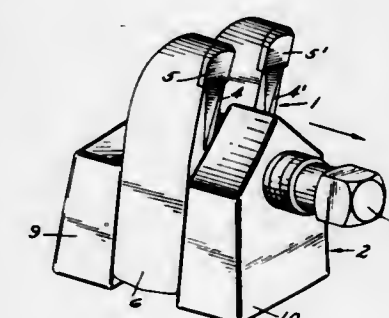
A pavement surfacing machine having a vacuum system for recovering the water used to cool and to lay the dust produced by the rotary surfacing unit of the machine, which unit comprises transversely spaced circular saws for cutting grooves in the pavement. Cuttings vacuumed up with the water are separated therefrom and the water is then reused. This minimizes the amount of water which must be transported to the job. The vacuum assembly includes a pair of vacuum head means which are disposed parallel to and one on either side of the saws. A shroud having a pavement engaging skirt surrounds the vacuum head means. The entire vacuum assembly is suspended from the machine by flexible means whereby the vacuum assembly may float relative to the saws.

3,598,447

CUTTER BITS AND BLOCKS FOR MINING MACHINES
Arnold B. Bower, Jr., St. Clair Shores, Mich., assignor to General Electric Company
Filed June 30, 1969, Ser. No. 837,684
Int. Cl. E21c 35/18

U.S. Cl. 299-91

5 Claims



A cutter bit for a mining machine, the shank of which is in the shape of an inverted U, is adapted for mounting upon a

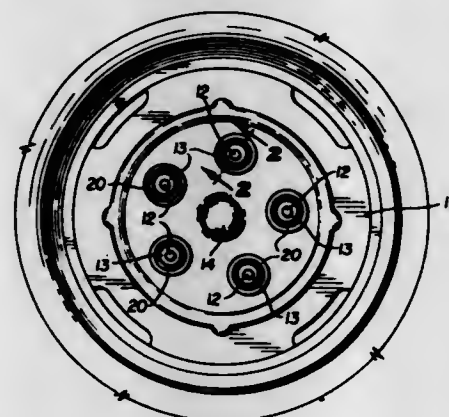
block having a complementary-shaped recess in its midportion defining a bit-receiving zone to receive and releasably hold the cutter bit. The cutter bit may have a single head containing a single wider-than-normal hard cutting tip, or it may contain two or more heads, each containing cutting tips mounted transverse to the direction of cutting.

3,598,448
METHOD AND APPARATUS FOR MANUFACTURE OF SIDE BROOMS
Donald G. Kirk, Elgin, Ill., assignor to Elgin Sweeper Company, Elgin, Ill.
Filed July 7, 1969, Ser. No. 839,287
Int. Cl. A46d 1/08
U.S. Cl. 300—21 14 Claims



Groups of wires used in side brooms for streetsweepers and similar apparatus are manufactured by apparatus comprising a wire sorter that vibrates to position a specified number of wire broom strands in vertical and lateral position for bending and forming. A transversely moving hydraulic cylinder actuated ram means bends the group of wire through a forming die generally at their midpoint into a hairpinlike configuration. The method of forming the bristle groups and filling wire broom segments includes the steps of counting a predetermined number of straight wire broom strands, orienting these strands in a predetermined relation to one another, holding the predetermined number of oriented strands at an upper and lower position adjacent a forming means, forcing the wire strands through a forming die by means of a ram that moves transverse to the central axis of the group of strands and removing the bent group of wire strands from the forming die and inserting them into a wire broom segment.

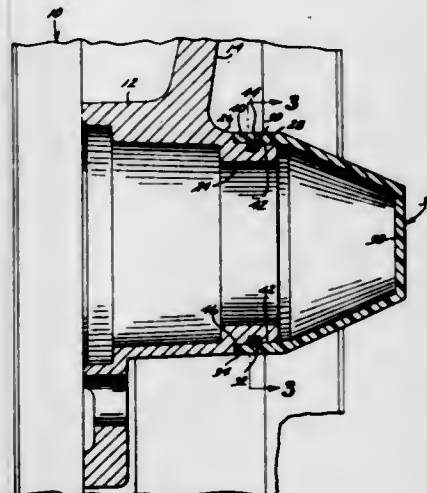
3,598,449
TIRE TRUEING MEANS
Henry Replin, 110 S. Dexter St., Denver, Colo.
Filed Nov. 13, 1969, Ser. No. 876,538
Int. Cl. B60b 13/00
U.S. Cl. 301—5 B 6 Claims



Motor vehicle tire trueing means for automatically correcting imbalance in a tire on a wheel fastened to the vehicle axle

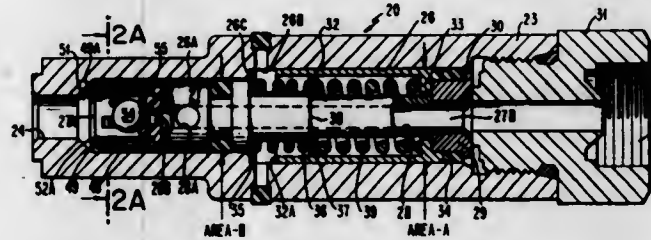
by a plurality of lugs and nuts, comprising a series of annular weights, one mounted on each lug nut, and resilient means between each annular weight and the nut on which it is mounted. The trueing means may be an annular weight in the form of a steel ring having a central opening and a groove in the surface defining the opening, and a resilient O-ring in the groove for engaging the nut, or it may be a heavy metal ring mounted on a resilient sleeve which engages the nut.

3,598,450
VEHICLE WHEEL AND WHEEL CAP ASSEMBLY
Raymond Clarence Brown, Tarzana; Phillip Cravits, Burbank, and Charles Pelly, Los Angeles, all of, Calif., assignors to Superior Industries, Inc., Van Nuys, Calif.
Filed Aug. 28, 1969, Ser. No. 853,651
Int. Cl. B60b 7/02
U.S. Cl. 301—108 R 3 Claims



A vehicle wheel and wheel cap assembly in which the wheel cap constitutes an aesthetically attractive axial extension of the central hub of the wheel, the external surface of the cap forming a faired continuation of the adjacent surface of the wheel hub. The wheel and cap are releasably secured together by a resilient annular member carried within confronting grooves formed in facing surfaces of the wheel and cap.

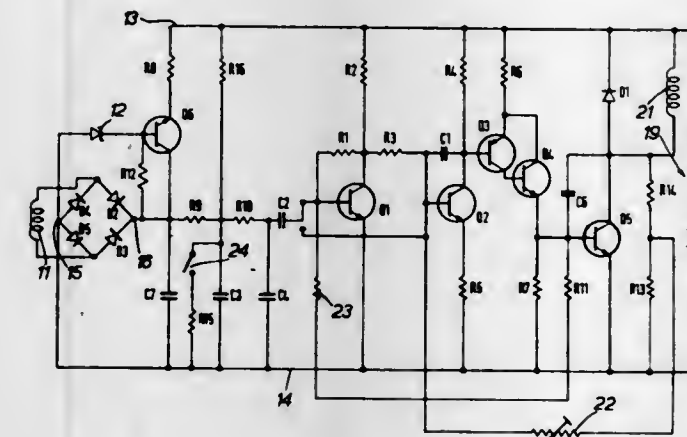
3,598,451
DUAL RATIO PROPORTIONING VALVE
Roger E. Doerfler, Baltimore, Md., assignor to Hydramsearch Co., Inc., Annapolis, Md.
Filed May 6, 1969, Ser. No. 822,170
Int. Cl. B60t 8/26, 11/34
U.S. Cl. 303—6 C 7 Claims



This patent discloses a dual ratio proportioning valve for proportioning fluid hydraulic pressure to one set of brakes of an automotive type vehicle having a hybrid brake system. As disclosed, the valve includes a valve body having a hydraulic fluid inlet and a hydraulic fluid outlet which is communicated by a bore. Mounted in the bore is a spool which is operable to seal the outlet from the inlet upon a first predetermined inlet pressure being reached. The valve includes means to proportion, after the first inlet pressure is reached, the rate of pressure increase at the outlet relative to the pressure increase at the inlet until a second hydraulic inlet pressure is

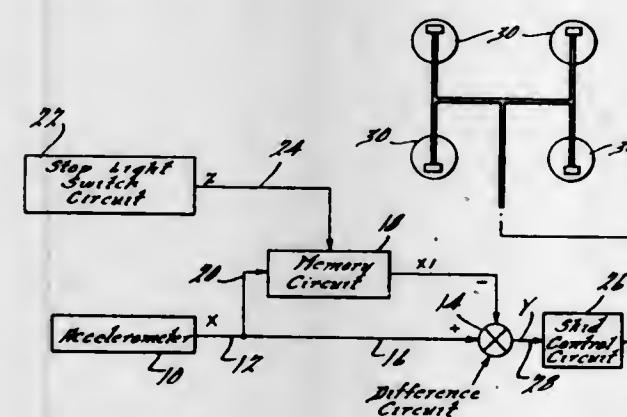
reached. The valve also includes means for proportioning thereafter further pressure increases at the outlet relative to the inlet at a different rate than the first-mentioned proportioning means.

3,598,452
MEANS FOR CONTROLLING DECELERATION OF A WHEEL
Stanley Clifford, Coventry, and Leonard Ramsay Hicox, Birmingham, both of, England, assignors to Girling Limited, Birmingham, England
Filed May 8, 1968, Ser. No. 727,469
Claims priority, application Great Britain, May 23, 1967, Oct. 12, 1967, Feb. 8, 1968, 23883/67; 46582/67; 6223/68
Int. Cl. B60t 7/02
U.S. Cl. 303—21 CG 5 Claims



The acceleration or deceleration of a wheel on a rail vehicle is controlled by using the wheel to drive a generator which produces an electrical signal, the magnitude of which depends on the acceleration or deceleration of the wheel. This signal is applied to a DC control circuit which includes means operable to release the brakes if deceleration is being controlled, or to prevent transmission of driving power to the wheel if acceleration is being controlled. The control circuit includes a DC source charged by the generator and providing power to the control circuit, and the arrangement also includes a delay network for maintaining the circuit in a condition to release the breaks or prevent transmission of power in the event that the wheels should lock before the brakes are released or slip before the power is released.

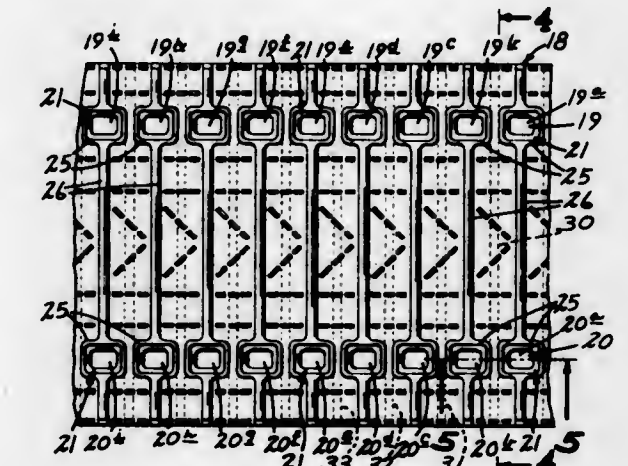
3,598,453
GRADE-COMPENSATED ACCELEROMETER IN AN ANTISKID SYSTEM
Hugh E. Riordan, Ann Arbor, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed Feb. 7, 1969, Ser. No. 797,484
Int. Cl. B60t 8/14
U.S. Cl. 303—21 5 Claims



An antiskid system in which an output signal X from a linear accelerometer is fed to a memory circuit. The output

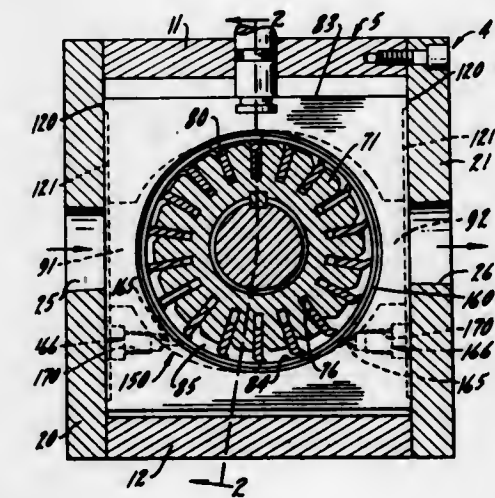
XI from the memory circuit will follow the input in the absence of a brake application signal Z. Upon occurrences of signal Z the memory circuit will hold the magnitude of signal XI at the magnitude of signal X before braking until signal Z is removed. Signals XI and X are applied to a difference circuit which produces an output signal Y which is X-XI. Signal Y controls a skid control circuit. In this manner accelerometer errors in output as a result of grade variations are minimized.

3,598,454
VEHICLE DRIVE TRACK STIFFENER
William R. Richards, Roseau, Minn., assignor to Texotron Inc., Providence, R.I.
Filed May 26, 1969, Ser. No. 827,839
Int. Cl. B62d 55/24
U.S. Cl. 305—35 R 6 Claims



An endless molded rubber drive track or belt is disclosed having two rows of longitudinally spaced openings for engagement with the teeth of a pair of drive sprocket wheels. A plurality of stiffeners formed from unidirectional fiber glass are carried within the belt between the inner and outer surfaces thereof. Each stiffener extends substantially the full transverse width of the belt between adjacent openings to impart transverse rigidity to the belt.

3,598,455
HYDROSTATIC BEARING SYSTEM
Schmitz, Albert A., 5217 Durand Ave., Racine, Wis.
Filed June 27, 1969, Ser. No. 837,278
Int. Cl. F16c 35/00
U.S. Cl. 308—9 12 Claims



A hydrostatic balancing and lubrication system for birotational pumps and motors which utilizes check valves in the passages supplying hydrostatic bearing areas with metered

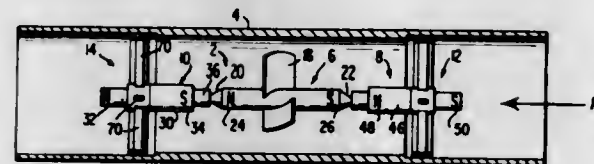
amounts of pressurized fluid. The check valves prevent the backflow of fluid from the bearing areas to that one of alternate sources of fluid having the lower pressure.

3,598,456

MAGNETICALLY SUPPORTED ROTOR IN A CONDUIT
Robert G. Love, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
Division of Ser. No. 782,800, Dec. 11, 1968, Pat. No. 3,512,851.
Filed Jan. 23, 1970, Ser. No. 5,211
Int. Cl. F16c 39/06

U.S. Cl. 308-10

4 Claims



An elongated magnetic rotor member supported by a magnetic bearing assembly in a conduit, the rotor having opposite ends with substantially conical tips which are supported by a magnetic field associated with the ends of the rotor and with spaced magnetic stator members. Each stator member includes a generally cup-shaped jewel that may be radially adjustable with respect to the longitudinal axis of the stator member. Each jewel provides a potential bearing surface for one of the rotor tips. The magnetic fields are longitudinally oriented, and are of such polarity that the tips of the rotor are drawn, in opposite directions, toward an adjacent jewel. The cup shape of the jewels provides lateral support for the rotor tip and aids in the centering thereof.

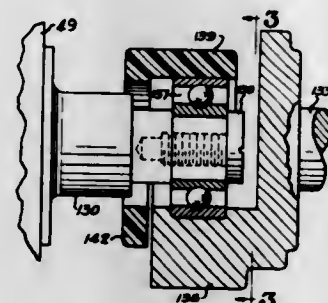
3,598,457

ROLL MOUNTING

Arthur W. Sejeck, Kirtland, Ohio, assignor to Addressograph Multigraph Corporation, Cleveland, Ohio
Division of Ser. No. 568,838, July 29, 1966, Pat. No. 3,521,559.
Filed May 18, 1970, Ser. No. 38,041
Int. Cl. F16c 13/00

U.S. Cl. 308-22

8 Claims



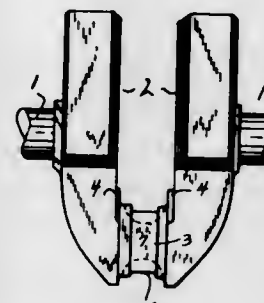
Rotary offset lithographic duplicators have various rolls, especially the rolls of the ink system for example, which require removal from time to time for purposes of cleaning or replacement. According to the invention there are provided mountings for such rolls permitting ready removal and replacement, including coaxial stub shaft supports, one suitably mounted at each sideplate of the machine and having a half-socket head at its inner end. The half sockets receive roller bearings on the ends of the roll shaft, and the bearings are clamped in place by caps, one captive on each end of the roll shaft, and by connecting screws fastening each cap to its respective half socket. Means are provided for adjusting the stub shafts in a transaxial direction so as to set the proper degree of contact between the removable roll and its adjacent roll to accommodate slight variations in roll diameter, and to adjust to exact parallelism.

3,598,458
A CRANKSHAFT HAVING A HARDENED BEARING SURFACE

Marvin Evans, 8550 N. Fielding Road, Bayside, Wis.
Filed Oct. 28, 1968, Ser. No. 771,007
Int. Cl. F16c 3/06, 9/04

U.S. Cl. 308-167

3 Claims



A crankshaft having a hardened bearing surface formed, by inductively heating a cylindrical surface of the shaft and thereafter quenching the surface to harden the same. Either before or after hardening, a groove is machined within the cylindrical surface in a manner such that the base of the groove as well as the sides or thrust faces of the groove are located in the hardened zone.

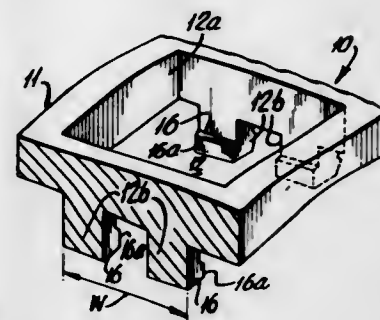
3,598,459

RETAINER RING FOR ROLLER BEARING

James L. Vannest, New Britain, Conn., assignor to Textron Inc., Providence, R.I.
Filed Feb. 12, 1969, Ser. No. 798,618
Int. Cl. F16c 33/46

U.S. Cl. 308-217

6 Claims



A retainer ring for bearing rollers is a cylindrical annulus with rectangular openings radially therethrough and pairs of spaced lugs projecting radially from the annulus respectively at the sides of the openings which are opposite each other in the cylindrical direction of the annulus. The openings and adjacent lugs define pockets in which bearing rollers are rotatably received. Lips on the lugs project into the pockets to constrict them at one end and prevent the rollers from passing completely through those ends. The lugs are preferably resilient for moving them apart to insert the rollers into the pockets through the lips. Thus the ring is adapted to provide a preassembly consisting of rollers in the pockets and one race ring concentrically adjacent the retainer ring over the ends of the pockets opposite the ends constricted by the lips.

The retainer ring is preferably formed from a ribbed annulus by making radial openings through the annulus and ribs and by enlarging the width of the openings to a depth less than the projecting limits of the ribs. The ribs are thus formed into lugs with lips projecting from their end portions.

3,598,460

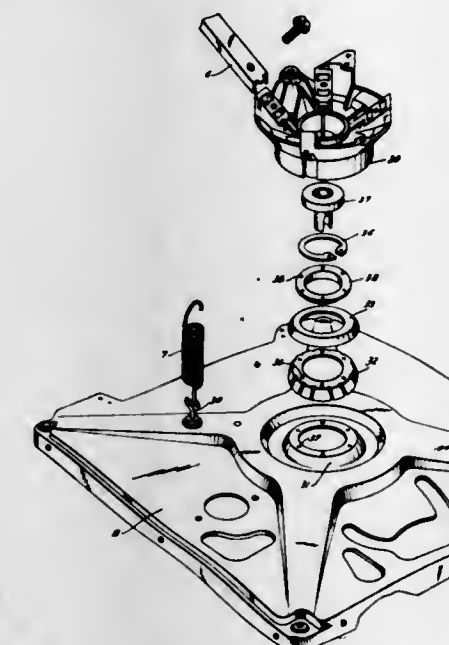
BEARING WITH CONTROLLED FRICTION

Richard Lee Conrath, Herrin, and Clarence Melvin Overturf, Cartersville, both of, Ill., assignors to Fedders Corporation, Edison, N.J.

Filed Feb. 19, 1969, Ser. No. 800,493
Int. Cl. F16c 27/60; D06f 29/00; B05c 11/00

U.S. Cl. 308-238

7 Claims



A bearing surface is provided with a lining composed of polytetrafluoroethylene and a second lubricant material and the opposite bearing surface is provided with a roughened surface of controlled degree. On relative motion of the two surfaces, the polytetrafluoroethylene is transferred, at a controlled rate, to the roughened bearing surface to provide lubrication with a controlled degree of friction.

3,598,461

CARD CATALOGUE TRAY OF MOLDED PLASTIC CONSTRUCTION

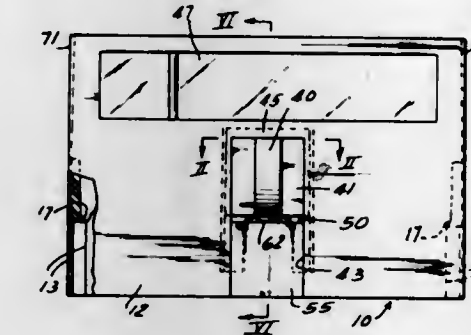
Lorraine Jensen Grau, 5819 N. Sacramento Ave., Chicago, Ill., and Neil S. Collins, West 194 Mayflower Drive, Niles, Ill.

Continuation-in-part of application Ser. No. 662,656, Aug. 23, 1967, now abandoned. This application Jan. 29, 1969, Ser. No. 794,865

Int. Cl. A47b 63/00

U.S. Cl. 312-189

25 Claims



A card catalogue tray of molded plastic construction is adapted to be interchangeable with wooden trays for the same purpose. To facilitate molding of the tray proper as a one piece rugged thin shell structure a drawer pull is provided as a separately formed piece assembled with the front wall and retained in position by a metal slide track mounted functionally and reinforcingly in a groove in the bottom of the tray and latched in position therein. A card-retaining rod has a front end manipulating head member detachably retained at the front of the tray in association with the

drawer pull. All of the assembled elements are in quick digital assembly and release relation requiring no tools. Outer sidewall panels of the tray are resiliently flexible in the lower portions to avoid binding in a cabinet.

3,598,462

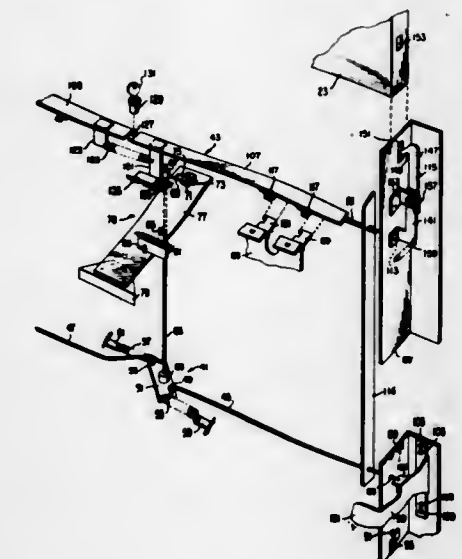
LOCKING MECHANISM FOR A MECHANIZED FILING CABINET

Roy E. Kanitz, Belpre, Ohio, assignor to Sperry Rand Corporation, New York, N.Y.

Filed Apr. 10, 1970, Ser. No. 27,294
Int. Cl. F05b 65/46; E05b 65/44; A97b 97/00

U.S. Cl. 312-219

10 Claims



A locking mechanism for use in a mechanized filing cabinet having a position adjustable posting board and a vertically sliding door for closing an access opening. The posting board is moved to a predetermined position and a release handle is moved inwardly to cause shoot bolts to move outwardly and lock the posting board at the predetermined position. The vertically sliding door is moved downwardly to close the access opening in the filing cabinet and a locking key is rotated to move lock bolts outwardly. Movement of the lock bolts locks the release handle and moves latches into apertures in the sliding door thereby locking the sliding door in its lower or closed position.

3,598,463

SHELF WITH INTEGRAL FRONT

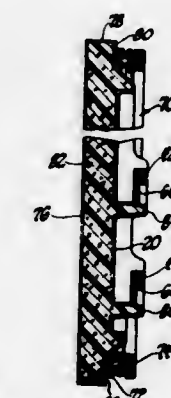
Keith K. Keeling, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 684,049, Nov. 17, 1967, Pat. No. 3,467,741.
Filed Apr. 3, 1969, Ser. No. 813,155

Int. Cl. A47f 3/04, 5/00; E06b 5/00; F25d 11/00

U.S. Cl. 312-214

1 Claim



In the preferred form, the inner sheet plastic door panel has formed in it an integral shelf and an integral shelf front in which the plastic sheet envelops a reinforcing bar above and parallel to the shelf.

3,598,464

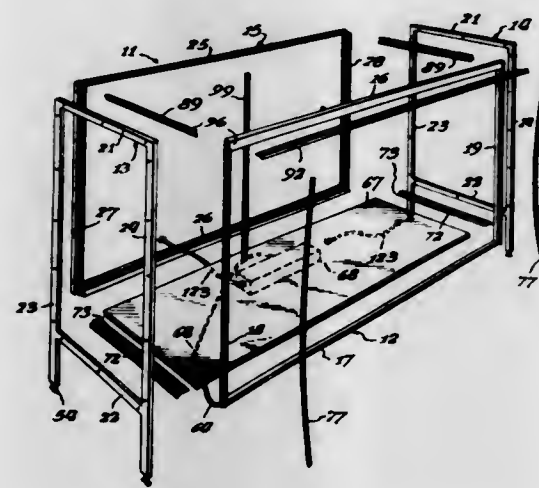
KNOCKDOWN SHOWCASE

William M. Morozuk, River Grove, Ill., assignor to Garco Corporation

Filed July 10, 1968, Ser. No. 743,663

Int. Cl. A47b 47/00, 57/08

U.S. Cl. 312-257



A knockdown showcase comprises a plurality of rigid, rectangular, prefabricated frame sections, a bottom panel, a light fixture, a plurality of vertical panels, a rear closure assembly, and a top panel. Each frame section is fabricated by welding a pair of vertical uprights to top and bottom stretchers. The light fixture is secured to the front frame section, and the wiring for the fixture is concealed in a duct formed by either of the uprights of the front frame section. The front, back and two end frame sections are secured together, and the bottom panel is seated on panel retaining members extending inwardly from the bottom stretchers of each frame section. The rear closure assembly may be mounted any time after the bottom panel is positioned. The vertical end panels are slid into place adjacent the respective end frame sections, and the front panel is secured in place from the front of the showcase by a pair of bowed resilient retaining strips. The top panel is then seated on top of the frame sections and secured by a trim strip.

3,598,465

BOXLIKE CONTAINER WITH REMOVABLE COVER

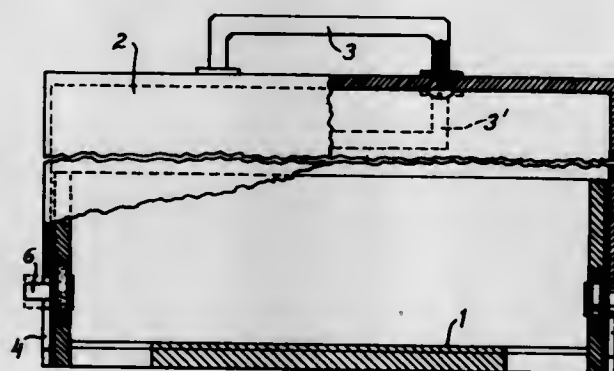
Paul Schmid, Im Ettingerhof 5, Basel, 4000, Switzerland, and Paul Halter, Therwilstr. 43, 4103 Bottmingen, Switzerland

Filed Jan. 27, 1969, Ser. No. 794,086

Int. Cl. A47b 81/00

U.S. Cl. 312-284

5 Claims



A boxlike container with a removable cover, each end wall of the box carrying a rotatable lock to connect the container to the cover or disconnect it therefrom, depending on the angular position into which the lock has been rotated.

HOLOGRAPHIC CORRECTION PROCESS FOR OPTICAL SYSTEM ABERRATIONS

Wolfgang Friedl, Neckargemund, Germany, assignor to Eitro GmbH & Co., Heidelberg, Germany

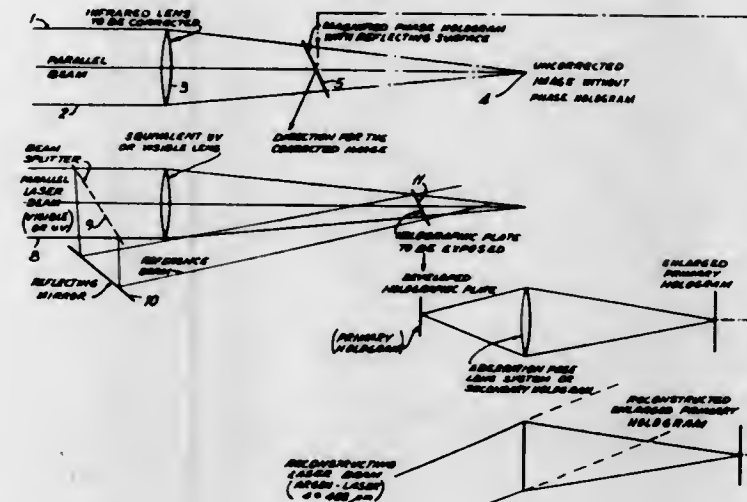
Filed May 11, 1970, Ser. No. 36,096

9 Claims Claims priority, application Germany, May 10, 1969, P 19 23 932.8

Int. Cl. G02b 27/22

U.S. Cl. 350-3.5

10 Claims



A hologram is produced by a corrective optical system operative in the visible radiation band, and the hologram is incorporated in an infrared optical image-reproducing system to correct aberrations of the infrared optical system. The visible radiation optical system is constructed to have aberrations identical to those of the infrared optical image system and the hologram is combined with the infrared optical system after magnification of the hologram on a linear scale of reproduction by the ratio of the IR wavelength to the wavelength in the visible band.

3,598,467

FIBER OPTIC DIFFUSER FOR HOLOGRAPHY

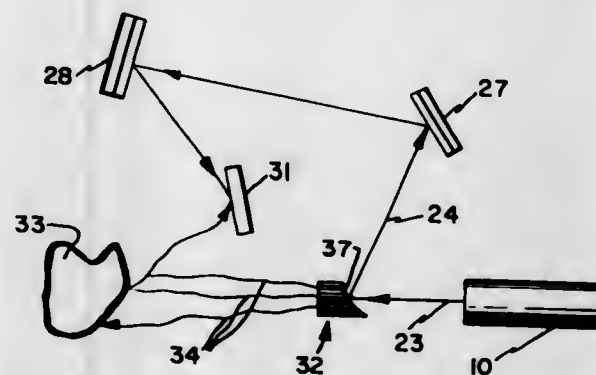
Derk Jon Pearson, Palos Verdes Estates, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Mar. 28, 1969, Ser. No. 811,432

Int. Cl. G02b 27/00, 5/02, 5/16

U.S. Cl. 350-3.5

2 Claims



A holographic apparatus capable of utilizing a pulsed laser developing an incompletely coherent light beam for recording holograms. The apparatus makes use of a bundle of transparent fibers used as a new optical element. This fiber bundle serves both the purpose of directing the light toward the object to be recorded and of scrambling or diffusing the light from the source. Essentially each fiber of the fiber bundle creates a cone of light which illuminates substantially the entire object. As a result, at the recording material for the hologram there is at least a component or portion of the scene beam capable of interfering with a component of the reference beam. The fiber bundle also makes it possible to direct the light beam around obstacles or close to

an object for holographic microscopy or for taking holograms of an object in a hostile environment such as a rocket engine generating a great amount of heat. The holograms may be made both of objects in reflection and in transmission.

3,598,468

OPTICAL SYSTEM WITH TILTED CONCAVE MIRROR AND ASTIGMATISM COMPENSATOR

Donald M. Perry, Rte. 2 Box 573, Gresham, Ore.

Continuation of application Ser. No. 781,662, Oct. 3, 1968,

now abandoned, Continuation of application Ser. No.

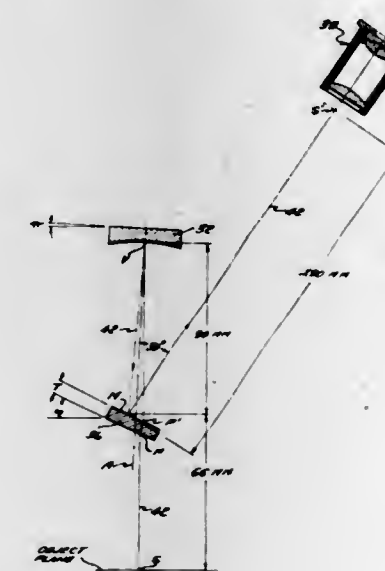
274,149, Apr. 19, 1963, now abandoned. This application

Feb. 2, 1970, Ser. No. 7,394

Int. Cl. G02b 21/04, 17/00, 23/06

U.S. Cl. 350-55

8 Claims



An optical system for a microscope includes a spherical mirror tilted a few degrees relative to the optical axis, and a plano plate having a transparent refractive portion in the path to the mirror and a reflective surface in the path from the mirror, with the plate tilted so that its refractive portion corrects astigmatism which results from tilting of the mirror. An optical system for a telescope is similar except that a right angle prism is used in place of the plano plate.

3,598,469

MIRROR FRAME

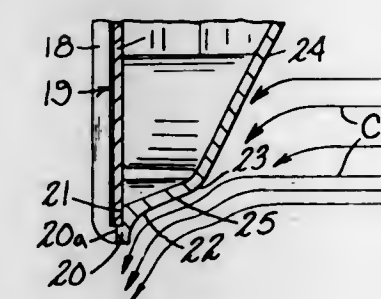
William J. Landen, New Haven, Conn., assignor to Landen Corporation, Cheshire, Conn.

Filed Jan. 7, 1970, Ser. No. 1,127

Int. Cl. G02b 5/08

U.S. Cl. 350-63

12 Claims



This disclosure relates to a frame for automobile rearview mirrors which is constructed and arranged for the removal of moisture from the face of a mirror mounted in the frame. The frame is so constructed that when air impinges thereon, a region of low pressure is established along one or more edges thereof. Moisture on the face of the mirror will then move across the face of the mirror toward the region of low pressure and will be removed from the face of the mirror.

3,598,470

PROJECTION SCREEN AND SYSTEM

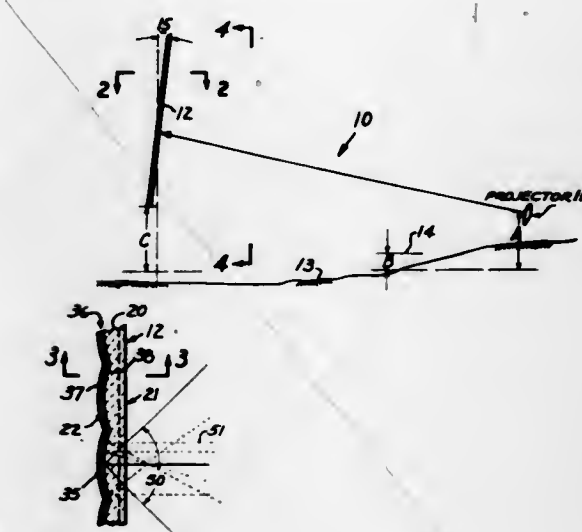
Richard Harold Vetter, Pacific Palisades, Calif., assignor to Prismalite, Inc., San Francisco, Calif.

Continuation-in-part of application Ser. No. 779,722, Nov. 29, 1968, now abandoned. This application Nov. 5, 1969, Ser. No. 874,311

Int. Cl. G03b 21/60

U.S. Cl. 350-117

39 Claims



This invention relates to a projection screen and to a projection system incorporating it. The screen comprises a plate of transparent material having a face toward the viewer formed of generally horizontal optical wedges, and a face away from the viewer formed of generally vertical curved surfaces which are axial portions of circular cylinders. The circular surfaces fan out a beam in a controlled pattern, and the wedges refract the beam away from the normal to the screen. Preferably the front face is frosted to a diffusive but primarily transmissive condition. In the preferred embodiment for front projection, the curved surfaces are concave toward the front face and are coated with a reflective material, and the front faces of the wedges are lenticularly curved.

3,598,471

OPTICAL CONTRAST ENHANCEMENT SYSTEM

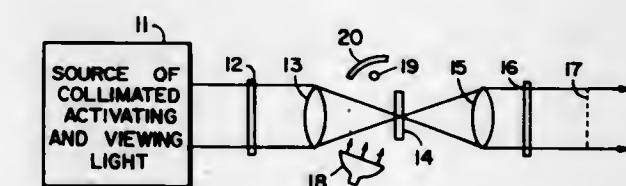
William J. Baldwin, West Roxbury, Mass., and Jurgen R. Meyer-Arendt, Forest Grove, Ore., assignors to Corning Glass Works, Corning, NY

Filed Nov. 22, 1968, Ser. No. 778,219

Int. Cl. G02b 27/38

U.S. Cl. 350-162

7 Claims



An optical system for enhancing the contrast of optical images. A sheet of photochromic material is disposed in the Fraunhofer diffraction or first Fourier transform plane of the optical system. Among the wavelengths of light transilluminating the object or transparency is a band which darkens the photochromic material especially at the center of the Fourier series display which contains contrast information (the zeroth order of the Fourier series display). This zeroth order term is attenuated to a much greater degree than the higher order terms which contain the information describing the object or transparency, thus producing an enhanced image.

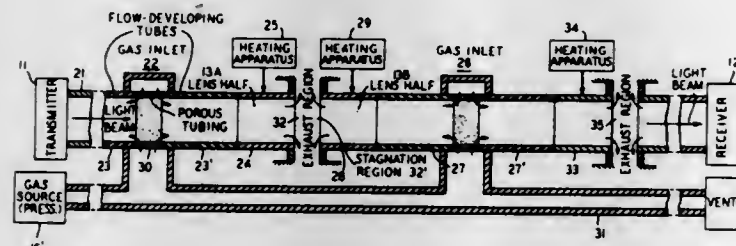
3,598,472

COUNTERFLOW GAS LENSES

Peter Kalseer, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Continuation-in-part of application Ser. No. 759,069, Sept. 11, 1968, now abandoned. This application Dec. 5, 1969, Ser. No. 882,416
Int. Cl. G02b 3/12

U.S. Cl. 350-179

10 Claims



In the optical guiding apparatus disclosed, counterflow gas lenses are provided with improved focusing properties by providing radial exhaust of the hot gases before they cool significantly. Substantial radial symmetry of the exhaust provides stable stagnation regions at the junctures of the counterflows. A relatively long conduit section is employed to develop laminar flow of the inlet gas and to permit relatively high gas velocities that make gravity aberrations negligible. To further reduce gravity aberrations, the exhaust ends of the lens halves may be lifted with respect to the inlet ends of the lens halves.

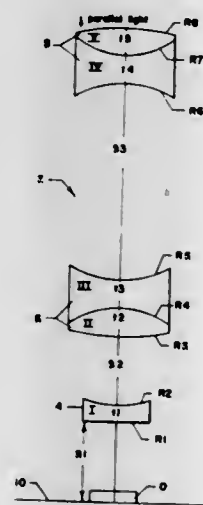
3,598,473

THREE MEMBER ACHROMATIC MICROSCOPE OBJECTIVE

Arthur H. Shoemaker, East Aurora, N.Y., assignor to American Optical Corporation, Southbridge, Mass.
Filed Mar. 18, 1970, Ser. No. 20,732
Int. Cl. G02b 9/12, 21/02

U.S. Cl. 350-176

2 Claims



A three-member microscope objective having a numerical aperture of substantially 0.07 and a magnification of substantially 2.5 x.

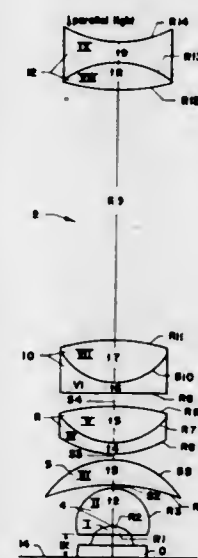
3,598,474

OIL-IMMERSION-TYPE MICROSCOPE OBJECTIVE

Arthur H. Shoemaker, East Aurora, N.Y., assignor to American Optical Corporation, Southbridge, Mass.
Filed Mar. 18, 1970, Ser. No. 20,734
Int. Cl. G02b 9/60, 21/02

U.S. Cl. 350-176

2 Claims



A five-member microscope objective having a numerical aperture of substantially 1.25 and a magnification of substantially 100 x.

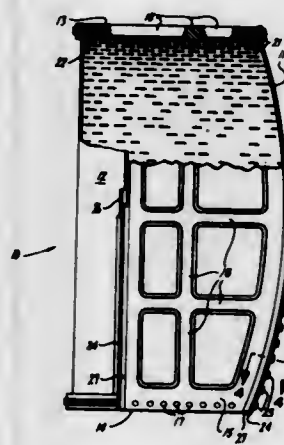
3,598,475

LARGE APERTURE LIQUID-FILLED LENS FOR PRECISION ARTWORK CAMERA

Robert E. Lewis, Palo Alto; Melvin D. Wright, San Jose, and Philip E. Chandler, Redwood City, all of Calif., assignors to Teledyne, Inc., Hawthorne, Calif.
Filed Sept. 16, 1968, Ser. No. 762,279
Int. Cl. G02b 3/12; G03b 27/00

U.S. Cl. 350-179

13 Claims



A large aperture lens of high optical quality consisting of a hollow framework forming spaced apertures bounded by optical grade clear, bendable, flat windows bent into simply curved shapes and mounted in spaced relation on the framework to form a vessel for containing a liquid having a suitable index of refraction. In one form of the invention the windows are curved on cylindrical surfaces having axes arranged at right angles to each other and have the same curvature. A window-mounting arrangement is also disclosed which avoids undesirable stress development. A precision artwork camera using a lens of the above type as a condenser is also disclosed.

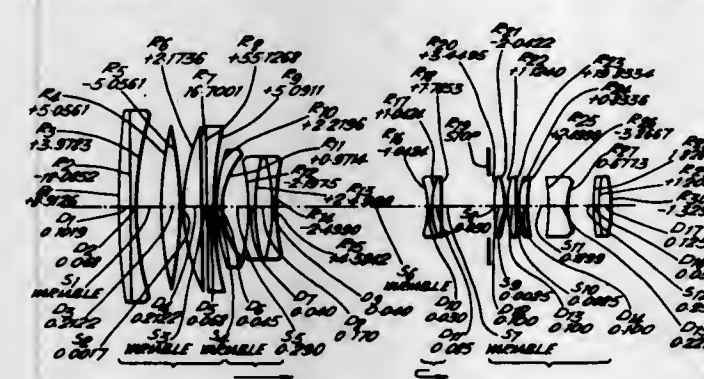
3,598,476

ZOOM LENS FRONT MEMBER ADJUSTABLE FOR FOCUSING

Peter Arnold Merigold, Prestatyn, Wales, assignor to The Rank Organization Limited
Continuation-in-part of application Ser. No. 567,207, July 22, 1966, now abandoned. This application Apr. 16, 1969, Ser. No. 816,630
Int. Cl. G02b 15/16, 15/18

U.S. Cl. 350-186

8 Claims



A front member for a zoom lens which is corrected for aberration defects and incorporates members movable for zooming behind said front member, which front member remains stationary during zooming and consists of three portions, namely a divergent front portion, a convergent intermediate portion and a divergent rear portion, of which only the intermediate portion is movable to effect focusing of the complete objective throughout a range of object distances, the equivalent focal lengths of the three portions being selected in relation to the equivalent focal length of the complete front member to permit stabilization of aberrations throughout the range of focusing movement of the intermediate portion.

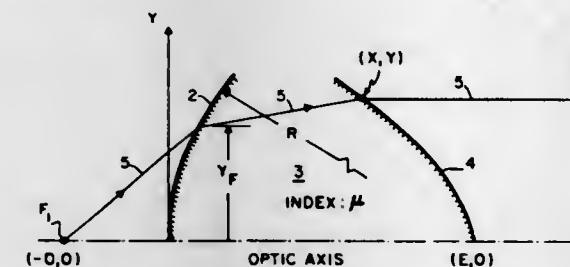
3,598,477

LENS HAVING ONE SPHERIC AND ONE ASPHERIC SURFACE

Robert E. Levin, Hamilton, Mass., assignor to Sylvania Electric Products Inc.
Filed June 9, 1969, Ser. No. 831,332
Int. Cl. G02b 13/18

U.S. Cl. 350-189

2 Claims



An automobile headlight lamp having an elliptical reflector, a light source at one focus of the ellipse and an aperture at the other, with a lens in front of the aperture, the lens having one focus at the focus of the ellipse. The lens has one spheric and one aspheric surface, the latter conforming to a stated mathematical equation in order to reduce aberrations, including the chromatic.

3,598,478

APPARATUS FOR DETERMINING CORNEA CONTOUR

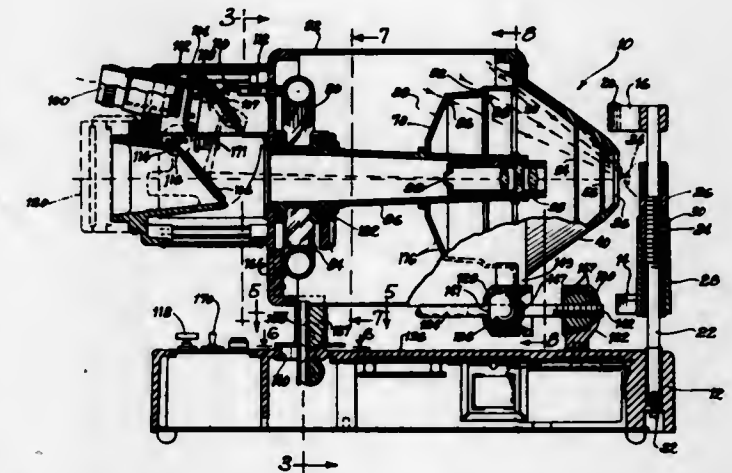
Malcolm G. Townsley, Park Ridge, Ill., assignor to The Plastic Contact Lens Company, Chicago, Ill.
Filed Nov. 26, 1968, Ser. No. 778,965
Int. Cl. A61b 3/14, 3/10

U.S. Cl. 351-6

8 Claims

An apparatus for determining the contour of the human cornea comprising a substantially opaque target having a plu-

ality of light-transmitting gaps through which light beams can be projected onto the eye of a patient. The pattern of light beams reflected in the eye can then be photographed with the particular configuration providing a basis for determining mathematically the contour of the eye. The target structure comprises a pair of hollow plastic shells provided with an opaque coating. The coating is removed in selected



areas to provide the light-transmitting gaps. The shells are mounted at one end of an adjustable housing, and a camera and through-the-lens focusing means are located at the opposite end of the housing. The adjusting means comprise double joint ball and socket means which permit the operator to make finite adjustments for accurate alignment while viewing the eye.

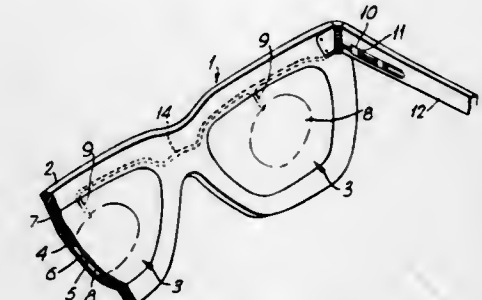
3,598,479

VARIABLE FOCUS LIQUID LENSES

Basil Martin Wright, Croxley Green, Rickmansworth, England, assignor to National Research Development Corporation, London, England
Filed Mar. 10, 1969, Ser. No. 805,717
Claims priority, application Great Britain, Mar. 11, 1968, 11862/68
Int. Cl. G02c 7/08; G02b 3/12

U.S. Cl. 351-159

1 Claim



An ophthalmic lens has components respectively in the form of a meniscus and a thin resilient sheet, which are secured together so as to provide between them a cell filled with transparent liquid, the volume of liquid in the cell being variable to change the curvature of the sheet and thereby provide a continuous variation in the focus of the lens.

3,598,480

ELECTROMAGNETIC RELEASE DEVICE FOR A MOTION-PICTURE CAMERA

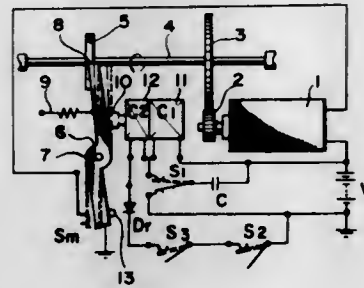
Isamu Kubota, Izumisano-shi; Yoshihisa Hayashi, Sakai-shi, and Takeshi Ataka, Sumiyoshi-ku, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Sept. 16, 1969, Ser. No. 858,301
Claims priority, application Japan, Sept. 27, 1968, 43/69453
Int. Cl. G03b 17/46

U.S. Cl. 352-169

5 Claims

A battery-energized electromagnetic release for selecting continuous or single frame advancement of the film com-

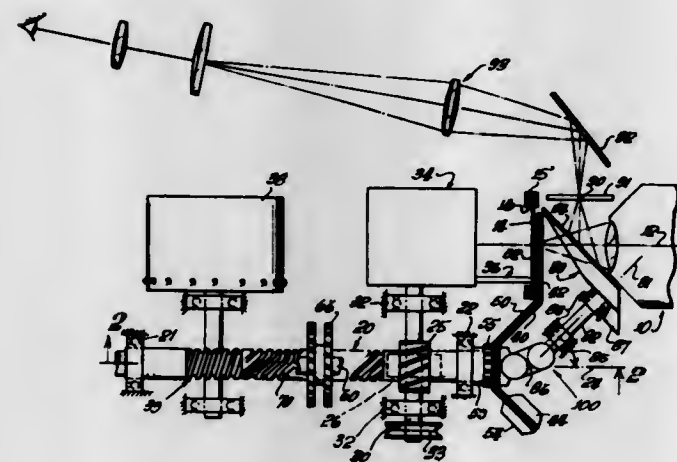
prises two electromagnetic coils and a charged condenser for actuating and holding an armature switch to release a rotary stop mechanism and activate the film drive motor. The condenser is switched from a connection with the battery to



discharge through one coil and actuate the armature. An exposure changeover switch connects the two coils to the battery to retain the armature and continuously activate the motor.

3,598,481
SHUTTER DRIVE MECHANISM
George A. Mitchell, 687 Prospect Crescent, Pasadena, Calif.
Filed Mar. 27, 1970, Ser. No. 23,298
Int. Cl. G03b 9/8
U.S. Cl. 352-206

2 Claims



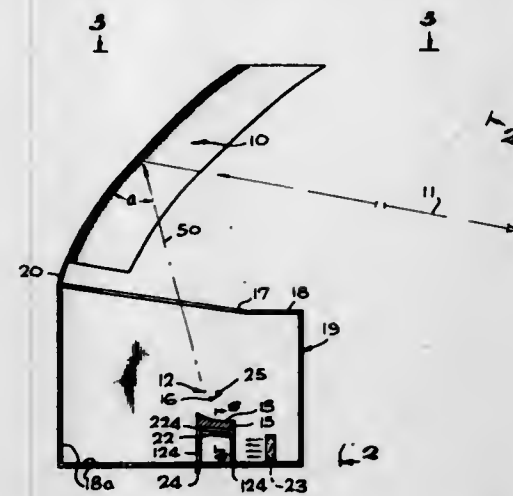
Variable shutter mechanism for a motion picture camera has the main shutter blade mounted on the forward end of the main shutter shaft and driven in fixed phase relation to the intermittent mechanism, and the variable shutter blade journaled coaxially to the rear of the main blade, leaving the forward end of the main shaft available for driving connection to other apparatus. A reflex shutter may be mounted on an oblique axis forward of the main shutter mechanism, the reflex shutter shaft being coupled directly to the main shaft, preferably via a constant speed universal joint.

3,598,482
OPTICAL PROJECTION SYSTEM
Wendell S. Miller, 1341 Comstock Ave., Los Angeles, Calif.
Filed Mar. 6, 1967, Ser. No. 620,864
Int. Cl. G03b 21/28
U.S. Cl. 353-98

26 Claims

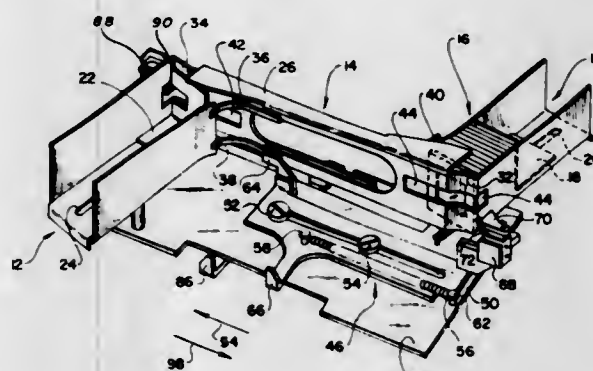
An optical projector having a mirror which reflects light from a light source into a projection system, and which has an optical object formed on the reflective face of the mirror at a location to be projected as an image onto a screen. The

mirror is preferably constructed to function as a light condenser, for directing light primarily into the projection



3,598,483
BILATERAL MAGAZINE FEED MEANS FOR PROJECTOR APPARATUS
Floyd M. Galbraith, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 29, 1967, Ser. No. 686,467
Int. Cl. G03b 23/14, 23/02
U.S. Cl. 353-114

8 Claims



This invention relates to a bilateral magazine feed mechanism suitable for a slide projector, in which magazines are arranged at opposite ends of slide guide track. The mechanism is wholly symmetrical and reversible so that the slides may be fed in either direction as desired, either magazine serving as a supply or takeup hopper.

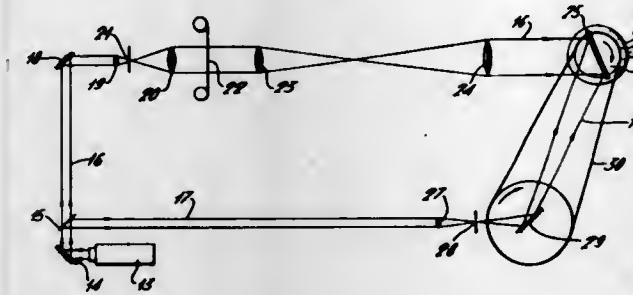
3,598,484
HOLOGRAPHIC METHOD
John David Redman, Newbury, and William Philip Wolton, Basingstoke, both of England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Oct. 25, 1968, Ser. No. 770,664
Claims priority, application Great Britain, Oct. 26, 1967, 48,842/67
Int. Cl. G03b 27/42
U.S. Cl. 355-2

17 Claims

A holographic method of producing a three-dimensional reconstruction of a scene comprises producing a plurality of representations, e.g. positive photographic transparencies, of the scene at a corresponding plurality of viewing angles relative to the scene, e.g. by moving a camera in an arc about a point in the scene, making holograms from the representations on a common photosensitive plate, each hologram being made using a nondiffused object beam directed onto the plate at an angle corresponding to the viewing angle of the representation from which is made and a reference beam directed at a constant angle onto the plate for all the holo-

grams, and forming a reconstruction of the holograms using a reference beam directed at the same constant angle onto the plate. Preferably a divergent reference beam is used in mak-

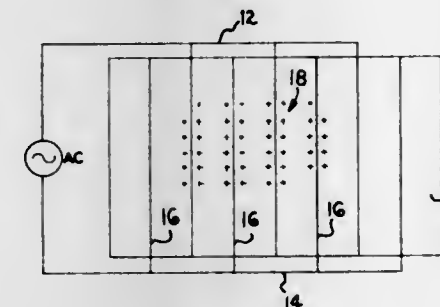
inlet to change the air flow direction approximately 90°. Both the size of the guide plates and the extent to which they ex-



ing the holograms and a parallel reference beam is reconstructing the holograms, which allows the reconstruction to be viewed directly, without the need for a converging viewing lens.

3,598,485
ELECTRODE CONFIGURATION FOR AC ELECTROPHOTOGRAPHY
John D. Grier, and Maclyn S. Hall, both of Okemos, Mich., assignors to Owens-Illinois, Inc.
Filed Apr. 1, 1969, Ser. No. 812,275
Int. Cl. G03g 15/00, 15/02
U.S. Cl. 355-3

2 Claims

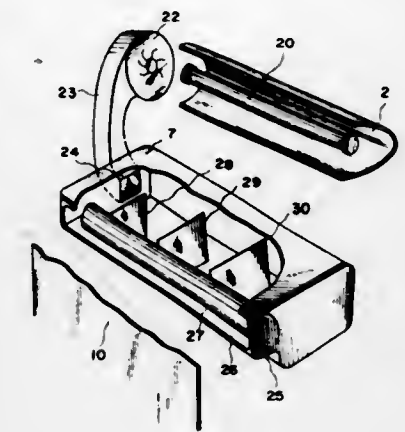


A persistent internal polarization (PIP) electrophotography printing or copying system uniquely adapted to be used in combination with alternating current wherein a pair of electrodes, each including a plurality of elements disposed in spaced array alternating with each other in the same plane, are utilized in combination with a PIP layer such that an alternating current electric field may be simultaneously applied to the PIP layer while permitting light radiation to reach the PIP layer. In the specific practice, the pair of electrodes are positioned on top of or embedded in the surfaces of the PIP layer which is to be toned; that is, the top surface.

3,598,486
DRYING DEVICE FOR ELECTROPHOTOGRAPHIC COPYING MACHINES
Teizo Kushima, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Feb. 13, 1969, Ser. No. 798,876
Claims priority, application Japan, Feb. 16, 1968, 43/11,379
Int. Cl. G03b 27/54
U.S. Cl. 355-10

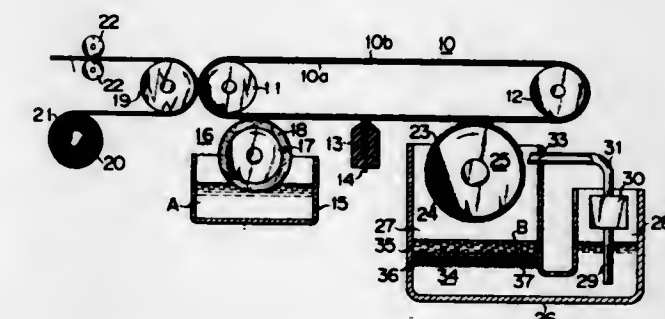
6 Claims

Hot air from the light source chamber is forced into a housing having an air inlet and an air outlet in close proximity to the exposed photosensitive paper. A heat radiation source is mounted in the outlet in the path of the air. Guide plates are mounted in the housing in the airstream from the



3,598,487
ELECTROSTATIC RECORDING APPARATUS
Mamoru Mizuguchi, Kawasaki-shi; Teruo Kurihara, Yokohama-shi, and Masasumi Yana, Yokohama-shi, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Jan. 14, 1969, Ser. No. 791,084
Claims priority, application Japan, Jan. 18, 1968, 43/2,606
Int. Cl. G03g 15/00
U.S. Cl. 355-15

9 Claims



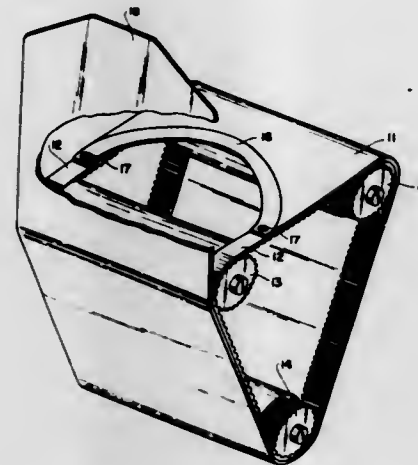
An electrostatic recording apparatus is provided with means for removing a residual toner on a recording surface carried by a movable recording medium after image transfer. The means for removal includes a wiper, a nozzle, a vessel, a circulating device and a filter. The wiper sweeps the recording surface to wipe said residual toner, and is supplied with a liquid cleaner by the nozzle. The vessel stores therein the liquid cleaner discharged from the nozzle and dispersed with the toner removed from the wiper. The toner dispersed in the liquid cleaner is removed by the filter, and then the liquid cleaner is circulated by the circulator to be discharged again from the nozzle. When the wiper is made of a liquid-absorbing soft material, there is further provided a pressing means for squeezing said wiper material containing the residual toner removed from the recording surface.

3,598,488
CLEANING WEB
Alphonse B. Di Francesco, Rochester, N.Y., and James D. Shaw, Piney Point, Md., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 13, 1969, Ser. No. 806,889
Int. Cl. A471 13/40; G03g 15/00
U.S. Cl. 355-15

10 Claims

An elongated, flexible cleaning web is attached at one end to spaced, endless timing belts by means of a tow strap having the form of a catenary curve to pull the cleaning web along an endless path to clean a flexible photoconductor.

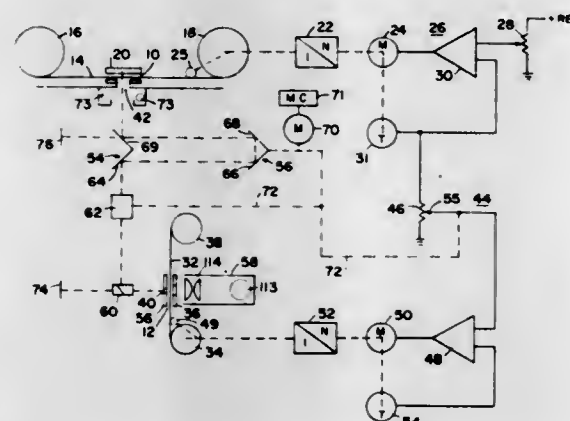
The catenary curve of the two strap reduces longitudinal wrinkling of the web, particularly as it passes around corners. desired symbolization is projected upon the layer of film in order to expose the film. Heat or high intensity light is then



Lateral wrinkling is reduced by not attaching the other end of the web.

3,598,489
PROJECTION SYSTEM
Doyle W. Thomas, and Clarence E. Ellis, both of Huntsville, Ala., assignors to Spaco, Inc., Huntsville, Ala.
Filed Jan. 2, 1969, Ser. No. 788,378
Int. Cl. G03b 27/70
U.S. Cl. 355—51

15 Claims

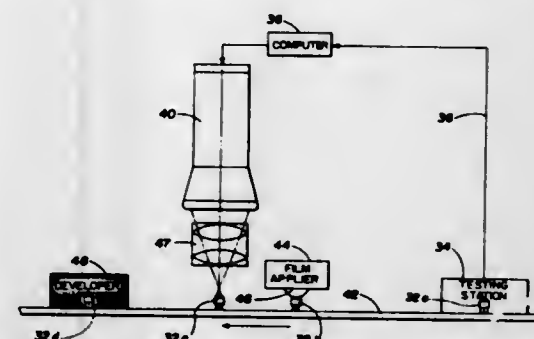


A photographic system for projection of images on a continuous flow basis between a medium carrying images and a medium being exposed to them and providing for adjustable magnification or reduction of images and wherein the speed or travel of the viewed and exposed media are precisely determined and synchronized in accordance with the speed of one of them and the ratio of image magnification or reduction.

3,598,490
HIGH-SPEED SYMBOLIZATION OF SEMICONDUCTOR ARTICLES
Gerald Anthony Yearsley, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Oct. 24, 1968, Ser. No. 770,261
Int. Cl. G03b 27/32
U.S. Cl. 355—77

11 Claims

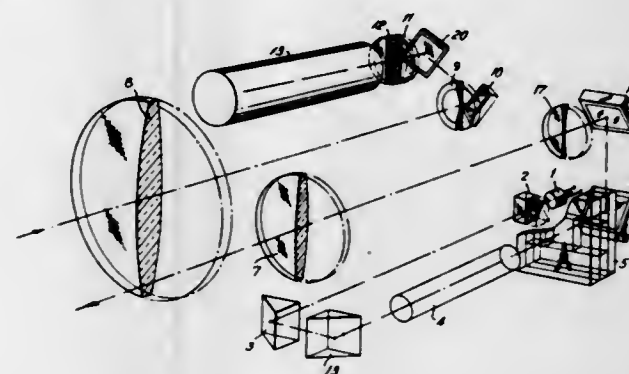
Tests are conducted on preselected characteristics of semiconductor components. A layer of film is applied to each semiconductor component, the film adapted to exhibit variations in optical transmissivity upon the application of radiant energy. In response to the test results, an image of the



applied to the exposed film to develop the film and provide the desired symbolization on the semiconductor component.

3,598,491
LASER TRANSMITTER AND RECEIVER DEVICE
Walther Hess, Dilsberg-Neuhof; Dieter Frohlich, Neckargemund, and Winfried Svenson, Schwetzingen, all of Germany, assignors to Elektro GmbH & Co., Gesellschaft für Strahlungstechnik, Heidelberg, Germany
Filed Jan. 21, 1969, Ser. No. 792,866
Claims priority, application Germany, Jan. 19, 1968, E26356
Int. Cl. G01c 3/02
U.S. Cl. 356—4

5 Claims



Laser-transmitting-receiving apparatus which includes a transmitter and a receiver. In the transmitter the laser beam path is divided into three parallel sections, the first and second of which lie in a common plane and the second and third of which lie in a common plane. The third section exits from the apparatus. In the first section is a Q-switch prism and a deflector. In the second section is a deflector, a ruby rod and a plane plate resonator. In the third section is a deflector and a telescopic optical arrangement. The receiver provides a beam part including two consecutive and parallel sections. In the first section is a receiving objective and an aperture-providing device as well as a deflecting mirror. In the second part is a deflecting mirror, a lens, an interference filter and a photomultiplier.

3,598,492
OPTICAL CALIBRATING DEVICE INCLUDING LIGHT DIFFUSERS TO SIMULATE A PATH OF BACK-SCATTERED LIGHT
Frank Fruengel, 105 A, Herivigredder, D2 Hamburg 56, Germany
Filed Dec. 22, 1969, Ser. No. 887,303
Claims priority, application Germany, Dec. 20, 1968, G 68 12 334.2-7101
Int. Cl. G01n 21/00
U.S. Cl. 356—103

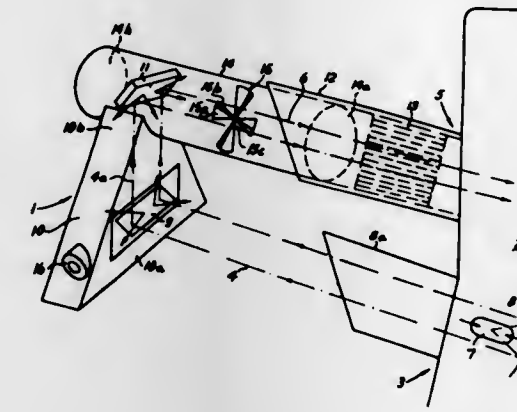
11 Claims

Cooperating first and second light diffusers are arranged such as to simulate a path of backscattered light between a light impulse transmitter and receiver. The light diffusers

respectively extend at inclined angles relative to each other and to the transmitter and receiver. The first diffuser is operative for diffusely reflecting incident light from the transmitter to the second diffuser and the latter is operative for

3,598,494
DRAFTING PEN WITH DRIED INK COLLECTOR
Edward Bok, 7348 Lee Hwy., Apt. #201, Falls Church, Va.
Filed Oct. 31, 1969, Ser. No. 875,604
Int. Cl. B43k 1/06
U.S. Cl. 401—259

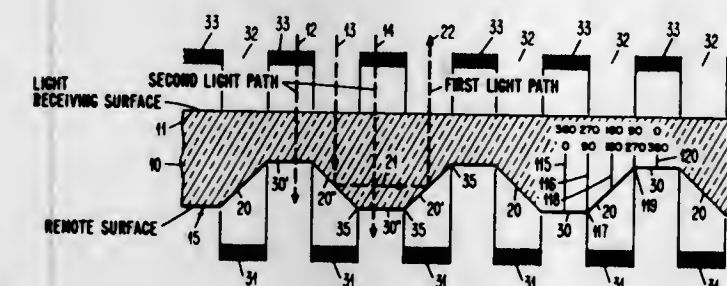
11 Claims



diffusely reflecting incident light from the first diffuser to the receiver. A diaphragm with adjustable apertures between the second diffuser and the receiver varies the amount of light reflected to the receiver to thereby permit simulation of different visual ranges.

3,598,493
OPTICAL GRADUATED RULE OF TRANSPARENT MATERIAL
Gene A. Fisher, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 30, 1969, Ser. No. 837,826
Int. Cl. G02b 17/00
U.S. Cl. 356—152

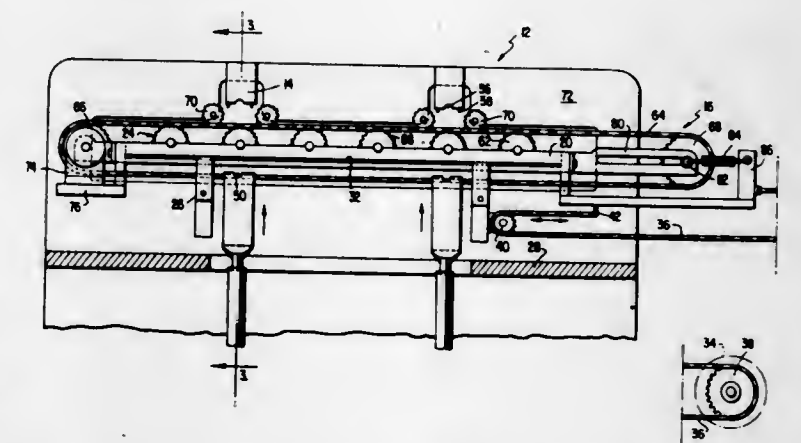
15 Claims



Transparent material having internal reflection properties is used to fabricate a graduated optical rule usable in tachometer or displacement measuring systems. The member has a light-receiving surface through which light is transmitted toward a remote surface in a given direction. Such remote surface has alternating first surface portions respectively having a 45° angle with respect to said given direction and, preferably, second surface portions that are perpendicular to said given direction. The 45° surface portions reflect the light to a first light path, while the second surface portions permit the light to be transmitted therethrough along a second light path. Facing ones of said first or 45° angled portions are utilized to reflect the light through such first light path which intersects the light receiving surface back toward the light source. In another embodiment, light enters the member at 45° through a light receiving surface. A continuous internal surface disposed at 45° with respect to the light-receiving surface reflects light toward the remote surface in such given direction. The remote surface has the first and second surface portions disposed with respect to light traveling in such given direction reflected from the internal surface for alternately reflecting and transmitting through the remote surface toward a detector. Several utilization arrangements are illustrated.

3,598,495
METHOD AND APPARATUS FOR CONDUCTING MACROMACHINING OPERATIONS
John A. Cupler, II, 10 Cupler Drive-LaVale, Cumberland, Md.
Continuation-in-part of application Ser. No. 715,711, Mar. 25, 1968, now Patent No. 3,478,419, dated Nov. 18, 1969.
This application Nov. 10, 1969, Ser. No. 875,327
Int. Cl. B23g 3/157
U.S. Cl. 408—35

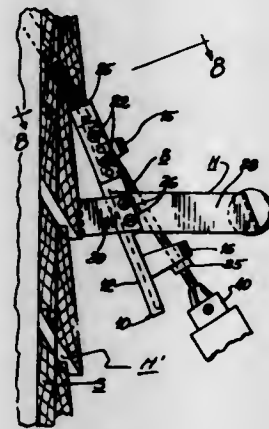
8 Claims



The disclosure introduces an extension of the noncaptive tool changer principles, previously utilized primarily in connection with micromachining operations, to include larger or macro tools.

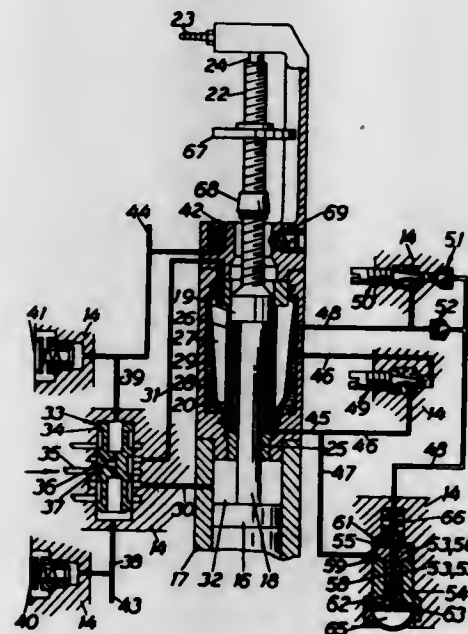
The disclosure is directed to methods and apparatus for automatically interchanging a plurality of noncaptive rotary tools between working and nonworking positions; for imparting continual rotation to both the working and nonworking tools at all times that any one tool is actually working; for effecting tool interchange without disrupting the continual rotational input to any of the tools; and for infedding and retracting a working tool, relative to its bearing support, under the respective influences of an elongated rotary cam and a wide chain link drive including dynamic biasing means.

3,598,496
JIG FOR DRILLING SIDING
 Harley L. Skinner, Bellwood, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
 Filed June 25, 1969, Ser. No. 836,492
 Int. Cl. B23b 49/00
 U.S. Cl. 408—115



A jig designed to support a bit for drilling vent holes in siding of frame buildings, comprising a base-plate having fixed posts journaling a bit for drilling vent holes at substantially a uniform optimum angle in siding. The tool is also designed to take simple accessory fittings for adapting it to operate on siding of different types and thicknesses.

3,598,497
POWER-OPERATED UNIT FOR DRILLING AND SIMILAR PURPOSES
 Bengt Ebbe Harald Nyman, Rockford, Ill., assignor to Atlas Copco Aktiebolag, Nacka, Sweden
 Filed Sept. 2, 1969, Ser. No. 854,507
 Claims priority, application Sweden, Sept. 10, 1968, 12127/68
 Int. Cl. B23b 47/24
 U.S. Cl. 408—130

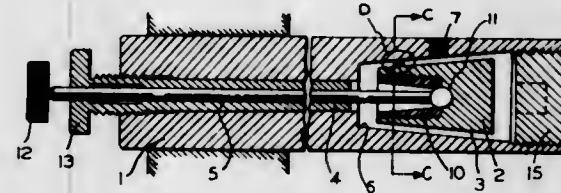


A drilling unit is arranged which has power means for moving the drill axially. When, during rapid feed motion, the drill engages a workpiece, a cutoff valve blocks off a passage for a speed-controlling hydraulic fluid flow. The fluid must now pass a metering valve. This results in a slower working feed.

4 Claims

7 Claims

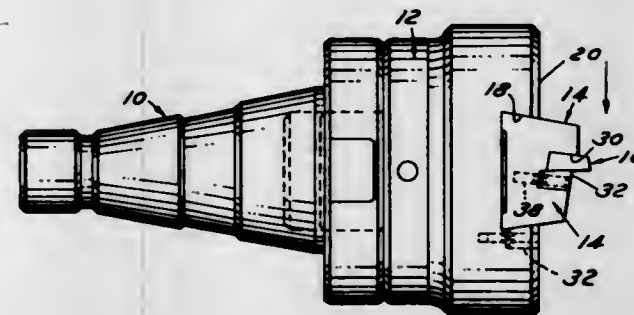
3,598,498
ADJUSTABLE DEVICE FOR DAMPING VIBRATIONS IN TOOL-HOLDING RODS, IN PARTICULAR BORING BARS, IN MACHINE TOOLS
 Hans Kristian Holmen, Trondheim, Norway, assignor to Sintef, Trondheim, Norway
 Filed July 24, 1969, Ser. No. 844,375
 Claims priority, application Norway, July 29, 1968, 2975/68
 Int. Cl. B23b 29/03
 U.S. Cl. 408—143



The invention relates to an adjustable device for damping vibrations in tool-holding rods, in particular boring bars in machine tools, comprising a damping mass located in an axial bore in the tool-holding rod and coupled thereto by means of at least one spring element and adapted to be subjected to a damping effect by means of a damping fluid which at least in part fills up the space between the damping mass and the bore, characterized in that the damping mass and the bore have a substantially conical basic shape and that the damping mass is axially adjustable in the bore.

17 Claims

3,598,499
BORING HEAD ASSEMBLY
 James A. Dillon, Jr., 24749 Panama, Warren, Mich.
 Filed Apr. 9, 1969, Ser. No. 814,582
 Int. Cl. B23b 29/03
 U.S. Cl. 408—148



A boring head assembly comprising a head having a radially extending slot, and a removable blade-carrying slide adjustably mounted in the slot. A reference block is also adjustably mounted in the slot having a locating surface adapted to contact and radially locate the slide. A micro-screw carried by the block provides a second slide-locating surface.

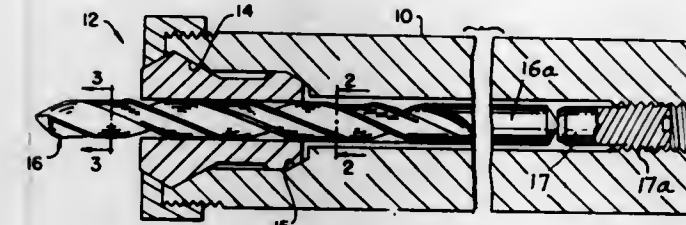
3 Claims

3,598,500
TWIST DRILL
 Carl J. Oxford, Jr., Rochester, Mich., assignor to National Twist Drill & Tool Co., Rochester, Mich.
 Filed Apr. 7, 1969, Ser. No. 813,859
 Int. Cl. B23b 51/02
 U.S. Cl. 408—210

Numerical control drill system employing stubbing collet,

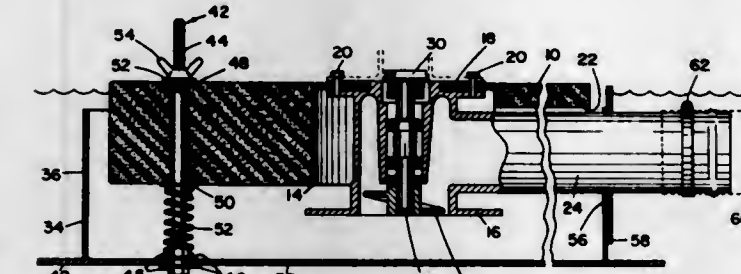
4 Claims

and a double-margin drill for improving support and rotational accuracy by the collet, that portion of the drill extending beyond the collet having the trailing margin removed.



tional accuracy by the collet, that portion of the drill extending beyond the collet having the trailing margin removed.

3,598,501
FLOATING SURFACE SKIMMER WITH CONTINUOUS WEIR
 Howard E. Stanfield; Gary W. Stanfield, and George F. Camp, all of Tulsa, Okla., assignors to Acme Products Incorporated, Tulsa, Okla.
 Filed Nov. 28, 1969, Ser. No. 880,594
 Int. Cl. F01d 25/28
 U.S. Cl. 415—7



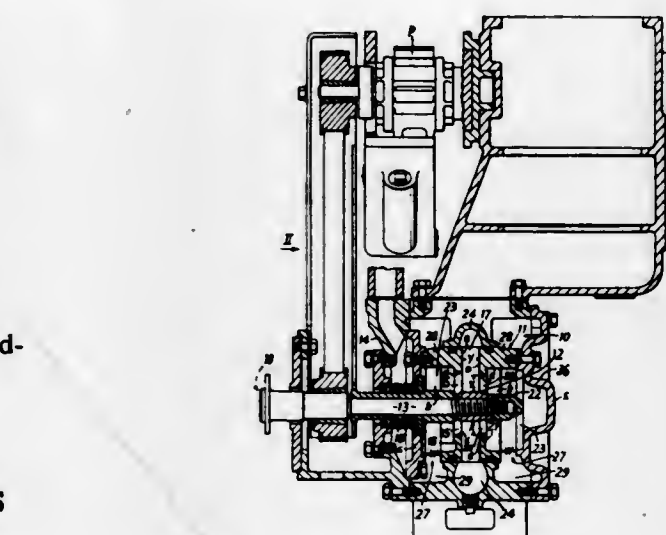
A floating pump assembly having a substantially continuous weir formed from a closed bottom and a substantially continuous vertical side portion, the side portion having a substantially continuous and horizontal side edge which is adjustable relative to the surface of liquid upon which the assembly floats; the assembly is provided with a pump whose inlet communicates with the interior of the weir and an exhaust outlet or hose for directing the removed layer to a remote location; in one embodiment, the assembly is provided with an inner weir or bowl to limit the effect of cavitation.

9 Claims

3,598,502
CENTRIFUGAL PUMPS
 Harold Philip Sidney Paksh; Harold Lloyd Dagwell, and Peter John Anley, all of 53b Southwark Street, London, S.E.1, England
 Filed Mar. 13, 1969, Ser. No. 807,061
 Claims priority, application Great Britain, Mar. 14, 1968, 12485/68
 Int. Cl. F01d 25/00; F04d 7/00
 U.S. Cl. 415—98

A centrifugal pump for pumping liquid in which pieces of contaminating material may be present; the pump comprising a reservoir chamber, an impeller casing, a rotary impeller mounted to rotate in an annular space within the casing which is formed with at least one inlet to the eye of the impeller and is mounted at least partly within said chamber, and a volute; and the pump being characterized in that a subchamber from which said inlet opens is provided and is formed with an inflow opening which is so dimensioned that it presents a passageway which is at least as restricted to the passage of pieces of contaminating material as are each of

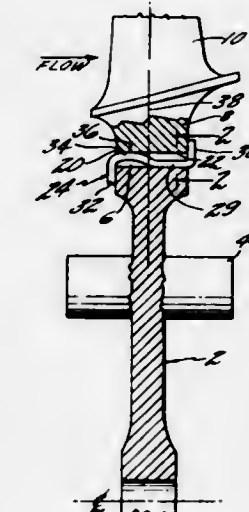
4 Claims



PELLER rotates, and, thirdly, the volute and other waterways in the pump.

3,598,503
BLADE LOCK
 Gerard Muller, Morristown, N.J., assignor to United Aircraft Corporation, East Hartford, Conn.
 Filed Sept. 19, 1969, Ser. No. 859,423
 Int. Cl. F01d 5/32
 U.S. Cl. 416—221

2 Claims



A turbomachine having a rotor assembly construction wherein a deformable blade lock is inserted in the clearance between the blade root and a slot in the periphery of a disc, the blade lock moving under the influence of centrifugal force in such a manner so as to prevent axial movement of the blade root in the disc slot.

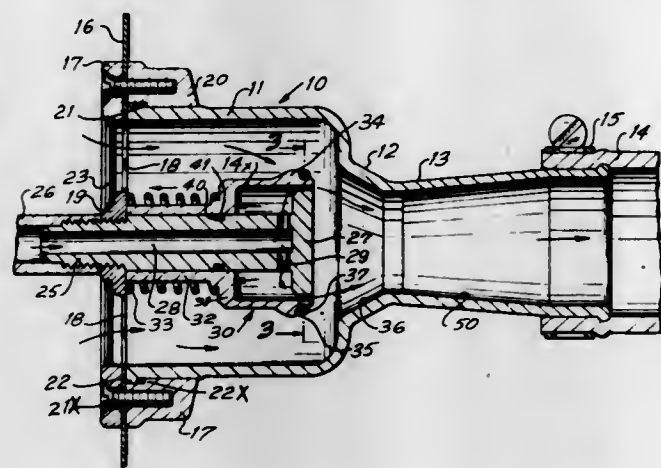
3,598,504
SELF-REGULATING ASPIRATOR
 Vincent F. Siravo, 20 Limerick Place, Hazlet, N.J.
 Filed Oct. 29, 1969, Ser. No. 872,236
 Int. Cl. F04i 5/48
 U.S. Cl. 417—184

This invention relates to a self-regulating device for inflating emergency survival equipment such as is used on airplanes and it uses highly compressed air from a tank to entrain a large amount of atmospheric air to increase the volume of the inflation air obtainable only from the tank. The device comprises a cylindrical housing having a valve seat therein, a centrally disposed outlet conduit of unique construction for emission of the compressed gas from the

6 Claims

tank, and a coacting spring-loaded piston also of unique construction and adapted to engage said valve seat of said hous-

plunger or diaphragm. Means, such as an intermediate piston, may be employed to isolate the insulating fluid from



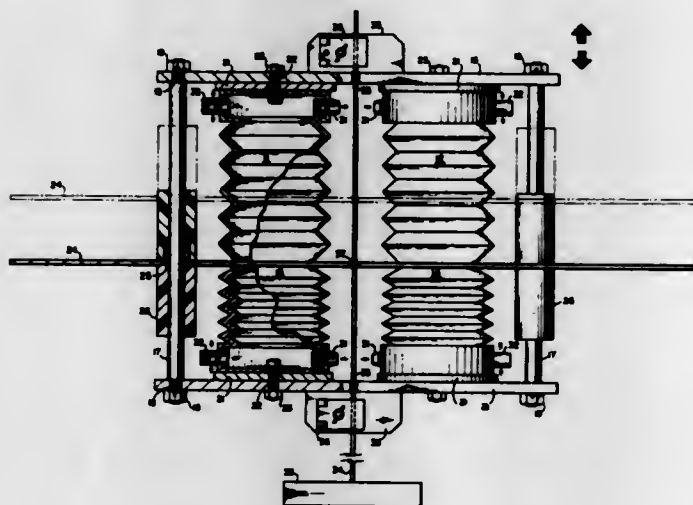
ing to seal off the fully inflated equipment from the atmosphere.

3,598,505 BELLOWS PUMP

Michael L. Greene, Hillcrest Heights, Md., and Joseph R. Jadamec, Woodbridge, Va., assignors to The United States of America as represented by the Secretary of the Navy
Filed Oct. 24, 1969, Ser. No. 869,127
Int. Cl. F04b 17/00, 35/00, 43/00

U.S. Cl. 417-330

5 Claims



This invention relates to a bellows-type pump connected to a cable and lowered into surrounding waters for operation as the cable is moved up and down due to wave action or mechanically. A plate secured relative to the bellows is constrained against movement by the water thereby compressing and releasing the bellows from compression to provide pumping action.

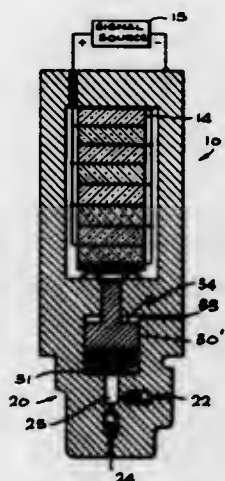
3,598,506 ELECTROSTRICTIVE ACTUATOR

Cormac Garrett O'Neill, Castro Valley, Calif., assignor to Physics International Company, San Leandro, Calif.
Filed Apr. 23, 1969, Ser. No. 818,678
Int. Cl. F04b 19/00; H01v 7/00

U.S. Cl. 417-383

15 Claims

Apparatus is disclosed for doing useful work with electroexpansive material which expands volumetrically in response to an electric field. The material is disposed in a chamber of a fixed volume slightly greater than the volume of the material at rest. The volume intermediate the material and the chamber is filled with a fluid having good insulation properties. When the material expands in response to an electrical signal, insulating fluid is forced out of a passage in a wall of the chamber and performs work by actuating a



the hydraulic fluid in a device being thus hydraulically driven, such as a pump valving means or fluid control valve.

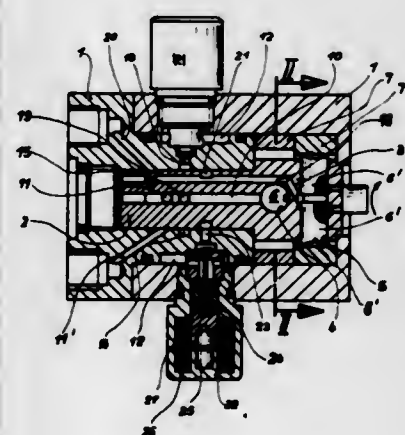
3,598,507 FUEL INJECTION PUMP FOR MULTICYLINDER INTERNAL COMBUSTION ENGINES

Willi Volt, and Ulrich Aldinger, both of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Mar. 26, 1970, Ser. No. 022,883
Claims priority, application Germany, Apr. 18, 1969, P 19 19 707.0

U.S. Cl. 417-505

Int. Cl. F04b 7/00

2 Claims



In a fuel injection pump including a rotary distributor with radially operating pump pistons, in order to increase the total number of delivery strokes, said distributor houses two radial pump assemblies supplied by a sole suction chamber and operating with a phase shift of 90°.

3,598,508 PRECISION FLUID DISPENSER

John D. Reid, Monrovia, and William M. Sheppard, Whittier, both of Calif., assignors to Hamilton Company, Whittier, Calif.

Filed Apr. 7, 1969, Ser. No. 814,072

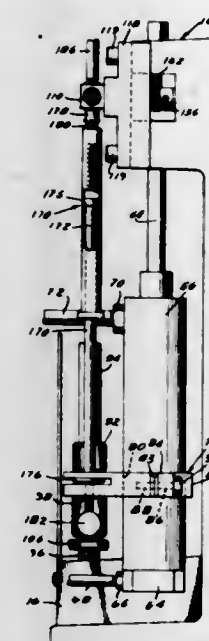
Int. Cl. F04b 17/00; F01b 15/00

U.S. Cl. 417-400

10 Claims

An apparatus is described for repeatedly dispensing precise quantities or amounts of liquid. An actuator operates a reciprocable syringe plunger for drawing liquid into the syringe and discharging same. A valve controls the inflow and outflow of the syringe and spaced permanent magnets hold the movable member of the valve in a position for connecting

the syringe either with a source of liquid or in a position for made about constant throughout the entire course of the connecting the syringe with a conduit for conveying vane including the sucking region and the exhausting region,



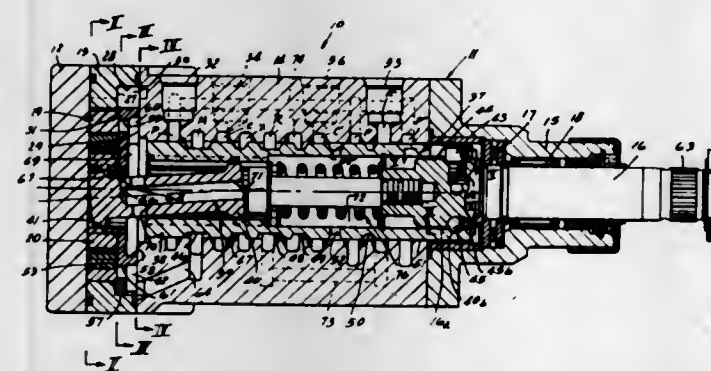
discharged liquid, until the syringe plunger has been moved by the actuator to the respective ends of its stroke.

3,598,509 HYDRAULIC DEVICE

Raymond L. Goff, and Fredrick D. Venable, both of Lafayette, Ind., assignors to TRW Inc., Cleveland, Ohio
Filed Feb. 3, 1970, Ser. No. 8,349
Int. Cl. F01c 1/00

U.S. Cl. 418-61

14 Claims



A hydraulic device having a pair of fluid displacement members including an internally toothed stator and an externally toothed rotor disposed in meshing relation within the stator for relative orbital and rotational movement therewith to provide a series of expanding and contracting fluid pockets between the teeth thereof. The rotor has one less tooth than does the stator, and a fluid commutator valve is provided for directing fluid into and out of the fluid pockets in timed relation with the expansion and contraction thereof. The commutator valve is connected to the rotor for joint orbital and rotational movement and includes a radial wall facing the fluid pockets and having a plurality of ports formed therein arranged in a circular pattern and equaling in number twice the number of teeth of the rotor.

3,598,510 VANE PUMP

Yasuo Aoki, Yokohama, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho (Komatsu Ltd.), Tokyo, Japan
Filed Feb. 24, 1970, Ser. No. 13,376

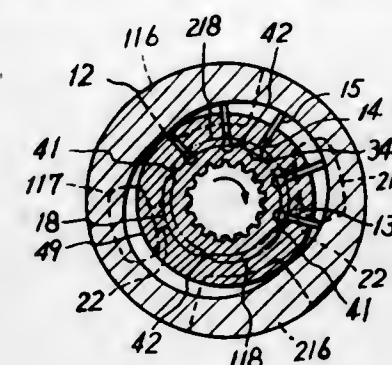
Claims priority, application Japan, Feb. 27, 1969, 44/14,874

Int. Cl. F01c 21/00; F03c 3/00; F04c 15/00

U.S. Cl. 418-81

3 Claims

A vane pump having two inner sidewalls of the housing, in which specified passages for pressure are provided in the walls, and, in addition, the vane may be provided with at least a radial slit on the radially inner part of the forward surface thereof, whereby the pressure pushing the vane outwardly against the circumferential wall of the cam ring is



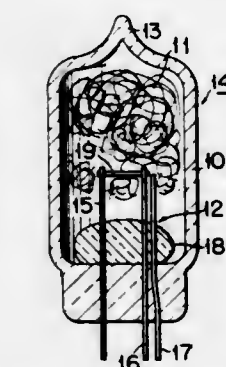
and therefore, the pumpability is improved and the vibration and noise are minimized.

3,598,511 FLASHLAMPS

Kenji Ohmac, Yokohama-shi; Namio Iwata, Odawara-shi, and Osamu Nomura, Yokohama-shi, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 8, 1969, Ser. No. 864,860
Claims priority, application Japan, Oct. 9, 1968, Aug. 25, 1969, 73347/68; 80125/69
Int. Cl. F21k 5/02

U.S. Cl. 431-95

8 Claims



A flashlamp comprises a transparent bulb with its internal volume 2.0 cc. or less, a luminescent material, combustion-assisting gas having 100 to 130 percent by weight of the chemical equivalent necessary for combustion of said material, and first and second main lead-in wires supporting a filament. Said first wire has a diameter of 0.2 to 0.6 mm. The lamp further includes an auxiliary lead-in wire disposed in parallel with the first wire and spaced therefrom by 75 percent or less of its diameter as of the diameter of said first wire.

3,598,512 TRIPOD TORCH HANDLE

Joseph N. Johnson, 2795 N. Ludlow Road, Urbana, Ohio
Filed Oct. 8, 1969, Ser. No. 864,698
Int. Cl. F23d 13/24; F23c 5/06

U.S. Cl. 431-343

6 Claims



A vane contrivance, more particularly, a self-standing tripodal base is provided at the upper end with a dual purpose gas burner assembly wherein addition, inner air and gas mixing tube is confined within an outer air and gas mixing tube. When the combustible mixture is burned at low pressure at the smaller and shorter inner tube a Bunsen burner flame is attainable. When the mixture is burned atop the larger and longer outer tube at requisite high exhausting a blowtorch flame is provided. When the pivotally mounted legs of the tripod are folded together, a practical and convenient blowtorch handle is provided.

CHEMICAL

3,598,513

METHOD OF TREATING KNITTED SYNTHETIC FABRICS TO SIMULATE MATELASSE CLOTH AND RESULTING PRODUCTS

Louis C. Galatioto, Bangor, Pa., assignor to Blue Ridge-Winkler Textiles, a Division of Lehigh Valley Industries, Inc., Bangor, Pa.

No Drawing. Filed Jan. 30, 1968, Ser. No. 701,571

Int. Cl. D06m 13/16

U.S. Cl. 8-114.5

6 Claims

Treating fabrics of synthetic fibers, such as nylon and Dacron, which are of knitted structure, in such a manner that they acquire the properties, characteristic textures and designs of Matelasse cloth. This is effected by placing on the knitted goods a fine mesh screen, having such intaglio design formed in fine perforations therethrough, applying to and through the perforations of the screen a paste containing a gum and a liquid contracting agent which is penetrative of the screen and of the fibers of the fabric without diffusion or dispersion, followed by removing the screen and developing the design by drying and heating the treated material.

3,598,514

METHODS OF APPLYING SOIL-RELEASE COMPOSITIONS TO TEXTILE MATERIALS

Stephen B. Sello, Cedar Grove, Ildo Emil Pensa, Palisades Park, and Bipinchandra R. Shukla, East Paterson, N.J., assignors to J. P. Stevens and Co., Inc., New York, N.Y.

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,045

Int. Cl. D06m 13/12

U.S. Cl. 8-115.6

5 Claims

Textile materials containing substantial proportions of cellulosic and/or hydrophobic constituents are provided with both durable-press and soil-release properties by depositing on said textile materials acid catalyzed durable-press resin precursor; polyether derivative selected from the group consisting of polyalkylene glycols, the mono- and di-fatty acid esters of polyalkylene glycols, and the mono- and di-alkyl ethers of polyalkylene glycols, and their mixtures; fluorocarbon polymer, and a catalytic quantity of acidic catalyst. The fluorocarbon polymer contains highly fluorinated oleophobic and hydrophobic portions and nonfluorinated hydrophilic portions.

3,598,515

METHODS OF APPLYING SOIL-RELEASE COMPOSITIONS TO TEXTILE MATERIALS

Donald R. Moore, Rutherford, and Stephen B. Sello, Cedar Grove, N.J., assignors to J. P. Stevens and Co., New York, N.Y.

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,112

Int. Cl. D06m 13/12

U.S. Cl. 8-115.6

6 Claims

Textile materials containing substantial proportions of cellulosic and/or hydrophobic constituents are provided with both durable-press and soil-release properties by depositing on said textile materials acid catalyzed durable-press resin precursors; acrylic acid type polymer selected from the group consisting of acrylic acid type homopolymers, copolymers and terpolymers; fluorocarbon polymer; and polyol derivative. The fluorocarbon polymer contains highly fluorinated oleophobic and hydrophobic portions and nonfluorinated hydrophilic portions.

3,598,516

METHOD OF STERILIZING

James J. Shull, 3198 Chestnut St., Philadelphia, Pa. 19107, and Robert S. Lloyd, 905 Marshall Drive, Erie, Pa. 16505

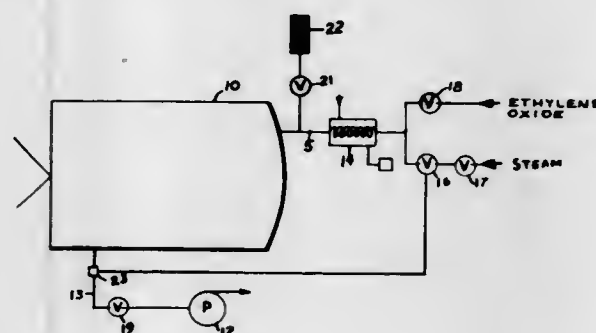
Continuation-in-part of application Ser. No. 414,721, Nov. 30, 1964. This application Jan. 2, 1969, Ser. No. 860,447

(Filed under Rule 47(a) and 35 U.S.C. 116)

Int. Cl. A61l 1/00, 13/00

U.S. Cl. 21-57

5 Claims



The sterilizing process is carried out in a sealed container or autoclave wherein air in the chamber is displaced with steam while the chamber is maintained at vacuum condition. The steam is fed in at a rate no greater than the capacity of the vacuum pump so that the pump will maintain the desired pressure in the chamber. Steam thereby heats the load to the desired temperature in a short time and thereby creates a more efficient and shorter overall time for the sterilizing cycle. A control is used, made up of a needle valve in the steam line which is used to set the approximate flow rate. Actually, this flow rate is slightly greater than the flow rate required. An additional solenoid valve is placed in the steam line in series with the needle valve and a thermostatic control is placed in the chamber drain line to turn the solenoid valve on and off to maintain the desired load temperature at approximately 130° F.

The turning on and off of the solenoid valve to modulate the drain line temperature sets up a pulsing flow of steam and steam pressure condition of approximately 25 to 30 in. Hg which helps to purge the load of entrained air thereby heating the load more rapidly. Following the simultaneous application of vacuum and steam, a microbicidal chemical sterilizing gas is admitted to the sterilizing chamber.

3,598,517

AUTOMATIC CONTROL FOR BALANCED PRESSURE PROCESS

Donald J. Beecher, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.

Filed May 12, 1969, Ser. No. 827,471

Int. Cl. A61l 1/00, 13/00

U.S. Cl. 21-58

11 Claims

A process and apparatus for sterilizing articles sealed in packages made of semi-permeable membranes, and with or without porous overwrap, in a sealed chamber in an atmosphere of permeable gas. A control is provided for regulating the pressure in the chamber to limit the differential pressure between the pressure inside the package and the pressure in the chamber to a predetermined value so that the pressure inside the package will never be such as

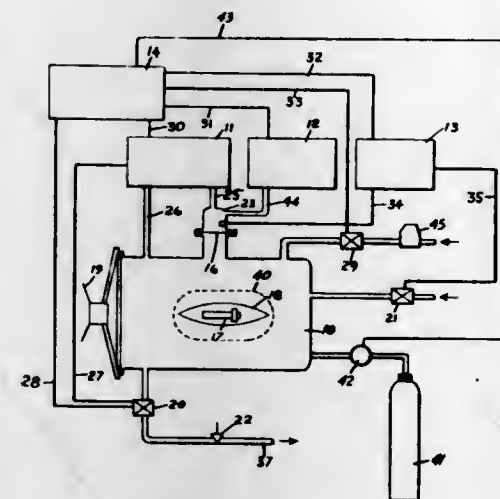
AUGUST 10, 1971

CHEMICAL

549

to rupture the package and the chamber pressure will not exert a pressure on the outside of the package which

ammonium molybdate to thereby form an aqueous ammonium molybdate solution and thereafter separating said molybdate solution from said organic extractant solution.



3,598,520

SEPARATION OF RARE EARTHS
Vincent Chiola, George J. Kamin, Tai K. Kim, Robert E. Long, Jr., and Robert J. Patrician, Towanda, Pa., assignors to Sylvania Electric Products Inc.

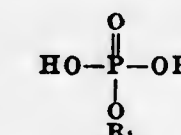
No Drawing. Filed Sept. 16, 1969, Ser. No. 858,515

Int. Cl. C22b 59/00; C01f 17/00

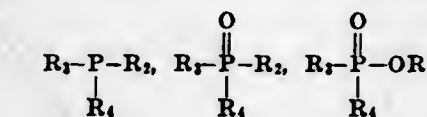
U.S. Cl. 23-22

6 Claims

An improvement to the solvent extraction step of a process for the purification of rare earths comprising contacting an aqueous feed solution containing light and heavy rare earth elements with a solvent extraction solution consisting essentially of an alkyl phosphoric acid having the formula



wherein R is a straight chain alkyl group having from about 8 to about 16 carbon atoms and R₁ is selected from hydrogen and R, an organophosphorus compound selected from the group of compounds having the formulas consisting of



and mixtures thereof wherein R₂ is an alkyl group having from about 4 to about 8 carbon atoms and R₃ and R₄ are each selected from the group consisting of H, R₂ and OR₂, and a hydrocarbon solvent. The alkyl phosphoric acid is from about 3.5% to about 35% by volume of the extraction solution and the organophosphorus compound is from about 2% to about 25% of the extraction solution and the remainder is the hydrocarbon solvent.

3,598,521

REMOVAL OF SULFUR COMPOUNDS FROM GAS STREAMS

Forrest C. Alley, Clemson, S.C., assignor to Westvaco Corporation

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,150

Int. Cl. B01d 53/04, 53/34

U.S. Cl. 23-25

7 Claims

A process for removing malodorous organic sulfur compounds and hydrogen sulfide from industrial gas streams which comprises contacting the sulfur compound-containing gas and an oxygen-containing gas with a carbonaceous adsorbent wherein the relative humidity at initial contact is at least 70 percent and the contact temperature is between 27° C. and 82° C., whereby the organic sulfur compounds and hydrogen sulfide are adsorbed, or oxidized and adsorbed onto the carbonaceous adsorbent, and the gas stream is passed to the atmosphere free from the organic sulfur compounds and hydrogen sulfide.

3,598,522

CONVERSION OF POTASSIUM-MAGNESIUM DOUBLE SALTS INTO KAINITE

William J. Lewis, South Ogden, Utah, assignor to National Lead Company, New York, N.Y.

Filed July 18, 1968, Ser. No. 745,904

Int. Cl. C01d 5/12, 11/00; C01f 5/00

U.S. Cl. 23-50

6 Claims

Method of converting double salts of potassium and magnesium, such as leonite and picromerite, into kainite, comprising moistening said double salt with an aqueous

3,598,518

METHOD OF PROVIDING A CONTAINER WITH AN OXYGEN-FREE GAS

Elzo Goto, Chigasaki-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

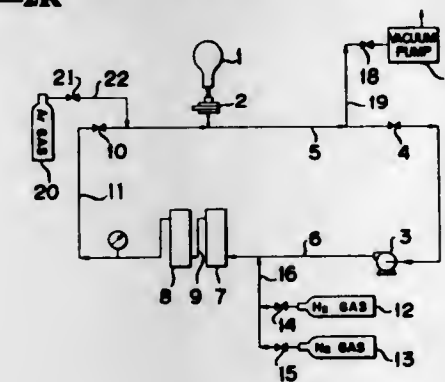
Filed Apr. 8, 1968, Ser. No. 719,568

Claims priority, application Japan, Apr. 11, 1967, 42/22,591; Sept. 9, 1967, 42/57,547

Int. Cl. B01d 53/00

U.S. Cl. 23-2R

4 Claims



Method of providing a container with an oxygen-free gas comprising purging the container with a hydrogen containing gas, withdrawing the gaseous mixture from the container, catalytically reacting the oxygen and hydrogen to form water, removing the water and recycling the gas to the container.

3,598,519

PURIFICATION OF MOLYBDENUM

Vincent Chiola, Towanda, Phyllis R. Dodds, Wysox, John A. Powers, New Albany, and Clarence D. Vanderpool, Towanda, Pa., assignors to Sylvania Electric Products Inc.

Filed June 30, 1969, Ser. No. 837,777

Int. Cl. C22b 59/00

U.S. Cl. 23-22

4 Claims

A process for separating molybdenum values from various impurities is disclosed. The process comprises dissolving a contaminated molybdenum source in an aqueous sulfuric acid solution to form an aqueous acidic feed solution, contacting the feed solution with a water-insoluble organic extractant solution comprising a tertiary alkyl amine and a water-insoluble hydrocarbon solvent, thereby selectively extracting the molybdenum values into said organic solution and stripping the organic solution with an aqueous strip solution containing ammonium ions and

solution of magnesium chloride, preferably to the extent of at least 10% by weight thereof, said magnesium chloride solution containing preferably at least 20% by weight of said chloride, and aging at temperature of about 25-40° C. for a period sufficient to effect said conversion, preferably for a period of at least 48 hours.

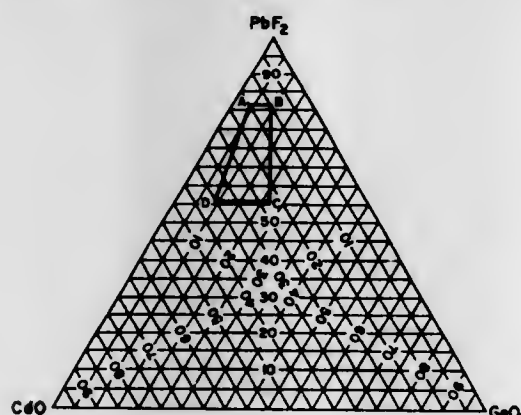
3,598,523 METHOD OF PRODUCING CADMIUM ORTHO-GERMANATE

Kenneth O. Beck, Newton, Mass., and Shou-Ling Hou, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Jan. 11, 1968, Ser. No. 697,237
Int. Cl. G01g 17/00

U.S. Cl. 23—51

4 Claims



This invention relates to the discovery of a method for growing photoconductive single crystals of cadmium ortho-germanate (Cd_2GeO_4) from a saturated solution of cadmium oxide (CdO), germanium oxide (GeO_2), and lead fluoride (PbF_2) and the use of the crystals.

3,598,524 PRODUCTION OF SODIUM PERBORATE

Victor J. Reilly, Memphis, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Sept. 25, 1968, Ser. No. 762,625
Int. Cl. C01b 15/12, 35/00; B01d 9/02

U.S. Cl. 23—60

6 Claims

A process for producing sodium perborate having a relatively low bulk density and a relatively high solution rate wherein sodium metaborate and hydrogen peroxide are fed to and reacted in an aqueous reaction slurry of sodium perborate from which the sodium perborate is crystallized in more than one crystallization zone. The crystallization in the first zone is effected in the presence of a relatively high concentration of excess sodium metaborate and the completion of the crystallization is effected in one or more subsequent zones in the presence of a relatively low concentration of excess sodium metaborate resulting from the addition of hydrogen peroxide to the slurry in the subsequent crystallization zone.

3,598,525 PROCESS FOR THE MANUFACTURE OF P_2O_5 AND POLYPHOSPHORIC ACID

Heinz Harnisch, Lovenich, near Cologne, Fritz Krahel and Friedrich Thomas, Hermulheim, near Cologne, and Herbert Panter, Alstadt, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Cologne, Germany

Filed Oct. 21, 1968, Ser. No. 679,298
Claims priority, application Germany, Nov. 30, 1967, P 16 67 577.7

Int. Cl. C01b 25/20, 25/24

U.S. Cl. 23—165

7 Claims

Solid P_2O_5 and polyphosphoric acid are produced simultaneously by burning, in the upper portion of a first reaction zone whose walls are cooled down to temperature

lower than 150° C., molten elementary phosphorus with a molecular oxygen-containing gas; condensing a portion of resulting gaseous P_2O_5 in the reaction zone and transforming it into solid P_2O_5 ; discharging the solid P_2O_5 from the base portion of the reaction zone; supplying gas containing unseparated P_2O_5 and issuing from the said reaction zone to a second reaction zone; producing polyphosphoric acid in the second reaction zone by cycling therein polyphosphoric acid with a P_2O_5 -content lower than that desired for the polyphosphoric acid to be produced as the final product; and absorbing in the cycled polyphosphoric acid the P_2O_5 contained in the gas issuing from the first reaction zone.

3,598,526 METHOD FOR PREPARING MONOCRYSTALLINE ALUMINUM NITRIDE

James O. Huml and Gilbert S. Layne, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Application Apr. 27, 1967, Ser. No. 634,112, now Patent No. 3,477,812, dated Nov. 11, 1969, which is a continuation-in-part of application Ser. No. 507,974, Nov. 15, 1965. Divided and this application Dec. 9, 1968, Ser. No. 803,502

Int. Cl. C01b 21/06; C01f 7/00

U.S. Cl. 23—192

3 Claims

A process for producing aluminum nitride and metal fluoride single crystals either separately or simultaneously. The process comprises contacting a subvalent aluminum compound, i.e. where Al exhibits a valence of less than 3, in a gaseous state with a nitriding agent in a gaseous state while providing an inert surface on which the crystals can form. To prepare metal fluoride crystals, a subvalent aluminum fluoride compound in a gaseous state is contacted with a metal in a gaseous state under an inert atmosphere and providing an inert surface on which the metal fluoride crystals can form. To form the two crystals simultaneously the latter procedure is modified by carrying out the reaction in a nitriding atmosphere.

3,598,527 AMMONIA AND METHANOL PRODUCTION

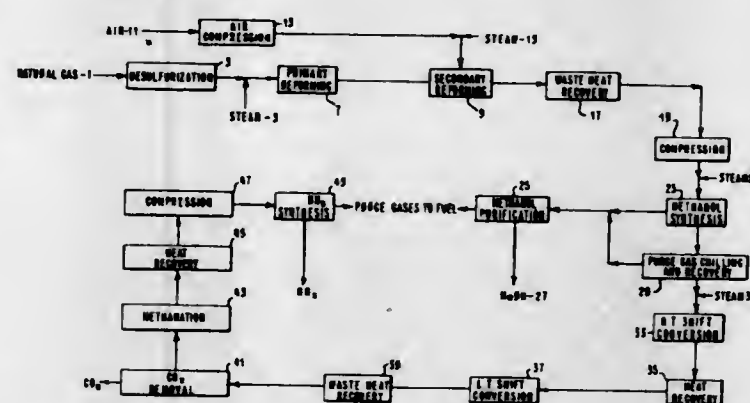
Orlando J. Quartulli, Bronx, and Robert Jay Kandall, Flushing, N.Y., assignors to Pullman Incorporated, Chicago, Ill.

Filed Oct. 11, 1968, Ser. No. 766,723

Int. Cl. C01c 1/04, 29/16; B01j 9/00

U.S. Cl. 23—199

10 Claims



A process is provided for the manufacture of methanol and ammonia comprising operating sequentially a high pressure hydrocarbon reforming zone in series with a low pressure methanol synthesis zone, in series with a carbon dioxide removal zone, in series with an ammonia synthesis zone. Such combination takes advantage of the newly developed

low pressure methanol process and thereby saves substantial operating costs in carbon dioxides compression in addition to substantially investment costs by utilizing a single process train instead of the heretofore employed independent methanol and ammonia plants.

3,598,528 PURIFICATION OF PETROLEUM COKE

William F. Franz, Gardiner, and Howard V. Hess, Glenham, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed June 27, 1969, Ser. No. 837,254

Int. Cl. C01b 31/02

U.S. Cl. 23—209.9

6 Claims

Petroleum coke is purified of sulfur and metallic impurities by hydrodesulfurization with synthesis gas followed by passing the resulting synthesis gas, which is relatively rich in hydrogen sulfide, in contact with the coke at a temperature and pressure at which the hydrogen sulfide catalyzes the reaction of the metallic impurities with carbon monoxide to form gasiform metallic carbonyls which can be physically separated from the coke.

3,598,529 PROCESS FOR CONVERTING HYDROGEN SULFIDE AND SULFUR DIOXIDE TO ELEMENTAL SULFUR

André Deschamps, Chatou, and Philippe Renault, Neuilly-sur-Seine, France, assignors to Institut Français du Pétrole des Carburants et Lubrifiants, Ruell-Malmaison, Hauts-de-Seine, France

No Drawing. Filed Feb. 19, 1969, Ser. No. 800,761

Claims priority, application France, Feb. 29, 1968, 141,894

Int. Cl. C01b 17/04

U.S. Cl. 23—225R

28 Claims

Hydrogen sulfide is reacted with sulfur dioxide to form elemental sulfur in the presence of a solvent containing an alkali or alkaline earth metal salt and at least one member from the group consisting of organic monocarboxylic acids, polycarboxylic acids or partial esters thereof.

3,598,530 DETERMINATION OF UNSATURATED HYDROCARBONS

Ellsworth R. Fenske, Palatine, and Leonard F. Pasik, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 5, 1968, Ser. No. 757,799

Int. Cl. G01n 9/00, 25/18, 31/08

U.S. Cl. 23—230

5 Claims

Method for quantitatively determining the presence of an unsaturated hydrocarbon compound contained in a mixture of compounds using improved chromatographic techniques.

3,598,531 METHOD FOR DETERMINING SULFUR AS SULFUR DIOXIDE

Elmars Bremans, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 19, 1968, Ser. No. 760,976

The portion of the term of the patent subsequent to June 15, 1988, has been disclaimed

Int. Cl. B01k 1/00; G01n 27/42, 31/16

U.S. Cl. 23—230

2 Claims

Chloride compound and nitrogen interferences to the iodometric and/or microcoulometric methods of sulfur determination are overcome by adding sodium azide to the titration cell electrolyte. The improved method is applicable to oils, crudes, solids, and petrochemicals.

3,598,532 MEANS AND METHOD FOR CRUCIBLE LEAK DETECTION

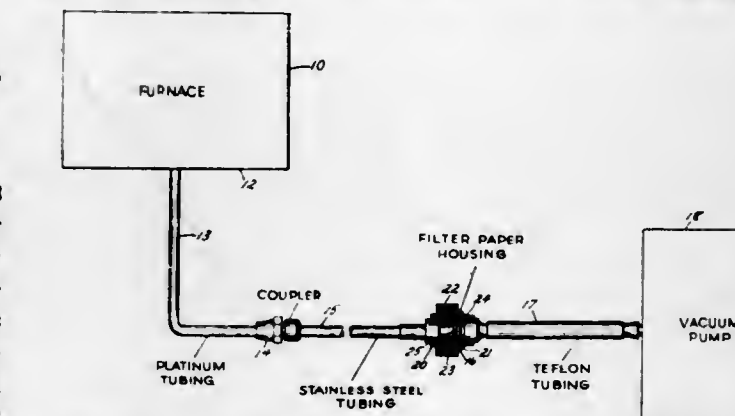
Irving Adams, Cranford, N.J., and Richard F. Friedrich, Brooklyn, N.Y., assignors to Loral Corporation, Scarsdale, N.Y.

Filed Nov. 29, 1968, Ser. No. 786,809

Int. Cl. B01d 39/14; G01m 3/04; G01n 33/20

U.S. Cl. 23—230

2 Claims



Means and method for detecting leaks in platinum crucibles during the period of crystal growth in the manufacture of synthetic chemical structures using a solvent such as lead oxide and/or lead fluoride. Leaks are detected by sampling small quantities of air in the furnace, and testing for the presence of lead or other solvents. The lead particles are trapped on a disc of filter paper, and detected by means of a chemical reaction which changes the lead to a black deposit of lead sulphide. Other elements are detected by spectroscopic methods.

3,598,533 DIAGNOSTIC PAPER STRIP

Suichi Tomioka, Tokyo, and Motoharu Shiba and Sakae Wade, Saitama, Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Apr. 1, 1969, Ser. No. 818,855

Claims priority, application Japan, Apr. 4, 1968, 43/21,742

Int. Cl. G01n 31/22, 33/16

U.S. Cl. 23—230

12 Claims

An improved diagnostic paper strip which is applicable to whole blood sample, which is prepared by dipping a diagnostic paper strip into an organic solvent solution of one or more of cholesterol, rosin and their esters and drying the strip.

3,598,534 MIXING DEVICE

Charles E. Templer, 20 Mattock Lane, Ealing, London, W. 5, England

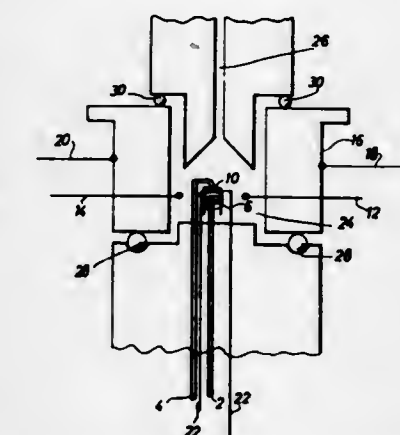
Filed July 29, 1968, Ser. No. 748,292

Claims priority, application Great Britain, Aug. 5, 1967, 36,052/67

Int. Cl. G01k 17/00; G01n 25/48

U.S. Cl. 23—253

9 Claims



A mixing device is provided for mixing small quantities of liquids together in which at least two tubes pass into a

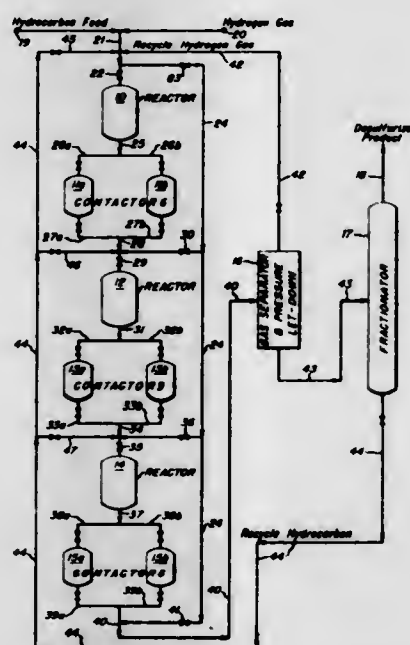
larger tube closed at one end, the open end of each tube within the larger tube almost meeting and preferably facing the open end of each other tube. The device is used in microcalorimeters for determining heats of reaction.

3,598,535
SEQUENTIAL, FIXED-BED HYDRODE-SULFURIZATION SYSTEM

Arnold N. Wennerberg, Chicago, Ill., assignor to Standard Oil Company, Chicago, Ill.
Filed Aug. 15, 1968, Ser. No. 752,986
Int. Cl. B01d 3/00; B01j 9/04

U.S. Cl. 23—260

10 Claims



An apparatus for the hydrosulfurization of sulfur-containing hydrocarbons wherein the hydrocarbon is reacted in a first stage with hydrogen in the presence of a hydrogen transfer catalyst to produce H_2S , and wherein the H_2S so produced is reacted with an alkaline material in a second stage to produce a solid phase sulfide before it can combine with the desulfurized hydrocarbons. The invention is particularly useful in hydrosulfurizing asphaltic and reduced crudes. A series of the aforementioned stages may be linked together to form an efficient hydrosulfurization system.

3,598,536
CHEMICAL FEEDER

John W. Christensen, 10534 Wiley Burke, Downey, Calif. 90241

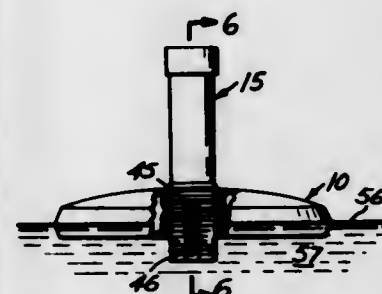
Continuation of application Ser. No. 719,455, Aug. 8, 1968. This application May 4, 1970, Ser. No. 34,116
Int. Cl. B01f 1/00

U.S. Cl. 23—267A

22 Claims

This invention relates to a chemical feeder suitable for use with bodies of water such as swimming pools. Its purpose is to hold and adjustably regulate the quantity of a slowly soluble material which is dissolved into a body of water per unit of time. The feeder includes a float member which floats atop the water and which has engaged to it a container member having a cavity therein which contains the said material. The said material will frequently be a chlorine-release material in the form of relatively small pellets. The container member has a bottom wall and a side wall, and its elevation relative to the float, and thereby relative to the surface of the water, is vertically adjustable. A port enters the cavity through one of the walls at a level below the surface of the water so that the water will rise in the cavity to the same level as that of the surface. The amount of surface area of the material which

is exposed to solution by the water is adjustable at least in part by raising and lowering the container member, because the water level will thereby be higher or lower in the stack of material in the container member. The size of the container member permits a substantial reserve supply



of the material above the water level so that as the material is dissolved below the water level, additional material falls by gravity to a level below the water surface so as to maintain sensibly constant the available surface area of material available to be dissolved.

3,598,537
CONTINUOUS LIQUID EXTRACTION OF SOLUBLES FROM SOLIDS

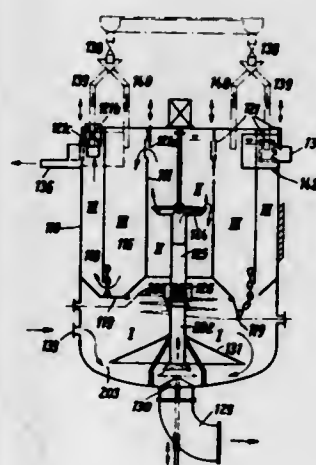
Alfred Kraft, Kronberg, Taunus, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed June 5, 1968, Ser. No. 734,606

Int. Cl. B01d 11/02, 15/02, 21/10

U.S. Cl. 23—272.5

3 Claims



Liquids and solid material are in countercurrent flow through a plurality of mixing zones of which one is composed of a plurality of pockets interconnected with each other. Solid material is periodically passed through each pocket and partially recycled, while extracted material is withdrawn. Overall extraction time is substantially lessened.

3,598,538
DIRECTLY HEATED GAS DISSOCIATOR

Arnold Peacock, Cape Elizabeth, Maine, assignor to Sylvania Electric Products Inc.

Filed Sept. 5, 1968, Ser. No. 757,723

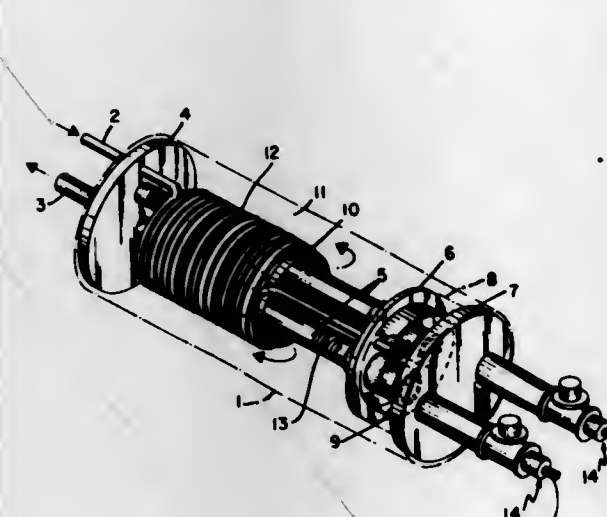
Int. Cl. B01j 7/00; H05b 3/02

U.S. Cl. 23—281

4 Claims

A gas dissociator includes a heating element made of refractory metal resistance wire and having a cyclical spiral shape. The gas is caused to flow turbulently

through the element and is heated to its dissociation means and venturi means which enhances not only temperature. Efficient heat transfer from the element to operating efficiency but also the facility by which the



the flowing gas results in substantially complete dissociation without the requirement of a catalyst.

3,598,539
VESSEL FOR CONTACTING FLUIDS AND A BED OF GRANULAR SOLIDS

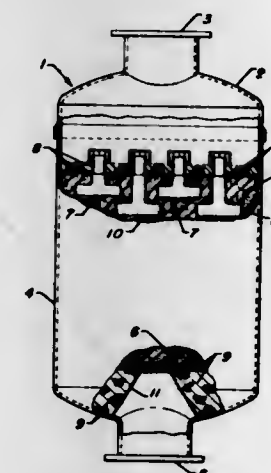
Antonio B. Pizzato, Tokyo, Japan, assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 11, 1968, Ser. No. 783,026

Int. Cl. B01d 53/04; B01j 9/00, 9/04

U.S. Cl. 23—288

5 Claims



An improved vessel for contacting fluids and a bed of granular solids wherein the fluid passes through the aforesaid bed. A plurality of basket shaped screens are partially embedded in the aforesaid bed of granular solids. That portion of each screen having the greatest surface area is the portion most deeply embedded.

3,598,540
CATALYTIC EXHAUST GAS PURIFYING DEVICE AND CASING MEANS THEREFOR

Sidney Chase, 11914 Darlington, Apt. 4, Los Angeles, Calif. 90049

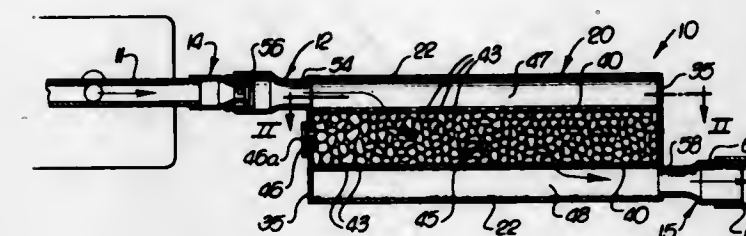
Filed Apr. 2, 1969, Ser. No. 812,818

Int. Cl. B01j 9/00

U.S. Cl. 23—288

5 Claims

A catalytic exhaust gas purifying device utilizing a bed of catalytic material and including a casing means and venturi means constructed and arranged to provide decreased warmup time for commencing operation of the device and to utilize a mode of construction of the cas-



device can be mounted on a vehicle under restricted space conditions.

3,598,541
FLUID CONTACTING APPARATUS FOR FLUID-SOLID CONTACTING CHAMBERS

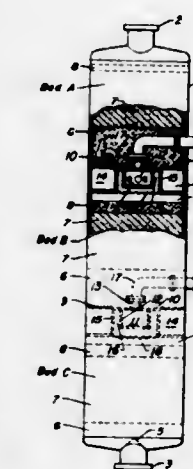
William R. Hennemuth and Don B. Carson, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed June 23, 1969, Ser. No. 835,449

Int. Cl. B01j 9/04

U.S. Cl. 23—288

12 Claims



An apparatus for contacting two fluids in a fluid-solids contacting zone, such as an adsorption zone or a reaction zone. A first fluid is passed into a central chamber having a plurality of fluid openings in the chamber wall, while a second fluid is passed into an annular chamber encompassing the central chamber and spaced apart therefrom. The second fluid is discharged via fluid openings in the inner annular chamber wall, into an annular space between the chambers, and the first fluid is discharged from the central chamber into the second fluid discharge. A resulting fluid mixture is passed from the annular space into a bed of particulated contact solids. Specific application is in hydrogenation, hydrotreating, hydrocracking, and hydrodealkylation reaction zones.

3,598,542
FLUID CONTACTING APPARATUS FOR FLUID-SOLID CONTACTING CHAMBERS

Don B. Carson and William R. Hennemuth, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed June 23, 1969, Ser. No. 835,679

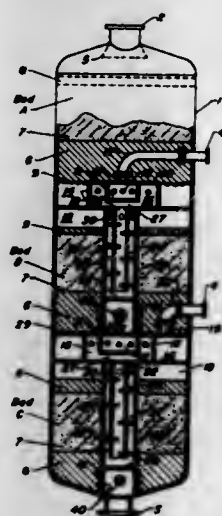
Int. Cl. B01j 9/04

U.S. Cl. 23—288

26 Claims

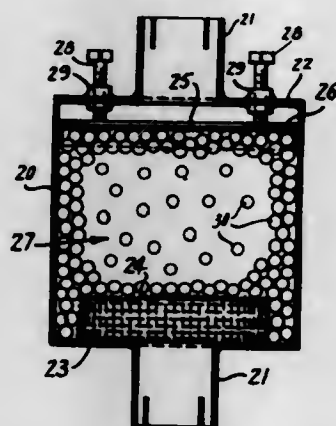
An apparatus for contacting two fluids in a fluid-solids contacting zone, such as an adsorption zone or a reaction zone. A first fluid is passed into a central chamber having a plurality of fluid openings in the chamber wall,

while a second fluid is passed into an annular chamber encompassing the central chamber and spaced apart therefrom. The second fluid is discharged via fluid openings in the inner annular chamber wall, into an annular space between the chambers, and the first fluid is discharged from the central chamber into the second fluid discharge. A resulting fluid mixture is passed from the annular space into a first conduit means confined within a second con-



duit means in a first direction of flow. The mixture is then passed into an annular passageway confined between the first and second conduit means in a second direction of flow substantially counter-current to the first direction of flow. The mixture is then passed from the annular passageway into a bed of particulated contact solids. Specific application is in hydrogenation, hydrotreating, hydrocracking, and hydrodealkylation reaction zones.

3,598,543
CATALYTIC EXHAUST PURIFIER
Howard M. Crosby, Marietta, Herman Z. Fordham, Atlanta, and John H. Henderson, Jr., Marietta, Ga., assignors to Kleen Air Corporation, Marietta, Ga.
Filed June 25, 1969, Ser. No. 836,433
Int. Cl. F01n 3/14
U.S. Cl. 23-288F 1 Claim

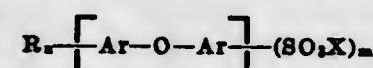


A diesel or like exhaust gas purifier or converter consisting of a casing connected directly into the exhaust pipe and having a chamber or chambers for preferably high density, low surface area alumina spheres which have been previously impregnated with a catalytic agent such as a platinum salt or a mixture of cobalt and calcium salts or the like. An adjustable foraminous baffle or baffles is provided in the casing so that the alumina spheres may be pressed into contacting relation in a catalytic chamber where exhaust purification occurs as the exhaust gas flows through such chamber.

3,598,544
CRYSTAL MODIFICATION OF INORGANIC SALTS
Arthur S. Teot, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Dec. 22, 1969, Ser. No. 887,405
Int. Cl. B01d 9/02; B01j 17/04
U.S. Cl. 23-300 3 Claims

Disclosed herein is an improved method for crystallizing ammonium sulphate, potassium nitrate, or potassium chromate by cooling an aqueous system wherein one of these three salts is dissolved. The improvement comprises adding a small amount of an ammonium, sodium, or potassium alkylated diphenyl ether mono- or disulphonate to the crystallizing system.

The sulphonate is characterized by the formula:



wherein the enclosed molecular nucleus represents a non-halogenated diaryl oxide in which Ar is a monocyclic aromatic radical of the benzene series, R is a hydrophobic substituent containing from 8 to 48 carbon atoms, inclusive in continuous carbon-carbon bonds, n is an integer from 1 to 3, and m is an integer from 1 to 2.

The "X" portion of the sulphonate group is a hydrogen displaceable ion. Suitable ions are sodium, potassium and ammonium. The resulting crystals are larger and more regularly shaped than crystals produced by prior art methods.

3,598,545
POTASSIUM SULFATE CRYSTALLIZATION PROCESS WITH THE ADDITION OF A POLYIMINE
Duane S. Lehman, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Jan. 5, 1970, Ser. No. 789
Int. Cl. B01j 17/02; C01d 5/00
U.S. Cl. 23-302 3 Claims

Disclosed herein is a novel process for crystallizing potassium sulfate from an aqueous solution thereof. The process comprises incorporating from about 0.02 to about 0.2 percent (based on weight of potassium sulfate) of a polyimine into the aqueous crystallizing solution. Prior to crystallization, the pH of the solution is adjusted to a level sufficient to impart a formal charge to the polyimine. Crystallization is accomplished by commonly employed techniques such as cooling or evaporation. The resulting crystals are approximately of the same size and are consistently hexagonal in shape. In the absence of the polyimine additive, potassium sulfate crystallizes in an unpredictable variety of forms which have poor filtering and washing characteristics.

3,598,546
PREPARING ANHYDROUS HYDRAZINE USING AN ACTIVATED ALUMINUM OXIDE DRYING AGENT
Carl D. Good, Seattle, and Donald R. Poole, Woodinville, Wash., assignors to Rocket Research Corporation of America, Redmond, Wash.
No Drawing. Filed Nov. 26, 1969, Ser. No. 880,410
Int. Cl. B01d 15/00, 15/06; C01b 21/16
U.S. Cl. 23-307 9 Claims

Hydrazine, monomethyl hydrazine, dimethyl hydrazine and other closely related hydrazine compounds are presently available as liquids containing small amounts of water (e.g. 1%) which affects their properties to a very great extent. The present invention provides a physical procedure for removing such water without heating the hydrazine and without the formation of dangerous by-products.

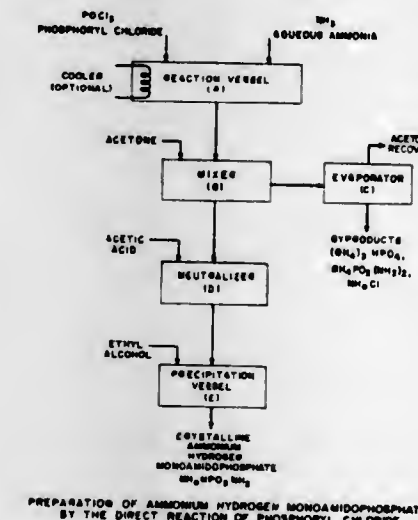
3,598,547
EXTRACTING SODIUM AND POTASSIUM FROM AQUEOUS SOLUTIONS HAVING A pH OF 14 USING PHENOLS AND AN EXTRACTANT ADDITIVE
Robert R. Grinstead, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Feb. 3, 1969, Ser. No. 796,160
Int. Cl. B01d 11/04; C01d 1/04, 1/34
U.S. Cl. 23-312 4 Claims

The disclosure concerns a novel process for producing purified aqueous solutions of sodium or potassium hydroxide from impure aqueous solutions of the corresponding bases. The process comprises contacting an aqueous solution of sodium or potassium values with a water-immiscible organic liquid comprising hindered and unhindered phenols, an organic carrier liquid, and an extractant additive. The resulting two phase system is separated into the component aqueous and organic phases and the organic phase is contacted with water to yield the hydroxide solution.

3,598,548
EXTRACTING SODIUM AND POTASSIUM FROM AQUEOUS SOLUTIONS HAVING A pH OF 14 USING UNHINDERED PHENOLS
Robert R. Grinstead, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Feb. 3, 1969, Ser. No. 796,161
Int. Cl. B01d 11/04; C01d 1/04, 1/34
U.S. Cl. 23-312 6 Claims

The disclosure concerns a novel process for producing purified aqueous solutions of sodium or potassium hydroxide from impure aqueous solutions of the bases. The process comprises contacting an aqueous solution of sodium or potassium values with a pH of 12 or above with a water-immiscible organic liquid comprising an unhindered phenol and an organic carrier liquid. The resulting two phase system is separated into the component aqueous and organic phases and the organic phase is contacted with water to yield the hydroxide solution.

3,598,549
AMMONIUM HYDROGEN MONO-AMIDOPHOSPHATE
Richard C. Sheridan, Sheffield, Ala., assignor to Tennessee Valley Authority
Filed Feb. 14, 1969, Ser. No. 799,271
Int. Cl. C01b 25/28
U.S. Cl. 23-357 11 Claims



Ammonium hydrogen monoamidophosphate is prepared by treating an aqueous solution of ammonia with

phosphoryl chloride. The reaction solution is mixed with acetone, and the product is recovered from the aqueous layer by neutralizing with acetic acid and precipitating with ethyl alcohol.

3,598,550
ELECTRIC CONNECTING PLANES OF COMPOSITE METAL HAVING A SILVER ALLOY LAYER
Cholchiro Takahashi, Kenkichi Yamaji, Hiroo Nagano, Issei Nakanishi, and Yasuhiko Miyake, Hitachi-shi, Japan, assignors to Hitachi Cable, Ltd., Tokyo, Japan
Filed Sept. 26, 1967, Ser. No. 670,633
Claims priority, application Japan, Dec. 28, 1966, 41/85,292
Int. Cl. B32b 15/00
U.S. Cl. 29-199 2 Claims



An electric connecting plane comprising a base of conductive material such as copper, copper alloy, aluminum or aluminum alloy, and a clad material comprising a surface conductive layer, an intermediate conductive layer and a solder layer, cladded integrally with each other in superposed relation, and bonded to the surface of said base with heat and pressure, said surface conductive layer being formed of a material such as silver or silver alloy having a small contact resistance and being highly resistive against corrosion, said intermediate conductive layer being formed of a material such as copper, copper alloy, aluminum or aluminum alloy having a good electric conductivity, and said solder layer being formed of a composition solderable to either of copper-type and aluminum-type metals; and a method of forming said electric connecting plane comprising producing the clad material of the composition described, cleaning the bonding surfaces of said clad material and said base either mechanically or chemically and bonding the cleaned surfaces of said clad material and said base to each other with heat and pressure.

3,598,551
FUEL OIL COMPOSITIONS WITH IMPROVED POUR POINT CHARACTERISTICS
Arvid Ek, Shaler Township, Allegheny County, Edward Mitchell, Valencia, and Frederick E. Scypinski, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Mar. 12, 1970, Ser. No. 19,099
Int. Cl. C101 1/18, 1/24
U.S. Cl. 44-62 4 Claims

Pour point characteristics of middle distillate fuel oils are improved by incorporating in such fuel oils about 0.001-5% by weight of an oil-soluble terpolymer of a monomeric C₂ to C₉ alkyl ester of thiolacrylic acid, a monomeric C₁₀ to C₂₀ alkyl ester of thiolacrylic acid and a monomeric branched-chain C₃ to C₈ alkylaminoethyl ester of methacrylic acid, said terpolymer having an average molecular weight of at least about 2,000. The terpolymer contains about 5 to about 45 percent by weight of the C₂ to C₉ alkyl ester of thiolacrylic acid, about 45 to about 85 percent by weight of the C₁₀ to C₂₀ alkyl ester of thiolacrylic acid and about 5 to about 15 percent by weight of the branched-chain C₃ to C₈ alkylaminoethyl ester of methacrylic acid.

3,598,552
FOUR DEPRESSANTS FOR MIDDLE DISTILLATES
 Charles A. Cohen, Westfield, and Herbert G. Burkard, Convent Station, N.J., assignors to Esso Research and Engineering Company, Linden, N.J.
 No Drawing. Continuation-in-part of application Ser. No. 500,267, Oct. 21, 1965. This application Dec. 13, 1968, Ser. No. 783,757

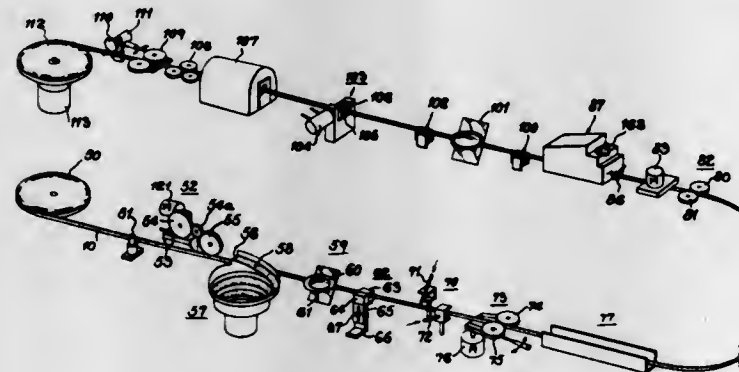
Int. Cl. C101 1/16
 U.S. Cl. 44—62 4 Claims
 Petroleum middle distillate fuel oil containing as a pour point depressant a polymer of ethylene and C₁₀ to C₂₂ alpha monoolefin, said polymer having a molecular weight of about 1,000 to 50,000.

3,598,553
SYNERGISTIC ANTI-ICING COMPOSITION
 Robert H. Rosenwald, Western Springs, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Filed May 29, 1968, Ser. No. 732,856
 Int. Cl. C101 1/18, 1/22

U.S. Cl. 44—75 8 Claims
 Synergistic anti-icing composition of (1) polyhydroxy alcohol and (2) an N-alkylalkylenepolyamine or N-alkylpolyalkylenepolyamine in which said alkyl contains at least one aryl group.

3,598,554
METHODS FOR PRODUCING ARMORED METAL TOOLS
 Chester H. Dawson, Danbury, Robert T. Catlin and Robert O. Swain, Trumbull, and Robert J. Turton, Fairfield, Conn., assignors to Remington Arms Company, Inc., Bridgeport, Conn.
 Filed Feb. 8, 1968, Ser. No. 703,931
 Int. Cl. B24d 15/02

U.S. Cl. 51—293

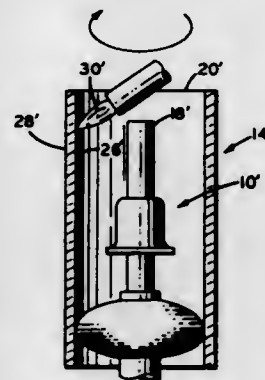


Methods for producing armored metal tools consisting of a tool structure composed of a base metal having over at least a surface portion thereof, a hard wearing, ductile, and adherent, abrasive coating, and according to which said surface portion of said base metal is coated with a paste flux adhesive and with particles of a powdered matrix metal, applied separately and sequentially or in admixture, and to which coating is applied an overcoating of abrasive particles of a hard, high melting, diamond substitute material, such as tungsten carbide particles and the like, the so coated portion of the tool, or alternatively the entire tool, being then heated to temperature sufficiently high to fusion bond said matrix metal particles to one another and to said base metal and into a matrix metal layer embedding said abrasive particles therein, the heated tool portion or tool being then rapidly cooled to ambient temperature permanently to bond said matrix metal layer to said base metal and permanently to embed said abrasive particles in said matrix metal layer, the thickness of said matrix metal layer being so controlled in relation to the particle size of said abrasive particles, as

only partially to embed said abrasive particles therein, whereby said abrasive particles project from said layer to form a myriad of sharp cutting edges. The base metal may comprise a heat treatable, ferritic steel or alloy steel, which is hardened by the heating and cooling cycle aforesaid and which may be thereafter tempered to a desired degree of hardness and ductility.

3,598,555
METHOD OF SEALING A METALLIC ELEMENT INTO GLASS HAVING A HIGH PERCENTAGE OF LEAD

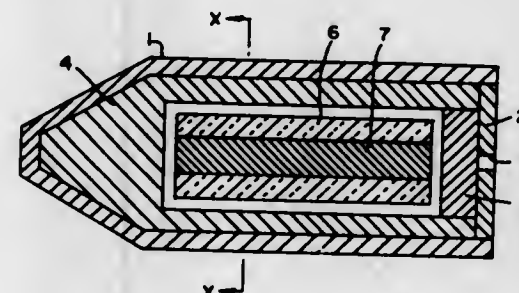
Tony P. Gennocro, Emporium, Pa., assignor to Sylvania Electric Products Inc.
 Filed May 1, 1970, Ser. No. 33,818
 Int. Cl. C03c 27/02; C03b 23/04
 U.S. Cl. 65—55 4 Claims



A method of sealing a metallic element into a seal area of a tubular glass envelope containing a high percentage of lead wherein the envelope is fixed on a mandrel and the metallic element is mounted on the mandrel. The envelope is rotated and its interior surface at the seal area is heated to a workable temperature. The exterior surface at the seal area is then heated and the seal area is shaped by a roller into a dome having a central aperture. The metallic element is then forcibly inserted into the aperture while the heating and rotating are continued.

3,598,556
METHOD OF MAKING GLASS-METAL SEALS
 James G. Hunt, Framingham Center, Mass., assignor to Whittaker Corporation, Nuclear Metals Division, West Concord, Mass.
 Filed July 23, 1968, Ser. No. 746,921
 Int. Cl. C03c 29/00

U.S. Cl. 65—59



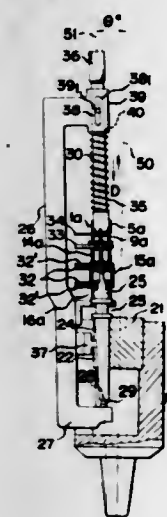
A method of making glass-metal seals wherein a metal rod is inserted into an elongated hole in a glass matrix. The rod and matrix composite is then inserted into an extrusion billet. The composite containing billet is then

heated to a temperature within the softening range of the glass matrix. The billet is then extruded to form a co-extrusion bonded glass-metal rod. Thereafter, an end, only, of the metallic rod is exposed by removing part of the glass matrix. Different arrangements of glass-metal seals can be formed by initially encasing the glass matrix in a first metallic sleeve and by inserting another metallic sleeve between the glass matrix and the first metallic sleeve.

3,598,557
APPARATUS FOR ASSEMBLING A MULTIPLE ELEMENT TYPE ELECTRON GUN STRUCTURE
 Shinichi Sawagata, Tokyo, Masakatsu Nakahara, Yokohama-shi, and Mikio Noguchi, Hyogo-ken, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Apr. 21, 1969, Ser. No. 818,009
 Claims priority, application Japan, Apr. 25, 1968, 43/27,326; July 5, 1968, 43/46,524; Sept. 30, 1968, 43/70,598

Int. Cl. C03b 23/14
 U.S. Cl. 65—155



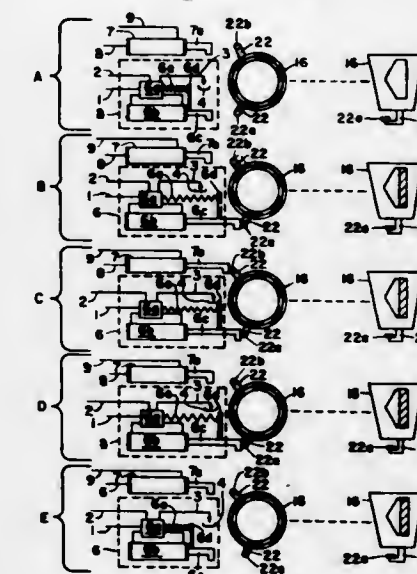
Apparatus for assembling a multiple element type electron gun structure each of the electron gun units comprising first to fifth grid electrodes arranged in succession along the path of travel of an electron beam emitted from a cathode electrode, opposing ends of the third and fifth grid electrodes having projections with a diameter smaller than the inner diameter of the fourth grid electrode which partially receives the projections. The assembling apparatus includes slotted spacers engaging the projections and other electrodes to align the various electrodes. A center rod, various holders and means to apply a longitudinal compressive force are provided to insure accurate alignment and intimate contact of the gun elements during the bonding operation.

3,598,558
GLASS MOLD TEMPERATURE CONTROL APPARATUS

Daniel R. Ayers, Shelburne, Vt., assignor to Corning Glass Works, Corning, N.Y.
 Filed June 11, 1969, Ser. No. 832,365

Int. Cl. C03b 11/12
 U.S. Cl. 65—161 4 Claims
 Apparatus for controlling the temperature of each of a plurality of molds to within a desired temperature range

therefor, each such mold being intermittently positioned at a station where a cooling fluid control valve associated with the respective mold is adjusted in accordance with a

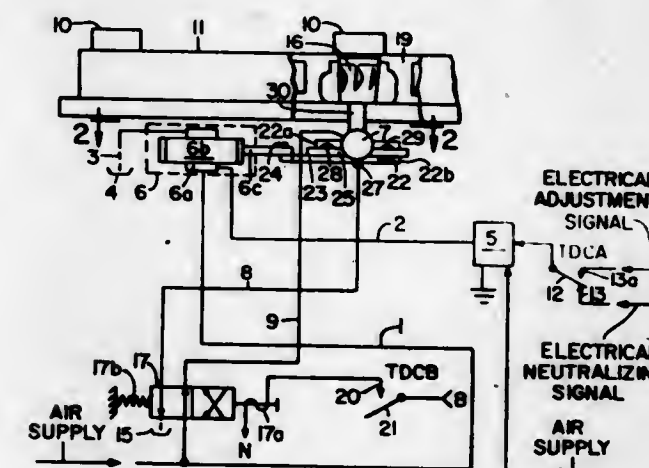


temperature adjustment signal representing adjustment necessary in the respective valve to bring the temperature of the respectively associated mold to the desired temperature for such mold.

3,598,559
GLASS MOLDING APPARATUS WITH COOLING VALVE ACTUATING APPARATUS

Richard H. M. Johnston, and Joseph R. Jones, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
 Filed Dec. 1, 1969, Ser. No. 881,232

Int. Cl. C03b 9/38
 U.S. Cl. 65—161 4 Claims



Apparatus for adjusting cooling fluid control valves to control the temperature of each of a plurality of molds to within a desired temperature range therefor, each such mold being intermittently positioned at a station where such a cooling fluid control valve associated with the respective mold is adjusted in accordance with a temperature adjustment signal representing adjustment necessary in the respective valve to bring the temperature of the respectively associated mold to the desired temperature for such mold.

3,598,560

APPARATUS FOR FORMING A SHAPED NECK PORTION ON RIBBON MACHINE

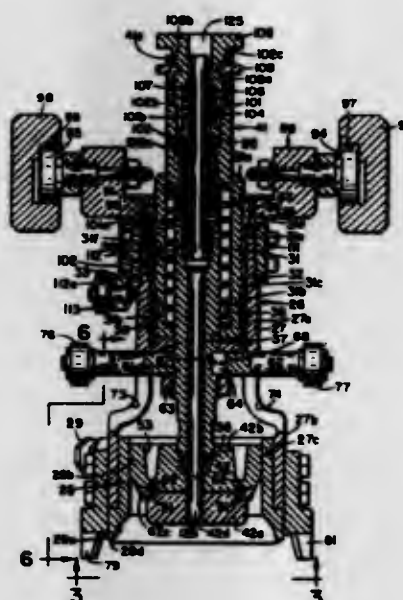
Roy N. Sandstrom, Corning, and William R. Wisner, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Apr. 4, 1969, Ser. No. 813,534

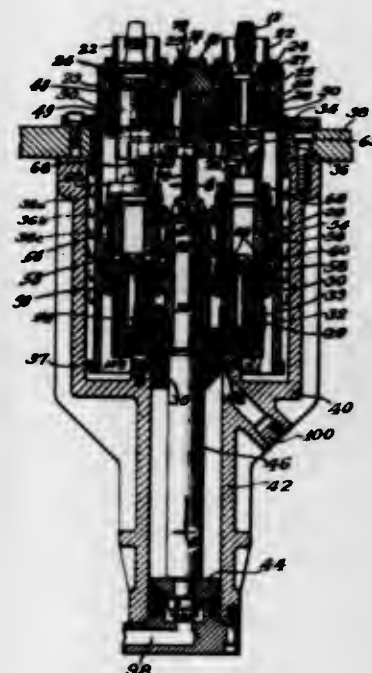
Int. Cl. C03b 5/32, 9/14

U.S. Cl. 65—184

6 Claims



and thus compensates for gob temperature variations since the degree of vacuum and the air pressure for counterblow



can be varied, all of which can be accomplished without shutdown of the machine during adjustments.

3,598,562

APPARATUS FOR TEMPERING FLAT GLASS

Guy Angely, Brussels, Belgium, assignor to Cobelcomex, Brussels, Belgium

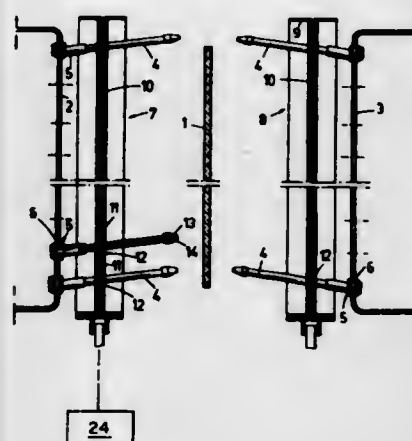
Filed Jan. 8, 1968, Ser. No. 696,288

Claims priority, application Belgium, Jan. 9, 1967, 38,242; Patent 692,332

Int. Cl. C03b 27/00

U.S. Cl. 65—348

2 Claims



3,598,561

PLUNGER ACTUATING ASSEMBLY FOR GLASSWARE FORMING MACHINES

Joseph R. Hamilton, Anderson, Ind., assignor to Lynch Corporation, Anderson, Ind.

Filed June 25, 1968, Ser. No. 739,759

Int. Cl. C03b 9/26

U.S. Cl. 65—233

11 Claims

An actuating assembly for a neck-forming plunger of a glassware forming machine which operates to position the plunger relative to a neck ring and a guide ring to secure vacuum settling of a glass gob in a parison mold, positive counterblow of the parison and internal cooling thereof. The assembly is particularly adapted for multiple gob glassware forming, and provides individual height adjustment for the plungers and individual control of the vacuum and counterblow operations for each plunger,

Apparatus for tempering flat glass having a specific number of nozzles provided on either side of the flat glass and issuing thereon cold air blasts in order to effect the tempering. Two movable frames are arranged on either side of the flat glass to be tempered, each frame carrying a specific number of blowing nozzles intermediate the length of the nozzle by means of an elastic connection. Each nozzle is connected to a plenum chamber by means of an elastic pivotal connection whereby the free end of these nozzles can describe a curve so that the compressed cooling air strikes the glass according to a corresponding path of this curve.

3,598,563

PARTICULATE FERTILIZER AND METHOD

Wendell D. Burch, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed Apr. 29, 1968, Ser. No. 725,191

Int. Cl. C05f 11/00

U.S. Cl. 71—25

5 Claims

Water-soluble fertilizer particles of reduced hygroscopicity and nutrient release rate result from a first coating of a blend of petroleum residue and air-blown petroleum residue, a second coating of a parting agent, and a third coating of conditioning agent.

3,598,564

PLANT GROWTH REGULATING AGENTS

Ernst Jacobi, Dietrich Erdmann, Günther Mohr, Sigmund Lust, and Gerhart Schneider, Darmstadt, and Konrad Niethammer, Traisa, Germany, assignors to E. Merck A.G., Darmstadt, Germany

No Drawing. Continuation-in-part of applications Ser. No. 326,186, Nov. 26, 1963, Ser. No. 310,118, Sept. 19, 1963, Ser. No. 736,954, June 14, 1968, now Patent No. 3,506,434, and Ser. No. 508,835, Nov. 19, 1965, now Patent No. 3,476,545. This application Apr. 17, 1969, Ser. No. 817,194

Claims priority, application Germany, Sept. 22, 1962, M 54,289; Dec. 1, 1962, M 54,974; Nov. 27, 1964, M 63,287; Mar. 13, 1965, M 64,518

Int. Cl. A01n 9/24, 3/02, 21/02

U.S. Cl. 71—76

38 Claims

For regulating plant growth, a composition comprising at least one fluorene-9-carboxylic acid ester derivative substituted by halogen in 2- and/or 7-position.

3,598,565

SEED COATING COMPOSITION

Thomas M. Graves, 4011 Roosevelt Ave., Richmond, Calif. 94805

No Drawing. Filed July 30, 1968, Ser. No. 748,617

Int. Cl. A01n 5/00; A01c 1/06

U.S. Cl. 71—77

9 Claims

Composition for treating seeds comprising an aqueous emulsion of a substantially water-soluble neutralized copolymer of an α,β -unsaturated monocarboxylic acid and a lower alkyl acrylate and a crosslinked copolymer of vinyl acetate and a lower alkyl acrylate. These compositions enhance the germination of the seeds.

3,598,566

POWDER ACTIVATION

Kiyoshi Inoue, 182 3-chome, Tamagawayoga-machi, Setagaya-ku, Tokyo, Japan

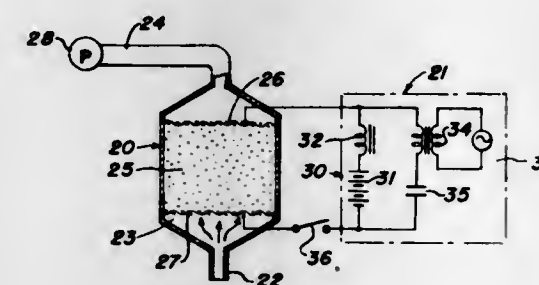
Filed Dec. 22, 1967, Ser. No. 692,960

Claims priority, application Japan, Apr. 26, 1967, 42/26,740, 42/26,741; June 3, 1967, 42/35,640; Dec. 1, 1967, 42/77,042

Int. Cl. B22f 9/00

U.S. Cl. 75—5

13 Claims



Activation of metallic powders by subjecting the powder to bombardment with electrons, ions, or molecules in an inert or reductive atmosphere. Improved densities

result in sintering, as do improved catalytic actions. Simultaneous pulverization of coarse particles or bodies is also achieved where desired. The pretreatment is, in some instances, combined with loading the activated particles directly into a mold, for compaction or sintering, preferably with some additional activation, all done in an integrated system.

3,598,567

STAINLESS STEEL POWDER PRODUCT

Nicholas J. Grant, 10 Leslie Road, Winchester, Mass. 01890

Filed July 1, 1968, Ser. No. 750,436

Int. Cl. B22f 9/00

U.S. Cl. 75—5BA

2 Claims



A method is provided for producing hot workable metal powder from compositions normally difficult or impossible to work. A molten metal bath is established of a metal composition of melting point above 1000° C. containing substantial amounts of at least one phase-forming constituent which normally forms a segregatable phase on cooling. The bath is subdivided into medium to small metal droplets and is rapidly cooled to a temperature below the freezing point at a cooling rate of at least about 100° C./sec., and preferably further rapidly cooled to or near room temperature. The powder thus produced, because of a fine dendritic grain size, is only slightly if at all segregated and all hard brittle phases are distributed as fine particles, making the alloy readily hot workable. Excess soft phases also follow the same highly dispersed distribution. Thus, a product is provided characterized by a fine near micron dispersion of excess phases which normally segregate and form as coarse phases, for example at grain boundaries, with resultant poor hot working properties.

3,598,568

METHOD OF PREPARING A MAGNETICALLY STABLE POWDER MAINLY CONSISTING OF IRON FOR MAGNETIC RECORDING

Cornelis Johannes Klomp and Gerard Willem van Oosterhout, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed Jan. 29, 1969, Ser. No. 795,078

Int. Cl. B22f 9/00

U.S. Cl. 75—5AA

1 Claim

A method of preparing magnetically stable iron powder suitable for magnetic recording in which iron oxide hydrate, $\alpha\text{-FeO}(\text{OH})$ is precipitated from a strongly reacting alkaline solution of ferrous hydroxide containing at least one compound of at least one metal selected from the group consisting of germanium, tin and aluminum in such a concentration that the atomic ratio of the latter metal to Fe in the solution is at least 0.005 while passing an oxidizing gas through the solution. The precipitate is thereafter separated from the liquid, washed, dried, and reduced in hydrogen at 250° to 500° C.

3,598,569

PELLETIZING OF IRON ORE
William R. Epperly, Berkeley Heights, N.J., assignor to
Esso Research and Engineering Company
Filed Sept. 12, 1967, Ser. No. 667,111
Int. Cl. C21b 1/20

U.S. Cl. 75—3

8 Claims

Indurated iron oxide pellets are made by an improved process comprising oxidizing green pellets formed from finely divided iron oxide solids and finely divided reduced iron solids. The amount of iron oxide and reduced iron is proportioned so that oxidation of the green pellets will generate sufficient heat to sustain the oxidation and induration process.

3,598,570

STEELMAKING PROCESS
Kokichi Otani, 14-26 3-chome, Hiroo,
Shibuya-ku, Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 658,587, Aug. 7, 1967. This application July 29, 1970, Ser. No. 59,372

Claims priority, application Japan, Aug. 12, 1966, 41/52,596; Jan. 19, 1967, 42/3,332; Jan. 20, 1967, 42/3,639; Feb. 27, 1967, 42/12,073

Int. Cl. C21c 5/00, 5/52

U.S. Cl. 75—43

9 Claims

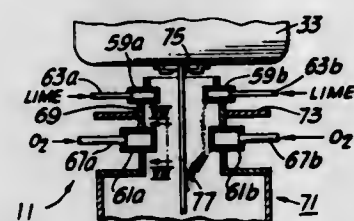
A steelmaking process giving remarkably high production rate and high yield by the introduction into the furnace, either electric or open-hearth, of heavy oil or other readily available reducing-gas-forming material. The furnace in operation is filled with reducing flames enabling fully effective reduction and thus the blowing into the furnace of a large quantity of oxygen gas is permitted without the danger of excessive oxidation. Solid carbon material may also be added to the charge.

3,598,571

SPRAY STEELMAKING METHOD
William H. Moffatt, Lausanne, Switzerland, assignor to
Koppers Company, Inc.
Filed Feb. 2, 1968, Ser. No. 702,570
Int. Cl. C21c 5/00

U.S. Cl. 75—52

5 Claims



Improved apparatus for carrying out the method of spray steelmaking includes a tundish for holding molten metal that has one or more elongate slots covered by a slidable gate to control the rate and quantity of molten metal flowing from the tundish in the form of one or more thin films of molten metal. Headers on each side of the molten film discharge oxygen and refining materials that react with the molten metal to produce steel.

3,598,572

METHOD OF TREATING MOLTEN FERROUS METALS AND MATERIALS FOR USE IN SUCH TREATMENT
John Clifton Robertson, Lake Jackson, Tex., assignor to
The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 22, 1968, Ser. No. 778,322
Int. Cl. C21c 1/10, 7/00

U.S. Cl. 75—53

10 Claims

The present invention is a method of introducing relatively low boiling metals into molten ferrous metals which

comprises adsorbing the vapor of the low boiling metal on activated charcoal and introducing the metal-activated charcoal additive into the ferrous metal melt. The invention also involves the metal-activated charcoal additive and method of its preparation.

3,598,573

DESULFURIZATION AGENT AND PROCESS
Alfred Freissmuth, Trostberg, Walter Heintz, Garching, and Herbert Knahl and Erich Pfäfer, Trostberg, Germany, and Jan Schokkenbroek, Alkmaar, Netherlands, assignors to Sueddeutsche Kalkstickstoff-Werke Aktiengesellschaft, Trostberg, Germany
No Drawing. Filed Apr. 28, 1969, Ser. No. 819,997
Claims priority, application Germany, Apr. 29, 1968, P 17 58 250.2

Int. Cl. C21c 1/02

U.S. Cl. 75—55

4 Claims

A mixture of calcium carbide and precipitated, carbon-containing calcium carbonate is most effective in desulfurizing ferrous melts.

3,598,574

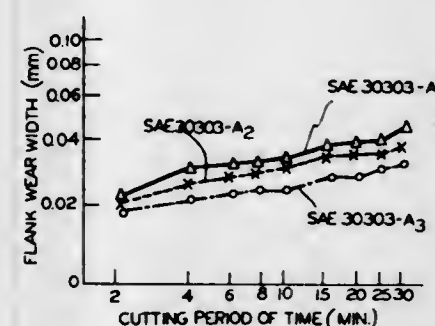
FREE CUTTING STAINLESS STEELS
Tetsuro Ito, Nagoya, and Goshi Kato, Tsuchima, Japan, assignors to Daido Seiko Kabushiki Kaisha, Nagoya, Aichi Prefecture, Japan
Filed Nov. 5, 1968, Ser. No. 773,404

Claims priority, application Japan, Mar. 8, 1968, 43/14,630

Int. Cl. C22c 39/20

U.S. Cl. 75—128R

5 Claims



A free cutting stainless steel having a chromium-nickel or chromium-nickel manganese base, and having from 0.01-0.06% by weight of calcium therein as the free cutting element.

3,598,575

PROCESS FOR TREATING CAST IRON
Henri Jarysta, Pont-a-Mousson, France, assignor to
Centre de Recherches de Pont-a-Mousson, Pont-a-Mousson, France

Filed Apr. 29, 1968, Ser. No. 724,960
Claims priority, application France, May 9, 1967, 105,658; Mar. 4, 1968, 142,187

Int. Cl. C22c 33/00

U.S. Cl. 75—130

9 Claims

A process for treating liquid iron comprising introducing at least one metallic inoculation product, such as pure magnesium, cerium, sodium, calcium or other metal or metal alloy, at the bottom of a bath of iron by means of an immersed bell, wherein said metallic inoculating product is introduced into the bath of iron in the form of at least one piece of said product totally covered with a coating of a refractory material, a part of the coating being thinner than the rest of the coating.

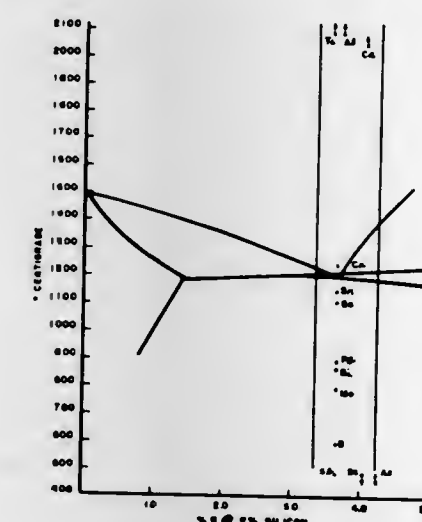
3,598,576

METHOD OF MAKING NODULAR IRON
William H. Moore, Purchase, N.Y., and Harry H. Kessler, Clayton, Mo., assignors to Meehanite Metal Corporation
Filed Aug. 13, 1968, Ser. No. 752,249

Int. Cl. C22c 37/04, 37/10

U.S. Cl. 75—130

3 Claims



Improving the graphite nodule count and reducing the degenerate graphite shape in the process of making nodular cast iron by adding germanium, lead, salts of the two materials or combinations of all, so that the amount of lead or germanium or combinations thereof falls in the range of .002% or 0.2% based on the weight of iron.

3,598,577

ALUMINUM BASE ALLOY

Edward E. Stonebrook, Cleveland, Ohio, assignor to
Aluminum Company of America, Pittsburgh, Pa.
No Drawing. Filed Aug. 23, 1967, Ser. No. 662,584

Int. Cl. C22c 21/00

U.S. Cl. 75—141

5 Claims

An aluminum base alloy, suitable for casting useful articles containing aluminum and 3 to 6% copper, 2 to 5% zinc, 0.2 to 1.5% magnesium, 0.2 to 0.6% manganese, and grain refining additions, exhibits, when solution heat treated, quenched and artificially aged, high room and elevated temperature strength which may be coupled with substantial immunity to stress corrosion cracking.

3,598,578

ELECTRICAL RESISTANCE ALLOY AND METHOD OF PRODUCING SAME

Teh Po Wang, Cedar Grove, N.J., assignor to
Wilbur B. Driver Company

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,594

Int. Cl. C22c 19/00

U.S. Cl. 75—171

5 Claims

An electrical resistance alloy characterized by a temperature coefficient of resistance which maintains an essentially constant fixed value approaching zero over a selected temperature range and comprising, as expressed in percent by weight, the following major constituents:

	Percent
Aluminum	2.75-3.75
Manganese	4.0-5.5
Silicon	0.70-1.25
Chromium	17.5-22.5
Nickel	Balance

To this is added as a minor constituent at least one deoxidizer selected from the class consisting of zirconium,

3,598,579

METHOD OF TRANSFERRING ELECTROSTATIC IMAGES TO A DIELECTRIC SHEET WHEREIN A REVERSAL OF POTENTIAL IS USED TO CLEAR BACKGROUND AREAS

Gene H. Robinson, Rochester, N.Y., assignor to
Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 6, 1967, Ser. No. 665,911

Int. Cl. G03c 15/18, 13/18

U.S. Cl. 96—1

7 Claims

The background density of a toned electrostatic image pattern produced on a receiver sheet is reduced by placing a receiver sheet comprising an insulating coating on a conductive layer, in face-to-face contact with a photoconductive element; exposing the element to a pattern of actinic radiation while an electrical potential is applied between the receiver and photoconductive element; and momentarily reversing the polarity of the applied potential upon termination of the exposure. If the potential of the reversed polarity is properly selected, an electrostatic image will be produced having one polarity and a background having the opposite polarity. Also, either a positive or negative polarity can be used at the start of the procedure so that positive prints can be made from either a negative or positive original.

3,598,580

PHOTOELECTROSTATIC COPYING PROCESS EMPLOYING ORGANIC PHOTOCONDUCTORS

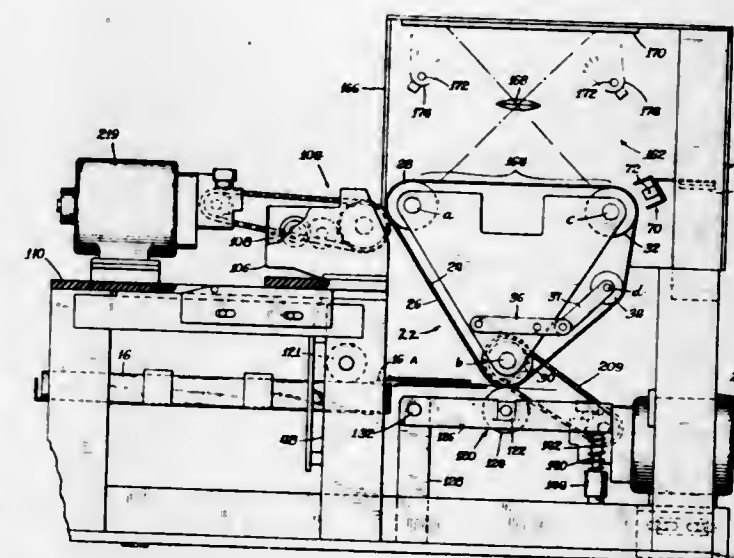
Evan S. Baltazzi, Brookfield, Loren E. Shelfo, Palatine, and Michael Moduthagam, Chicago, Ill., assignors to
Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed Oct. 16, 1967, Ser. No. 675,463

Int. Cl. G03g 13/22

U.S. Cl. 96—1.4

8 Claims



A photoelectrostatic copying apparatus equipped with a reusable continuous belt coated with an organic photoconductive medium adapted to move in an orbital path. A series of processing stations are located adjacent the path of movement of the belt so that, in sequence, it moves past charging, exposing, developing and transfer stations producing a copy or multiple copies on plain paper. The organic photoconductive medium is reusable. It is ready

immediately after a developed image is transferred to the copy sheet to receive a new image without preliminary mechanical or electrical cleaning of the photoconductive medium.

3,598,581

MANIFOLD IMAGING METHOD

Gedeminas J. Reinko, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Apr. 3, 1967, Ser. No. 628,028

Int. Cl. G03g 5/00, 13/00

U.S. Cl. 96—1.5

7 Claims

An imaging system using a manifold set including a solid layer which may be activated by heat is described. The set typically consists of a donor sheet, a cohesively weak photosensitive layer, a low melting layer and a receiving sheet. The set is heated above the melting temperature of the low melting layer, an electrostatic latent image is formed in the photosensitive layer and the sheets are separated, forming positive and negative images on the two sheets conforming to the latent image.

3,598,582

PHOTOCONDUCTIVE ELEMENT EXHIBITING PHOTOCONDUCTIVE DICHROISM AND PROCESS OF USING SAME

Clifford E. Herrick, Jr., Los Gatos, and Meredith David Shattuck, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Filed Sept. 18, 1967, Ser. No. 668,697

Int. Cl. G03g 5/08, 13/22

U.S. Cl. 96—1.5

24 Claims

An electrophotographic process for the production of reflex copies in which a document is positioned adjacent a photoconductive element which exhibits photoconductive dichroism and has a preferred absorption axis, and in which the photoconductive element is uniformly exposed through the photoconductive element with polarized light whose vector, relative to the absorption axis, is such that the light is not absorbed. The polarized light in striking the document is absorbed in some areas, normally the dark image areas, and depolarized and reflected in others, normally the light background areas. The light from the reflected areas, being depolarized, contains light with an electric vector which will be absorbed by the photoconductive element and the element is thus exposed to a pattern corresponding to the pattern of the document. This renders the photoconductive element conductive and capable of transporting an electrostatic charge and, hence, permits the formation of an electrostatic charge pattern corresponding to the document.

3,598,583

INDOMETHYLENE DYE BASES AND THEIR UTILIZATION IN PHOTOGRAPHIC PROCESSES AND COMPOSITIONS

Robert Hicks Sprague, Chelmsford, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Aug. 9, 1968, Ser. No. 751,525

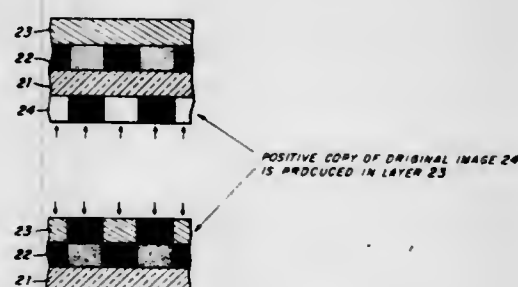
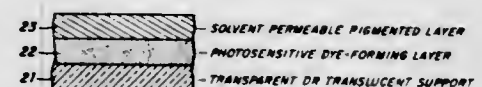
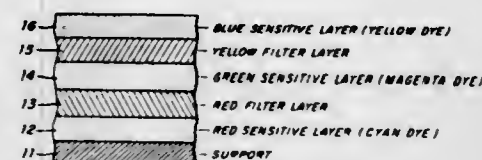
Int. Cl. G03c 7/00, 5/54, 7/36

U.S. Cl. 96—3

21 Claims

Indomethylene dye bases containing one or more substituted or unsubstituted indole nuclei including one or more olefinic unsaturations in the five-membered ring, i.e. dye bases containing indolyl, indolenyl, and/or indolyl radicals; photosensitive compositions comprising such an indomethylene dye base and a free radical generating organic halogen compound; imaging media having one

or more photosensitive layers incorporating a photosensitive composition therein; direct print-out processes em-



playing photosensitive compositions and imaging media for producing photographic images.

3,598,584

PHOTOPOLYMERIZATION PHOTOGRAPHY-REDUCTION OF INDUCTION PERIOD AND PRODUCT

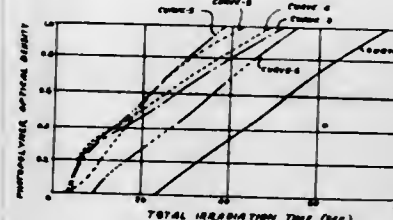
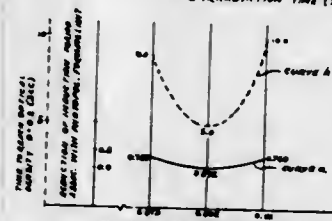
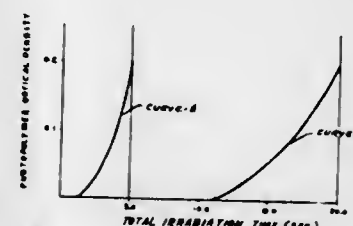
John B. Rust, Los Angeles, and Leroy J. Miller, Canoga Park, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 3, 1966, Ser. No. 583,652

Int. Cl. G03c 1/68, 5/00; G03f 7/10

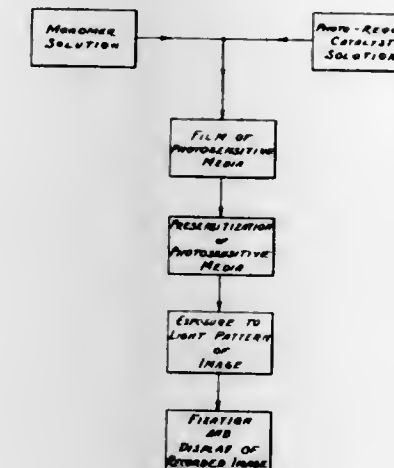
U.S. Cl. 96—35.1

5 Claims



A method for presensitizing a polymerizable photosensitive composition containing a photosensitive polymerization initiator capable of initiating mass polymerization of said photosensitive composition when irradiated with radiant energy, consisting of the step of uniformly irradiating said photosensitive composition with radiant en-

ergy and activating said catalyst for a time no longer than the induction period associated with visible mass polym-



erization of said polymerizable composition by said radiant energy.

3,598,585

AZIDO PHOTOHARDENABLE COLLOID CONTAINING AN IMMOBILE DYE AND PROCESS OF USING

Bela Gaspar, 240 S. Oakhurst Drive, Beverly Hills, Calif. 90212

No Drawing. Filed July 26, 1967, Ser. No. 655,998

Int. Cl. G03c 1/60, 1/52, 5/18

U.S. Cl. 96—36

12 Claims

A light sensitive material containing a hardenable hydrophilic colloid, e.g., a gelatin, layer which contains a light sensitive aromatic azide and a coloring substance in the form of an immobile coloring matter or dye, or precursor capable of being transformed into an immobile coloring matter or dye by suitable treatment, such coloring substance being in homogeneous molecularly dispersed form in the colloid, said light sensitive material being substantially transparent and substantially free of opacity and light scattering characteristics and procedure for utilizing such material, which includes the steps of exposing said colloid layer to light under a pattern or negative, causing said azide to harden the colloid in proportion to the degree of exposure, and removing the unhardened colloid by dissolution with water, producing a dyed relief image which can be either a half-tone or a continuous-tone image.

3,598,586

AROMATIC AZIDE MATERIAL AND PROCESS FOR PRODUCING COLOR IMAGES

Bela Gaspar, 240 S. Oakhurst Drive, Beverly Hills, Calif. 90212

No Drawing. Filed July 26, 1967, Ser. No. 656,020

Int. Cl. G03c 5/00

U.S. Cl. 96—36.3

20 Claims

A light sensitive material containing a hardenable hydrophilic colloid, e.g., gelatin, layer which contains a light sensitive aromatic azide and a transferable dye, and procedure for utilizing such material, which includes the steps of exposing said colloid layer to light under a pattern or negative, to harden the colloid in proportion to the degree of exposure, temporarily immobilizing the transferable dye, e.g., by lowering the pH of the colloid layer, or by salt formation, and removing the unhardened colloid by dissolution with water, thereby producing a dyed matrix without the loss of dye density of said transferable dye during the operation which removes the unhardened colloid, the immobilized dye being rendered transferable to a receiving layer or blank, e.g., by contacting the hardened relief image with such receiving layer at a higher pH such as an alkaline pH, e.g., about 8.

3,598,587

PHOTOGRAPHIC PHYSICAL DEVELOPERS
Joseph S. Yudelzon and Barbara F. Dernbach, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,269

Int. Cl. G03c 5/24

U.S. Cl. 96—48

21 Claims

A novel physical developer for palladium latent images comprises a reducible heavy metal salt, a complexing agent for the heavy metal ions, a reducing agent for the heavy metal ions and a carboxylic acid complexing agent having a high degree of specificity towards palladium ions.

3,598,588

PROCESSING SOLUTION FOR SILVER HALIDE PHOTOGRAPHIC MATERIAL AFTER FIXATION PROCESS

Heinz Meckl, Cologne-Flittard, and Helmut Haseler, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 20, 1968, Ser. No. 706,767

Claims priority, application Germany, Mar. 8, 1967,

A 55,088

Int. Cl. G03c 5/26, 5/38

U.S. Cl. 96—50

5 Claims

Harmful effect of residual thiosulfate in processed photographs is reduced by a final rinse in aqueous solution of compound having monochloro- or monobromo-substituted carbon and also having an aldehyde, carboxyl or sulfo group, the chlorine or bromine of which reacts with the thiosulfate. Solution can have pH of 4 to 8.

3,598,589

SILVER DYE BLEACH REPRODUCTION SYSTEM

John Morgan, Ruislip, England, assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,867

Claims priority, application Great Britain, Sept. 20, 1967,

42,750/67

Int. Cl. G03c 1/40, 7/00

U.S. Cl. 96—53

9 Claims

A process for reproducing images which comprises forming an imagewise distribution of catalyst in a master sheet and contacting the catalyst bearing side of the master sheet with a dye-bearing receiving sheet in the presence of silver and a silver dye bleach to imagewise bleach the dye in the areas of contact with the catalyst.

3,598,590

HETEROCYCLIC COMPOUNDS WITH ETHER OR THIOETHER GROUPS AS SILVER HALIDE SENSITIZERS

Harald Hückstadt, Cologne, Stammheim, Wilhelm Saleck, Schildgen-Bergisch-Gladbach, and August Randolph and Erwin Ranz, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,231

Claims priority, application Germany, Dec. 27, 1966,

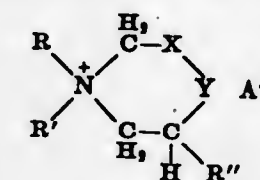
A 54,478

Int. Cl. G03c 1/28, 5/30

U.S. Cl. 96—66

14 Claims

Chemical sensitizers having the formula



wherein:

R and R' are alkyl with up to 18 carbon atoms, or together represent the ring members necessary for completing a 5-, 6- or 7-membered heterocyclic ring,

X is oxygen or sulfur; Y is a chemical bond or a methylene group;
R'' is hydrogen, hydroxyl, esterified hydroxyl, the group $-\text{CH}_2-\text{S}-\text{Z}$ in which Z represents acyl, an amino-methyl group, aryl, aralkyl,
A is any anion

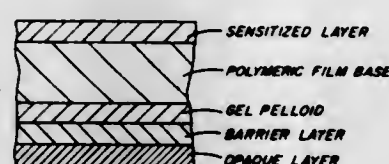
increase the sensitivity of photographic silver halide emulsions when incorporated in the emulsions or in the developers used to develop the emulsions after exposure. When used in color-forming developers with multi-layer emulsions in which a red-sensitive emulsion is covered by a green-sensitive emulsion which in turn is covered by a blue-sensitive emulsion, the lowermost emulsion has its sensitivity increased more than the middle one and the uppermost emulsion has its sensitivity increased less than the middle one or actually decreased. The foregoing chemical sensitizers can be used with other chemical sensitizers.

3,598,591
PHOTOGRAPHIC ELEMENT CONTAINING READILY REMOVABLE OPAQUE PROTECTIVE LAYERS

John F. Bishop, Webster, and Walker F. Hunter, Jr., and Martin E. Rowley, Hilton, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation-in-part of application Ser. No. 645,032, June 9, 1967. This application Oct. 28, 1968, Ser. No. 788,109

U.S. Cl. 96—84 Int. Cl. G03c 1/84

8 Claims



Readily removable opaque coatings over one or both sides of a photographic or radiographic film, which coatings can be removed in a single piece, can be manufactured by applying over the film a multilayer coating composition comprising

- a first "barrier" layer containing one or more water soluble polymers that are compatible with gelatin and that adhere tenaciously to the "opaque" layer (b) and
- an "opaque" layer (over the "barrier layer") composed of a blend of finely divided carbon and at least one water-insoluble polymer.

The "opaque" layer must be fairly permeable to water, so that when it is desired to remove the "opaque" coating, the film can simply be immersed in water. Within a very short time the "opaque" layer falls away from the film in a single piece, rather than in small troublesome flakes.

3,598,592
STORAGE-STABLE PHOTSENSITIVE AMINOTRIARYLMETHANE/SELECTED ORGANIC PHOTO-OXIDANT COMPOSITIONS

Lawrence Anthony Cescon, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of abandoned application Ser. No. 363,624, Apr. 29, 1964. This application Nov. 7, 1967, Ser. No. 681,118

Int. Cl. G03c 1/00, 1/76

U.S. Cl. 96—85 12 Claims
Storage-stable light-sensitive compositions comprising an aminotriarylmethane or salt thereof and a selected

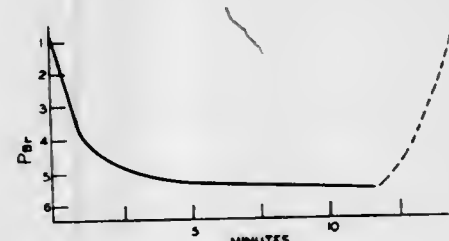
photooxidant. The aminotriarylmethane contains at least two phenyl groups having a disubstituted amino group para to the methane carbon and an alkyl, alkoxy, halo or butadienylene group ortho to the methane carbon. The photooxidants are halogenated hydrocarbons, halogenated substituted hydrocarbons, sulfonyl halides, sulfonyl halides, tetraaryldiazines, benzothiazolyl disulfides, polymethacrylaldehyde or alkylidene-2,5-cyclohexadien-1-one. When irradiated with light the photooxidant becomes activated and oxidizes the aminotriarylmethane to its colored form. The compositions are useful in photocopying, photoduplicating, micro-imaging and photographic applications.

3,598,593
PHOTOGRAPHIC EMULSIONS AND METHOD OF MAKING
Guenther Harald Klingner, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.
Filed Dec. 21, 1965, Ser. No. 515,391

Int. Cl. G03c 1/02

U.S. Cl. 96—94

8 Claims



Preparation of gelatin-silver bromide photographic emulsions, involving precipitation of the silver bromide by admixture of aqueous solutions of a water soluble silver salt and a water soluble bromide, wherein the pBr is maintained above 5 during formation of the major portion of the silver bromide, whereby the average particle size of the silver bromide forming is above 0.8 micron, and finally adding excess bromide solution at the end of the silver bromide formation.

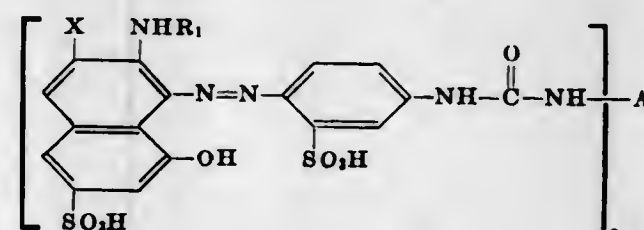
3,598,594
PHOTOGRAPHIC MATERIAL FOR THE SILVER DYE BLEACHING PROCESS

Karl-Helz Freytag, Leverkusen, Karlheinz Kabitzke, Cologne-Buchheim, Eric Bockly, Leverkusen, and Justus Danhauser, Cologne-Stammheim, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 18, 1968, Ser. No. 737,815
Claims priority, application Germany, June 27, 1967, A 56,095

Int. Cl. G03c 1/10

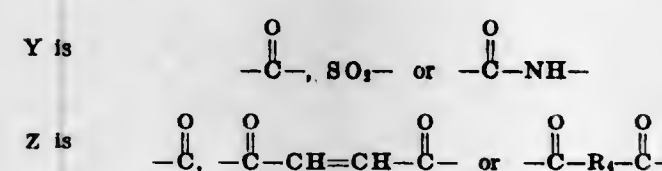
U.S. Cl. 96—99 4 Claims
Certain sulfonated amino naphthol azo benzene dyes are particularly diffusion-fast, brilliant and light-fast magenta dyes for silver-dye-bleach photographic use. A dye having these properties is an azo silver dye bleach dye of the following formula:



in which

X represents hydrogen or sulfo

R₁ stands for hydrogen or a substituted or unsubstituted alkyl group having preferably up to 3 carbon atoms n is 1 or 2, and



and

R₂ and R₃ each represents a benzene nucleus which may be substituted by halogen such as chloride bromide, alkyl having preferably up to 3 carbon atoms, alkoxy with preferably up to 3 carbon atoms or halogen substituted alkyl having preferably up to 3 carbon atoms in particular chloro or fluoro substituted alkyl;

R₄ represents a substituted or unsubstituted alkyl having preferably up to 5 carbon atoms or R₂.

3,598,595
SILVER HALIDE EMULSIONS SENSITIZED WITH CYANINE DYES CONTAINING A PYRROLO[2,3-b]QUINOXALINE OR PYRROLO[2,3-b]PYRAZINE NUCLEUS

John D. Mee, Donald W. Heseltine, and Wilbur S. Gaugh, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 15, 1968, Ser. No. 705,595
Int. Cl. G03c 1/08, 1/10, 1/28

U.S. Cl. 96—120 30 Claims

Novel cyanine dyes are provided which feature a pyrrolo[2,3-b]quinoxaline nucleus or a pyrrolo[2,3-b]pyrazine nucleus, joined at the 3-carbon atom thereof to the methine linkage of the cyanine dye. Photographic silver halide emulsions containing these dyes are also provided.

3,598,596
DIRECT POSITIVE SILVER HALIDE EMULSIONS CONTAINING SENSITIZING DYE WITH A 1,2-DIARYL SUBSTITUTED INDOLE NUCLEUS

Derek D. Chapman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 22, 1968, Ser. No. 746,259
Int. Cl. G03c 1/10, 1/34, 1/28

U.S. Cl. 96—120 26 Claims

Novel cyanine dyes are provided which features a 1,2-diarylimidazole nucleus. Light sensitive silver halide emulsions containing these dyes are also provided.

3,598,597
SPEED AND CONTRAST OF A SILVER HALIDE PHOTOGRAPHIC EMULSION OBTAINED BY ADDITION OF SILVER CHLORIDE EMULSION TO SILVER BROMIDE EMULSION

Francis J. Farren and Francis J. Avery, Vestal, N.Y., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed May 24, 1967, Ser. No. 640,807
Int. Cl. G03c 1/28

U.S. Cl. 96—108 7 Claims

The subject invention relates to photographic silver halide emulsions formed by the incorporation of a fine grain silver chloride emulsion in an ammoniacal silver bromo-iodide emulsion.

3,598,598
FOG STABILIZERS FOR PHOTOGRAPHIC EMULSIONS

Arthur H. Herz, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 1, 1968, Ser. No. 764,332
Int. Cl. G03c 1/34

U.S. Cl. 96—109 20 Claims

A photographic silver halide emulsion or photographic element containing a fog-stabilizing amount of a thionamide, e.g., a 3-substituted thiazoline-2-thione, N,N-disubstituted dithiocarbamic ester or an N,N,N',N'-tetrasubstituted thiourea, which contains at least one acid group in the molecule is disclosed. The acid group or groups contained in the thionamide molecule should be ones which will confer a negative charge to the thione at a pH of 5 or below and is exemplified by carboxylic or sulfonic acid groups. Silver halide complexes of thionamides and developing photographic elements are also described.

3,598,599
POLYMERIC THIAZOLE FOG STABILIZERS FOR PHOTOGRAPHIC EMULSIONS

Richard C. Tuites and Louis M. Minsk, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,922
Int. Cl. G03c 1/34, 1/72

U.S. Cl. 96—109 19 Claims

Polymeric thiazoles containing thiazole groups either incorporated into the polymer chain or appended to the polymer backbone and photographic silver halide emulsions or photographic elements containing fog-stabilizing amounts of such polymeric thiazoles.

3,598,600
PHOTOGRAPHIC COMPOSITIONS AND ELEMENTS CONTAINING POLYMERIC IMIDAZOLES

Richard C. Tuites and Louis M. Minsk, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,933
Int. Cl. G03c 1/34, 1/72

U.S. Cl. 96—109 12 Claims

Novel polymers containing imidazole groups attached to the polymer backbone through an amide or an ester linkage are disclosed. Use in a photographic silver halide emulsion and a photographic element of a polymer containing imidazole groups attached thereto is also described.

3,598,601
ALKYL ESTERS OR ORGANIC ACIDS, SUCH AS STEARYL MALATE, AS ANTIFOGGANTS

Dorothy J. Beavers, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Sept. 17, 1969, Ser. No. 858,853
Int. Cl. G03c 1/34, 5/30

U.S. Cl. 96—109 13 Claims

Alkyl esters of organic acids, such as stearyl malate, are used as a stabilizer and fog inhibitor for photographic silver halide.

3,598,602
s-TRIAZOLO[4,3-b]-s-TRIAZOLES AND DERIVATIVES AS ANTIFOGGANTS FOR PHOTOGRAPHIC EMULSIONS

Derek D. Chapman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 7, 1969, Ser. No. 864,529
Int. Cl. C07d 107/04; G03c 1/34

U.S. Cl. 96—109 14 Claims

7H-s-triazolo[4,3-b]-s-triazole and 5H-s-triazolo[4,3-b]-s-triazole and their derivatives are used with photo-

graphic silver halide elements an emulsions in order to stabilize said elements and emulsions against fog.

3,598,603
SILVER HALIDE EMULSIONS WITH CYANINE DYES CONTAINING A 1-CYCLOHEXYL SUBSTITUTED PYROLE NUCLEUS

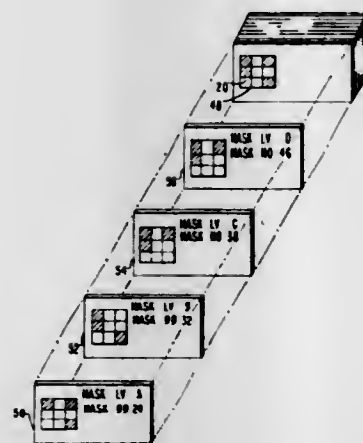
Derek D. Chapman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Dec. 18, 1968, Ser. No. 784,904
Int. Cl. G03c 1/08; C09b 23/10

U.S. Cl. 96—130 23 Claims
Novel cyanine dyes which feature a 1-cyclohexyl substituted pyrole nucleus linked, by the 2- or 3-carbon atom thereof, to the methine chain of the dye, are useful sensitizers in photographic silver halide emulsions.

3,598,604
PROCESS OF PRODUCING AN ARRAY OF INTEGRATED CIRCUITS ON SEMICONDUCTOR SUBSTRATE

Arthur H. De Puy, Essex Center, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 19, 1968, Ser. No. 777,011
Int. Cl. G03c 5/04

U.S. Cl. 96—36.2 8 Claims



Yield in semiconductor manufacturing processes where in a plurality of masks are used for different processing steps to expose photoresist in arrays of patterns for semiconductor circuits on a wafer may be maximized by overlaying defects in the masks. This may be done by combining one mask for each processing step in various combinations, then selecting the combination for use which will minimize the number of defective integrated circuits in the array.

3,598,605
FOOD FOR FUR-BEARING PREDATORY ANIMALS

Claus Luthers van Limborgh, Baarn, Netherlands, assignor to Stichting voor Wetenschappelijk Onderzoek op Diervoedergebied, Putten, Netherlands
No Drawing. Filed Mar. 10, 1967, Ser. No. 622,051
Claims priority, application Netherlands, Mar. 18, 1966, 6603625; Feb. 27, 1967, 6703019
Int. Cl. A23k 1/00, 1/10

U.S. Cl. 99—2 3 Claims
A dry food for Mustelidae, such as mink, and other predatory animals, containing all required nutrients is mixed with water before consumption. The consistency of the watered food is such that the animals are prevented

from soiling their pelts. Molten fat is mixed with the other ingredients, and the mixture is allowed to congeal into a hard mass, which is then broken up into a granulate.

3,598,606
PREPARATION OF FISH PROTEIN CONCENTRATE AND FISH MEAL

John Spinelli, Seattle, Wash., assignor to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Feb. 13, 1969, Ser. No. 799,117
Int. Cl. A23k 1/10

U.S. Cl. 99—7 13 Claims
Raw, ground, whole or deboned, fish is contacted with an acidic aqueous solution of a condensed inorganic phosphate, e.g., sodium hexametaphosphate, to insolubilize the protein fractions of the tissue components. The insolubilized protein may then be water washed to remove oil and other undesired tissue components. Either fish meal, suitable for animal feed, fertilizer, etc., or high protein concentrate, suitable for human food use, is recovered.

3,598,607
METHOD OF MAKING WINE FROM HONEY

Roger A. Morse, Ithaca, and Keith H. Steinkraus, Geneva, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.
No Drawing. Continuation of application Ser. No. 657,491, Aug. 1, 1967. This application Apr. 1, 1970, Ser. No. 22,129
Int. Cl. C12g 1/00

U.S. Cl. 99—35 6 Claims
A natural process method of making a 12 to 14 percent alcohol beverage from honey, characterized by the addition of additives to a 20 to 24 percent honey solution to reduce the fermentation time to about two weeks, use being made of yeast strain 618 (Rahn collection), and an incubation temperature of 15° to 18° C.

3,598,608
CONCENTRATION OF TEA

Neophytos Ganlaris, Riverdale, N.Y., assignor to Struthers Scientific and International Corporation
Filed July 6, 1967, Ser. No. 651,615
Claims priority, application Great Britain, July 15, 1966, 31,830/66
Int. Cl. A23f 3/00

U.S. Cl. 99—77 6 Claims
In the freeze concentration of tea, the tea solution is cooled to near freezing to precipitate "cream" of tea, the tea solution is freeze concentrated, the precipitate is dissolved in a small amount of hot water, the dissolved precipitate is mixed with the freeze concentrated tea solution, and the mixture is freeze dried.

3,598,609
SOFT DRINK CONCENTRATE

Peter X. Hoynak, Fort Lee, N.J., assignor to CPC International Inc.
Filed Jan. 22, 1968, Ser. No. 699,468
Int. Cl. A23l 1/00; C13k 1/06

U.S. Cl. 99—78 7 Claims
An acidic liquid concentrate containing a flavoring agent and as a sweetening agent, 30 to 70% by weight sucrose dissolved in a 25 DE starch hydrolysate syrup. The syrup contains 70 to 30% by weight dextrose. A unit portion of the liquid concentrate is packaged within a plastic pouch or tetrahedral container.

3,598,610
TREATING FULL-FAT, HULL ENCLOSED COTYLEDON SEED MATERIAL

Robert L. Hawley, Webster Groves, Mo., and Jesse T. Duren, Belleville, Ill., assignors to Ralston Purina Company, St. Louis, Mo.

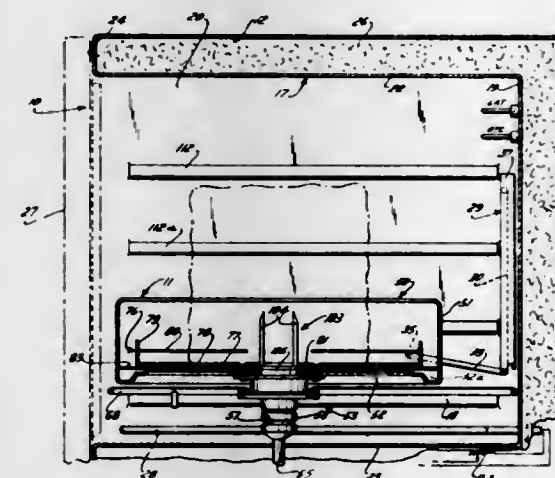
No Drawing. Continuation-in-part of application Ser. No. 724,326, Apr. 26, 1968, which is a continuation-in-part of abandoned application Ser. No. 637,910, May 12, 1967. This application July 18, 1969, Ser. No. 843,209
Int. Cl. A23l 1/20

U.S. Cl. 99—98 14 Claims
A method of making full-fat flour products from hull enclosed cotyledons, especially pea or bean legumes, particularly soybeans, utilizing a novel sequence of steps to dehull and also to alter the texture and cell structure in a manner causing the treatment steps to remove objectionable flavor constituents, to remove or alter physiologically objectionable sugar constituents, and basically to produce a full-fat edible flour product retaining the desirable oils, by the use of a special combination of controlled dry heating of the complete bean externally and internally, to alter the internal and external chemical and physical characteristics thereof, followed by controlled water treatment to further alter the heat altered structure by swelling and extraction processes. This is followed by either (a) drying the treated cotyledons and grinding to a powder, or (b) grinding the treated cotyledons, slurring with water, and flash drying to a powder, or (c) grinding the treated cotyledons, forming into a desired shape and roasting.

3,598,611
METHOD OF INHIBITING SMOKE AND CONTAINING SPATTER OF COOKING MEAT

Myron, Swetlitz, Omaha, Nebr., assignor to Borg-Warner Corporation, Chicago, Ill.
Original application May 25, 1966, Ser. No. 552,948, now Patent No. 3,503,323, Mar. 31, 1970. Divided and this application July 25, 1969, Ser. No. 871,226
Int. Cl. A22c 18/10; A23l 1/00

U.S. Cl. 99—107 8 Claims



A method for cooking food which inhibits smoke and prevents spatter from reaching and soiling the cooking apparatus. The food is supported in a receptacle and positioned relative to a heater while being rotated at 30 to 300 revolutions per minute about a substantially vertical axis. The food is heated to exude the food juices therefrom due to centrifugal force established by rotation of the food. The juices then flow downwardly into the receptacle and through a porous member to the bottom of the receptacle which is heat shielded to prevent overheating of the juices.

3,598,612
METHOD OF IMPROVING COLOR OF COOKED EGG PRODUCTS

Wesley Ng, St. Louis, Mo., assignor to The Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,354
Int. Cl. A23l 1/32

U.S. Cl. 99—113 11 Claims
A method for producing cooked egg products which comprise treating egg yolks with minor amounts of an edible oxidizing agent and subsequently formulating said yolk into a finished cooked egg product wherein the yolk is surrounded by coagulated egg whites. The particular treatment of the egg yolk substantially eliminates or substantially reduces the characteristic gray or green discoloration which is customarily present at the yolk-white interface of cooked egg products.

3,598,613
PROCESS FOR MANUFACTURING COOKED EGG YOLK PRODUCTS

Robert L. Hawley, St. Louis, Mo., assignor to The Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,362
Int. Cl. A23l 1/32

U.S. Cl. 99—113 16 Claims
A method for producing cooked egg yolk products which comprises heating and coagulating raw yolks, grinding or milling the coagulated yolks, forming said yolks into a desired shape and subsequently heating the resulting shaped yolks to form a solid, coagulated egg yolk product.

3,598,614
THICKENED EDIBLE SOY SAUCE AND METHOD FOR THE PREPARATION THEREOF

Edward J. Hsu, 2065-D Orchard St., Urbana, Ill. 61801

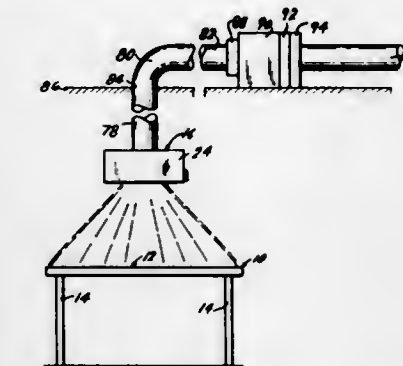
No Drawing. Filed May 29, 1968, Ser. No. 732,825
Int. Cl. A23l 1/22

U.S. Cl. 99—145 7 Claims
A novel thickened soy sauce is prepared by heating liquid soy sauce, adjusted in pH to about 4.5-5, with mixed gelatin and agar or with mixed glutinous rice starch and tapioca starch, the preparation with starches also involving a sequence of controlled cooling steps. The thickened sauce so prepared is highly stable and is adapted to be spread over or otherwise applied to food stuffs.

3,598,615
PROCESS FOR TREATING MEAT

Charles A. Chamberlain, Tacoma, Wash. (P.O. Box 337, Milton, Wash. 98354)
Continuation-in-part of application Ser. No. 501,890, Oct. 22, 1965. This application June 12, 1968, Ser. No. 736,496

U.S. Cl. 99—194 3 Claims



This invention is for a meat cutting table and process which maintains the meat at a below freezing temperature and allows the workers, cutting and wrapping the meat, to be at a temperature above freezing temperature.

3,598,616

COATING COMPOSITION WITH ORGANIC BASE AND HEXAVALENT Cr

Geoffrey Moorehouse Gibson, Moortown, Leeds, and Clifford Alfred Vessey, Harrogate, England, assignors to Albright & Wilson Limited, Birmingham, England. No Drawing. Continuation-in-part of application Ser. No. 580,166, Sept. 19, 1966. This application Sept. 18, 1968, Ser. No. 774,559.

Claims priority, application Great Britain, Sept. 21, 1965, 40,228/65

Int. Cl. C09d 5/08

U.S. Cl. 106—14

23 Claims

A paint composition having improved anti-corrosive properties is provided by admixing with the film-forming vehicle at least one hexavalent chromium salt of calcium, strontium, barium or zinc in a defined amount and a defined proportion an organic nitrogenous base or salt thereof.

3,598,617

FLAME-PROOF COATING COMPOSITION

Lawrence G. Bockstie, Jr., Bradford, Pa. assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,271

Int. Cl. C09k 3/28

U.S. Cl. 106—15FP

12 Claims

A coating composition comprising (a) an at least partially hydrolyzed tetraalkyl orthosilicate, (b) aluminum oxide, (c) titanium dioxide, (d) silicon dioxide, and (e) a suspension agent, wherein said titanium dioxide and said suspension agent are added to the composition as dry particles having agglomerates greater than about 1 micron in size, and wherein the alkali metal content of said coating composition is such that, upon curing, a coating prepared from said composition contains (f) less than about 0.05% Na, (g) less than about 0.05 K, (h) less than about 0.01% Li, (i) less than about 0.001% Cs, and (j) less than about 0.001% Rb, all percentages being in terms of the oxides of the respective alkali metals.

3,598,618

MAGNESIA BEARING POROUS GRAINS AND BODIES

Kimjro Fujii, Yoshihiko Ishido, and Akihito Motoe, Tokyo, Japan, assignors to Agency of Industrial Science & Technology Ministry of International Trade and Industry, Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 688,316, Dec. 6, 1967. This application Feb. 8, 1968, Ser. No. 703,896

Int. Cl. C04b 33/00

U.S. Cl. 106—40

5 Claims

A small amount of strong acetic acid reacts with magnesia or magnesium hydroxide to form strongly coherent porous grains or pellets which, after being moistened with a small amount of water, can be shaped with or without addition of refractory fillers and fired into porous magnesia bodies. A slurry prepared from magnesia or magnesium hydroxide, acetic acid, a small amount of water and chemical foaming agent solidifies within a few minutes into a porous body which can be fired to produce magnesia bricks lighter than water.

3,598,619

GLASS ULTRASONIC DELAY LINE

Masanari Mikoda and Tadashi Hikino, Osaka-fu, Takayuki Kuroda, Hyogo-ken, and Isao Ueno, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 9, 1969, Ser. No. 814,587

Claims priority, application Japan, Apr. 9, 1968, 43/24,172

Int. Cl. C03c 3/04; H03h 7/30

U.S. Cl. 106—53

4 Claims

An ultrasonic delay line employing glass as a delay medium. Substitution of 0.5–7.0 mole percent PbF₂ for

part of the PbO in a glass composition consisting essentially of 68.0–77.0 mole percent of SiO₂, 15–23 mole percent of PbO, 0.5–3.0 mole percent of Al₂O₃, 0.1–2.0 mole percent of As₂O₃, and 6.5–9.0 mole percent of K₂O produces a glass composition having acoustically stabilized properties that is suitable for a delay line medium. The glass composition has a high mechanical Q, low temperature coefficient of delay time, good acoustical stability with respect to aging, and is easy to produce.

3,598,620

ALKALI-FREE MOLYBDENUM SEALING HARD GLASS

Saleem Akhtar, Wakefield, Mass., assignor to Transtron Electronic Corporation, Wakefield, Mass.

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,899

Int. Cl. C03c 3/08

U.S. Cl. 106—54

8 Claims

An alkali-free, transparent, homogeneous glass composition is provided comprising the following constituent oxides in percent by weight, silicon dioxide 20–30, aluminum oxide 18, boron oxide 39–47, calcium oxide 11–15 and magnesium oxide 1. A method of forming this alkali-free, transparent, glass composition of this invention is also provided. The glass composition is particularly designed for sealing and encapsulation of electronic devices having molybdenum pins or leads.

3,598,621

PLASTER SETTING RETARDER

Peter J. Ferrara, Ridge Road, Cornwall, N.Y. 12518, and Gaston Dalby, % A.M.F.I., P.O. Box 3299, Beirut, Lebanon

No Drawing. Continuation-in-part of applications Ser. No. 673,986, Oct. 9, 1967, and Ser. No. 868,931, Oct. 23, 1969. This application Mar. 9, 1970, Ser. No. 17,957

Int. Cl. C04b 11/14

U.S. Cl. 106—111

12 Claims

Set retarding agents and systems for plaster including: polycarboxylic acids, particularly 1,3,5-pentane tricarboxylic acid; low molecular weight polyamine reaction products thereof; combinations of these with a chelating or coordination agent; and/or combinations of any of the above with boric acid or borax.

3,598,622

ALKALI TREATED STARCH COMPOSITIONS

Thomas Kearney Maher and Howard Paul Francis, La Grange Park, Ill., assignors to CPC International Inc.

No Drawing. Filed Feb. 19, 1969, Ser. No. 800,757

Int. Cl. C08b 25/02; D21h 1/22

U.S. Cl. 106—210

3 Claims

A method is described for producing an improved granular starch product which comprises suspending a bleached, oxidized, or anionic starch in an alkaline aqueous solution, acidifying the solution, and recovering an alkali treated starch product. The use of the improved starch product produced as described above as a wet end additive, a coating color binder, and a size in the manufacture of paper is disclosed. Also revealed is the lowering of the peak viscosity during gelatinization which is attained when bleached or oxidized starch is alkali treated prior to gelatinization.

3,598,623

CARBOXYL STARCH AMINE ETHERS AND PAPER COATING COMPOSITIONS CONTAINING SAME

Robert M. Powers and Roland W. Best, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,883

Int. Cl. C08b 25/02; D21h 1/24

U.S. Cl. 106—214

14 Claims

Carboxyl starch amine ethers having an anionic substituent-to-amine-ether substituent molar ratio of at least

1:1 and paper coating colors containing the carboxyl starch amine ethers as high-strength binders, especially for low weight publication-grade paper.

3,598,624

SIMPLIFIED PROCESSING SYSTEM FOR PREPARATION OF PREDISPERSED PIGMENTS

Daniel Kaufman, Grosse Ile, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich.

No Drawing. Filed Nov. 19, 1968, Ser. No. 777,145

Int. Cl. C09c 1/02

U.S. Cl. 106—306

3 Claims

A process for preparing dry calcium carbonate pigments which may be easily mixed with water to form slurries suitable for paper coating and other applications. This process comprises mixing calcium carbonate filter cake, dispersant, and inert, finely divided solid material which may be easily separated from the calcium carbonate, separating said inert material from the calcium carbonate and drying said calcium carbonate.

3,598,625

PRODUCTION OF PIGMENTARY GRADE COLORANTS

Geoffrey R. Buckwalter, Flemington, N.J., assignor to Cities Service Company, New York, N.Y.

No Drawing. Filed Nov. 14, 1967, Ser. No. 683,011

Int. Cl. C08h 17/14

U.S. Cl. 106—309

21 Claims

Crude colorants, prior to salt grinding, are subjected to attritioning and shearing actions to break down crystalline structure to non-pigmentary, flocculent form. The time required for salt grinding is reduced, and a stronger pigmentary grade product is obtained. When blue shade phthalocyanine crude is so treated and the salt grinding is carried out in the presence of certain non-aromatic organic liquids, a crystallizing red shade phthalocyanine blue is obtained instead of the customary green shade product obtained by conventional salt grinding of the particular crude colorant. A non-crystallizing red shade phthalocyanine blue pigment is obtained when a partly chlorinated phthalocyanine crude is thus treated.

3,598,626

ELECTROSTATIC METHOD FOR COATING WITH POWDER AND WITHDRAWING UNDEPOSITED POWDER FOR REUSE

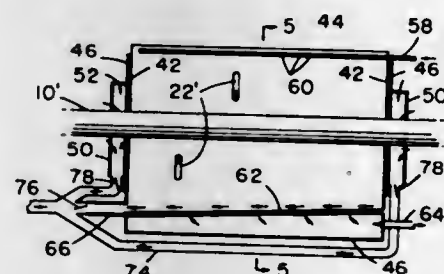
Richard O. Probst and Charles R. Thatcher, Indianapolis, and Norbert M. Zupan, Brownsburg, Ind., assignors to Ransburg Electro-Coating Corp., Indianapolis, Ind.

Application Jan. 5, 1966, Ser. No. 521,481, now Patent No. 3,439,649, which is a continuation-in-part of application Ser. No. 439,790, Mar. 15, 1965. Divided and this application Dec. 30, 1968, Ser. No. 798,563

Int. Cl. B05b 5/02; B44d 1/094

U.S. Cl. 117—17

8 Claims



A method for coating an article with powder includes directing one or more air-suspended powder sprays into a chamber through which the article is moved. The sprays are electrostatically deposited on the article. Undeposited

3,598,627

FUNGUS-RESISTANT SHINGLES

Morris Klimboff, Plainview, N.Y., assignor to The Flintkote Company, New York, N.Y.

No Drawing. Filed Sept. 20, 1967, Ser. No. 669,292

Int. Cl. B44d 1/12

U.S. Cl. 117—25

12 Claims

There is disclosed herein a fungus-resistant and algae-resistant composition shingle suitable for roofing and siding made of an asphalt-impregnated base that contains embedded on a portion or on all of its weathering surface granular zinc or a granular zinc-containing material along with the usual colored granules on such surfaces.

3,598,628

CATHODE RAY TUBES WITH TARGET SCREENS AND THE MANUFACTURE THEREOF

David M. Goodman, 3843 Debra Court, Seaford, N.Y. 11783

Continuation-in-part of application Ser. No. 85,353, Jan. 27, 1961, now Patent No. 3,091,034, which is a division of application Ser. No. 800,854, Mar. 20, 1959, now Patent No. 3,081,414, which in turn is a continuation-in-part of applications Ser. No. 514,973, June 13, 1955, now Patent No. 2,885,591, Ser. No. 522,609, July 18, 1955, now Patent No. 2,897,388, and Ser. No. 448,039, Aug. 5, 1954, now Patent No. 2,897,398. The instant application is also a continuation-in-part of applications Ser. No. 345,197, Feb. 17, 1964, and Ser. No. 488,017, Sept. 17, 1965. This application Nov. 1, 1968, Ser. No. 772,639

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5

9 Claims

Target screens for beam-index cathode ray tubes and beam-index color kinescopes are described with ribs, filaments, or projections which support or align the beam-index elements with the remainder of the screen structure. An elongated scintillator-derived light source is positioned parallel to strip-like elements of the target screen to reduce exposure time when the photo-resist, or other photographic, method of screen fabrication is used. Means to further simplify the construction of target screens for color kinescopes are described which use printing techniques (brush, flame-spray, electrostatic spray, etc.) to deposit the different color producing phosphors on the faceplate in register with the index strips.

3,598,629

COLOR CATHODE-RAY TUBE

Carroll John Mellor and Nicholas Zelloffs, Chicago, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 711,525, Mar. 8, 1968. This application Jan. 8, 1969, Ser. No. 789,942

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5C

7 Claims

The image area of a color cathode-ray tube is screened by a slurry process which is generally well known. The slurry has, as ingredients, a gadolinium oxide phosphor, an organic colloid or gel such as polyvinyl alcohol which may be sensitized so that its solubility may be influenced by actinic radiation, deionized water as a solvent and a sensitizer having a metal constituent and soluble in the solvent. Customarily, ammonium dichromate is used and, in solution, produces dichromate ions which may chemically and/or physically react with the polyvinyl alcohol and the phosphor. The slurry process is improved and the screenability of the slurry and the brightness of the color

tube enhanced by including two additives in the slurry. The first is a polydentate chelating agent, such as ethylenediaminetetracetic acid, for reducing the reaction between the sensitizer, the polyvinyl alcohol and the phosphor in the dark, that is to say, in the absence of actinic radiation. The second is a base such as ammonia or an amine, which may have complexing properties, and which shifts the slurry to an alkaline pH more favorable to complexing action.

3,598,630

METHOD OF CONDITIONING THE SURFACE OF ACRYLONITRILE-BUTADIENE-STYRENE

Warren R. Doty, Royal Oak, and Bobbie D. Knight, Tecumseh, Mich., assignors to General Motors Corporation, Detroit, Mich.

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,702

Int. Cl. B44d 1/092

U.S. Cl. 117—47

4 Claims

A treatment for ABS polymers to improve adhesion of coatings thereto. Improved wettability of the surface results from the oxidation of a portion of the available double bonds on the surface of the polymer. The polymer is treated in a solution containing from 50 to 80 percent by volume of U.S.P. grade orthophosphoric acid (85.3% H_3PO_4) and from 5 grams per liter to saturation of potassium permanganate.

3,598,631

PROCESS FOR MANUFACTURING LOW FRICTION SURFACE

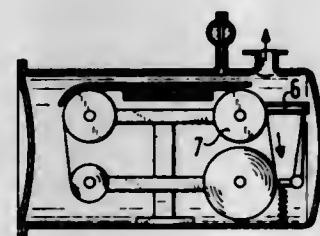
Hermann E. R. Papst, Karl-Maler-Strasse 1, St. Georgen, Black Forest, Germany

Continuation-in-part of application Ser. No. 629,167, Apr. 7, 1967, now Patent No. 3,456,903, dated July 22, 1969. This application Mar. 19, 1969, Ser. No. 808,636 Claims priority, application Germany, Apr. 9, 1966, P 39,186; Sept. 23, 1966, P 41,101

Int. Cl. B44d 1/09

U.S. Cl. 117—49

6 Claims



A low-friction flow surface for airship envelopes or outer surfaces of airplanes, flow surfaces of wind-tunnels and the like and the process for manufacturing such low-friction flow surfaces wherein a metal foil is heated and, at the same time, de-gassed immediately after which a hydrophobe layer is applied to the heated foil in a vacuum or a protective gas with said hydrophobe layer being applied by squeezing and subsequently even-melting the material of the hydrophobe layer onto the foil.

3,598,632

METHOD OF COATING GLASS SURFACE AND PRODUCTS PRODUCED THEREBY

Alton W. Long, Toledo, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Continuation of application Ser. No. 647,239, June 19, 1967. This application May 18, 1970, Ser. No. 37,463

Int. Cl. C03c 17/32

U.S. Cl. 117—69

30 Claims

The method of producing abrasion resistant glass surfaces comprising: pyrolyzing a metal oxide onto the glass surface at temperatures above the pyrolyzing temperature

of the metal compound employed, followed by applying to this treated glass surface, an aqueous solution of the reaction product of a hydroxylated organic compound and the interpolymer of methyl vinyl ether and maleic anhydride, at temperatures below 450° F.

3,598,633

PROCESS FOR IMPARTING SOIL RELEASE PROPERTIES TO FIBROUS SUBSTRATES

Joseph T. Rudman, 1051 Bay 25 St., Far Rockaway, N.Y. 11691

No Drawing. Continuation-in-part of application Ser. No. 678,708, Oct. 27, 1967. This application Aug. 2, 1968, Ser. No. 757,182

Int. Cl. B44d 1/16

U.S. Cl. 117—76

14 Claims

Substrates, particularly synthetic fabrics, are treated to impart soil release properties thereto.

A urethane elastomer is applied to a substrate and dried. The dried substrate is then treated with a high molecular weight silicon polymer system and the treated material subsequently cured.

The urethane and silicon systems may be water or organic solvent based.

The systems are applied to a selected substrate by conventional means such as padding, knife over roll coating, etc.

3,598,634

COATED PACKAGING MATERIAL

John H. Kraft, Skokie, Ill., assignor to Kraftco Corporation, New York, N.Y.

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,649

Int. Cl. B32b 23/04

U.S. Cl. 117—86

6 Claims

A wax coated packaging sheet material is provided with improved separating characteristics by applying to the wax surface of a packaging sheet material a homogeneous mixture of an amide and starch in a particular amount. The amide has a molecular weight of at least 200 and preferably has a molecular weight in the range of from about 1,000 to about 50,000. The amide comprises the larger amount of the mixture and the starch comprises a minor amount of the mixture.

3,598,635

PLASMA SPRAYING PROTECTIVE COATING ON REFRACTORY

Gerald J. Sagona, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,753

Int. Cl. B44d 1/50, 1/097

U.S. Cl. 117—93.1PF

6 Claims

Formation of impervious, continuous, adherent, metallic coating on the surface of a refractory by plasma flame spraying thereon a substantially 20 to 44 microns sized powder of platinum or platinum base alloy at a velocity of at least 100 feet per second and heating the spray coated refractory to a temperature of at least 1250° C. Plasma gas can be mixture of 3-10%, by volume, hydrogen and balance argon and/or nitrogen. Coated refractory useful as structure that is to contact molten glasses or other hot substances that chemically react with the refractory but not with the metallic coating.

3,598,636

COATING OF INTERIOR SURFACES OF PIPE

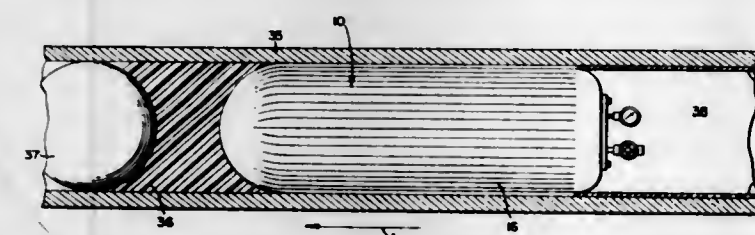
Dewitt W. Honeycutt, Jr., Dallas, Tex., assignor to De Soto, Inc., Des Plaines, Ill.

Filed June 17, 1968, Ser. No. 737,692

Int. Cl. B05c 7/08, 8/04, 8/00

U.S. Cl. 117—95

7 Claims



The interior surfaces of pipe are coated by pneumatically propelling through the pipe a coating liquid confined between a coating applicator and a retaining plug using a coating applicator constituted by a cylindrical sleeve which is formed with external longitudinal grooves and which is flexible and resilient to accommodate imperfections in the pipe and which is biased against the interior of the pipe by means of an inflated boot. To facilitate flow-out and to avoid running and sagging, the liquid coating is made thixotropic and to eliminate the need for removing large amounts of solvent, the coating liquid is essentially solvent free and formulated to cure upon exposure to the gas used for pneumatic propulsion and is preferably made to be cured by contact with atmospheric moisture.

3,598,637

METAL-COATED FIBRILLATED PRODUCTS

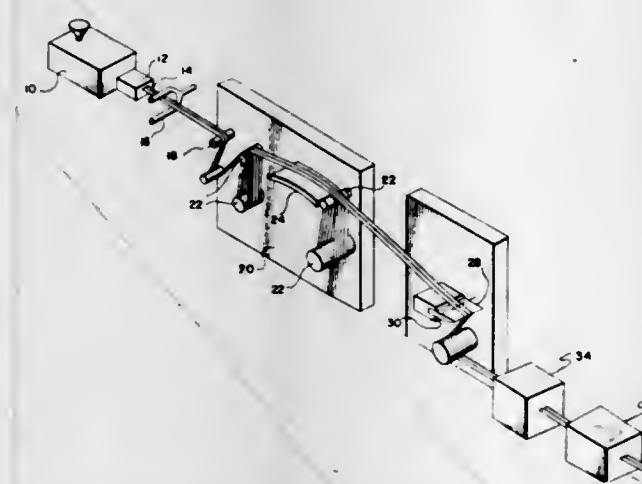
Reiner G. Stoll, New York, N.Y., John A. McTaggart, Newark, N.J., and Herbert W. Keuchel, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Filed Jan. 29, 1969, Ser. No. 794,905

Int. Cl. D04h 1/04; D02g 3/06

U.S. Cl. 117—107

9 Claims



Lustrous, metal-coated, fibrillated products are produced by extruding a thermoplastic polymer and a foaming agent, attenuating the foamed extrudate while in the molten state to fibrillate it, activating the surface of the fibrillated material, and depositing a thin metallic coating on the fibrillated material.

3,598,638

DIFFUSION METALLIC COATING METHOD

David J. Levine, Cincinnati, Ohio, assignor to General Electric Company

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,199

Int. Cl. C23c 9/02

U.S. Cl. 117—107.2P

3 Claims

A metallic article surface is provided with a diffusion metallic coating of improved oxidation and sulfidation resistance through a vapor diffusion metallic method conducted in a nonoxidizing atmosphere as a result of maintaining the article surface and a coating material which supplies the metallic coating in spaced apart relationship while heating both the surface and the coating material to perform vapor diffusion coating. The article is first provided with a coating of loosely adherent oxide particles which are entrapped in the diffusion coating.

3,598,639

METHOD OF CONTINUOUSLY PRODUCING METAL WIRE AND PROFILES

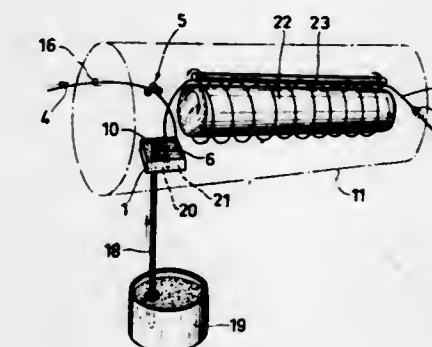
Bror Olov Nikolaus Hansson, Lars Olov Hertsius, and Johan Olov Bror Hertsius, all of Karlavagen 97, Stockholm N. 11522, Sweden

Filed Dec. 9, 1968, Ser. No. 782,014

Int. Cl. C23c 1/00

U.S. Cl. 117—114R

10 Claims



Metal wire and profiles are continuously manufactured by dipping a helical screw formed core wire into a metal melt. The wire leaves and preferably also enters the melt through its upper surface.

3,598,640

REAR PROJECTION SCREEN, SCREEN COATING AND METHOD

Frank P. Bennett, Northbrook, Ill., assignor to GAF Corporation, New York, N.Y.

No Drawing. Filed Jan. 19, 1968, Ser. No. 701,039

Int. Cl. C03c 17/32

U.S. Cl. 117—124

9 Claims

A rear projection screen which includes, on the rear or image-receiving face thereof, a coating comprising a transparent organic vehicle and a small proportion of a light-diffusing silica material preferably a synthetic, amorphous silica having generally micron-sized particles, and wherein substantially all of the particles include capillary passages therein, and wherein a substantial proportion of the silica particles are held in place by said vehicle at the outer surface of the coating in a manner such that at least portions of the particles are exposed to atmosphere, rather than being completely embedded in the vehicle of the coating material.

3,598,641

PROCESS FOR IMPROVING THE OIL RELEASE AND ANTI-STATIC PROPERTIES OF A TEXTILE AND THE RESULTING PRODUCT

Harry A. Miller, Harold L. Jackson, Harry M. Johnson, and Charles W. Canter, Aikavista, Va., assignors to Klopman Mills, Inc., Rockleigh, N.J.

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,220

Int. Cl. B32b 27/08, 27/12

U.S. Cl. 117—138.8E

7 Claims

A process for improving the oil release and anti-static properties of a textile or other material normally subject to troublesome oil staining and static pickup which comprises treating said material with an aqueous solution of a copolymer of methacrylic acid and dimethylaminoethyl methacrylate, drying and curing.

3,598,642

PRINTABLE POLYSTYRENE SHEET MATERIAL

Ching Yun Huang, Minoo-shi, and Akitoshi Kashiwagi, Toyonaka, Japan, assignors to Japan Gas-Chemical Company, Inc., Tokyo, Japan

No Drawing. Continuation of application Ser. No. 623,251, Mar. 15, 1967. This application Nov. 12, 1969, Ser. No. 871,588

Claims priority, application Japan, Mar. 18, 1966, 41/16,911

Int. Cl. B32b 27/04, 27/20

U.S. Cl. 117—138.8

12 Claims

Sheet material comprising a foamed polystyrene sheet as a substrate, at least one surface of said substrate having a continuous coating. Said coating comprises an inorganic pigment and 15 to 50 parts, calculated as solid content based on 100 parts by weight of the said inorganic pigment, of a binder consisting of 80 to 55% by weight of a water-insoluble synthetic polymeric binder and 20 to 45% by weight of a water-soluble synthetic polymeric binder and/or a natural polymeric binder. Paper-like sheet material has a concavo-convex depth of no more than 30 microns, a Bekk surface smoothness of no less than 200 seconds and a surface electric resistance of no more than 10^{11} ohm.

3,598,643

METHOD OF MAKING A SINTERED CADMIUM-CONTAINING PHOTOCONDUCTOR

Harvey A. Hodes, Eatontown, N.J., James Sobieski, St. Paul, Minn., and Michael C. Zerner, Uppsala, Sweden, assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Feb. 24, 1970, Ser. No. 13,775

Int. Cl. G03g 5/02; C09d 5/24; H01l 13/00

U.S. Cl. 117—201

8 Claims

A sintered photoconductor is made by first mixing a photoconductive powder such as cadmium sulfide, cadmium selenide, or cadmium selenosulfide with about 10 percent by weight of the photoconductive powder of cadmium chloride powder. The mix is added to an amount of glycerine about one quarter to about one half times by weight of the photoconductive powder. The resulting mixture is vigorously stirred for about forty-five minutes at a temperature of about 100° C. to 125° C. to form a slurry. The slurry is then coated onto a suitable substrate using a doctor blade to obtain a smooth layer. The slurry coated substrate is then placed on a hot plate at a temperature from about 200° C. to about 250° C. until all of the glycerine has been removed. The coated substrate is then placed in an oven that has been previously heated to about 250° C. The oven temperature is then raised to about 500° C. to 550° C. while a flow of nitrogen is maintained during a sintering cycle of about 20 to 25 minutes.

3,598,644

IMAGING MEMBER FABRICATION

William L. Goffe, Webster, Arnold L. Fundsack, Mortimer Levy, and David A. Buckley, Rochester, and Frank G. Belli, Webster, N.Y., and Peter J. Cerion, Closter, N.J., assignors to Xerox Corporation, Rochester, N.Y. Continuation of application Ser. No. 813,345, Apr. 3, 1969, which is a continuation-in-part of application Ser. No. 423,167, Jan. 4, 1965. This application Mar. 17, 1970, Ser. No. 19,521

Int. Cl. C09d 5/24; G03g 5/04

U.S. Cl. 117—201

32 Claims

Selenium vapor deposition methods of forming a fracturable layer comprising selenium contiguous the surface of a softenable layer.

3,598,645

METHOD OF ACTIVATING CdS-PHOTORESISTORS BY HEATING IN CONTACT WITH CdS ADMIXED WITH CdO AND CdSe

Hans Winter, Hamburg, Germany, assignor to U.S. Phillips Corporation, New York, N.Y.

No Drawing. Filed Dec. 13, 1968, Ser. No. 783,772

Claims priority, application Germany, Dec. 15, 1967, P 16 14 351.4

Int. Cl. H01l 7/36; B44d 1/02, 1/18

U.S. Cl. 117—201

22 Claims

A method of activating and/or recrystallizing a CdS-photosensitive body in which a CdS body is heated in contact with a powder mixture of CdS, CdSe and CdO in an oxygen-free atmosphere.

3,598,646

METHOD FOR PREPARING OXIDE-COATED CATHODES

John Joseph Moscony, Lancaster, Pa., assignor to RCA Corporation

No Drawing. Filed May 28, 1968, Ser. No. 732,515

Int. Cl. C23c 3/00, 11/00

U.S. Cl. 117—224

5 Claims

An oxide-coated cathode for an electron tube is prepared with particles of a composition containing at least one alkaline earth metal compound, the compound being heat decomposable to an oxide. The particles are coated with metallic cobalt, preferably produced by the decomposition of dicobalt octacarbonyl in a solution in which the particles are suspended. Subsequently, a layer of the coated particles is coated on a cathode substrate. The cathode is then assembled into an electron tube. During the subsequent tube fabrication, the layer is heated so as to drive off the volatile matter therein and to consolidate the coated particles into a sintered electron-emissive coating on the substrate.

3,598,647

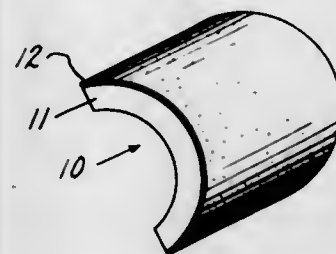
ADHESIVE COATED FERRITE MAGNETS

Theodor von Alten, Glendale, Gerald L. Peebles, Milwaukee, and James G. Battige, Menomonee Falls, Wis., assignors to Allen-Bradley Company, Milwaukee, Wis. Filed Oct. 10, 1968, Ser. No. 766,420

Int. Cl. H01f 1/34

U.S. Cl. 117—234

6 Claims



Ferrite magnets with a coating, which may be continuous or discontinuous, of a dry, solid partially-cured adhesive so that the magnets can be attached to other articles, such as magnetic steel members, by final cure of the ad-

hesive coating upon the application of heat and pressure. Particularly effective adhesive coating compositions and methods for their application to ferrite magnets are also disclosed.

3,598,648

MATERIALS IN ELECTROPHOTOGRAPHIC PROCESS

Yoshiki Hayashi, Hirakata-shi, and Hikofumi Oido, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

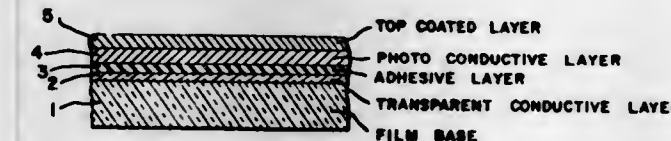
Original application Oct. 4, 1965, Ser. No. 492,695, now Patent No. 3,438,773. Divided and this application Jan. 28, 1969, Ser. No. 834,182

Claims priority, application Japan, Oct. 2, 1964, 39/56,714; Oct. 29, 1964, 39/61,927; Nov. 9, 1964, 39/63,913; Mar. 26, 1965, 40/17,946

Int. Cl. H01f 1/00, 1/20

U.S. Cl. 117—234

2 Claims



A magnetic brush comprising a permanent magnet and a mass of iron powder coated with fluorowax which is useful in electrophotographic processes.

3,598,649

METHOD AND APPARATUS FOR DE-OILING METAL CHIPS AND THE LIKE

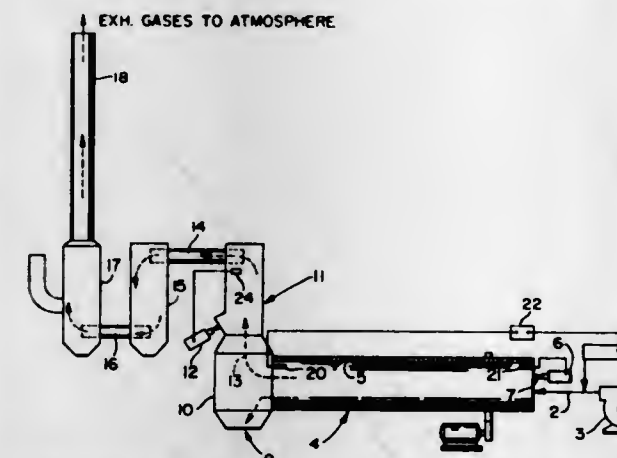
Aurelius Mark Juhasz, Cleveland, Ohio, assignor to Bartlett-Snow, a division of Bangor Punta Operations, Inc., Bangor, Maine

Filed Oct. 22, 1968, Ser. No. 769,549

Int. Cl. B08b 7/00

U.S. Cl. 134—2

1 Claim



Process and apparatus for de-oiling metal cuttings or chips in which such chips pass through a refractory lined rotary cylinder, the feed rate of the chips to such cylinder being controlled by the temperature of the combustion products at the discharge end of the cylinder while the burner at the feed end of the cylinder is controlled by the temperature of the combustion products at such feed end.

3,598,650

METHOD OF REMOVING ORGANIC SOILS IN CONTACT WITH A VITREOUS COMPOSITION COATED ON A METALLIC SUBSTRATE

William S. Lee, Bay Village, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

No Drawing. Original application Mar. 22, 1968, Ser. No. 715,186. Divided and this application Dec. 23, 1968, Ser. No. 840,859

Int. Cl. A21b 1/00; B08b 7/00

U.S. Cl. 134—2

8 Claims

A porcelain enamel frit containing a high level of an oxidation inducing metal oxide, preferably cobalt, adapt-

able to be incorporated into a vitreous porcelain enamel for application to an oven liner, said enamel characterized by the ability to completely oxidize oven soils when heated to a point above 350° F., but below 600° F., and method of utilizing same as a self-cleaning oven liner coating.

3,598,651

METHOD AND APPARATUS FOR CLEANING MACHINE PARTS AND THE LIKE

Viljo K. Valavaara, 310 Clarke St., Woodstock, Ontario, Canada

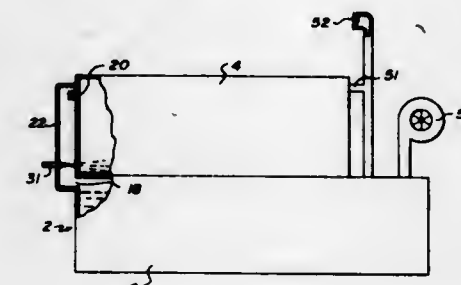
Filed June 9, 1969, Ser. No. 831,632

Claims priority, application Canada, June 12, 1968, 22,404

Int. Cl. B08b 3/04, 15/00

U.S. Cl. 134—25A

2 Claims



Method and apparatus for continuously cleaning machine parts, such as parts of automobiles. The parts to be cleaned are subjected, in sequence, to cleaning and rinsing cycles the liquid level in the tank being maintained at a predetermined level during the cleaning cycle and the liquid being drained from the tank at the end of the cleaning cycle to ensure good settlement of entrained sedimentation; latter is then removed during the subsequent rinsing cycle.

3,598,652

NUCLEAR THERMOELECTRIC POWER PLANT

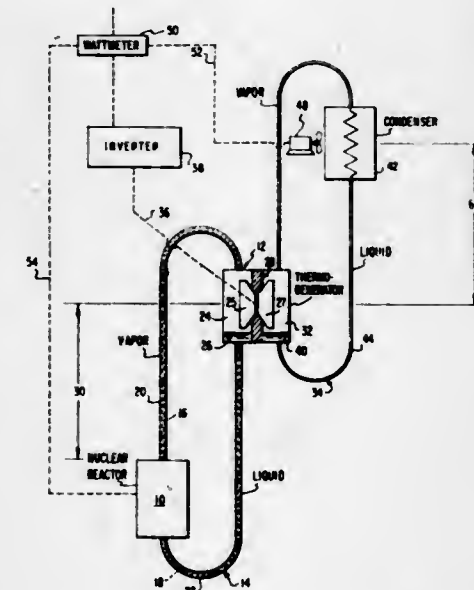
Robert E. Magladry, Baltimore, Md., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Nov. 18, 1965, Ser. No. 508,451

Int. Cl. G21h 1/10

U.S. Cl. 136—202

12 Claims



The employment of a low pressure vaporizable liquid such as tetraphosphorus trisulfide within the primary loop

of a nuclear powered thermoelectric converter to prevent high intensity radiation reaching the thermoelectric conversion unit.

3,598,653
SEALED-TYPE LEAD STORAGE BATTERY WITH GAS RECOMBINING MEANS

Masataro Fukuda, Toyonaka-shi, Takashi Miura, Fujisawa-shi, and Katsuhiko Takahashi, Hirakata-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 3, 1969, Ser. No. 873,403
Claims priority, application Japan, Nov. 6, 1968, 43/81,739; Sept. 19, 1969, 44/76,063, 44/76,087
Int. Cl. H01m 1/08

U.S. Cl. 136—26 6 Claims

In a sealed-type lead storage battery, a reactive element having waterproofing capacity and catalytic activity is interposed between the interior and exterior gaseous phases of the battery and an electrolyte-impregnated body is closely attached to the inside face of the reactive element with a portion thereof immersed in the electrolyte, whereby a pressure rise within the battery due to the accumulation of excess hydrogen and a lowering of the positive electrode capacity due to self-discharge of the positive electrode can effectively be prevented which could not be solved by the conventional sealing methods.

3,598,654
SOLID STATE BATTERY WITH SOLID ELECTROLYTE

Wayne Richard Hruden, 175 Tecumseh Ave. West, Windsor, Ontario, Canada

No Drawing. Filed June 4, 1968, Ser. No. 734,254
Int. Cl. H01m 11/00

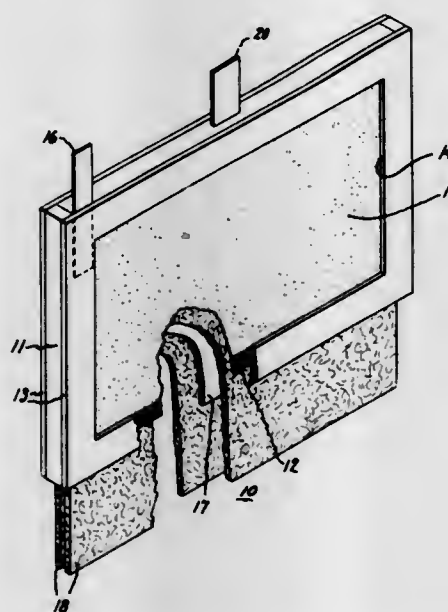
U.S. Cl. 136—83R 1 Claim

Compounds capable of ionic conduction (ionophores) having the form M_2AgI , where M is a univalent electro-positive element or radical used in solid state electrochemical devices such as batteries.

3,598,655
METAL-AIR CELL

Robert P. Hamlen, Scotia, and Elihu C. Jerabek, Voorheesville, N.Y., assignors to General Electric Company
Filed Apr. 1, 1968, Ser. No. 717,856
Int. Cl. H01m 7/00, 29/04

U.S. Cl. 136—86 2 Claims



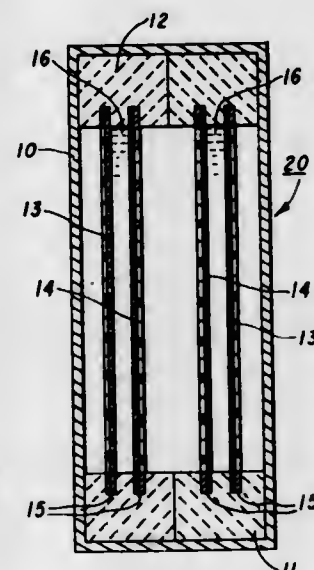
A metal-air cell has at least one cathode electrode, at least one precipitate-producing anode electrode spaced from the cathode electrode, and an absorbent electrolyte

matrix positioned between and in contact with the electrodes, the matrix extending beyond one of the edges of the respective electrodes and adapted to contact a separate electrolyte source. This cell provides a structure in which a self-cleaning anode is produced by the employment of the extended matrix and separate electrolyte source.

3,598,656
FUEL CELL UTILIZING APERTURED METAL FOIL ELECTRODES

Isaac Trachtenberg, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Original application Oct. 31, 1966, Ser. No. 590,724, now Patent No. 3,471,338, dated Oct. 7, 1969. Divided and this application Mar. 13, 1969, Ser. No. 844,680
Int. Cl. H01m 13/00, 27/00

U.S. Cl. 136—86 2 Claims

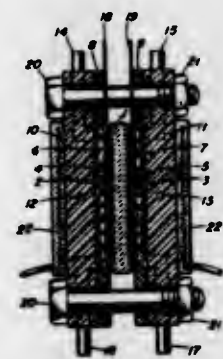


A fuel cell having a pair of foraminous electrodes wherein one of the electrodes includes apertured metal foil bonded to an expanded metal support.

3,598,657
METHOD OF PLATINIZATION OF A FUEL CELL ELECTRODE

William Austin Barber, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Filed Apr. 30, 1968, Ser. No. 725,421
Int. Cl. C23c 3/02; H01m 27/10

U.S. Cl. 136—120 10 Claims



A method for enhancing a catalytic electrode adapted for use in a fuel cell which comprises: incorporating a reducing agent into an electrode structure during initial fabrication of the said electrode prior to catalyst incorporation therein; contacting the so-formed electrode

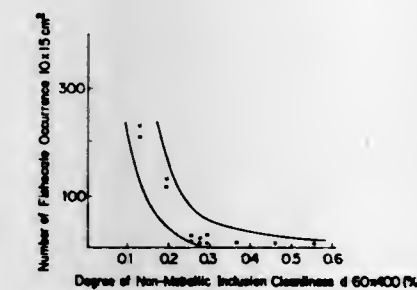
with a noble metal or non-noble metal catalyst compound dissolved in a solvent medium and effecting reduction of said metal compound, whereby catalyst is uniformly deposited on said electrode.

3,598,658
METHOD FOR MANUFACTURING COLD-ROLLED STEEL SHEET

Kameo Matsukura and Masami Ozawa, Kitakyushu, Japan, assignors to Yawata Iron & Steel Co., Ltd., Tokyo, Japan

Filed May 20, 1968, Ser. No. 730,532
Claims priority, application Japan, May 20, 1967, 42/31,948; Mar. 4, 1968, 43/14,253, 43/14,254
Int. Cl. C21d 7/02; C21c 7/00

U.S. Cl. 148—2 7 Claims



A method of manufacturing cold-rolled steel sheet comprising steps of producing ingots from a molten steel composed mainly of 0.06 to 0.15% C and 0.10 to 0.25% Mn, to which less than 0.06% Cu and 0.015 to 0.035% P are included and more over at least one element selected from the group consisting of V, Nb, Al, Ti and Zr is included in small amount, if desired, while regulating non-metallic inclusion cleanliness of the steel sheet to 0.2 to 0.5% and subjecting a steel sheet obtained through hot-rolling and cold-rolling to a decarburizing annealing to reduce the carbon content of 0.002 to 0.015%.

3,598,659
METHOD FOR PRODUCING A CORROSION-RESISTANT COATING UPON METALS AND CORROSION-RESISTANT COATINGS SO-PRODUCED

Adolf Klingler, Carl Zeiss Strasse 35, Aalen, Germany, and Hans Heiz, Dulliken, Switzerland; said Hans Heiz assignor to said Adolf Klingler

No Drawing. Filed Nov. 12, 1968, Ser. No. 775,136
Claims priority, application Switzerland, Nov. 15, 1967, 15,967/68

U.S. Cl. 148—6.15 12 Claims

Method for producing corrosion-resistant coating on metals, particularly iron, and coating so-produced. The coating comprises two layers, the first of which is a mixture of materials which pacifies the metal surface, and adheres tightly thereto while remaining flexible. The first layer includes phosphoric acid; Fe_2O_3 or MnO_2 ; powdered aluminum, zinc, copper or mixtures; oil modified alkyd resin; talcum, bentonite, gypsum or lime; and a mixture of solvents. The second layer provides good mechanical strength to the corrosion resistant coating.

3,598,660
METHOD OF MANUFACTURING FREE MACHINING STAINLESS STEEL

Joseph A. Ferree, Jr., Natrona Heights, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.
No Drawing. Filed May 29, 1969, Ser. No. 829,122
Int. Cl. C21d 7/13; C22c 39/14

U.S. Cl. 148—12 3 Claims

Described herein is an improved method of manufacturing free machining stainless steels to avoid unduly elongating the inclusions contained therein.

3,598,661
HIGH STRENGTH COBALT BASE ALLOY
Robert B. Herchenroeder, Kokomo, Ind., assignor to Cabot Corporation

Filed Dec. 11, 1968, Ser. No. 782,869
Int. Cl. C22c 19/00
U.S. Cl. 148—32.5 5 Claims



Cobalt base alloy containing a minor proportion of beryllium characterized by being substantially face centered cubic in structure and having increased strength and hardness.

3,598,662
METHOD OF MANUFACTURING ANISOTROPIC PERMANENT MAGNETS

Krijn Jacobus de Vos and Pieter Aart Naastepad, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed May 13, 1968, Ser. No. 728,751
Claims priority, application Netherlands, June 9, 1967, 6708112

U.S. Cl. 148—103 1 Claim

A method of manufacturing an anisotropic permanent magnet wherein a ferrous alloy consisting of 28 to 45% of Co, 10 to 20% of Ni, 7 to 9% of Al, 7 to 10% of Ti, up to 6% of Cu, and the remainder principally iron is quenched only from a temperature between 900° and 1000° C. to below its Curie point and held at a temperature of 10° to 70° C. below the Curie point in a magnetic field.

3,598,663
ALUMINUM ALLOY HEAT-TREATING

Herbert Greenewald, Jr., Columbus, Ohio, assignor to North American Rockwell Corporation

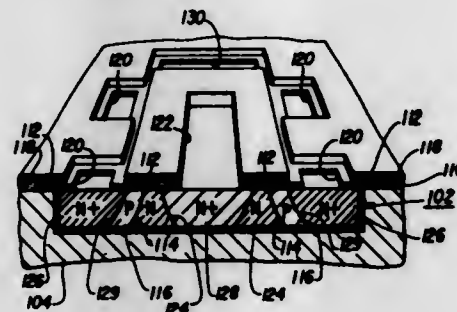
No Drawing. Original application Mar. 13, 1968, Ser. No. 712,674, now Patent No. 3,515,546, dated June 2, 1970. Divided and this application Mar. 25, 1968, Ser. No. 715,527

U.S. Cl. 148—159 4 Claims

A method for heat-treating aluminum alloys wherein the completely solidified material is solution and homogenization heat-treated in a vacuum environment at a temperature in the range extending from the alloy solidus temperature to the alloy solid solubility limit temperature a sufficient time to develop improved physical and metallurgical properties upon subsequent cooling and aging.

3,598,664
HIGH FREQUENCY TRANSISTOR AND PROCESS FOR FABRICATING SAME

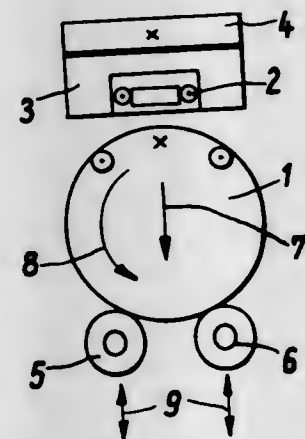
Jack S. Kilby, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
 Original application Dec. 29, 1964, Ser. No. 421,880, now Patent No. 3,411,051, dated Nov. 12, 1968. Divided and this application Dec. 6, 1967, Ser. No. 705,254
 Int. Cl. H011 7/36, 5/00, 13/00
 U.S. Cl. 148—175 7 Claims



An integrated circuit is provided wherein a transistor structure is comprised of a single crystal of semiconductor material embedded in a substrate and having an exposed surface substantially coplanar with a substrate surface. The crystal is electrically isolated from the substrate by a layer of insulating oxide disposed between the crystal and the substrate. The crystal is divided into a collector region, a base region and an emitter region which are disposed generally in edge-to-edge relationship. An insulating film is disposed over the surface of the substrate and the surface of the crystal, and metallic terminals extend through apertures in the insulating film into contact with each of the active regions.

3,598,665
METHOD OF HOT STRAIGHTENING ELONGATED METAL WORKPIECES

Gerhard Seulen and Friedhelm Reinke, Remscheid, Germany, assignors to AEG-Eltherm G.m.b.H., Remscheid-Hasten, Germany
 Filed Oct. 20, 1967, Ser. No. 676,753
 Claims priority, application Germany, Nov. 16, 1966, A 54,099
 Int. Cl. C21d 1/78
 U.S. Cl. 148—131 13 Claims



A method of straightening bent metal workpieces by non-mechanical means, namely by the use of magnetic flux generated by inductive heating moving the heated workpiece against stop members whereby straightening is achieved.

3,598,666
FORMATION OF JUNCTIONS IN SILICON CARBIDE BY SELECTIVE DIFFUSION OF DOPANTS

Arrigo Addamiano, Willoughby, Ohio, assignor to General Electric Company
 Filed May 27, 1968, Ser. No. 732,442
 Int. Cl. H011 7/62 3 Claims

U.S. Cl. 148—187
 In subjecting n-type SiC to diffusion of boron and aluminum at high temperatures in order to create a p-type region, diffusion has been found not to take place where crystals overlap. By covering a silicon carbide crystal or platelet with pieces of silicon carbide crystals where diffusion is to be prevented and exposing the remainder, desired patterns or symbols can be created in the platelet which will light up when suitably contacted. Surface junctions may also be created in this way which will provide lines of light along the edges of the different regions.

3,598,667
LOW TEMPERATURE SENSITIVE ALUMINUM-ENRICHED POLYURETHANE PROPELLANT CONTAINING CALCIUM CARBONATE

Fred H. Brock, Covina, Calif., assignor to the United States of America as represented by the Secretary of the Navy
 No Drawing. Filed Oct. 22, 1965, Ser. No. 502,688
 Int. Cl. C06d 5/06 3 Claims

U.S. Cl. 149—19
 An aluminum-enriched polyurethane propellant with low temperature sensitivity obtained by adding a small amount of calcium carbonate to the formulation.

3,598,668
STAPLE-CONTAINING SOLID PROPELLANT GRAIN AND METHOD OF PREPARATION

David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
 No Drawing. Filed Nov. 30, 1965, Ser. No. 511,027
 Int. Cl. C06d 5/06 6 Claims

U.S. Cl. 149—19
 Solid propellant grains containing aligned metal staples and a method of preparing the same. In the method of this invention, a solid propellant grain containing metal staples oriented perpendicular to the burning surface is prepared by intimately mixing metal staples with the remaining propellant ingredients to form a castable, doughlike mixture, casting the mixture into a mold, applying a magnetic field to orient the fragments perpendicular to the burning surface and curing the oriented mixture. By using composite staples containing both a propellant fuel metal and a ferromagnetic metal, the staples of this invention can be aligned without undue sacrifice of favorable fuel properties.

3,598,669
METHOD OF RAPIDLY ETCHING SILICON NITRIDE IN MANUFACTURE OF SEMICONDUCTOR DEVICES

Elsie Kool, Emmasingel, Endhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
 No Drawing. Filed Sept. 14, 1967, Ser. No. 667,639
 Claims priority, application Netherlands, Sept. 15, 1966, 6613011
 Int. Cl. C23c 11/08; H011 7/00 3 Claims

U.S. Cl. 156—17
 A method of manufacturing a semiconductor device is described in which selected portions of a silicon nitride layer are rapidly etched off by first heating in an oxygen-

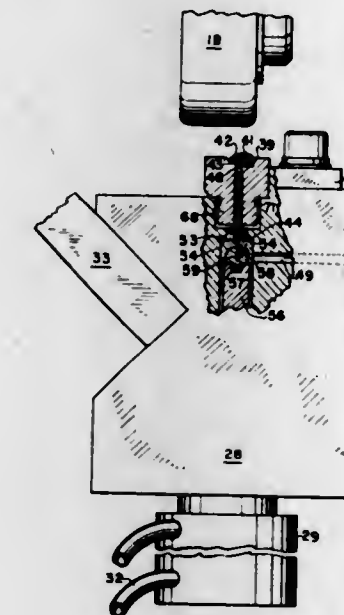
containing atmosphere in the presence of lead oxide to convert to a mixed lead-silicon-oxide and then etched with hydrofluoric acid.

active components thereon will intermix and react to form an adherent foam of preselected density and thickness therebetween.

3,598,670
APPARATUS FOR APPLYING ADHESIVE TO SPIRALLY TAPED WIRE INSULATION

Carroll G. Haugen and James R. Greening, Sycamore, Ill., John J. Hill, Harrisonville, Mo., and Charles H. Davis, Shrewsbury, N.J., assignors to Anaconda Wire and Cable Company
 Filed June 25, 1968, Ser. No. 739,757
 Int. Cl. H01b 13/10 8 Claims

U.S. Cl. 156—54

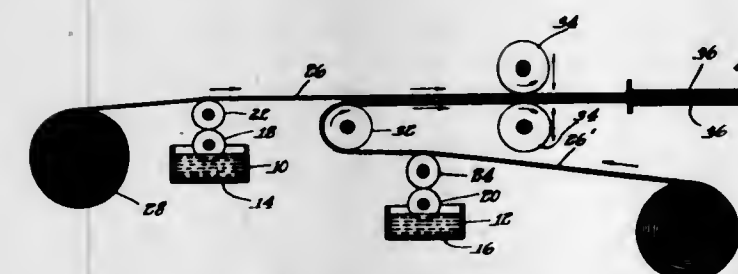


In wire that is insulated by means of a spirally applied longitudinal tape the edge of the tape is sealed by applying adhesive through a bore that opens against the inside of the open flap of the tape.

3,598,671
METHOD OF PREPARING FOAM PLASTIC LAMINATED STRUCTURES

Harold Wortman, 5936 Monroe, Morton Grove, Ill. 60053
 Filed July 24, 1968, Ser. No. 747,175
 Int. Cl. B29c 27/08 6 Claims

U.S. Cl. 156—73

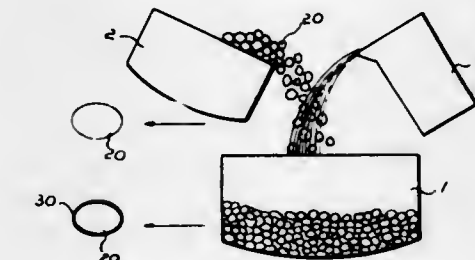


A method of preparing foam plastic laminated structures wherein the reactive components necessary to form a plastic foam are separately applied to opposed surfaces of a base material whereby, when the said surfaces are brought into proximity to one another, the different re-

3,598,672
METHOD OF PRODUCING SHAPED BODIES OF LOW SPECIFIC GRAVITY

Rudolf Heller, Zurich, Switzerland, assignor to Contraves AG, Zurich, Switzerland
 Continuation-in-part of application Ser. No. 623,882, Mar. 17, 1967. This application Aug. 13, 1968, Ser. No. 752,369
 Claims priority, application Switzerland, Mar. 23, 1966, 4,201/66; July 1, 1966, 9,601/66; July 5, 1966, 9,763/66; July 12, 1966, 10,117/66; Oct. 20, 1966, 15,226/66; Aug. 16, 1967, 11,520/67
 Int. Cl. B32b 5/18, 31/14 11 Claims

U.S. Cl. 156—77

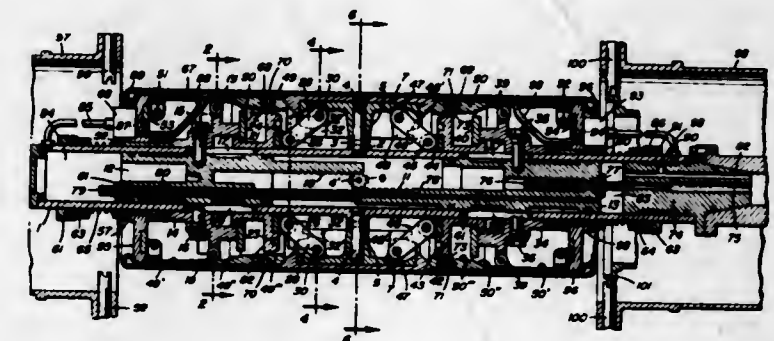


Bodies of low specific gravity produced by coating a mass of roundish hollow granules, such as expanded or swelled polystyrene granules, with a hardenable liquid binder material, mixing the mass of thus coated granules with a pulverulent solid and/or a fibrous material so as to adhere particles of the solid and/or fibrous material to the coating, and hardening the hardenable binder coating, and shaped cellular structures formed by compressing the mass of hardenable binder coated hollow granules having pulverulent and/or fibrous material adhering to the coating during or prior to the hardening of the hardenable liquid binder material.

3,598,673
METHOD FOR BUILDING UP PNEUMATIC TIRES

Renato Caretta, Gallarate, Italy, assignor to Pirelli S.p.A., Milan, Italy
 Filed Dec. 26, 1967, Ser. No. 693,570
 Claims priority, application Italy, Dec. 30, 1966, 31,734/66
 Int. Cl. B29h 17/22 12 Claims

U.S. Cl. 156—132



A method for building up pneumatic tires in which the carcass plies are placed over a cylindrical central surface with side portions of the plies extending over cylindrical lateral surfaces to either end of the central sur-

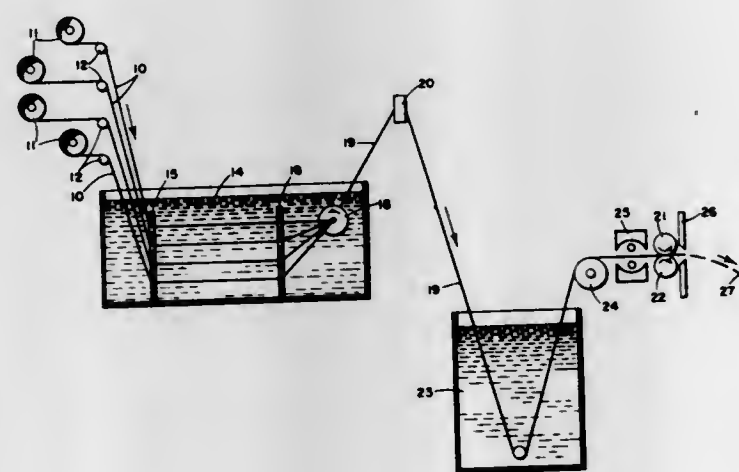
face. The bead cores are positioned over the side portions of the plies on the lateral surfaces and the central and lateral surfaces are expanded to their final position, and the latter also moved axially towards each other, for turning up the side portions of the plies and for positioning the tread band onto the carcass.

3,598,674 PROCESS FOR FORMING POROUS NYLON FIBER RODS

John P. Knudsen, Raleigh, William C. Mallonee, Chapel Hill, and Robert E. Martin, Wilson, N.C., assignors to Monsanto Company, St. Louis, Mo.
Filed Dec. 19, 1968, Ser. No. 785,313
Int. Cl. B29c 17/08

U.S. Cl. 156—148

7 Claims



A process for producing porous nylon fiber rods adaptable for use as a wick in fiber point pens includes the formation of a strand of twisted nylon fibers and the autogenous bonding of adjacent nylon fibers along selected contiguous surfaces to produce a series of interconnecting liquid conducting passageways whereby the resulting fiber rod has a density of from 1.00 to about 0.60 gm./cm.³.

3,598,675 METHOD FOR SECURING STRIP MEMBERS TO CONTAINER BODIES

Karl Bofinger, Cincinnati, Ohio, and Walter Thomas Hake, Wyckoff, N.J., assignors to American Can Company, New York, N.Y.

Filed Nov. 21, 1966, Ser. No. 595,809
Int. Cl. B65h 81/00

U.S. Cl. 156—172

13 Claims

A method and apparatus for adhesively securing a seam release strip to marginal end portion of a tubular container wherein the strip moves along a circular path of revolution and simultaneously with the movement of the strip, the container, rotating about its own axis, moves in a circular path of revolution tangential to the strip's path and axially aligned therewith so that a lateral edge of the strip is in substantial alignment with the marginal end portion of the container. An adhesive is applied to either the strip or the container in order that one will adhere to the other upon contact. The leading portion of the strip contacts the marginal end portion of the rotating container and adheres thereto. The container movement and rotation subsequent to the contacting causes the strip to leave its path of revolution and the remaining portion of the strip to adhere around the marginal end portion of the container. The length of the strip exceeds the circumference of the container causing a trailing portion of the strip to overlap the

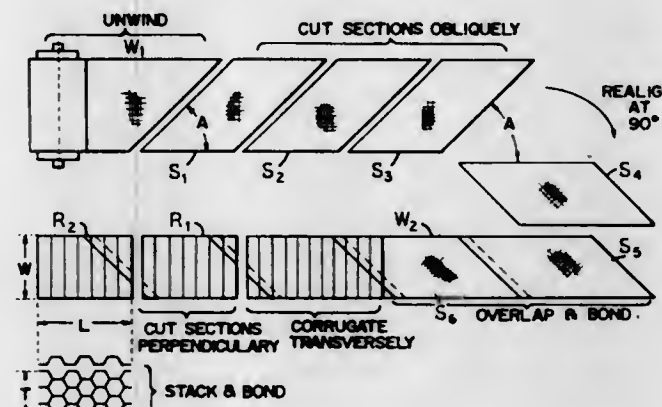
leading portion upon adherence of the strip to the marginal end portion of the container. The strip is then pressed against the container causing more intimate contact therewith.

3,598,676 METHOD OF MAKING A BIAS WEAVE HONEYCOMB CORE STRUCTURE

Robert G. Noble, Castro Valley, Calif., assignor to Hexcel Corporation, Dublin, Calif.
Filed July 25, 1968, Ser. No. 748,117
Int. Cl. B31f 1/22

U.S. Cl. 156—205

8 Claims



A honeycomb core structure made of fabric reinforced material in which the warp and the woof of the fabric are disposed at an oblique angle to the longitudinal axes of the honeycomb cells. The core is manufactured by forming non-rectangular parallelogram shaped sections of fabric reinforced material with the warp and the woof of the fabric being disposed at an oblique angle to two sides of the parallelogram, joining the other two sides of adjacent parallelograms together in serial relationship to form a web in which the warp and woof of the fabric are disposed at an oblique angle to the lateral edges of the web, cutting the web at right angles to its lateral edge to form equal rectangular sections, superimposing a plurality of rectangular sections one upon another in a stack, and overlapping and adhering contiguous edges of the rectangular sections to one another along spaced parallel bonding lines with the bonding lines of adjacent superimposed sections being staggered relative to one another to define a plurality of adjacent cells whose longitudinal axes are parallel to each other and perpendicular to two sides of the superimposed rectangular sections.

3,598,677 METHOD OF SECURING STACKED PACKAGES AGAINST SLIPPING

Eduard Bergmeister, Hubert Wiest, Joseph Heckmaier, and Heinz Winkler, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany

No Drawing. Original application Dec. 5, 1966, Ser. No. 598,897. Divided and this application Feb. 24, 1969, Ser. No. 801,814

Claims priority, application Germany, Dec. 24, 1965, W 40,595

Int. Cl. B32b 31/00

U.S. Cl. 156—276

7 Claims

Method of securing objects such as stacked packages of paper, cardboard and the like against slipping, in which adjacent contacting portions of such packages are united by an adhesive comprising an aqueous dispersion of a polymerizable olefinic unsaturated compound which forms a film at a temperature of not more than +10° C., in a homogeneous mixture with a substance selected from the group consisting of inorganic and organic pigments.

3,598,678 METHOD AND APPARATUS FOR PREPARATION OF GRAPHIC MATERIALS FOR PRINTING OR DISPLAY

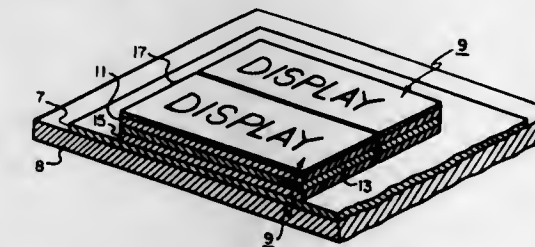
Richard L. Rex, West Lothian, Scotland, assignor to Simpson Taylor and Company Ltd., Edinburgh, Scotland

Filed Nov. 25, 1968, Ser. No. 778,543
Claims priority, application Great Britain, May 30, 1968, 26,005/68

Int. Cl. B41f 27/00

U.S. Cl. 156—299

4 Claims



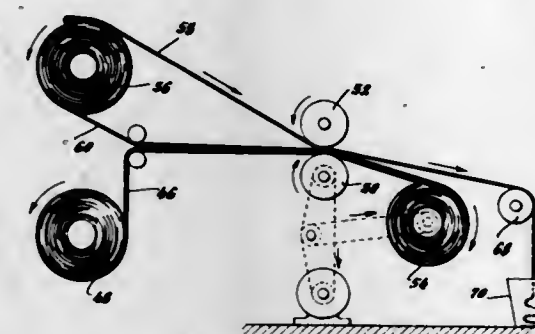
Multilayer layup sheets provide the method and means for temporarily fixing graphic material disposed on the layup sheets in position on a laymark substrate for convenient layout of the graphic materials, and then provide desired permanent fixation of the layup sheets to the laymark substrate upon activation by heat, pressure, or the like, of an adhesive disposed on such layup sheets.

3,598,679 METHOD OF MAKING A PRESSURE- TRANSFERRABLE TAPE

Kitty S. Ettre, Norwalk, and George R. Castles, Stamford, Conn., assignors to Vitta Corporation
Filed Mar. 4, 1968, Ser. No. 710,167
Int. Cl. C09j 7/00

U.S. Cl. 156—306

9 Claims



A flexible transferrable filmlike casting. Individual thin films are cast onto the flexible supporting substrate by doctor-blading a heavily loaded slurry of a solid inorganic powder mixed with a plasticized binder. The exposed surface of the resulting slurry casting is dried, while the surface contacting the substrate remains tacky and can be used as an adhesive. One casting may be stripped from its substrate and the tacky surface applied to the exposed dry surface of another casting. The superimposed castings are then bonded together solely by pressure.

3,598,680

TANDEM AIR FORMER

Charles A. Lee, Knoxville, Tenn., assignor to International Paper Company, New York, N.Y.

Filed Apr. 18, 1968, Ser. No. 722,369

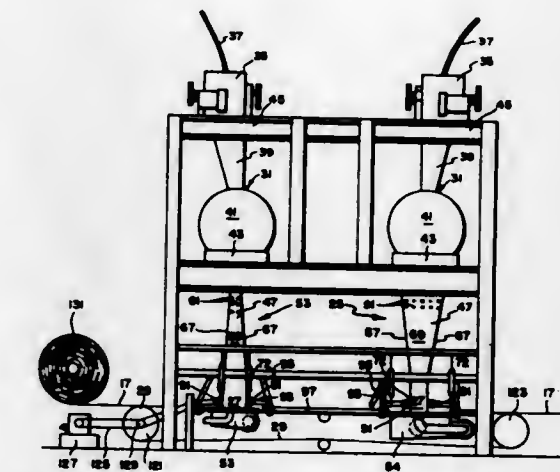
Int. Cl. B29j 5/08; B32b 17/04; D21f 11/04

U.S. Cl. 156—377

8 Claims

A fibrous web of non-uniform, cross-sectional thickness is formed in a continuous manner by air laying fibrous material at a first station and then air laying additional fibrous material at a second station downstream

from the first to overlap at least partially the fibrous material deposited at the first station. To provide and maintain a precise configuration for the thicker portion of the web, a pressure differential is maintained across the



3,598,681 APPARATUS FOR PROVIDING CARTON BLANKS WITH A COATING OF PLASTIC MATERIAL

Torsten Jeppsson, Kjell Ingvar Holmström, and Rolf Magnus Dilot, Lund, Sweden, assignors to AB Akerlund & Rausing, Lund, Sweden

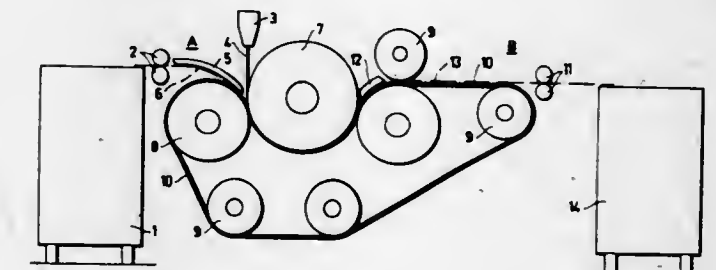
Original application Mar. 20, 1967, Ser. No. 624,561, now Patent No. 3,518,144, dated June 30, 1970. Divided and this application Jan. 15, 1970, Ser. No. 3,053

Claims priority, application Sweden, Mar. 25, 1966, 3,957/66

Int. Cl. B32b 31/18

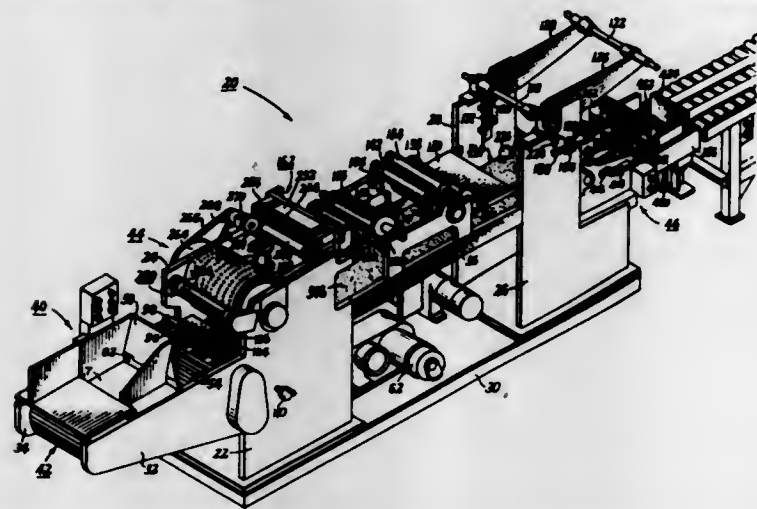
U.S. Cl. 156—501

2 Claims



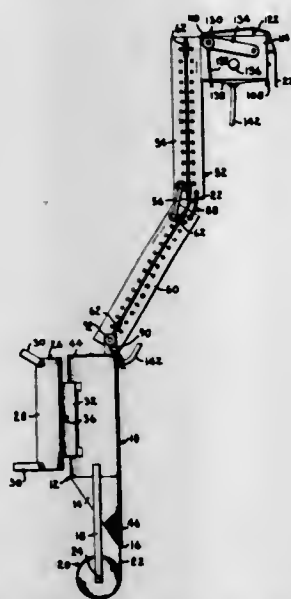
Apparatus for providing carton blanks with a coating of a transparent plastic material and wherein printed matter on a surface of the carton blanks is viewable beneath the plastic coating. The blanks are fed longitudinally in succession and with a slight gap between the edges of successive blanks to a station where the transparent plastic material is extruded as a web and applied in web form by a press roll to the printed surface of the line of blanks, the plastic web bridging the gaps between successive blanks. The continuous composite material which now consists of the web of plastic material united to the line of carton blanks is cooled by a cooling roll and then passed between stretch rolls running at a surface speed in excess of the linear speed of the composite material which serve to accelerate the composite material and hence effect stretching and breaking of the plastic web in the gaps between successive blanks, thus separating the plastic coated blanks from each other.

3,598,682
METHOD AND APPARATUS FOR MAKING TILE PRODUCTS
 Frank L. Califano, Hackensack, and Paul N. Shutak, Madison, N.J., assignors to The Flintkote Company, White Plains, N.Y.
 Filed Jan. 27, 1969, Ser. No. 794,286
 Int. Cl. B32b 31/18
 U.S. Cl. 156—521



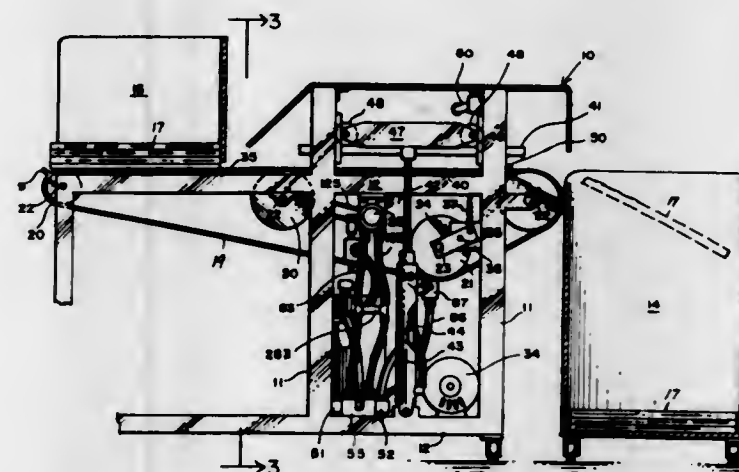
Tile products from a vertically aligned stack are moved by a continuously moving product conveyor into an adhesive coating and paper covering apparatus. There, adhesive is first applied in a controlled pattern to a portion of paper from a continuous roll and the adhesive-coated paper is then cut to size and applied to the tile. The final product comprises a tile upon which has been deposited and bonded an adhesive coating in a predetermined controlled pattern and covered with a protective sheet of paper which then can be peeled away when the tile is installed.

3,598,683
APPARATUS FOR INSTALLING TAPE
 Joe E. Butler and John E. Butler, both of 3004 S. 42nd St., St. Joseph, Mo. 64505
 Filed June 30, 1969, Ser. No. 837,615
 Int. Cl. B32b 31/18; B44c 7/02
 U.S. Cl. 156—527



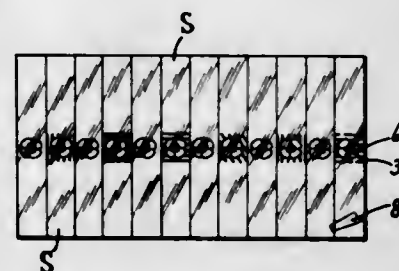
A machine for applying tape to dry wall construction comprising a plaster container supported from a harness worn by a workman. An endless tape is drawn by a plurality of cogged rollers in a tubular, jointed arm through the plaster and delivered to a rotatable, flexible vane trowel operated by an electric motor. The trowel smooths the tape onto the wall and excess plaster may gravitate through a conduit into the container. A spring return cutting member operated from a draw string is provided for cutting the tape.

3,598,684
AUTOMATIC FUSING PRESS FOR FABRICS
 Richard Militana, 7500 Miami View Drive, North Bay Island, Miami Beach, Fla. 33141, and Robert R. Spinelli, 1350 NE. 143rd St., North Miami, Fla. 33161
 Filed Jan. 20, 1970, Ser. No. 4,214
 Int. Cl. B30b 15/02; B65h 5/02, 7/04
 U.S. Cl. 156—573



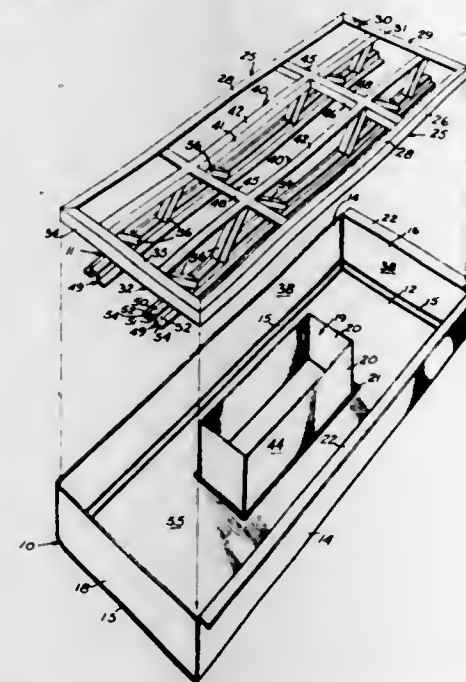
A fusing press for fabrics having a feeder bin at one end and a collection bin at the other end with an endless belt and pulley system for carrying trays having fabrics to be processed thereon from the feeder bins through the apparatus for processing and into the collection bin. Positioned between the feeder bin and collection bin is a hydraulically operated press with heating elements contained therein for subjecting the fabrics in the trays to desired temperatures and pressures with timer means controlling the various operations as long as trays are positioned on the feeder bin.

3,598,685
MEANS FOR ORNAMENTING FINGERNAILS AND TOENAILS
 Thomas Lee and Teresa Lee, both of P.O. Box 206, Canal St. Station, New York, N.Y. 10013
 Filed Jan. 19, 1968, Ser. No. 699,128
 Int. Cl. A45d 29/00; B32b 7/06; B44c 1/16
 U.S. Cl. 161—6



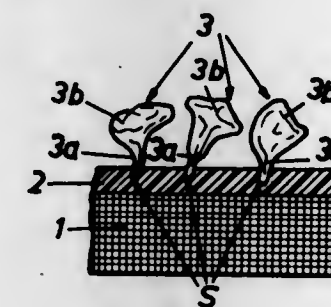
Fingernails and toenails can be ornamented in precise position with tiny floral or other designs to match dress color, make-up or nail lacquer. A heavy vinyl covered board with differently colored rectangles is provided with a plurality of side by side bands each of which has a central portion with a decalcomania transfer pattern, flank portions coated with adhesive and blank terminal portions, which can be omitted in modifications, for handling and manipulating purposes. An applicator is a part of the invention and has crisscross teeth arranged in staggered rows and longitudinally arcuate with a depending tongue projecting at one end for supporting and rubbing action. The strips may optionally be made up as a roll with transverse perforations for severing individual strips, the decalcomania of each of which is protected as by a piece of vinyl plastic or glossy paper.

3,598,686
WALL PANEL FOR BUILDING STRUCTURE COMPRISING A FIBREGLASS OUTER SHELL AND A FRAME ASSEMBLY POSITIONED WITHIN THE SHELL
 John E. Clark, 572 Collier Road NW., Atlanta, Ga. 30318
 Filed Feb. 19, 1969, Ser. No. 800,431
 Int. Cl. B32b 1/04, 3/12
 U.S. Cl. 161—41



A wall panel and method of making same having a desired shape fiberglass base member and a plurality of metallic support members affixed thereto for welding the wall panel to a building structure. The metallic support members are of a hat or angle shape and are fiberglassed to the base member. An adhesive tape is placed between the support members and the base member to insulate the base member from changes in the weather conditions and from heat being applied to the support member. The exterior of the fiberglass base member is sandblasted and coated with an epoxy compound for providing any desired appearance.

3,598,687
LEATHER-LIKE FABRIC
 Adjiman Elle, Place de la Mairie, 95 Belloy, France
 Filed Dec. 14, 1967, Ser. No. 690,570
 Claims priority, application France, Dec. 22, 1966, 88,417
 Int. Cl. D03d 27/00; D04h 11/00; D06n 3/00
 U.S. Cl. 161—64

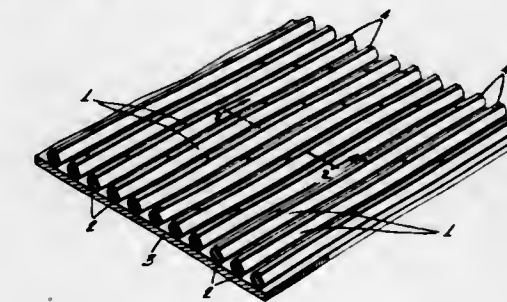


A leather like material having a support with moisture absorption properties at least equal to those of natural leather. The support is coated with an adhesive, which is in turn coated with leather particles each having thin end portions. The leather particles are fixed to the adhesive by means of the thin end portions. The material is made by electrostatically flocking the leather particles onto the adhesive coated base.

3,598,688
VENTED ROOF SYSTEMS EMPLOYING MICROPOROUS MEMBRANES
 Robert G. Bellamy, St. Davids, Pa., assignor to Selby, Battersby & Co., Philadelphia, Pa.
 Filed Aug. 26, 1968, Ser. No. 755,199
 Int. Cl. D06n 5/00

U.S. Cl. 161—92
 Traffic bearing and nontraffic bearing roof systems comprising a substantially vapor impermeable structural substrate and a waterproof, substantially vapor impermeable protective top layer vented with a microporous membrane to relieve vapor pressure from within the system thereby preventing blistering, cracking and eventual destruction of the weatherproof protective top layer.

3,598,689
GARMENT INTERLINING
 Philip C. Feffer, Philadelphia, Pa., and William G. Wolfgang, Cherry Hill, N.J., assignors to Philadelphia College of Textiles and Science, Philadelphia, Pa.
 Filed Dec. 16, 1968, Ser. No. 784,058
 Int. Cl. A41d 27/06; B32b 3/16
 U.S. Cl. 161—143



Interlining material for garments comprising a plurality of yarns adhesively secured in closely spaced parallel relation to a peelable backing sheet. An adhesive is also provided on the outer surface of the yarns opposite the backing sheet for permanently bonding the interlining yarns to a surface of the cloth of a garment or other article of the cloth of a garment or other article, the backing sheet being peeled from the yarns after yarns have been bonded in place in a garment. A method for making the interlining material and a garment construction embodying the interlining material are also disclosed.

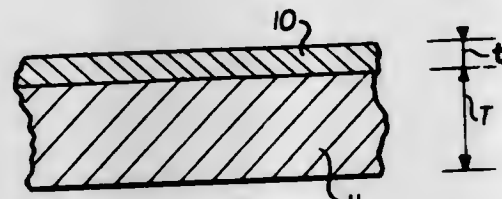
3,598,690
TIRE CORD ADHESIVE
 Arthur C. Danielson, Royal Oak, Mich., assignor to Uniroyal, Inc., New York, N.Y.
 No Drawing. Filed Nov. 21, 1967, Ser. No. 684,645
 Int. Cl. B29h 17/28

U.S. Cl. 161—144
 This invention relates to the method of bonding a vulcanized rubber composition to a textile material and the laminate produced. Particular adhesive enhancing ingredients are added to the rubber before vulcanization to produce a better bond between the vulcanized rubber and the textile material.

3,598,691
MULTI-PLY PAPER FOR INSULATING HIGH TENSION ELECTRIC CABLES
 Franco Pasini, Milan, Italy, assignor to Pirelli Società per Azioni, Milan, Italy
 Filed Mar. 8, 1968, Ser. No. 711,582
 Claims priority, application Italy, Mar. 25, 1967, 14,189/67
 Int. Cl. B32b 7/02

U.S. Cl. 161—166
 Paper tape for insulating high tension cables is produced with a multi-layer construction. A low density core

layer is faced on one or both sides with thin high impermeability layers. The dielectric strength is a function of



the latter while the impregnability and loss factor is a function of the former. Also, an electric cable insulated with such a tape is disclosed.

3,598,692
THREE LAYER, VINYL CHLORIDE POLYMER, ENERGY-ABSORBING STRUCTURE
Ross Gardner, Jr., Stoughton, Mass., assignor to National Research Corporation, Newton Highlands, Mass.
Filed Apr. 13, 1967, Ser. No. 630,609
Int. Cl. B32b 7/02, 7/30; G10k 11/00

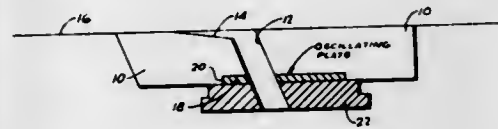
U.S. Cl. 161-166 2 Claims
Energy-absorbing material is provided from a number of layers of different energy-absorbing plastic formulations. Each layer preferably comprises a polymeric material and an inert diluent. A number of the layers have rebound minima at different and relatively narrow temperature ranges. The composite material has a rebound minimum covering a substantially wider temperature range than any individual layer.

3,598,693
MOLDING COMPOSITION
Harry M. Andersen, Ballwin, and John D. Calfee, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
Filed Sept. 5, 1967, Ser. No. 665,536
Int. Cl. B32b 5/16
U.S. Cl. 161-170 13 Claims



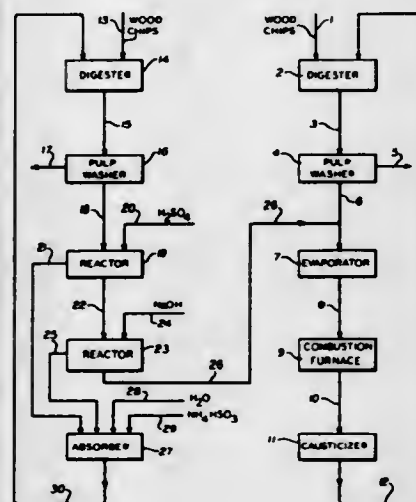
A molding composition comprising grains each containing a plurality of reinforcing fibers in parallel arrangement and embedded in and bonded together by a thermosettable resin which also envelops said plurality of bonded fibers; the method of preparing the composition by contacting an aqueous slurry of the fibers with a liquid, thermosettable resin and a curing agent therefor, advancing the resin to a solid, fusible stage, and recovering said composition from the resulting reaction mixture; the heat-curable extrudate obtained from said composition, and the method of preparing the extrudate.

3,598,694
MECHANICAL PULSATING FORMING BOARD
Philip Wiebe, 22 Albert St., Saint Catharines, Ontario, Canada
Filed Aug. 15, 1969, Ser. No. 850,419
Int. Cl. D21f 1/00
U.S. Cl. 162-351 3 Claims



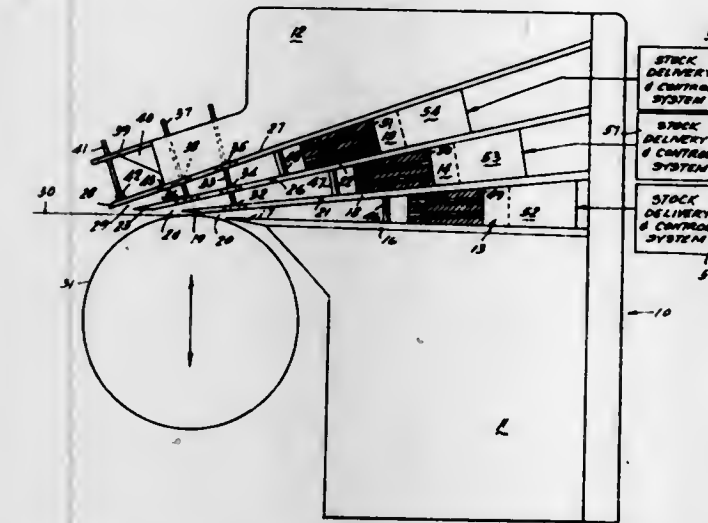
A mechanical pulsating forming board for a Fourdrinier Paper machine which is used to produce turbulence to retard drainage and form a larger area of paper with reduced water consumption and better quality control. The flat elongated board is disposed directly beneath the forming wire, transverse to the wire movement, and includes apertures which extend through the board and which are inclined in the direction of wire movement. An oscillating plate slidably engages a longitudinal recess in the bottom of the board. This plate is provided with apertures which match and align with the inclined apertures in the board. With reciprocal movement of the plate the inclined apertures are alternately opened and closed, thereby pulsating the stock on the forming wire.

3,598,695
PRODUCTION OF WOOD PULP BY AN AMMONIUM SULFITE AND/OR BISULFITE PROCESS COMBINED WITH A SULFATE PROCESS
Hans Waterstradt, Walldorf, Hessen, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
Filed June 26, 1968, Ser. No. 740,194
Claims priority, application Germany, June 26, 1967, M 75,238
Int. Cl. D21c 11/02, 11/04
U.S. Cl. 162-33 7 Claims



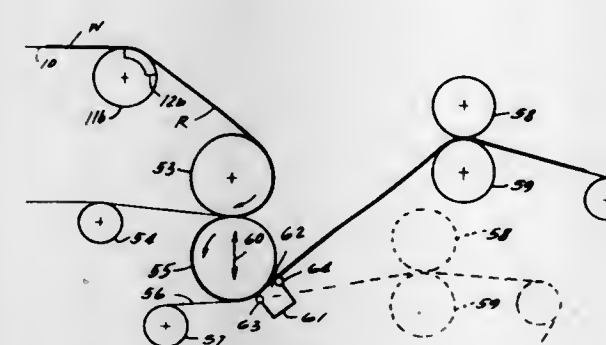
Combined wood pulping processes wherein the conventional ammonium sulfite or bisulfite process is carried out; the conventional sulfate process is carried out; and the spent liquor from the ammonium-based process is treated with sulfuric acid and sodium hydroxide to liberate ammonia, sulfur dioxide and sodium sulfate. The sodium sulfate is used in the liquor recovery portion of the sulfate process, and the ammonia and sulfur dioxide are absorbed in water to produce ammonium sulfite or bisulfite which is used in the ammonium-based pulping process.

3,598,696
MULTIPLE STAGE HYDRAULIC HEADBOX
Ralph A. Beck, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed Feb. 14, 1968, Ser. No. 705,418
Int. Cl. D21f 1/06
U.S. Cl. 162-298 4 Claims



The invention is directed to a headbox for a paper making machine which includes a plurality of stock receiving chambers for delivering discrete stock streams to a continuous moving forming surface. The chambers are formed in a common structure and separated one from the other by wall members. Each of the wall members has ends terminating adjacent the forming surface and the ends of a corresponding pair of wall members constitute the slice opening for the corresponding chamber. Stock is delivered to the forming surface from each of the slice openings in a layer by layer fashion whereby the stock from a second slice opening is laid over the stock from the first slice opening, and the stock from the third slice opening is laid over the stock from the second slice opening.

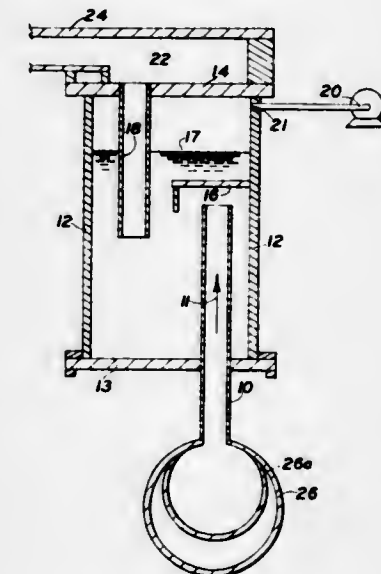
3,598,697
WEB PICK-UP ARRANGEMENT FOR PAPER MAKING MACHINES
Thomas G. McKie and Arnold J. Schmitt, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis.
Filed Mar. 6, 1969, Ser. No. 804,827
Int. Cl. D21f 2/00
U.S. Cl. 162-306 2 Claims



Web pick-up arrangement for Fourdrinier type paper making machine, particularly adapted to pick-up newly formed heavy weight webs from the forming wire and to transfer the webs directly to the press felt without the use of a pick-up felt or fabric. The pick-up includes a pick-up roll, which may be a plain surfaced roll and has nip pressure cooperation with the wire as the wire passes about a return roll onto its return run for cleaning. The press felt is maintained in pressure cooperation with the pick-up roll by a transfer device about which the press

felt turns to its upwardly facing press run. The transfer device includes an idler roll disposed beneath and rearwardly of the pick-up roll and a suction roll or suction box disposed on the underside of the press felt either at the point of nip engagement of the press felt to the pick-up roll or on the outgoing side of the pick-up roll.

3,598,698
FLOW SPREADING DEVICE
Denis A. Goddard, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed Oct. 14, 1968, Ser. No. 767,449
Int. Cl. D21f 1/02
U.S. Cl. 162-340 5 Claims



A device for transferring stock comprising inlet means adapted to receive stock from a source, tank means adapted to receive stock from said inlet means, said inlet means being attached to said tank and positioned partially interiorly of said tank, wall means forming a part of said tank means and positioned perpendicular to the direction of flow of stock from said inlet means to form stock direction changing means, outlet means adapted to remove stock from said tank, outlet means being attached to said tank and positioned partially interiorly of said tank and pressure means attached to said tank and adapted to create a pressure in said tank greater than the pressure downstream from said outlet to form means for moving stock through said outlet means. Said outlet means comprising a plurality of uniformly spaced uniformly sized tubes extending from within said tank to a point exterior of said tank. In addition the inlet means is preferably a plurality of tubes extending into the tank. In yet another embodiment, the inlet means further includes a header in communication with the inlet tubes at a point exterior of said tank and adapted to pass stock in a direction perpendicular to the tubes and drain the tank. Preferably, the header is tapered such that the cross-sectional area of the header decreases in the direction of stock flow in said header means.

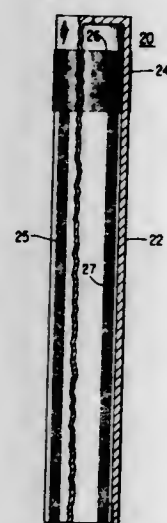
3,598,699
NUCLEAR REACTOR OFF-GAS BURNER SYSTEM
William A. Hartman, Jr., and Manny Siegler, San Jose, Calif., assignors to General Electric Company
Filed Apr. 9, 1969, Ser. No. 814,769
Int. Cl. C21f 9/02
U.S. Cl. 176-37 4 Claims

A system for burning flammable gas in the off-gas from a nuclear reactor power plant is disclosed. The system includes three porous plugs in series in the off-gas line. The first plug serves as an upstream flame arrestor in case of burner failure. The second porous plug serves as a

dielectric materials can be removed from small chemically etched holes which are to ultimately be locations for electrical contacts to semiconductor devices.

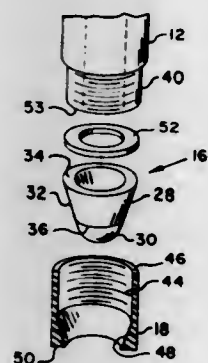
structures having different glass compositions may be mounted to the tube for making different ion concentration measurements.

3,598,711
ELECTROCHEMICAL OXYGEN ANALYZER
Louis R. Flais, Alliance, Ohio, assignor to
Bailey Meter Company
Filed Nov. 15, 1967, Ser. No. 683,315
Int. Cl. G01n 27/46
U.S. Cl. 204—195



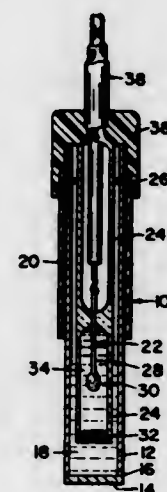
An electrochemical cell having a zirconium-oxide tubular electrolyte with a porous platinum electrode bonded to the inner surface of the electrolyte tube and a similar platinum electrode bonded to the outer surface of the electrolyte tube. A platinum lead extending from each electrode transmits the cell EMF generated when the inner and outer surfaces of the electrolyte are in contact with gases having unequal concentrations of oxygen.

3,598,712
ION MEASURING ELECTRODE
Arne J. Petersen, Balboa, Calif., assignor to
Beckman Instruments, Inc.
Filed Nov. 4, 1968, Ser. No. 773,203
Int. Cl. G01n 37/46
U.S. Cl. 204—195



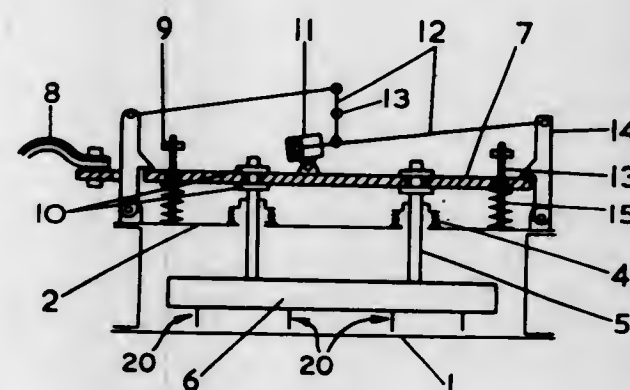
An ion measuring electrode in which means is provided for replaceably mounting an ion sensitive glass bulb structure on the end of a plastic salt bridge tube of the electrode so that a selected one of a variety of such

3,598,713
POTASSIUM ION SENSITIVE ELECTRODE
George Baum, Corning, and Warren M. Wise, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed June 3, 1969, Ser. No. 830,040
Int. Cl. G01n 27/46
U.S. Cl. 204—195



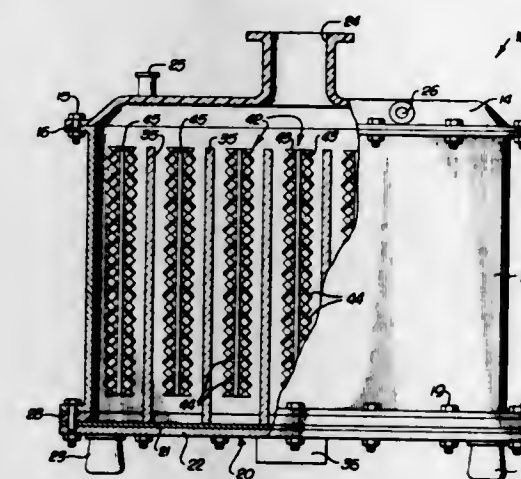
An electrode for measuring the concentration of potassium ions in an aqueous solution wherein the sensing portion is a liquid organic phase containing a potassium substituted tetraphenylborate dissolved in a suitable organic solvent.

3,598,714
APPARATUS FOR PROTECTING THE ANODES OF AN ELECTROLYTIC CELL AGAINST SHORT CIRCUITING
Robert Schoberle, Roermond, Netherlands, assignor to
Solvay et Cie, Brussels, Belgium
Filed Oct. 23, 1968, Ser. No. 770,045
Claims priority, application Belgium, Oct. 31, 1967, 50,297, Patent 705,921; Nov. 23, 1967, 51,167, Patent 706,879
Int. Cl. C22d 1/04; B01k 3/00
U.S. Cl. 204—219



The anodes of a mercury cell are protected from short-circuiting by quickly raising the anodes from the mercury cathode under the impulse of a short-circuiting detector comprising conducting probes projecting from the anodes and which come into contact with the mercury before the anodes themselves.

3,598,715
ELECTROLYTIC CELL
Duane N. Goens, Fullerton, and Thomas W. Clapper, Whittier, Calif., assignors to American Potash & Chemical Corporation, Los Angeles, Calif.
Filed Feb. 28, 1968, Ser. No. 708,819
Int. Cl. C22d 1/02
U.S. Cl. 204—278



An electrolytic cell comprising a tank having a closed top and an open bottom. An anode closure plate extends over the bottom of the tank to form the bottom wall of the cell. A plurality of vertically positioned anodes are secured to the closure plate and are spaced to receive a cathode member between adjacent pairs of anodes. The electrodes are mounted in the cell in a manner such that they are completely submerged in electrolyte in the cell.

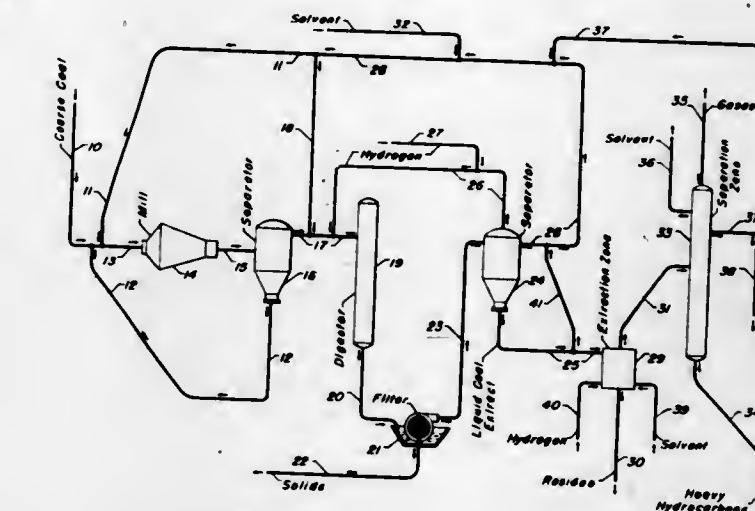
3,598,716
ASPHALT OXIDATION
Eugene M. Fauber, Hammond, Ind., assignor to Atlantic Richfield Company, New York, N.Y.
No Drawing. Filed Apr. 20, 1970, Ser. No. 30,214
Int. Cl. C10g 1/00
U.S. Cl. 208—6

A method of manufacturing oxidized, coating grade asphalts wherein asphalt charge stocks, suitable as such for use as roofing felt saturants and directly oxidizable to shingle saturants but not, without blending, directly oxidizable to shingle coating asphalts, are converted into charges also directly oxidizable to shingle coating asphalts. The method comprises heating at about 700 to 775° F. an asphalt residuum having negative Oliensis, a flash point above 500° F. and a softening point of 105° F. to 115° F., for a time sufficient to give at least 3 weight percent conversion to 950° F. minus boiling range hydrocarbons but without producing an asphalt having a positive Oliensis, and oxidizing resulting asphalt stock into a coating asphalt having a softening point of 220° F. to 230° F. and a penetration at 77° F. in the range of 16 to 24.

3,598,717
METHOD FOR LIQUEFYING COAL
George R. Sunagel, Lincolnwood, Richard S. Corey, Rolling Meadows, Frederick J. Riedl, Arlington Heights, and William K. T. Gleim, Island Lake, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed June 25, 1968, Ser. No. 739,838
Int. Cl. C10g 1/00
U.S. Cl. 208—8

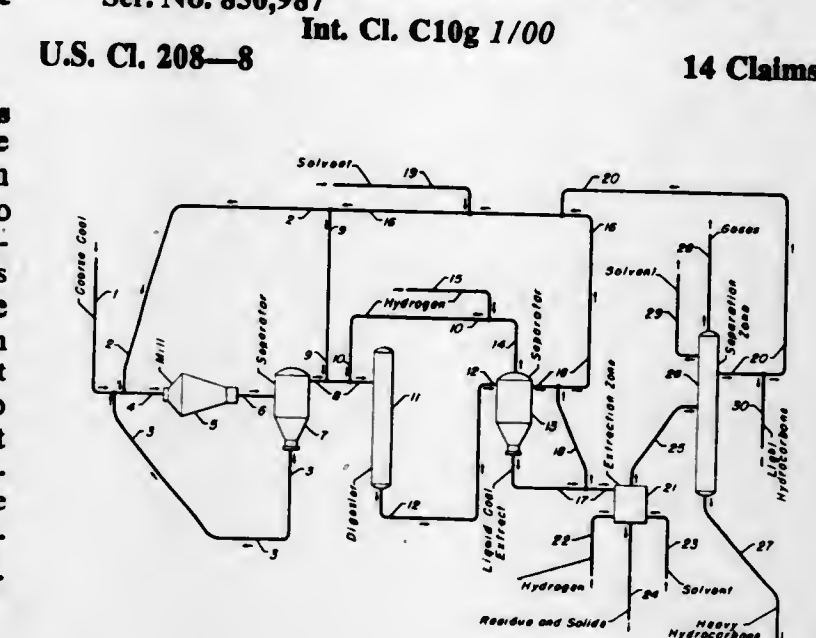
A two-stage solvent extraction method for converting solid coal into liquid coal extract. The first stage uses the

conventional solvents, such as polyaromatic hydrocarbons, alkynaphthalenes, anthracene oil, or partially hydrogenated aromatics as for instance, Tetralin. The liquefied coal stripped of the solvent is then extracted with a ketone to produce a hydrogen-rich extract fraction and a hydrogen-



lean extract phase. The hydrogen-rich fraction is recovered and used as a source for valuable chemicals and liquid fuels. The hydrogen-lean fraction may be used for plant fuel and/or as a source for additional hydrogen through conversion by the "water-gas" reaction.

3,598,718
SOLVENT EXTRACTION OF COAL
William K. T. Gleim, Island Lake, Richard S. Corey, Rolling Meadows, Frederick J. Riedl, Arlington Heights, and George R. Sunagel, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 739,838, June 25, 1968. This application Aug. 18, 1969, Ser. No. 850,987
Int. Cl. C10g 1/00
U.S. Cl. 208—8



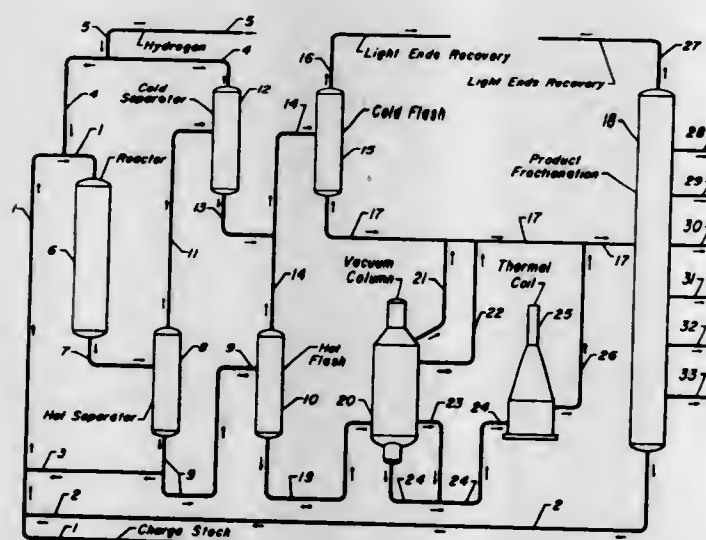
Coal is converted to liquid products utilizing a two-stage solvent extraction process wherein the liquid coal products are separated from unreacted coal and ash without requiring filtration. The coal is first contacted with conventional coal solvents, such as tetrahydronaphthalene under hydrogen pressure; the solvent is removed via fractionation; and hydrogen-rich coal components produced are recovered free of particulate matter by solvent extraction with a light aromatic or ketone solvent.

3,598,719
HYDROTREATING CATALYST AND PROCESS
 Robert J. White, Pinole, Calif., assignor to Chevron Research Company, San Francisco, Calif.
 Filed Aug. 5, 1969, Ser. No. 847,540
 Int. Cl. C10g 13/02

U.S. Cl. 208—59 **9 Claims**
 A catalyst comprising a crystalline zeolitic molecular sieve component substantially free of any catalytic metal or metals, an alumina-containing gel component, a Group VI hydrogenating component and Group VIII hydrogenating component, and processes using said catalyst.

3,598,720
DESULFURIZATION AND CONVERSION OF HYDROCARBONACEOUS BLACK OILS WITH MAXIMUM PRODUCTION OF DISTILLABLE HYDROCARBONS
 Frank Stolfa, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed Dec. 12, 1968, Ser. No. 783,181
 Int. Cl. C10g 23/00

U.S. Cl. 208—89 **5 Claims**



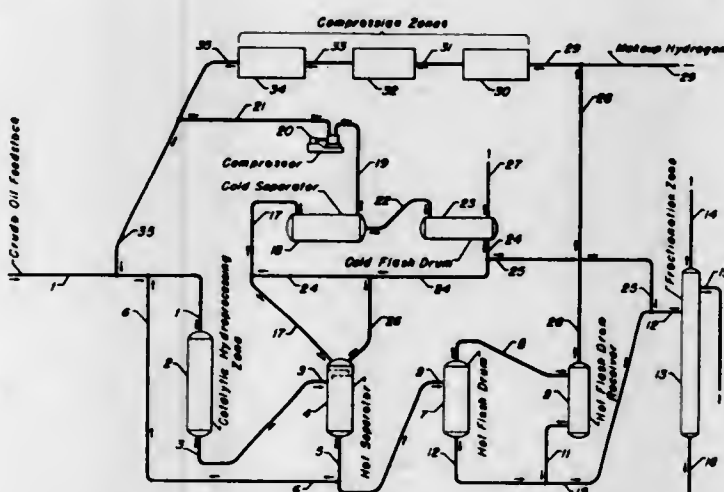
A process for converting asphaltene-containing hydrocarbonaceous black oils into lower-boiling, normally liquid hydrocarbon products without substantial yield loss to asphaltic residuum. The process involves the integration of a thermal cracking coil and fixed-bed catalytic hydrogenation and desulfurization, and is especially applicable to sulfurous charge stocks containing less than 150 p.p.m. of metallic contaminants, and more than about 10.0% by volume of non-distillables. The charge stock is initially subjected to fixed-bed catalytic desulfurization and hydrogenation. A high-boiling concentrate is then subjected to a non-catalytic, thermal cracking reaction zone or coil, and unconverted asphaltics are recycled to the fixed-bed reaction zone for hydrogenation.

3,598,721
GASOLINE PRODUCING PROCESS
 Vladimir Haensel, Hinsdale, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Filed June 2, 1969, Ser. No. 829,770
 Int. Cl. C10g 23/00

U.S. Cl. 208—89 **7 Claims**
 High octane gasoline blending components are produced from catalytically-cracked cycle oils. A substantially sulfur- and nitrogen-free cycle oil is initially hydrogenated in contact with a non-acidic catalytic composite, and the hydrogenated product effluent is subjected to non-catalytic, hydrogenative thermal cracking.

3,598,722
CATALYTIC HYDROPROCESSING OF A PETROLEUM CRUDE OIL FEEDSTOCK
 Don B. Carson, Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed Mar. 10, 1969, Ser. No. 805,705
 Int. Cl. C10g 13/00

U.S. Cl. 208—108 **3 Claims**



A petroleum crude oil feedstock is catalytically hydroprocessed into more valuable products while, simultaneously, recovery and reuse of hydrogen is achieved by means of a combination process including the steps of catalytic hydroprocessing, separation, hydrogen recovery, and fractionation.

3,598,723
HYDROCARBON HYDROPROCESSING
 Richard E. Rausch, Mundelein, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Continuation-in-part of application Ser. No. 825,084, May 15, 1969. This application June 30, 1969, Ser. No. 837,924
 Int. Cl. C10g 13/02

U.S. Cl. 208—111 **8 Claims**
 A process for hydrotreating (hydroprocessing) hydrocarbons and mixtures of hydrocarbons utilizing a catalytic composite of a porous carrier material, a rhenium component and a tin component, in which process the chemical consumption of hydrogen is effected. A specific example of one such catalyst is a composite of a crystalline aluminosilicate, particularly faujasite, a rhenium component, and a tin component. Specific hydroprocesses are directed toward the hydrogenation of aromatic nuclei, hydrocracking, the ring-opening of cyclic hydrocarbons, desulfurization, denitrification and hydrogenation.

3,598,724
PRODUCTION OF PROPANE AND BUTANES
 Bernard F. Mulaskey, Pinole, Calif., assignor to Chevron Research Company, San Francisco, Calif.
 No Drawing. Continuation-in-part of application Ser. No. 742,321, July 3, 1968, now Patent No. 3,487,007, which is a continuation-in-part of application Ser. No. 645,855, June 8, 1967, now Patent No. 3,399,132, which in turn is a continuation-in-part of application Ser. No. 568,536, July 28, 1966, now abandoned. This application Sept. 15, 1969, Ser. No. 858,128
 Int. Cl. C01b 33/28; C07c 9/00

U.S. Cl. 208—111 **9 Claims**
 A hydrocarbon feed boiling above 100° F. is converted to high yields of C₃-C₄ hydrocarbons by contact with a

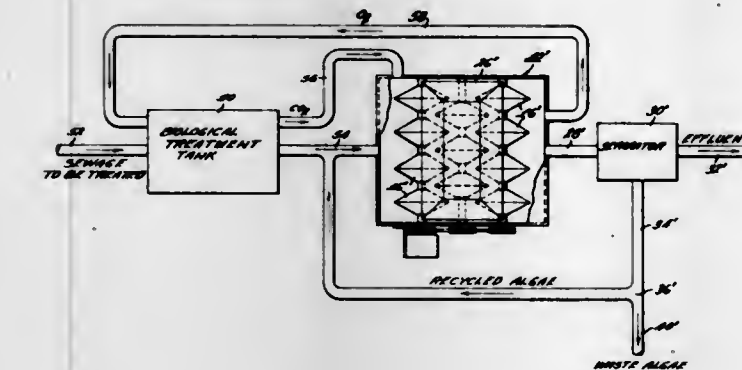
catalyst comprising mordenite, thoroughly admixed with an amorphous porous inorganic oxide containing nickel, or compounds thereof, and tin, or compounds thereof, at hydrocracking conditions sufficiently severe to convert at least 30 percent of the feed to products boiling below 100° F.

3,598,725
HYDROCARBON DESULFURIZATION WITH A RHENIUM CATALYST ON SILICEOUS CARRIER MATERIAL
 Lee Hiltman, Prospect Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Filed Mar. 20, 1969, Ser. No. 809,050
 Int. Cl. C10g 23/02

U.S. Cl. 208—216 **5 Claims**
 A catalyst for effecting the desulfurization of sulfurous, hydrocarbonaceous charge stocks. The catalyst comprises a composite of a siliceous carrier material combined with rhenium sulfide. The rhenium sulfide is present in an amount of from 0.01% to about 2.0% by weight, calculated as the elemental metal, and is combined with one or more sulfided metallic components from Groups VI-B and the Iron-group. The use of the rhenium component imparts additional hydrogenation activity to the catalyst.

3,598,726
WATER TREATMENT APPARATUS AND METHOD
 Fredrick M. Welch, Oconomowoc, Wis., assignor to Autotrol Corporation, Glendale, Wis.
 Filed Aug. 27, 1968, Ser. No. 755,616
 Int. Cl. C02c 1/04

U.S. Cl. 210—3 **7 Claims**

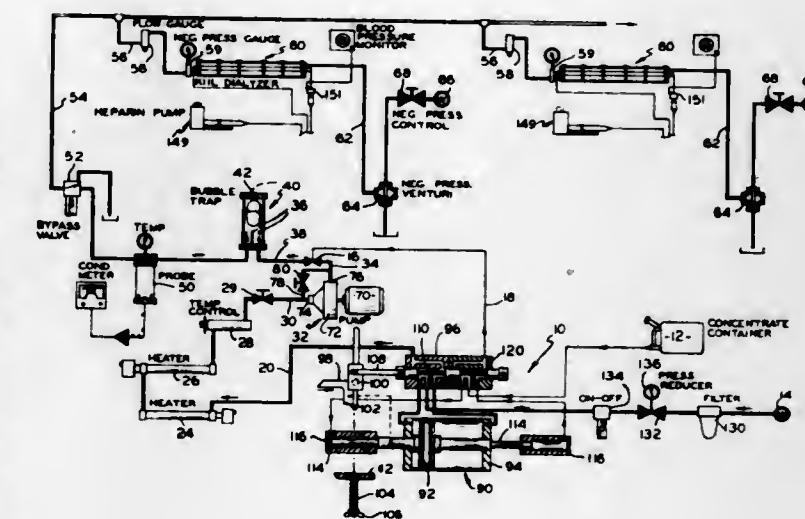


An apparatus for and method of removing nutrients such as nitrates, phosphates or carbonaceous materials from water. The water to be treated is contacted by rotating disks having tapered surfaces. Algae are supplied to the water and are picked up by the rotating disks, being supported by the tapered surfaces of the disks. The algae on the disks are exposed to the combined effects of sunlight, either natural or artificial, and to an atmosphere of carbon dioxide (CO₂). The algae remove the nutrients from the water, and reduce the carbon dioxide present in the atmosphere above the liquid to oxygen (O₂).

3,598,727
ARTIFICIAL KIDNEY
 Charles B. Willock, 16222 SE. Oatfield Road, Milwaukie, Oreg. 97222
 Filed Apr. 7, 1969, Ser. No. 814,078
 Int. Cl. B01d 31/00, 13/00

U.S. Cl. 210—22 **10 Claims**
 In an artificial kidney, a dialysate concentrate liquid and heated tap water are fed separately by pumps in fixed proportions to a mixing venturi where the water and

liquid are combined to form a dialysate solution. In order to remove from the dialysate solution a desired portion of air which has been introduced therein from the water, the heated water is passed through a positive displacement



pump having a restricted orifice bypass line before it arrives at the mixing venturi. This causes consolidation of the air from small to large bubbles which are removed by a bubble trap. The resulting deaerated solution is then advanced through a header to branch lines to dialyzers.

3,598,728
MEMBRANE-MODERATED SEPARATION APPARATUS AND PROCESS
 Harris J. Bixler, Lexington, and Shmuel Sternberg, Hyde Park, Mass., assignors to Amicon Corporation, Lexington, Mass.
 Filed June 16, 1969, Ser. No. 833,419
 Int. Cl. B01d 13/00, 31/00

U.S. Cl. 210—22 **17 Claims**



A novel separative apparatus comprising a separation zone whereby (1) an immobilized liquid phase is separated from a mobile liquid phase by a semi-permeable membrane and wherein said mobile liquid phase is a carrier liquid for a plurality of compounds, at least one of which compounds interacts, chemically or physically, with the semi-permeable membrane and/or the immobilized liquid phase and is thereby retarded in its progress through the reaction zone.

3,598,729 METHOD OF REMOVING OIL SLICKS FROM WATER SURFACES

Heinz Baumann, 3 Zuckerfabrikstrasse, Frankenthal, Pfalz, Germany
No Drawing. Continuation-in-part of application Ser. No. 678,214, Oct. 26, 1967. This application Nov. 13, 1969, Ser. No. 876,579
Claims priority, application Germany, Oct. 28, 1966, C 40,551
Int. Cl. B01d 15/00

U.S. Cl. 210—40 4 Claims
When a piece of fully cured urea formaldehyde resin foam is dipped into an oil slick floating on water, only the oil slick is absorbed into the piece of foam. Entry of the water is blocked by the narrow capillaries in the cell walls which connect most of the otherwise sealed air cells in the foam to each other and to the atmosphere. They permit absorption of liquids of low surface tension, but not of liquids having a surface tension as high as that of ordinary water or of sea water which essentially consists of water. Urea formaldehyde resin is much less costly than the corresponding resins prepared from melamine and phenol whose foams have a similar structure and are similarly effective.

3,598,730 PROCESS OF FLOCCULATING SILICA WITH A CATIONIC XANTHOMONAS GUM ETHER

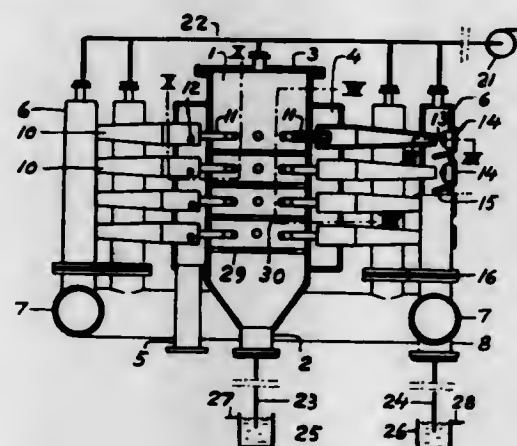
Robert Nordgren and Harold A. Wittcoff, Minneapolis, Minn., assignors to General Mills, Inc.
No Drawing. Original application Apr. 15, 1968, Ser. No. 721,143, now Patent No. 3,505,310. Divided and this application Dec. 10, 1969, Ser. No. 884,034
Int. Cl. B01d 21/01

U.S. Cl. 210—54 3 Claims
A cationic Xanthomonas microbial gum produced by the reaction of a quaternary ammonium compound and a Xanthomonas microbial gum derived from the aerobic fermentation of the bacterium Xanthomonas. The cationic Xanthomonas microbial gum can be suitably used as a flocculant.

3,598,731 MULTIPLE HYDROCYCLONE

Rune Helmer Frykhult, Johannesov, and Karl Folke Olof Jakobsson, Taby, Sweden, assignors to Aktiebolaget Cellico, Tumba, Sweden
Filed Nov. 20, 1969, Ser. No. 878,295
Claims priority, application Sweden, Nov. 20, 1968, 15,742/68; Sept. 8, 1969, 12,350/69
Int. Cl. B04c 5/28

U.S. Cl. 210—94 18 Claims



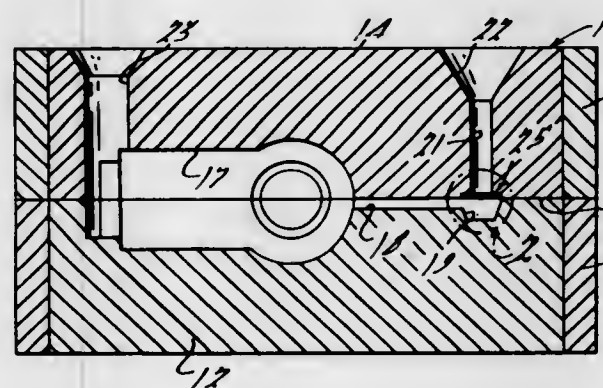
A central vessel is surrounded by groups of hydrocyclones arranged one above another, each hydrocyclone forming an elongated vortex chamber having an accept end provided with an inject inlet and an axial accept out-

let, each chamber also having an opposed reject end provided with an axial reject outlet. The central vessel forms an accept chamber common to and communicating with the vortex chambers by way of their accept outlets. Means are provided at the reject ends of the vortex chambers for collecting the reject from the reject outlets, the collecting means including means in the vicinity of the reject outlets for enabling detection of a change in the reject flow.

3,598,732 COATED MOLYBDENUM MESH SCREEN FOR FERROUS METAL CASTING MOLDS

Daniel W. Foster, Walled Lake, and William G. Scholz, Ann Arbor, Mich., assignors to American Metal Climax, Inc.
Filed Oct. 14, 1969, Ser. No. 866,353
Int. Cl. B01d 39/10

U.S. Cl. 210—499 6 Claims



A casting method and apparatus wherein cast iron is poured through a coated, expanded metal, molybdenum screen to remove foreign material from the poured cast iron. The molybdenum screen, that is highly soluble in cast iron at the pouring temperatures, is protected by a ceramic-like coating so that it will not be in direct contact with the cast iron.

3,598,733 FIRE RETARDANT POLYMER COMPOSITIONS

Raymond R. Hindersinn, Lewiston, N.Y., and John F. Porter, Durham, N.C., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Original application June 7, 1968, Ser. No. 735,184, now Patent No. 3,530,083, dated Sept. 22, 1970. Divided and this application Dec. 31, 1969, Ser. No. 889,680
Int. Cl. B27k 3/00; C09d 5/18; C09k 3/28

U.S. Cl. 252—8.1 7 Claims

A fire retardant composition can be formed by use of a fire retarding agent of an arylhaloalkylalkyl phosphonate in combination with an organo halide compound. A typical example is cresyl-2-bromoethylmethyl phosphonate in combination with chlorinated paraffin.

3,598,734 HIGH TEMPERATURE GREASE

Arthur C. Borg, Chicago, Ill., and Stephen J. Zajac, Whiting, Ind., assignors to Standard Oil Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 178,539, Mar. 9, 1962, which is a continuation-in-part of application Ser. No. 175,871, Feb. 21, 1962. This application Mar. 4, 1969, Ser. No. 804,263
Int. Cl. C10m 5/26

U.S. Cl. 252—28 6 Claims
A grease of high temperature and mechanical stability is prepared with a lubricant base thickened to grease

consistency with a reaction product of an aromatic polyisocyanate and a boric acid in combination with finely divided silica.

3,598,735 POLYALKYLENE GLYCOL MERCAPTOSUCCINIMIDES DISPERSANTS FOR LUBRICANT FLUIDS

Ting-I Wang, Fullerton, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.
No Drawing. Filed Oct. 8, 1968, Ser. No. 765,994
Int. Cl. C10m 1/38

U.S. Cl. 252—47.5 1 Claim
A new class of compounds and a series of novel lubricant compositions are disclosed. Polyalkylene glycol mercaptosuccinimides which are useful as dispersants in polyalkylene glycol lubricant fluids as sludge dispersants and lubricant fluid compositions including such mercaptosuccinimides are described.

3,598,736 POLYALKYLMETHACRYLATES AS POUR POINT DEPRESSANTS FOR LUBRICATING OILS

Pieter H. Van der Meij and Arnold A. Buitelaar, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,777
Claims priority, application Great Britain, Aug. 30, 1967, 39,700/67

U.S. Cl. 252—56 6 Claims
Pour points of lubricating oils with widely varying viscosities are depressed by adding thereto small amounts of novel oil soluble polyalkylmethacrylates.

3,598,737
LUBRICANT COMPOSITIONS
Pieter H. Van der Meij and Johannes M. Wortel, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed Apr. 17, 1969, Ser. No. 817,145
Claims priority, application Netherlands, Apr. 26, 1968, 6805941
Int. Cl. C10m 1/26, 1/28

U.S. Cl. 252—56R 10 Claims
Lubricant compositions containing oil-soluble copolymers of one or more alkyl esters of a C₃₋₅ alpha, beta-vinylidene monocarboxylic acid and one or more monohydroxy alkyl esters of a C₃₋₅ alpha, beta-vinylidene monocarboxylic acid, wherein the average number of the carbon atoms in the CH₂—(CH₂)_n— groups present in the alkyl side chains, n being at least 9, is from 12.5 to 14.3, have improved pour points, viscosity indices and dispersant properties.

3,598,738 OIL COMPOSITIONS CONTAINING ETHYLENE COPOLYMERS

Charles B. Biswell, Woodstown, N.J., Mark Stanley Fawcett, Chadds Ford, Pa., and Andrew Mitchell, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 581,448, Sept. 23, 1966. This application Dec. 19, 1968, Ser. No. 785,329
Int. Cl. C01m 1/18

U.S. Cl. 252—59 7 Claims
This invention relates to mineral oil compositions comprising a neutral, non-volatile, mineral oil and an effective amount of a viscosity index improver selected from a limited class of oil-soluble, substantially linear, ethylene, hydrocarbon copolymers containing 25 to 55 weight percent polymerized ethylene units and having a pendent index of 18 to 33, an average pendent size not exceeding

10 carbon atoms, an average chain length of 2,700 to 8,800 carbon atoms and an inherent viscosity of 0.7 to 1.8 as measured on a 0.1 weight percent solution in tetrachloroethylene at 30° C.

3,598,739 SYNTHETIC HYDROCARBON LUBRICATING COMPOSITION

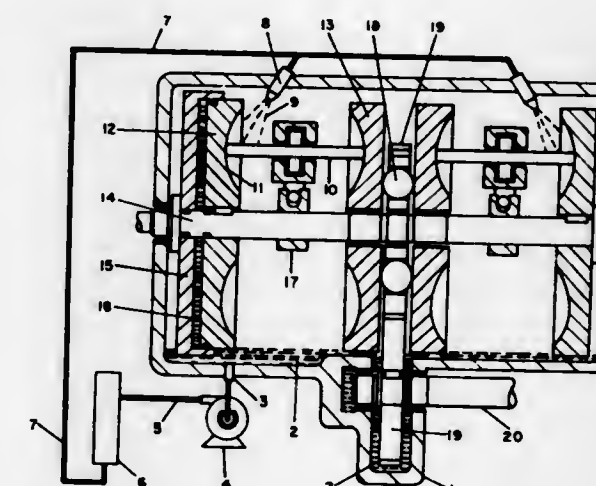
Roy C. Sias, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,190
Int. Cl. C10m 1/16

U.S. Cl. 252—59 6 Claims
This disclosure concerns a synthetic hydrocarbon lubricating composition, having good viscosity properties and excellent pour point properties, which consists essentially of a mixture of dialkylbenzenes and alkyl-substituted tetrahydronaphthalenes, preferably trialkyl-substituted tetrahydronaphthalenes. An important aspect of the disclosure is the feature that the pour point of dialkylbenzenes can be lowered by incorporating therein alkyl-substituted tetrahydronaphthalenes.

3,598,740 TRACTION DRIVE TRANSMISSION CONTAINING PARAFFINIC OIL AS LUBRICANT

Irl N. Duling, West Chester, David S. Gates, Swarthmore, and Thomas D. Newington, Broomall, Pa., assignors to Sun Oil Company, Philadelphia, Pa.
Filed Nov. 1, 1967, Ser. No. 679,851
Int. Cl. C09k 3/00; F16h 15/08

U.S. Cl. 252—73 7 Claims



A power transmission system comprises a traction drive transmission and, as a lubricant, a hydrocarbon base stock, comprising a paraffinic oil containing less than 1% by weight of aromatics and having an ultraviolet absorptivity at 260 millimicrons of less than 0.5.

3,598,741 ACID COMPOUND FOR METAL SURFACE

Shozo Kanno, Kobe, Japan, assignor to Chugai Kasei Co., Ltd., Osaka, Japan
No Drawing. Filed Oct. 7, 1969, Ser. No. 864,535
Claims priority, application Japan, Oct. 7, 1968, 43/73,022, 43/73,023
Int. Cl. C23f 1/00; C23g 1/02

U.S. Cl. 252—79.3 11 Claims
Compositions having suitable viscosities for the cleaning and etching of metals comprising hydrofluoric acid, mag-

nesium and at least one acid or salt of an acid selected from the group consisting of nitric acid, phosphoric acid, sulfuric acid and sulfonic acid.

3,598,742

STABLE FOAMED MATERIALS

Saunders Elliot Jamison, Summit, and Gene Henry Anthony, Whitehouse Station, N.J., assignors to Celanese Corporation of America, New York, N.Y.
No Drawing. Continuation of application Ser. No. 543,083, Apr. 18, 1966. This application Jan. 9, 1970, Ser. No. 3,554

Int. Cl. C11d 17/04

U.S. Cl. 252—91

10 Claims

Stable, open-celled, foamed compositions are prepared by combining a fibrous material with a wetting agent, a water-thickening substance and a film of a water-insoluble polymer having a glass transition temperature of less than 50° C.

3,598,743

PREPARATION OF GRANULAR DETERGENT COMPOSITIONS FOR AUTOMATIC DISH-WASHERS

Kenneth Coates, Newcastle upon Tyne, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed July 23, 1969, Ser. No. 844,191
Claims priority, application Great Britain, July 25, 1968, 35,497/68

Int. Cl. C11d 7/56

U.S. Cl. 252—99

5 Claims

Granular dishwashing detergent compositions are prepared by dry-mixing sodium tripolyphosphate and chlorinated trisodium phosphate, spraying aqueous sodium silicate thereon to form agglomerated granules, and cooling by passing cold air at a temperature not exceeding 75° F. through a bed of the granules.

3,598,744

NON-CAKING DETERGENT MATERIAL

Fred Smeets, Tienen, Belgium, assignor to La Citrique Belge N.V., Tienen, Belgium
No Drawing. Continuation-in-part of application Ser. No. 563,816, July 8, 1966. This application July 5, 1968, Ser. No. 742,541

Claims priority, application United Kingdom, July 5, 1967, 31,010/67

Int. Cl. C11d 1/14, 3/065, 11/00

U.S. Cl. 252—99

1 Claim

A powdered detergent composition wherein the detergent is derived from an unsaturated acid containing at least four carboxylic groups per molecule which has been esterified with one or more hydroxy containing organic compounds, e.g., alcohols, is produced by mixing the detergent composition with water to form a paste wherein auto-heating of the paste occurs thereby drying the product, the dried product is thereafter comminuted to form a powder.

3,598,745

SUBSTITUTED 4,7-METHANOINDENES PERFUME COMPOSITIONS

Morris Dunkel, Paramus, N.J., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Original application Dec. 16, 1965, Ser. No. 514,373. Divided and this application Oct. 31, 1968, Ser. No. 772,409

Int. Cl. C11b 9/00; A61k 1/00

U.S. Cl. 252—522

4 Claims

Perfume composition containing as an olfactory ingredient a hexahydro or octahydro-4,7-methanoindene substituted in the 5 or 6 position with a carboxylate of an alpha, beta-unsaturated monocarboxylic acid.

3,598,746

COSMETIC SOAP BAR

Thaddeus John Kamiecki, La Grange, Thomas John Hassaph, Chicago, and Irwin Liebman, Chicago, Ill., assignors to Armour-Dial, Inc., Chicago, Ill.
No Drawing. Filed May 9, 1969, Ser. No. 823,506

Int. Cl. C11d 9/26, 9/48

U.S. Cl. 252—122

7 Claims

Cosmetic soap compositions based upon regular soap stock which contain free fat or fatty acids, low molecular weight alkylene glycols, or polyalkylene glycols are disclosed. The alkylene glycol component overcomes the lather depressing characteristics of the free fat or fatty acids. The polyalkylene glycol component imparts a smooth feeling to the skin. Other materials such as germicides, perfumes and dyes can be added to the basic components in the preparation of soap bars.

3,598,747

ALCOHOL MIXTURES ADAPTED FOR USE IN MAKING DETERGENT SULFATES

William R. Axtell and Earl G. De Witt, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 558,237, June 17, 1966, which is a continuation-in-part of application Ser. No. 277,078, May 1, 1963. This application Jan. 13, 1970, Ser. No. 2,670

Int. Cl. C11d 1/14, 3/065

U.S. Cl. 252—182

5 Claims

Higher alcohol compositions are disclosed which are primarily mixtures of myristyl, palmityl and stearyl alcohols containing small quantities of alcohols of lower molecular weight. These compositions can be used in making high foaming mixtures of alkyl sulfates.

3,598,748

ARYLDIAMINE AND ALDEHYDE REACTION PRODUCT CURING AGENTS FOR URETHANE RESINS

Frank N. Hirose, Monterey Park, Calif., assignor to Furane Plastics Incorporated, Los Angeles, Calif.
No Drawing. Continuation-in-part of application Ser. No. 358,931, Apr. 10, 1964. This application Nov. 15, 1967, Ser. No. 683,161

Int. Cl. C08g 51/84

U.S. Cl. 252—182

12 Claims

A curing agent and hardener specifically for urethane resin compositions, is made by processing 4,4'-methylene bis(2-chloroaniline) or 3,3'-dichlorobenzidine, or mixtures thereof, with specific active aldehyde compounds, which agent is a liquid, readily dispersed in a wide variety of urethane resin compositions, and resulting in room temperature curing of said urethane compositions.

3,598,749

PRODUCTION OF EPOXIDE COMPOSITIONS

Chao-Shing Cheng, Williamsville, Francis E. Evans, Hamburg, Herman Stone, Tonawanda, and Harold Kaler, Niagara Falls, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed May 23, 1969, Ser. No. 827,142

Int. Cl. C08f 45/36; C08g 51/36, 51/74

U.S. Cl. 252—182

15 Claims

Disclosed are uncured polyepoxide resin compositions comprising a polyepoxide containing oxirane groups together with a methyl-norbornane-2,3-dicarboxylic anhydride as curing agent, preferably in the presence of an accelerating agent, such as a tertiary amine or an organo metallic compound, and cured polyepoxide resins produced therefrom. Also disclosed is production of novel liquid anhydride compositions comprising a mixture of 1- and 5-methyl-norbornane-2,3-dicarboxylic anhydrides present in a weight ratio no greater than about 3:1, at least about 40 weight percent of said 5-methyl isomers of

said mixture being of exo-configuration, by heating an anhydride mixture comprising endo-1- and 5-methyl-5-norbornene 2,3-dicarboxylic anhydrides at an elevated temperature in the presence of hydrogen. The polyepoxide compositions disclosed are substantially less volatile during curing at elevated temperatures, and cured resins produced therefrom exhibit superior mechanical properties and are of lighter color as compared with cured resins produced from polyepoxide compositions derived from known cycloaliphatic anhydride curatives. The liquid novel anhydride compositions disclosed are storage stable for extended periods of time without deposition of solids and change of color, and are stable to changes in temperature below distillation temperatures.

3,598,750

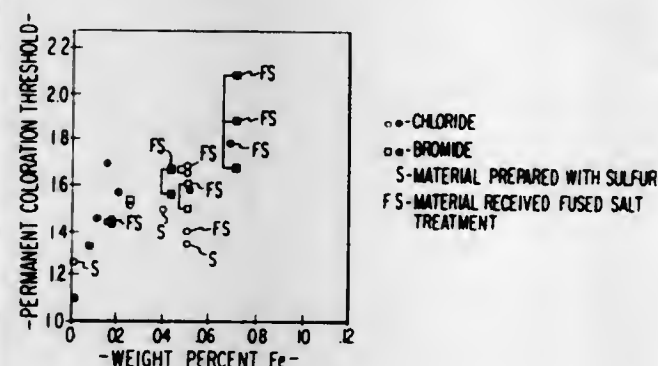
PHOTOCHROMIC IMAGE DEVICE

William Phillips, Princeton, N.J., assignor to RCA Corporation
Filed Nov. 17, 1969, Ser. No. 877,236

Int. Cl. H01j 1/54

U.S. Cl. 252—300

10 Claims



An image display and storage device has a photochromic image screen consisting of sodalite having the basic chemical composition $\text{Na}_4\text{Al}_3\text{Si}_3\text{O}_{12} \cdot 2\text{NaX}$ wherein X is at least one halogen selected from the group consisting of chlorine, bromine and iodine and wherein the sodalite contains from at least 50 parts per million of iron up to the solubility limit of iron in the sodalite. The sodalite is annealed in a reducing atmosphere to produce its photochromic properties. Such an image screen darkens upon exposure to ultraviolet light or cathode ray excitation.

An especially high contrast ratio image screen can be attained utilizing sodalite doped with iron which is treated by heating the sodalite in a fused alkali halide salt bath.

3,598,751

PROCESS FOR PREPARING BIVALENT METAL HALOPHOSPHATE COMPOUNDS AND PRODUCTS OBTAINED THEREBY

Daniel J. Frese, Webster Groves, and Ronald S. Schreiber and Hugh C. Bertsch, St. Louis, Mo., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.
No Drawing. Continuation of application Ser. No. 610,772, Jan. 23, 1967. This application Feb. 9, 1970, Ser. No. 9,103

Int. Cl. C09k 1/36

U.S. Cl. 252—301.4P

5 Claims

Activated bivalent metal halophosphate compounds having the apatite crystal structure are prepared by coprecipitation. Two or more total solutions, the sum of which contain all the ions needed in the final product, are mixed in approximately stoichiometric proportions. A brief firing converts this intermediate into a halophosphate phosphor of the apatite type.

3,598,752

ULTRAVIOLET EMITTING CATHODO-LUMINESCENT MATERIAL

Thomas E. Sisneros, Fort Wayne, and Joseph A. Davis, New Haven, Ind., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
No Drawing. Filed Apr. 14, 1967, Ser. No. 630,824

Int. Cl. C09k 1/54, 1/04

U.S. Cl. 252—301.4

3 Claims

The invention herein provides a luminescent phosphor for use in cathode ray tubes or the like which is excitable by an electron beam and will emit in the ultraviolet spectral regions and having the general composition



Predetermined amounts of CaCO_3 , SiO_2 , and PbF_2 are fired between 1,300 to 1,450° C. for 1 to 10 hours to produce the phosphor.

3,598,753

ZINC SULFIDE PHOTOLUMINESCENT COMPOSITION

Stanley M. Poss, Towanda, Pa., assignor to Sylvania Electric Products Inc.
No Drawing. Filed May 7, 1969, Ser. No. 822,740

Int. Cl. C09k 1/12

U.S. Cl. 252—301.6S

4 Claims

A photoluminescent phosphor that emits yellow light consisting essentially of a predominate portion zinc sulfide as the host and as an activator the following ingredients in percent by weight of the zinc sulfide: from about 0.001% to about 0.05% of copper, from about 0.003% to about 0.11% by weight of manganese and from about 0.66% to about 2.6% of zinc.

3,598,754

PROCESS FOR THE MANUFACTURE OF SUSPENSIONS FOR THE GRANULATION OF FINE, PARTICULATE PHOSPHATE ORE

Ursus Thümmeler and Dieter Mandelkow, Hurth, near Cologne, and Bruno Przybylski, Knapsack, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany
No Drawing. Filed May 3, 1968, Ser. No. 726,603
Claims priority, application Germany, May 12, 1967, K 62,280

Int. Cl. B01j 13/00; C09c 1/56; C21b 1/08

U.S. Cl. 252—313R

7 Claims

Sprayable suspensions consisting of the components clay, electrofilter dust originating from the electrothermal production of phosphorus, crude phosphate fine dust and condensed phosphates, for the granulation of fine, particulate phosphate ore are produced by preparing a clay sludge, adding thereto 0.2 to 1.0% by weight, referred to dry clay, of one or more condensed alkali metal phosphates and adding the clay sludge so made to a suspension produced from the further suspension components with the resultant formation of a final suspension with a total solid matter content between 45 and 65% by weight, and with an electrofilter dust content between 15 and 30% by weight and with a clay content between 8 and 30% by weight, the electrofilter dust content and the clay content of the final suspension being referred to its total solid matter content.

3,598,755

FOAM CONTROL AGENTS

John W. McBroom, Saddlebrook, N.J., and Barry B. Rein, Riverdale, N.Y., assignors to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed July 5, 1968, Ser. No. 742,479

Int. Cl. B01d

U.S. Cl. 252—321

10 Claims

Foaming during acidulation of phosphate rock to produce wet-process phosphoric acid is greatly reduced by

addition of a reagent comprising a mixture of alcohol of 16 or more carbons and a butylene oxide capped ethoxylated alcohol made from an alcohol of 10 or more carbons.

3,598,756 PHOSPHATE- AND CHROMATE-FREE CORROSION INHIBITOR

Allyn H. Heit, Mount Holly, N.J., assignor to Sybron Corporation, Rochester, N.Y.
No Drawing. Filed Sept. 4, 1968, Ser. No. 757,454
Int. Cl. C23f 11/16

U.S. Cl. 252—389 12 Claims
Lignosulfonate base, chromate- and phosphate-free corrosion inhibitor for the treatment of water. The inhibitor consists of 50%–90% of a lignosulfonate product, 5%–20% of water soluble, polyvalent metal salt, and .5%–10% of mercaptobenzothiozote, dibutylthiourea or mixtures of the two. The preferred metal salt is zinc sulfate monohydrate.

3,598,757 CYCLIC BORATE ANTIOXIDANT MIXTURE

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Dec. 2, 1968, Ser. No. 780,600
Int. Cl. B01j 1/16

U.S. Cl. 252—400 5 Claims
Synergistic mixture of a cyclic borate containing one nitrogen in the ring and at least one of a hydroxyphenone, an N-hydroxyphenyl-benzotriazole and a salicylic acid ester. This mixture is used as an additive to stabilize plastic from deterioration due to weathering, oxidation, heat, etc.

3,598,758 CATALYST COMPOSITION AND PROCESS FOR OXYCHLORINATING HYDROCARBONS

Shunichi Koyanagi, Kinya Ogawa, and Fumio Akiya, Niigata-ken, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan
No Drawing. Filed May 21, 1968, Ser. No. 730,927
Claims priority, application Japan, May 23, 1967, 42/32,745
Int. Cl. C07c 17/10

U.S. Cl. 252—429 9 Claims
Catalyst suitable for the oxychlorination of aliphatic hydrocarbons. The catalyst has superior thermal stability, exhibits long lasting activity and essentially consists of three ingredients in defined proportions, namely of a mixture of an organic copper compound, an alkali metal chloride and an ammonium salt, deposited on a porous carrier.

A method for depositing the three ingredients on the porous carrier is also part of the invention.

3,598,759 METHOD FOR IMPROVING THE CRUSHING STRENGTH AND RESISTANCE TO ABRA- SION OF A CATALYST

Ralph J. Bertolacini, Chesterton, Ind., assignor to Standard Oil Company, Chicago, Ill.
No Drawing. Continuation-in-part of abandoned application Ser. No. 583,407, Sept. 30, 1966. This application Feb. 11, 1969, Ser. No. 798,437
Int. Cl. B01j 11/78

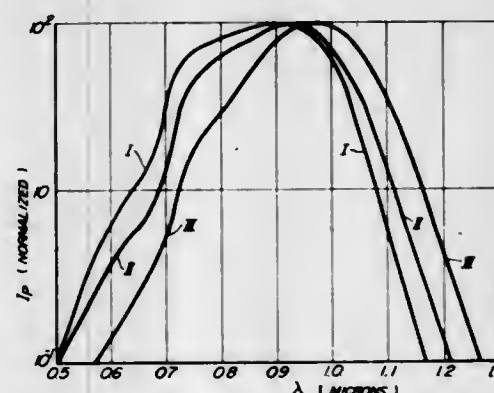
U.S. Cl. 252—442 7 Claims
The method comprises incorporating silica into the catalyst after the catalyst has been formed into desired shapes to form a silica-impregnated catalyst, drying and calcining in air the silica-impregnated catalyst. The silica

is impregnated therein to provide an amount between about 1 weight percent and about 20 weight percent, based upon the weight of the catalyst.

3,598,760 CdSe OR CdS-SE PHOTOCONDUCTORS DOPED WITH A I_B ELEMENT AND EITHER BRO- MINE OR IODINE

Shigeaki Nakamura and Tadao Nakamura, Kawasaki-shi, and Tadao Kohashi, Yokohama, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Mar. 21, 1968, Ser. No. 714,898
Claims priority, application Japan, Mar. 31, 1967, 42/20,847
Int. Cl. G03g 5/02; H01l 13/00; C09c 1/10

U.S. Cl. 252—501 6 Claims

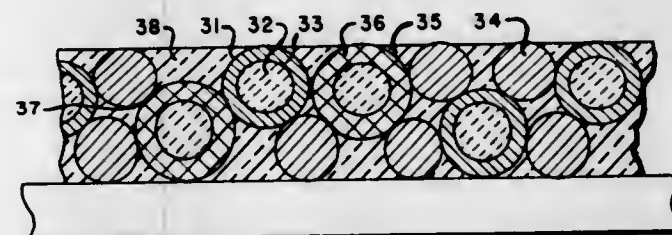


CdSe and CdS-Se photoconductors doped with a I_B group element such as copper or silver as activator and at least either one of bromine and iodine as coactivator. Such photoconductors are superior to the conventional CdSe and CdS-Se ones doped with chlorine as coactivator in respect of the sensitivity especially in the longer wavelength range.

3,598,761 CONDUCTOR COMPOSITIONS FOR MICROCIRCUITRY

John M. Woulbroun, Lynnfield, and Daniel W. Mason, Peabody, Mass., assignors to Owens-Illinois, Inc.
Filed Oct. 6, 1969, Ser. No. 863,875
Int. Cl. H01b 1/02; B44d 1/02

U.S. Cl. 252—514 7 Claims



A class of conductive compositions for interconnecting parts in thick film circuits is disclosed wherein conductor paths are formed between particles of micron size which are coated with noble metal over a core with contrasting properties whereby after firing, a solderable adherent conductive body is formed which has the desirable properties of prior-art conductors of the palladium-gold type, but which contain a substantially lesser noble metal content. "Mock-metal" particles such as palladium over alumina and gold over copper are described.

3,598,762 VANADIUM OXIDE SEMICONDUCTORS AND METHOD OF MANUFACTURING SAME

Hisao Futaki, Musashino-shi, and Takeshi Shimoda, Hachioji-shi, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo, Japan

Continuation of abandoned application Ser. No. 484,510, Aug. 24, 1965, which is a continuation-in-part of application Ser. No. 266,245, Mar. 19, 1963. This application Sept. 21, 1967, Ser. No. 701,021

Claims priority, application Japan, Mar. 22, 1962, 37/10,639

U.S. Cl. 252—518 35 Claims

A thermistor having an abrupt change in a negative temperature coefficient of electrical resistance in a specific temperature range from 65 to 70° C., which comprises a sintered body composed of a semiconductive oxide substance and a plurality of crystalline particles of V₂O₅ suspended in and enclosed by said oxide substance. This specification also discloses methods for producing thereof which comprises the steps of reducing a mixture of V₂O₅ and other oxide at about 400° C. and sintering the reduced mixture at 1000–1300° C.

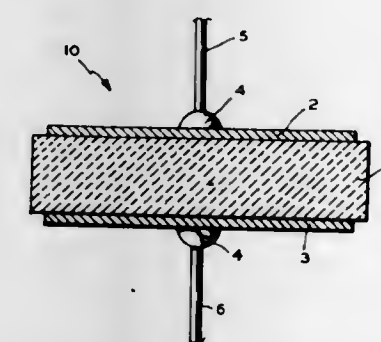
3,598,763 MANGANESE-MODIFIED ZINC OXIDE VOLTAGE VARIABLE RESISTOR

Michio Matsuoka, Takeshi Masuyama, and Yoshio Iida, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed Oct. 30, 1969, Ser. No. 872,590

Claims priority, application Japan, Nov. 8, 1968, 43/82,125

U.S. Cl. 252—518 10 Claims



A voltage variable resistor ceramic composition consisting essentially of zinc oxide and, as an additive, manganese oxide. The manganese-modified zinc oxide voltage variable resistor has improved voltage nonlinear properties due to the further addition of barium oxide, strontium oxide, lead oxide, uranium oxide, cobalt oxide, bismuth oxide and calcium oxide.

3,598,764 MATERIAL FOR THE MANUFACTURE OF HIGH-TEMPERATURE THERMISTORS

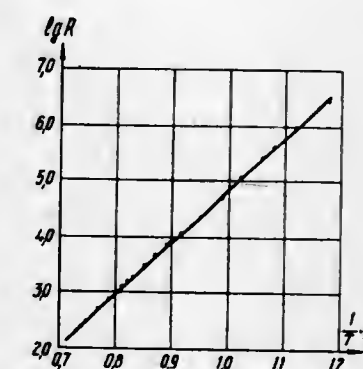
Nikolai Trofimovich Plashinsky, Ulitsa Pribytkovskaya, and Iosif Teodorovich Sheftel, prospekt Morisa Torenza, 28, kv. 105, both of Leningrad, U.S.S.R.

Filed Dec. 9, 1968, Ser. No. 782,229

U.S. Cl. 252—520 3 Claims

A material for the manufacture of high-temperature thermistors operating at temperatures of up to 1,000°

C., comprising cerium dioxide as the basic component and zirconium dioxide as the additive, said method mak-



ing it possible to produce thermistors having high and stable electric parameters.

3,598,765 PROCESS FOR POLYMERIZING CYCLIC OX- IDES WITH A CATALYST CONSISTING OF AN ORGANOZINC COMPOUND AND AN- OTHER MATERIAL

Marco A. Achon, Chester, Pa., assignor to The General Tire and Rubber Company, Akron, Ohio

No Drawing. Continuation of application Ser. No. 170,235, Jan. 31, 1962. This application May 4, 1967, Ser. No. 636,003

U.S. Cl. 260—2EP 10 Claims

A process is disclosed for making polyethers which comprises mixing under anhydrous non-oxidizing conditions (A) at least one compound of the formula ZnR₂ in which each R is a monovalent hydrocarbon radical, at least one R being non-aromatic, from about 0.05 to about 1.5 mols per mol of (A) of (B) of at least one compound selected from the group consisting of primary aromatic amines, amides, cycloalkadienes of from 5 to 6 carbon atoms and secondary amines composed of at least one nitrogen atom, from about 2 to about 14 carbon atoms per nitrogen atom and at least 6 total hydrogen atoms per nitrogen atom, any remaining atoms in the secondary amines being selected from the group consisting of ethereal oxygen atoms, hydroxyl oxygen atoms and thioetheral sulfur atoms, any nitrogen atom having two aromatic rings attached thereto being part of a cyclic amino compound, and from about 10 to about 10,000 mols per mol of (A) and (B) of (C) at least one polymerizable organic cyclic oxide monomer including in its structure at least one oxygen-carbon ring containing one oxygen atom and from 2 to 3 carbon atoms and up to 70 carbon atoms, and then, at a temperature sufficient to effect polymerization, polymerizing said cyclic oxide monomer through said oxygen-carbon ring whereby said ring opens to form substantially linear polyether structures. These polymers are useful as plasticizers, in making coated fabrics, packaging films, elastic fibers, and adhesives as well as in making tires, shoe heels, raincoats, upholstery material, floor mats and molded articles.

3,598,766 POLYMERIC HETEROCYCLIC NITROGEN COMPOSITIONS

Carl S. Marvel, Tucson, Ariz., and Domenico Fabbro, St. Paul, Minn., assignors to Research Corporation, New York, N.Y.

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,676
Int. Cl. C08g 33/02

U.S. Cl. 260—2 1 Claim
Poly(benzene - 1,2:4,5 - tetrayl - 1,2 - diimino) having desirable high-temperature stability is prepared by the self-condensation of 1,2,4,5 - tetraaminobenzene in polyphosphoric acid.

3,598,767
SILICON-CONTAINING BENZIMIDAZOLE POLYMER AND METHOD OF MAKING SAME
 Hanna N. Kovacs, Kew Gardens, Alvin D. Delman, Old Bethpage, and Bernard B. Simms, Franklin Square, N.Y., assignors to the United States of America as represented by the Secretary of the Navy
 Filed Jan. 27, 1969, Ser. No. 794,060
 Int. Cl. C08f 35/02

U.S. Cl. 260—2 **2 Claims**
 An aromatic silicon-containing benzimidazole polymer is prepared from bis(p-carbopentachlorophenoxyphenyl) diphenylsilane obtained by oxidizing diphenyldi(p-tolyl) silane to a dicarboxylic acid and esterifying the latter. The new silicon-containing benzimidazole polymer is soluble in organic solvents, stable at temperatures ranging up to several hundred degrees centigrade, has electrical insulating properties, is moldable into a shaped solid, filament, sheet film, or film coating having good adhesion to smooth surfaces.

3,598,768
HETERO-AROMATIC AZOPOLYMERS
 Hartwig C. Bach, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.
 No Drawing. Continuation of application Ser. No. 527,503, Feb. 15, 1966. This application July 9, 1969, Ser. No. 840,455
 Int. Cl. C08g 33/00, 33/02

U.S. Cl. 260—2 **6 Claims**
 Fiber forming azo polymers are prepared from aromatic primary diamines which contain an internal heterocyclic linkage by oxidative solution polymerization.

3,598,769
PROCESS FOR EXPANDING POLYSTYRENE
 Daniel Hanton, La Neuville-Rol, Oise, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
 Filed Apr. 13, 1966, Ser. No. 542,363
 Claims priority, application France, Apr. 14, 1965, 13,184

Int. Cl. C08f 47/10; B29d 27/00
U.S. Cl. 260—2.5 **6 Claims**
 Process and apparatus for the expansion of granules of polystyrene containing a blowing agent. The granules are first subjected for a few minutes, to steam at low pressure, following by conditioning for a few hours at about 20° to 40° C. After this the expanded granules are reheated with hot air to about 100° C., then again treated with steam for 30 to 40 seconds. This is followed by conditioning for 1 to 24 hours. In each instance, conditioning is effected by insufflating the granules with warm air at the desired temperature. The cycle just described may be repeated one or more times to result in a further reduction in specific mass. The invention provides a means and procedure by which polystyrene of an initial specific mass of about 650 kg./m.³ may be expanded to an apparent specific mass of from 3.5 to 5 kg./m.³. The cycle may also be carried out by first treating the mass with hot air and then, following the rest or conditioning period, with steam. The apparatus affords means by which the process can be carried out in a continuous manner.

3,598,770
ACRYLATE LATEX AND LATEX FOAM PRODUCTS
 Carl Moore, Midland, Mich., and Donald B. Parrish, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed May 24, 1967, Ser. No. 640,833
 Int. Cl. C08f 47/10; C08j 1/16

U.S. Cl. 260—2.5 **8 Claims**
 A film-forming latex comprising a copolymer of (a) an α,β -ethylenically unsaturated carboxylic acid, e.g.,

methacrylic acid, (b) a mono(hydroxyalkyl) ester of ethylenically unsaturated carboxylic acid, e.g., 2-hydroxyethyl acrylate and (c) at least one alkyl ester of an α,β -monoethylenically unsaturated carboxylic acid, e.g., butyl acrylate, is prepared by emulsion polymerization. A modified, copolymer aqueous dispersion is prepared by blending the latex with an organic coreactive material, e.g., a melamine-formaldehyde resin, and optional formulating ingredients. Latex foam is prepared from the modified, copolymer aqueous dispersion, which may contain optional formulating ingredients, by frothing the resulting foam formulation, and curing and drying the wet froth thus obtained to form latex foam sponge. Other articles are obtained, for example, by applying the wet froth to a textile substrate, then carrying out the curing and drying steps.

3,598,771
POLYURETHANE COMPOSITIONS PREPARED FROM POLYISOCYANATES AND PHENOL-ALDEHYDE RESINS
 Billy D. Davis, Elvis E. Jones, and Roy E. Morgan, Jr., Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Dec. 4, 1968, Ser. No. 781,260
 Int. Cl. C08g 22/08, 22/26, 22/44

U.S. Cl. 260—2.5 **6 Claims**
 The invention concerns polyurethane resins and foams derived from phenol-aldehyde resins and polyisocyanates. It relates more particularly to non-burning polyurethane foams of novolac resins and polyisocyanates.

3,598,772
MINERAL FILLED POLYURETHANE FOAMS
 Bruce G. Hood, Marblehead, and Robert A. Gardella, Swampscott, Mass., assignor to Hood Foam Industries, Inc., Marblehead, Mass.
 No Drawing. Continuation-in-part of application Ser. No. 702,513, Feb. 2, 1968, which is a continuation-in-part of application Ser. No. 550,893, May 18, 1966, which in turn is a continuation-in-part of application Ser. No. 335,356, Jan. 2, 1964. This application Jan. 28, 1969, Ser. No. 794,787
 Int. Cl. C08g 22/44, 51/04

U.S. Cl. 260—2.5 **5 Claims**
 Polyurethane foams derived from polyesters or polyethers have uniformly dispersed therein from 75 to 200% of an inert mineral filler on the weight of the polyurethane, including zirconium silicate and silica. The fillers have densities between 2 and 5.5 grams per cubic centimeter and particles which vary in average size from 120 to 400 microns in diameter and are substantially spherical in shape, and are admixed with the polyurethane-forming material prior to the foaming reaction. The polyurethane-forming material includes a long chain polyol, an organic polyisocyanate, and water in an amount between 3 and 4.5 percent by weight of the polyol used.

3,598,773
THERMOSETTING PROTEIN RESIN COMPOSITION COMPRISING AN AQUEOUS SOLUTION OF AN ANIMAL PROTEIN, UREA OR OTHER CARBAMIDE, AND AN ALDEHYDE
 Thomas F. Mitchell, Arlington Heights, and Algird S. Pakeltis, Lemont, Ill., assignors to Darling & Company, Chicago, Ill.
 No Drawing. Filed Sept. 30, 1968, Ser. No. 763,960
 Int. Cl. C08g 37/32; C09h 11/00; C09j 3/00

U.S. Cl. 260—6 **8 Claims**
 An improved protein-amine-aldehyde resin composition and particularly an animal glue-urea-formaldehyde resin composition which is thermosetting and forms a strong adhesive bond having good water, oil, heat and abrasion resistance and which is especially suited for use in the

manufacture of sandpaper and which also has general application as an adhesive or size for paper, cloth, wood, metal and vitreous materials.

3,598,774
ANTIMONY SULFIDE IN ELECTRO-DEPOSITABLE COMPOSITIONS
 Rowland S. Hartzell, Gibsonia, Pa., and Gerald R. Gacesa, Franklin, Wis., assignors to PPG Industries, Inc., Pittsburgh, Pa.
 No Drawing. Continuation-in-part of application Ser. No. 790,875, Jan. 13, 1969, which is a division of application Ser. No. 598,160, Dec. 1, 1966. This application Nov. 10, 1969, Ser. No. 875,482
 Int. Cl. C08g 51/04

U.S. Cl. 260—18R **4 Claims**
 This invention relates to novel, pigmented electro-depositable compositions. More particularly, this invention relates to the use of antimony sulfide in pigmentary form to produce black or dark-colored electrodepositable compositions.

3,598,775
EMULSION SYSTEMS ADAPTED TO DEPOSIT COATINGS BY ELECTROPAINTING
 Olin W. Huggard, Rocky River, Ohio, assignor to Mobil Oil Corporation
 No Drawing. Filed Nov. 30, 1967, Ser. No. 686,844
 The portion of the term of the patent subsequent to Sept. 5, 1984, has been disclaimed
 Int. Cl. C08g 45/06

U.S. Cl. 260—18 **17 Claims**
 Aqueous emulsions particularly adapted for electropainting are provided with the discontinuous oil phase of the emulsion comprising epoxy resin esters in water immiscible organic solvent solution, the oil phase of the emulsion being stabilized utilizing an acidic epoxy resin ester having an acid number of at least 40 as a water dispersible film-forming emulsifying agent. Heat-hardening formaldehyde condensates such as aminoplast resins may be included in the discontinuous oil phase of the emulsion.

3,598,776
BLENDS OF DISPROPORTIONATED ROSIN, A STABILIZER, AND A THERMOPLASTIC POLYMERIC MATERIAL
 Henry G. Schirmer, Spartanburg, S.C., assignor to W. R. Grace & Co., Duncan, S.C.
 Filed June 28, 1965, Ser. No. 467,325
 Int. Cl. C08f 45/58

U.S. Cl. 260—27 **4 Claims**
 Addition of a disproportionated rosin to polypropylene makes it possible to include additional amounts of dialkyl thiodipropionate stabilizer in the polymer without stabilizer bloom.

3,598,777
SOLUTIONS OF POLYETHYLENIMINE AND THE REACTION PRODUCT OF TI, Zr, AND Hf CHLORIDES WITH TRIMETHYL BORATE, AND SUBSTRATES COATED THEREWITH
 Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass.
 No Drawing. Filed May 9, 1969, Ser. No. 823,483
 Int. Cl. B32b 17/10; C08g 23/12, 49/00

U.S. Cl. 260—29.2 **19 Claims**
 This invention provides solutions in water or an alcohol containing not more than four carbon atoms of the reaction product of trimethyl borate with the chloride of a metal selected from Ti(IV), Zr(IV) and Hf(IV) and (1) a polymer of ethylene imine having a molecular weight between about 600 and 100,000 or (2) the reaction product of ethylene oxide with a polyethylenimine having a molecular weight between about 40,000 and 60,000. These solutions are useful for coating anionic material, such as glass, clay, silica, cellulose and leather to form a water

insoluble coating when dried. Rubber reinforcing clays treated with these solutions show marked improvement in their rubber reinforcing qualities.

3,598,778
AMMONIUM HYDROXIDE POLYMER SOLUTIONS FOR FLOOR POLISH COMPOSITIONS
 Donald L. Burdick, Overland Park, Kans., and William J. Heitman, Allison Park, and Gerald J. Mantell, Allentown, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
 No Drawing. Original application Jan. 19, 1967, Ser. No. 610,253, now Patent No. 3,488,311. Divided and this application Mar. 19, 1969, Ser. No. 816,476
 Int. Cl. C08f 27/12, 43/08; C09g 1/10

U.S. Cl. 260—29.6H **4 Claims**
 Aqueous solutions of ammonium salts of a small group of half esters formed from maleic anhydride-olefin copolymers are useful in improved floor polish formulations. The class of copolymers include partially esterified copolymers of maleic anhydride with 1-hexene, 1-butene dimers, 1-octene and 1-decene in olefin/maleic anhydride molar ratios of 1 to 1.5, having acid numbers of at least 150, no anhydride groups or adjacent carboxy groups and inherent viscosities in acetone at 25° C. of from about 0.04 to 1.1 deciliters per gram at 5 g./dl. concentration.

3,598,779
POLYVINYL COMPOUNDS WITH GRAFTS OF SULFOPROPYL AND ACRYLONITRILE RESIDUES USED TO IMPROVE DYEABILITY OF ACRYLIC POLYMERS
 Jean-Claude Galin, Strasbourg, France, assignor to Societe Rhodiaceta, Paris, France
 No Drawing. Filed Sept. 15, 1969, Ser. No. 858,162
 Claims priority, application France, Sept. 17, 1968, 166,517
 Int. Cl. C08f 3/34, 45/46

U.S. Cl. 260—30.8 **7 Claims**
 Polyvinyl compounds having sulfopropyl and acrylonitrile residues grafted thereon, which are novel, may be blended with acrylonitrile polymers to improve dyeability of the latter with basic dyestuffs.

3,598,780
POLYETHERURETHANE SOLUTIONS AND USES THEREFOR
 George Shkapenko, Akron, and Gerald E. van Gils, Tallmadge, Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio
 No Drawing. Original application Jan. 16, 1968, Ser. No. 698,149, now Patent No. 3,535,143, dated Oct. 20, 1970. Divided and this application May 4, 1970, Ser. No. 34,572
 Int. Cl. C08g 51/34

U.S. Cl. 260—33.4 **5 Claims**
 This invention comprises a CaCl₂-alcohol solvent containing certain polyetherurethanes as a solute, such a solution being useful for the treatment of sponges and foams to render them hydrophilic and for the preparation of microporous films.

3,598,781
ADHESIVE VINYL CHLORIDE PLASTISOLS CONTAINING CALCIUM OR MAGNESIUM OXIDE
 Lawrence Edward Shadbolt, London, England, assignor to Lever Brothers Company, New York, N.Y.
 No Drawing. Continuation-in-part of application Ser. No. 684,487, Nov. 20, 1967. This application Aug. 2, 1969, Ser. No. 852,479
 Claims priority, application Great Britain, Nov. 28, 1966, 53,129/66
 Int. Cl. C08f 45/38

U.S. Cl. 260—31.8R **2 Claims**
 The present invention relates to a heat curable adhesive plastisol containing polyvinyl chloride or a vinyl chloride

carbonyl compound and a metal halide such as titanium chlorides as the catalyst. Certain novel random copolymers are also described, resulting from this process.

3,598,796
CYCLOPENTENE POLYMER PRODUCTION
Karl Nützel, Opladen, Friedrich Haas, Cologne-Buchheim, Karl Dinges, Odenthal, and Wilhelm Graulich, Bergisch-Neukirchen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 7, 1969, Ser. No. 797,677
Claims priority, application Germany, Feb. 24, 1968, P 17 20 791.9
Int. Cl. C08f 5/00, 15/04

U.S. Cl. 260—88.2 4 Claims
Production of polymers of cyclopentene in solvent solution by the addition of catalyst components comprising tungsten hexachloride, cyclopentene-hydroperoxide and aluminum alkyl or aluminum alkyl halide, said aluminum alkyl or aluminum alkyl halide being added after the additions of tungsten hexachloride and cyclopentene-2-hydroperoxide and following a change in solvent solution color.

3,598,797
PROCESS FOR MANUFACTURING POLYVINYLIDENE FLUORIDE
Yutaka Kometsani, Nishinomiyu-shi, Masahiro Okuda, Amagasaki-shi, Chuzo Okuno, Osaka-shi, Japan, assignors to Daini Kogyo Co., Ltd., Osaka-shi, Japan
No Drawing. Filed June 20, 1968, Ser. No. 738,391
Claims priority, application Japan, June 27, 1967, 42/41,124
Int. Cl. C08f 3/22

U.S. Cl. 260—92.1 3 Claims
A process for manufacturing polyvinylidene fluoride by polymerization of vinylidene fluoride in the presence of tertiary butyl peroxyisobutyrate as a catalyst. The polymerization reaction of the present invention proceeds with a higher polymerization velocity under a lower polymerization pressure than those polymerizations hitherto known. It is also characterized in the fact that the polyvinylidene fluoride obtained by the present process is superior in its properties to that hitherto produced.

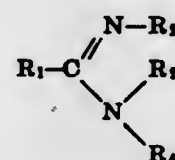
3,598,798
PRODUCTION OF VINYL CHLORIDE POLYMERS
Hans-Georg Trieschmann, Birkenweg, Hambach, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed July 31, 1968, Ser. No. 748,913
Claims priority, application Germany, Aug. 9, 1967, P 17 20 288.9
Int. Cl. C08f 3/30

U.S. Cl. 260—928 9 Claims
The polymerization of vinyl chloride, with or without other monomers, in two zones, only small amounts of vinyl chloride being polymerized in the first zone, the vinyl chloride being separated from the polymer, and the purified vinyl chloride being polymerized in the second zone.

3,598,799
LACTONE COPOLYMERS
Floyd E. Naylor, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Dec. 10, 1969, Ser. No. 883,986
Int. Cl. C08f 19/08
U.S. Cl. 260—879 14 Claims
Copolymers containing lactones are prepared by a polymerization process that embodies the addition of an

isocyanate adjuvant that increases the conversion of lactone monomer and provides a lactone copolymer possessing excellent green tensile strength.

3,598,800
ISOBUTANE ISOPENTANE AND PHENYLETHANE AMIDINES
Karl Gützi, Basel, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Filed May 22, 1968, Ser. No. 731,255
Claims priority, application Switzerland, May 30, 1967, 7,615/67
Int. Cl. C07c 123/00
U.S. Cl. 260—293 8 Claims
Antifungal compositions are disclosed which contain as active ingredients amidines of the formula



wherein

R₁, R₂, R₃, and R₄ represent certain organic substituents, or salts of such amidines with inorganic or organic acids; these compositions are particularly useful for the protection of plants against phytopathogenic fungi; and also for combatting acarinae such as ticks. Methods for controlling such fungi on the one hand, and acarinae, on the other hand, with the aid of the aforesaid amidine derivatives are also described. Furthermore certain isobutane, isopentane and phenylethane amidines falling under the above formula are disclosed as novel compounds.

3,598,801
WATER-SOLUBLE AZO-PYRIMIDINE DYE STUFFS
Fabio Belfa, Basel, and Paul Lienhard, Herbert Seller, Hans Ackermann, and Hans E. Wegmüller, Riehen, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland
No Drawing. Filed Jan. 8, 1968, Ser. No. 696,115
Claims priority, application Switzerland, Jan. 9, 1967, 316/67
Int. Cl. C09b 29/36, 62/24; D06p 1/06
U.S. Cl. 260—154 5 Claims

Water-soluble azo-pyrimidine dyestuffs obtained by coupling diazo or tetrazo compounds derived from aromatic monoamines or diamines in an equivalent ratio of about 1:1 with an optionally substituted 2,4,6-triamino-pyrimidine compound which can be coupled in the 5-position, or in an equivalent ratio of 1:2 with identical or different 2,4,6-triamino-pyrimidine compounds of this type, or with one equivalent of such a triamino-pyrimidine compound and one equivalent of another coupling component and, in the case of coupling components containing diazotizable amino groups, the disazo dyestuffs resulting from coupling such diazotized aminoazo-pyrimidine dyestuffs with another coupling component, or dyestuffs obtained by coupling two equivalents of the aforesaid diazotized monoamines with a coupling component comprising two pyrimidyl nuclei linked together via a hydrazino bridge or via certain organic bridge members, the components being so chosen that the final dyestuff contains at least one salt-forming, water solubilizing group which dissociates acid in water and at least three rings per molecule, which are not fused with one another, and of which preferably at least two are carbocyclic or heterocyclic and of aromatic character and the third can be aromatic, or a partly unsaturated or a saturated alicyclic ring. Said dyestuffs produce polyamide dyeings having good fastness to

light and abrasion and excellent wet-fastness properties and when they contain fiber-reactive substituents, the azo-pyrimidine dyestuffs can also be used for the dyeing of cellulose fibers on which they afford dyeings having good wet-fastness properties, especially fastness to washing.

3,598,802
AZO COMPOUNDS FROM 1-NAPHTHYLAMINES
Max A. Weaver, Clarence A. Coates, Jr., and Herman S. Pridgen, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Dec. 19, 1968, Ser. No. 785,364
Int. Cl. C07c 107/08; C09b 29/06
U.S. Cl. 260—196 3 Claims
Azo compounds having a 2-halo-4,6-dinitrophenyl or 2-cyano-4,6-dinitrophenyl diazo component and a 1-naphthylamine coupling component are useful as dyes for hydrophobic, particularly polyester, textile materials.

3,598,803
1-PHENYLazo-2,3-HYDROXYNAPHTHOLIC ACID PHENYL AMIDE CONTAINING A SULFONIC ACID IMIDO-UREIDE GROUP
Armand Henrard, Gand, Belgium, and Fritz Kehrer and Hans Wasem, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland
No Drawing. Filed Dec. 19, 1967, Ser. No. 691,707
Claims priority, application Switzerland, Jan. 17, 1967, 630/67; Jan. 26, 1967, 1,173/67
Int. Cl. C07c 107/08; C09b 29/20
U.S. Cl. 260—204 8 Claims
Pigments of the monoazo series which contain a nuclear bound sulfonic acid imido-ureide group are useful for the coloration of plastics, textiles, paper, natural resins and rubber.

3,598,804
PREPARATION OF KETALS
Nathan Chadwick Hindley, Welwyn Garden City, and Michael James O'Leary, Welwyn, England; Niklaus Halder, Oberwil, Switzerland, and Gerald Myer Jaffe, Verona, and Peter Hans Weinert, Wayne, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Apr. 4, 1969, Ser. No. 813,714
Claims priority, application Great Britain, Feb. 4, 1969, 5,862/69
Int. Cl. C07c 47/18
U.S. Cl. 260—209R 26 Claims

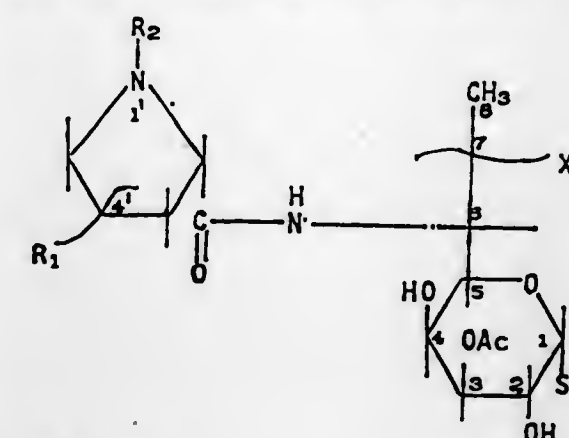
Preparation of ketal sugars from sugars by reacting the sugar with a ketone or aldehyde utilizing ferric chloride or ferric bromide as a catalyst and a water immiscible inert organic solvent having a boiling point of less than 55° C.

3,598,805
ERYTHROMYCIN ESTER DERIVATIVES
Peter Hadley Jones, Lake Forest, Ill., assignor to Abbott Laboratories, North Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 807,444, Mar. 14, 1969, which is a continuation-in-part of application Ser. No. 654,046, July 18, 1967. This application Feb. 26, 1970, Ser. No. 14,681
Int. Cl. C07c 129/18
U.S. Cl. 260—210 6 Claims

The 4'-hydroxyerythromycin A and B derivatives together with its acid-addition salts have been found to have antibiotic activity. The compound has been made by oxidation of erythromycin A or B to the N oxide, followed by pyrolysis to 3-(dedimethylamino)-Δ^{3',4'}-erythromycin. The unsaturated is then epoxidized and 3'-(dedimethylamino)-3'-azido-4'-hydroxyerythromycin formed by opening the epoxy ring with an azide. The azide is then reduced to 3'-(dedimethylamino)-3'-amino-4'-hydroxyerythromycin, which is further reduced in the presence of formaldehyde to 4'-hydroxyerythromycin.

3,598,806
PROCESS FOR PREPARING LINCOMYCIN-3-MONOACYLATES
Walter Morozowich, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Apr. 15, 1969, Ser. No. 816,416
Int. Cl. C07c 47/18
U.S. Cl. 260—210R 13 Claims

This invention relates to a novel process for the manufacture of lincomycin-3-monoacylate compounds, including novel 7-halogenated lincomycin-3-monoacylate compounds, selected from the group consisting of the free bases and acid addition salts of the formula:



wherein R is alkyl of 1 to 6 carbon atoms, inclusive; R₁ is alkyl of 2 to 8 carbon atoms, inclusive; R₂ is alkyl of 1 to 8 carbon atoms, inclusive, or hydrogen; X is hydroxy, chlorine, bromine or iodine; and Ac is the acyl radical of a hydrocarbon carboxylic acid containing 1 to 18 carbon atoms, inclusive. In the above Formula I, the vertical wavy line f is used to indicate that the group R₁ can be in the cis position (below the plane of the ring) or in the trans position (above the plane of the ring), with respect to the carbonyl group. The horizontal wavy line ~ is used to indicate that both epimers are to be included in the group, the 7(R) (or D-erythro) configuration and the 7(S) (or L-threo) configuration. These lincomycin-3-monoacylate compounds can be used as antibacterial agents, for example to inhibit the growth of *Staphylococcus aureus* and *Sarcina lutea* on dental and medical equipment contaminated with these organisms. The novel 7-halogenated 3-monoacylate esters are particularly advantageous in having greater antibacterial activity than the 7-hydroxy esters.

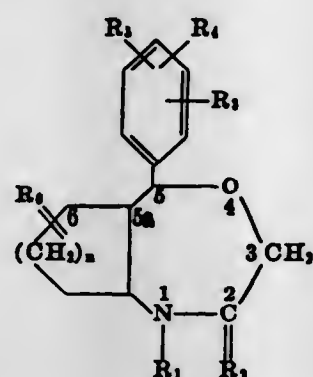
The novel process for selective 3-monoacylation of lincomycin compounds of this invention comprises mixing a solution of the lincomycin compound or its acid addition salt with the acid anhydride or acyl halide of a hydrocarbon carboxylic acid and a sterically hindered strongly basic tertiary amine and reacting under mild conditions.

3,598,807
PYRAZOLE COMPOUNDS AND PROCESS FOR PREPARING THE SAME
Kiyoshi Nakayama, Sagami-hara-shi, and Haruo Tanaka, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo, Ltd., Tokyo, Japan
Filed Aug. 5, 1969, Ser. No. 847,697
Claims priority, application Japan, Aug. 5, 1968, 43/54,945
Int. Cl. C07d 51/50
U.S. Cl. 260—211.5R 8 Claims

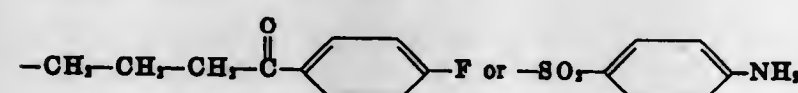
3(5)-amino-4-pyrazole-carboxamide, the 1-β-D-ribofuranoside thereof and the 1-β-D-ribofuranoside-5'-phosphoric acid ester thereof are prepared by heating the corresponding 4-oxy-1H-pyrazolo(3,4-d)-pyrimidine and its derivatives at a temperature of up to 180° C., preferably 100°–140° C., in an aqueous solution having an alkaline pH, preferably 9.0–13.0. The products display antibacterial activity and are useful for the study of nucleic acid metabolism.

3,598,808
PERHYDRO - 5 - PHENYL-CYCLOALKAPOLYENE-1,4-OXAZEPINES AND THEIR PREPARATIONS
 Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
 No Drawing. Filed Sept. 3, 1968, Ser. No. 757,135
 Int. Cl. C07d 87/54

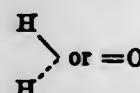
U.S. Cl. 260-239.3 **74 Claims**
 Perhydro - 5 - phenyl - cycloalkapolyene - 4,1-oxazepines of the Formula XXIII:



wherein n has a value from 1 to 4, inclusive; wherein R_1 is hydrogen, alkyl from 1 to 16 carbon atoms, inclusive, phenylalkyl, heterocyclicaminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, alkanoyl from 1 to 16 carbon atoms, inclusive, benzoyl, phenylacetyl,



wherein R_2 is



wherein R_3 , R_4 and R_5 are selected from the group consisting of hydrogen, hydroxy, halogen, lower alkyl, lower alkoxy, lower alkanoyloxy and CF_3 ; and wherein R_6 is hydrogen or



including acid addition salts, quaternary ammonium salts, the N-oxides and acid addition salts thereof are prepared. The compounds of the formula above, wherein R_2 is



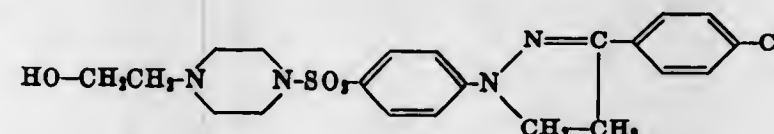
stimulate the central nervous system and can be used orally or parenterally in the treatment of respiratory difficulties and geriatrics in farm or pet animals. The compounds of the above formula wherein R_2 is $=O$ are intermediates.

3,598,809
FUSED BI- AND TRICYCLIC, DI-, TRIDIAZA-, AND THIODIAZA COMPOUNDS
 Marcel K. Eberle, Madison, and William J. Houlihan, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
 No Drawing. Filed Oct. 17, 1969, Ser. No. 867,376
 Int. Cl. C07d 53/00, 53/02, 93/40
U.S. Cl. 260-239.3 **10 Claims**
 Fused bi- and tricyclic, di-, tri- and thiodiaza compounds, e.g. 2,3,3a,10-tetrahydro - 3 - phenylbenzo[b]pyr-

rolo[2,3-e][1,4]diazepin-4(3H)-one prepared by treating a corresponding substituted pyridine or pyrroline with a substituted aniline o-phenylenediamine, ethylenediamine or diaminopropane. The compounds are useful at tranquilizers and hypotensives.

3,598,810
FLUORESCENT 1-(PYRAZOLINYL)PHENYL-SULPHONYL-PIPERAZINES
 Eduard Troxler, Basel, and Heinrich Hausermann, Riehen, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.
 No Drawing. Filed Oct. 8, 1968, Ser. No. 765,964
 Claims priority, application Switzerland, Oct. 13, 1967, 14,364/67
 Int. Cl. B44d 5/00; C07d 51/72
U.S. Cl. 260-239.7 **4 Claims**

Fluorescent 4-substituted 1-(pyrazolinyl)phenylsulphonyl-piperazines which are soluble in aqueous acid media, are disclosed as optical brighteners especially for wool, fibers from synthetic polyamide, cellulose esters, polymers or copolymers of acrylonitrile, blends of such fibers as well as similar substrates. A typical novel compound is that of the formula



3,598,811
DERIVATIVES OF 4α,8,14-TRIMETHYL-18-NOR-5α,8α,9β,13α,14β,17α-PREGNANE
 Hans U. Immer, St. Laurent, Quebec, Canada, assignor to Ayerst, McKenna & Harrison, Limited, St. Laurent, Quebec, Canada
 No Drawing. Filed Sept. 2, 1969, Ser. No. 854,734
 Int. Cl. C07c 173/00
U.S. Cl. 260-239.55 **13 Claims**

There are disclosed herein 3α,3β-(ethylenedioxy)-4α,8,14-trimethyl-18-nor-5α,8α,9β,13α,14β,17α-pregnan-20-one, 4α,8,14-trimethyl-18-nor-5α,8α,9β,13α,14β,17α-pregnane-3,20-dione, and 3β-hydroxy-4α,8,14-trimethyl-18-nor-5α,8α,9β,13α,14β,17α-pregnan-20-one as well as its 3-tetrahydropyranyl ether and its 3-acetate, and intermediates used in their syntheses. The compounds have cholesterol-lowering and antibacterial activities, and methods for their preparation and use are also disclosed.

3,598,812
5-NITROFURYL DERIVATIVES
 William Hoyle, Bramhall, and Gordon Peter Roberts, Altrincham, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
 No Drawing. Filed Dec. 16, 1968, Ser. No. 784,241
 Claims priority, application Great Britain, Sept. 12, 1968, 43,374/68
 Int. Cl. C07d 5/30
U.S. Cl. 260-240 **3 Claims**

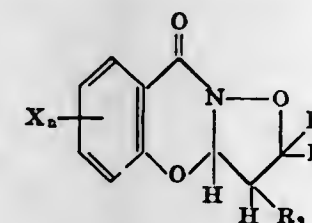
5-nitro-2-furfurylideneamino-oxazolidinones are useful antimicrobial agents; compositions containing these compounds and methods for the treatment of microbial infections, particularly of urinary tract infections, and for the protection of organic material susceptible to microbial attack, employing these compounds; an illustrative embodiment is 5-methylsulphonyloxymethyl-3-(5-nitrofurfurylideneamino)-2-oxazolidinone.

3,598,813
ACIDIC POLYMETHINE DYES AND HOLOPOLAR CYANINES
 Edward B. Knott, Wealdstone, Harrow, England, assignor to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Original application July 2, 1964, Ser. No. 380,055, now Patent No. 3,395,017. Divided and this application Jan. 19, 1968, Ser. No. 699,035
 Int. Cl. C09b 23/00, 23/04
U.S. Cl. 260-240.1 **11 Claims**

Certain acidic polymethine dyes and holopolar cyanine dyes derived by reacting (1) quaternized hydroxy-arylmethylenetherhodanines, hydroxyheterocyclylmethylenetherhodanines and β-substituted ethylenetherhodanines with (2) a cyclammonium quaternary salt containing an active methyl group are useful optical sensitizing dyes. The dyes and light-sensitive photographic elements containing them are believed to be novel. 3-ethoxycarbonylmethyl-5-[3-ethoxycarbonylmethyl-5-(4-hydroxy-2-oxochromen-3-ylmethylene)-4-oxothiazolidin-2-ylidene]-2-thiothiazolid-4-one, anhydro-[3-ethyl-2-benzothiazole] [3-ethoxycarbonylmethyl-5-(4-hydroxy-2-oxochromen-3-ylmethylene)-4-oxo-2-thiazoline]-methinecyanine hydroxide and 5-[5-(2,2-dicyanovinyl)-3-ethyl-4-hydroxythiazolin-2-ylidene]-3-ethyl-2-thiothiazolid-4-one, for example are illustrative dye compounds.

3,598,814
3,3a-DIHYDRO-2H,9H-ISOXAZOLO(3,2-b)(1,3) BENZOXAZIN-9-ONES
 David B. Reisner, Hightstown, Bernard J. Ludwig, North Brunswick, Harold M. Bates, Nutley, and Frank M. Berger, Princeton, N.J., assignors to Carter-Wallace, Inc., New York, N.Y.
 No Drawing. Continuation-in-part of application Ser. No. 826,738, Mar. 24, 1969. This application Jan. 21, 1970, Ser. No. 4,745
 Int. Cl. C07d 87/16
U.S. Cl. 260-244 **21 Claims**

Chemical compounds of the formula:



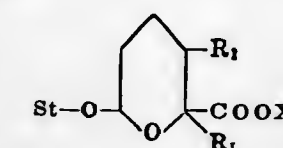
wherein n is 1 or 2 and wherein each X is hydrogen, hydroxy, halogen, lower alkyl, lower alkoxy, nitro, amino, acetamido, sulfonamido or trifluoromethyl and each R is selected from the group consisting of hydrogen and lower alkyl. Said compounds have valuable anti-inflammatory, antipyretic and diuretic activities in standard laboratory animals.

3,598,815
BIS-(HYDROXYPHENYLALKYLENE) ALKYL ISOCYANURATES
 Jack C. Gilles, Shaker Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
 No Drawing. Filed Oct. 25, 1968, Ser. No. 770,846
 Int. Cl. C07d 55/38
U.S. Cl. 260-248 **8 Claims**

Novel mixed esters of isocyanuric acid have been prepared. These bis-(hydroxyphenylalkylene)alkyl isocyanurate compounds provide excellent stabilization for organic materials against oxidative, thermal and photochemical degradation. The stability of α-monoolefin homopolymers and copolymers is particularly enhanced by the use of stabilizing amounts of the bis-(hydroxybenzyl)isocyanurates.

3,598,816
TETRAHYDROPYRANYLEthers OF STEROIDS AND PROCESS FOR THEIR MANUFACTURE
 Werner Haede, Hoffheim, Tannus, Werner Fritsch, Neuenhain, Tannus, and Ulrich Stache, Gerhard Vogel, Hoffheim, Tannus, and Kurt Radschelt, Kelkheim, Tannus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius and Bruning, Frankfurt am Main, Germany
 No Drawing. Filed Sept. 13, 1967, Ser. No. 667,368
 Claims priority, application Germany, Oct. 13, 1966, F 50,421; Apr. 29, 1967, F 52,300
 Int. Cl. C07c 173/00
U.S. Cl. 260-239.55 **10 Claims**

Tetrahydropyranyl ethers of steroids having gestagenic, antiplogistic, anabolic, or androgenic action, said ethers being of the formula



wherein R_1 is hydrogen or lower alkyl; R_2 is hydrogen, alkyl or alkenyl; and X is hydrogen, alkyl, alkenyl, aryl, aralkyl, or a cation; and St is a radical of an androstane, androstene, pregnane, pregnene, or pregnadiene, or of a halo-derivative thereof, or of a cardenolide or bufadienolide.

3,598,817
AMINOALKYL ESTERS OF 4-BENZYLPIPERIDINE-1-CARBOXYLIC ACID
 Claude L. C. Carron and Maurice C. E. Carron, Hauts-de-Seine, and Bernard Ph. Bucher, Essonne, France, assignors to Societe Anonyme des Laboratoires Robert et Carriere, Paris, France
 No Drawing. Filed Dec. 2, 1968, Ser. No. 780,553
 Claims priority, application France, Dec. 5, 1967, 130,945; Aug. 30, 1968, 164,686; Oct. 8, 1968, 169,105
 Int. Cl. C07d 29/24
U.S. Cl. 260-247.2 **34 Claims**

The invention provides novel aminoalkyl esters of 4-benzylpiperidine-1-carboxylic acid and their salts which are useful in treating cardiac disturbances.

3,598,818
METHOD FOR THE SEPARATION OF MELAMINE FROM A GASEOUS REACTION MIXTURE OF MELAMINE, AMMONIA AND CARBON DIOXIDE
 Jacobus T. C. Krekels, Sittard, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
 Filed Nov. 17, 1969, Ser. No. 877,224
 Claims priority, application Netherlands, Nov. 16, 1968, 6816385
 Int. Cl. C07d 55/24
U.S. Cl. 260-249.7P **9 Claims**

A process is disclosed for the separation and recovery of melamine from gaseous mixtures of melamine, ammonia and carbon dioxide obtained in the manufacture of melamine from urea and under superatmospheric pressure. The process involves feeding a dilute suspension of melamine crystals in a solution saturated with ammonium and carbon dioxide into at least one hydrocyclone and obtaining by separation therein (a) a concentrated aqueous melamine solution and (b) a dilute melamine solution; and recirculating this dilute melamine solution containing most of the ammonia and carbon dioxide components of the aforesaid gaseous mixture, to the initial cooling zone wherein melamine crystals are first obtained in the form of a suspension in an aqueous solution containing ammonia and carbon dioxide.

3,598,819
QUINOXALINE DERIVATIVES AND PROCESS FOR PRODUCING THE SAME

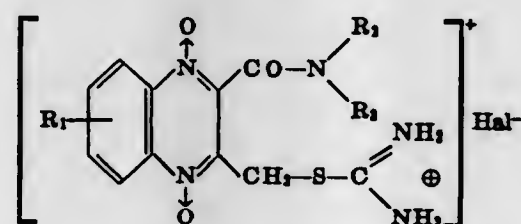
Edward O. Stapley, Spotswood, N.J., Justo M. Mata, Madrid, Spain, and Frank J. Wolf, Westfield, and Thomas W. Miller, Carteret, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Sept. 26, 1968, Ser. No. 763,008
Int. Cl. C07d 51/78

U.S. Cl. 260—250 11 Claims
A novel antibiotic substance, identified as 6-chloro-2-quinoxalinecarboxylic acid 1,4-dioxide, has been produced by cultivating strains of *Streptomyces ambofaciens*, var. NRRL 3455. The salts, as well as derivatives such as esters, amides and N-substituted amides, likewise demonstrate antibiotic activity.

3,598,820
2-ISOTHIURONIUM-METHYL-3-CARBOXYLIC ACID AMIDO-QUINOXALINE-1,4-DI-N-OXIDE HALIDES AND THEIR PRODUCTION

Kurt Ley, Odenthal-Globusch, Ulrich Eholzer, Cologne-Stammheim, Roland Nast, Cologne-Buchheim, Karl-Georg Metzger, Wuppertal-Eilberfeld, and Dieter Fritsche, Wuppertal-Vohwinkel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,592
Claims priority, application Germany, Oct. 4, 1967, F 53,669
Int. Cl. C07d 51/78

U.S. Cl. 260—250 12 Claims
2-isothiuronium-methyl-3-carboxylic acid-amido-quinoxaline-1,4-di-N-oxide halides of the formula:

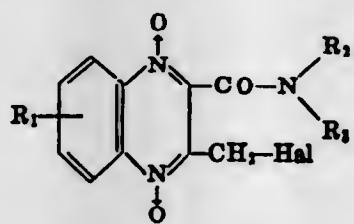


wherein

R₁ is hydrogen, lower alkyl, lower alkoxy or chlorine, R₂ is hydrogen, straight or branched chain alkyl or straight or branched chain alkyl substituted by hydroxy lower alkoxy, acyloxy, monoalkylamino or dialkylamino,

R₃ is hydrogen, straight or branched chain alkyl, straight or branched chain alkyl substituted by hydroxy, lower alkoxy, acyloxy, monoalkylamino or dialkylamino, or when R₂ is hydrogen, cyclohexyl, or R₂ and R₃ together with the amide nitrogen atom form part of a 5- or 6-membered heterocyclic ring, and Hal is chlorine or bromine,

are useful for their antibacterial effect. These compounds may be produced, inter alia, by reacting a 2-halomethyl-3-carboxylic acid amido-quinoxaline-1,4-di-N-oxide of the formula:



with thiourea, wherein R₁, R₂, R₃ and Hal are as above defined.

3,598,821
METHOD OF PREPARING N-SUBSTITUTED 1,4,5,6-TETRAHYDRO-6-OXO-3-PYRIDAZINE CARBOXYLIC ACIDS

Arnold E. Young and John C. Little, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,387
Int. Cl. C07d 51/04

U.S. Cl. 260—250 7 Claims
The present disclosure is directed to a process for the preparation of N-substituted 1,4,5,6-tetrahydro-6-oxo-3-pyridazine carboxylic acids. These acids are known in the art and are useful as intermediates in the preparation of N-substituted glutamines.

3,598,822
3-SUBSTITUTED AMINO-6-HYDRAZINO PYRIDAZINES

Paul L. Anderson, Denville, and William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,764
Int. Cl. C07d 51/04

U.S. Cl. 260—250 5 Claims
Amino pyridazines substituted with a 6-hydrazino group, e.g., 3-diallylamino-6-hydrazino pyridazine, are active as hypotensives and anorexics.

3,598,823
TRICYCLIC QUINAZOLINONES

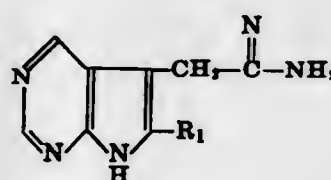
Goetz E. Hardtmann, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Filed May 28, 1969, Ser. No. 828,757
Int. Cl. C07d 57/12

U.S. Cl. 260—256.4 17 Claims
The compounds are biologically active tricyclic quinazolinones of the class of imidazo[2,1-b]quinazolin-5-ones, pyrimido[2,1-b]quinazolin-6-ones and diazepino[2,1-b]quinazolin-7-ones. Processes for preparation of said compounds include the reaction of a N-carboxy anthranilic anhydride (an isatoic anhydride), or an anthranilic acid with a cyclic pseudothiourea such as 2-organomer-capto-4,5-dihydroimidazole or 2-organomer-capto-3,4,5,6-tetrahydropyrimidine.

3,598,824
7H-PYRROLO 2,3-d PYRIMIDINE-5-ACETIMIDATES

Franz Troxler, Bottmingen, and Gerhard Bormann, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Filed July 15, 1969, Ser. No. 841,959
Claims priority, application Switzerland, July 23, 1968, 11,048/68
Int. Cl. C07d 57/14

U.S. Cl. 260—256.4 2 Claims
Compounds of the formula:



wherein R₁ is hydrogen or methyl, and the acid addition salts thereof.

The compounds possess strong ganglia-stimulating properties.

3,598,825
2(4 PHENYL PIPERAZINO METHYL) 3 QUINUCLIDINONES

John H. Biel and Harvey B. Hopps, Milwaukee, Wis., assignors to Aldrich Chemical Company, Inc., Milwaukee, Wis.
No Drawing. Filed Dec. 13, 1967, Ser. No. 690,087
Int. Cl. C07d 51/70

U.S. Cl. 260—268 6 Claims
2-[N'-(o-(lower)alkoxyphenyl)piperazinomethyl]-3-quinuclidinone and the pharmaceutically acceptable nontoxic salts thereof are useful as tranquilizers and central nervous system depressants in mammals.

3,598,826
PRODUCTION OF 1,1'-ETHYLENE-1,1',2,2'-TETRAHYDRO-2,2'-BIPYRIDYL

John Francis Cairns and John Anthony Corran, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Sept. 26, 1968, Ser. No. 763,002
Claims priority, application Great Britain, Oct. 10, 1967, 45,542/67
Int. Cl. C07d 51/64

U.S. Cl. 260—268 2 Claims
1,1'-ethylene-1,1',2,2'-tetrahydro-2,2'-bipyridyls, useful as intermediates for the manufacture of herbicides, as prepared by the reduction of ethylene-bis-pyridinium salts.

3,598,827
PREPARATION OF MONOMERIC OR DIMERIC IMINES AND PYRROLES

John Charles Leflingwell, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
No Drawing. Continuation-in-part of application Ser. No. 595,003, Nov. 17, 1966. This application Apr. 7, 1969, Ser. No. 814,170
Int. Cl. C07d 27/26; C07c 119/00

U.S. Cl. 260—288 3 Claims
Treatment with manganese dioxide of organo primary amines having at least one hydrogen atom in alpha position to the amino group.

3,598,828
1-OXA-3,8-DIAZA SPIRO(4,5)-2-DECANETHIONE COMPOUNDS

Gilbert Regnier, Sceaux, Roger Canevari, Clamart, Jean-Claude Le Douarec, Suresnes, and Jacques Duhault, Chatou, France, assignors to Societe en nom Collectif "Science Union et Cie, Societe Francaise de Recherche Medicale," Suresnes, France
No Drawing. Filed July 25, 1969, Ser. No. 845,061
Claims priority, application Great Britain, July 29, 1968, 36,100/68
Int. Cl. C07d 29/34

U.S. Cl. 260—293.4F 9 Claims
There are provided novel 1-oxa-3,8-diaza-8-phenethyl spiro(4,5)-2-decanethiones which may, if desired, be substituted on the phenyl nucleus by halogen, trifluoromethyl, lower alkyl or lower alkoxy having from 1 to 4 carbon atoms in the alkyl moiety, methylenedioxy, sulfamido, dimethylsulfamido, nitro, amino or acylamino groups.

These compounds possess bronchodilator, antitussive, analgesic, anti-inflammatory and gastric antisecretory properties.

3,598,829
CERTAIN ISOXAZOLYLPYRIDINES AND ISOTHIAZOLYLPYRIDINES

Victor John Bauer, Montvale, and Sidney Robert Saffir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of application Ser. No. 662,281, Aug. 22, 1967, which is a continuation-in-part of application Ser. No. 535,714, Mar. 21, 1966. This application Nov. 10, 1969, Ser. No. 875,524
Int. Cl. C07d 31/48

U.S. Cl. 260—294.8D 9 Claims
This application describes the preparation of isoxazoly-pyridines and isothiazoly-pyridines as new compounds and also their use in preparing the corresponding quaternary isoxazoly-pyridinium salts and quaternary isothiazoly-pyridinium salts. The quaternary isoxazoly-pyridinium salts and quaternary isothiazoly-pyridinium salts are useful for their hypoglycemic activity.

3,598,830
5-SUBSTITUTED-1,3,4-THIADIAZOLE-2-CARBOXALDEHYDES

Gerald Berkelhammer, Princeton, and Goro Asato, Titusville, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Oct. 11, 1968, Ser. No. 767,004
Int. Cl. C07d 91/62

U.S. Cl. 260—302D 4 Claims
This invention relates to novel 5-amino, 5-acetamido and 5-nitro-1,3,4-thiadiazole-2-carboxaldehydes and their derivatives. These compounds are useful as antibacterial or antifungal agents and are important intermediates for the preparation of 2-amino-5-(1-substituted-2-imidazoly)-1,3,4-thiadiazoles.

3,598,831
ANTHRAQUINONE PIGMENT DYES

Xaver Pfister, Riehen, near Basel, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Continuation-in-part of application Ser. No. 466,112, June 22, 1965. This application Sept. 29, 1967, Ser. No. 671,607
Claims priority, application Switzerland, July 3, 1964, 8,732/64; July 17, 1964, 9,383/64
Int. Cl. C09b 1/42

U.S. Cl. 260—303 10 Claims
The invention relates to dyes of the anthraquinone series which are highly apt for the pigmentation of semi- or fully synthetic artificial materials, natural and synthetic resins and their solutions, natural or synthetic rubber or paper. The pigmented materials show good color resistance to heat, light and chemicals, and the pigment shows no tendency to migration.

3,598,832
5-ESTERIFIED HYDROXY-THIAZOLIDINE-4-CARBOXYLIC ACID COMPOUNDS

Robert Burns Woodward, 12 Oxford St., Cambridge, Mass. 02138
No Drawing. Original application Aug. 22, 1966, Ser. No. 573,865, now Patent No. 3,481,948. Divided and this application Dec. 16, 1968, Ser. No. 784,193
Claims priority, application Switzerland, Sept. 10, 1965, 12,623/65; Dec. 9, 1965, 16,973/65, 16,974/65; Feb. 3, 1966, 1,530/66
Int. Cl. C07d 91/14

U.S. Cl. 260—306.7 7 Claims
2,2-disubstituted 3-acyl-thiazolidine-4-carboxylic acid compounds containing in 5-position a hydroxy group esterified by a strong acid are intermediates which are useful in the synthesis of 7-amino-cephalosporanic acid compounds.

3,598,833

2-CYCLOALKYLAMINO-OXAZOLINES

Rudolf Hiltmann and Hartmund Wollweber, Wuppertal-Elberfeld, Kurt Stoepe, Wuppertal-Vohwinkel, and Walter Puls, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Sept. 22, 1967, Ser. No. 669,691

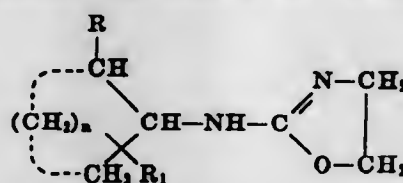
Claims priority, application Germany, Sept. 27, 1966, F 50,296

Int. Cl. C07d 85/36

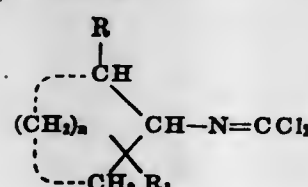
U.S. Cl. 260—307

30 Claims

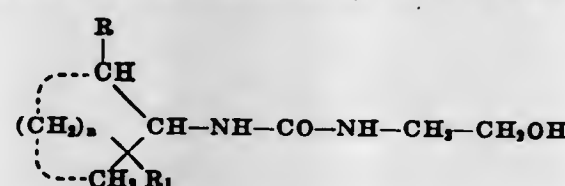
2-cycloalkylamino-oxazolines of the formula:



wherein R is lower alkyl of 1 to 3 carbon atoms, R₁ is hydrogen or at least one lower alkyl of 1 to 5 carbon atoms and n is an integer from 2 to 4, and wherein the cycloalkyl moiety may contain a double bond provided that, if there is a double bond, such is not in the α,β-position, are prepared by reacting 2-cycloalkylisocyanide dichlorides of the formula:



wherein R, R₁ and n are as above defined, and in which the cycloalkyl moiety may contain a double bond, with the proviso that if there is a double bond, such is not in the α,β-position, with ethanolamine in organic solvents or in water and, if desired, with the addition of a base or they may be prepared by cyclizing reactive esters of N-cycloalkyl-N'-β-hydroxyethyl-ureas of the formula:



wherein R, R₁ and n have the above defined meanings and in which the cycloalkyl moiety may contain a double bond, with the proviso that if there is a double bond, such is not in the α,β-position, by heating in hot water optionally at temperatures above 100° C. under pressure and precipitating the bases by means of ammonia or alkali from the resultant aqueous solution of the 2-cycloalkylamino-oxazoline salts formed. When R₁ is hydrogen, the hydrogen atom is attached to a carbon atom so that in all cases each carbon atom maintains the proper valence. R and R₁ may be all cis, all trans, or some may be cis and the remaining trans. The amino group attached to the carbon atom in the 1-position in the cycloalkyl ring can also be cis or trans. The 2-cycloalkylamino-oxazolines are useful as local anesthetics, sedatives, vasoconstrictors, blood pressure depressants and they also exhibit an inhibitory effect on the secretion of gastric fluid thereby making them valuable for treating hypertension and ulcers. By virtue of their blood sugar increasing effect, these compounds can also be used in humans and animals in the treatment of diseases whereby increase in blood sugar is desirable. These compounds are administered in the same dosage range and by the same routes of administration as compounds already known to have the above specified effects and properties.

The asymmetrical 2-cycloalkylamino-oxazolines of the present invention exist in racemic form and as is known such racemates can be resolved into their optical isomers.

3,598,834

PROCESS FOR PRODUCING 3-AMINOISOXAZOLE

Katsura Morita, Ikeda, Osaka, Naoto Hashimoto, Suita, Osaka, and Koichi Matsumura, Ikuno-ku, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Dec. 13, 1968, Ser. No. 783,741

Claims priority, application Japan, Dec. 13, 1967, 42/79,893

Int. Cl. C07d 85/22

U.S. Cl. 260—307

6 Claims

3-aminoisoxazole is produced by subjecting a novel alkylideneaminoxyacrylonitrile of the formula



wherein R=an alkylidene group having 2 to 8 carbon atoms to hydrolysis and ring-closure at a temperature of -10° to 100° C. under acidic conditions in high yields and without being accompanied by any appreciable quantities of by-product.

3,598,835

CERTAIN BENZOCYCLOHEPTOXAZOLONE COMPOUNDS

Eugene E. Galantay, Morristown, N.J., assignor to Sandoz-Wander, Inc. Hanover, N.J.

No Drawing. Application Dec. 18, 1967, Ser. No. 691,171, now Patent No. 3,408,360, dated Oct. 29, 1968, which is a continuation-in-part of applications Ser. No. 591,980, Nov. 4, 1966, and Ser. No. 645,471, June 12, 1967. Divided and this application June 9, 1968, Ser. No. 807,139

Int. Cl. C07d 85/48

U.S. Cl. 260—307A

25 Claims

The compounds are of the class of 4-(3-mono- or dialkylaminopropylidene)-2-lower alkyl - 9,10-dihydro-4H-benzo[5,6]cyclohepta [1,2-d]oxazoles. The compounds are useful as tranquilizers and are prepared by converting a 6,7,8,9-tetrahydro-5H-benzocyclohepten-5-one to a 2-lower alkyl-9,10-dihydro-4H-benzo[5,6]cyclohepta[1,2-d]oxazol-4-one, which is then reacted with a metallo-dialkylaminopropyl halide Grignard reagent, and dehydrating the carbinol resulting from the hydrolysis of the Grignard adduct to obtain the corresponding 4-(3-dialkylaminopropylidene)-2-lower alkyl-9,10 - dihydro-4H-benzo[5,6]cyclohepta[1,2-d]oxazole, which may then be N-dialkylated to the corresponding 3-alkylaminopropylidene-containing analog.

3,598,836

TRIAZOLINE DERIVATIVES

Hiroshi Tanida, Osaka, and Teruji Tsuji, Takatsuki-shi, Japan, assignors to Shionogi & Co. Ltd, Osaka, Japan

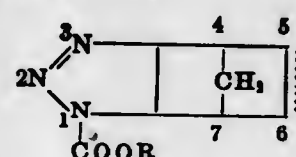
No Drawing. Original application Oct. 27, 1965, Ser. No. 505,400, now Patent No. 3,445,456, dated May 20, 1969. Divided and this application Sept. 18, 1968, Ser. No. 798,220

Int. Cl. C07d 55/02

U.S. Cl. 260—308

4 Claims

Compounds of the formula:



and the acid addition salts thereof, wherein R represents lower alkyl, aryl or ar(lower) alkyl and wherein the symbol $\frac{1}{2}$ represents hydrogen atoms at positions 5 and 6, a double bond between said positions or a condensed benzene ring between said 5- and 6-positions said ring being unsubstituted or substituted with one or more substituents selected from lower alkyl, lower alkoxy, halogen, amino, alkylamino, di(lower)alkylamino and cyano. The compounds are useful as intermediates for production of anti-depressants or psychomotor stimulants.

3,598,837

OLEFIN COMPLEXES OF MOLYBDENUM AND TUNGSTEN

Fausto Calderazzo and Rene Henzi, Geneva, Switzerland, assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Sept. 5, 1967, Ser. No. 665,248

Int. Cl. C07d 27/18

U.S. Cl. 260—326.3

9 Claims

Halogen pentacarbonyl anions of Group VI transition metals, molybdenum and tungsten, of the formula



are reacted with active double-bond compounds, such as maleic anhydride and maleimide, and conjugated double-bond compounds, such as p-benzoquinone. The compounds are new. Also, hexacarbonyls of the same transition metals react with p-benzoquinone to give neutral complexes in which there are three quinone ligands per metal. These complexes, which are also new chemical compounds, may exist either as monomers or polymers.

3,598,838

METHOD OF PURIFYING AMINO ACIDS

Koji Toi, Yokohama-shi, Naoko Nakayama, Naotake Sato, Takekazu Akashi, and Noboru Uchiyama, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,450

Claims priority, application Japan, Aug. 28, 1967, 42/55,140; Mar. 27, 1968, 43/19,883

Int. Cl. C07d 27/04; C07c 61/00

U.S. Cl. 260—326.3

3 Claims

Proline, glycine, alanine, valine, phenylalanine, methionine, and lysine form adducts with chlorendic acid, which are insoluble or only sparingly soluble in water, and may thereby be separated from all other amino acids which do not form insoluble chlorendic acid salts under these conditions.

3,598,839

PHENYLBENZOTHIOPHENE COMPOUNDS

James S. Kaltenbromm, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed June 30, 1969, Ser. No. 837,917

Int. Cl. C07d 63/22; A61k 27/00

U.S. Cl. 260—330.5

7 Claims

Novel phenylbenzo[b]thiophenes (I) having pharmacological activity are provided by reduction of the corresponding acetic acids, acetonitriles, acetamides or N-acyl-ethylamines and by N-alkylation of the corresponding primary and secondary amines



where one of R₁ and R₂ is



or



and the other is phenyl, fluorophenyl or chlorophenyl, R₁ being attached at position 3 or 4 and R₂ is hydrogen or lower alkyl.

The compounds have anti-inflammatory properties and are useful agents in dosage form for treating inflammation.

3,598,840

3-ACETOXY-FLAVANONES AND THEIR PRODUCTION

Bernard Majole, Dijon, France, assignor to Societe de Recherches Industrielles, Dijon, France

No Drawing. Filed July 25, 1968, Ser. No. 747,501

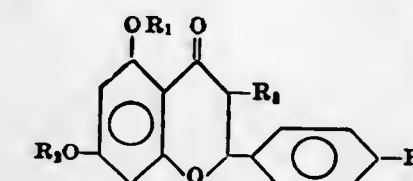
Claims priority, application France, July 26, 1967, 862; Feb. 15, 1968, 883

Int. Cl. C07d 7/20

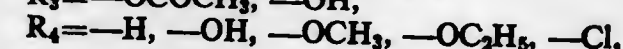
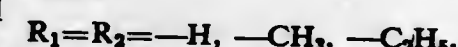
U.S. Cl. 260—345.2

8 Claims

This disclosure concerns compounds of the general formula:



where



and alkali metal salts thereof. These compounds show anti-nephrotoxic properties. These compounds are characterized chemically by the presence of a hydroxy or acetoxy radical in the 3-position. The invention is also concerned with methods of synthesis which consist successively in condensing acetonitrile and phloroglucinol or its alkoxy derivative in ether in the presence of zinc chloride to obtain trihydroxy-acetophenone or its alkoxy derivative; condensing this product with benzaldehyde or its para-hydroxy or alkoxy derivatives to obtain 5,7,4'-trihydroxy-flavanone. Alternately the product obtained in the first step can be condensed with p-chloro-benzaldehyde to obtain 5,7-dihydroxy chloroflavanone or its alkoxy derivatives. On the product obtained is introduced an acetoxy radical in the 3-position by maintaining this compound boiling under reflux in ethyl alcohol in the presence of iodine and of a metallic acetate such as an acetate of silver, lead, sodium or zinc in order to obtain 3-acetoxy-5,7,4'-trihydroxy-flavanone or its derivatives. The product obtained is saponified with dilute sodium to obtain 3,5,7,4'-tetra-hydroxy-flavanone or its derivatives.

3,598,841

PROCESS FOR CONVERTING TANGERETIN TO NOBILETIN

Lyle J. Swift, Winter Haven, Fla., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,253

Int. Cl. C07d 7/34

U.S. Cl. 260—345.5

1 Claim

A process is provided for converting tangeretin to nobiletin, the latter being effective against a fungus that affects citrus seedlings.

3,598,842

PROCESS FOR THE PREPARATION OF ALKYLATED 2,3-DIHYDROBENZO-FURANS AND ALKYLATED 2,3-DIHYDRO-NAPHTHOFURANS

Joseph C. Martini, Houston, Tex., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 731,271, May 22, 1968. This application Mar. 24, 1969, Ser. No. 809,947

Int. Cl. C07d 5/36

U.S. Cl. 260—346.2

15 Claims

A process is defined for the preparation of cyclic ethers by the condensation of phenolics, such as phenol, with certain aldehydes containing tertiary carbon atoms, such as isobutyraldehyde, using a strong acid catalyst, such as H₂SO₄. The single ring phenolics produce alkylated

coumaran type cyclic ethers such as 2,2-dimethyl coumaran. The two condensed ring phenolics, such as beta-naphthol, produce the alkylated naphthofuran type cyclic ethers. Beta-naphthol is unique in also producing 3,4,5,6-dinaphtho-2-isopropylpyran, a composition of matter useful as an ultraviolet light absorber. The aqueous hydrogen halides are unique in promoting the selective condensation of meta-cresol with isobutyraldehyde from admixture with para-cresol to allow for the separation and recovery of substantially pure para-cresol.

3,598,843 GLYCIDAMIDES

William E. Adcock, Ridgewood, N.Y., assignor to Shell Oil Company, New York, N.Y.
No Drawing. Filed May 28, 1968, Ser. No. 732,559
Int. Cl. C07d 1/20

U.S. Cl. 260—348 12 Claims
2-phenylglycidamides such as 3-chloro-2-(2,4-dichlorophenyl)glycidamide, are described. The compounds have utility in the polymer field and also possess useful biological activity.

3,598,844 AZIDOCINNAMIC ALDEHYDES

Hans Ruckert, Wiesbaden, and Walter Lüders, Neu-Isenburg, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
No Drawing. Continuation-in-part of application Ser. No. 741,296, July 1, 1968. This application Jan. 29, 1970, Ser. No. 6,944
Claims priority, application Germany, July 6, 1967, P 16 43 322.0
Int. Cl. C07c 117/00

U.S. Cl. 260—349 1 Claim
Azidocinnamic aldehydes, which may be nucleo- or side-chain-substituted are prepared either by reacting azidobenzaldehydes with vinyl alkyl ethers or by reacting azidoacetophenone with a mixture of phosphorus oxychloride and dimethyl formamide. The azidocinnamic aldehydes can be converted to azidochalkones by condensation with methyl aryl ketones which azidochalkones are useful as photo-sensitive materials.

3,598,845 INTERMEDIATES IN SYNTHESIS OF 16-DEHYDROPROGESTERONE

William S. Johnson, Portola Valley, Calif., assignor to The Board of Trustees of the Leland Stanford Junior University
No Drawing. Filed Dec. 30, 1968, Ser. No. 788,092
Int. Cl. C07c 169/00, 169/20

U.S. Cl. 260—397 6 Claims
dl-pregna-4,16-diene-3,20-dione (16 - dehydroprogesterone) and dl-17-formylandrosta-4,16-diene-3,20-dione are prepared by a series of reactions starting with 1-methylcyclopropyl methyl ketone.

3,598,846 METHOD FOR HYDROLYZING TETRACHLOROALKANES

Ryoichi Wakasa, Kazuo Saitome, and Toshiaki Yamazaki, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
No Drawing. Continuation of application Ser. No. 658,045, Aug. 3, 1967, which is a continuation-in-part of application Ser. No. 359,776, Apr. 14, 1964. This application Aug. 12, 1969, Ser. No. 850,340
Int. Cl. C11c 3/00

U.S. Cl. 260—408 6 Claims
A method for producing in high yield α -chlorocarboxylic acids of the formula $\text{Cl}(\text{CH}_2)_n\text{COOH}$, wherein n is an even integer between 10 and 14 inclusive. Said

method comprises simultaneously contacting a tetrachloroalkane of the formula $\text{Cl}(\text{CH}_2)_n\text{CCl}_4$, wherein n is as defined above with nitric acid or fuming nitric acid, particularly fuming nitric acid of specific gravity greater than 1.50, in the presence of oxygen at a temperature of 40°–80° C. to form a mixture and passing gaseous nitrogen dioxide in an amount of at least 1/2 of the weight of the nitric acid used through said mixture to convert the tetrachloroalkane to the corresponding α -chlorocarboxylic acid.

3,598,847 METHOD FOR MAKING MOLYBDENUM NAPHTHENATE PRODUCT

Melvin L. Larson, Royal Oak, Mich., assignor to American Metal Climax, Inc.
No Drawing. Filed Aug. 12, 1968, Ser. No. 751,740
Int. Cl. C07f 11/00; C10m 1/24

U.S. Cl. 260—429 7 Claims
An improved process for synthesizing molybdenum naphthenate product employing molybdenyl bis-acetylacetonate and naphthenic acid which are reacted at an elevated temperature producing the molybdenum naphthenate product in comparatively high yields suitable for commercial production. The product has utility as an additive for lubricating oils.

3,598,848 GROUP VI-B TRANSITION METAL-AMINO-PHOSPHORODITHIOATES AND METHOD FOR PRODUCING SAME

Phyllis Dodds, Wysox, and Vincent Chiola, Towanda, Pa., assignors to Sylvania Electric Products Inc.
No Drawing. Filed Sept. 5, 1968, Ser. No. 757,788
Int. Cl. C07f 11/00; C10m 1/48

U.S. Cl. 260—429R 14 Claims
Group VI-B transition metal-amino-phosphorodithioates, which are the reaction products of amine salts of Group VI-B oxyacids and phosphorodithioic acids, are disclosed. A process for producing the before-mentioned compounds is also disclosed that comprises contacting an acidic aqueous medium containing the Group VI-B metal source with a water-immiscible organic medium containing an alkyl amine and reacting said product with a phosphorodithioic acid and recovering the compounds of this invention. Lubricating compositions containing the compounds of this invention are also disclosed.

3,598,849 TRICYCLOHEXYLTIN ESTERS

Donald E. Bublitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Sept. 20, 1968, Ser. No. 761,313
Int. Cl. C07f 7/22

U.S. Cl. 260—429.7 12 Claims
Novel tricyclohexyltin esters wherein the ester moiety is selected from ferrocenylcarbonyloxy, pyridylcarbonyloxy, phenoxyacetoxy, chlorophenoxyacetoxy, and phenylthioacetoxy. These compounds are useful as pesticides.

3,598,850 FERROCENE POLYGLYCOLS

Fred M. Dewey, Denver, Colo., assignor to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed June 11, 1969, Ser. No. 832,496
Int. Cl. C08g 43/00; C10f 9/10; C07f 15/02

U.S. Cl. 260—439 10 Claims
A method for synthesizing ferrocene polyglycol copolymers which are useful as components of rocket propellant compositions. The copolymers are formed by ef-

fecting a polycondensation-reaction between (1) a bis(α -hydroxyalkyl) ferrocene, (2) a substituted dihydroxy alcohol and (3) a catalytic amount of boron trifluoride etherate.

3,598,851 CYCLIC ORGANOSILICON MATERIALS

Bruce A. Ashby, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Application Sept. 20, 1967, Ser. No. 679,948, which is a division of application Ser. No. 330,607, Dec. 16, 1963, now Patent No. 3,360,538. Divided and this application Jan. 23, 1970, Ser. No. 5,373

Int. Cl. C07f 7/08, 7/10 2 Claims
Organosilicon cyclics containing radicals of the formula $\text{H}(\text{C}_2\text{F}_4)_n\text{CHR}-\text{C}(\text{R})_m-$, are useful in making solvent resistant rubber. In the above formula, R is a member selected from the class consisting of hydrogen and a lower alkyl radical, n is an integer equal to from 1 to 3, inclusive R' is a member selected from the class consisting of monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals, and cyanoalkyl radicals, and m is an integer equal to from 3 to 8, inclusive.

3,598,852 METHOD OF PREPARING ISOCYANURATE CONTAINING ORGANOSILICON MATERIALS

Abe Berger, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Original application Sept. 20, 1967, Ser. No. 669,298, now Patent No. 3,494,951. Divided and this application Aug. 15, 1969, Ser. No. 870,718
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.2E 2 Claims
A method is provided for making various nitrogen-containing organosilicon compounds, such as silylorganosilicates, the corresponding carbamate and isocyanurates. The method involves contacting silylorganohalide and a metal cyanate in the presence of a suitable aprotic solvent. Nitrogen-containing organosilicon compounds are provided having silicon and nitrogen atoms separated by a divalent hydrocarbon radical. In instances where a urethane is desired, an appropriate aliphatic monohydric alcohol can be utilized in combination with the silylorganohalide and metal cyanate. The subject nitrogen-containing organosilicon compounds can be utilized for making silicon-organic copolymers and as treating agents for imparting water repellency to various substrates.

3,598,853 METHOD OF PREPARING AMINOISOALKOXY-ALKYLSILANES AND 3-(2-METHYL-3-AMINO-PROPOXY) PROPYLTRIMETHOXYSILANE PRODUCED THEREBY

Norman J. Friedman, Latham, and Abe Berger and Terry G. Selin, Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed July 17, 1968, Ser. No. 745,345
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.8R 7 Claims
A quaternary ammonium hydroxide type of ion exchange resin is used in a cyanoethylation type reaction between a branched chain olefinic nitrile and an unsaturated alcohol. The cyano(branched alkoxy)alkene produced is then reacted with a silane by an SiH-olefin addition reaction. The corresponding amine is made from the nitrile by hydrogenation at low pressure. One of the silanes produced by the above method, 3-(2-methyl-3-aminopropoxy)propyltrimethoxysilane, is an exceptionally valuable component in detergent resistant polishes.

3,598,854 ALKYLHYDROXYPHENYLTHIOALKANOATES

David Herbert Steinberg, Bronx, N.Y., assignor to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,368
Int. Cl. B01j 1/16; C07c 153/07

U.S. Cl. 260—455 8 Claims

Alkylhydroxyphenylthioalkanoic acid esters of mono- and polymercaptoalkanoic acid esters prepared by known thiole esterification procedures, are stabilizers of organic material subject to oxidative deterioration.

3,598,855 CYCLIC BORATES

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Dec. 2, 1968, Ser. No. 780,601
Int. Cl. C08g 33/18; C07d 107/02

U.S. Cl. 260—462R 6 Claims
Cyclic borate of polymeric alkanolamine formed by reacting a borylating agent with a polymeric alkanolamine. The cyclic borate is used as an additive in organic substances to inhibit deterioration due to oxidation, weathering, heat or other undesired reactions.

3,598,856 t-ALKYL PENTACHLOROPHENYL CARBONATE

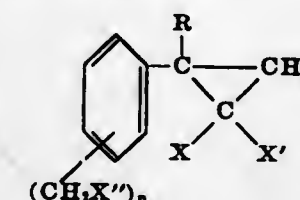
Masahiko Fujino, Takarazuka, Hyogo, and Chitoshi Hananaka, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,218
Claims priority, application Japan, Apr. 20, 1967, 42/25,289

Int. Cl. C07c 69/00, 125/06; C07d 27/60 1 Claim
U.S. Cl. 260—463
The compounds t-butyl pentachlorophenyl carbonate and t-amyl pentachlorophenyl carbonate are excellent t-alkoxycarbonylating agents, especially useful in the industrial production of peptides and t-alkoxycarbonylamino compounds generally.

3,598,857 CYANOMETHYL SUBSTITUTED DERIVATIVES OF DIHALOPHENYLCYCLOPROPANE

Herman A. Bruson, Woodbridge, and Howard L. Plant, Milford, Conn., assignors to Olin Mathieson Chemical Corporation
No Drawing. Filed Sept. 30, 1968, Ser. No. 763,932
Int. Cl. C07c 121/06, 121/66

U.S. Cl. 260—465 4 Claims
Halomethyl substituted derivatives of dihalophenylcyclopropanes having the formula:



wherein X, X', X'' are each selected from the group consisting of chlorine, bromine, iodine, R is selected from the group consisting of hydrogen or alkyl of from 1 to 5 inclusive carbon atoms and n is an integer of from 1 to 2 inclusive; are prepared by reacting formaldehyde and an acid, such as hydrobromic acid, with a dichlorocarbene adduct of styrene. In the second phase the halomethyl derivatives are reacted with an alkali metal cyanide to form cyanomethyl substituted derivatives of the dihalophenylcyclopropanes. The compounds, which contain a high percentage of halogen, are useful as fire retardants for plastic materials such as polyethylene and, in addition, the cyanomethyl derivatives are valuable soil fungicides and herbicides.

3,598,858
PGE₂ AND PGE₃
 Sune Bergstrom, 12 Danderydsgatan, and Jan Sjövall, Kemiska Institutionen, Karolinska Institutet, both of Stockholm, Sweden
 No Drawing. Continuation-in-part of applications Ser. No. 738,514, May 28, 1958, and Ser. No. 199,209, Apr. 9, 1962. This application June 20, 1962, Ser. No. 203,752
 Claims priority, application Great Britain, Mar. 29, 1962, 12,139/62
 Int. Cl. C07c 69/74
 U.S. Cl. 260—468 2 Claims
 PGE₂, PGE₃, their salts and esters, free of antigens and pyrogens. PGE type compounds exhibit blood pressure lowering and smooth muscle stimulating properties.

3,598,859
N,N-DISUBSTITUTED AMINO ACID HERBICIDES
 John Yates, Whistable, and David H. Payne, near Sittingbourne, England, assignors to Shell Oil Company, New York, N.Y.
 No Drawing. Filed Dec. 28, 1967, Ser. No. 694,116
 Claims priority, application Great Britain, Dec. 30, 1966, 58,406/66
 Int. Cl. C07c 103/30, 125/06
 U.S. Cl. 260—471 7 Claims
 N,N-disubstituted amino acid derivatives such as N-benzoyl-N-(3,4-dichlorophenyl) alanine, herbicidal compositions containing them, and their use for controlling undesirable plant growth.

3,598,860
2 - [4 - (3',4' - DIPHENYLCYCLOPENTYL)-PHE-NOXY] LOWER ALIPHATIC MONOCARBOXYLIC ACIDS AND ESTERS THEREOF
 Rudolf G. Griot, Florham, N.J., assignor to Sandoz-Wander, Inc.
 No Drawing. Filed July 8, 1968, Ser. No. 743,039
 Int. Cl. C07c 39/12, 65/00, 69/76
 U.S. Cl. 260—473 3 Claims
 The invention relates to 2 - [4-(3',4'-diphenylcyclopentyl)phenoxy] lower aliphatic monocarboxylic acids and the corresponding lower alkyl esters, and to a process for their production. The compounds are useful as hypolipidemics.

3,598,861
2-(5'-PHENYL-m-TERPHENYL - 4 - YLOXY) LOWER ALIPHATIC MONOCARBOXYLIC ACIDS AND ESTERS THEREOF
 Rudolf G. Griot, Florham, N.J., assignor to Sandoz-Wander, Inc.
 No Drawing. Filed July 8, 1968, Ser. No. 743,040
 Int. Cl. C07c 69/76, 65/00
 U.S. Cl. 260—473 3 Claims
 The invention relates to 2 - (5'-phenyl-m-terphenyl-4-yloxy) lower aliphatic monocarboxylic acids and the corresponding lower alkyl esters, and to a process for their production. The compounds are useful as hypolipidemics. This invention relates to derivatives of aliphatic acids.

3,598,862
2 - [4 - (3',5' - DIPHENYLCYCLOHEXYL) - PHE-NOXY] LOWER ALIPHATIC MONOCARBOXYLIC ACIDS AND ESTERS THEREOF
 Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz-Wander, Inc.
 No Drawing. Filed July 8, 1968, Ser. No. 743,056
 Int. Cl. C07c 69/76, 65/00, 39/12
 U.S. Cl. 260—473 3 Claims
 The invention relates to 2-[4-(3',5'-diphenylcyclohexyl)-phenoxy] lower aliphatic monocarboxylic acids and the

corresponding lower alkyl esters, and to a process for their production. The compounds are useful as hypolipidemics.

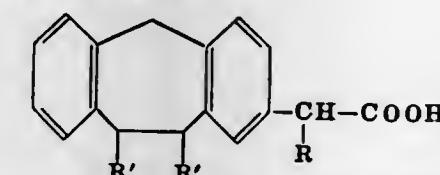
3,598,863
PREPARATION OF HYDROXYBENZOPHENONE BENZOATE
 Edwin J. Strojny, Midland, and James R. Dewald, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed June 10, 1968, Ser. No. 735,569
 Int. Cl. C07c 69/78, 67/00
 U.S. Cl. 260—476 8 Claims
 The benzoate of hydroxybenzophenone is obtained as a principal reaction product by heating a mixture of benzoic anhydride, cupric benzoate, at least one of iron, zinc, cobalt, or magnesium benzoate, and optionally a small amount of free benzoic acid at 220–320° C. in the presence of molecular oxygen. The product can be hydrolyzed to make hydroxybenzophenone, a useful chemical intermediate and fungicide.

3,598,864
BISPHENOL POLY(ESTER-AMIDES)
 John R. Caldwell and Winston J. Jackson, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Aug. 20, 1969, Ser. No. 851,727
 Int. Cl. C08g 20/30
 U.S. Cl. 260—476Z 6 Claims
 Poly(ester-amide) copolymers derived from bisphenols, aromatic dicarboxylic acids and aromatic amino acids have been found to exhibit improved solvent resistance, stress cracking resistance and also increased stiffness, tensile strength, hardness and heat distortion temperature.

3,598,865
POLYGLYCOSIDES AND PROCESS OF PREPARING MONO AND POLYGLYCOSIDES
 Baak W. Lew, Wilmington, Del., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.
 No Drawing. Filed Feb. 7, 1968, Ser. No. 703,539
 Int. Cl. C07c 47/18
 U.S. Cl. 260—210R 14 Claims
 Glycosides are prepared by reacting a monosaccharide, or a compound hydrolyzable to a monosaccharide, with a monohydric alcohol having from 8 to 25 carbon atoms, in the presence of an acid catalyst selected from the group consisting of sulfuric acid, hydrochloric acid, phosphoric acid, phosphorous acid, toluene-sulfonic acid, and boron trifluoride, and in the presence of a latent solvent selected from the group consisting of primary and secondary alcohols having from 3 to 5 carbon atoms. The glycosides of the present invention are advantageously used for a variety of purposes, such as gelling agents, lubricants, wetting agents, dyeing assistants, textile softeners and food emulsifiers.

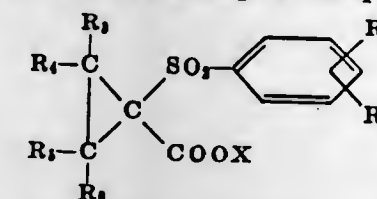
3,598,866
ADDUCTS OF ALKENYL ISOCYANATES WITH BISPHENOL A AND DERIVATIVES THEREOF
 Robert M. Nowak, James T. K. Woo, and Dietrich H. Heinert, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed June 16, 1969, Ser. No. 833,714
 Int. Cl. C07c 125/06
 U.S. Cl. 260—479 9 Claims
 Vinyl isocyanate and isopropenyl isocyanate react with Bisphenol A, halogenated Bisphenol A, and the alkylene oxide addition products thereof to form the corresponding bis(N-alkenylcarbamate) esters. These divinyl compounds are useful monomers and crosslinking agents.

3,598,867
DIBENZOCYCLOHEPTA-TRIENE AND DIENE DERIVATIVES
 Jean Clement Louis Fouche, Bourg-la-Reine, France, assignor to Rhone-Poulenc, S.A., Paris, France
 No Drawing. Filed Oct. 16, 1967, Ser. No. 675,296
 Claims priority, application France, Oct. 24, 1966, 81,341
 Int. Cl. C07c 63/44
 U.S. Cl. 260—515 5 Claims
 Dibenzocycloheptatriene and dibenzocycloheptadiene derivatives of the formula:



wherein R is hydrogen or methyl and the symbols R' each represent hydrogen or together form a single bond, and pharmaceutically-acceptable salts thereof, are useful as anti-inflammatory agents.

3,598,868
1-(PHENYLSULFONYL)CYCLOPROPANE-CARBOXYLIC ACIDS
 Donald J. Cram, Los Angeles, Calif., and Aleksander Ratajczak, Lodz, Poland, assignors to The Regents of the University of California, Berkeley, Calif.
 No Drawing. Filed Mar. 12, 1968, Ser. No. 712,381
 Int. Cl. C07c 147/06
 U.S. Cl. 260—515 14 Claims
 The invention is a new group of compounds:



wherein X is hydrogen or a non-toxic cation, and wherein R₁, R₂, R₃, R₄, and R₅ are hydrogen or alkyl. These compounds are useful as chelating agents, resolving agents, intermediates to produce insecticides, and as non-caloric sweeteners.

3,598,869
OXIDATION OF CYCLOHEXANE TO NYLON PRECURSORS
 Peter J. Volpe and William J. Humphrey, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.
 No Drawing. Continuation-in-part of application Ser. No. 519,296, Jan. 7, 1966. This application Dec. 5, 1967, Ser. No. 687,997
 Int. Cl. C07c 55/14
 U.S. Cl. 260—533C 5 Claims

A reaction product consisting of (a) cyclohexanone and cyclohexanol (KA) and (b) a mixture of carboxylic acid derivatives of cyclohexane comprising predominantly hydroxycaproic acid and adipic acid (COP acids), in which the ratio of COP acids to KA is particularly suitable for subsequent conversion to nylon salt by converting the COP acids to hexamethylene-diamine and the KA to adipic acid, is obtained by oxidizing cyclohexane in the liquid phase at a conversion per pass between 14% and 30%, with a reaction retention time between about 6 minutes and 80 minutes, and in the presence of a catalyst comprising at least one of the group consisting of cobalt and chromium, the conversion per pass and the catalyst composition being coordinated one with the other to attain the desired ratio of COP acids to KA in the oxidation product. The chromium:cobalt ratio in the oxidation catalyst is a significant independent variable which can be adjusted to control the COP acids:KA ratio at a given cyclohexane conversion rate.

3,598,870
METHOD OF MAKING THE TRIACID HALIDES OF PHOSPHONOACETIC ACID
 William A. Cilley, Springfield Township, and Oscar T. Quimby, Colerain Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
 No Drawing. Filed Mar. 27, 1968, Ser. No. 716,339
 Int. Cl. C07c 51/58
 U.S. Cl. 260—544 8 Claims

The triacid chloride and bromide of phosphonoacetic acid are prepared by a two step synthesis comprising reacting phosphorus pentachloride or bromide and ketene together to obtain a pentahalophosphorus derivative and thereafter converting the pentahalophosphorus derivative to the triacid chloride or bromide of phosphonoacetic acid by adding thereto SO₂ or about a stoichiometric amount of water.

3,598,871
MANUFACTURE OF 1,6-DIALKYLBIUREAS
 Charlotte Marie Kraebel, Alexandria, Va., assignor to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed Aug. 6, 1969, Ser. No. 848,105
 Int. Cl. C07c 133/02
 U.S. Cl. 260—554 7 Claims

1,6-dialkylbiureas are prepared by the reaction of hydrazine in a solvent with 2.0 to 5.0 moles of a corresponding 1,3-dialkylurea in the presence of from 0.05 to 14.0 moles of water and from 0.03 to 1.2 moles of an acid, by heating the solution in the range 100° C. to 170° C. Useful acids include hydrochloric, sulfuric, phosphoric, p-toluene sulfonic, benzene sulfonic and naphthalene sulfonic acids. The preferred solvents are high boiling ethereal solvents such as diglyme and dioxane. By-product alkylamine is reacted with urea to produce additional 1,3 - dialkylurea, which is recycled to the process.

3,598,872
O-CHLORINATED-PHENOXYACETYL-N,N-DIETHYLHYDROXYLAMINE
 Rudi F. W. Rätz, deceased, late of Hamden, Conn., by Margot I. H. Rätz, executrix, Hamden, Conn., and Miriam J. Gruber, Dover, N.J., assignors to The Anslul Company
 No Drawing. Filed Apr. 8, 1968, Ser. No. 719,778
 Int. Cl. C07c 97/10
 U.S. Cl. 260—568 4 Claims

Diethylamino esters of various chlorinated phenoxyacetic acids are prepared by the reaction of chlorinated phenoxyacetyl chlorides with N,N-diethylhydroxylamine in diethyl ether and in the presence of an acid acceptor. These compounds are highly effective herbicides.

3,598,873
MEANS FOR PURIFYING LOW MELTING POINT SOLIDS
 Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed Apr. 27, 1967, Ser. No. 634,352
 Int. Cl. C07c 39/04
 U.S. Cl. 260—621A 8 Claims

A continuous method for purifying low melting point solids by heating the solid material into a molten state and distributing it sequentially into a series of separate elongated moving zones which are externally heated by spaced heater means such that alternate heating and cooling takes place on the molten material. The result is a "molten wave" which, in effect, travels opposite to the direction of movement of the series of moving zones so that withdrawal may be in two stages. In a withdrawal stage for each zone, an impure stream is separately with-

drawn and a substantially purified stream separately withdrawn. Each emptied zone moves along to again pass through the entire cyclic operation.

3,598,874 PREPARATION OF CHLOROHYDRINS BY REACTING HYPOCHLOROUS ACID AND LONG-CHAIN OLEFINS

Richard K. Kloss, Forest Park, Gene W. Claybaugh, Green Township, Hamilton County, and David D. Whyte, Wyoming, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed May 9, 1969, Ser. No. 823,476
Int. Cl. C07c 31/34

U.S. Cl. 260—634 12 Claims
A process for preparing high molecular weight chlorohydrins comprises reacting dilute solutions of long-chain olefins with dilute hypochlorous acid in a 2-phase reaction for short reaction times to achieve low olefin conversions which minimize formation of undesirable by-products.

3,598,875 PRODUCTION OF DIHALOGEN ETHANES

Herbert Jenker, Cologne-Deutz, Germany, assignor to Chemische Fabrik Kalk G.m.b.H., Cologne-Kalk, Germany
No Drawing. Filed Oct. 7, 1966, Ser. No. 584,962
Claims priority, application Germany, Oct. 12, 1965, C 37,131
Int. Cl. C07c 17/00

U.S. Cl. 260—658 4 Claims
A process of producing 1-chloro-2-bromoethane by simultaneously introducing hydrogen bromide and vinyl chloride into 1-chloro-2-bromoethane in the presence of a peroxide, air or oxygen and initiating and carrying out the reaction at 0–80° C.

3,598,876 SELECTIVE HALOGENATION OF HYDROCARBONS

Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 411,071, Nov. 13, 1964. This application Nov. 13, 1967, Ser. No. 684,595
Int. Cl. C07c 17/10

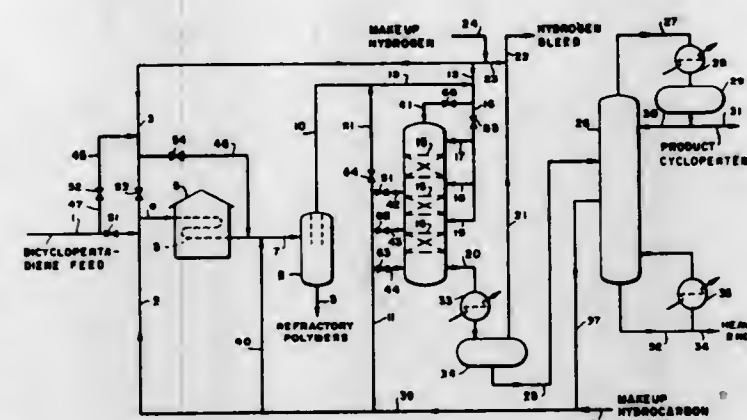
U.S. Cl. 260—660 10 Claims
The selective mono-halogenation of saturated hydrocarbons is effected by charging a saturated hydrocarbon and a halogenating agent to a thermal diffusion zone in which opposing walls of the zone are maintained at a temperature differential from about 100° to about 200° C. The hydrocarbon and halogenating agent will react therein to form mono- and poly-halogenated hydrocarbons. The mono-halogenated hydrocarbon will be removed from an intermediate point in the zone while the poly-halogenated hydrocarbon will be removed from a lower portion of the zone.

3,598,877 CYCLODIOLEFIN HYDROGENATION

Eugene B. Fountain, Berkeley, and Durga S. Ambwani, Oakland, Calif., assignors to Shell Oil Company, New York, N.Y.
Filed June 5, 1970, Ser. No. 43,878
Int. Cl. C07c 3/26

U.S. Cl. 260—666A 8 Claims
Dicyclopentadiene is depolymerized to monomeric cyclopentadiene, and the monomer selectively hydrogenated to cyclopentene with high overall selectivity by thermally depolymerizing the dicyclopentadiene in admixture with hydrogen and an hydrocarbon diluent at a sufficiently high pressure to allow introduction of the

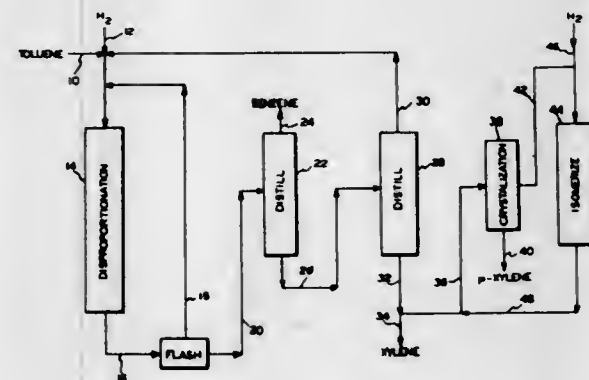
cracked products directly into the hydrogenation reactor, and then selectively hydrogenating the cyclopentadiene to



cyclopentene in the presence of an hydrogenation catalyst, such as sulfided nickel oxide.

3,598,878 ALKYL TRANSFER OF ALKYL AROMATICS WITH VANADIUM ON ZEOLITES

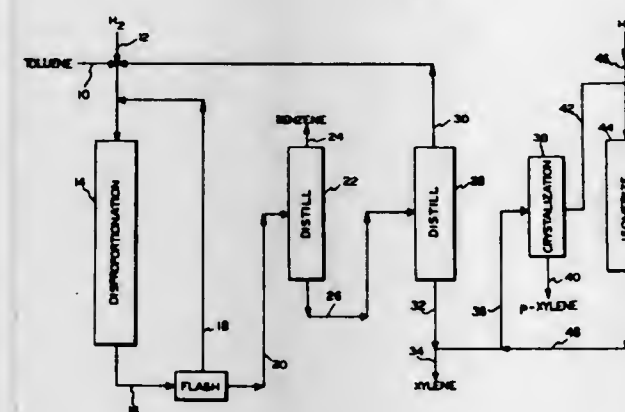
Stephen M. Kovach and Ronald A. Kmecak, Ashland, Ky., assignors to Ashland Oil, Inc., Houston, Tex.
Filed Dec. 19, 1968, Ser. No. 785,206
Int. Cl. C07c 3/58, 3/50; C01b 33/28
U.S. Cl. 260—672 8 Claims



A process for the alkyl transfer of alkyl aromatics including contacting an alkyl aromatic feed material, such as toluene, with a catalyst comprising a Group V metal, such as vanadium, deposited on a zeolite base at a temperature of about 700 to 1100° F., a pressure of about 0 to 2000 p.s.i.g., and a liquid hourly space velocity of about 0.1 to 10, and in the presence of hydrogen introduced at a rate of about 1 to 10 moles hydrogen per mole of hydrocarbon feed. Promoters selected from Group I, Group II, Group IV, and the rare earth metals of the Periodic System may be added to the catalyst. Deactivated catalyst may be periodically rejuvenated by discontinuing the introduction of aromatic feed material and purging with hydrogen and the catalyst can be reactivated by calcination in an atmosphere such as air. Where toluene is the feed, the alkyl transfer product may be distilled to separate benzene, toluene and xylenes, the toluene may be recycled to the alkyl transfer step, the xylenes may be crystallized to separate para-xylene from the remaining xylenes, the mother liquor from the crystallization step may thereafter be isomerized to readjust the para-xylene content and the product of the isomerization may be recycled to the crystallization zone.

3,598,879 ALKYL TRANSFER OF ALKYL AROMATICS WITH GROUP I-A, II-A, IV, OR RARE EARTH METALS ON BORIA ALUMINA

Ronald A. Kmecak and Stephen M. Kovach, Ashland, Ky., assignors to Ashland Oil, Inc., Houston, Tex.
Filed Dec. 19, 1968, Ser. No. 785,232
Int. Cl. B01j 11/06; C07c 3/58, 15/08
U.S. Cl. 260—672 12 Claims



A process for the alkyl transfer of alkyl aromatics including contacting an alkyl aromatic feed material, such as toluene, with a catalyst comprising a metal of Group I-A, such as potassium, rubidium, cesium, etc., Group II-A, such as calcium, magnesium, strontium, etc., Group IV, such as tin, lead, titanium, zirconium, etc., or rare earth metals, such as cerium, thorium, etc., of the Periodic System or mixtures thereof and boria deposited on an alumina base at a temperature of about 800 to 1100° F., a pressure of about 0 to 2000 p.s.i.g., and a liquid hourly space velocity of about 0.1 to 10, and in the presence of hydrogen introduced at a rate of about 1 to 10 moles hydrogen per mole of hydrocarbon feed. Promoters selected from Group I, Group II, Group IV, and the rare earth metals of the Periodic System may be added to the catalyst. Deactivated catalyst may be periodically rejuvenated by discontinuing the introduction of aromatic feed material and purging with hydrogen and the catalyst can be reactivated by calcination in an atmosphere such as air. Where toluene is the feed, the alkyl transfer product may be distilled to separate benzene, toluene and xylenes, the toluene may be recycled to the alkyl transfer step, the xylenes may be crystallized to separate para-xylene from the remaining xylenes, the mother liquor from the crystallization step may thereafter be isomerized to readjust the para-xylene content and the product of the isomerization may be recycled to the crystallization zone.

3,598,880 METHOD FOR PRODUCING ISOPRENE

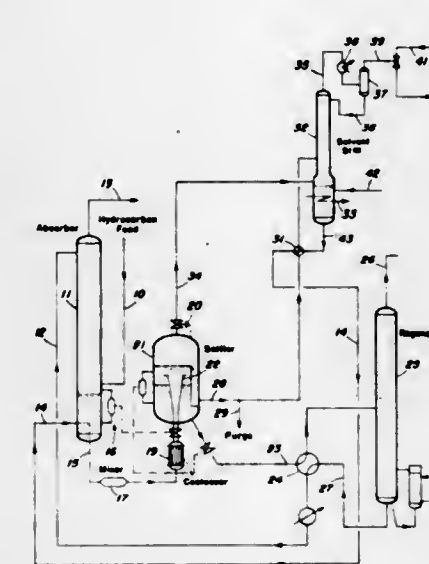
Yoshiki Komiyama and Akira Tasaka, Ibaragi-shi, Japan, assignors to Sumitomo Chemical Co., Ltd.
No Drawing. Filed Aug. 28, 1968, Ser. No. 755,777
Claims priority, application Japan, Sept. 7, 1967, 42/57,648; Sept. 12, 1967, 42/58,857
Int. Cl. C07c 11/18

U.S. Cl. 260—680R 13 Claims
Propylene is reacted with benzene in the presence of an alkylation catalyst. The resultant isopropylbenzenes having 1 to 3 isopropyl groups are reacted with ethylene in the presence of an alkali metal and a promoter. The resulting t-amyl-benzenes having 1 to 3 t-amyl groups are subjected to silica-catalyzed thermal decomposition to give methylbutenes and benzene which can be recycled to the step (1). The methylbutenes are dehydrogenated in the presence of a dehydrogenation catalyst to obtain isoprene. A high yield of isoprene is achieved. The benzene can be recycled without any significant consumption.

3,598,881 PROCESS FOR REMOVING ACID GASES FROM CRACKED GASES CONTAINING DIOLEFINS

Ludwig Kniel, Scarsdale, N.Y., and Benjamin J. Luberoff, Summit, N.J., assignors to The Lummus Company, Bloomfield, N.J.
Filed Oct. 17, 1968, Ser. No. 768,303
Int. Cl. C07c 3/00, 7/00

U.S. Cl. 260—683 17 Claims



Process for removing dienes which are carried into an aqueous amine absorption solution employed for removing acid gases from a gaseous hydrocarbon wherein the rich aqueous amine solution is intimately mixed with a hydrocarbon solvent, prior to introducing the rich amine solution into the amine regenerator, to remove the dienes therefrom. The mixture is separated into a hydrocarbon phase, containing essentially all of the dienes and an aqueous amine phase, and the aqueous amine phase passed to the amine regenerator. In this manner, polymerization problems caused by the presence of dienes in the amine absorption system are essentially eliminated.

3,598,882 BLOCK COPOLYESTERS OF LINEAR SATURATED POLYESTERS AND POLYBUTADIENE-DIOLS

Ludwig Brinkmann and Helmut Frohlich, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Sept. 26, 1968, Ser. No. 763,014
Claims priority, application Germany, Oct. 12, 1967, F 53,754
Int. Cl. C08f 29/10; C08g 17/06, 39/10

U.S. Cl. 260—873 9 Claims
Block copolymers of linear saturated polyesters and polybutadiene-diol for the manufacture of shaped articles having a very high impact strength.

3,598,883 POLYVINYL ALCOHOL COMPOSITION

Hiroshi Nakamura, Uto-shi, Kumamoto-ken, and Akira Saito, Kumamoto-shi, Kumamoto-ken, Japan, assignors to Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha, Osaka-shi, Japan
No Drawing. Filed Mar. 18, 1969, Ser. No. 817,350
Claims priority, application Japan, Mar. 25, 1968, 43/18,949; Feb. 10, 1969, 44/9,872
Int. Cl. C08f 29/26, 29/30

U.S. Cl. 260—874 5 Claims
This invention is a polyvinyl alcohol composition consisting essentially of a polyvinyl alcohol prepared by hydrolyzing a polyvinyl ester in presence of an alkaline catalyst and about 0.1% to about 5% by weight based

upon the weight of polyvinyl alcohol of additive which is the product obtained by hydrolyzing polyvinyl acetate in the presence of an acidic catalyst in an alcoholic solution until about 20% to about 70% molar concentration of acetyl groups of polyvinyl acetate are hydrolyzed.

3,598,884

CROSS-LINKING OF POLYMERS

Yung-Kang Wei, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada
No Drawing. Filed July 12, 1968, Ser. No. 744,301
Claims priority, application Canada, Aug. 4, 1967, 997,079

Int. Cl. C08f 27/00

U.S. Cl. 260—876

5 Claims

Cross-linked block copolymeric materials with good elastomeric properties are prepared by mixing block copolymers having one reactive chain end, with block copolymers having at least two reactive chain ends, preferably in solution, and adding a coupling agent which has at least three reactive sites capable of reacting with the reactive block copolymeric chain ends.

3,598,885

PROCESS FOR PREPARATION OF LOW MOLECULAR WEIGHT POLYMERS

Edwin F. Peters, Lansing, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed July 11, 1968, Ser. No. 743,919

Int. Cl. C08f 1/88, 15/00

U.S. Cl. 260—878

3 Claims

Low molecular weight polymers are prepared by polymerization of 1-olefins through methods which lead to relatively thermally stable polymers of high molecular weight which are intimately mixed with relatively thermally unstable polymers to produce an admixture of the

two polymers which is then subjected to thermal cracking, following which a lower molecular weight polymer cracked from the relatively stable high molecular weight polymer can be recovered. A desirable method for obtaining the intimate admixture is preparation of the high molecular weight polymer in a reaction system containing the relatively thermally unstable polymer.

3,598,886

HYDROGENATED BLOCK COPOLYMERS

Donald F. Hoeg, Mount Prospect, Eugene P. Goldberg, Highland Park, and John F. Pendleton, Park Ridge, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
No Drawing. Filed Sept. 15, 1965, Ser. No. 487,616

Int. Cl. C08f 15/04, 27/24

U.S. Cl. 260—879R

4 Claims

Hydrogenated block copolymers of conjugated dienes and monovinyl aromatic compounds are described.

3,598,887

PREPARATION OF BLOCK COPOLYMERS

Jules Darcy, Yung-Kang Wei, and Robert C. MacKenzie, Sarnia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada

No Drawing. Filed Dec. 23, 1966, Ser. No. 604,165
Claims priority, application Canada, Feb. 26, 1966, 953,311

Int. Cl. C08d 5/02; C08f 1/88, 15/04

U.S. Cl. 260—879

3 Claims

A chemical process for making block copolymers, which includes the steps of preparing a living block copolymer by anionic polymerization, e.g. using a lithium hydrocarbyl as initiator, and reacting the living block copolymer with either carbon dioxide, carbonyl sulphide or carbon disulphide to couple the block copolymer molecules through their live ends.

ERRATUM

For Class 424—88 see:
Patent No. 3,599,150

3,598,888

ELECTRIC SMELTING FURNACE

Yoshinosuke Tada, 33 Kasugano-cho, Minami-ku, Minami-ku, Nagoya, Aichi Prefecture; Yasunobu Hosoi, 12-53 Ohaza Kagiya Aza Mitsuike, Yokosuka-cho, Chita District, Aichi Prefecture, and Fukio Katsumata, 53 Ohaza Kagiya Aza Gohchu, Yokosuka-cho, Chita District, Aichi Prefecture, all of, Japan

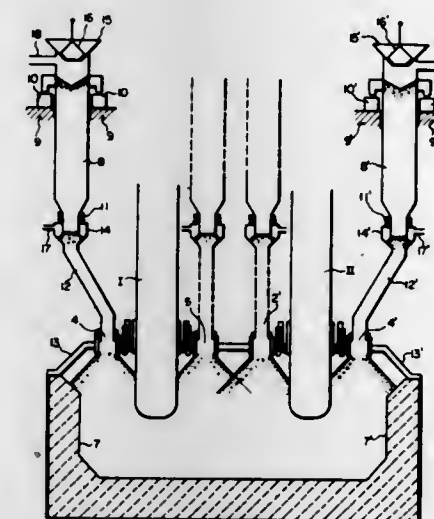
Filed Oct. 3, 1969, Ser. No. 863,470

Claims priority, application Japan, Oct. 3, 1968, 43/71492

Int. Cl. F27d 3/10

U.S. Cl. 13—33

2 Claims



A three-phase electric smelting furnace having three electrodes arranged to form the apices of a triangle, and having material chargers. Each electrode has a plurality of the material chargers exclusively and operatively connected thereto. The lower end openings of the material chargers for each electrode are disposed along a concentric circle in symmetrical spacing with each other. The lower end openings of different groups of material charger for different electrodes are also disposed symmetrically with respect to the groups. Each material charger has a means for measuring or measuring and recording the change in the quantity of the materials therein. It is possible to attach a pretreating means to the material chargers for preheating, drying, calcining, or prereducing the materials.

3,598,889

MUSIC FREQUENCY SELECTOR CIRCUIT

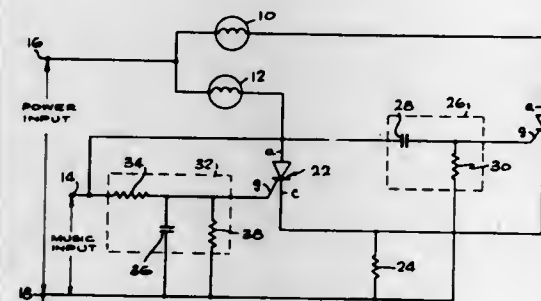
Henry N. Switsen, 2723 Kelton Ave., Los Angeles, Calif.

Filed May 27, 1970, Ser. No. 041,024

Int. Cl. G10h 1/00

U.S. Cl. 84—1.01

6 Claims



A circuit for selectively energizing one of several different colored lights in accordance with the frequency of music

ELECTRICAL

being played, which prevents energization of all the lights by loud music passages. The circuit includes a silicon controlled rectifier (SCR) for each light, each SCR having an anode connected through the light to one terminal of a power source, a cathode connected through a common bias resistor to the other terminal of the power source, and a gate connected through a filter to the music source to allow only a certain frequency range of music to raise the gate potential high enough to turn on the SCR. The common bias resistor increases the effective selectivity of the filters, because as soon as one SCR turns on, the resulting voltage across the common bias resistor raises the potential of all of the SCR cathodes to prevent any other SCR's from turning on.

3,598,890

ELECTRONIC MUSICAL INSTRUMENT WITH MAGNETO-SENSITIVE ELEMENTS AND MOVABLE PERMANENT MAGNET PROVIDING GLISSANDO

Syoichi Suzuki, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

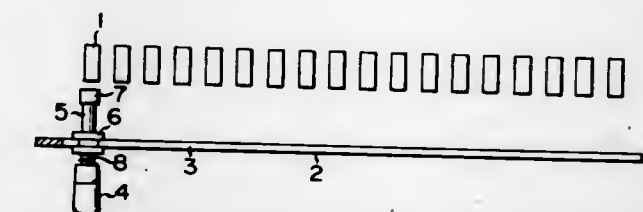
Filed June 23, 1969, Ser. No. 835,632

Claims priority, application Japan, June 25, 1968, 43/53404

Int. Cl. G10h 1/02; G10c 3/20

U.S. Cl. 84—1.17

10 Claims



A device producing a glissando effect includes a plurality of magneto-sensitive elements arranged in a row in accordance with the respective notes of a musical scale. A permanent magnet is movable along the row of magneto-sensitive elements so as to energize the corresponding elements by its displacement to produce musical notes, the movement of the magnet being controllable at the control panel of the electronic musical instrument.

3,598,891

MUSICAL TONE-FORMING CIRCUITRY INCLUDING FILTER AND RANDOM NOISE MODULATION

Takeshi Adachi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

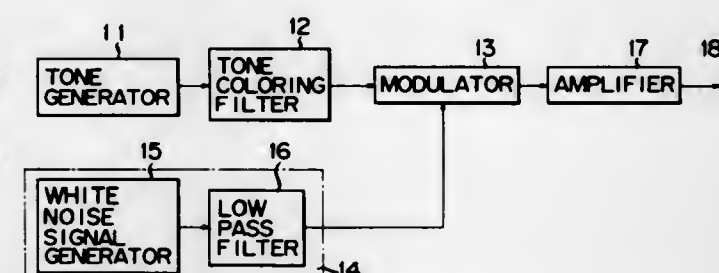
Filed June 23, 1969, Ser. No. 835,516

Claims priority, application Japan, June 25, 1968, 43/43,743

Int. Cl. G10h 1/04

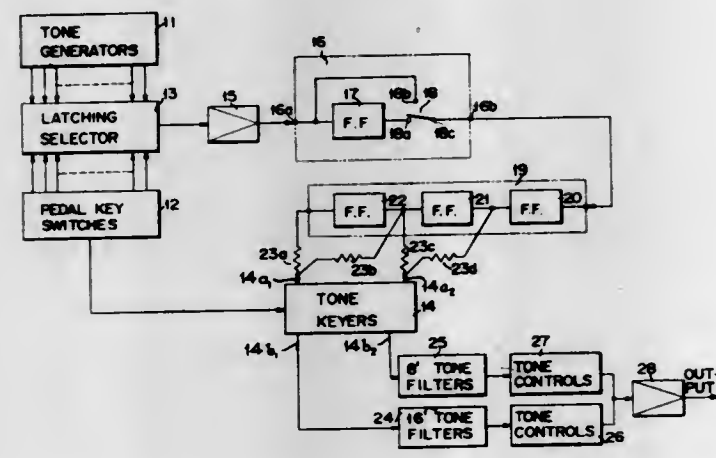
U.S. Cl. 84—1.24

6 Claims



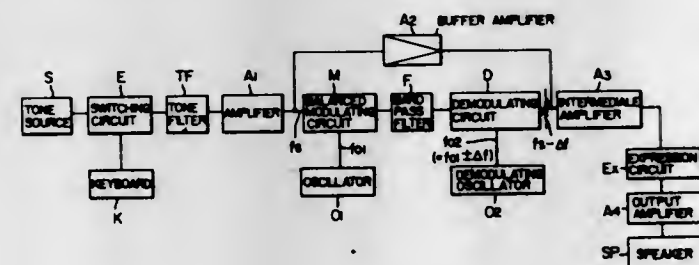
A whistle or grass reed sound is simulated by an electronic musical circuitry comprising a portamento-type oscillator, a tone coloring filter for providing a tone signal having predetermined harmonics as well as a fundamental, a noise generator, a low-pass filter for deriving frequency components below 30 Hz from a noise signal output of the noise generator, and a modulator for amplitude modulating the tone signal from the tone coloring filter with the noise signal components of less than 30 Hz from the low-pass filter.

3,598,892
CONTROLLED SWITCHING OF OCTAVES IN AN ELECTRONIC MUSICAL INSTRUMENT
 Maki Yamashita, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
 Filed Oct. 13, 1969, Ser. No. 865,830
 Claims priority, application Japan, Oct. 14, 1968, 43/74514
 Int. Cl. G10h 5/00, 1/00
 U.S. Cl. 84-1.01 7 Claims



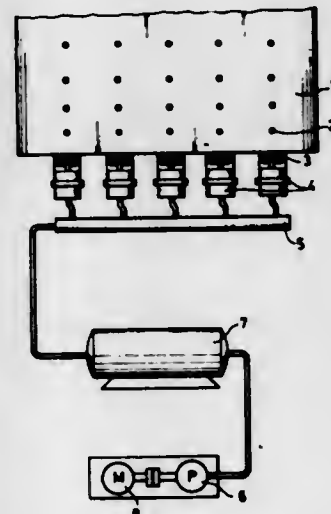
A pedal tone section of an electronic musical instrument comprises tone generators of an octave, pedal keys of an octave having associated key switches, a latching selector operated by the key switches and sustainingly selecting one signal out of signals of the tone generators, an octave shifter including a through line and a binary divider selectively operated by a player, the octave shifter providing an output which is either a divided or nondivided signal of the latching selector output. A frequency divider further divides the octave shifter output and a pedal tone signal is generated. Preferably, manipulation of a knee lever operates the octave shifter to shift the tone pitch by an octave and as a result the compass of the pedal keyboard is extensible upward or downward without increasing the number of the pedal keys.

3,598,893
TREMOLO EFFECT PRODUCING DEVICE
 Yasuji Uchiyama, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
 Filed June 9, 1970, Ser. No. 044,751
 Claims priority, application Japan, June 27, 1969, 44/50,881
 Int. Cl. G10h 1/04
 U.S. Cl. 84-1.25 2 Claims



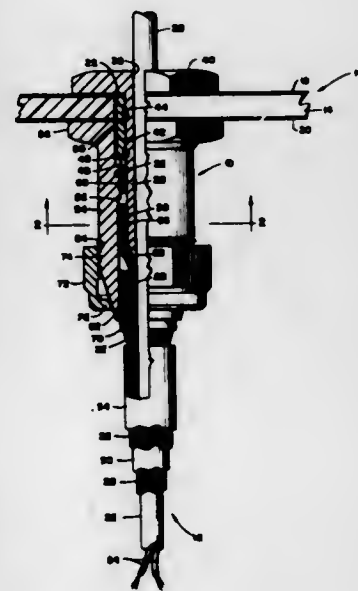
A tremolo or chorus effect can be obtained by a tremolo effect producing device which comprises a balanced modulator for modulating a signal having a specific frequency with a musical sound signal, a band-pass filter for obtaining a single-band signal of the output of the balanced modulator, a demodulating circuit for demodulating the single sideband signal employing a signal the frequency of which is shifted from the above-mentioned specific frequency by a predetermined quantity and a buffer amplifier which amplifies the above-mentioned sound signal in a buffering manner, output signal from the demodulating circuit and the output signal from the buffer amplifier being thereafter mixed together.

3,598,894
APPARATUS FOR ACTIVATING THE STOP SLIDES OF ORGANS
 Karl Michel, Tauberrettersheim, and Franz Heissler, Markelsheim, both of Germany, assignors to Herman L. Schlicker, Buffalo, N.Y.
 Filed Aug. 13, 1969, Ser. No. 849,708
 Claims priority, application Germany, Aug. 19, 1968, P 17 97 122.1
 Int. Cl. G10b 3/10 10 Claims



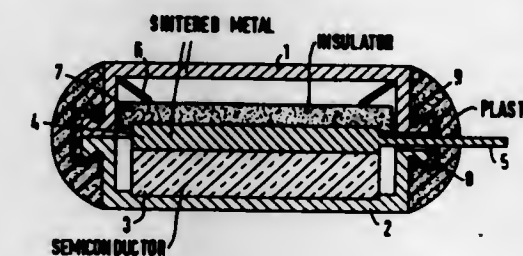
An apparatus for activating stop slides in the air chambers of an organ has air motors each engaging a piston connected to a slide, said piston being moved within a pressure cylinder by the action of a pressure means.

3,598,895
CONNECTOR FOR DOUBLE-SHIELDED CABLE
 Stuart M. Garland, Morton Grove, Ill., assignor to Teletype Corporation, Skokie, Ill.
 Filed Apr. 6, 1970, Ser. No. 25,774
 Int. Cl. H05k 9/00; H02g 15/08
 U.S. Cl. 174-35 C 7 Claims



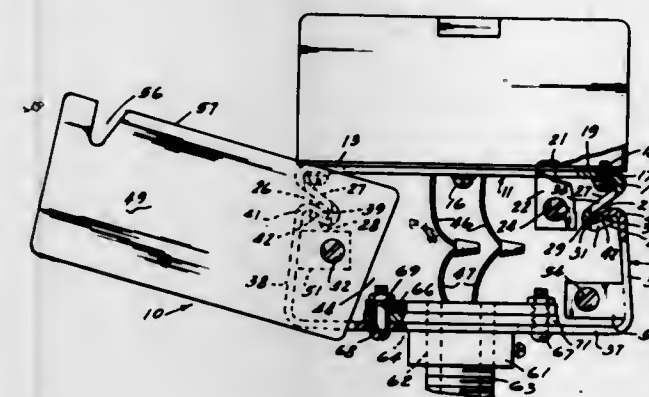
A connector assembly for connecting a double-shielded cable to a double-shielded RFI box employs an inner tubular conductive member for extending through an aperture in the box to connect a first shield of the cable to the inner shield of the box. An insulating ring is mounted on the inner member and an outer tubular conductive member is mounted on the ring. The second shield of the cable and the outer shield of the box are connected to the outer conductive member.

3,598,896
ENCAPSULATED SEMICONDUCTOR DEVICE WITH PARTS FORMED OF SINTER METAL AND PLASTIC
 Heinrich Hassler, Wendelstein, and Horst Schreiner, Nurnberg, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
 Filed Sept. 22, 1969, Ser. No. 859,795
 Claims priority, application Germany, Sept. 20, 1968, P 17 89 005.0
 Int. Cl. B29c 6/02; H011 9/04
 U.S. Cl. 174-52 PE 8 Claims



In an encapsulated semiconductor device having a semiconductor body and means for contacting and encapsulating the body, these means comprise a structure of porous sinter metal and of synthetic plastic forming an impregnation in the pores of the sinter metal. An insulating structure of filler-containing plastic is pressure molded onto the sinter metal structure and merges with the impregnation in the pores. Preferably the structure made of filler-containing plastic forms part of the encapsulation.

3,598,897
CONDUIT FITTING FOR PENDENT LIGHT FIXTURES
 William Castic, Elk Grove Village, Ill., assignor to The Pyle National Company, Chicago, Ill.
 Filed Aug. 14, 1969, Ser. No. 850,095
 Int. Cl. H02b 1/08
 U.S. Cl. 174-61 17 Claims

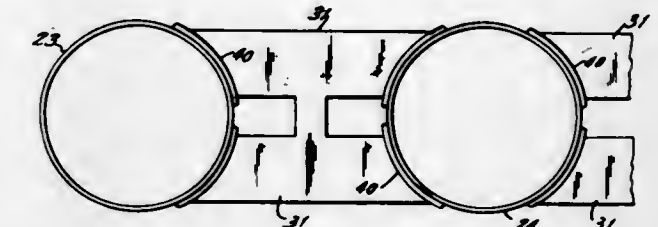


A conduit fitting for attaching pendent light fixtures to an overhead conduit line comprises first and second members respectively attachable to the conduit line and the fixture, wherein the members have complementary mating tongue and groove portions enabling convenient sliding assembly of the members for positively securing the fixtures to the conduit line. Removable cover members selectively close open ends of the grooves to restrain relative movement between the members and provide selective access to a wiring compartment formed between the members for permitting inspection of electrical wiring connections.

3,598,898
REINFORCED INTERPHASE SUPPORT ARRANGEMENT FOR ISOLATED PHASE BUS SYSTEM
 Joseph A. Turgeon, Toronto, Ontario, Canada, assignor to I-T-E Circuit Breaker (Canada) Limited, Port Credit, Ontario, Canada
 Filed Apr. 14, 1970, Ser. No. 28,389
 Int. Cl. H02g 3/00 4 Claims

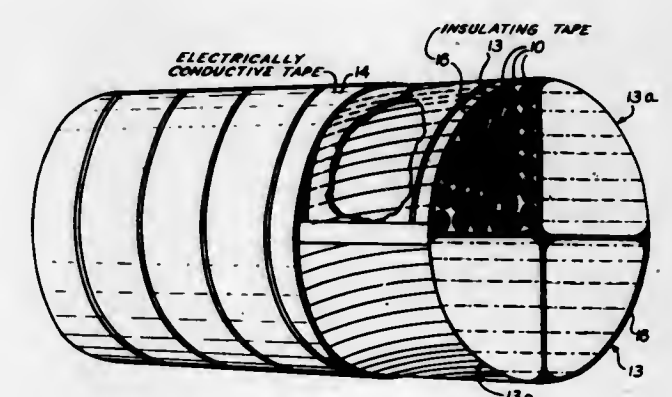
An interphase support bracket arrangement for an isolated phase bus system in which a stiffener member is secured in

conforming relation to the configuration of the individual bus housings and is provided with a recess to receive an interphase tie. By securing the tie to the stiffener member and



by employing a stiffener of thickness comparable to that of the bus housings, previously encountered difficulties in effectively securing the relatively thick tie to the relatively thin housing are eliminated.

3,598,899
CONDUCTOR FOR UNDERGROUND TRANSMISSION OF ELECTRIC POWER
 Carlos Katz, Bayonne, N.J., assignor to General Cable Corporation, New York, N.Y.
 Filed Jan. 23, 1970, Ser. No. 5,238
 Int. Cl. H01b 7/00 8 Claims

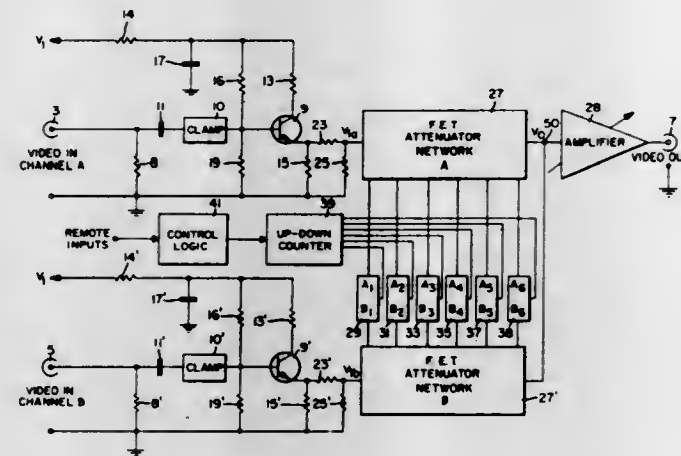


A conductor adapted for underground transmission of alternating current consisting of a plurality of separate strands includes strands of copper clad with aluminum, the aluminum being about 10 percent to 20 percent of the cross-sectional area of the conductor. The conductor may be made up of aluminum-clad copper strands intermingled with all-copper strands, or strands of copper having oil-impervious coating, the strands being arranged so that the surface of each copper, or coated copper strand, is only in contact with the surface of an aluminum-clad strand. The strands are preferably grouped in segments and helically wound in each segment.

3,598,900
COVER HOUSING FOR TELEPHONE CONNECTORS OR THE LIKE WITH MAGNETIC OR MECHANICAL RETAINING MEANS
 King B. Drake, Los Angeles, Calif., assignor to Dracon Industries, Chatsworth, Calif.
 Filed June 17, 1969, Ser. No. 834,111
 Int. Cl. H02g 3/02; H05k 5/03 20 Claims

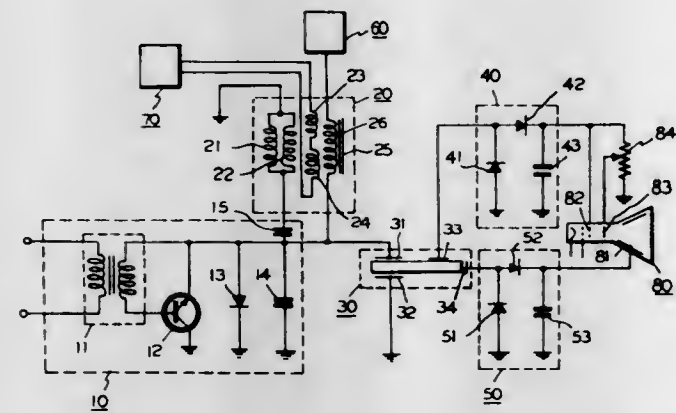
The housing comprises a hollow, rectangular structure having one open side, and means to retain the structure in position. The housing is of sufficient size to engage over and enclose a standard, multiple-contact telephone connector. The housing means includes retaining magnets for holding the

3,598,908
DIGITALLY CONTROLLED LAP DISSOLVER
 Anthony Poulett, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif.
 Filed Aug. 30, 1968, Ser. No. 756,533
 Int. Cl. H04n 5/22
 U.S. Cl. 178-6 23 Claims



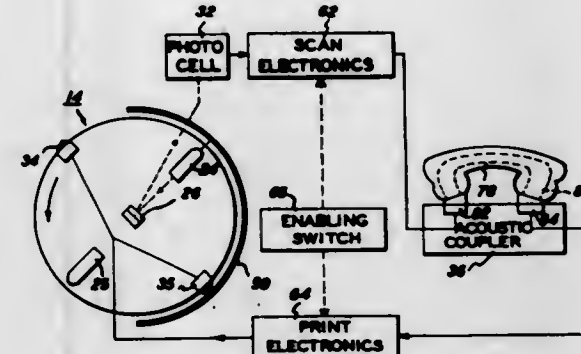
A dissolver network for video signals adapted to receive two input video signals and provide a dissolved video output signal. Attenuating networks, responsive to digital signals, control the proportion of each video input signal dissolved at various steps in the dissolve. The attenuator networks are controlled by an up-down binary counter to correspondingly increase the signal level of one input while reducing the signal level of the other as the counter counts up; and as the counter counts down, decrease the signal level of said one input signal while correspondingly increasing the level of said other signal. The counter may be clocked responsive to the vertical sync reference of the video signals.

3,598,909
A HIGH-VOLTAGE GENERATOR CIRCUIT CONFIGURATION UTILIZING A CERAMIC TRANSFORMER
 Reichi Sasaki, and Teruo Kitani, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan
 Filed July 25, 1968, Ser. No. 747,563
 Claims priority, application Japan, July 25, 1967, Aug. 21, 1967, Aug. 22, 1967, Sept. 21, 1967, 42-48274; 42-54166; 42-54352; 42-80763
 Int. Cl. H01v 7/00; H03f 13/00; H04n 5/44
 U.S. Cl. 178-7.3 R 1 Claim



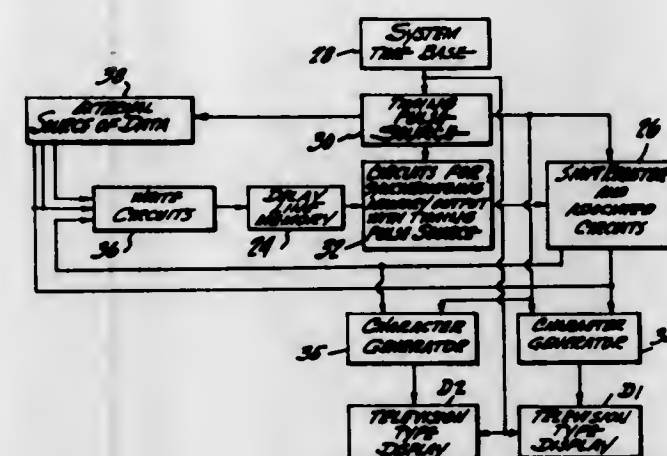
A high-voltage generator circuit configuration. A ceramic transformer which generates a high voltage and has plural resonant modes is connected to a horizontal deflection circuit which generates a pulse voltage containing harmonic components so as to drive said ceramic transformer in its resonant modes. A choke coil is wound on a deflection yoke and acts as a path for DC current so as to supply power to said horizontal deflection circuit.

3,598,910
SELF-TEST APPARATUS FOR FACSIMILE GRAPHIC COMMUNICATION SYSTEM
 Armand M. Johnston, Webster; Marion G. Wood, Rochester, and James D. Lehner, Rochester, all of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
 Filed June 17, 1968, Ser. No. 737,441
 Int. Cl. H04n 1/06, 1/32, 5/58
 U.S. Cl. 178-6.6 R 15 Claims



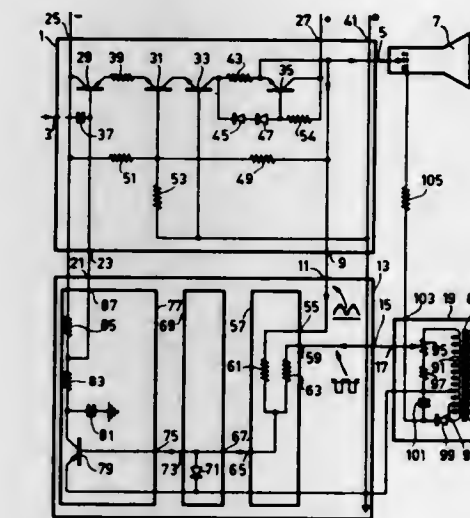
A facsimile graphic communication system wherein an operator may test the transmitting and receiving functions of a transceiver by utilizing only the equipment associated with the transceiver. A self-test feature is provided whereby a transceiver unit is enabled to transmit to itself for testing the transmitting and receiving functions. A special test document is provided where the transceiver scans part of the document and prints on another part of the document, thereby testing both the transmit and receive functions without utilizing another transceiver unit and associated transmission line.

3,598,911
CIRCULATING MEMORY-REFRESHED DISPLAY SYSTEM
 Walter A. Helbig, Woodland Hills, Calif., assignor to RCA Corporation, New York, N.Y.
 Filed Sept. 27, 1968, Ser. No. 763,105
 Int. Cl. H04n 5/76
 U.S. Cl. 178-6.8 16 Claims



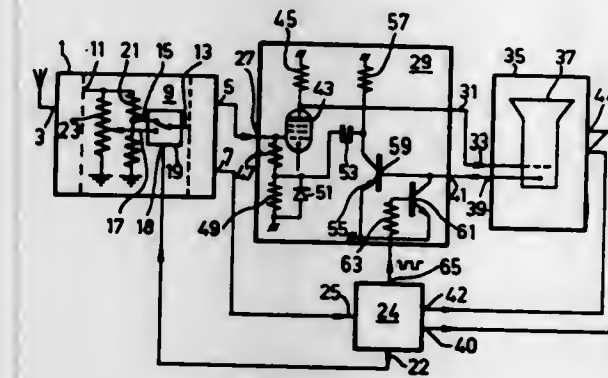
Delay-line-refreshed video display system. The display, a television receiver, is locked to a stable clock frequency source, however, the information from which the video signals are derived arrive from the delay line memory at times which are not necessarily synchronous with this frequency. Means, including logic circuits and temporary storage circuits, derive from this asynchronous data the synchronous information required by the television display.

3,598,912
VIDEO AMPLIFIER WITH BLACK LEVEL CONTROL
 Antonius Hendrikus Hubertus Jozef Nillesen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
 Filed Feb. 11, 1970, Ser. No. 10,555
 Claims priority, application Netherlands, Feb. 13, 1969, 6902317
 Int. Cl. H04n 5/16
 U.S. Cl. 178-7.3 DC 6 Claims



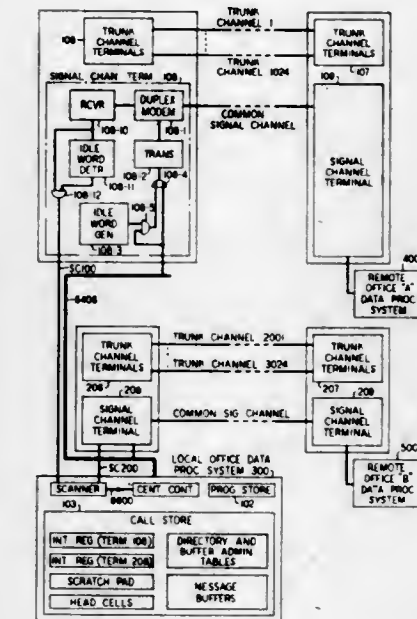
A video amplifier circuit including a black level control circuit wherein a level-shifting circuit and a limiter circuit are incorporated in the control circuit between an output and an input of a video amplifier so as to eliminate the parts of the output signal of the video amplifier which are unimportant for the black level control.

3,598,913
TELEVISION RECEIVER
 Peter Johannes Hubertus Janssen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
 Filed Dec. 18, 1968, Ser. No. 784,629
 Int. Cl. H04n 5/16
 U.S. Cl. 178-7.5 DC 4 Claims



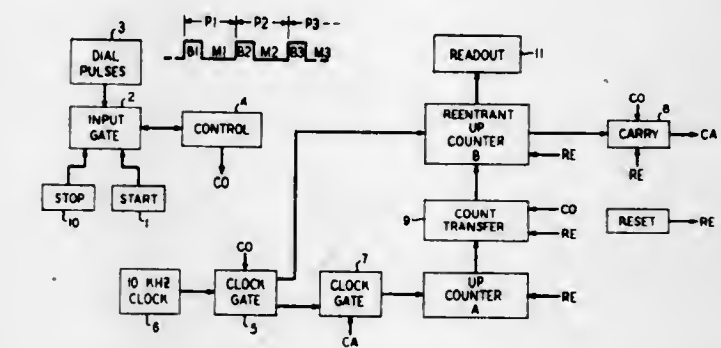
This invention relates to a control circuit for a television receiver which features a gated circuit which passes the flyback signal a different selected amount than the video intensity signal. Therefore, the ratio of the flyback signal to that of intensity signal is controllable. The flyback signal is used to control the beam current intensity by use of a rectifier circuit.

3,598,914
TERMINAL FOR COMMON CHANNEL SIGNALING SYSTEM
 Judson B. Synnott, III, Downers Grove, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed Nov. 21, 1969, Ser. No. 878,753
 Int. Cl. H04l 7/08
 U.S. Cl. 178-58 7 Claims



A common channel signaling system has a duplex signaling channel equipped with terminals that are adapted to maintain a constant data rate by inserting idle words when there are no data words to be transmitted and by inserting an additional synchronizing word when the error control information obtained by analyzing a block of data from a remote terminal is not completed within a predetermined interval before the arrival of the word position which is normally intended to contain such error control information.

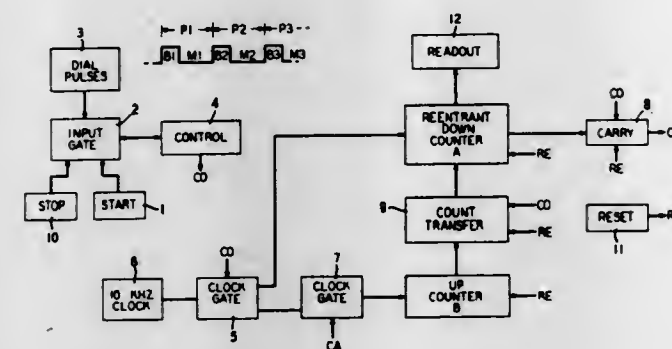
3,598,915
MEASUREMENT OF MAXIMUM OF A SERIES OF TIME INTERVALS
 Henry Mann, Holmdel, N.J., and Joseph A. Whiteaker, Rock Hill, S.C., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed Nov. 24, 1969, Ser. No. 879,262
 Int. Cl. H04l 1/00; H04m 3/22, 1/24
 U.S. Cl. 178-69 A 13 Claims



The circuit uses digital technique to measure the maximum break (or make) interval over a series of telephone dial pulses. During the first break, clock pulses are serially counted in a binary coded decimal up-counter A. At the end of the first break, the nine's complement of the A count is transferred into a binary coded decimal reentrant up-counter B of the same count capacity as A; and, the old (first) count is retained in A. During the second (new) break, clock pulses are serially added (complementary addition equals subtraction of old count from new count) to the count in B. Any clock pulses exceeding the capacity of B (in going from

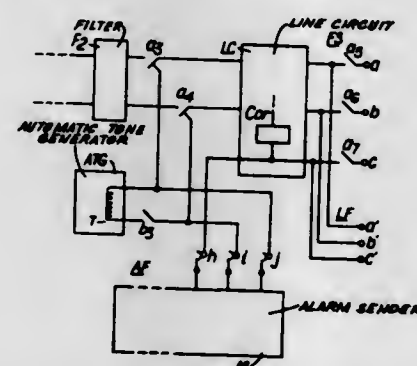
capacity count to zero count) are serially added to the old count in A. At the end of each new measured break, A contains the maximum of the old and new counts, the nine's complement of the maximum is transferred to B, and the process repeats. Visual display is provided of the maximum count by translation from clock pulse count in B to milliseconds.

3,598,916
MEASUREMENT OF MAXIMUM OF A SERIES OF TIME INTERVALS
Robert B. Heick, Eatontown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 24, 1969, Ser. No. 879,284
Int. Cl. H04l 1/00; H04m 3/22, 1/24
U.S. Cl. 178—69 A 11 Claims



The circuit uses digital technique to measure the maximum break (or make) interval over a series of telephone dial pulses. During the first break, clock pulses are serially counted in a binary coded decimal up-counter. At the end of the first break, the up-count is transferred as a starting count to a binary coded reentrant down-counter of the same count capacity as the up-counter; and, the old (first) count is retained in the up-counter. During the second (new) break, clock pulses are serially subtracted from the count in the down-counter. Any clock pulses exceeding the number required to cause the count in the down-counter to go from zero count to capacity count are serially added to the old count in the up-counter. At the end of each new measured break, the up-counter contains the maximum of the old and new counts, the maximum count is transferred to the down-counter as a new starting count, the maximum count is retained in the up-counter, and the process repeats. Visual display is provided of the maximum count by translation from clock pulse count in the down-counter to milliseconds.

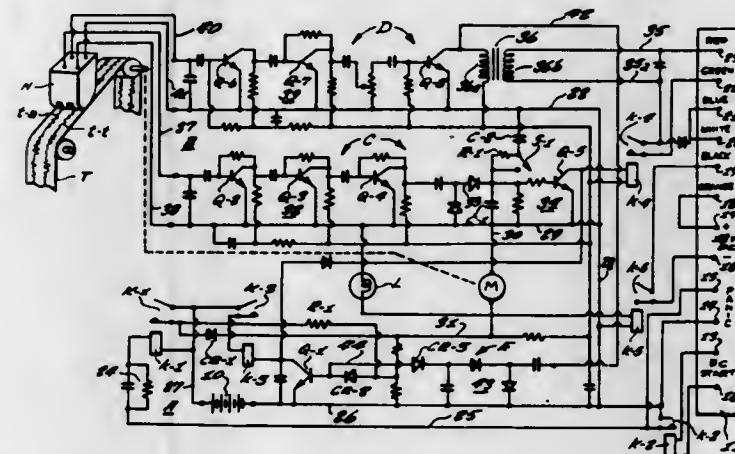
3,598,917
AUTOMATIC SIGNAL TRANSMISSION SYSTEM
Egide Jacob Hendrik De Raedt, Hoboken, and George Pieter Adolf Mathildis De Bruyne, Lebbeke, both of Belgium, assignors to International Standard Electric Corporation
Filed Dec. 12, 1967, Ser. No. 689,899
Claims priority, application Netherlands, Dec. 12, 1966, 6617451
Int. Cl. H04m 11/04
U.S. Cl. 179—5 R 14 Claims



An alarm system is provided to operate over the existing public telephone network. An AC oscillator at each substa-

tion provides a continuous signal which is separated in frequency and by filter from any voice signals. Disconnection of the continuous signal will supply an alarm and cause equipment in the central office to connect to an operator, a police station or a fire station. Suitable central office equipment can identify the source of the alarm signal and provide an indication to the called station.

3,598,918
ELECTRONIC-SIGNALING DEVICE FOR INTERCONNECTION WITH TELEPHONE SYSTEM INTERFACING DEVICES
Alfred G. Dee, Elmont, L.I., and Jos Van Marrewyk, Valley Stream, both of N.Y., assignors to Eaton Yale & Towne, Inc., Cleveland, Ohio
Filed Nov. 6, 1967, Ser. No. 680,862
Int. Cl. H04m 11/04
U.S. Cl. 179—5 P 6 Claims



An electronic-signaling device for transmitting messages over an automatically seized telephone line to predetermined recipients such as police stations, fire stations, central security offices and the like. The device includes an endless magnetic tape having two signal tracks prerecorded therein, one of tone signals providing for seizure of the telephone line and simulated telephone number dialing without the lifting of a receiver off the hook, and the other of audio signals providing a series of messages stating the nature of the emergency. A tone stop signal incorporated in the message track serves to deactivate the device upon completion of the transmission. A key-operated switch is provided to permit the device to be conditioned so as to prevent inadvertent dialing, and activation of the device may be effected through closing of the supervisory circuit either by a manually operated panic button or by application of an emergency-generated starting potential to a suitable relay.

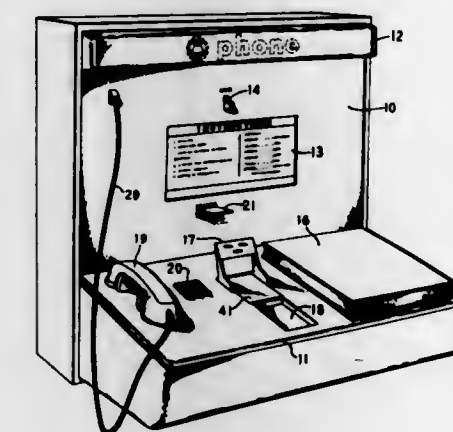
3,598,919
PRE-RECORDED ALARM-REPORTING SYSTEM AND CONTROL ELEMENT THEREFOR
Thomas M. Lott, 55 W. Santa Inez Ave., San Mateo, Calif.
Filed Nov. 1, 1968, Ser. No. 772,536
Int. Cl. H04m 11/04
U.S. Cl. 179—5 P 11 Claims



In response to an alarm detector element a tape player coupled to a conventional telephone line generates pulses which serve to call an appropriate authority and provide a prerecorded audible alarm report message followed by request that the authority confirm the authenticity of the report by returning the call within a predetermined period thereafter. If the called authority returns the call within the

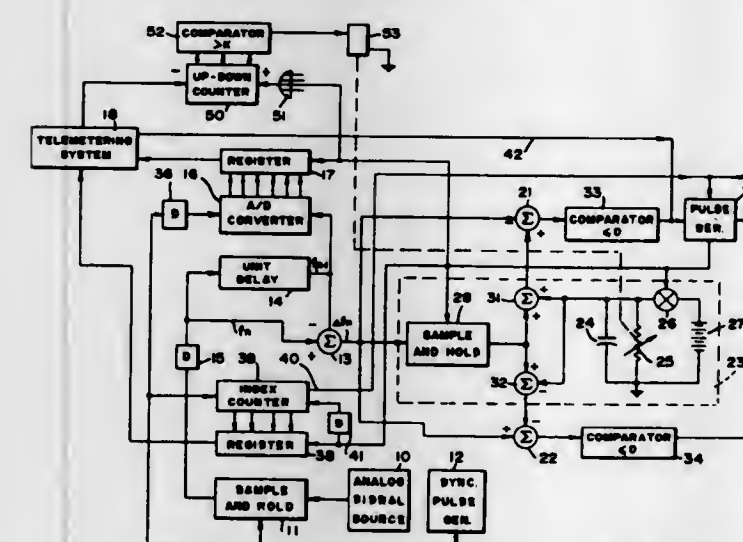
predetermined period, the tape player then calls additional parties and makes appropriate reports to such parties. By returning the call, controls are activated which serve to inhibit the repetitious further repeat calling of the same alarm report call. Ultimately, in the event that no called party calls back to verify receipt of a call from the tape player, a signal is generated which activates a local audible alarm proximate to the premises being protected.

3,598,920
COIN TELEPHONE FACILITY FOR COMBINED USE BY GENERAL PUBLIC AND PHYSICALLY HANDICAPPED
James L. Fischer, Corinth, Miss.; Carroll D. Hays, Brownsburg, Ind., and Richard G. Klier, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 28, 1969, Ser. No. 870,040
Int. Cl. H04m 17/02
U.S. Cl. 179—6.3 11 Claims



In a coin telephone facility designed for use by both physically handicapped persons and the general public, a vertical wall mounted portion supports a forwardly sloping shelf portion. For easy access, the telephone handset, the pushbutton dial and an oversized coin return lever are mounted on the shelf portion. A mechanism below the shelf operated by the coin return lever raises refunded coins and delivers them into a shelf-level receptacle.

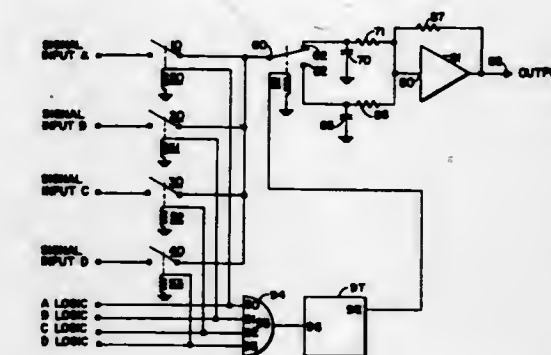
3,598,921
METHOD AND APPARATUS FOR DATA COMPRESSION BY A DECREASING SLOPE THRESHOLD TEST
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Leonard Kleinrock, Los Angeles, Calif.
Filed Apr. 4, 1969, Ser. No. 813,494
Int. Cl. H04b 1/66
U.S. Cl. 179—15.55 R 12 Claims



A method and apparatus is disclosed for data compression by a decreasing slope threshold test in which the data stream

is examined and only those samples are selected for transmission which have a slope (first difference or first derivative) that exceeds an exponentially decreasing range established by a decreasing voltage added to and subtracted from a slope measurement at the time the last sample was transmitted. The time between successive transmissions is also transmitted in order that the reconstructed function may be formed by linear interpolation of the transmitted samples.

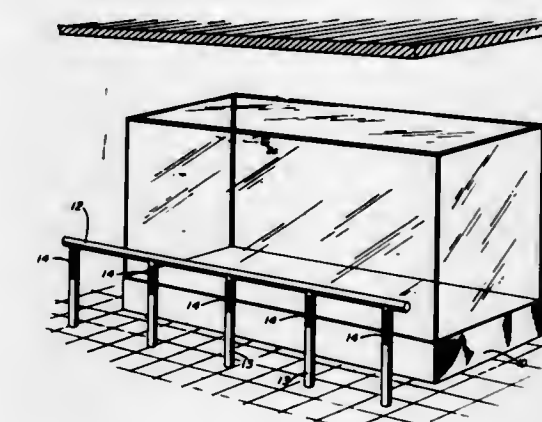
3,598,922
MULTIPLEXER CONTROL APPARATUS
Frank W. Ainsworth, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Aug. 2, 1967, Ser. No. 657,856
Int. Cl. H04j 3/04
U.S. Cl. 179—15A 7 Claims



A multiplex fader apparatus for switching between various control system input signals without producing unwanted transients at the output of the system.

ERRATUM
For Class 179—18 see:
Patent No. 3,599,235

3,598,923
TRANSMITTING ANTENNA SYSTEM FOR AUDIO INDUCTION COMMUNICATION SYSTEM
Justin L. Turner, Branford, Conn., assignor to Educational Service Programs, Inc., New Haven, Conn.
Filed Apr. 21, 1969, Ser. No. 817,812
Int. Cl. H04b 5/00
U.S. Cl. 179—82 16 Claims



A transmitting antenna system for an audio induction communication system provides an active message field within a three-dimensional pickup zone consisting of a magnetic field which varies in frequency directly in accordance with the frequency of the transmitted message. The system comprises a plurality of antennas, each consisting of an elongated core of magnetic material and a winding on the core, located beyond the pickup zone and arranged and energized so that the magnetic field of each antenna within the pickup zone has only one generally vertical direction and so that such one

generally vertical direction at any given instant is the same for all of the fields of all of the antennas of said system. By varying the number, the arrangement, the energization and the construction of the individual antennas the shape and size of the pickup zone may be precisely controlled to allow two or more pickup zones to be placed close to one another without mutual interference.

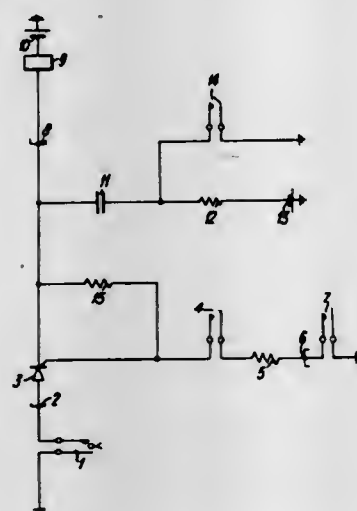
3,598,924 LINE HOLDING CIRCUIT FOR A MULTILINE TELEPHONE SYSTEM

Daniel Zucker, Rishon LeZion, Israel, assignor to Telrad Telecommunication & Electronic Industries Limited, Lod, Israel

Filed May 1, 1969, Ser. No. 820,994
Claims priority, application Israel, May 24, 1968, 30,070
Int. Cl. H04m 1/00

U.S. Cl. 179-99

1 Claim



The invention relates to a line holder circuit for a multiline telephone system which allows for the line to be held when the user, by actuating the line extension contacts, wishes to establish communication with an associated extension.

3,598,925 MAGNETIC HEAD WITH TAPE-CONTACTING GUARD SURFACE AND POLE TIPS OF SIMILAR IRON-BASED MATERIALS

Yoshio Sakai, Yokohama-shi, Kanagawa-ken; Zenkichi Nakamura, Miyagi-gun, Miyagi-ken; Katsumasa Takahashi, Tokyo, and Naotoshi Sasada, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 17, 1968, Ser. No. 768,324
Claims priority, application Japan, Oct. 18, 1967, 42/67040
Int. Cl. G11b 5/22

U.S. Cl. 179-100.2 C

11 Claims



A magnetic head for video tape recorders having adjacent iron-silicon-aluminum alloy pole tips a guard member of an iron-silicon-aluminum alloy providing a tape contact surface having a hardness substantially equal to or a little less than that of the pole tips over the operating temperature

range, but which guard material is substantially nonmagnetic under working conditions. It is preferred to have the constituent elements of the material of the guard member similar to those of the pole tip material. The guard member may also be of a nonmagnetic iron-aluminum-molybdenum alloy with pole tips of an iron-silicon-aluminum alloy for example.

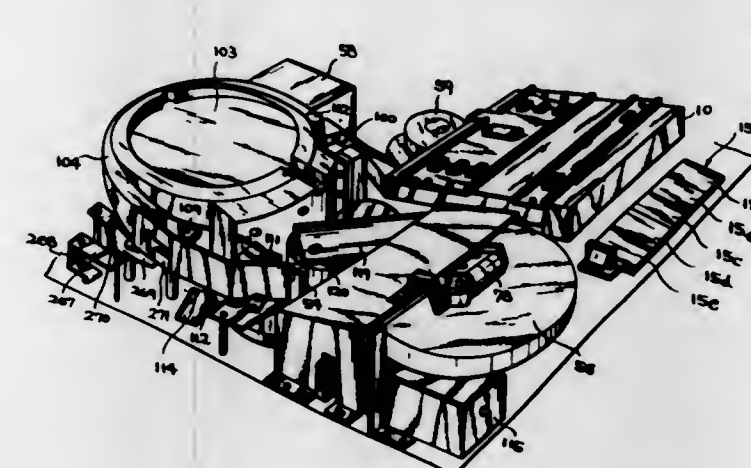
3,598,926 MAGNETIC RECORDING AND REPRODUCING APPARATUS OF THE AUTOMATIC TAPE THREADING SYSTEM

Hiroyuki Umeda, Yokohama, Japan, assignor to Victor Company of Japan, Yokohama, Japan

Filed Jan. 23, 1969, Ser. No. 793,462
Claims priority, application Japan, Jan. 25, 1968, May 15, 1968, Apr. 12, 1968, 43/4,448; 43/39,287; 43/23,984
Int. Cl. G11b 15/32

U.S. Cl. 179-100.2 T

7 Claims



A magnetic tape recording and reproducing apparatus includes an automatic tape threading system comprising a supply reel of magnetic tape. A normally straight and flexible tape leader portion is connected to the leading end of the magnetic tape. A delivery roller unwinds the magnetic tape from the supply reel and guides the tape leader portion to preclude contact between the leader and a magnetic head. The tape itself is deflected from the path followed by travel of the tape leader portion and is brought into contact with the magnetic head. A takeup reel automatically catches the tape leader portion and loads the apparatus with the magnetic tape.

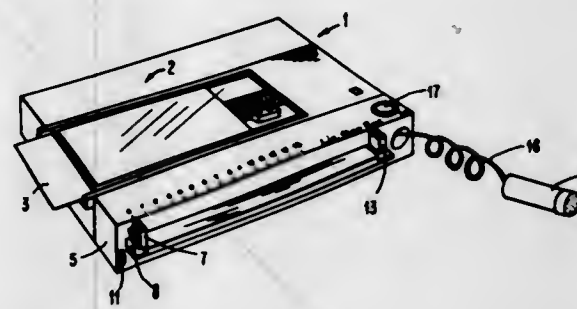
3,598,927 EDUCATIONAL APPARATUS WITH PROGRAMMING FACILITIES

Frank E. Becker, and Walter F. Klein, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,322
Int. Cl. G11b 5/56, 21/12

U.S. Cl. 179-100.2 M

5 Claims



Educational apparatus in the form of a recording/reproducing unit accommodates a record media comparable in size to the familiar IBM tabulation card. The media has printed information on one side such as questions and answers, circuit diagrams, etc. that are visible to the user when in operating position and recorded information on the

opposite side positioned for scanning by a transducer during playback and record modes. Preferably, the media has either the visible information or the magnetically stored information, or both, divided into blocks of convenient size representing different questions, multiple choice answers, or the like, with the recorded information and the visible information correlated with one another. Programming structures are provided in the apparatus enabling the user to roughly scan toward a selected block of information on the media but defining a plurality of program stops arranged adjacent the beginning of each of the blocks of information and facilitating the positioning of the transducer with respect to the first track in a selected block.

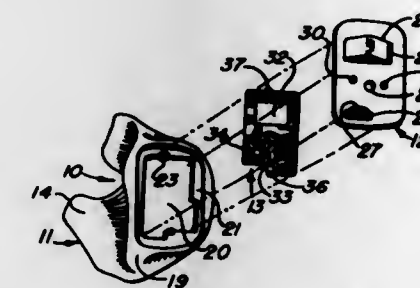
3,598,928 IN EAR HEARING AID WITH REMOVABLE MOUNTING PLATE ASSEMBLY

George B. Hickox, Concord, Calif., assignor to Phonic Electronics, Inc., Concord, Calif.

Filed Nov. 6, 1969, Ser. No. 874,501
Int. Cl. H04r 25/02

U.S. Cl. 179-107 E

7 Claims



A customized hearing aid configured in part to conform accurately to the contours of the ear canal of a person using the aid, and adapted to be contained entirely within his ear. The hearing aid includes a hollow casing having a customized body portion molded to conform to the user's ear and provided along one side with a face having a standardized opening therein, it further includes a mounting plate assembly comprising a cover plate and a circuit board secured thereto and standardized to seat within such opening in the face of the casing, and it also includes contact retainers carried by the mounting plate assembly and respectively cooperative with terminals attached to the casing to releasably secure the assembly thereto in a mechanical sense and, at the same time, electrically connect a speaker element mounted within the casing to the amplifier and microphone elements carried by the faceplate and circuit board assembly, thereby enabling a customized hearing aid that is inoperative because of any one of the usual repair problems to be returned to the user in operative condition in a matter of moments simply by removing the standard cover plate and circuit board assembly from the casing and replacing it with another such assembly.

3,598,929 ELECTROACOUSTIC TRANSMISSION TESTING DEVICE

Stanley M. Seidman, Shaker Heights, Ohio, assignor to The Hickok Electrical Instrument Company, Cleveland, Ohio

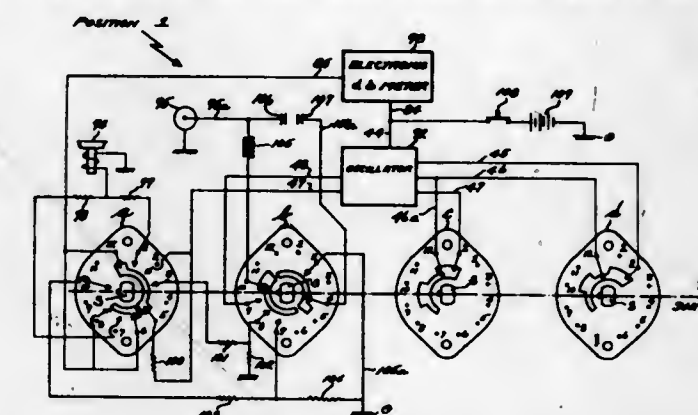
Filed Dec. 14, 1967, Ser. No. 690,522
Int. Cl. H04r 29/00

U.S. Cl. 179-175

1 Claim

An electronic test instrument for determining the electroacoustic efficiency of operation of a telephone and its associated wire line. The test instrument includes circuitry for translating audio energy into corresponding levels of electrical energy and electrical metering equipment to visually indicate the said levels of energy. The test instrument is capable of measuring the transmitting and receiving efficiency of operation of the telephone and connected wire line which in

the art is also known as a loop-and-station and enables the energy losses in the four main component parts of the loop-



and-station, i.e., the loop, telephone receiver, telephone transmitter and the telephone circuit to be measured.

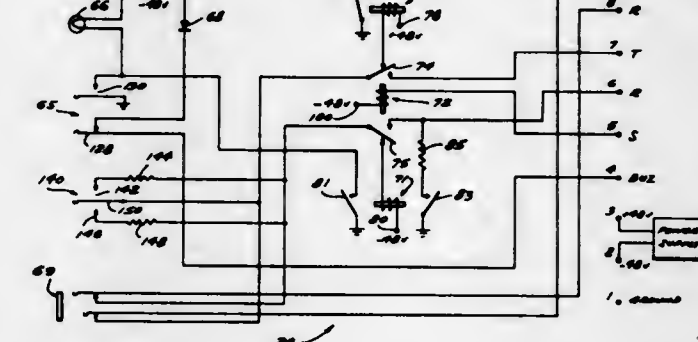
3,598,930 CABLE PRESSURE ALARM SYSTEM

Arnold B. Desnoes, Massapequa, N.Y., assignor to Puregas Equipment Corp., Copiague L.I., N.Y.

Filed Oct. 8, 1968, Ser. No. 765,765
Int. Cl. H04b 3/46

U.S. Cl. 179-175.3

4 Claims



A line alarm system for the dual use of a telephone subscriber's cable pair which is capable of functioning at all times, other than periods of regular telephone service, as an alarm-monitoring circuit for indication of remote faults. A contactor and a high value series resistance which, upon operation shunts the telephone unit. A relay sensitive to the operation of the contactor and the consequent small current flow to provide an alarm, a second relay responsive to a subscriber initiated telephone call and a larger current flow, and a third relay responsive to operation of the second relay as well as a subscriber directed telephone call to eliminate said alarm during times of normal telephone usage.

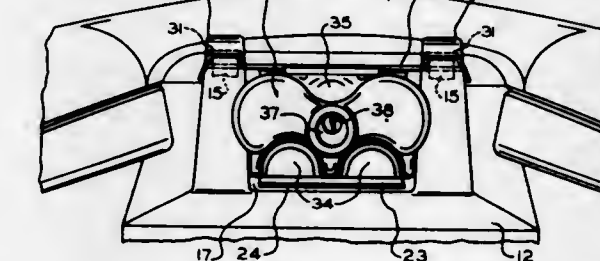
3,598,931 TELEPHONE SET LOCKS

Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis.

Filed July 30, 1969, Ser. No. 846,145
Int. Cl. H04m 1/66; E05b 13/00

U.S. Cl. 179-189

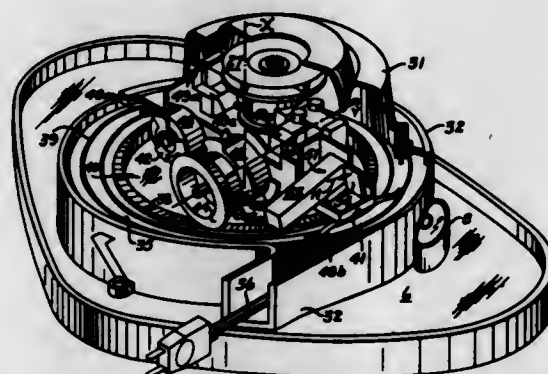
8 Claims



A lock unit secured within a base cavity in a cradle telephone includes a reciprocal angle plate susceptible of

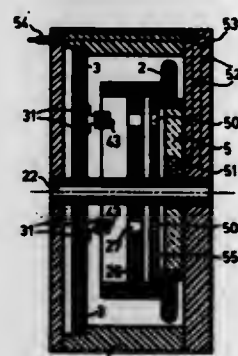
being releasably locked in a lowered position wherein its top portion spans the circuit controlling yieldable plungers to hold the same depressed with the receiver, which normally controls said plungers, either seated in its cradle or removed therefrom, whereby unauthorized use of the telephone is prevented. When the unit is unlocked said angle plate, under the projective force of said spring urged plungers, will, when the receiver is removed from the cradle, where it overlies said angle plate, move upwardly with the plungers to activate the telephone circuit and thus allow normal, authorized use of the telephone set.

3,598,932
FLOOR AND RUG TREATING APPARATUS
Paul E. Gaudry, 40 Oulmet St., Laval des Rapides, Quebec; Edouard Gaudry, 1715 O'Brien Blvd., Cite St. Laurent, Quebec; Raymond Descarries, 3809 Carlton Ave., Montreal, Quebec, and James Anderson, 48 Lombardy Road, Baled Durfe, Quebec, all of, Canada
Filed May 26, 1969, Ser. No. 827,760
Int. Cl. B65h 75/48
U.S. Cl. 191-12.2 3 Claims



A combined floor polisher-rug scrubber of unitized and integrated construction to facilitate assembly during manufacture and parts replacement for repair by unskilled persons including a motor having readily removable and replaceable stator and rotor ball bearings and brush block assembly; electric circuit components which automatically couple the motor and cordwinder cord during manufacturing assembly and disassembly and replacement for repair; and including a weighted switch to prevent accidental operation of the machine when an operator is changing the cleaning brushes.

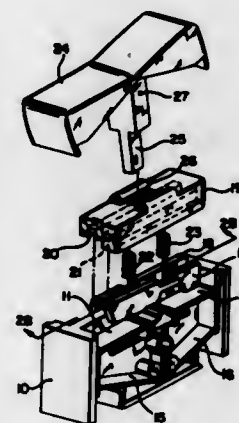
3,598,933
ELECTRICAL MULTIPositional SWITCH ARRANGEMENT
Jurg Walser, Griefensee, Switzerland, assignor to Contraves AG, Zurich, Switzerland
Filed June 24, 1969, Ser. No. 836,097
Claims priority, application Switzerland, Dec. 6, 1968, 18266/68
Int. Cl. H01h 19/58
U.S. Cl. 200-11 15 Claims



An electrical multipositional switch arrangement is disclosed having a rotatable switching wheel and at least one stationary circuit board or plate possessing contact tracks for

the purpose of generating switching signals in accordance with a predetermined code as a function of the position of the switching wheel. The switch arrangement includes connection elements mounted between corresponding contact tracks, these connection elements being actuated according to the predetermined code in dependency upon the position of the switching wheel by switching means which do not come in contact with the connection elements.

3,598,934
MULTIPLE POLE SWITCH FOR PRODUCING SIMULTANEOUS OPPOSITE SWITCHING OPERATIONS
William H. O'Connor, III, Baltimore, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed July 7, 1969, Ser. No. 839,447
Int. Cl. H01h 15/00
U.S. Cl. 200-16 R 10 Claims

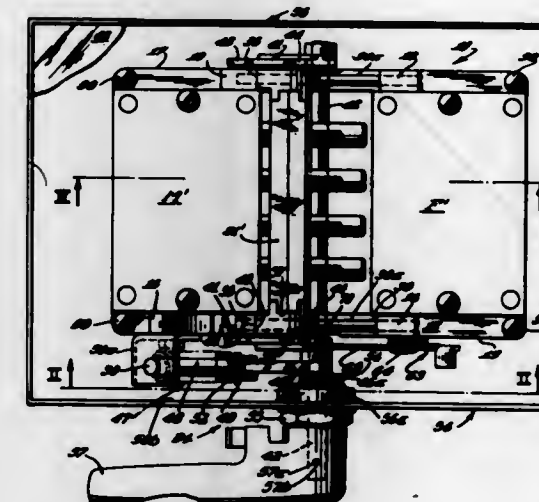


A multiple pole electric switch of the type wherein different poles are respectively connected and disconnected by a single movement of the switch which includes a plurality of stationary contacts, a plurality of movable contacts preferably positioned to bridge a gap between a pair of the stationary contacts, and insulating projection means intermediate the pair of stationary contacts. Each movable contact includes a recess which engages the projection and an extending portion which engages one of the stationary contacts in the closed position. In the open position, the movable contact is moved so that the extending portion is lifted out of engagement with the stationary contact by the projection. At least one of the movable contacts is mounted for opposite movement relative to the remainder of the movable contacts so that the one contact opens when the remainder close and closes when the remainder open. Preferably, the extending portion of the movable contact is engaged by the projection and spaced from the stationary contact for a sufficient proportion of its movement so that, during switch operation in either direction, the initially closed contacts open before the initially opened contacts close.

3,598,935
MULTIPLE POLE ELECTRICAL SWITCH WITH IMPROVED SNAP-ACTION ACTUATOR STRUCTURE
Joseph A. Nava, Villa Park, and John M. Tums, Oak Park, both of, Ill., assignors to The Pyle-National Company, Chicago, Ill.
Filed July 31, 1969, Ser. No. 846,431
Int. Cl. H01h 3/00, 15/18, 33/46
U.S. Cl. 200-17 10 Claims

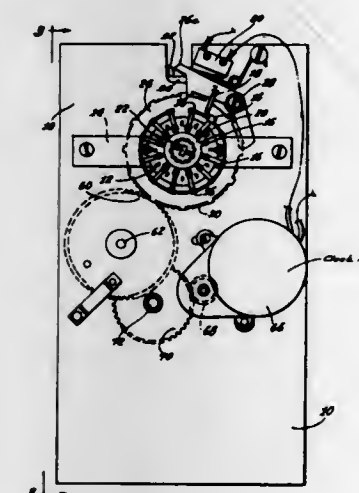
A multiple pole electrical switch comprising plural male and female contacts mounted on a pair of spaced contact-carrying members. The male contacts are jointly removable axially into and out of engagement with the female contacts.

Movement of the male contacts is provided by a toggle piece of plastic material. The mounting block includes two side portions which are folded toward a central portion for



contact-carrying members can be stacked one above the other to increase the number of poles of the switch.

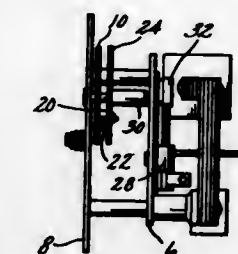
3,598,936
SNAP-ACTING SELECTOR SWITCH WITH DOUBLE ACTING PAWL ESCAPEMENT MECHANISM
Myrl J. Saarem, Arleta; Delbert L. Merriner, Glendale, and Woodrow W. Miller, Los Angeles, all of, Calif., assignors to Richdel, Inc., Los Angeles, Calif.
Filed July 9, 1969, Ser. No. 840,388
Int. Cl. H01h 3/00, 7/08, 43/10
U.S. Cl. 200-18 5 Claims



A snap-acting wafer switch mechanism is provided which has particular utility in selector switch circuitry, and especially in such circuitry which includes inductive means that causes the switch contacts to have a tendency to arc and burn. The snap-acting control of the wafer switch of the invention causes the movable contact to move with a snap action as the switch is turned from one fixed contact to the next so that arcing is minimized, and especially in the inductive type of load circuit.

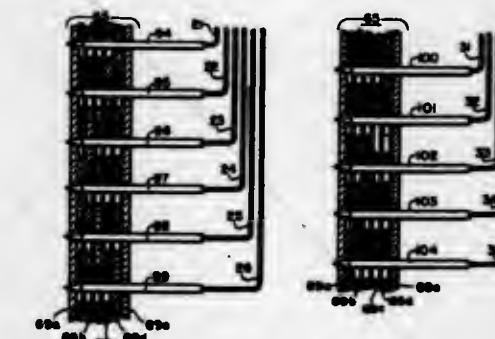
3,598,937
CLOCK TIMER SWITCH
Charles A. Balchunas, Hopkinton, Mass., assignor to General Electric Company
Filed Apr. 13, 1970, Ser. No. 27,737
Int. Cl. H01h 7/08, 43/00
U.S. Cl. 200-35 R 8 Claims

A switch and switch-mounting arrangement for a clock timer wherein a switch-mounting block is formed of a single



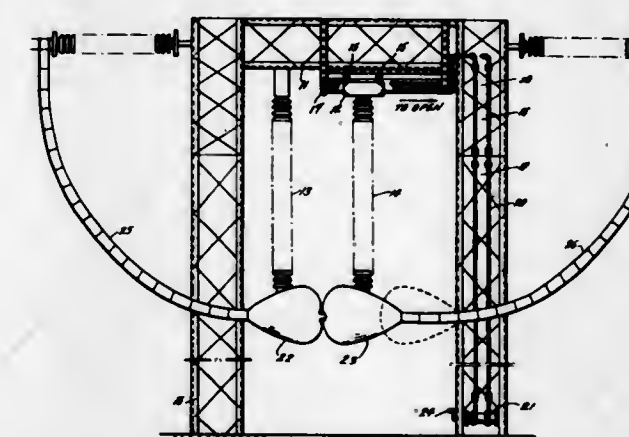
gripping switch blades between the central portion and the side portions.

3,598,938
ADJUSTABLE SWITCHING APPARATUS WITH REMOVABLE SWITCH SETTING ELEMENT
Emil C. Walker, Woodstock, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Division of Ser. No. 514,050, Dec. 15, 1965. Filed Jan. 21, 1969, Ser. No. 792,389
Int. Cl. G06k 7/04
U.S. Cl. 200-46 2 Claims



Input and output conductors of a switching apparatus are permutably interconnected, via a removable switch setting storage element, in accordance with a selected one of several possible interconnection patterns. The switch-setting information is stored in the removable element by means of a plurality of concealed electrically conductive circuit paths insulated from one another. Sensing of the hidden information is made possible by conductive lancing probes or pins, connected to the conductors, that pierce the removable element and engage the conductive paths. The paths thus serve to permutably connect the input conductors to the output conductors.

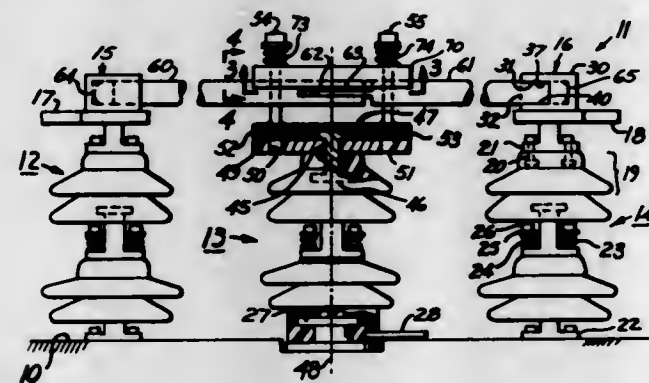
3,598,939
ISOLATING SWITCH FOR ULTRA HIGH VOLTAGES
Gustave E. Heberlein, Bryn Mawr, and James B. Owens, Rosemont, both of, Pa., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Mar. 3, 1970, Ser. No. 16,030
Int. Cl. H01h 31/00
U.S. Cl. 200-48 7 Claims



An isolating switch having large metallic electrodes presenting substantially smooth surfaces facing one another,

with at least one of the electrodes being movable by means of a moving carriage to which it is secured. The electrodes in the open gap position have a relatively high withstand or insulation strength on switching voltage surge, impulse voltage, and with a relatively small gap space. The movement of the carrier to contact both electrodes corresponds to the closed position of the switch while movement of the carriage to break the contact between the electrodes corresponds to the open position. In that latter position, a substantially uniform electrostatic field is produced in the gap between the electrodes. This has the advantage that a simple and reliable disconnecting means for very high voltage lines and apparatus is provided while, at the same time, significantly reduces the size, weight and land requirements of previous disconnect switches because of the improved electrical gradients made possible by the electrode geometry.

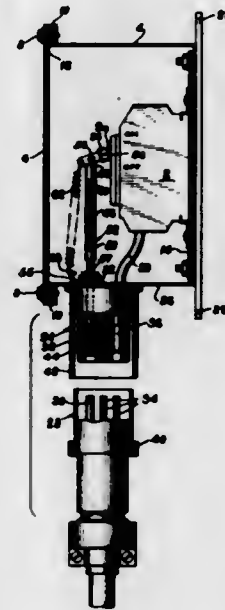
3,598,940
ISOLATOR SWITCH
Anderson B. Smedley, 1191 Morada Place, Altadena, Calif., and Paul A. Smedley, 3780 Canfield Road, Pasadena, Calif.
Filed June 9, 1969, Ser. No. 831,514
Int. Cl. H01h 31/00
U.S. Cl. 200-48 23 Claims



An isolator switch for high voltage transmission lines and switch yards. A switchblade is rotatably mounted to a bearing which bearing is rotatable around a central axis. The switchblade can be swung in a plane normal to the central axis independently around the bearing, and also around the central axis by rotation of the bearing around the central axis. A contact member is spaced from the central axis, and exposes a contact surface to the switchblade. A circuit is completed by the combined motions of turning the switchblade around the bearing and turning the bearing around the central axis, so as to move the switchblade against the contact surface in an abutting relationship which may be either compressive or sliding, there being a substantial longitudinal movement of the tip of the switchblade along the line joining the contact surface and the central axis, this being a toggle-type motion. Preferably the contact surface is inside a cavity whose walls will restrain the tip of the blade from lateral disengagement after the contact is made. The contact member and also the switchblade may be mounted to a column which permits deflection in response to force exerted between them, and which also renders the conductive portion of the switch nonresponsive to earthquake motion. According to a preferred embodiment, the device is provided with a pair of such switchblades whose angular positions relative to the central axis are angularly coordinated.

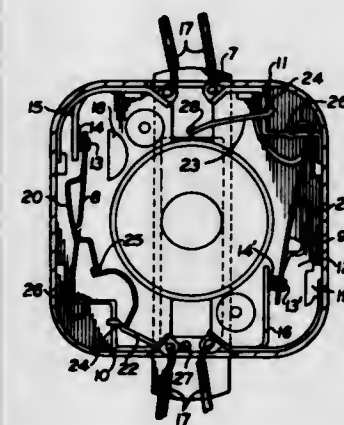
3,598,941
WATERPROOF ELECTRICAL SWITCH CONTROLLED BY PLUG INSERTION INTO AND REMOVAL FROM RECEPTACLE
Gunnar I. Nelson, 2185 Lemoine Ave., Fort Lee, N.J.
Continuation-in-part of application Ser. No. 800,863, Feb. 20, 1969, now abandoned. This application June 12, 1970, Ser. No. 45,844
Int. Cl. H01h 33/54
U.S. Cl. 200-51.09 8 Claims
A waterproof electrical switch or trip-free, circuit breaker controlled by the presence or absence of an electrical plug in

a mating receptacle. During insertion of the plug into the receptacle, one of the plug pins engages and operates mechanism to turn the switch or circuit breaker on. Conversely, withdrawal of the plug from the receptacle turns the



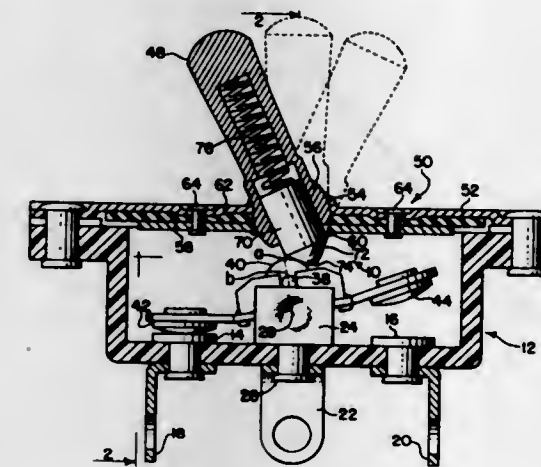
switch off or prepares the trip-free, circuit breaker for resetting. The switch preferably control energization of the receptacle. Thus, the receptacle is energized only when the plug has been inserted, and is deenergized in response to removal of the plug or tripping of the circuit breaker.

3,598,942
CONTACT DEVICE FOR ELECTRIC TIMERS OR SIMILAR APPARATUS
Rolf Karl Wilhelm Laven, Taby, Sweden, assignor to Lumalamp Aktiebolag, Stockholm, Sweden
Filed Nov. 25, 1969, Ser. No. 879,790
Claims priority, application Sweden, Nov. 27, 1968, 16191/68
Int. Cl. H01h 13/36
U.S. Cl. 200-67 D 8 Claims



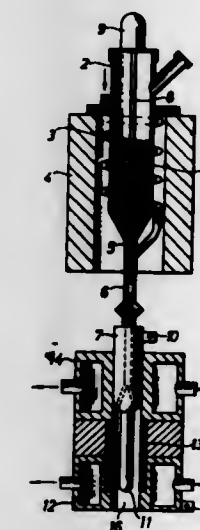
An electrical contact controlled by a timing mechanism in which not one, but two spring-biased contact arms are arranged in cooperating opposing relation. The contact tripping or actuating member of the timer, the part to which timer output movement is imparted in accordance with timing operation of the timer, is operatively connected to the springs of these contact arms so that the spring forces of each spring acting on the timing mechanism tend to cancel each other out and thus do not interfere with timer movement. However, the spring urgency exerted in a direction on the switch contacts is arranged to obtain circuit-completing positions of the contact arms under sufficient pressure which assures firm surface contact of the electrical contacts.

3,598,943
ACTUATOR ASSEMBLY FOR TOGGLE SWITCH
Edward L. Barrett, La Grange Park, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Dec. 1, 1969, Ser. No. 881,049
Int. Cl. H01h 13/28
U.S. Cl. 200-67 G 4 Claims



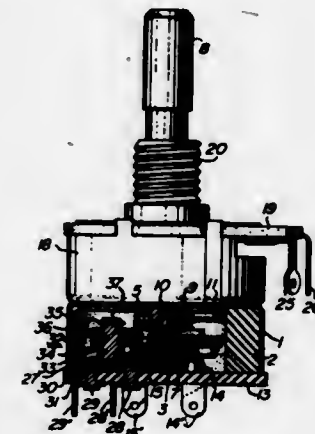
Actuator assembly for snap action toggle switch has a rockerlike actuator member which is pivoted on a transverse axis. A roller mounted on the actuator member is adapted to be engaged for overcenter movement of the actuator at a point spaced from the pivot axis of the actuator member by a member on the end of the toggle lever having a curved outer surface resiliently biased into engagement with the roller. By the use of a pair of curved cooperating surfaces to cause overcenter movement, at least one of which is a roller, which contact each other intermediate their respective pivot mountings, a very unstable teaseproof mounting is provided.

3,598,944
A DEVICE FOR THE HEAT TREATMENT OF POWDERY SUBSTANCES BY MEANS OF A HIGH-TEMPERATURE PLASMA
Peter Weimar, Kolbergerstr. 28A, Karlsruhe, and Harry Lepelt, Bruhlstr. 27, Staffort, both of, Germany
Filed June 27, 1966, Ser. No. 560,469
Claims priority, application Germany, June 28, 1965, G 44 007
Int. Cl. B23k 9/04
U.S. Cl. 219-76 10 Claims



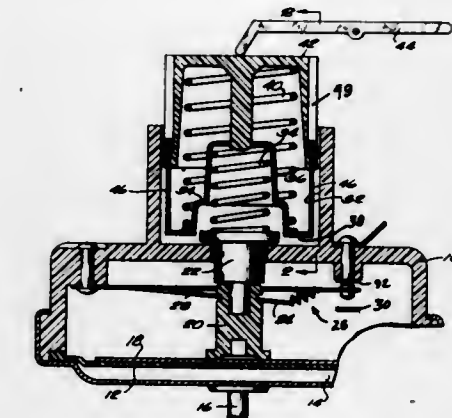
Apparatus for use therein for heat treating irregular shaped particles of nuclear fuels so as to produce granules of substantially spherical shape comprising preheating the irregular nuclear fuel particles to high temperatures, but below the melting point thereof, separate preheating a carrier gas for the particles, admixing the heated particles with the heated gas, introducing the mixture in predetermined amounts into a high temperature plasma zone, heating the particles in said zone to effect the melting of the surfaces of the particles and to thereby produce the spherical granules.

3,598,945
THREE POLE PULL-PUSH SWITCH
Hiroshi Matsui, Neyagawa-shi, and Yozo Suzumura, Higashiosaka-shi, both of, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma-shi, Japan
Filed Aug. 22, 1969, Ser. No. 852,304
Claims priority, application Japan, Feb. 25, 1969, 44/16686
Int. Cl. H01h 15/18
U.S. Cl. 200-76 1 Claim



A pull-push switch primarily adapted to be used in interlocking relationship with a variable resistor, wherein there are provided in total three sets of open-close contacts including one additional movable contact provided on the arcuate center portion of a U-shaped movable member of an insulating material which has been used in the conventional double-pole type switches, thereby making it possible to simultaneously open or close three circuits.

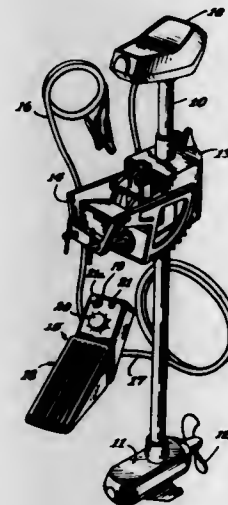
3,598,946
PRESSURE SWITCH RESPONSIVE TO EXTRA LOW PRESSURE
Tore B. Hanssen, Roselle, and Erich Kothe, Schiller Park, both of, Ill., assignors to Controls Company of America, Melrose Park, Ill.
Filed Dec. 24, 1969, Ser. No. 887,898
Int. Cl. H01h 35/34
U.S. Cl. 200-83 WM 11 Claims



In normal operation, the rising diaphragm raises the actuator and spring seat against the force of the reset spring. Just before reaching the trip point of the switch in one form, the seat engages the strip spring eyelet so the pressure is opposed by both springs, the force of the trip spring—and, hence, the operating pressure of the switch—being determined by the position of the plunger. As the pressure decreases under the diaphragm, the eyelet bottoms in the well before reset so the reset force on the diaphragm is determined by the reset spring only. At extra low level settings the plunger is allowed to rise until the spring lifter is picked up by the plunger—to cancel out the force of the trip spring—and lifted a little by the reset spring so the seat cannot engage the eyelet before the trip point. Therefore, at this setting the diaphragm is opposed only by the reset spring. The second modification differs in that the reset spring is affected by the trip spring adjustment.

3,598,947
PEDAL OPERATED CONTROL FOR ELECTRIC FISHING MOTORS
 Ralph C. Osborn, Bloomington, Ill., assignor to Osborn Engineering Corporation
 Filed Nov. 3, 1969, Ser. No. 873,187
 Int. Cl. H01h 3/14
 U.S. Cl. 200—86.5

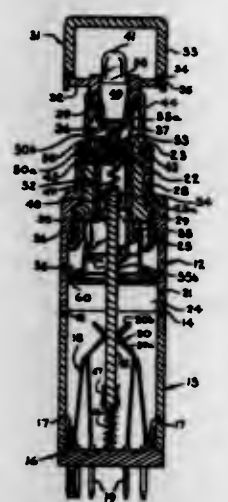
7 Claims



A pedal control for electric outboard fishing motors having a first motor for driving the propeller and a second motor for rotating the propeller support for steering. A single pedal is mounted for selective engagement with an on-off switch for the propeller drive motor and forward and reverse switches for the steering motor and is mounted on a control unit which may be easily carried about a boat for a remote control. The unit includes speed control and directional elements which may be foot-actuated.

3,598,948
MINIATURE SQUARE OILTIGHT PUSHBUTTON SWITCH
 Jack L. Bowen, Waseca, Minn., and Richard L. Chace, Bloomington, Ill., assignors to General Electric Company
 Filed Apr. 24, 1970, Ser. No. 31,502
 Int. Cl. H01h 13/58, 13/06
 U.S. Cl. 200—159 R

6 Claims

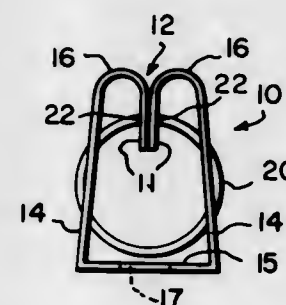


A miniature square oiltight pushbutton switch including a multipart elongated square housing one end of which receives and is closed by a contact and terminal supporting base plug and the other end of which is formed as an externally threaded cylindrical portion having a cylindrical bore, a hollow cylindrical bushing being received for reciprocal movement within the cylindrical bore, a two-piece knob assembly formed of a base and a lens cap being secured to the outer end of the bushing, a bore being provided in the aforesaid base for receiving an electrical lamp which illuminates the lens, the inner wall of the square segment of the housing being formed with a cylindrical bore surrounded by a

plurality of alternately arranged splines and slots, alternate slots having barriers therein, the splines and slots cooperating with splines on the flanged portion of the aforesaid bushing and legs on a ratchet member such that the flanged portion and the ratchet member may reciprocate in the housing and the ratchet member may also rotate, a printed circuit card bearing against the ratchet member to move the bushing to its extended position, the end of the splines in the housing which face toward the base plug providing cam surfaces which cooperate with follower surfaces at the ends of the legs on the ratchet member to effect indexing rotation of the ratchet member in response to depression and release of the knob assembly.

3,598,949
SWITCH BREAK JAW AND SPRING MEANS
 Chi-Tsan Hung, No. 14-1 Yen Ping St., Ku Shan, Kao Hsiung, Taiwan, China
 Filed May 12, 1969, Ser. No. 823,562
 Int. Cl. H01h 1/42
 U.S. Cl. 200—166 E

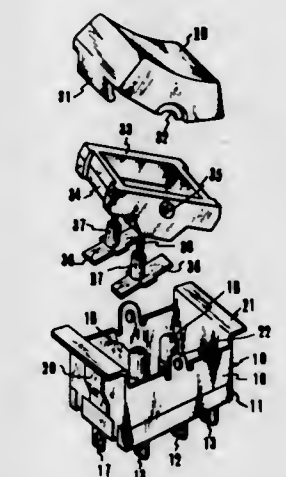
5 Claims



An electrical switch break jaw of the type formed in the shape of a U with an arcuate spring member supported by apertures in the walls of the jaw, wherein the arcuate spring provides a means for insuring a firm grip jaw and a means whereby the gap in the jaw remains constant.

3,598,950
ILLUMINATED MINIATURE SWITCH
 Shigeo Ohashi, Tokyo, Japan, assignor to Nihon Kaiheiki Kogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 14, 1969, Ser. No. 876,966
 Int. Cl. H01h 9/18
 U.S. Cl. 200—167 A

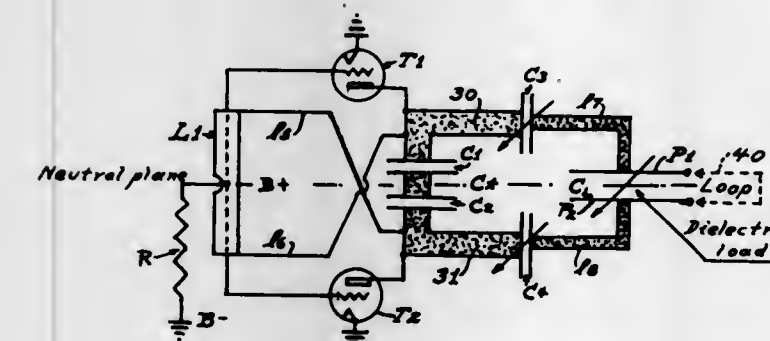
6 Claims



The illuminated switch assembly includes a pair of contact plates arranged in juxtaposed relation to each other at the bottom of the switch body and a lamp means disposed between said contact plates, with a terminal of said lamp being extended out a short distance from the inner bottom of the assembly. This arrangement permits thinned switch structure and also permits the lamp to be located substantially in the center of the switch assembly so that when the lamp is lighted, light is distributed evenly to the actuator which is detachably mounted over said lamp means.

3,598,951
SELF-EXCITED, SELF-TUNING AND SELF-LOADING GENERATOR IN WHICH THE LOAD IS AN INHERENT PART OF THE TANK CIRCUIT CAPACITANCE AND INDUCTANCE
 Julius W. Mann, 9132 DeKoven Drive, S.W., Tacoma, Wash.
 Filed Aug. 8, 1969, Ser. No. 848,656
 Int. Cl. H05b 5/00, 9/04
 U.S. Cl. 219—10.75

7 Claims



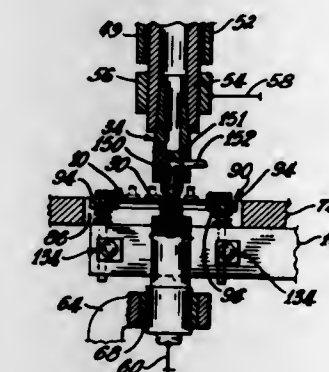
A self-excited, self-tuning and self-loading generator in which the load electrode is an inherent part of the capacity and inductance of the generator tank circuit. The generator is automatically, instantly, and steplessly self-tuning with respect to wide variations in load characteristics. A maximum power input to the load is maintained by the generator and this is in proportion to changes in the loss factor of the load. The generator cannot "spill," i.e., detune from the load since the load is an inherent part of the tank circuit.

ERRATUM

For Class 219—76 see:
 Patent No. 3,598,944

3,598,952
METHOD AND APPARATUS FOR PRODUCING A STREAM FEEDER
 Cletis L. Roberson, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation
 Filed Dec. 23, 1964, Ser. No. 420,740
 Int. Cl. B23k 11/18, 11/02
 U.S. Cl. 219—107

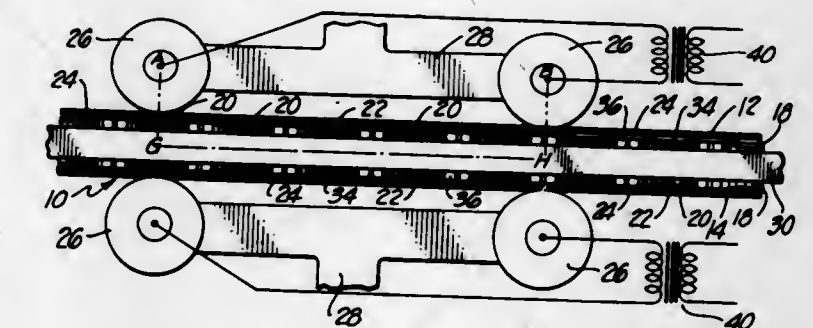
11 Claims



The disclosure embraces a method of and apparatus for joining elongated bodies fashioned of platinum alloy to a floor section or plate for a glass stream feeder wherein a flange on each body is provided with a linear ridge of restricted area which is fused or welded by electric current to the floor section or plate to establish a seal or bond between the body and the plate.

3,598,953
METHOD AND APPARATUS FOR BONDING METALLIC PANELS
 James R. Campbell, 1504 Carmelita St., Laguna Beach, Calif.
 Filed June 30, 1969, Ser. No. 844,718
 Int. Cl. B23k 11/06
 U.S. Cl. 219—117

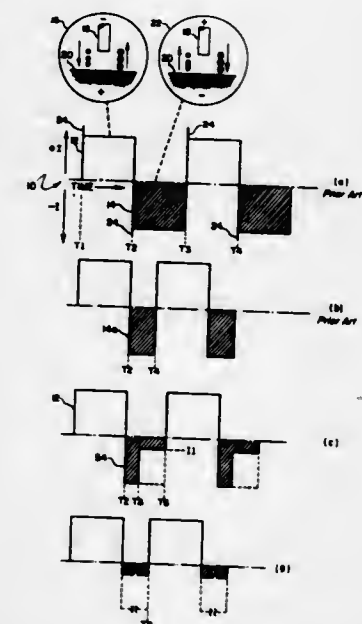
18 Claims



A method of bonding metallic panels wherein the panels consist of upper and lower metallic face sheets having a corresponding metallic core interposed therebetween, said method broadly involving the steps of preparation of the components of the panel by scrupulously cleaning the same and the subsequent steps of electrically bonding said components to each other to an extent sufficient to maintain them in operative relationship with each other but insufficient to enable the panel to sustain the loads and/or environment which it is designed to be subjected to. The subsequent step which places the components of the panel in such structural and operative relationship as to be able to be subjected to design loads and environments involves the heat bonding of the components of the panel to one another by the diffusion-bonding process or by analogous heat-bonding processes including such apparatus as induction-bonding apparatus and the like.

3,598,954
CONTROL FOR REVERSE-POLARITY WELDING
 William F. Iceland, Los Alamitos, and Donald R. Lien, La Habra, both of Calif., assignors to North American Rockwell Corporation and Air Products and Chemicals, Inc., Allentown, Pa., part interest to each
 Filed May 12, 1969, Ser. No. 823,635
 Int. Cl. B23k 9/10
 U.S. Cl. 219—131 R

6 Claims



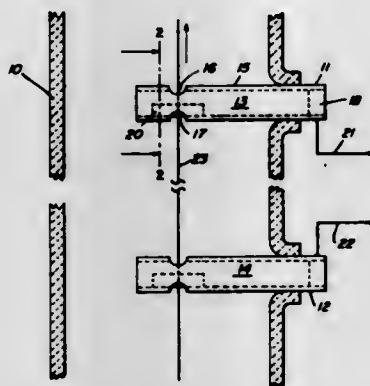
A reversing polarity arc-welding technique, wherein a welding current waveform has alternate "straight-polarity" portions and "reverse-polarity" portions; the reverse-polarity portion being desirable for its ionic cleaning, but being undesirable for its electron bombardment of the welding electrode. This disclosure teaches the advantages of reducing the welding current during the reverse-polarity interval; and discloses electronic circuitry for achieving this result.

3,598,955

ELECTRICAL CONTACT FOR MOVING FILAMENTS
Charles R. Morelock, Ballston Spa, N.Y., assignor to General Electric Company
Filed Apr. 4, 1969, Ser. No. 813,516
Int. Cl. C21d 9/62

U.S. Cl. 219-155

1 Claim



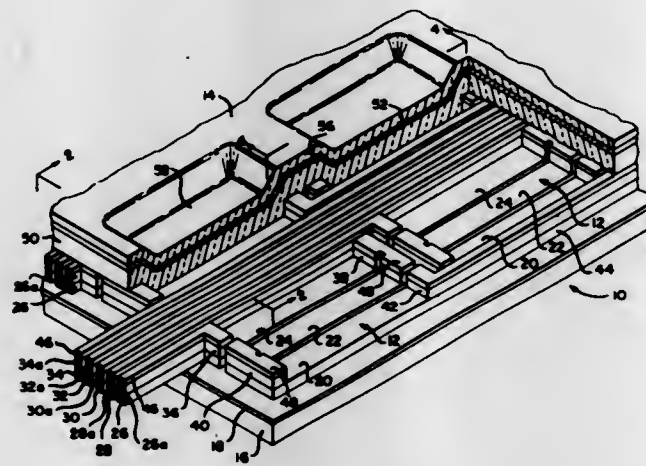
An electrical contact member is disclosed which comprises a horizontally disposed electrically conductive tube, a pair of apertures in the upper and lower portions of the side in registry with each other, and a pair of cylindrical rodlike electrically conductive members freely supported in said tube in contact with each other and both extending across the lower aperture. In operation, a pair of such members are supported in vertically spaced relationship and electrically isolated from each other, the apertures of each in substantial registry with the other. An electrically conductive filament is threaded through the apertures of each tube and between the rodlike bodies of each member and electric power is applied to each member to resistively heat the filament between the contact members.

3,598,956

ION MIGRATION BARRIER
Richard C. Cady, Jr., South Burlington, Vt., and John H. Hoskinson, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Aug. 11, 1969, Ser. No. 849,109
Int. Cl. H05b 1/00

U.S. Cl. 219-216

12 Claims



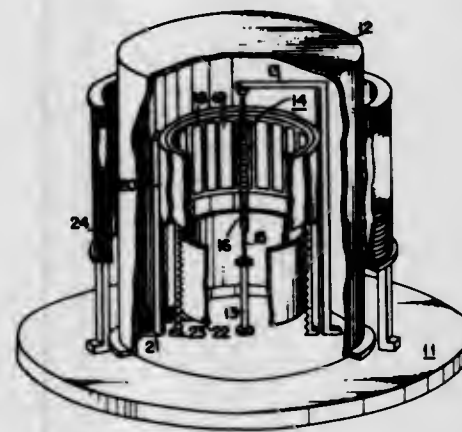
An ion migration barrier for a circuit configuration (like a thermal print head) including a plurality of resistor elements which are selectively energized to produce localized areas of heat. When the circuit configuration is used in an environment including a source of ions, the ions tend to migrate towards the resistor elements, thereby shortening resistor element life. The ion migration barrier (which is an electrically conductive shield) isolates the resistor elements from the source of ions when it is positioned therebetween to thereby prolong resistor element life. In a circuit configuration like a thermal print head, the source of ions appears to be the thermally sensitive paper which is used with the print head.

3,598,957

VACUUM DEPOSITION APPARATUS
Nobuaki Yasuda, Zushi-shi; Iwao Higashinakagawa, Kanagawa-ken, and Hiroaki Okamoto, Tokyo, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Sept. 10, 1969, Ser. No. 856,695
Claims priority, application Japan, Sept. 13, 1968, 43/65518
Int. Cl. C23c 13/00

U.S. Cl. 219-271

11 Claims



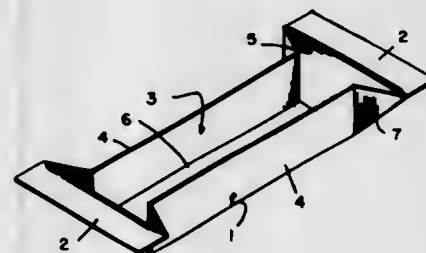
A vacuum deposition apparatus comprising a rodlike vapor deposition source vertically mounted substantially in the center of a vacuum vessel, a cylindrical member inside the vacuum vessel and surrounding the vapor deposition source which is located substantially at the central axis of the cylindrical member, a substrate being mounted on the inner surface of the cylindrical member, a shutter for selectively shutting off a deposition metal supplied from said rodlike vapor deposition source from being deposited on the substrate, and a coil for generating a magnetic field positioned outside said cylindrical member. A heater is optionally included to heat the substrate.

3,598,958

RESISTANCE HEATED EVAPORATION BOAT
Ernest A. Davey, Lynn, and Wallace T. MacDonald, Tewksbury, both of Mass., assignors to Sylvania Electric Products Inc.
Filed Nov. 26, 1969, Ser. No. 880,186
Int. Cl. F22b 1/28

U.S. Cl. 219-275

6 Claims



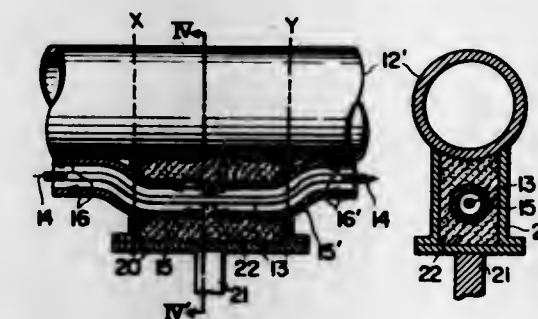
An electrically heated boat for the evaporation of powdered material comprises a thin folded sheet of tantalum arranged in the form of a container that holds a large volume of powder in relation to the size of the sheet. The ends of the boat are flat to permit clamping thereof to the electrical posts of a vacuum evaporation apparatus. Excessive operating temperature variations throughout the boat are avoided by fabricating the boat so as to maintain substantially uniform wall thickness therethroughout.

3,598,959

METHOD FOR PARTIALLY INCREASING HEAT TO BE GENERATED IN A HEAT-GENERATING PIPE UTILIZING SKIN EFFECT CURRENT
Masao Ando, Yokohamashi, Japan, assignor to Chisso Corporation, Osaka, Japan
Filed Aug. 6, 1970, Ser. No. 061,694
Claims priority, application Japan, Aug. 19, 1969, Nov. 8, 1969, 44/65488; 44/89438
Int. Cl. H05b 3/00

U.S. Cl. 219-300

8 Claims



In a heat-generating pipe composed of a ferromagnetic pipe or pipes and an insulated wire passing therethrough, and having such a circuit that alternating current flowing through said ferromagnetic pipe flows concentratedly only on the inner skin portion of the ferromagnetic pipe, the ferromagnetic pipe is cut and divided into two portions, within a section where increase of heat to be generated is required, and the two points on the outer surfaces of the divided ferromagnetic pipes at both the ends of the section are connected by a conductor, whereby, within the section, AC flows also on the outer skin portion of the ferromagnetic pipes, and the amount of heat to be generated within the section is increased.

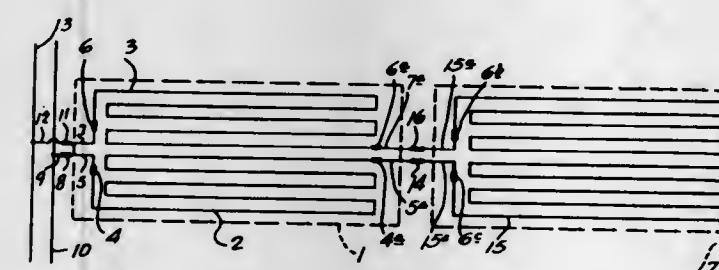
Further, within the section, a ferromagnetic ring or rings are strung on the ferromagnetic pipe(s), whereby an induction current flows on the ring(s) correspondingly to the AC flowing through the outer skin portions of the ferromagnetic pipe(s), and the amount of heat to be generated within the section can be further increased.

3,598,960

RADIANT CEILING HEATING UNIT
George P. Deacon, 158 Poplar Ave., Wheeling, W. Va.
Filed July 3, 1969, Ser. No. 838,888
Int. Cl. H05b 1/00; F24h 9/02

U.S. Cl. 219-345

2 Claims



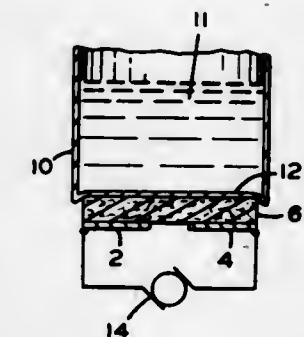
The present radiant ceiling heating unit consists of two heating panels to a unit with the panels of each unit electrically connected by nonheating jumper leads which permits the panels of a unit to be mounted on a ceiling lengthwise between a pair of the ceiling joists or installed side-by-side each on an opposite side of one of such ceiling joists and includes a clip for each pair of nonheating leads at an end of a panel to prevent the leads from being pulled from the panel end.

3,598,961

METALLIC CONTAINER WITH AN INTEGRAL SPLIT-ELECTRODE SERIES-LAMINATED HEATER
Nathaniel E. Hager, Jr., Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.
Filed Sept. 29, 1969, Ser. No. 861,694
Int. Cl. F27d 11/02

U.S. Cl. 219-438

1 Claim



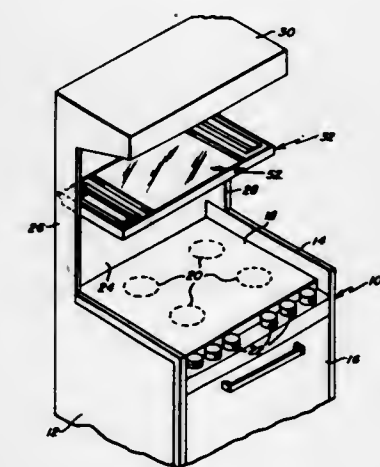
The electrical heater is provided for heating containers of food. The wall of the container may constitute a portion of the heater structure or the heater may be composed of three laminated structures fastened to a food container. The heater has a split electrode, both parts on the same side of an electrically conductive material. On the opposite side of the conductive material is the wall of the container or a conductive sheet. Principal current flow is from one of the split electrodes through the conductive layer to the large conductive sheet and then back through the conductive layer to the second split electrode.

3,598,962

RANGE WITH ELEVATED WARMING TRAY
William C. Badnaruk, Elverson, and Peter L. Helgeson, Macungie, both of Pa., assignors to Caloric Corporation, Topton, Pa.
Filed Dec. 29, 1969, Ser. No. 888,546
Int. Cl. H05b 3/68

U.S. Cl. 219-444

8 Claims



A kitchen range having a cooking top and having thereabove a hinged shelf containing an electrical warming tray, and means for interconnecting the tray into an electrical circuit when the shelf and tray thereon are in lowered position.

3,598,963

CURVE READER

Kinichiro Osugi, and Takashi Yumoto, both of Yokohama, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Japan

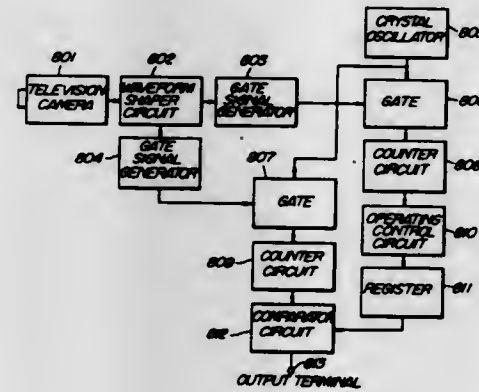
Filed June 1, 1967, Ser. No. 642,810

Claims priority, application Japan, June 10, 1966, June 10, 1966, June 10, 1966, June 10, 1966, June 10, 1966, June 10, 1966, 41/37850;41/37851;41/37852;41/37853;41/37854;41/37855

Int. Cl. G06k 9/00

U.S. Cl. 235-61.6 A

11 Claims



This specification discloses a device for reading out a curve recorded on a recording paper by means of a television camera, by which an error due to the shift of the recording paper and nonlinearity of sweep are compensated, whereby the readout of the curve on the recording paper is performed in greater accuracy and stability.

3,598,964

DATA PROCESSING SYSTEMS AND APPARATUS THEREFOR

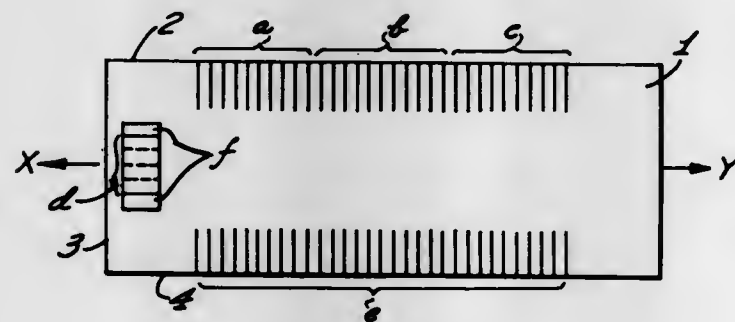
Robert Dell, Sudbury, England, and John Benjamin Crews, Los Angeles, Calif., assignors to Advance Data Systems Corporations, Beverly Hills, Calif.

Continuation-in-part of application Ser. No. 460,771, June 2, 1965, now abandoned. This application Dec. 6, 1967, Ser. No. 688,422

Int. Cl. G06k 7/08

U.S. Cl. 235-61.6 R

7 Claims



Data processing apparatus and cooperating tickets adapted for use in a transportation system. The ticket has fare data encoded on one side, as well as direction-of-travel indicia. Reading heads will read the indicia on the ticket irrespective of ticket orientation. Gate circuits responsive to a direction-of-travel indicia-reading head and data-reading heads place the data read into a storage register with the digits in proper significant order, whether the highest or lowest significant digit is read first. The read data is then compared with preset data, and a barrier release signal is provided if the read data is satisfactory.

3,598,965
METHOD OF AND APPARATUS FOR AUTOMATICALLY EXAMINING RAILWAY TICKETS OR THE LIKE

Szuya Aho; Masanori Nagata, and Tadao Morita, all of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

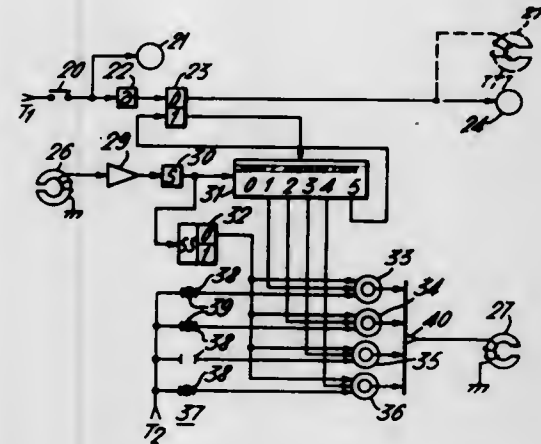
Filed Dec. 15, 1967, Ser. No. 690,903

Claims priority, application Japan, Dec. 23, 1966, 41/84215

Int. Cl. G06k 17/00; G07f 7/02; H04a 9/00

U.S. Cl. 235-61.7 R

5 Claims



To permit a passenger to choose his range of journey on a transportation system, a ticket for use therefor includes two recording areas, one having an identification number and the other providing for recording of the station at which the ticket is last used. The passenger inserts the ticket into an entrance gate wherein a sensor actuates a first shift register which in turn steps gating circuitry to apply a predetermined station number to the second area in synchronism with a plurality of synchronizing marks thereon. The passenger is then allowed to retrieve his ticket and pass through the gate. When he has completed his journey, he inserts the ticket into an exit gate wherein a sensor actuates a second shift register which transfers, in synchronism with the synchronizing marks, the recorded station number to storage circuitry. The exit gate then transmits an identification signal to a common controller which also receives similar identification signals from other stations. The controller includes a third shift register which is stepped by a pulse generator. The outputs of the third shift register are compared with the plurality of identification signals; when a comparison is made, the common controller sends a recognition signal to the particular station, stops the pulse generator and actuates a recorder. The recorder then sequentially issues four signals which are combined with the identification and recognition signals to step a fourth shift register at the exit gate. The outputs from the fourth shift register in turn interrogate the storage circuitry containing the recorded station number, gating circuitry which reads the identification number off the ticket, and gating circuitry including the exit station number. These information signals from the storage and gating circuitry are sequentially recorded, and the fourth signal therefrom resets the fourth shift register, restarts the pulse generator and releases a locking mechanism at the exit gate to permit the passenger to pass therethrough.

3,598,966

CLOCK GENERATION ERROR-CHECKING MEANS

Jerry A. Combs, West Carrollton, and John W. Fecher, Kettering, both of, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed June 27, 1968, Ser. No. 740,562

Int. Cl. G06k 7/10

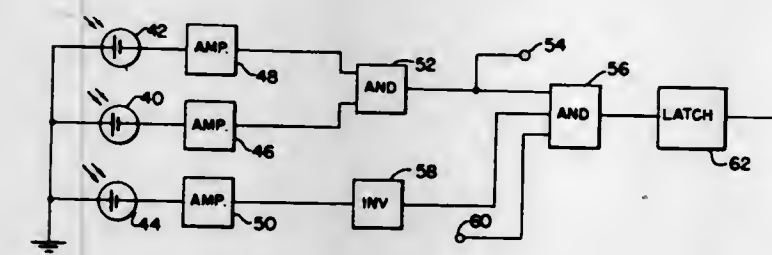
U.S. Cl. 235-61.11 E

11 Claims

Means for preventing an undetected loss of data from tape being sensed by a tape-sensing device, which loss may occur when a sprocket hole being used for clocking purposes is obstructed or defective so that a clock signal cannot be generated therefrom. The addition of a sprocket-hole-sensing device and electrical circuitry for generation of an error signal in response to failure to sense the sprocket hole ena-

bles a check to be made in advance as to whether or not the sprocket hole of a frame of data to be subsequently sensed is unobstructed. If a satisfactory signal is obtained from sensing of the sprocket hole, then sensing of the tape by the tape-

being moved adjacent the coil, the oscillator becomes loaded and the amplitude of its signals reduced to provide a cor-



sensing device proceeds normally. However, if the sprocket hole in question is obstructed or defective, then the normal sensing signal is not produced by the added sprocket-hole-sensing device, and an error signal is generated.

3,598,967

CODED PUNCHED HOLE DOCUMENT READER

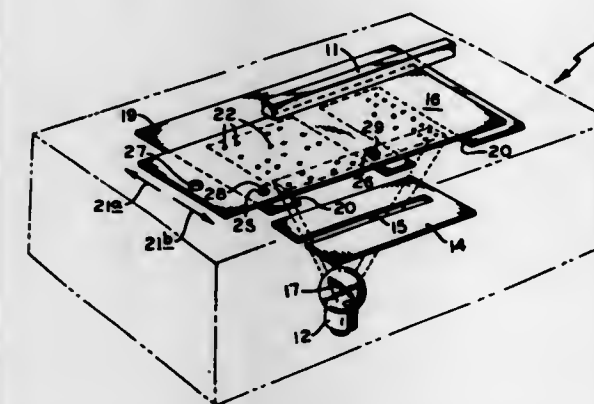
Robert M. Berler, Westport, Conn., assignor to Pitney Bowes-Alpex, Inc., Danbury, Conn.

Filed June 23, 1969, Ser. No. 835,372

Int. Cl. G06k 7/14

U.S. Cl. 235-61.11 E

5 Claims



An apparatus for reading intelligence contained on a document in the form of coded punched holes which includes novel means to produce registration between the spaced punched holes in the document and the respective photoelectric cells whose spacing in the array may differ from the spacing of the holes in the document. A simple inexpensive arrangement comprising a standard lamp and a mask is used to simulate a point source of light which in turn permits a magnified image of the punched hole array of a coded document to be cast with good resolution on to the array of photocells with controllable spacing to produce precise registration with the respective photoelectric cells in the hole-detecting array. A housing capable of substantially excluding light contains the document, light source, mask and photocell detector.

3,598,968

CODED ARRANGEMENT OF INDUCTIVELY DETECTABLE ELECTRICAL CONDUCTING SEGMENTS

Richard A. Victor, Danville, Calif.

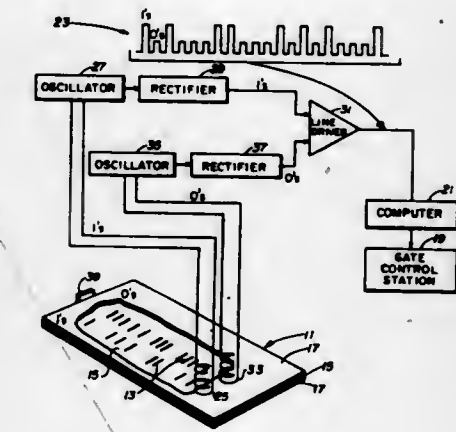
Filed Feb. 3, 1969, Ser. No. 795,808

Int. Cl. G06k 7/00, 19/00; G01n 27/86

U.S. Cl. 235-61.11 R

13 Claims

An identification badge in which a coded arrangement of nonmagnetic electrically conductive segments are embedded for successive presentation to a coil of an oscillator with which eddy currents are induced in each segment as the badge is manually moved past the coil. The oscillator normally is oscillated to produce reference signals that are rectified to obtain a reference output level. Upon a segment



responding rectified output signal level that is lower than the reference level.

3,598,969

SETTABLE PROGRAM CONTROL DEVICE FOR AN ACCOUNTING OR SIMILAR MACHINE

Nicola Giolitti, and Gian Paolo Guerrini, both of Ivrea, Italy, assignors to Ing. C. Olivetti & C. S.p.A., Ivrea, Italy

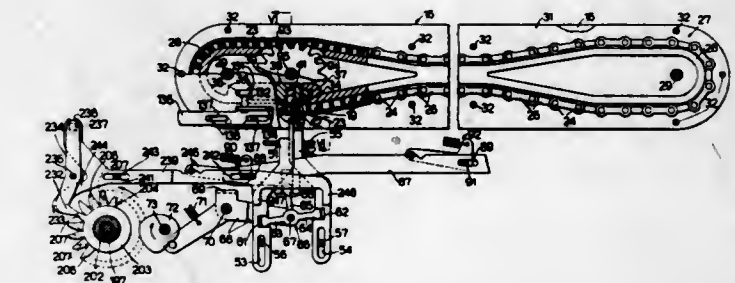
Filed Jan. 13, 1969, Ser. No. 790,539

Claims priority, application Italy, Jan. 22, 1968, 50219 A/68

Int. Cl. G06c 1/00

U.S. Cl. 235-123

22 Claims



A keyboard-settable ball memory for program control of accounting and similar machines is disclosed in which the balls are positioned in longitudinal columns and transverse rows of cells in an endless traveling ribbon with a fixed station corresponding to one transverse row providing both setting and sensing operations by means of the same elements.

3,598,970

ELECTROMAGNETIC COUNTER

Nagao Mizutani, Tokyo, and Hiroshi Mabuchi, Saitama, both of, Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Filed Nov. 17, 1969, Ser. No. 877,531

Claims priority, application Japan, Nov. 15, 1968, July 19, 1969, 43/83649;44/57319

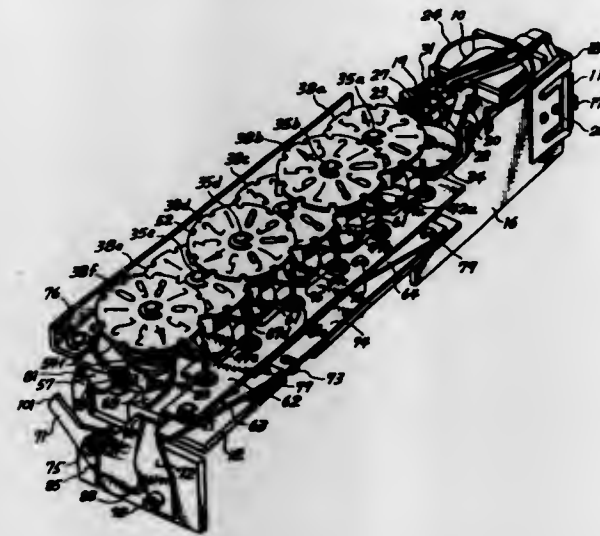
Int. Cl. G06c 15/26, 15/42, 27/00

U.S. Cl. 235-137

10 Claims

An electromagnetic counter having an electromagnetic driving means, a reduction gearing connected to the driving means and indicating members such as figure wheel or dial to indicate a count. The reduction gearing includes counting gear assemblies rotated in accordance with a scale such as decimal system, and the counting gear assemblies accumulate the kinetic energy in resilient members such as springs for rotating the indicating members. Each of the indicating members is adapted to be rotated one pitch by the accumulated kinetic energy for every transferring signal from the previous

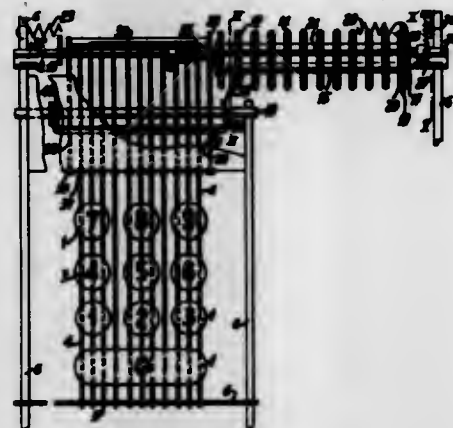
column. In addition the electromagnetic counter is provided with a zero-setting means. To accomplish the zero-setting



operation, the reduction gearing is adapted to be disconnected.

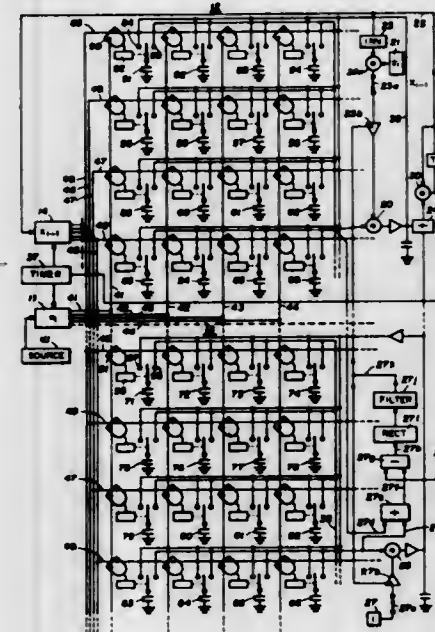
3,598,971
DEVICE FOR INTRODUCING VALUES INTO A CALCULATING MACHINE, HAVING A REDUCED KEYBOARD

Andre Kolty, Geneva, Switzerland, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Aug. 26, 1969, Ser. No. 853,106
Claims priority, application Switzerland, Sept. 3, 1968, 13,207/68
Int. Cl. G04b 5/20
U.S. Cl. 235-145



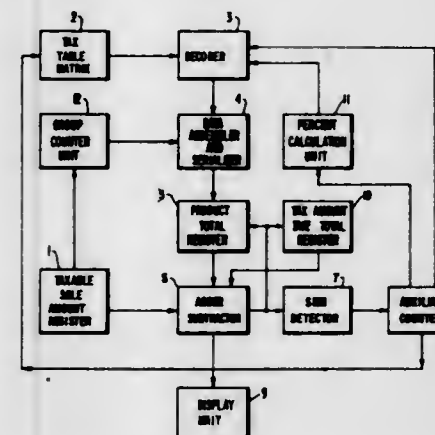
A device for introducing values into a calculating machine has a simplified keyboard with only 10 keys, each bearing a different digit. A control member is connected to each of the keys and a positioning member is connected to one end of the control member. A side plate follows the movement of the control member and has a retaining member on one end. Two shafts parallel to each other are mounted on the device, and a registering device with movable teeth is loosely mounted on one of the shafts for movement lengthwise of the shaft. A rack bar engages with one end of the registering device and extends in the direction of the associated shaft. An escapement member is rigidly mounted on the other shaft and engages with the rack bar to limit the movement of the registering device. The escapement and the retaining member cause the stepwise advance of the intermediate registering device. The positioning member is placed in the path of the movable member corresponding to the control member of the depressed key during the movement of the registering device lengthwise of its associated shaft. As a result, the movable member is displaced from its rest position into its operating position upon that movement of the registering device.

3,598,972
ADAPTIVE WEIGHTING IN TRAINING FEEDBACK MINIMIZED OPTIMUM FILTERS AND PREDICTORS
William C. Choate, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 23, 1968, Ser. No. 786,059
Int. Cl. G05 13/02
U.S. Cl. 235-150.1



Training control is provided for a nonlinear adaptive signal processor wherein, during a long training phase on a nonstationary function, but based upon a prior knowledge of the desired processor response to a given input, the inertia to change established during long training is modified by production and utilization of variable error dependent gain control.

3,598,973
TABLE LOOK-UP SALES TAX COMPUTER
Everett G. Brooks, and Roger D. Kaus, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 13, 1969, Ser. No. 790,646
Int. Cl. G06f 7/48
U.S. Cl. 235-168

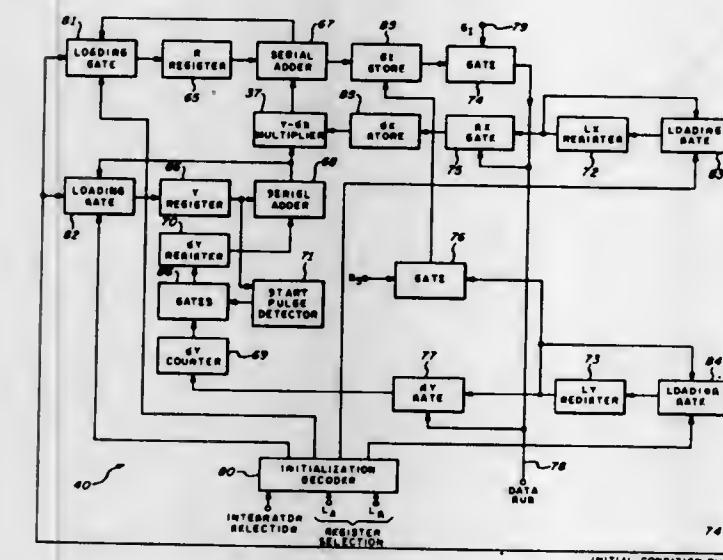


A computer including a register containing an initially proposed trial value of sales tax for a given actual sales price, a tax matrix to determine the cutoff sales price for that trial tax, a subtractor for determining if the actual sales price is larger than the cutoff sales price, logic elements for repetitively proposing the next higher trial value if the actual sales price is larger, means to use the calculated tax if the actual sales price is not larger, and means to compute the tax as a percentage of the sales price if the highest programmed trial tax is smaller than the actual tax.

8 Claims

7 Claims

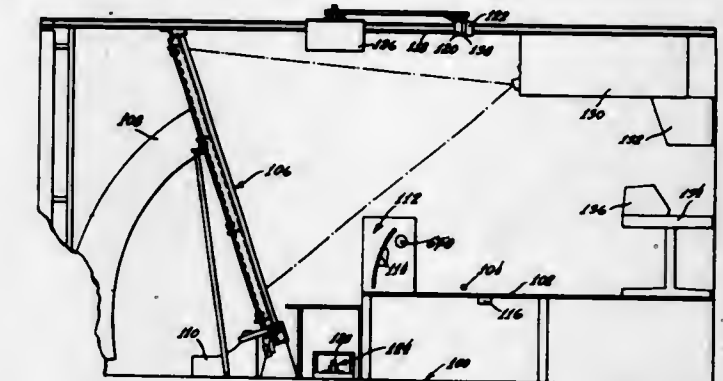
3,598,974
PROGRAMMABLE DIGITAL DIFFERENTIAL ANALYZER INTEGRATOR
Andrew James Lincoln, Concord, Mass., assignor to Sperry Rand Corporation
Filed Sept. 15, 1967, Ser. No. 667,995
Int. Cl. G06f 15/06; G06g 7/62
U.S. Cl. 235-150.31



A programmable digital differential analyzer integrator which contains storage and logic circuits for changing its effective interconnections with other similar units merely by changing the information temporarily stored therein.

22 Claims

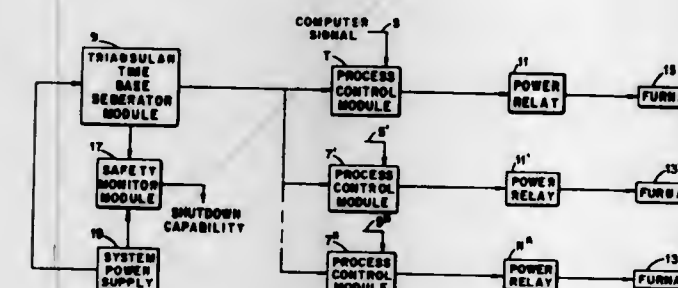
3,598,976
GOLF GAME COMPUTING SYSTEM
Jack A. Russell, and Bradford J. Baldwin, both of Muskegon, Mich., assignors to Brunswick Corporation
Division of Ser. No. 588,922, Oct. 24, 1966, Pat. No. 3,513,707.
Filed Sept. 29, 1969, Ser. No. 861,944
Int. Cl. G06g 7/48; A63b 67/02
U.S. Cl. 235-151



A computer system for use in indoor golf games. The system includes data acquisition means for obtaining data relative to the trajectory of a golf ball hit from a tee, a means for receiving the trajectory information and for providing a signal whose magnitude is representative of the initial velocity of the golf ball; a means for decaying the magnitude of the signal at a predetermined rate to provide a second signal whose magnitude is representative of the instantaneous velocity of a golf ball at any corresponding point in the theoretical time of flight of the golf ball; and a display device for utilizing the second signal to provide information relative to the theoretical free flight trajectory of the golf ball to a golfer.

13 Claims

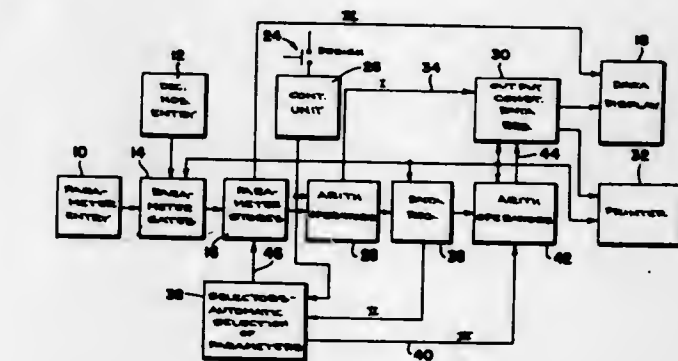
3,598,975
TIME-PROPORTIONING PROCESS INTERFACE FOR DIRECT COMPUTER CONTROL
William R. Miller, Concord, and Charles A. Mossman, Knoxville, both of, Tenn.
Filed June 3, 1969, Ser. No. 829,913
Int. Cl. G05b 11/01
U.S. Cl. 235-151.1



An interface device has been provided which converts a computer-derived analog control signal to a time-proportioning signal for controlling a process. A plurality of control modules, one for each process, are fed by separate computer-derived control signals together with a commonly applied triangular time base signal. The triangular time base signal is generated in a unique manner by means of a loop connected amplitude controlled ramp function generator and a differentiator. The time base signal is compared with the analog computer signal in each process control module to produce a time-proportioning (on-off) signal to the final control element associated with that module.

5 Claims

3,598,977
SPECIAL-PURPOSE COMPUTING APPARATUS FOR DETERMINING CONSTRUCTION DATA FOR WIRE-WOUND ELECTRICAL COMPONENTS
James H. Clemmons, 2 N 461 Pleasant, Glen Ellyn, Ill.
Filed Oct. 11, 1968, Ser. No. 766,683
Int. Cl. G06g 7/48
U.S. Cl. 235-151.1



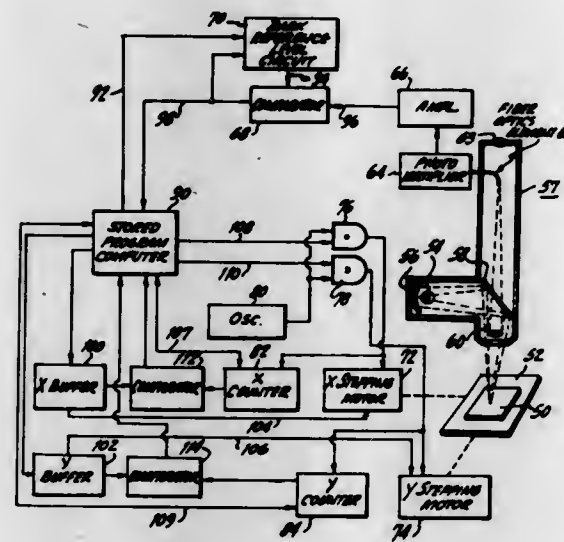
14 Claims

Apparatus for determining the values of construction parameters required for constructing wire wound electrical components, such as a power transformer, in accordance with certain essential and optional input design parameters, including storage means for receiving and storing data relating to the essential input design parameters, memory means for storing empirical data relating to the values of the optional parameters as a function of the essential parameters, selector means responding to the values of the entered essential parameters in the storage means for selecting from the stored empirical data the respective values of the optional input design parameters, and controlled calculating means operationally connected to the storage means and to the selector means for determining the respective values of the required construction parameters.

3,598,978

OBJECT-POSITIONING SYSTEM AND METHOD
Lawrence A. Rempert, Cranbury, N.J., assignor to RCA Corporation

Filed Aug. 21, 1968, Ser. No. 754,228
Int. Cl. G06f 15/46; G01n 21/32
U.S. Cl. 235-151.11 6 Claims



The object which is to be positioned has light and dark areas and edges which define transitions between these areas. This object is placed beneath a light-sensing element such as an optical fiber. The object is then moved first in one direction and then in another direction to determine, with the aid of the light-sensing element and other means, the distances, in a given plane, between the initial position of the light-sensing element and two of the edges. This procedure may be repeated for other pairs of edges and the measured distances may be employed to determine and to correct the initial error in the object position.

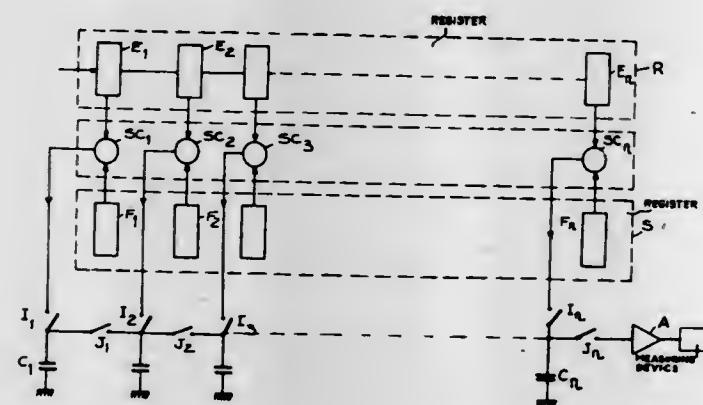
3,598,979

DIGIT SEQUENCE CORRELATOR

Jean Pierre A. Moreau, Paris, France, assignor to CSF-Compagnie Generale De Telegraphie Sans Fil
Filed Jan. 17, 1969, Ser. No. 792,103

Claims priority, application France, Jan. 26, 1968, PV 137 628

Int. Cl. G06g 7/19; G06f 7/04
U.S. Cl. 235-181 5 Claims



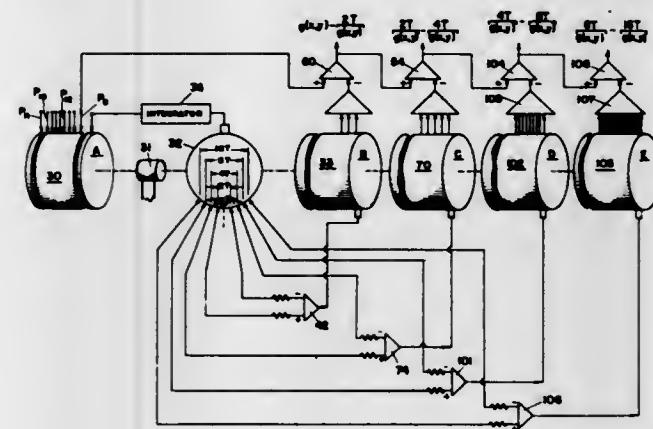
A digital correlator able to recognize, within a digital message, a sequence of n predetermined digits, comprises a shift-register with at least n -stages in which there is stored the sequence to be recognized, a second register identical to the first, into which the incident sequence is fed, and an n -stage comparator which, stage by stage, compares the states of the two registers.

3,598,980

METHOD OF AND APPARATUS FOR DETERMINING AREA GRAVITY

Philip L. Lawrence, Riverside, Conn.; Gilbert W. Ehlert, Dallas, Tex.; John A. Lester, Dallas, Tex., and Albert W. Musgrave, Dallas, Tex., assignors to Mobil Oil Corporation
Continuation of application Ser. No. 330,413, Dec. 13, 1963, now abandoned. This application Sept. 22, 1969, Ser. No. 860,117

Int. Cl. G01v 7/06; G06f 15/34; G06g 7/18
U.S. Cl. 235-181 14 Claims



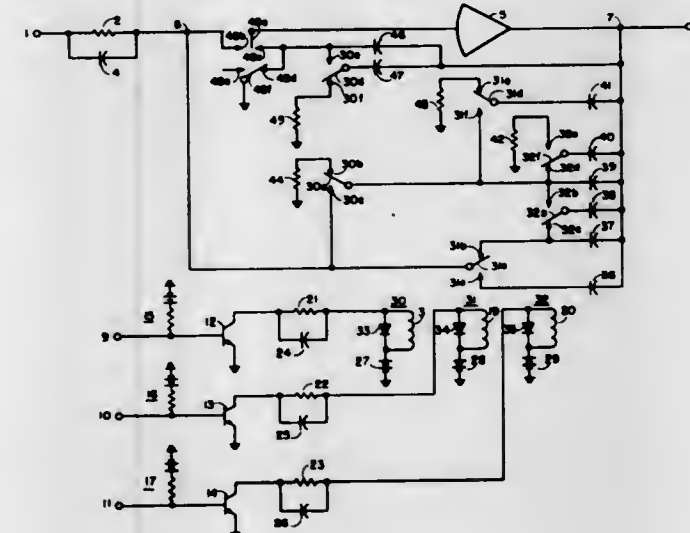
Gravity profiles are smoothed by differing smoothing intervals. Several of the smoothed profiles are then combined, or averaged, to form an averaged area gravity value. The averaged area gravity values are subtracted one from another to generate a plurality of difference area gravity values. Each of these difference area gravity values accentuates an anomaly in a different depth range.

3,598,981

CAPACITOR-SWITCHING CIRCUIT

Ben D. Conger, West Long Branch, and Alfred G. Tonnessen, Neptune, both of, N.J., assignors to Electronic Associates, Inc., Long Branch, N.J.

Filed Mar. 18, 1969, Ser. No. 808,094
Int. Cl. G06g 7/18 2 Claims



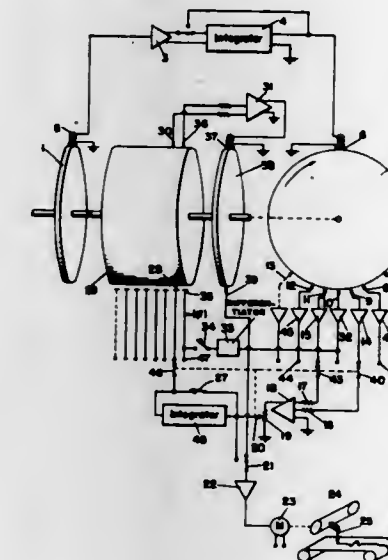
A circuit is disclosed providing six time scales for an analog integrator by selectively connecting only three input terminals and automatically connecting the proper valued HOLD capacitor for the resultant time scale.

3,598,982

SYSTEMS FOR MODIFYING FUNCTIONS INCLUDING A CONVOLUTION OPERATION

Philip L. Lawrence, Riverside, Conn., assignor to Mobil Oil Corporation
Continuation of application Ser. No. 309,462, Sept. 17, 1963, now abandoned. This application Aug. 8, 1967, Ser. No. 659,235

Int. Cl. G06g 7/19; G01v 7/36
U.S. Cl. 235-197 8 Claims



A convolution technique in which a function to be filtered is convolved with an operator of a selected character. In this manner, low-pass, high pass and band-pass type filtering or any combination thereof can be achieved.

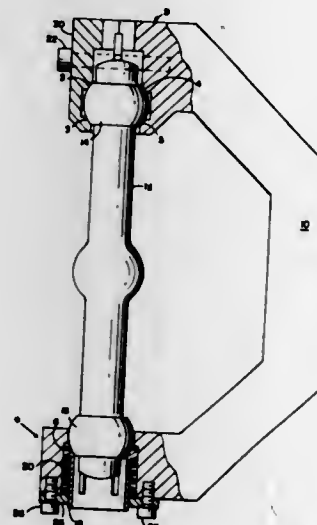
Convolution of a function which varies in amplitude along a scale with an operator including positive and negative step functions spaced along the scale will produce low-pass filtering of the function.

3,598,983

ARC LAMP MOUNTING STRUCTURE

Emil A. Mosser, Jr., Newport Beach, Calif.
Filed Apr. 11, 1969, Ser. No. 815,431

Int. Cl. F21v 21/00
U.S. Cl. 240-41 A 1 Claim



A mounting structure in which an arc lamp is positioned without inducing stresses in the lamp during high-loading environments. The lamp has a spherical ferrule placed around each end. One spherical ferrule is then clamped tightly between a recessed surface in one end of the mounting structure and a pressure plate having a like recessed surface. The pressure plate is firmly tightened on the one spherical ferrule in a perpendicular direction relative to the lamp by a plurality of clamping screws connected to the one end of the mounting structure. The other spherical ferrule fits into a

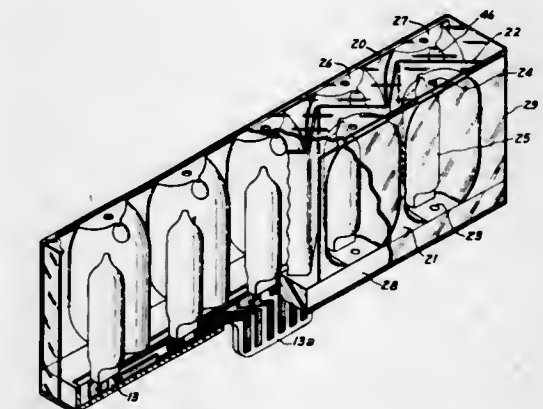
cylindrically bored hole of the other end of the mounting structure and is restricted to movement in only the axial direction. A spring-loaded collet is positioned in a counter bore of the cylindrically bored hole and is compressed against the other spherical ferrule. A retaining plate having a circular opening in which the collet can move axially holds the spring in compression against the collet by a plurality of retaining screws. The retaining screws secure the retaining plate to the other end of the mounting structure for allowing axial movement of the collet through the circular opening of the retaining plate.

3,598,984

PHOTOFLASH LAMP ARRAY

Stanley L. Slomski, Lyndhurst, Ohio, assignor to General Electric Company

Filed Dec. 16, 1968, Ser. No. 784,074
Int. Cl. G03b 15/02 10 Claims



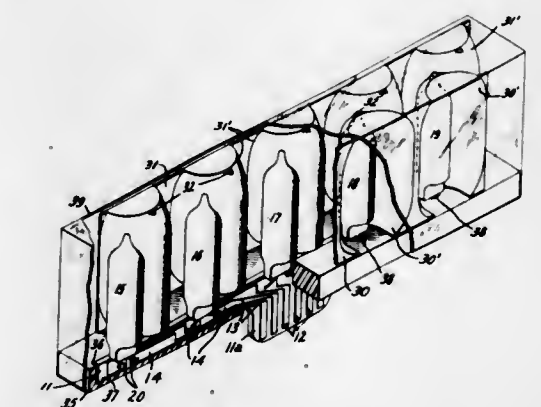
A multilamp photoflash array with lamp reflector units in linear rows facing in opposite directions with the reflectors of each row nested into the reflectors of the opposite row. Insulation means between rows of reflectors and convection cooling means minimize distortion of adjacent reflectors on flashing of lamps.

3,598,985

CONSTRUCTION OF DISPOSABLE PHOTOFLASH LAMP ARRAY

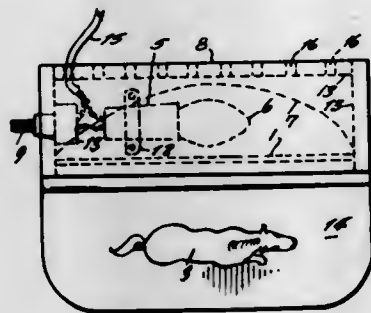
John D. Harnden, Jr., and William P. Kornrumpf, both of Schenectady, N.Y., assignors to General Electric Company
Filed Dec. 16, 1968, Ser. No. 784,075

Int. Cl. G03b 15/02 21 Claims



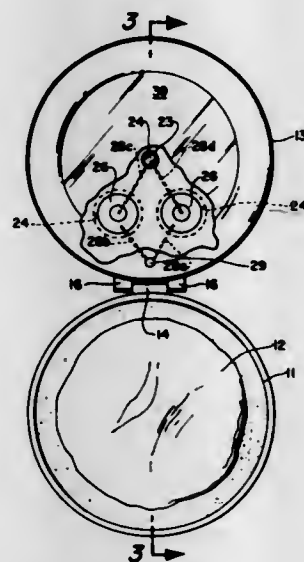
A disposable flashbulb or photoflash lamp array designed for use with static electronic flashing circuits comprises a rigid pluggable single-bladed or multibladed printed circuit contact member, preferably having a metallic substrate, that mounts a planar or linear group of lamps together with reflectors, if desired, and a transparent envelope in a low cost sturdy construction with a reliable contact system. The reflectors can be integral with the pluggable contact member.

3,598,986
TELEVISION AND NIGHT LIGHT
 Clyde W. Love, 6650 W. 33rd Ave., #11, Wheat Ridge, Colo.
 Filed July 3, 1969, Ser. No. 838,744
 Int. Cl. F21v 33/00; G091 13/18
 U.S. Cl. 240—2 AD 2 Claims



A lamp having an image or picture which is illuminated when the lamp is lit. The lamp can be used as a night light or a television lamp.

3,598,987
MIRROR WITH OPTICAL LIGHT SOURCE
 Vernon L. Kipping, San Francisco, Calif., assignor to J. Roger Jobson and John P. Costello, San Francisco, Calif., part interest to each
 Filed Apr. 3, 1968, Ser. No. 718,390
 Int. Cl. F21v 33/00
 U.S. Cl. 240—6.45 R 9 Claims

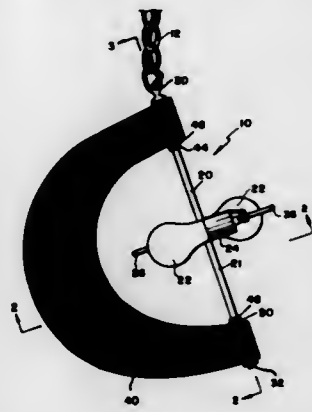


A mirror, preferably hand held, has a light source disposed behind the mirror and an integral source of electric current. The light source is located relative to a light reflective surface to direct light through an annular lens surrounding the mirror so that the light shines onto the face of the user to provide sufficient illumination to permit use independent of other light. The light produced is shadowless and characterized by softness. The systems employ reflective and refractive optics to converge and distribute light uniformly over the field of illumination.

3,598,988
DECORATIVE HANGING LAMP WITH ADJUSTABLE SHADE
 Richard A. Link, Box 211, Jackson, Wyo.
 Filed May 21, 1969, Ser. No. 826,560
 Int. Cl. F21p 1/02; F21v 1/00
 U.S. Cl. 240—10 R 15 Claims

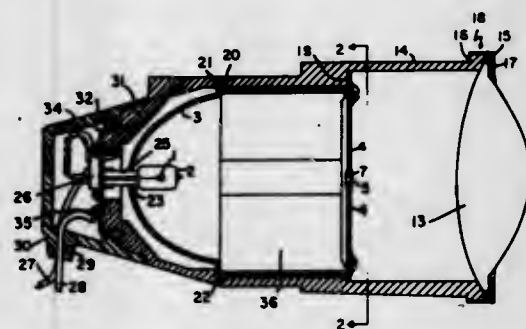
A lamp hanging from a chain or the like has a tube depending from the chain, electric bulb means supported medially of the tube, and a series of slats made of wood or the like of generally semicircular shapes, having their ends secured to

upper and lower portions of the tube. The slats are pivotal to various adjusted positions for decorative effects, the decorative effects also being influenced by having slats in the series contrast in appearance.



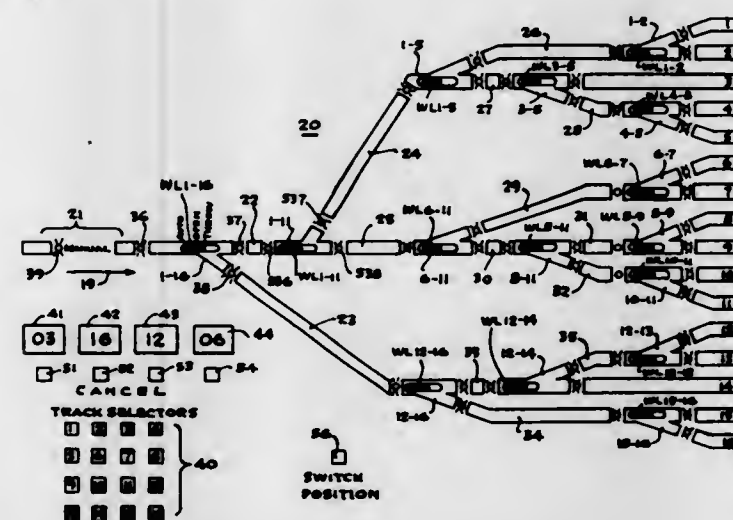
tive effects also being influenced by having slats in the series contrast in appearance.

3,598,989
AUTOMOTIVE HEADLIGHT
 Orrick H. Biggs, Beverly, Mass., assignor to Sylvania Electric Products Inc.
 Filed Jan. 2, 1969, Ser. No. 788,518
 Int. Cl. F21v 11/00
 U.S. Cl. 240—46.01 4 Claims



An automotive headlight having a light source at one focus of an ellipsoid, an aperture at the other focus, the aperture being coated with a rim of glass to diffuse the light near the edges of the aperture. A lens focuses the aperture on the roadway.

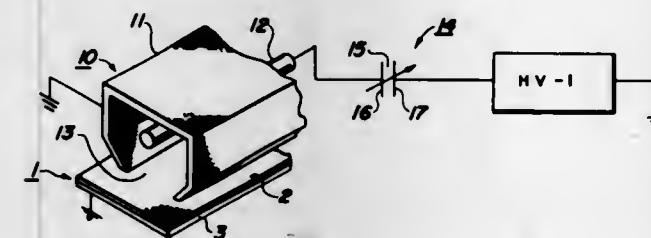
3,598,990
ROUTE-SWITCHING SYSTEM FOR RAILROAD CLASSIFICATION YARD
 Robert W. Convey, Oakland, N.J., assignor to Abex Corporation, New York, N.Y.
 Filed July 10, 1969, Ser. No. 840,688
 Int. Cl. B011 17/00
 U.S. Cl. 246—182 AA 13 Claims



A route-switching control system, for a railroad classification yard, in which each route command, upon entry into the

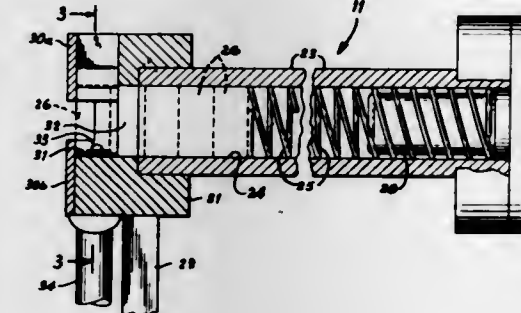
system, is transferred downstream to individual storage units (one for each track switch in the yard and each capable of storing a single route command) as far as possible, depending upon prior entry of other route commands. The track switches of the yard are aligned in accordance with each route command as received. As each car or cut of cars enters a track switch, the storage unit for that track switch is cleared automatically and any route command pertaining to that track switch which may be waiting in an upstream storage unit is then entered in the storage unit. If a "catchup" occurs, with two separate cuts approaching each other too closely to be separated in subsequent yard operations, the route command for the cut catching up with a preceding cut is automatically cancelled; the system effectively notifies the operator of the occurrence of a catchup and identifies the track switch at which the catchup has occurred. An automatic alarm indicates the failure of any track switch to complete a throw or the recycling of any track switch.

3,598,991
ELECTROSTATIC CHARGING DEVICE HAVING A SPARK GAP VOLTAGE REGULATOR BETWEEN A CORONA SOURCE AND A VOLTAGE SOURCE
 Louis N. Nost, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
 Filed Aug. 6, 1969, Ser. No. 847,865
 Int. Cl. G03g 15/00
 U.S. Cl. 250—49.5 ZC 14 Claims



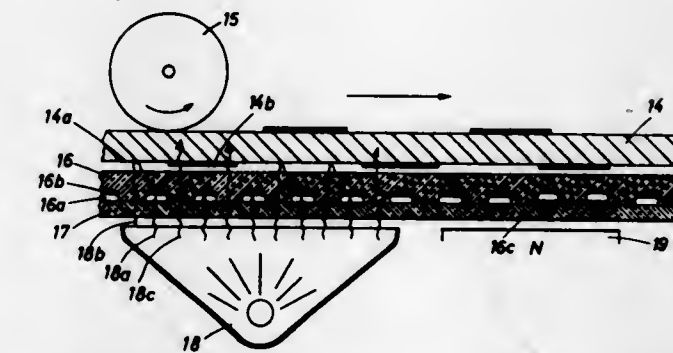
A corona-charging device including a corona wire surrounded by a grounded conductive shield. The corona wire is connected to either a positive or negative high-potential source. Inserted in the circuit between the wire and the source is an airgap which draws an arc at high voltages.

3,598,992
DIFFRACTOMETER WITH AUTOMATIC SAMPLE CHANGER
 Joseph Edwin Bridge, Jr., Reading, Pa., assignor to Carpenter Technology Corporation, Reading, Pa.
 Filed Jan. 8, 1969, Ser. No. 789,755
 Int. Cl. H01j 37/20; G01n 23/20
 U.S. Cl. 250—51 1 Claim



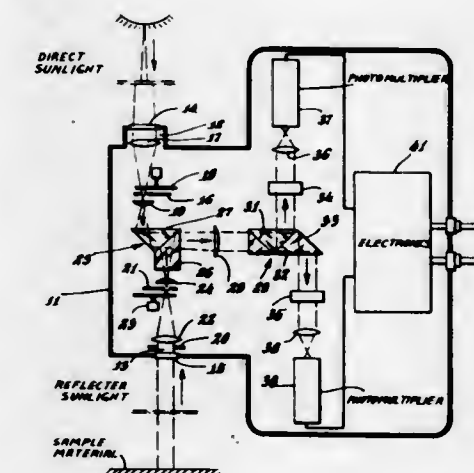
A diffractometer with automatic sample-changing means which is actuated to change the sample to be exposed to the X-ray beam upon completion of each excursion through its range of values of the angle made by the incident beam to the surface irradiated.

3,598,993
IMAGING APPARATUS USING A MAGNETIZABLE PRINTING INK WITH A TEMPERATURE DEPENDENT MAGNETIC PERMEABILITY
 Helmut Kaufer, Gruenwald near Munich; Erich Burger, Unterhaching near Munich, and Hans-Peter Huber, Munich, all of, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany
 Division of Ser. No. 428,964, Jan. 29, 1965, Pat. No. 3,472,695.
 Filed Mar. 6, 1969, Ser. No. 804,777
 Int. Cl. B05b 5/02; G03g 15/14
 U.S. Cl. 250—65 T 8 Claims



An image is formed by utilizing the temperature dependency of the magnetic permeability of a magnetizable material, in a device which comprises an image carrier carrying an image to be reproduced, a composite sheet including a layer comprising magnetizable material the magnetic permeability of which depends upon the extent of heating of such magnetizable material, a transporting arrangement for concurrently moving the image carrier and the composite sheet in superposed relationship adjacent to each other, a source of heat for selectively heating the composite sheet, while in such superposed relationship, corresponding to the image on the image carrier so that on the composite sheet a selective pattern of portions of the magnetizable material having a predetermined magnetic permeability range will be formed, which portions will correspond to the image on the image carrier, and a source of magnetic force located downstream of the heat source in the direction of movement of the composite sheet so that magnetic force will be exerted on the portions of the magnetizable material forming the selective pattern of predetermined permeability range.

3,598,994
METHOD AND APPARATUS FOR SENSING FLUORESCENT SUBSTANCES
 David A. Markle, Wilton, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
 Filed Sept. 19, 1968, Ser. No. 760,834
 Int. Cl. G01n 21/22
 U.S. Cl. 250—71 10 Claims



A method and apparatus for sensing fluorescent radiation emitted by a sample material using sunlight as the source of exciting radiation. A bundle of direct sunlight is encoded and

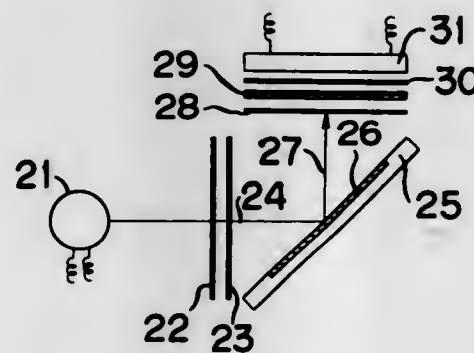
split into beams each of which is combined with similar portions of a bundle of light containing solar reflected and solar-excited fluorescent energy components from the sample material. The sample bundle is encoded differently from the direct sunlight or reference bundle so that it may be distinguished subsequently. The two beams (each of which contain reference and sample components) are passed through two spectral filters and detected photoelectrically. One of the spectral filters is centered on a Fraunhofer absorption line. The other filter is centered a few Angstroms away in the solar continuum. The four signals corresponding to the intensity of the sample and reference beam components passing through each of the two spectral filters are separated electronically and combined in an analogue computer to yield a signal proportional to the fluorescence of the sample material.

3,598,995
METHOD OF EVALUATING ULTRAVIOLET RADIATIONS AND QUALITATIVE ANALYSIS INVOLVING SUCH EVALUATIONS

Masao Inoue, Kawasaki-shi, and Zenzo Tamura, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Aug. 28, 1968, Ser. No. 755,984
Claims priority, application Japan, Oct. 9, 1967, 64720/67
Int. Cl. G01n 21/22

U.S. Cl. 250—71 R

4 Claims



Evaluation of wavelengths of ultraviolet radiations is made by irradiating a mixture of two or more specific fluorescent substances, that exhibit different excitation and emission spectra from each other, with ultraviolet rays of unknown wavelengths, identifying distinctive visible colors exhibited by the irradiated mixture and comparing these colors with standard colors which the mixture exhibits when irradiated by ultraviolet rays of known wavelength. Such evaluations are used for the qualitative analysis of sampled materials.

ERRATUM

For Class 250—67 see:
Patent No. 3,598,060

3,598,996
APPARATUS FOR MEASURING AND EVALUATING THE ACTIVITY OF MEASURING PROBES IRRADIATED IN A NUCLEAR REACTOR

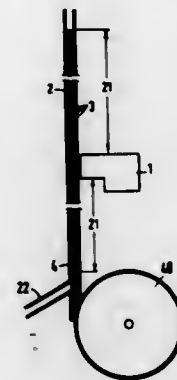
Dietrich V. Haebler, and Gunther Jahn, both of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany
Filed Feb. 19, 1968, Ser. No. 706,262
Claims priority, application Germany, Mar. 11, 1967, S 1 08 775 V111c/21g
Int. Cl. G01t 1/16

U.S. Cl. 250—83.3

6 Claims

A plurality of measuring probes are sequentially positioned in a conveyor tube in the vicinity of a measuring and evaluating device for determining the activity in each probe. The probes are moved in sequence by a control unit into opera-

tive proximity with the measuring and evaluating device. The control unit comprises an elastic wire in the tube blocking



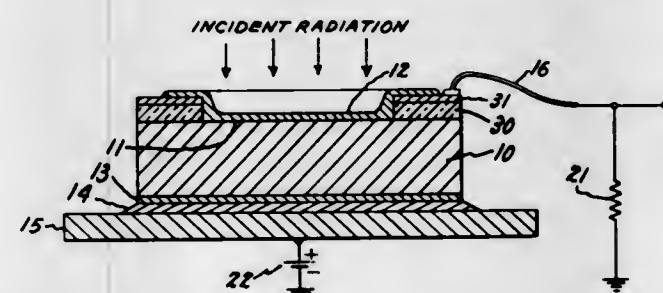
the probes and a moving device for controllably withdrawing the wire from the tube.

3,598,997
SCHOTTKY BARRIER ATOMIC PARTICLE AND X-RAY DETECTOR

Richard D. Baertsch, Scotia, N.Y., assignor to General Electric Company
Filed July 5, 1968, Ser. No. 742,654
Int. Cl. G01t 1/24; H01l 15/00

U.S. Cl. 250—83

3 Claims



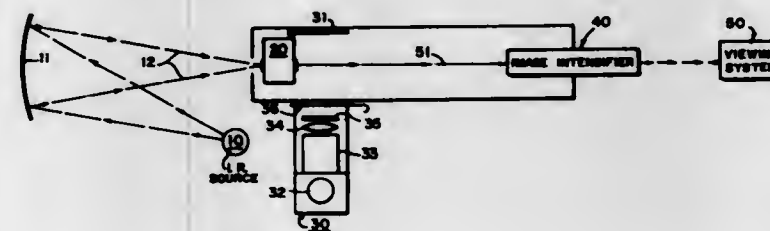
A solid-state atomic particle and X-ray detector comprising an N-type semiconductor crystal of high atomic number, coated with a metallic film of low atomic number. By making the metal-to-semiconductor interface abrupt, a Schottky barrier-type junction is produced. Atomic particles or X-rays can easily penetrate the metallic film but are absorbed in the semiconductor near the interface, producing electron-hole pairs in the depletion region. Holes which diffuse beyond the depletion region give rise to a current indicative of detection of X-rays or atomic particles.

3,598,998
SINGLE CRYSTAL INFRARED IMAGE CONVERTER
Allan G. Becker, Detroit, and Ojars Risgin, Grass Lake, both of Mich.

Filed Sept. 24, 1968, Ser. No. 761,996
Int. Cl. G01n 21/00

U.S. Cl. 250—83.3 HP

6 Claims



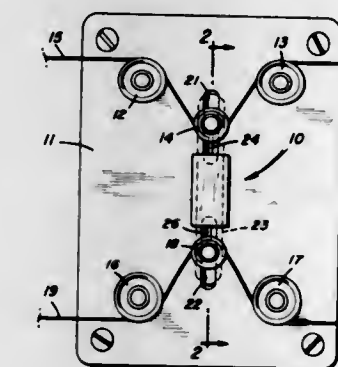
This invention relates to a device for converting infrared radiation into visible light in order to make infrared images visible for viewing, detecting, and/or recording. In the converter, a single crystal of zinc sulfide is irradiated by a source

of ultraviolet light thereby trapping charge carriers in the crystal at impurity or defect sites in the crystal lattice. The crystal is then exposed to a desired scene of infrared radiation that frees the charge carriers and, through quantum transitions, emits photons thereby producing a visible image of the desired scene. A cryogenic device and optical system are employed to reduce ambient infrared radiation and to increase the converter's sensitivity to radiation of 15 microns and longer.

3,598,999
PROPORTIONAL TRIM CONTROL SYSTEM FOR AIRCRAFT
Laurence C. Hofmeister, Fort Lauderdale, Fla., assignor to The Bendix Corporation
Filed Feb. 17, 1969, Ser. No. 799,774
Int. Cl. G01j 1/36

U.S. Cl. 250—204

11 Claims



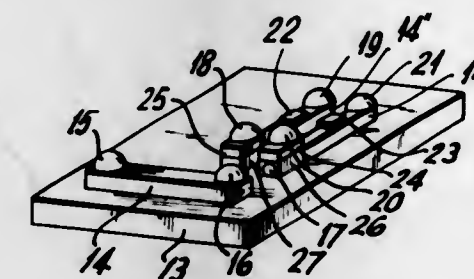
A proportional trim sensor for in-flight aircraft is disclosed. The system operates off a differential which exists in the tension of control cables when a correction is required. A sensor yields an output which is indicative of the magnitude and direction of tension difference. A utilization circuit receives the output and corrects the aircraft attitude to equalize the tension.

3,599,000
SEMICONDUCTOR OPTOELECTRONIC LOGIC ELEMENT UTILIZING THE GUNN EFFECT
Hisayoshi Yanai; Takayuki Sugeta; Masatoshi Migitaka; Hisao Nakashima; Yasuo Matsukura, and Kunichi Ohta, all of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan and Nippon Electric Company, Limited, Tokyo, Japan

Filed Mar. 13, 1969, Ser. No. 806,927
Claims priority, application Japan, Mar. 15, 1968, 17198/68
Int. Cl. H01j 31/50, 39/12; H03k 19/08

U.S. Cl. 250—211 R

6 Claims

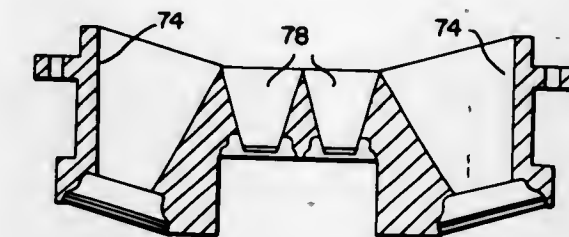


A semiconductor device for use as a logic element wherein a Gunn effect element is placed in optical coupling relationship with a plurality of semiconductor light emissive elements on a common semiconductor substrate. The Gunn effect element exhibits a photoconduction effect when irradiated by the light from the light emissive elements to provide AND or OR logic function depending upon the intensity of the irradiating light.

3,599,001
MULTIFIELD SENSOR ARRANGEMENT
Jerry A. Rolnik, Los Angeles; Frank P. Ballantyne, Santa Monica, and Robert H. Frels, Hawthorne, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed May 22, 1967, Ser. No. 640,233
Int. Cl. G02b 5/14

U.S. Cl. 250—220

2 Claims



The structure disclosed comprises a detector package to accomplish signatored radiation detection over a determined field of view without the complex scanning devices associated with prior art systems. The package comprises a central group of tracking detectors peripherally surrounded by a plurality of acquisition detectors arranged in close juxtaposition and electrical isolation from each other. The detectors may be mounted in association with a funnel structure to ensure radiation impingement on the detectors as well as elimination of detector edge distortion.

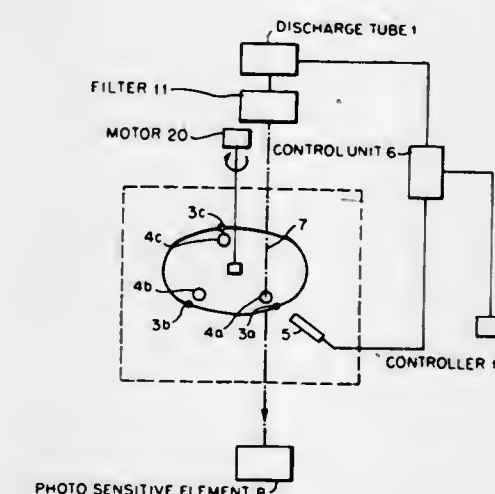
3,599,002
METHOD AND APPARATUS FOR CENTRIFUGING WHICH UTILIZE A SYNCHRONIZED FLASH TUBE AS THE LIGHT SOURCE

Hans Beutelspacher, Braunschweig, and Wilhelm Horst Stegemann, Braunschweig-Stockheim, both of Germany, assignors to Heraeus-Christ G.m.b.H., Osterode Harz, Germany

Filed Aug. 20, 1969, Ser. No. 851,555
Claims priority, application Germany, Aug. 22, 1968, P 17 98 101.0

U.S. Cl. 250—217

14 Claims



Centrifuging apparatus having a light source shining through the samples being centrifuged is modified by providing a flash tube which flashes in synchronism with passage of the sample over a photoelectric pickup. The flash tube is controlled from a capacitive transducer, so that optical and inductive errors are avoided. More than one flash tube may be used, each flashed for a specific sample, and supplied with monochromators adjusted for maximum, or minimum absorption wave length.

3,599,003

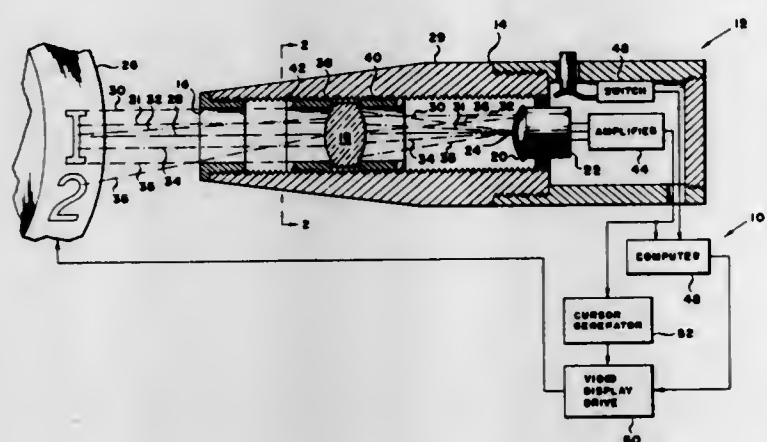
COLLIMATED FIELD OF VIEW LIGHT PEN

Donald E. Price, Mountain View; Joseph Kriensky, Sunnyvale, and Carl J. Lamberson, Cupertino, all of, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
Filed July 14, 1969, Ser. No. 841,388

Int. Cl. G06k 9/00

U.S. Cl. 250-219 CR

5 Claims



A light pen in a visual display information system is disclosed. The light pen has a fully collimated field of view and is responsive only to visual information within a constant area on a visual display screen, independent of the distance of the light pen from the display screen. The light pen includes a first aperture with an area equal to the desired field of view on the display screen, and a lens which focuses light rays entering the first aperture parallel to the lens axis at a pinhole light filter. The focused light passes through the pinhole to a photoelectric detector. The pinhole is at the focal point of the lens to accept only light rays parallel to the lens axis.

3,599,004

ARRANGEMENT OF PHOTOCELLS FOR THE DETERMINATION OF THE POSITION OF AN EQUIDISTANTLY DIVIDED SCALE

Georg Grendelmeyer, Mutschellen, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland

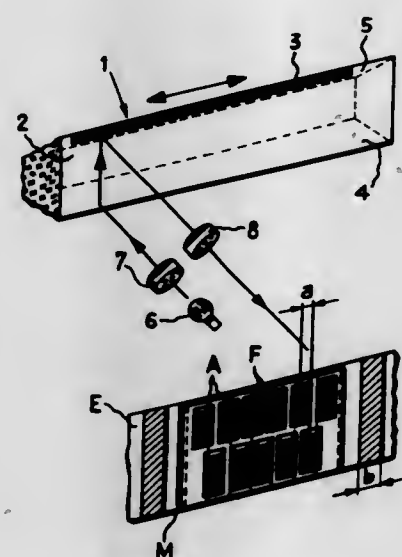
Filed Jan. 22, 1970, Ser. No. 4,958

Claims priority, application Switzerland, Jan. 24, 1969, 1052/69

Int. Cl. G01d 5/34

U.S. Cl. 250-231

6 Claims



Arrangement of photocells for the determination of the position of a scale which is divided equidistantly with respect to the photocell arrangement having a plurality of photocells equally spaced in relation to one another located in the lon-

gitudinal direction of the scale. A differential transmitter is provided for evaluating the signals produced by the photocells during the movement of the scale. The distance between two adjacent photocells being one-tenth larger or smaller than a graduation of the scale. The photocells are combined into 10 photocell pairs by connecting each photocell, together with the preceding one to a first differential transmitter and together with the following photocell, to a second differential transmitter. A mask with recesses is located in front of the photocells and the recesses are smaller in width than a graduation of the scale. Differential transmitters are connected with adjacent photocells.

3,599,005

COVER HAVING A THICK WINDOW FOR PHOTOELECTRIC UNIT

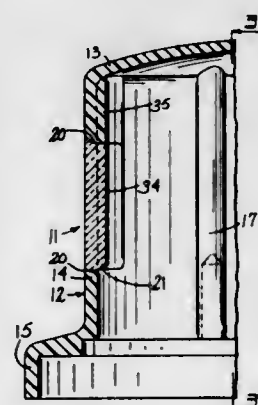
Alvah A. Russell, Jr., Glastonbury, Conn., assignor to Ripley Company, Inc., Middletown, Conn.

Filed May 7, 1969, Ser. No. 822,596

Int. Cl. G02b 5/00, 7/00; H01l 5/02

U.S. Cl. 250-239

10 Claims



A cover for a photoelectric unit which is placed over the unit to allow light to strike the photoelectric unit from a single direction. The cover comprises a transparent window having a plurality of tapered extensions at its edges, the extensions emanating from a portion of the thickness of the windowpane. An opaque body member is molded about the window so that portions of the body member cover both sides of the tapered extensions on the windowpane. The thickness of the walls of the body member is substantially less than that of the windowpane.

3,599,006

CONDITION CONTROL DEVICE AND SYSTEM

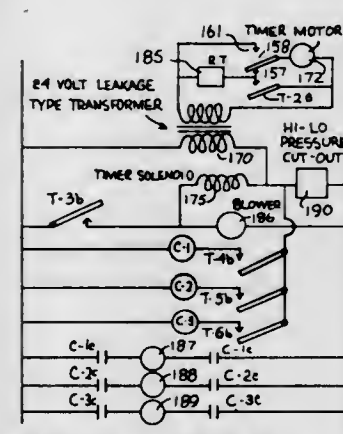
John L. Harris, Dalafield, Wis., assignor to Deltrol Corp., Bellwood, Ill.

Filed Aug. 14, 1969, Ser. No. 850,012

Int. Cl. G05g 21/00; H01k 43/12

U.S. Cl. 307-39

35 Claims



CASCADE ON AND OFF MULTIPLE COMPRESSOR CONTROL

A number of compressor motors or electric beaters are turned on and off in sequence to avoid line surges. Each load

3,599,009

NEURISTOR TRANSMISSION LINE, LEARNING JUNCTION, AND ARTIFICIAL NEURON

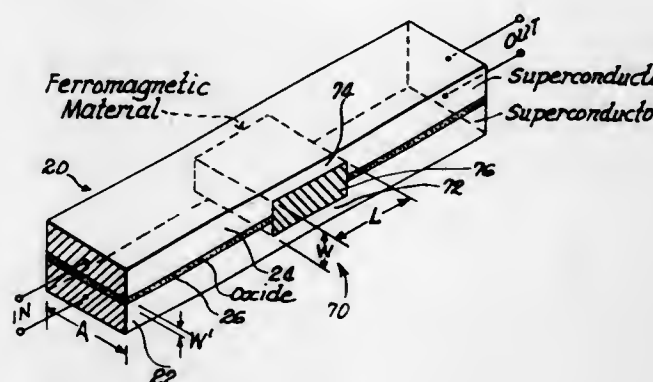
Robert D. Parmentier, Brooklyn, and Alwyn C. Scott, Madison, both of, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed July 19, 1968, Ser. No. 746,087

Int. Cl. H03k 17/30, 17/80

U.S. Cl. 307-201

8 Claims



A neuristor transmission line capable of propagating a pulse without substantial attenuation, comprising a pair of elongated closely spaced line conductors made of different superconductive materials, and a thin layer of insulating material disposed between said line conductors, said layer being sufficiently thin to be readily penetrable by tunneling electrons. A learning junction adapted to be connected between neuristor transmission lines, and comprising a pair of superconductive elements, and an intermediate element of saturable ferromagnetic material disposed between said superconductive elements. An array of artificial neurons, comprising a plurality of neuristor transmission lines as described above, and a plurality of learning junctions connected between at least some of said neuristor transmission lines.

3,599,010

HIGH SPEED, LOW POWER, DYNAMIC SHIFT REGISTER WITH SYNCHRONOUS LOGIC GATES

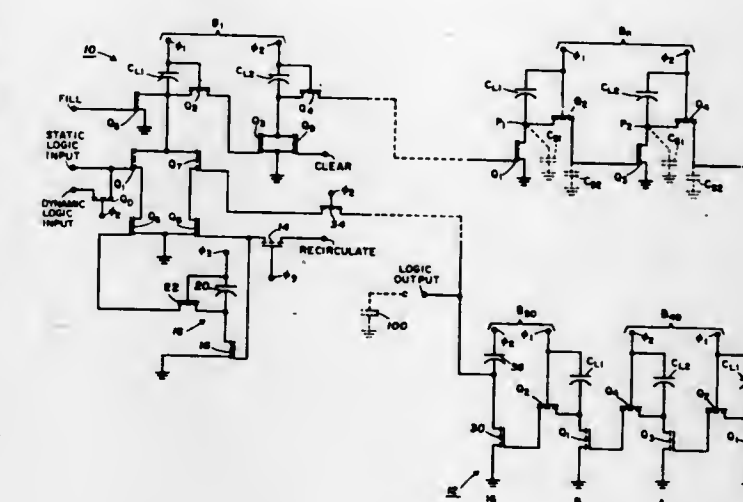
Robert H. Crawford, Richardson, Tex., assignor to Texas Instruments, Incorporated, Dallas, Tex.

Continuation-in-part of application Ser. No. 636,998, Nov. 13, 1967, now abandoned. This application Nov. 13, 1967, Ser. No. 685,238

Int. Cl. H03k 21/00; G11c 19/00

U.S. Cl. 307-221

6 Claims



A shift register having a plurality of bits each formed by a pair of serially interconnected synchronous inverter stages operated by nonconcurrent clock pulses. Each inverter has an MOS transistor driver, a capacitive load, and a bilateral MOS transistor output. The shift register is in integrated circuit form on the (110) crystallographic plane with the current flow in all transistors in a direction normal to the (110) crystallographic plane. The logic input is the gate of the MOS

3,599,007

DIGITAL SYNCHRONIZER CHECK AND SYNCHROSCOPE

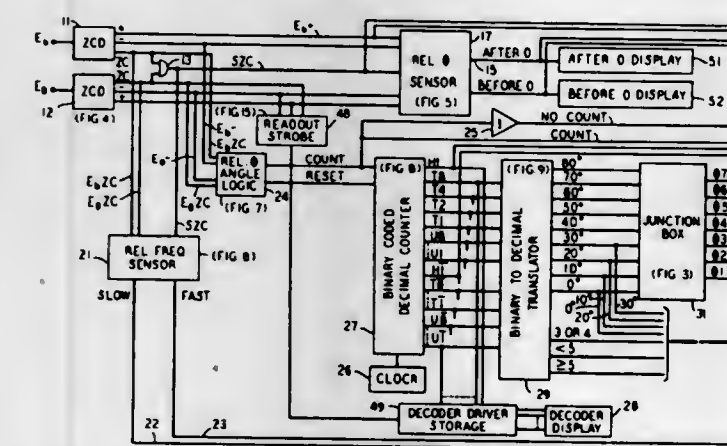
William H. Martin, Jr., Morristown, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 29, 1969, Ser. No. 888,540

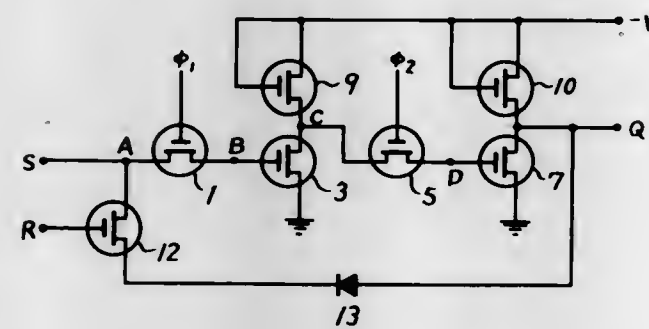
Int. Cl. H02J 3/42

U.S. Cl. 307-87

8 Claims



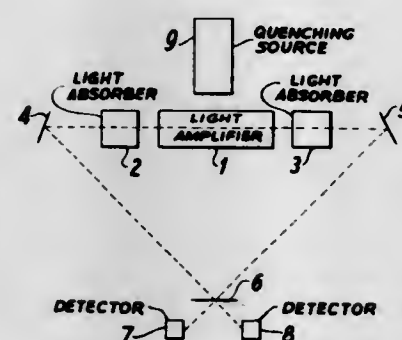
egrated circuitry and embodying a feedback path which functions to stabilize the output when both set and reset segments such that the conductor segments jointly contribute



input signals are applied to the input of the circuit.

3,599,019
LASER DEVICE WITH SELECTIVE OSCILLATION
Yasuo Nannichi, and Susumu Ito, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Aug. 7, 1968, Ser. No. 750,793
Claims priority, application Japan, Aug. 25, 1967, 42/55083
Int. Cl. H01s 3/10
U.S. Cl. 307—312 8 Claims

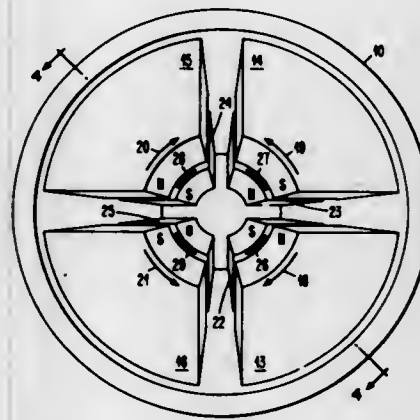


A laser oscillator of more than two stable states includes a closed loop optical circuit including a laser amplifier, and two light absorbers, the latter being, for example, GaAs PN junctions. Means such as an independent light source or voltage triggers are provided for selectively emphasizing a light beam of at least one specific propagation direction, thereby reducing the absorption coefficient and generating a stable oscillation state in that propagation direction.

3,599,020
LINEAR ACTUATOR WITH ALTERNATING MAGNETIC POLES

John P. Harris, Boulder, Colo.; Paul Y. Hu, Boulder, Colo., and Ernest G. Newman, Los Gatos, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 27, 1970, Ser. No. 15,105
Int. Cl. H02k 41/02

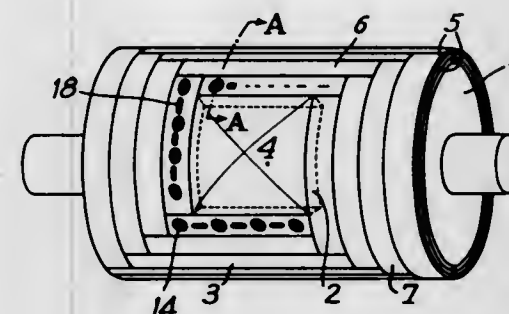
U.S. Cl. 310—13 11 Claims
A linear actuator having an axially movable tubular armature which is encircled by a first even numbered group of alternate magnetic poles and by a second even numbered but axially displaced group of alternate magnetic poles; the second group of poles alternate with each other and with the poles of the first group. The armature carries conductor segments adjacent to each of the poles. These conductor segments extend normal to the axial direction of armature movement. Current supply means is effective to cause cur-



to a composite force causing axial movement of the armature.

3,599,021
ROTOR COOLING CONFIGURATION FOR DYNAMOELECTRIC MACHINES
Jean Guimbal, 52, Rue Henri Dechaud, 42 Saint-Etienne, (Loire), France

Filed Nov. 17, 1969, Ser. No. 877,214
Claims priority, application France, Nov. 25, 1968, 238
Int. Cl. H02k 1/32 9 Claims
U.S. Cl. 310—61

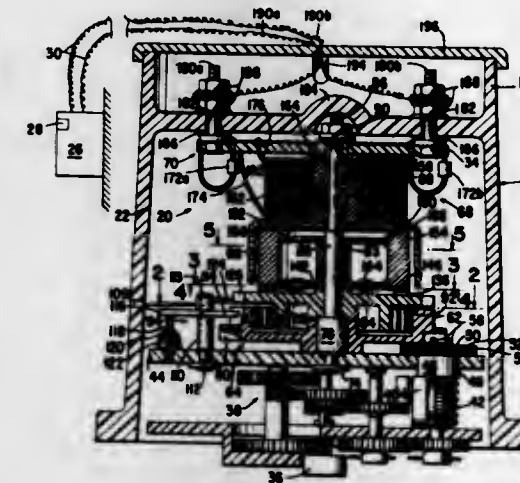


This invention relates to a high power rotary engine of the type comprising a stator and an inductive rotor comprising at least two poles and the winding of which is constituted by at least one coil for each pole and formed by a stack of conductors separated from one another by an insulator, said winding being disposed on the outer surface of a magnetic core in the form of a drum concentric to the axis of the rotor, comprising a cooling circuit constituted by grooves or slits made in or between the conductors of the rotor and fed with coolant fluid through a fluid inlet channel, wherein each conductor of the rotor is a flat, conductive and electrically continuous band, on the one hand wound around a salient pole on the cylinder of a winding, the different layers of superposed conductors constituting concentric cylinders and, on the other hand, fixed to the drum by bolts which are radial or slightly inclined with respect to said magnetic drum, and in that the slits for the passage of the coolant fluid are made transversely with respect to the length of the conductor.

3,599,022
IMPULSE GENERATOR FOR METERS
John D. Adair, Huntington Valley, Pa., assignor to The Singer Company, New York, N.Y.

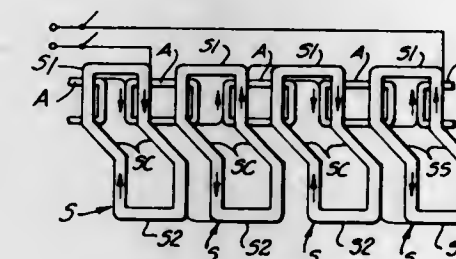
Filed July 7, 1970, Ser. No. 52,876
Int. Cl. H02k 7/10 8 Claims
U.S. Cl. 310—75 A
An impulse generator powered by a meter to generate an AC voltage which is rectified to a DC pulse. Each DC pulse corresponds to a predetermined quantity of fluid medium flowing through the meter. The DC pulse is transmitted to a

remote counter located for easy access to permit convenient reading of the register thereof. The impulse generator is com-



pact so as to fit within the housing of a conventional meter or a modified housing of a previously installed meter.

3,599,023
SINGLE PHASE INDUCTION MOTORS
Gerald W. Bottrell, 4321 Rosemont Ave., Montrose, Calif.
Filed Nov. 17, 1969, Ser. No. 877,131
Int. Cl. H02k 17/00 18 Claims
U.S. Cl. 310—166

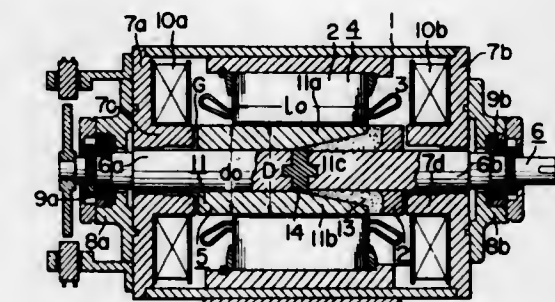


Self-starting, single-phased induction motors can be constructed using a rotor and a stator in which the magnetic poles caused by the current flowing through the coils of the stator and caused by induced currents in the bars of the rotor are preferably displaced from one another about 90 electrical degrees around the axis of the rotor at one of the ends of the motor, while they are positioned opposite one another in a conventional manner at the other end of the motor. In a motor of this invention, auxiliary windings are located at the first of these ends in the stator displaced from the stator winding. Preferably they are displaced an amount of about 90 electrical degrees.

3,599,024
COMB-SHAPED POLE-TYPE DYNAMOELECTRIC MACHINES

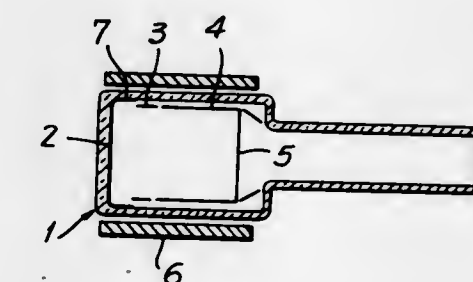
Hiroyuki Kitamura, Yokohama-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 6, 1969, Ser. No. 864,069
Claims priority, application Japan, Oct. 8, 1968, 72848/68
Int. Cl. H02k 1/22 3 Claims

U.S. Cl. 310—263
In a comb-shaped pole-type dynamoelectric machine wherein magnetic flux produced by field coils mounted on the inner sides of end field yokes is passed to the rotor through an airgap, an annular axial projection is formed on the inside of each field yoke to form an additional airgap



whereby to utilize all cross-sectional area of the rotor thus reducing the diameter thereof.

3,599,025
IMAGE ORTHICON WITH MAGNETIC FOCUS
Ljubov Dmitrievna Axenova, Prospekt Morisa Toreza, 38, Korpus 4, kv. 20, Leningrad, U.S.S.R.
Filed Aug. 14, 1968, Ser. No. 752,615
Int. Cl. H01j 31/28, 3/12 2 Claims
U.S. Cl. 313—65



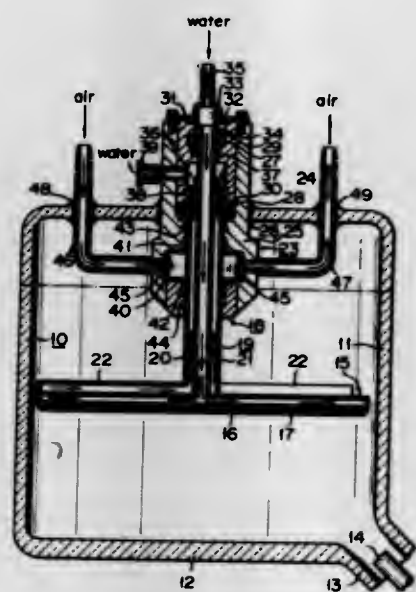
An image orthicon tube is provided with a photocathode and a target spaced therefrom. Interposed therebetween is an accelerating electrode and a further electrode interposed between the accelerating electrode and the photocathode. The accelerating electrode is supported opposite the photocathode by a distance equivalent to the longitudinal length of the further electrode. The further electrode is maintained at the same potential as that of the photocathode.

3,599,026
PROJECTION TUBE WITH ROTATABLE COOLED DISPLAY SCREEN

Asahide Tsuneta, Kawasaki-shi; Shinichi Sawagata, Tokyo, and Mikio Noguchi, Kawasaki-shi, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Aug. 25, 1969, Ser. No. 852,625
Claims priority, application Japan, Aug. 28, 1968, Aug. 31, 1968, 43/61272; 43/62252; 43/75009
Int. Cl. H01j 29/02, 1/42, 21/22 7 Claims

U.S. Cl. 313—92
A projection picture tube comprises a vacuum vessel, an anode support member received in said vessel, a fluorescent

film coated on the upper surface of said anode member and an electron gun assembly for ejecting electron beams on said material a bivalent europium activated pyrophosphate of calcium or strontium and combinations thereof.



fluorescent film, said anode member consisting of a hollow metal body through which a cooling fluid is caused to flow.

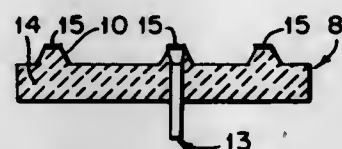
3,599,027

DISPLAY DISCHARGE TUBE HAVING IMPROVED DISPLAY SUBSTRATE AND METHOD OF MAKING SAME

Michio Koshizuka, and Shinetsu Sato, both of Tokyo, Japan, assignors to Japan Radio Company, Limited, Tokyo, Japan
Filed Feb. 24, 1970, Ser. No. 013,302
Int. Cl. H01j 1/30, 1/52

U.S. Cl. 313-109.5

9 Claims



A display substrate includes a display plate having mutually separated, integral projecting symbol segments formed thereon by a press-forming technique. A metallic layer is provided on the raised surfaces of the segments to form the luminous cathodes representing the symbol segments. Electrical connection of the metallic layers to an energizing source is made by means of pins extending through the segments and the plate, the upper surfaces of the pins being in the same plane as the raised surface of its respective segment.

3,599,028

MERCURY VAPOR DISCHARGE LAMP EMPLOYING EUROPIUM ACTIVATED CALCIUM AND/OR STRONTIUM PYROPHOSPHATE LUMINESCENT MATERIAL

Willem Lambertus Wanmaker; Johannes Wilhelmus Ter Vrugt, and Johannus Godefridus Verlijdsdonk, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

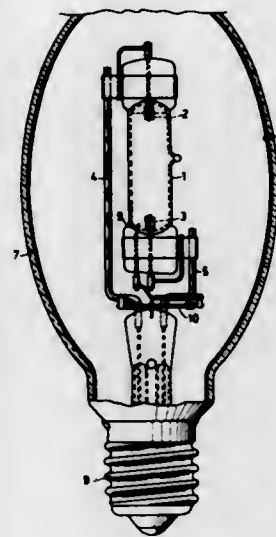
Filed Feb. 28, 1968, Ser. No. 708,836
Claims priority, application Netherlands, Mar. 1, 1967, 6,703,401

Int. Cl. H01j 1/63; C09k 1/36

U.S. Cl. 313-109

3 Claims

Mercury-vapor discharge lamp employing as a luminescent



3,599,029

FLUORESCENT LAMP ENVELOPE WITH TRANSPARENT PROTECTIVE COATING

William C. Martyny, Lyndhurst, Ohio, assignor to General Electric Company
Filed Oct. 31, 1969, Ser. No. 873,012
Int. Cl. H01j 61/35

U.S. Cl. 313-109

6 Claims



A fluorescent lamp having on the inner surface of its envelope a transparent protective coating consisting of a layer of titanium dioxide adherent to the glass and a layer of aluminum oxide thereover. The coating is prepared by flushing through the glass envelope or tube a mixture comprising a solution of tetrabutyl titanate in a thinner and a dispersion of aluminum oxide in an organic binder, and then drying. The phosphor coating is applied over the protective coating in conventional manner using a water soluble binder system and other manufacturing steps are unchanged. Advantages are higher lumens, improved maintenance particularly in highly loaded lamps, elimination of oxide rings, and avoidance of darkening where the phosphor coating is thin.

3,599,030

ANNULAR SURFACE GAP SPARK PLUG

Daniel A. Armstrong, Oakfield, Wis., assignor to Brunswick Corporation, Chicago, Ill.
Filed July 15, 1969, Ser. No. 841,901

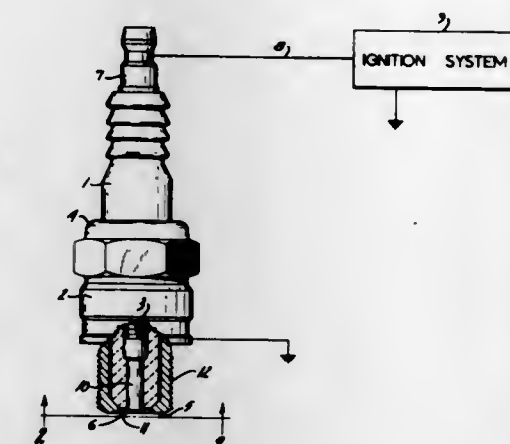
Int. Cl. H01t 13/02

U.S. Cl. 313-131 R

1 Claim

A tungsten alloy center electrode is employed in a spark

plug of the annular surface gap-type for use with a high tension ignition system.



sion ignition system.

3,599,031

BONDED HEATER, CATHODE, CONTROL ELECTRODE STRUCTURE

James E. Beggs, Schenectady, N.Y., assignor to General Electric Company

Filed May 21, 1970, Ser. No. 39,463

Int. Cl. H01j 1/90, 19/44

U.S. Cl. 313-268

5 Claims



A unitary heater, cathode, and control electrode structure for an electron discharge device is formed by coating a disk of a porous refractory metal with an inorganic insulating layer, overcoating the insulating layer with a film of refractory metal, forming a grid pattern in the film on one side of the disk, forming openings in the film and insulating layer corresponding to the pattern, and impregnating the disk with thermionic emissive material.

3,599,032

CROSSED-FIELDS TRAVELING WAVE TUBES

Pierre Nicodeme; Walter Sobotka, and Roland Valat, all of Paris, France, assignors to Thomson-CSF

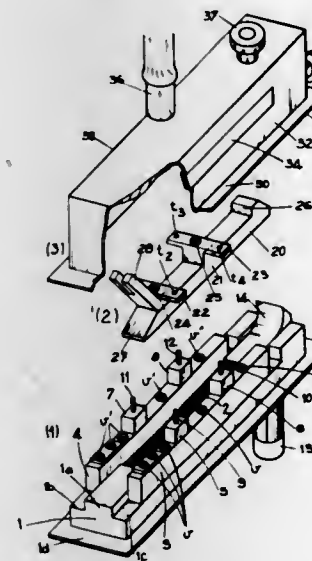
Filed July 2, 1969, Ser. No. 838,595

Claims priority, application France, July 16, 1968, 159,315

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

3 Claims



A crossed fields traveling wave tube wherein the pole pieces providing the magnetic field are mounted along the

delay line, inside the tube, and magnetic windows are formed in the tube envelope for associating the pole pieces with the magnetic circuit of the tube.

3,599,033

SYSTEM FOR SIMULTANEOUS DISPLAY OF ECG AND HEART RATE

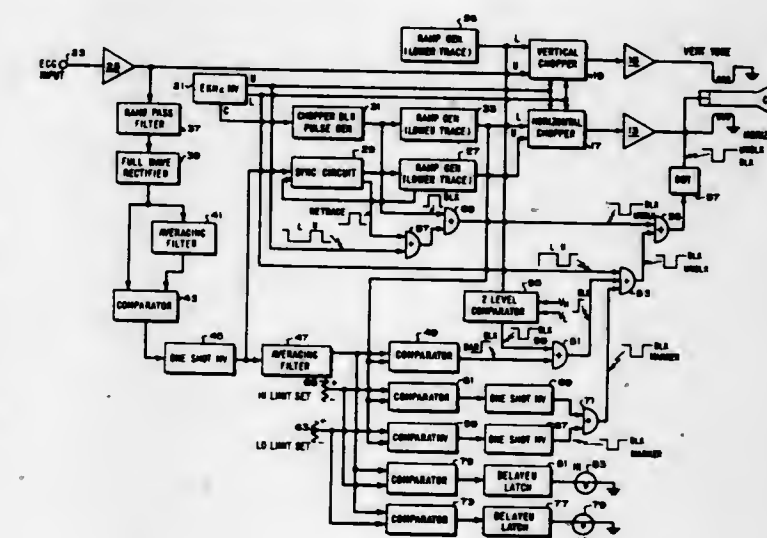
Robert L. Stettiner, Lexington; William F. Craven, Sudbury, and Dana C. Finlayson, Everett, all of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sept. 22, 1969, Ser. No. 859,962

Int. Cl. H01j 29/70

U.S. Cl. 315-18

8 Claims



A cathode ray tube system receives a cardiac signal and simultaneously produces two displays corresponding to the analog form of the cardiac signal and the heartbeat rate. The displays are generated by separate horizontal and vertical deflection circuits which are alternately switched to drive the cathode ray tube beam. The display of the heart rate is a picture of a bar graph, the length of which changes to indicate the moving average of the heart rate. The bar graph is produced by generating a horizontal line raster and selectively blanking and unblanking the cathode ray tube. High and low limit markers and alarm circuitry associated with the bar graph display operate to indicate when the heart rate moves outside a preset range.

3,599,034

CONTROLLED DISPLAY OF WAVEFORMS

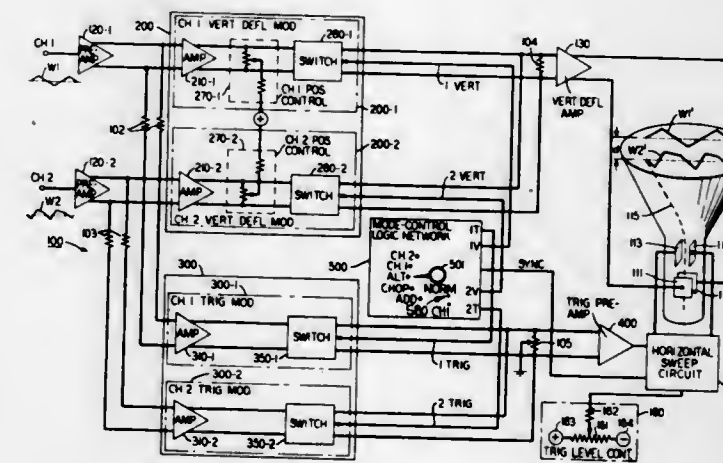
Walter A. Fischer, Jr., Dover; Robert Coultas, Madison, and Arthur Nichols, Cedar Grove, all of N.J., assignors to Dumont Oscilloscope Laboratories, Inc., West Caldwell, N.J.

Filed Apr. 25, 1969, Ser. No. 819,239

Int. Cl. H01j 29/74

U.S. Cl. 315-26

13 Claims



A system for the display of waveforms in which vertical deflection signals derived from one or more inputs are ap-

plied to a cathode-ray tube through a switchable, vertical deflection modulator; and trigger signals, also originating with respect to the inputs, act upon a horizontal deflection circuit of the cathode-ray tube through a switchable trigger modulator.

For each input there is a signaling channel that includes a constituent of the vertical deflection modulator and an associated constituent of the trigger modulator. The switching of the modulator constituents is governed by the settings of a mode-control logic network to determine the way in which the inputs are displayed by the cathode-ray tube, as well as the origin of the trigger signals that are used in synchronizing the horizontal deflection circuit.

As disclosed, there are two distinctive input channels and five modes of operation. For operation in the first mode, the first channel is active, and the second channel is deactivated. Conversely in the second mode of operation, the second channel is active and the first channel is deactivated.

In a third, so-called "alternate" mode of operation, the display is switched between the first and second channels. Vertical position controls in the vertical deflection modulator are adjusted to bring about the desired separation of the traces on the face of the cathode-ray tube, and the input level at which triggering takes place is determined by the setting of a trigger level control. Since the trigger circuitry operates independently of the vertical deflection circuitry, the settings of the vertical position controls do not affect the triggering level.

The remaining, fourth and fifth modes of operation permit either a "chopped" or an additive display of the inputs.

3,599,035

TUNABLE MAGNETRON

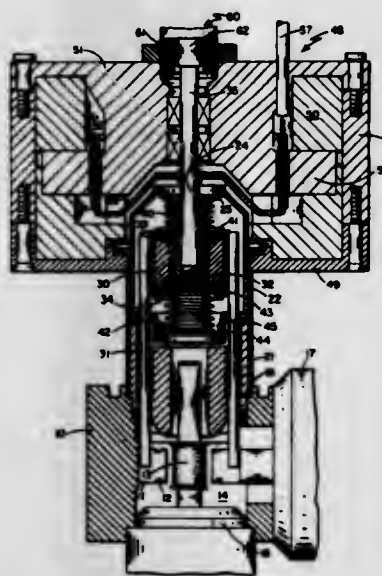
Kenneth E. Frerichs, Montoursville, and William H. Perkins, Williamsport, both of, Pa., assignors to Litton Industries, Inc., Beverly Hills, Calif.

Filed Sept. 29, 1964, Ser. No. 400,002

Int. Cl. H01J 25/50

U.S. Cl. 315-39.59

16 Claims



A tunable resonant cavity device is provided which contains a pair of metal bellows connected in tandem with one end of each bellows anchored to fixed spaced locations within the body of the device. One fixed end of one bellows is sealed closed, whereas the other fixed end contains an opening through which one mechanical element in the tuning mechanism extends. The bellows are joined in tandem by a moveable member to which an end of each bellows is sealed. The moveable member contains a passage which extends therethrough to permit equalization of pressure on each side thereof and between the bellows. Another mechanical element of the tuning mechanism is connected to this moveable member along its periphery on the outside of the bellows. The mechanical movement of an external tuner mechanism is transmitted through a coupling to one of the aforementioned tuning elements, the tandem bellows to the other mechanical element and in so doing causes one of the bellows to be com-

pressed and the other to expand although the total volume enclosed by the tandem connected bellows is substantially constant. The other mechanical element is coupled to the tuning element located in the sealed evacuated resonant cavity which is sealed closed by the tandem bellows structure. Inasmuch as the pressure on each side of the moveable member is equal, the vacuum force due to differential pressure between the outside and the inside of the evacuated cavity is canceled.

3,599,036

EMERGENCY LIGHTING CIRCUIT

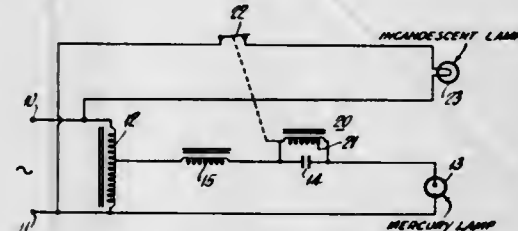
Jack E. Haymaker, Newark, Ohio, assignor to Holophane Company, Inc., New York, N.Y.

Filed July 1, 1969, Ser. No. 838,185

Int. Cl. H05b 39/10, 41/46

U.S. Cl. 315-93

7 Claims



In an emergency lighting circuit, a relay is provided with its coil in parallel with a capacitor in the mercury lamp circuit. Normally closed contacts of the relay are connected in series between a power supply and an incandescent lamp, in order to energize the incandescent lamp whenever the mercury lamp is deenergized.

3,599,037

GASLAMP LEAD BALLAST CIRCUIT HAVING FEEDBACK CONTROL

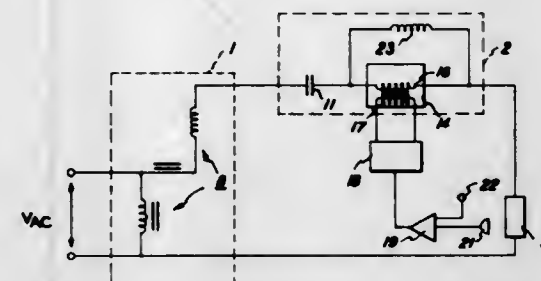
Robert E. Grace, Fairport, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 1, 1969, Ser. No. 820,757

Int. Cl. H05b 41/391; G01J 1/32

U.S. Cl. 315-151

2 Claims



Lead ballast circuits for operating gas discharge lamps are disclosed. The circuits employ a variable inductor, such as a linear inductor or saturable reactor, in series with a capacitor as the means for limiting the lamp current. The effective impedance of the circuit is basically capacitive and the variable inductor is used to vary that effective capacitance. A feedback path between a lamp and saturable reactor is also disclosed.

3,599,038

APPARATUS AND SYSTEMS FOR HIGH-VOLTAGE ELECTROSTATIC CHARGING OF PARTICLES

Donald D. Skidmore, Brookline, N.H., assignor to Hipotronics, Inc., Brewster, N.Y.

Filed July 28, 1969, Ser. No. 845,267

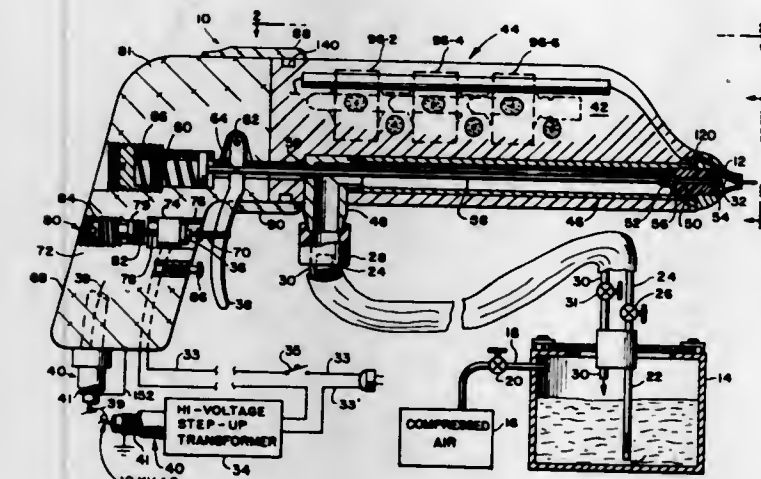
Int. Cl. B05b 5/02

U.S. Cl. 317-3

12 Claims

Apparatus and systems for high-voltage electrostatic charging of particles are disclosed which are compact and lightweight so as to be truly portable. High-voltage electrostatic particle charging tools are disclosed for performing the useful function of propelling charged particles toward a

desired object incorporating a high-voltage supply as part of the handling tool, the illustrative high-voltage supplies being voltage multiplier rectifier networks. The voltage multiplier sections are stacked within the barrel structure of the handling tool to provide progressively higher voltages toward the muzzle end thus minimizing electrical leakage and reducing hazard. A pair of parallel-spaced stacks of capacitors with diode rectifiers selectively interconnected between the



respective capacitors of the stacks are encapsulated within solid insulating material to form a rigid barrel structure. A portable setup transformer is positioned remote from the tool the transformer being adapted to be worn by the user, as by mounting on his belt, and the tool being connected to the secondary winding of the transformer by a flexible insulated electrical cable. Air-atomizing as well as hydraulic-atomizing systems may be employed with the invention.

3,599,039

PHASE-SYNCHRONIZED ROTATING SYSTEM

Takeo Miyashita, Saitama-ken, and Kohshiro Ito, Tokyo, both of, Japan, assignors to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan

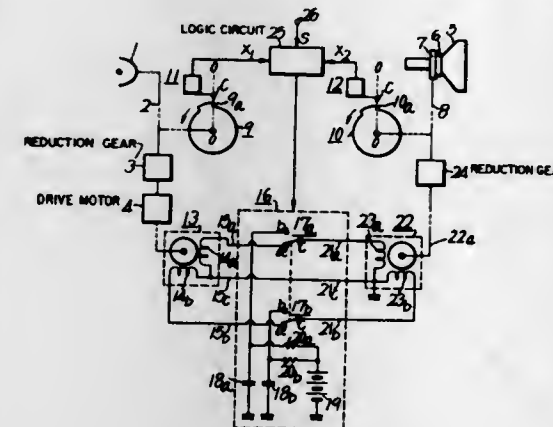
Filed July 22, 1969, Ser. No. 843,457

Claims priority, application Japan, Aug. 8, 1968, 43/55977

Int. Cl. H02p 3/24

U.S. Cl. 317-6

5 Claims



A phase-synchronized rotating system for driving and synchronizing a pair of shafts which includes detecting means producing output signals indicative of the positions of the shafts which supply inputs to a logic circuit that controls the coupling between a synchronous generator driven by the first shaft and a synchronous motor which drives the second shaft. The logic circuit controls switches such that when the shaft positions coincide with each other dynamic braking is applied to the driven shaft and such that the synchronous generator drives a synchronous motor when the shaft positions do not coincide.

3,599,040
ON-LOAD ELECTRONIC CONTROL SYNCHRONOUS SWITCHING DEVICE

Gerard Ebersohl, Aix-Les-Bains, France, assignor to Compagnie Generale D'Electricite, Paris, France

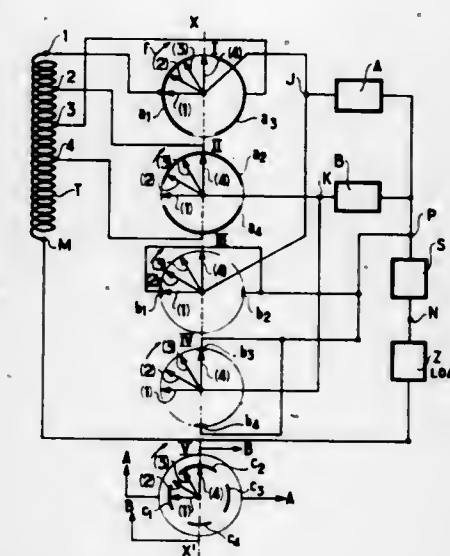
Filed Nov. 5, 1969, Ser. No. 874,182

Claims priority, application France, Nov. 5, 1968, 172630

Int. Cl. H02h 7/22

U.S. Cl. 317-11

16 Claims



Logical circuit for controlling switching from one terminal to another on a power transformer supplying a very distorted current and comprising a mechanical preselector and two solid-state switches, whose effect is to permit the shutting off of a first switch (A) and the priming of a second switch (B) only if the operation can be effected without danger to the equipment, depending on the form of the current during the operation.

3,599,041

ISOLATOR SWITCHES PROVIDED WITH GROUNDING SWITCH BLADES AND GROUND RESPONSIVE SIGNALLING AND PROTECTIVE MEANS

Rintje Harmelen Boersma, and Gijbert W. Irik, both of Bilthoven, Netherlands, assignors to N.V. "COQ", Utrecht, Netherlands

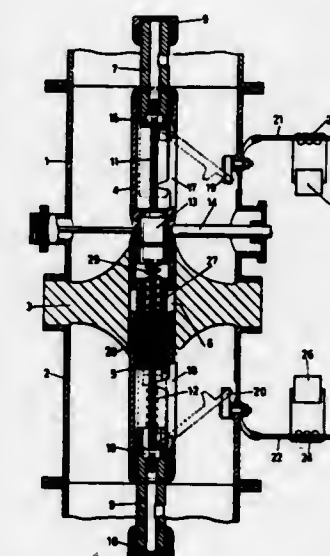
Filed Oct. 20, 1969, Ser. No. 867,744

Claims priority, application Netherlands, Aug. 4, 1969, 69.11833

Int. Cl. H02h 3/16; H01h 31/14

U.S. Cl. 317-18 R

10 Claims



A metal-clad isolator switch for multiple interruption divided in two parts insulated from each other and comprising means for connecting the interconnected movable switching contacts of the isolator switch with earth and a selectively

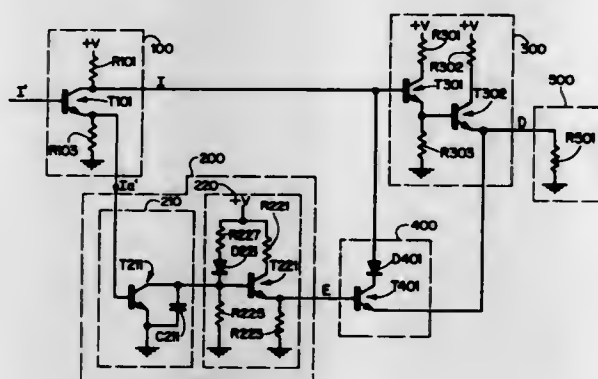
operating signalling and protecting system which selectively indicates, when and in which one of the isolator switch parts an unwanted earth-connection occurs.

3,599,042
OVERLOAD PROTECTION DEVICE FOR EMITTER-FOLLOWER LINE DRIVER

John R. Andrews, Jr., Framingham, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Oct. 31, 1969, Ser. No. 872,821
Int. Cl. H02h 3/08, 7/20

U.S. Cl. 317-16

10 Claims



The invention provides a two-level control for protecting an emitter-follower driver from passing excessive current. The first level is that of enabling a protection circuit provided by the invention whenever the emitter-follower draws current in response to the "on" level of a logic input signal. The second state, or level, of protection occurs when a fault or overload condition occurs which causes the voltage level at the emitter to fall below a predetermined level which could sense an overload or fault condition. If this occurs, the protection circuit of the invention becomes operative and shunts all of the current away from the driver.

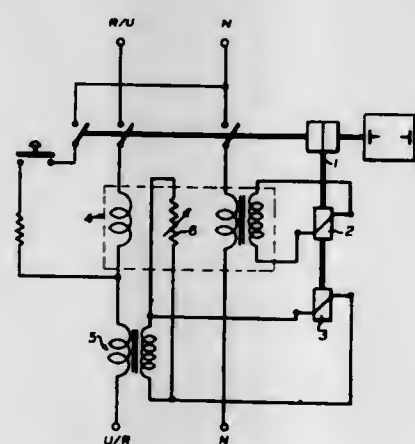
3,599,043
ELECTRICAL CIRCUIT BREAKERS

Siegfried Biedermann, Schellenberg, Liechtenstein, assignor to Uninorm Anstalt, Vaduz, Liechtenstein
Filed Dec. 18, 1968, Ser. No. 784,652
Claims priority, application Austria, Dec. 19, 1967, A 11483/67

Int. Cl. H02h 1/02

U.S. Cl. 317-18

2 Claims



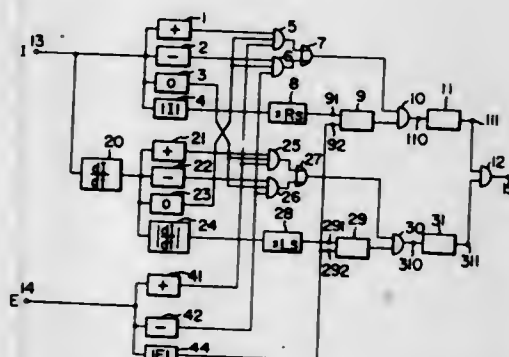
A fault current protection switch with additional excess current release, which comprises a first coil to be energized by a fault current and a second coil of a magnet release separated from the first coil, the second coil serves the release upon occurrence of excess current. A one-phase current changer constitutes the sole means for energizing the second coil, and includes a voltage coil connected with the second coil. A resistance has a positive resistance coefficient and is disposed parallel to the voltage coil.

3,599,044
SUPERHIGH-SPEED RELAYING SYSTEM AND APPARATUS FOR PROTECTION OF POWER SYSTEMS
Takeshi Takemura, and Kikuo Kawasaki, both of Kawasaki, Japan, assignors to Fuji Denki Seizo Kabushiki Kaisha, Kawasaki-shi, Kanagawa-ken, Japan

Filed Apr. 30, 1970, Ser. No. 33,200
Int. Cl. H02h 3/00, 5/00

U.S. Cl. 317-36 D

4 Claims



A superhigh-speed relaying system and apparatus for the protection of power systems featuring a directional distance relaying scheme, based essentially upon the simple equation representing the relationship among the voltage, current, resistance and inductance of a given power system:

$$L \frac{dI}{dt} + RI = E$$

where E designates the voltage, I the current, R the resistance and L the inductance. This expression holds true when, in the event of the occurrence of a fault, the DC component is superposed upon the fault current. And, given the phase relationship between the voltage E and the current I , and the values for the inductance L and the resistance R , the direction of and the distance to the location of the fault are obtainable. Moreover, by the same expression, the inductance L is obtainable as a result of comparison made between the polarities and between the magnitudes of E and dI/dt when $I=0$, whereas the resistance R is obtainable from comparison made between the polarities and between the magnitudes of E and I when $dI/dt=0$.

3,599,045

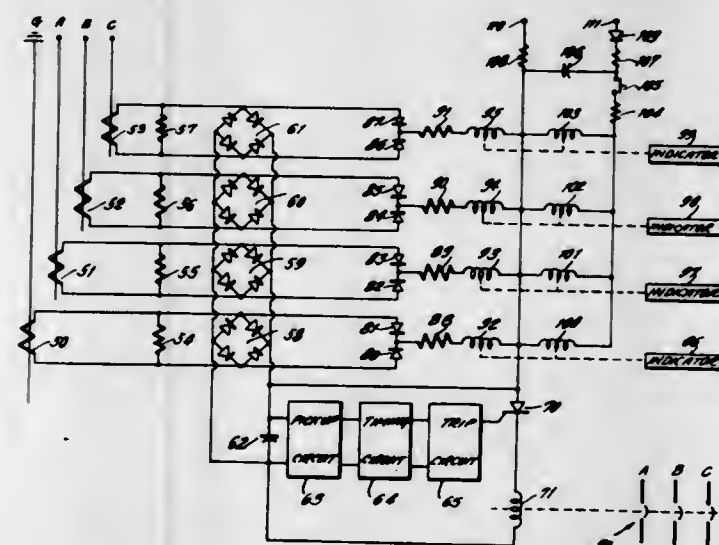
DISCRIMINATING FAULT INDICATION CIRCUIT
Pedro Farinas, Cornwells Heights, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Oct. 3, 1969, Ser. No. 863,632

Int. Cl. H02h 3/08; G08b 21/00

U.S. Cl. 317-36 TD

8 Claims



A mechanical indicator having a first and second indicating position determined by energization of a set coil or reset coil, respectively, is provided for each phase of a multiple phase power distribution system. Each of the phases is provided with a current-sensing circuit which delivers signals to the gate circuit of a controlled rectifier. The controlled rectifier is then fired in series with a trip coil which opens the

multiphase circuit responsive to a fault on any of the phases. The set coils of each of the indicators are energized responsive to a fault in one or more of the phases being monitored to indicate that the controlled rectifier has fired, and which phase conducted fault current.

ERRATUM

For Class 317-101 sec:
Patent No. 3,599,234

3,599,046

ASSEMBLY FOR ELECTRICAL NUMERICAL DISPLAY
Helmuth Spreitzer, Zurich, and Willi Hirt, Wallisellen, both of Switzerland, assignors to Contraves AG, Zurich, Switzerland

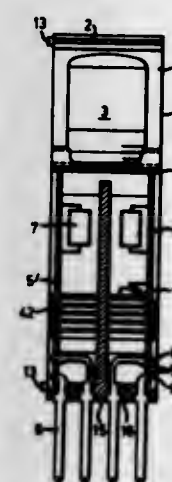
Filed June 22, 1970, Ser. No. 48,182

Claims priority, application Switzerland, Feb. 11, 1970, 1938/70

Int. Cl. H02b 1/04

U.S. Cl. 317-101 R

5 Claims



A component assembly for electrical numerical display comprising a respective U-shaped housing for each respective numerical display tube which is arranged behind a transparent cover disk. There is also provided at least one stationary circuit board having contact track means leading to contact terminals, the current-conducting track means being disposed in at least one plane of the circuit board and the contact terminals being situated along and in proximity to a housing wall at the opposite side of the cover disk and extending transverse to the plane of the circuit board. The U-shaped housings are constructed to be arranged in a row to form a module or assembly of such housings and for the application thereto of closure plates. These closure plates are equipped with protruding retaining spring means which in cooperation with flanged edge means of the housing and the closure plates permit the insertion and mechanical retention of the entire row of housings in a cutout or recess of the front plate of a suitable apparatus with which the assembly is used. Furthermore, a respective connection pin is mechanically and electrically coupled with the associated contact terminal of each current-conducting track, this connection pin extending transversely through the aforementioned housing wall and being mechanically retained thereat.

3,599,047

LOCKABLE SWITCH FOR POWER METERS
Harry Magarian, 19865 Burleigh Drive, Yorba Linda, Calif.
Filed Feb. 11, 1970, Ser. No. 10,955

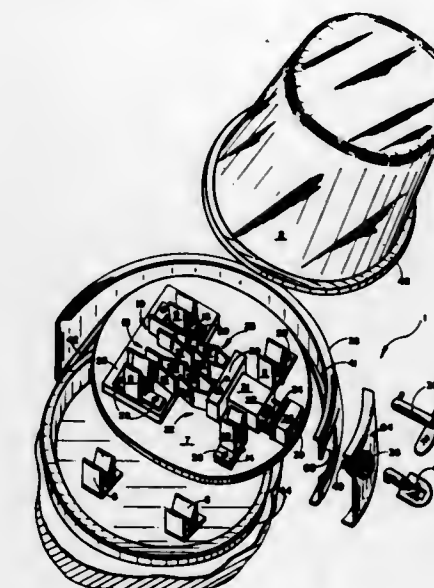
Int. Cl. E05b 35/12

U.S. Cl. 317-108

10 Claims

The switch is inserted into the socket on a facility to which power is being supplied. The prongs of the power meter are inserted into mating clamps of the switch. The assembly is secured together by a lockable metal band that encloses the switch and flanges on the socket and the meter. When it is desired to engage the switch so that power is connected through the meter into the facility, a key is inserted through

an opening in the band and rotated to engage contacts of the switch. Thereafter, the key is removed and the band relocked



so that power can only be disconnected by authorized personnel.

3,599,048

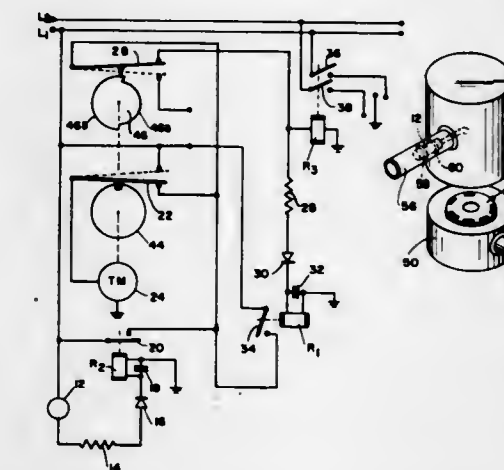
LIGHTING CONTROL SYSTEM
Frank M. Olin, R.R. #18, Box 361, Indianapolis, Ind.

Filed Apr. 23, 1970, Ser. No. 031,268

Int. Cl. H01j 39/12; H05b 37/00; H01h 47/24

U.S. Cl. 317-124

9 Claims



A control system comprising first circuit means including light-actuated means and first switch means cooperating to provide a first circuit condition in the presence of light and a second circuit condition in the absence of light, load switch means effective, when operated, to energize a load, second switch means connected in parallel with the said first switch means and effective, when operated, to bypass and disable the first switch means, and a timer. The timer, which may be a motor-driven, cam-operated timer, includes timer control switch means and load control switch means. The control system is arranged so that, once the timer is started by the first circuit means changing from its first circuit condition to its second circuit condition, the load is energized and the second switch means is operated to bypass the first switch means so that changes in the electrical condition of the light-actuated means have no effect on the system.

3,599,049

DUAL-POLARITY ELECTRONIC SWITCH
Robert A. Barnard, Vancouver, Wash., assignor to Syndyne Corporation, Vancouver, Wash.

Filed Apr. 30, 1969, Ser. No. 820,483

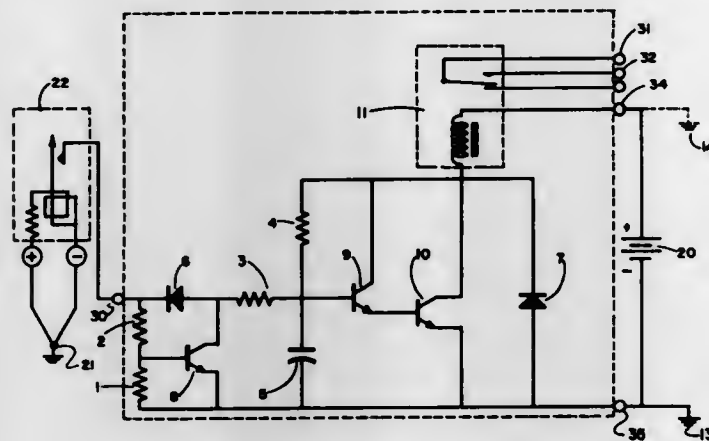
Int. Cl. H01h 47/26

U.S. Cl. 317-133.5

1 Claim

An electronic switch responding to the closure of the contacts of a meter relay operated by a grounded junction ther-

mocouple, the switch containing a switching amplifier so that the device is actuated by a flow of current through the meter relay contacts which is too small to cause a noticeable change in the meter reading, and containing a dual-polarity



gate arranged so that the switch is operable if the thermocouple junction is grounded to the positive or to the negative side of the battery power source.

3,599,050

BRUSHLESS DIRECT CURRENT MOTOR

Chifumi Komatsu, Suwa-shi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha

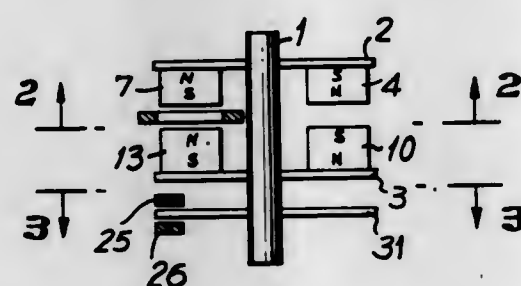
Filed Apr. 29, 1969, Ser. No. 820,201

Claims priority, application Japan, Apr. 30, 1968, 43/28,686

Int. Cl. H02k 29/00

U.S. Cl. 318-138

4 Claims



A brushless direct current motor having pairs of axially spaced permanent magnets radially arranged about and fixed to a rotor shaft, driving coils disposed in the space between said pairs of permanent magnets and detecting means including detecting coils.

3,599,051

TIME-DELAY CIRCUIT FOR ELECTRIC DISCHARGE DEVICES

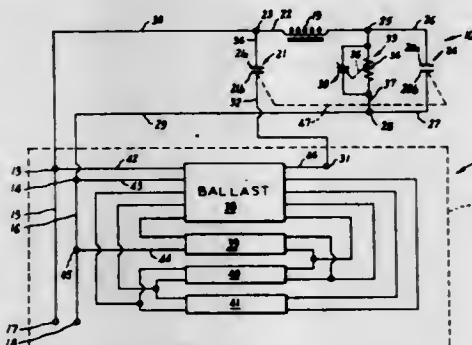
Art Lee, Bloomington, Ill., assignor to General Electric Company

Filed Apr. 13, 1970, Ser. No. 27,620

Int. Cl. H01h 47/18

U.S. Cl. 317-141

4 Claims



A time-delay circuit, preferably for use for delaying application of full voltage to an electric discharge device, includ-

ing a pair of spaced terminals for connection to a voltage source, a relay including a coil and at least first and second normally open contacts with the relay coil and the first normally open contact being connected in series with the pair of spaced terminals, the second normally open contact when in closed condition connecting one of the aforesaid pair of spaced terminals in series with a third terminal, a thermal delay device including a current-responsive heater and a third normally open contact, the latter contact being closed in response to a predetermined period of current flow through the heater, the heater of the thermal delay device being connected in series with the aforesaid relay coil between the pair of spaced terminals, and the first and third normally open contacts being connected in parallel with the heater of the thermal delay device whereby closure of the third normally open contact in response to the predetermined period of current flow through the heater results in sufficient current flow through the relay coil to effect closure of the first and second normally open contacts, closure of the first normally open contact maintaining energization of the relay coil and effecting deenergization of the heater, and closure of the second normally open contact connecting the third terminal to one of the pair of spaced terminals resulting in full voltage being applied to the electric discharge device.

3,599,052

AUTOMOBILE SPEED CONTROL

Ralph W. Carp; William E. Howard; Michael Slavin, and Leoncio T. Ang, all of Baltimore, Md., assignors to The Bendix Corporation

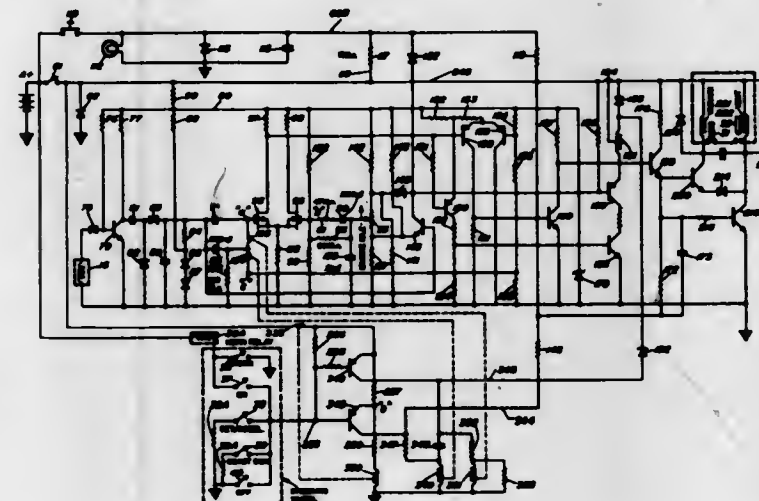
Division of Ser. No. 677,697, Oct. 24, 1967, Pat. No. 3,455,411.

Filed June 16, 1969, Ser. No. 852,133

Int. Cl. H01h 47/32

U.S. Cl. 317-148.5 R

2 Claims



An automobile speed control system wherein a voltage proportional to actual vehicle speed is fed through a low-loss memory capacitor to a comparator high input impedance port, momentary referring of which to a predetermined voltage impresses the vehicle instantaneous speed across the capacitor in the form of a command speed voltage. Thereafter, changes in vehicle speed cause the voltage at the comparator input port to change in accordance therewith, although the voltage across the capacitor remains constant. A voltage proportional to throttle position is applied through a feedback shaping circuit to the second comparator input port. The feedback circuit utilizes a DC feedback circuit paralleled by an AC feedback circuit to increase the throttle feedback signal when the throttle is moving. The error signal developed in the comparator is amplified and applied to a vacuum modulator which controls the pressure in a vacuum motor which, through a linkage, positions the throttle. A capacitor and resistance network may be switched into the comparator so as to vary the high input impedance port circuit voltage proportional to actual vehicle speed in accordance with the time constant of the network in such a manner as to cause the apparent vehicle speed to decrease, thereby causing the vehicle to accelerate at a predetermined rate. Control system turnoff circuitry is provided which tem-

porarily disables the error signal amplifier whenever a turnoff voltage is applied thereto. This turnoff voltage may be applied by an operator-controlled switch which simultaneously places the memory capacitor in condition to record the instantaneous vehicle speed in the form of a command speed signal when the turnoff voltage is removed, thereby allowing the operator to cause the vehicle to decelerate to a new, lower command speed. Turnoff voltage may also be applied through a brake-operated switch. The control system is programmed to respond to voltage levels which are caused to appear at a system control point whenever the control point is shunted to ground through various resistances. These resistances are mounted in the vehicle steering column, thereby allowing all operator-initiated functions to be controlled through a single wire.

3,599,053

IMPROVED TITANIUM ALLOY CAPACITOR

Koreaki Nakata, Nishinomiya-shi, and Yoshio Iida, Osaka-fu, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma, Osaka, Japan

Filed Oct. 31, 1969, Ser. No. 873,016

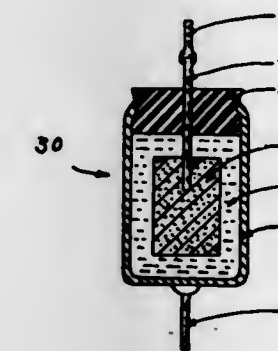
Claims priority, application Japan, Nov. 5, 1968, Mar. 20,

1969, 43/81529; 44/22513

Int. Cl. H01g 9/04

U.S. Cl. 317-230

4 Claims



This invention relates to an improved electrical capacitor comprising, as an electrode, a binary alloy of titanium and aluminum or ternary alloy of titanium, zirconium and aluminum, said electrode having an anodic dielectric oxide film formed thereon. The novel capacitors have high capacitance and low leakage current at high voltages.

3,599,054

BARRIER LAYER DEVICES AND METHODS FOR THEIR MANUFACTURE

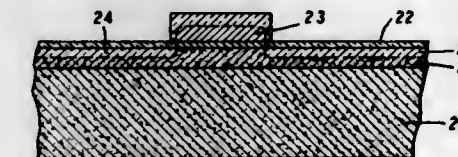
Martin P. Lepse, New Providence, and Alfred U. MacRae, Berkeley Heights, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 22, 1968, Ser. No. 778,087

Int. Cl. H01l 9/00

U.S. Cl. 317-234 R

3 Claims



The specification describes an improved barrier layer device which utilizes an oxide guard ring around the barrier layer. An insulating guard ring is shown to be superior to the PN junction guard ring of the prior art. Manufacturing methods for forming oxide guard rings are also discussed. These involve forming the oxide layer by exposure to an oxygen plasma.

3,599,055

IMAGE SENSOR WITH SILICONE DIODE ARRAY

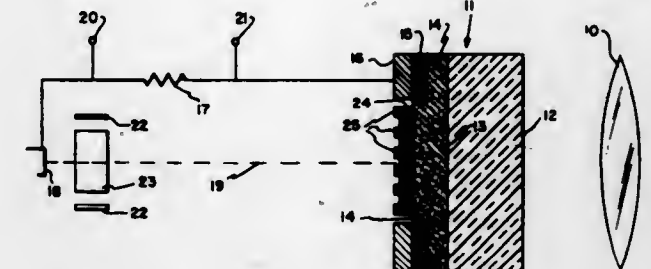
Murray Bloom, Los Angeles, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Nov. 25, 1968, Ser. No. 778,574

Int. Cl. H01l 15/00, 15/02

U.S. Cl. 317-234

6 Claims



There is disclosed an image sensor of the type intended for conversion of an optical image into a series of electrical signals each of which represents in its magnitude the intensity of the picture element at a predetermined location of a sensor of a picture element on which an electron beam is impinging. The beam, of course, is scanned so as to sequentially impinge on a plurality of such sensors arranged in a pattern so that the raster or scan of the entire pattern generates a series of electrical signals representative of the entire picture.

3,599,056

SEMICONDUCTOR BEAM LEAD WITH THICKENED BONDING PORTION

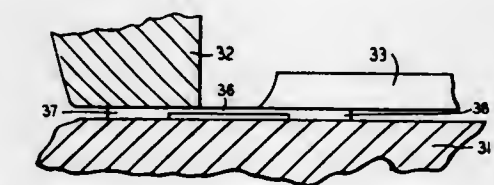
James E. Clark, Coopersburg, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 11, 1969, Ser. No. 832,154

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

1 Claim



In semiconductor devices having beam leads a protuberant portion is provided on the bonding face of the beam at its outer end. This thickened portion controls the bonding area subjected to thermocompression bonding and avoids the deleterious effects which otherwise result from deformation and extrusion of the outer end of the beam lead.

3,599,057

SEMICONDUCTOR DEVICE WITH A RESILIENT LEAD CONSTRUCTION

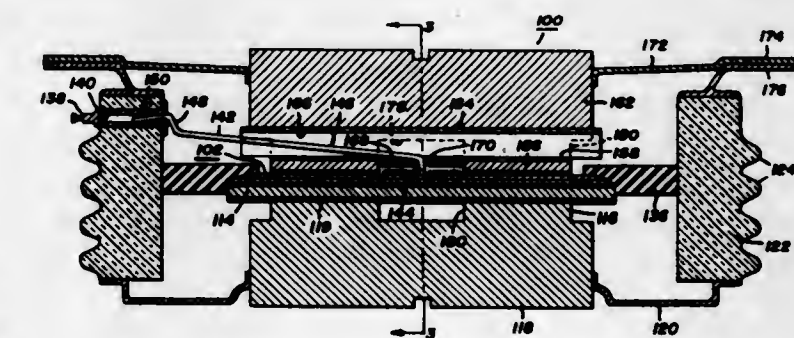
William F. Lootens, Skaneateles, N.Y., assignor to General Electric Company

Filed Feb. 3, 1969, Ser. No. 796,136

Int. Cl. H01l 5/00, 11/00

U.S. Cl. 317-234

4 Claims



A silicon-controlled rectifier is disclosed having a gate lead formed of a resilient spring. The deflection of the spring as-

sure a good electrical connection of the lead both to the control surface of a semiconductive element and the housing terminal which is independent of other electrical connections to the semiconductor element. One major current carrying terminal is slotted to receive the spring in insulative relation, and the spring also centralizes a loose backup plate.

3,599,058

SELENIUM RECTIFIER PLATE FOR USE AS AN OVERVOLTAGE DIVERTER

Ekkehard Schillmann, and Heinz Eggert, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

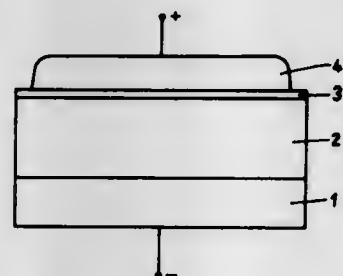
Filed Apr. 28, 1969, Ser. No. 819,737

Claims priority, application Germany, Apr. 26, 1968, P 17 64 223.8

Int. Cl. H011 3/02

U.S. Cl. 317-241

5 Claims



It is known to use selenium rectifier plates which are loaded in blocking direction as overvoltage diverters, to protect silicon rectifiers, for example. The invention provides a selenium rectifier plate with a selenium layer of a thickness of at least 100×10^{-4} cm. and a weak halogen doping of at most 100 p.p.m. chlorine.

3,599,059

ION IMPLANTED CDS P-N JUNCTION DEVICE

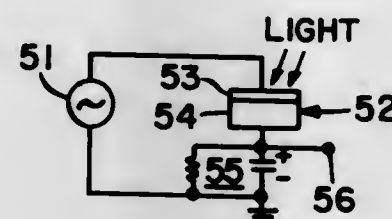
Shou-Ling Hou, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed May 15, 1969, Ser. No. 825,017

Int. Cl. H011 7/54

U.S. Cl. 317-234 R

1 Claim



PN junction devices are made by bombarding the surface of a body of cadmium sulfide with the ions of an appropriate dopant element, and thereafter subjecting the cadmium sulfide body to an appropriate annealing schedule. The particular type of PN junction device and the characteristics thereof are determined by the particular schedule of annealing to which the implanted body is subjected.

3,599,060

A MULTI-LAYER METAL CONTACT FOR SEMICONDUCTOR DEVICE

William M. Triggs, Manlius, and Carl J. Byrns, Jr., Liverpool, both of N.Y., assignors to General Electric Company

Filed Nov. 25, 1968, Ser. No. 778,647

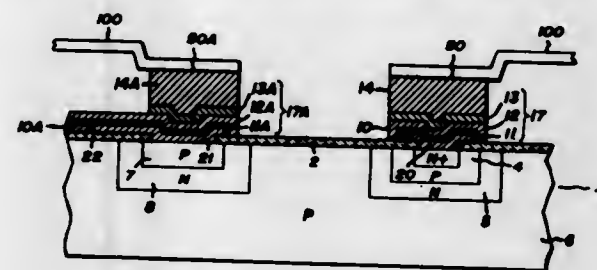
Int. Cl. H011 3/00, 5/00

U.S. Cl. 317-234 R

6 Claims

A semiconductor device comprising a body of semiconductor material having a raised metallic contact on its surface consisting of a bottom region, a middle region, and a top region. The bottom region, which is contiguous with a surface of the semiconductor body, comprises a semiconductor adherence-promoting metallic layer having an upper surface of

aluminum. The top region comprises a metallic layer of connectable material to which external electrodes or leads can be easily bonded. The middle region is between the bottom region and the top region and comprises essentially a barrier layer of metallic material. The barrier layer prevents the mixing of the bottom and top regions without deleteriously affecting the electrical and thermal conductivity between these two regions.



3,599,061

SCR EMITTER SHORT PATTERNS

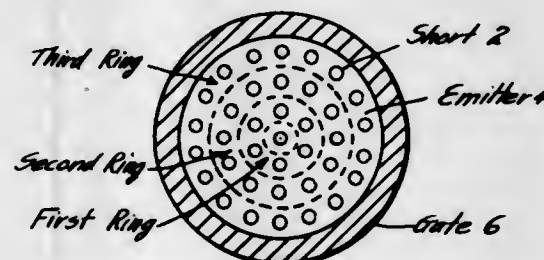
Richard A. Kokosa, Skaneateles, N.Y., assignor to The United States of America

Filed Sept. 30, 1969, Ser. No. 862,202

Int. Cl. H011 11/00, 13/00

U.S. Cl. 317-235 R

1 Claim



An improved pattern of shorting elements is provided for a controlled rectifier.

ERRATUM

For Class 318-176 see:
Patent No. 3,599,236

3,599,062

ELECTRONIC CONTROL CIRCUIT FOR DIRECT DRIVE AUTOMATIC

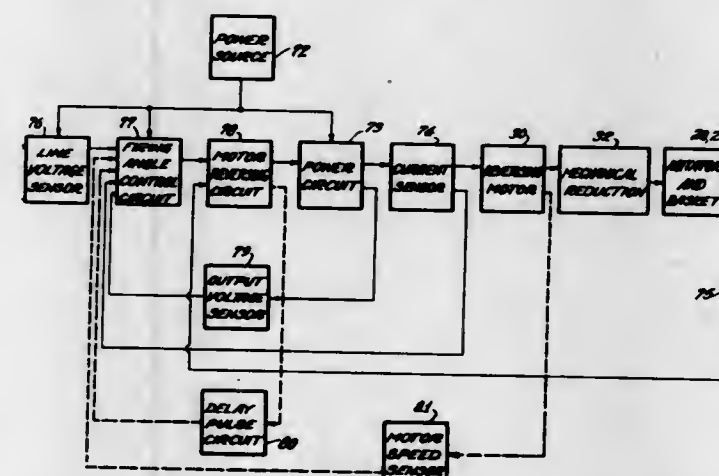
Burke J. Crane, Riverside, Ill.; Douglas J. Walker, St. Joseph, Mich., and George H. Myers, St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 487,019, Sept. 13, 1965. Filed Aug. 7, 1967, Ser. No. 665,660

Int. Cl. H02p 5/06

U.S. Cl. 318-281

8 Claims



A control circuit for a laundry machine motor which generally includes a power circuit coupled with a reversing circuit. A firing angle control circuit regulates the amount of

power supply to the motor from the power circuit and the reversing circuit controls the power circuit to establish the desired direction of rotation of the motor. In particular, the reversing circuit is operative to cyclically reverse the motor or to drive the motor in a single direction.

3,599,063

SPEED CONTROL SYSTEM FOR D.C. MOTOR

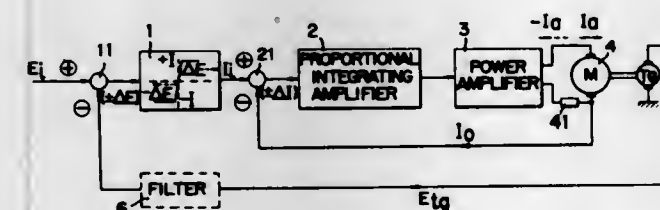
Sadaaki Nanai, and Nobuhiro Kyura, both of Fukuoka-ken, Japan, assignors to Kabushiki Kaisha Yaskawa Denki Seisakusho, Fukuoka-ken, Japan

Filed Aug. 21, 1969, Ser. No. 851,945

Int. Cl. H02p 5/16

U.S. Cl. 318-327

7 Claims



A control system is composed of a saturation amplifier delivering a positive or negative saturated voltage depending on the sign of a difference voltage between a command voltage and a negatively fed back speed-representing voltage of the motor to be controlled, a proportional and integrating amplifier receiving a difference voltage between the output of the saturation amplifier and a negatively fed back voltage representing the actual armature current through the motor as its input, and a power amplifier amplifying the output of the second amplifier for supplying the armature current for the motor. In other aspects of the invention, the first amplifier may be replaced by another proportional and integrating amplifier cooperating with a circuit portion prohibiting the integrating operation depending on the output of the replacing amplifier, or the power amplifier may be replaced by a DC current switching circuit employing an amplitude modulated pulse signal for switching the armature current of the motor as desired.

3,599,064

D.C. MOTOR DRIVE USING COMBINED ARMATURE AND FIELD CONTROL

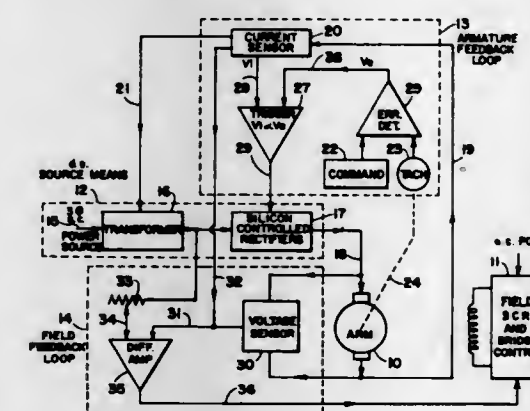
Jay Friedman, Lawndale, Calif., assignor to Loyola Industries, Inc.

Filed Oct. 29, 1969, Ser. No. 872,025

Int. Cl. H02p 5/16

U.S. Cl. 318-338

3 Claims



A DC motor drive for the armature and associated field winding of the motor includes an armature feedback loop responsive to the current flow in the armature, an input command signal such as a speed control signal, and the actual speed of the armature for providing a control of the current supplied by a DC source means to the armature to thereby provide speed control of the motor. A field feedback loop control is also provided and includes means responsive to the voltage across the armature and to the line voltage supplied to the armature for providing a control of the field intensity to assure that the back EMF of the armature is always less

than the available DC voltage supplied to the armature. This dual feedback control provides for a faster response time of the armature throughout its total speed range together with the feature of a constant torque for different speeds.

3,599,065

CONTROL ARRANGEMENT FOR MOTOR TO ESTABLISH HIGH SPEED UNREGULATED OPERATION IN ONE MODE AND REGULATED OPERATION IN ANOTHER MODE

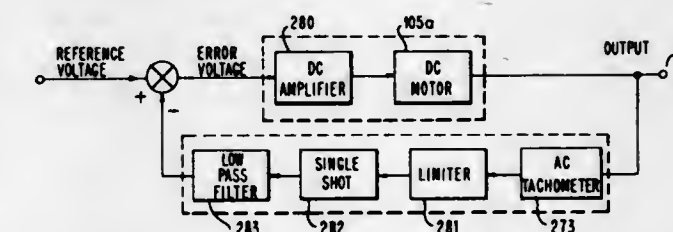
Chester M. Fackler, Lexington, and David H. Lenderking, Versailles, both of Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1968, Ser. No. 767,760

Int. Cl. H02p 5/16

U.S. Cl. 318-345

1 Claim



The invention concerns motor operating and motor-regulating circuits, particularly set in a dictating and transcribing environment. The circuits insure a fast startup time for the motor whether the conventional AC power source or battery is used. During startup time, the full potential is applied across the motor and at a predetermined speed, the regulating circuit becomes effective to maintain the speed. This action applies during recording and playback operations. During other operations, such as a record media loading and phasing operation and an automatic erase operation, the full power supply is applied across the motor as long as necessary to complete the operation and the regulating circuit remains ineffective. During an automatic recall operation enabling a transcriber to listen to a few previous words of dictated material, connections are made to apply the available potential in an opposite manner across the motor to reverse its direction of rotation and the regulating circuit also remains ineffective. Provision is also made for establishing a relatively high and low speed of operation of the motor to achieve 10 and 20 minute recording times, respectively. The rapid startup time permits a direct coupling of the motor to the driving mechanisms and elimination of an intermediate clutch assembly.

3,599,066

CONTROL MEANS FOR INTERMITTENT MOTION MECHANISM

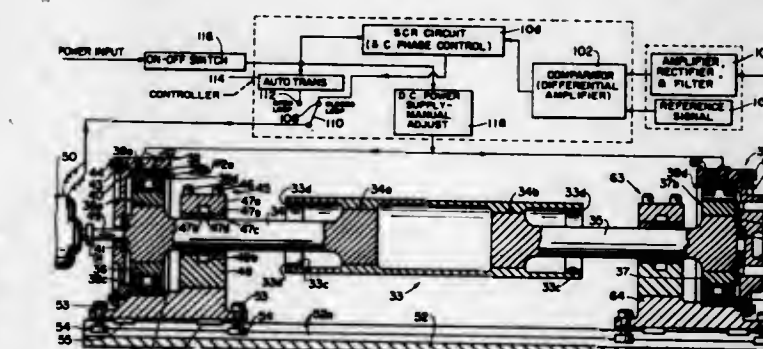
William S. Touchman, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Continuation-in-part of application Ser. No. 660,032, Aug. 11, 1967, now Patent No. 3,460,343. This application Aug. 11, 1969, Ser. No. 849,110

Int. Cl. H02k 23/16

U.S. Cl. 318-437

4 Claims



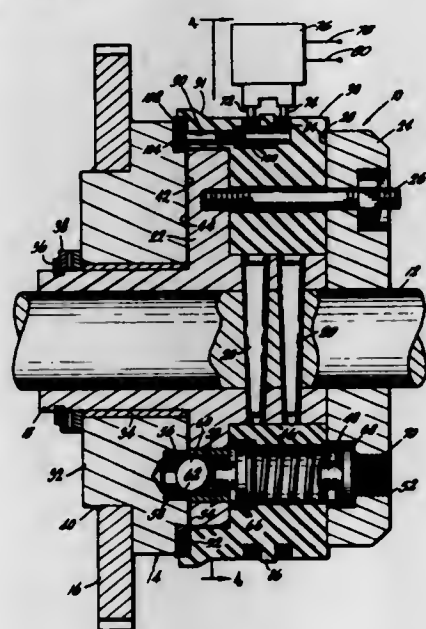
Control means for an intermittent, rotary-motion mechanism which operates at the resonant frequency of its rotating system. The rotating system includes an input member, an output member, and a resilient member (like a

torsion shaft) interconnecting the input and output members. An exciter, like a magnetic oscillator, is used to start the rotating system and keep it oscillating at its resonant frequency to cause periodic dwells in the output member while the input member is rotated at a constant velocity. The control means includes a magnetic pickup for sensing the angles of oscillation of the output member and comparator circuits for comparing the output of the pickup with a reference signal. A controller circuit, acting in response to the comparator circuit, is used to control the voltage to a motor which rotates the input member. The motor has operating characteristics which enable it to produce an increase or a decrease in torque at a substantially constant speed.

3,599,067
OVERLOAD DISCONNECT ARRANGEMENT
Bernard J. Wallis, 25200 Trowbridge Ave., Dearborn, Mich.
Filed Feb. 18, 1970, Ser. No. 12,271
Int. Cl. H02h 7/085

U.S. Cl. 318-475

19 Claims



A safety overload disconnect arrangement between a pair of coaxial driving and driven rotary members which includes a plurality of axially spring-biased bearing balls mounted on one of the members and spaced circumferentially around the axis of rotation thereof. The balls engage in registering sockets on the other member to yieldably couple the members together for rotation in unison. In response to a predetermined overload on the driven member the bearing balls retract from the sockets on the other member and thereby permit the driving member to rotate relative to the driven member. The driving member is adapted to be rotated by electrically controlled means connected to a power source through a circuit completed through a pair of annular slip rings on one of the members, each slip ring being connected with an axially extending brush. When the two members are in coupled relation the two brushes make contact with a contact plate on the other member to complete the circuit to the control means and, when the two members rotate relative to each other in response to an overload on the driven member, the brushes move out of registration with the contact plate and thus interrupt the circuit to the control means and stop the driven member.

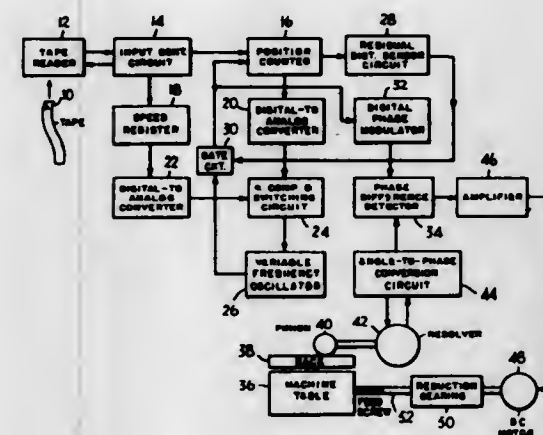
3,599,068
LOCATING SPEED REDUCTION DEVICE
Taka-aki Kanamori, and Yasutsugu Juroda, both of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 18, 1968, Ser. No. 784,856
Claims priority, application Japan, Dec. 22, 1967, 42/82343
Int. Cl. G05b 19/28

U.S. Cl. 318-600

2 Claims

A numerically controlled machine tool is first moved at a constant speed determined by a corresponding speed infor-

mation signal until it reaches a predetermined distance from its command position. Then a position information signal representing the distance of movement of the member is coupled to control the pulse repetition frequency of a variable frequency oscillator having its output coupled to a position

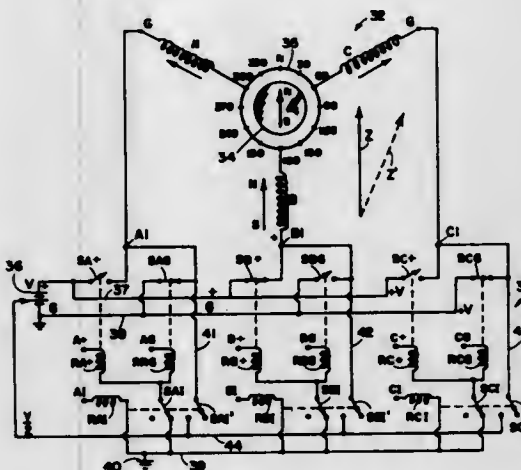


counter, thereby causing the counter to count down. The number of pulses in the form of a phase of square waveform is compared with the actual position of the member in the similar form and a difference between them is used to energize a drive device for the member. When the counter clears, the member reaches its command position and stops.

3,599,069
MULTIPHASE STEPPER MOTOR AND CONTROLLER INCLUDING MEANS TO SHORT CIRCUIT AN INHIBITED WINDING
Elvin C. Welch, Culver City, Calif., assignor to American Digital Corporation
Filed Aug. 27, 1969, Ser. No. 853,322
Int. Cl. H02k 37/00

U.S. Cl. 318-696

9 Claims

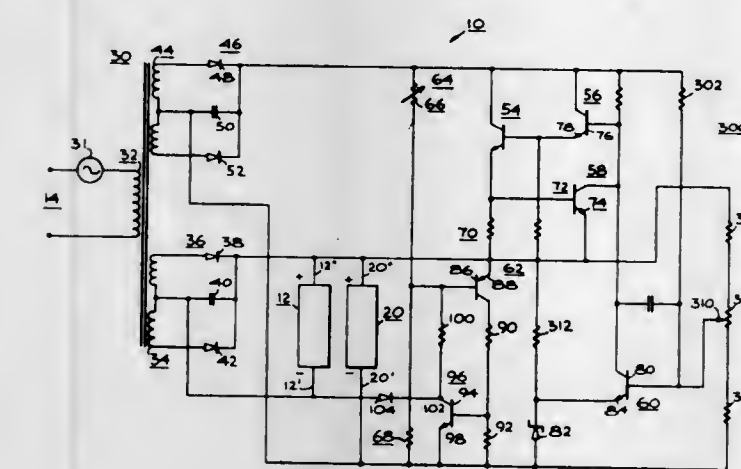


A stepper motor is provided with three-phase stator windings for generating magnetic flux fields in directions sequentially spaced $60^\circ/N_p$ where N_p is the number of stator poles per phase. A controller for the stepper motor includes three switch means for the three-phase windings respectively, each of the switch means being capable of three states wherein the associated winding is energized in one sense, or an opposite sense, or is inhibited from energization. By causing the switch means to assume various states in accord with a predetermined sequence, multiple-winding excitation is realized in such a way that high efficiency in terms of ampere turns per watt results with the added advantage that a smaller stepping angle and thus higher stepping speed is achieved. A rotor for the stepper motor is preferably of the permanent magnet type and incorporates a number of permanent magnet poles equal to the number of stator poles per phase. The use of the permanent magnet provides desirable damping characteristics.

3,599,070
BATTERY CHARGER AND EMERGENCY POWER SUPPLY FOR ILLUMINATION DEVICE
Howard Davis, Canoga Park, and Jerry J. Silvers, Los Angeles, both of Calif., assignors to Silttron, a division of Lighting Corporation of America
Filed Sept. 17, 1969, Ser. No. 858,751
Int. Cl. H02j 7/10

U.S. Cl. 320-5

8 Claims



An improved battery charger and power supply arrangement for illumination devices is provided to power the same illumination device under both a normal operating condition from standard line power, and an emergency operating condition in the absence of line power, from a self-contained battery. The emergency operating condition occurs when the magnitude of the voltage in the line comprising the primary source of electrical energy drops below a preselected value and semiconductor devices are utilized to provide automatic switching at this time to the emergency mode of operation. In the emergency mode of operation the battery is utilized to power the illumination device and the unit contains circuitry for allowing battery charging from the primary source of electrical energy during normal operation and automatic switching to effectively terminate the battery charging function during an emergency operation. There is also achieved switching by means of a voltage controlled signal from the primary source of electrical energy during normal operation to the power from the battery during emergency operation. No mechanical parts are utilized and all operations are achieved by electrical means.

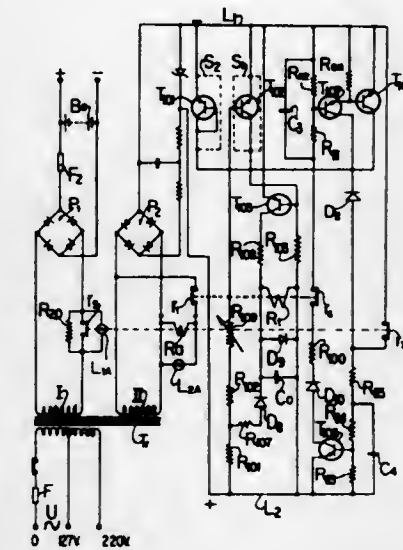
3,599,071
THERMALLY-RESPONSIVE CONTROLLED CHARGING ARRANGEMENT FOR STORAGE BATTERIES
Robert Henri Lapuyade, Enghien, and Pierre Godard, Livry-Gargan, both of France, assignors to Societe Des Accumulateurs Fixes Et De Traction (Societe Anonyme), Romainville, France
Filed Oct. 13, 1969, Ser. No. 865,546
Claims priority, application France, Oct. 15, 1968, Aug. 6, 1969, 170,015; 69-27049
Int. Cl. H02j 7/10

U.S. Cl. 320-35

28 Claims

Thermally-responsive charging arrangement for a storage battery supplied from an AC source to provide DC charging voltage to the storage battery terminals, the arrangement being capable of charging at a high rate or at lower or zero rates as required, including a thermal probe responsive to battery temperature and a thermal probe responsive to ambient temperature, these probes being interconnected to supply a signal output which is a function of the difference between battery and ambient temperatures. The signal output actuates a control for the charging arrangement to switch its operation from high to lower or zero charging rates and vice versa respectively when the temperature difference detected by the thermal probes has a determined maximum value and a determined minimum value. The thermal probes

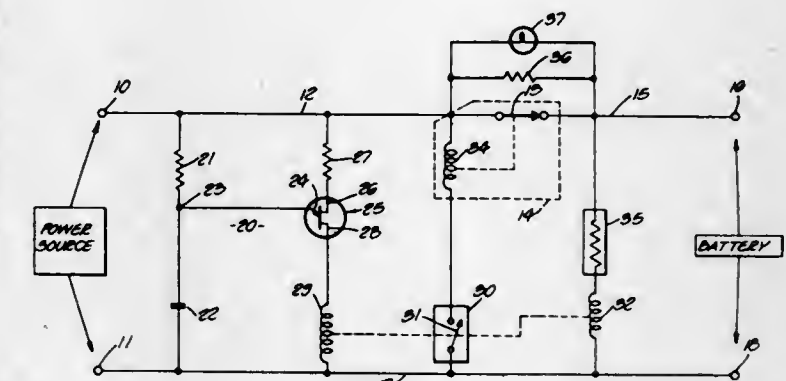
may be resistances or transistors conductivity of which are functions of their temperatures. Timing means are also provided for limiting the period during which the battery is charged at a high rate.



3,599,072
BATTERY CHARGER REGULATOR CIRCUIT FOR PERIODICALLY SUPPLYING CHARGING CURRENT TO A BATTERY
Richard B. Becker, 8534 Ocean View Ave., Whittier, Calif.
Filed Oct. 6, 1969, Ser. No. 863,795
Int. Cl. H02j 7/10

U.S. Cl. 320-31

17 Claims



There is disclosed herein a regulator circuit for use with a power source, such as a battery charger, for efficiently bringing a battery charge up to a proper value and through the gassing point without significant heating of the battery. The circuit employs a semiconductor timing circuit for properly controlling the operation of a series relay, which supplies current from the power source to the battery, upon nearing and reaching full charge. The series relay includes two windings, one responsive to battery voltage, and the other responsive to the timing circuit. The circuit arrangement allows the approach point of full charge to be sensed and causes the relay to switch to a trickle charge. A heavy charge then is periodically, for example every several minutes, applied as the battery reaches full charge, and to continually maintain the full charge. The present regulator brings the battery through the gassing point slowly by applying a continuous heavy charge until the battery nears the full charge value, and the charge is reduced as the full charge is reached and maintained.

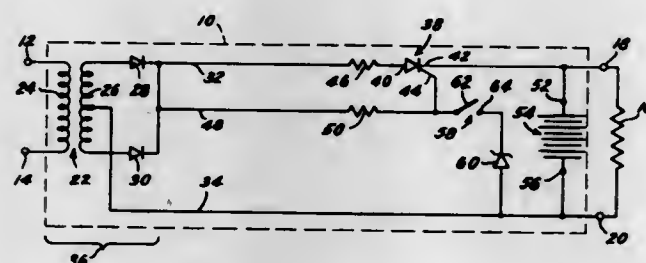
3,599,073

**VOLTAGE-REGULATED POWER SUPPLY WITH
STANDBY POWER CAPABILITY**
Arthur W. Wilson, Attleboro, Mass., and Bertrand J. Misk, Pawtucket, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 18, 1968, Ser. No. 784,779
Int. Cl. H02J 7/10

U.S. Cl. 320—39

7 Claims



A voltage-regulated power supply with standby power capability particularly adapted for use in data-processing equipment and the like is shown to comprise a sealed, rechargeable battery to be connected across a load for determining load voltage and for cooperating in meeting current demands of the load, a direct current energy source arranged to provide charging current to the battery and to cooperate in meeting the current demands of the load, and control means regulating the charge state of the battery for maintaining load voltage within selected limits.

3,599,074

**HIGH-POWER DIRECT-CURRENT TO SQUARE-WAVE
CONVERTER UTILIZING AN INDUCTIVELY COUPLED
GAS DISCHARGE TUBE**

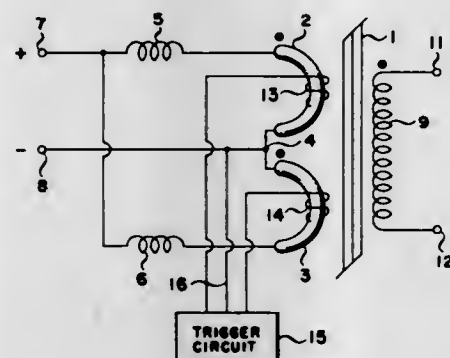
Robert H. Adams, Sun Valley, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Jan. 2, 1970, Ser. No. 356

Int. Cl. H02m 1/06, 3/30; H01f 27/28

U.S. Cl. 321—2

4 Claims



A high-power square wave generator employing a transformer, the core of which has a rectangular hysteresis loop and the center-tapped primary winding of which comprises a pair of triggered gas discharge tubes. Alternate firing of the discharge tubes induces a square wave in the transformer's secondary winding. The device may be utilized as the power carrier source for very-high-power carrier amplifiers of the silicon controlled rectifier, thyatron, or magnetic amplifier type. An alternate embodiment employs a nonsaturating ferrite core in lieu of a rectangular loop core, and an auxiliary gas discharge tube shunted across the secondary winding for switching control.

3,599,075

**PROTECTIONS CIRCUIT FOR SERIES CONNECTED
SOLID STATE VALVES**

Peter Etter, Baden, and Werner Faust, Wettingen, both of, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

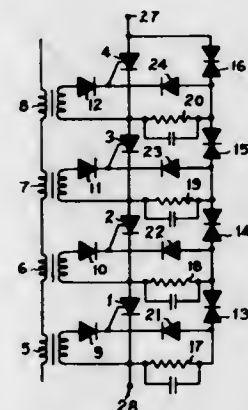
Filed Nov. 4, 1969, Ser. No. 873,808

Claims priority, application Switzerland, Nov. 8, 1968, 16696/68

Int. Cl. H02m 1/18; H02n 7/14

U.S. Cl. 321—11

1 Claim



In a current-inverter arrangement of the type wherein a plurality of current-inverter valves, particularly thyristors, are connected in series, a pair of diodes of opposite polarity and a low-ohmic impedance unit are connected in series across each of at least some of the thyristors. The impedance unit is connected to the firing control electrode of the associated thyristor and the voltage drop produced across it in the event that a particular thyristor is not fired by a firing impulse regularly applied to its control electrode from a control transformer, provides an additional firing impulse for the thyristor.

3,599,076

**OVERLOAD PROTECTOR FOR SHORT-CIRCUITING
STATIC CONVERTERS IN RESPONSE TO INCREASES IN
THE DIRECT CURRENT**

Cari Ingvar Boksjo, and Hans Stackegard, both of Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

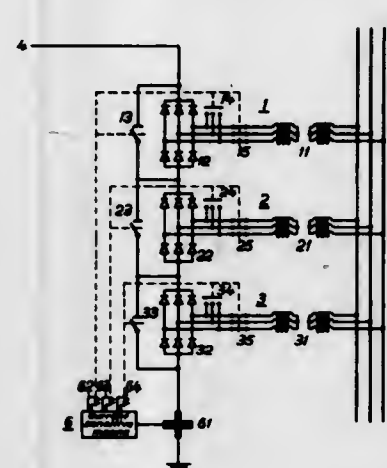
Filed Oct. 17, 1967, Ser. No. 675,824

Claims priority, application Sweden, Oct. 17, 1966, 140/41

Int. Cl. H02m 1/18; H02h 7/12

U.S. Cl. 321/14

3 Claims



A static converter is provided with short-circuiting means on both the DC and AC sides, and with means to operate the short-circuiting means and to disconnect the AC side upon an increase in the DC current above a predetermined value; the current sensitive device operates the short-circuiting means successively with low time derivatives of the direct current and simultaneously with higher time derivatives.

3,599,077

**HIGH-EFFICIENCY, CONTROLLABLE DC TO AC
CONVERTER**

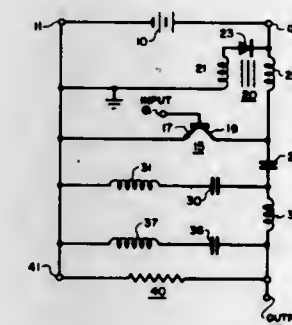
Dieter R. Lohrmann, Easton, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed June 18, 1970, Ser. No. 47,503

Int. Cl. H02m 7/48

U.S. Cl. 321—44

4 Claims



This disclosure relates to DC to AC converters and particularly to converters where a source of direct current is periodically connected to and disconnected from a filtered load circuit to produce an effectively, alternating current of controllable characteristics in the load circuit. More particularly, this disclosure relates to a converter that includes an inductor, in the switched DC circuit, with an additional winding connected to feed back current to the source of direct current during the half cycle when the DC source is disconnected from the load.

3,599,078

**STARTING CIRCUIT FOR PARALLEL TUNED
INVERTER**

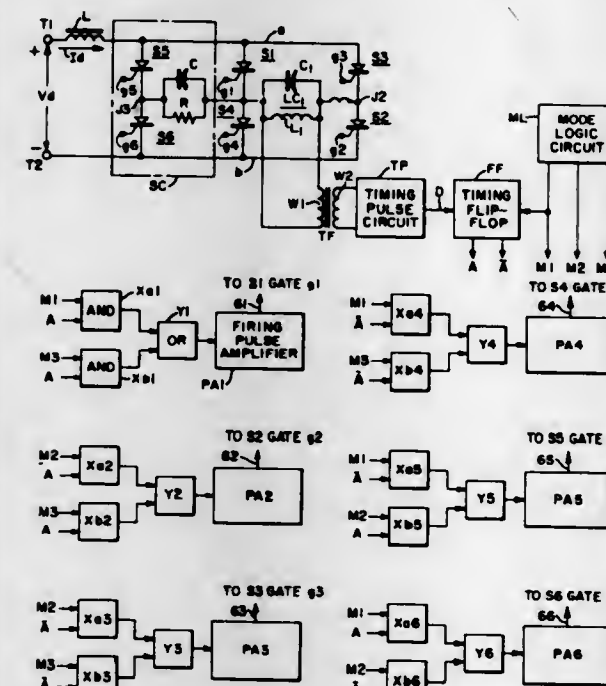
Brian R. Pelly, Murrysville, and Mario G. Tarjan, Pittsburgh, both of, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 5, 1970, Ser. No. 34,805

Int. Cl. H02m 7/52

U.S. Cl. 321—45 S

8 Claims



An inverter for supplying a parallel tuned load is disclosed including a plurality of controlled switching devices, such as thyristors, a starting circuit and a control circuit for controlling the switching devices and the starting circuit. The inverter is operative to store energy prior to starting, to utilize the stored energy to excite the tune load into oscillation and to operate normally when the oscillations have reached a sufficient magnitude.

3,599,079

**TEMPERATURE-CONTROLLED VOLTAGE
REGULATOR**

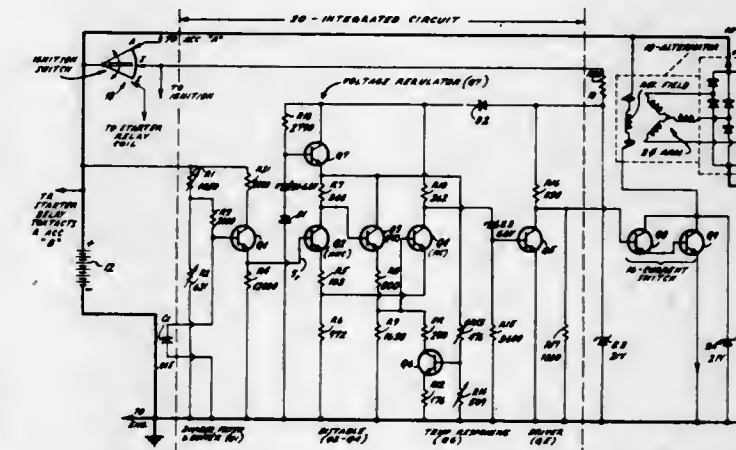
Peter M. Ansbro, North Wales; Matthew C. Ryan, Lansdale, and Lawrence M. Yeger, Spring Mount, all of, Pa., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 29, 1970, Ser. No. 6,665

Int. Cl. H02h 3/28; H02p 9/30

U.S. Cl. 322—23

11 Claims



A temperature-controlled automobile voltage regulator comprising an emitter-coupled bistable circuit responsive to the alternator voltage for operating a current switch which so controls the current in the generator's field winding that the alternator voltage bears a predetermined desired relationship to the ambient temperature of the regulator over a wide range of temperatures. A buffer stage, comprising an emitter-follower transistor amplifier, provides interstage coupling between the input and output stages of the bistable circuit. A temperature responsive circuit, comprising a transistor whose emitter-collector circuit is connected across part of the emitter resistance of the buffer stage, lowers the emitter resistance of the buffer stage as ambient temperature rises, thereby lowering the switching voltages of the bistable circuit. As a result the average current supplied by the current switch to the field winding of the alternator decreases, lowering the alternator's output voltage as temperature rises, thereby to provide optimum battery charging.

3,599,080

**ALTERNATOR VOLTAGE REGULATOR HAVING
AUXILIARY EXCITATION MEANS**

David Bennett, Northfleet, England, assignor to Stone-Platt Crawley Limited, Crawley, Sussex, England

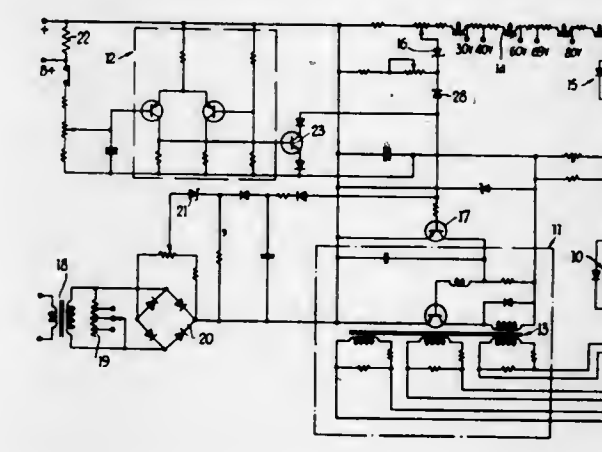
Filed Dec. 1, 1969, Ser. No. 881,214

Claims priority, application Great Britain, Dec. 2, 1968, 57,094/68

Int. Cl. H02p 9/30

U.S. Cl. 322—28

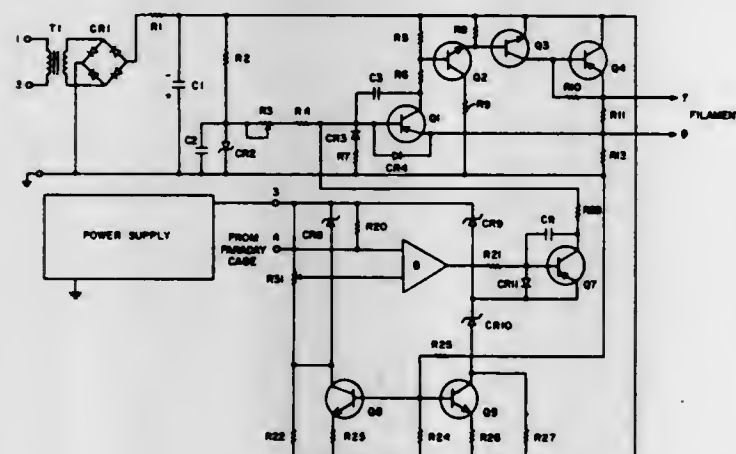
4 Claims



Apparatus for regulating the field current of an alternator comprises a negative feedback circuit and thyristor means by which the field current is turned on and off, wherein auxilia-

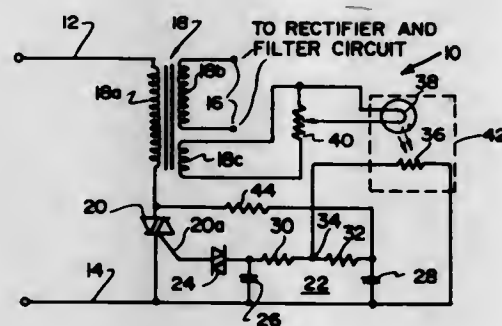
ry, sensitive, thyristors which are capable of functioning at the low alternator voltages produced by residual magnetism on starting are provided in shunt with main thyristors which take over when the alternator voltage has built up.

3,599,081
IONIZER EMISSION AND FILAMENT CURRENT REGULATING CIRCUIT
Robert M. Bryndza, San Jose, Calif., assignor to Electronic Associates Inc., Long Branch, N.J.
Filed Nov. 12, 1969, Ser. No. 875,921
Int. Cl. G05f 1/58, 1/64
U.S. Cl. 323-4



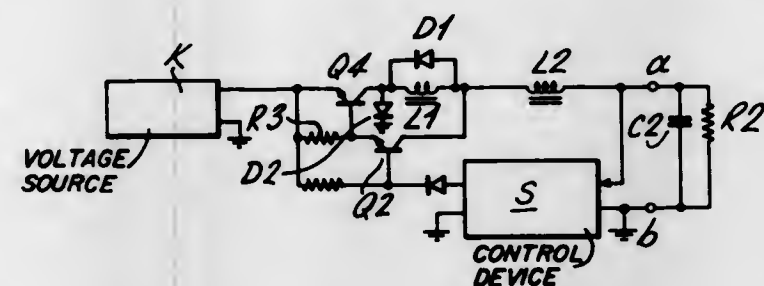
A control circuit for an ionizer used in a quadrupole mass analyzer. The circuit relates the current supplied to the filaments (filament current) and the current output of the ionizer (emission current) such that when a desired emission current level is established, the circuit provides a filament current necessary to produce that emission current level. The emission current is sensed and compared with a reference level for this current in a comparator. The comparator output appropriately braces a current-regulating transistor in the filament supply as a function of the comparison.

3,599,082
LIGHT-RESPONSIVE VOLTAGE REGULATOR FOR ALTERNATING-CURRENT SOURCE
Emil E. Bestler, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Jan. 22, 1970, Ser. No. 5,050
Int. Cl. G05f 1/44
U.S. Cl. 323-21



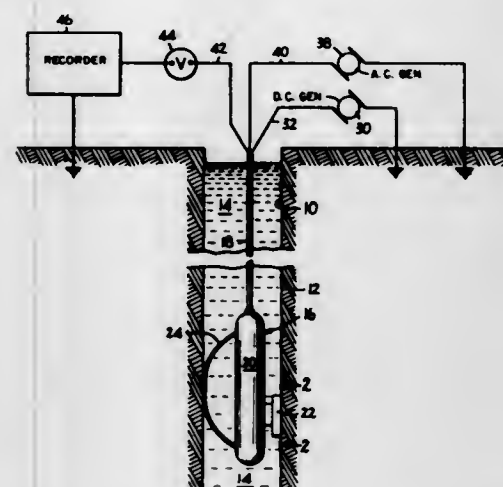
A voltage regulator wherein a pair of input circuit lines are provided and one of the circuit lines has connected in series therewith a bidirectional current control device having a control electrode for receiving control signals in response to the output voltage of a circuit portion of the voltage regulator. The control signals applied to the control electrode of the current control device are developed in response to light intensity of a light-emitting element connected to and energized by, the circuit portion.

3,599,083
SWITCHING MEANS FOR THE REGULATION OF A DC VOLTAGE
Per Bugge-Asperheim, Guldbergs vei 5, Oslo 3, Norway
Filed Aug. 4, 1969, Ser. No. 847,064
Claims priority, application Norway, Aug. 5, 1968, 3073/68
Int. Cl. G05f 1/56
U.S. Cl. 323-22 T



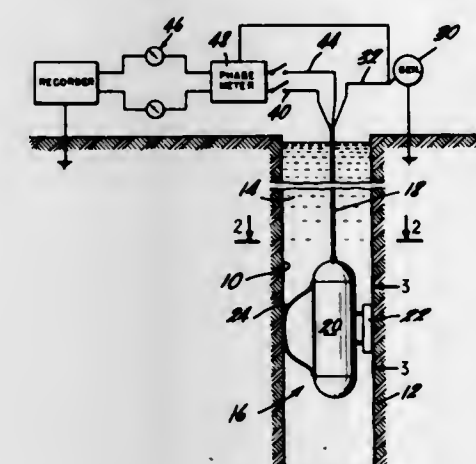
A pulse-duration modulated voltage regulator, wherein improved efficiency is achieved by stabilizing the emitter-to-collector voltage of the driver transistor by means of a parallel connection of an inductance and a rectifier diode in series with the switching transistor and the emitter-collector terminals of the driver transistor are serially connected with a load resistor connected across the above series connection. Greater efficiency and increased reliability are obtained by minimizing the transition time needed for transferring the switching transistor from its conducting to its nonconducting state by means of a double control process, which renders the driver transistor nonconducting and short circuits its load resistance when the switching transistor is to be made non-conductive, and to perform the reverse process when the switching transistor is to be made conductive. The actuation of the driver transistor is preferably performed before the short- and open-circuiting of the load resistor, respectively.

3,599,084
METHOD AND APPARATUS FOR INVESTIGATING THE PERMEABILITY OF EARTH FORMATIONS IN A BOREHOLE BY DETERMINING POLARIZATION LEVELS BEFORE AND AFTER SONICALLY INDUCED FORMATION FLUID FLOW
Barkev Y. Bakamjian, New Canaan, Conn., assignor to Schlumberger Technology Corporation, Houston, Tex.
Filed June 12, 1969, Ser. No. 832,612
Int. Cl. G01v 3/02, 3/18
U.S. Cl. 324-1



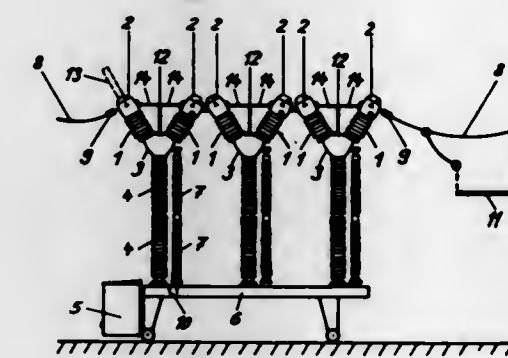
A polarizing DC current is passed through an earth formation traversed by a bore hole and the polarization level of the formation is determined by measuring the resistivity of the formation electrolyte. The formation is then excited by a sonic transducer to cause fluid flow through the formation. During excitation of the formation, the polarization level is again determined and the reduction in the polarization level from the original level is observed to obtain indications of the extent of fluid flow present and hence of the relative or actual permeabilities of the formation.

3,599,085
APPARATUS FOR WELL LOGGING BY MEASURING AND COMPARING POTENTIALS CAUSED BY SONIC EXCITATION
Adelbert Semmelink, Chicago, Ill., assignor to Schlumberger Technology Corporation, Houston, Tex.
Filed June 12, 1969, Ser. No. 832,679
Int. Cl. G01v 3/18
U.S. Cl. 324-1



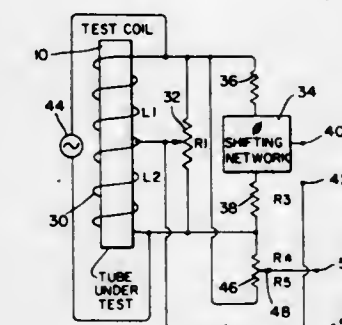
A sonic transducer in contact with the surface of a formation traversed by a bore hole periodically excites the formation at low frequencies to cause periodic flow of the formation fluid and therefore periodic electrokinetic potentials to be created in the formation. The potentials are measured at a location near the transducer and at least at one other location spaced from the transducer, and the ratio of the measured potentials provides knowledge of the electrokinetic skin depth of the formation and thus of the relative and actual permeability of the formation.

3,599,086
METHOD FOR INSPECTING A HIGH-VOLTAGE SWITCH WHILE ENERGIZED WITH OPERATING VOLTAGE
Adrian Werner Roth, Wasserfluhweg 7, Aarau, Switzerland
Filed Dec. 24, 1968, Ser. No. 786,599
Claims priority, application Switzerland, Jan. 11, 1968, 583/68
Int. Cl. G01r 31/02
U.S. Cl. 324-28



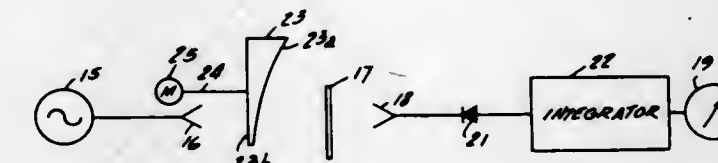
A method is provided for inspecting a high-voltage switch unit, while it is energized with operating voltage, from a platform insulated from ground, wherein all breaks of the switch apparatus are shunted by a bypass device for the duration of the inspection after previous verification of the closed switching position, the bypass device being removed only after the closed position of the switch apparatus has been again verified.

3,599,087
EDDY CURRENT TEST SYSTEM WITH MEANS FOR ELIMINATING SIGNALS DUE TO THE END OF THE TEST PIECE
John W. Allen, Malvern, and Merrill M. Godshall, Warminster, both of Pa., assignors to Air Products and Chemicals, Inc.
Continuation of application Ser. No. 576,606, Sept. 1, 1966. This application Feb. 24, 1970, Ser. No. 14,753
Int. Cl. G01r 33/12
U.S. Cl. 324-40



An eddy current material tester is described which includes a balanced bridge network. The bridge network includes a sensing coil whereby the element to be tested for flaws or defects is passed through the coil. When the ends of the element under test pass through the coil, the bridge becomes unbalanced and provides an output signal to a gate circuit which is connected to an alarm. Circuitry is included which emits signals to the gate if a flaw or defect is detected. Further circuitry is included to provide a signal if the signals emitted to the gate are of a predetermined threshold level. This level is indicative of the end of the material under test. The gate is not enabled in the presence of a signal of the predetermined threshold level. The gate is held closed for a predetermined time which may allow the end of the material to pass through the sensor coil. Defect signals are delayed before being presented to the alarm through the gate.

3,599,088
MICROWAVE MOISTURE SENSING SYSTEM INCLUDING MEANS TO CONTINUOUSLY CHANGE THE TRANSMISSION PATH OF THE MICROWAVE ENERGY
Leroy H. Busker, Rockton, Ill., and Robert J. Mosher, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis.
Filed Oct. 31, 1967, Ser. No. 679,325
Int. Cl. G01r 27/04
U.S. Cl. 324-58.5



An apparatus for measuring the amount of moisture in a sample which is generally formed of a microwave energy source, a microwave radiating element connected to the source, a microwave energy receiving element, and a microwave energy indication connected to the receiving element. The sample is positioned between the radiating and receiving elements and a structure is provided for changing the energy transmission path through the sample by at least one-half wavelength of the microwave energy. Such means may take the form of a frequency modulator connected to the source, a dielectric disc in the transmission path, or a structure for continuously changing the distance between the radiating element and the sample or combination of these means.

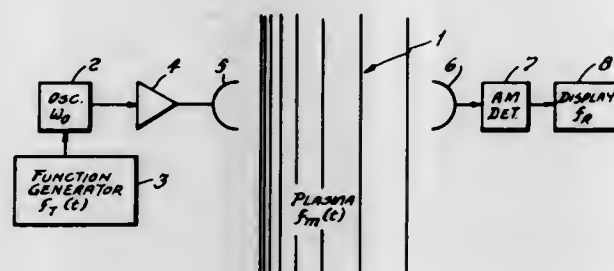
3,599,089

GRADIENT SOUNDER

Dimitri S. Bugnolo, Portsmouth, R.I.
 Filed July 24, 1969, Ser. No. 844,531
 Int. Cl. G01r 27/04

U.S. Cl. 324—58.5

2 Claims



This invention describes a method for determining the density gradient of a plasma by directing a frequency modulated electromagnetic wave through the plasma, detecting the amplitude of this wave as it emerges from the plasma and measuring the minimum width of the detected amplitude peak as the FM modulation function is changed so as to correspond to the inverse of the spreading function of the plasma.

3,599,090

APPARATUS FOR DETECTING AND MEASURING CREVICE CORROSION

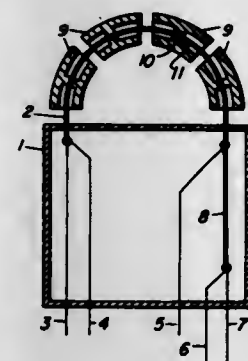
Vincent F. Fitzpatrick; Russell B. Richman, and James R. Divine, all of Richland, Wash., assignors to The United States of America as represented by the Secretary of the Interior

Filed June 30, 1969, Ser. No. 837,816

Int. Cl. G01n 27/00

U.S. Cl. 324—71 C

7 Claims



Crevice corrosion may be detected and measured by use of a probe device which discriminates between crevice corrosion and other corrosion phenomena. A metallic test specimen is structurally associated with an electrically non-conductive member to form an extended crevice region of predetermined width between the test specimen and the non-conductive member. Crevice corrosion, after exposure of the probe to a corrosive environment, is determined by measuring the electrical resistance of the test specimen relative to a shielded reference electrode.

3,599,091

SYSTEM UTILIZATION MONITOR FOR COMPUTER EQUIPMENT

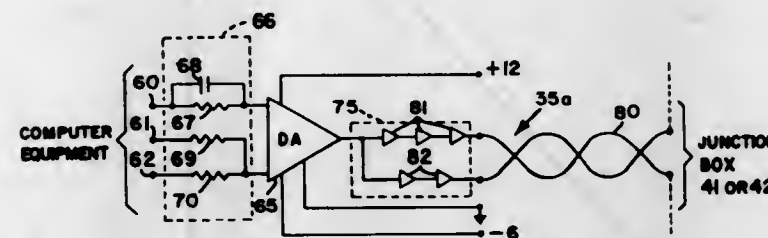
Charles D. Warner, Jr., Los Gatos, Calif., assignor to Computer Synectics, Inc., Santa Clara, Calif.
 Filed Oct. 24, 1969, Ser. No. 869,308
 Int. Cl. G01r 15/12, 31/02

U.S. Cl. 324—73

10 Claims

Apparatus for monitoring the utilization of computer equipment wherein the presence or absence of digital signals are measured for both duration of events and the number of event occurrences. An isolation probe within an input section

senses digital signals in a computer system without imposing line loading and without degrading system performance for transmission to a Boolean logic circuit, which produces logical combinations of the digital input signals. The logic circuit feeds the logical combinations of the digital input signals to



counters for accumulation and display. Magnetic tape recording equipment records periodically the information contents of the counters, which are processed by computer equipment to produce numeric and graphic forms of the recorded information contents.

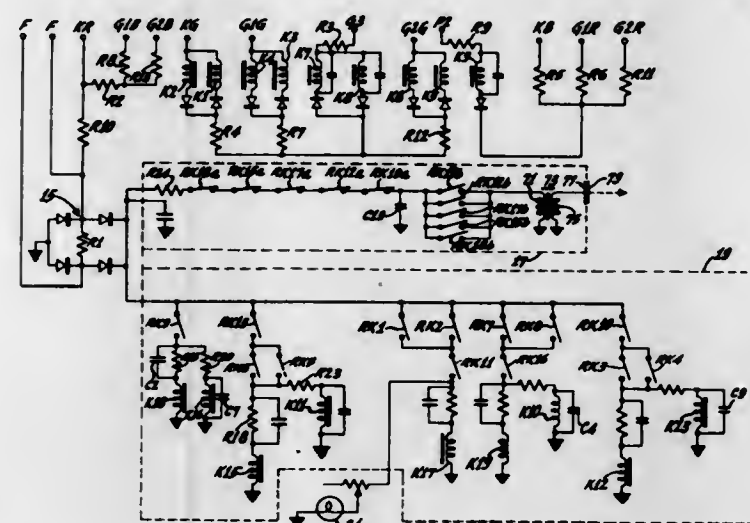
3,599,092

KINESCOPE SIMULATOR USED IN CHECKING AN AUTOMATIC TESTING SYSTEM

Herbert William Silverman, Sudbury, Mass., assignor to RCA Corporation
 Division of Ser. No. 662,360, Aug. 22, 1967, Pat. No. 3,541,440.
 Filed Mar. 12, 1970, Ser. No. 18,916
 Int. Cl. G01r 35/00

U.S. Cl. 324—158 R

2 Claims



Apparatus which simulates a mass-produced article, such as a color kinescope, and which is employed for the purpose of ascertaining not whether a manufactured article is within manufacturing specifications but instead whether a system which is automatically testing the mass-produced articles is itself operating properly.

3,599,093

APPARATUS INCLUDING A WIRE TIPPED PROBE FOR TESTING SEMICONDUCTOR WAFERS

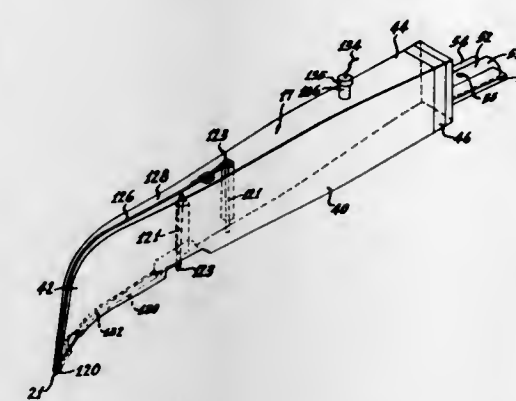
William Lee Oates, Somerset, N.J., assignor to RCA Corporation
 Division of Ser. No. 651,885, July 7, 1967, Pat. No. 3,453,545.
 Filed Apr. 28, 1969, Ser. No. 819,828
 Int. Cl. G01r 31/22, 31/02

U.S. Cl. 324—158 P

2 Claims

An apparatus for sequentially testing devices on a semiconductor wafer comprising a support column including means for receipt of a removable platform on which a wafer to be tested is mounted. A plurality of probes are disposed about

the support column. The probes have a bird-beaklike shape and are thin in comparison to their width, whereby a large



number of probes can be disposed in circular array around the support column.

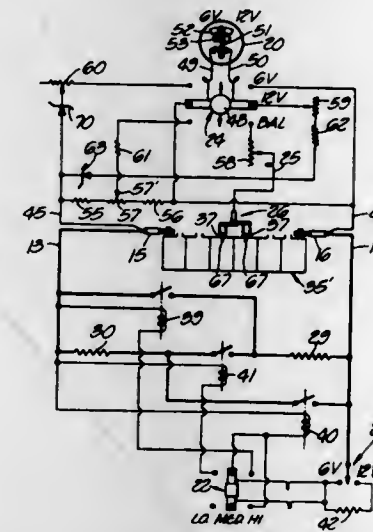
3,599,094

TESTER FOR STORAGE BATTERIES AND VOLTAGE REGULATORS INCLUDING DIFFERENTIAL VOLTAGE INDICATOR AND NULL ADJUSTING MEANS

Vernon R. Pring, 233 W. Jefferson, Los Angeles, Calif.
 Filed Sept. 20, 1968, Ser. No. 773,686
 Int. Cl. G01n 27/46

U.S. Cl. 324—29.5

12 Claims



Apparatus for checking the go-no-go condition of a storage battery under load and the proper setting of a vehicle voltage regulator. The tester indicates which of two sections of a battery is defective by indicating whether either section is unable to produce an acceptable voltage output under an appropriate load. The tester makes use of probe means insertable into the battery electrolyte and made of a material not subject to galvanic action. The tester includes various adjustable means including manufacturing tolerance compensators, selectors for loading batteries of different ratings and voltages with appropriate loads as well as means for changing the range of voltage indicator means to permit its use to check the operative condition of the battery and alternatively to adjust a vehicle voltage regulator as part of the battery-checking operations.

3,599,095

METHOD OF AND MEANS FOR TESTING AN ELECTRICAL BOND TO DETERMINE ITS HIGH-FREQUENCY IMPEDANCE

William R. Johnson, Cranada Hills, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jan. 12, 1970, Ser. No. 2,008

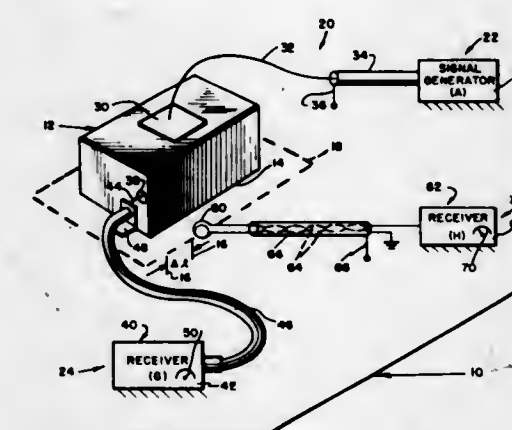
Int. Cl. G01r 27/14

U.S. Cl. 324—64

8 Claims

A method of and means for testing an electrical bond between two conductors, such as a ground plate and a radio

frequency shielded enclosure bonded to the plate, to determine the high frequency impedance of the bond. The test procedure involves passing a high frequency current through the conductors and the bond, measuring the voltage drop across the bond by placing a capacitance probe in capacitively coupled relation to one conductor and measuring the voltage of the probe relative to the other conductor, and measuring the high frequency current flow at a number of measurement positions spaced along a closed path on the surface of



the latter conductor encircling the bond by placing an inductance probe in inductively coupled relation to the surface at each position and measuring the voltage induced in the latter probe at each position. The high frequency impedance of the bond is then obtained by using the equation:

$$Z = \frac{V}{\Sigma H \cdot \Delta L}$$

where Z is the impedance, V is the capacitance probe voltage, H is the inductance probe voltage, and ΔL is the distance between measurement positions.

3,599,096

INFINITE RESOLUTION MULTIPLE VOLTAGE WINDOW COMPARATOR

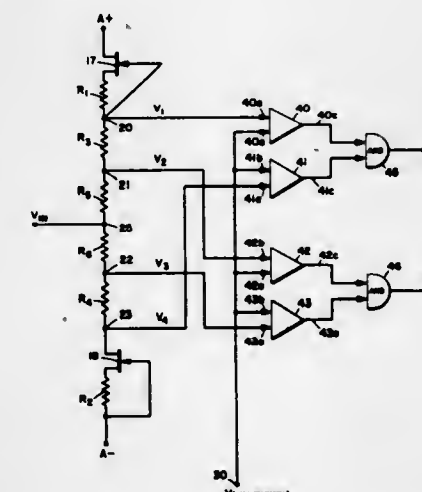
Jon C. Stemples, Coral Gables, and Samuel R. Everett, Ft. Lauderdale, both of Fla., assignors to The Bendix Corporation

Filed Jan. 17, 1969, Ser. No. 792,177

Int. Cl. G01r 17/00

U.S. Cl. 324—140

7 Claims



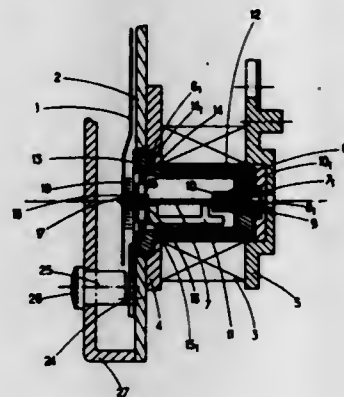
Each comparator of a plurality of comparators receives as one input one of a plurality of voltages sampled from intermediate points in a resistor string which is fed by a constant current source. Each comparator also receives as a second input an unknown voltage. The sampled voltages define voltage windows with an output signal being generated when the unknown voltage falls within one or the other of the windows. A window level voltage is impressed at an intermediate point in the resistor's string. Variation of the window level voltage causes the voltage windows to be translated along a voltage magnitude scale.

3,599,097

MEASUREMENT APPARATUS INCLUDING ZERO SETTING MEANS
 Jacques Palencher, and Michel Pesard, both of Troyes, France, assignors to Lebocey Industries, Troyes, France
 Filed Apr. 1, 1969, Ser. No. 811,897
 Claims priority, application France, Apr. 11, 1968, Mar. 17, 1969, 1572361; 6907560
 Int. Cl. G01r 1/00

U.S. Cl. 324-154

6 Claims

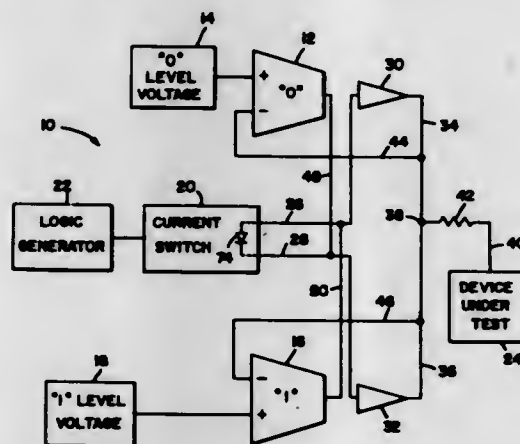


The present invention relates to a measurement device, particularly of electrical units, which includes a fixed measurement part and a mobile assembly, the whole of which forming the measurement components properly so called, the mobile assembly being fitted with a rotatable axle held in position and guided close to its tips, a needle and at least one release spring on said rotating axle.

3,599,098

ELECTRONIC TESTING APPARATUS
 James H. McPhail, Santa Clara, Calif., assignor to American Micro-Systems, Inc., Santa Clara, Calif.
 Filed Feb. 25, 1969, Ser. No. 802,086
 Int. Cl. G01r 31/00; G06g 7/12
 U.S. Cl. 324-158 T

7 Claims



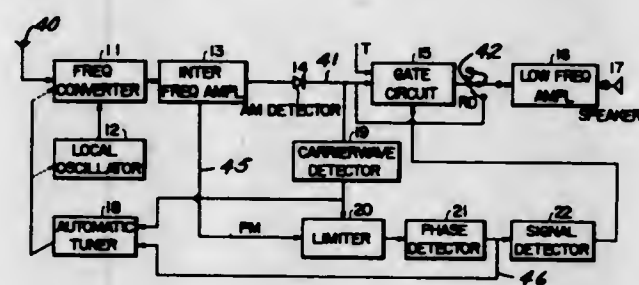
A testing apparatus for logic circuit devices comprising a buffer amplifier pulse driver for driving capacitive loads with fast rise and fall times and for producing programmable output pulses at predetermined levels and in accordance with a predetermined logic pattern. The apparatus comprises a pair of operational amplifiers each adaptable to receive an input at a level equal to the desired output pulse. Each of the amplifiers has an output driver stage with an input connected to and driven by a current switch adaptable to receive a controlling logic input pulse in the same pattern desired at the apparatus output which is connected to the device being tested. The current switch provides the necessary drive to enable the output driver stages to bring the output to the desired level, and once that level is reached during each transition it is held constant by the operational amplifier until the next transition pulse from the logic input. The driver switches function to provide the pulse transitions to and from predetermined levels independent of the operational amplifiers and to hold the output at the desired level in conjunction with their operational amplifier.

3,599,099

SYSTEM FOR TRANSFERRING AUDIO SYSTEM OUTPUT TO PREDETERMINED BROADCAST SIGNAL
 Akira Tatebayashi, and Totaro Ogura, both of Tokyo, Japan, assignors to Nippon Broadcasting System, Tokyo, Japan
 Filed Feb. 14, 1968, Ser. No. 705,412
 Claims priority, application Japan, Feb. 15, 1967, 42/9277
 Int. Cl. H04b 1/32

U.S. Cl. 325-311

5 Claims

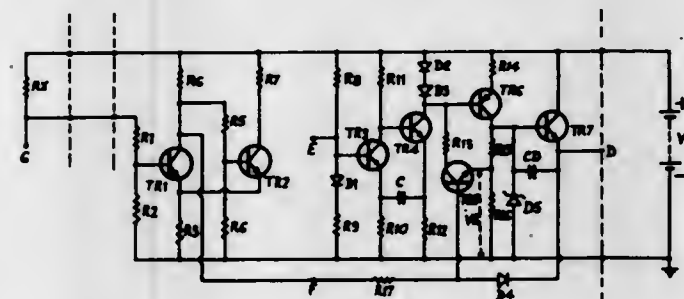


The following specification discloses transmitting and receiving apparatus wherein selected radio programs transmitted from the transmitter have modulated thereon one or more Q signals. The receiver has a first or normal state and a second state wherein it is adapted to receive programs having a selected one of the Q signals modulated thereon. The receiver apparatus is provided with an automatic tuning device for continuously scanning the broadcast band. A carrier wave detector and a Q signal detector are effective to disable the automatic tuning device and to operate a circuit transferring means to switch the receiver from its normal state to its second state, to thus receive the particular program having the Q signal modulated thereon. The receiver returns to its normal state when the Q signal ceases.

3,599,100

BATTERY ECONOMY APPARATUS
 Michael H. E. Ward, Cambridge, England, assignor to Pye Limited, Cambridge, England
 Filed Nov. 18, 1968, Ser. No. 776,730
 Claims priority, application Great Britain, Nov. 30, 1967, 54685/67
 Int. Cl. H04b 1/16
 U.S. Cl. 325-492

8 Claims



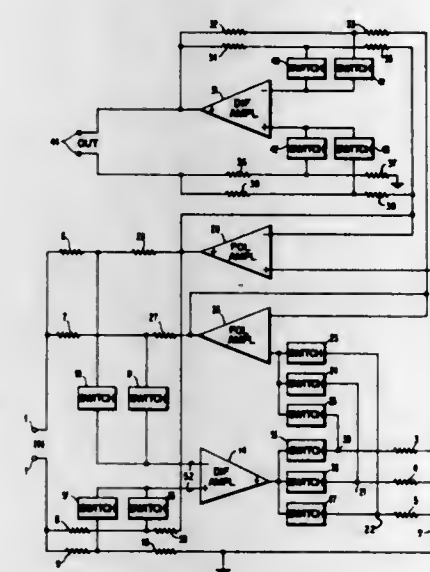
This invention relates to a battery-operated transistor radio receiver incorporating a battery economizer circuit for reducing the power consumption from the battery in the absence of a received signal and including a semiconductor switch device for rendering the direct-current path to the receiver alternately conductive and nonconductive and which is maintained switched on upon receipt of an incoming signal. According to the invention, the semiconductor switch device is so arranged that it also acts as a series-stabilizing element of a substantially constant voltage source derived from the battery and forming the power supply to the receiver. Means are also disclosed for protecting the switch device against damage in the event of a heavy overload on the stabilized voltage supply line to the receiver.

3,599,101

SOLID STATE DIRECT CURRENT TESTER FOR MICROCIRCUITS
 John F. Merrill, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed June 30, 1969, Ser. No. 837,569
 Int. Cl. H03k 17/00

U.S. Cl. 328-97

4 Claims

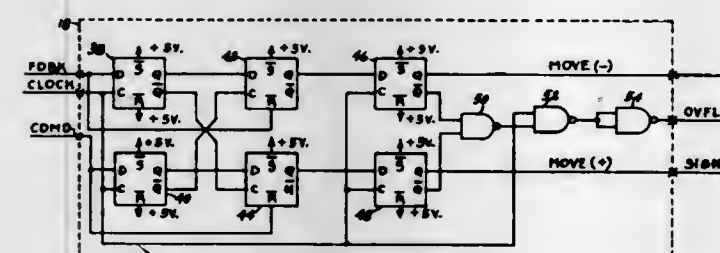


A solid state circuit tester including two difference amplifiers, two follower amplifiers, resistors and solid state switches for providing direct current, direct voltage and load simulation. One of the difference amplifiers is connected in series circuit with a selected one of the resistors and a circuit point to be tested. Negative feedback to the input of the difference amplifier is provided by a selected one of the follower amplifiers which are connected, respectively, to the circuit point to be tested and to the selected resistor. The second difference amplifier is selectively connected to the circuit point to be tested and to the selected resistor for providing an output voltage representing, respectively, the voltage at said circuit point and the current flowing therein.

3,599,102

DIGITAL PHASE DETECTOR
 Gerardus A. Mous, Dunton, England, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
 Filed Jan. 26, 1970, Ser. No. 5,509
 Int. Cl. H03d 13/00
 U.S. Cl. 328-133

3 Claims



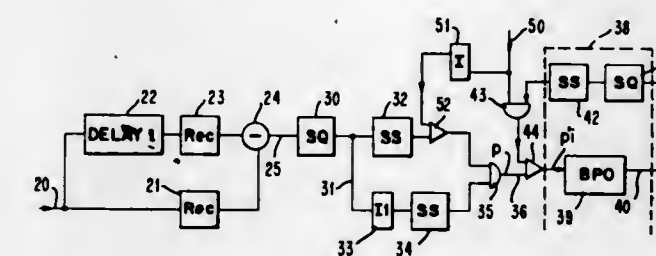
An apparatus for providing a digital output analogous to a phase difference greater than a predetermined magnitude between two asynchronous inputs of the same frequency. After synchronization with an input reference frequency, a pulse width is produced representative of the phase difference between the inputs. The pulse width is reduced by a predetermined magnitude; and a number of pulses is output proportional to the time duration of the new smaller pulse width.

3,599,103

SYNCHRONIZER FOR DATA TRANSMISSION SYSTEM
 Henri J. Nussbaumer, La Gaudie, and Etienne E. Paris, Nice, both of France, assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed July 5, 1968, Ser. No. 742,940
 Claims priority, application France, Nov. 8, 1967, 8819(AM)
 Int. Cl. H03k 5/18

U.S. Cl. 328-135

4 Claims

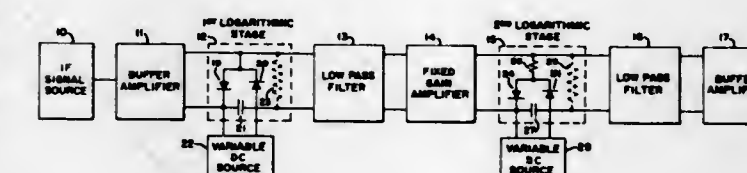


In a transmission system using a signal-phase shift to encode data, the clock for sampling of the signal for data recovery is maintained in phase with the transmitter clock by a detector which indicates the signal positions having the same voltage magnitudes at positions 90° apart in the signal cycle. The sampling clock is controlled to sample the signal at the indicated points thereby enabling other devices to translate the transmitted data.

3,599,104

LOGARITHMIC AMPLIFIER OF EXTENDED DYNAMIC RANGE
 William Peil, North Syracuse, N.Y., and Friedrich Szuran, Zug, Switzerland, assignors to General Electric Company
 Filed Dec. 30, 1968, Ser. No. 787,832
 Int. Cl. H04b 1/04
 U.S. Cl. 328-145

9 Claims



Apparatus is disclosed for logging an input signal over an extended dynamic range. The apparatus has particular application to high frequency, high bandwidth signals. An extended logarithmic range is achieved by using consecutive logarithmic stages, wherein each stage exhibits a linear portion and a logarithmic portion in its transfer characteristic. Each stage is so arranged that successive portions of the dynamic range of the input signal is successively logged. Thus an output signal is generated wherein an extended dynamic range of the input signal is continuously logged. The logging component comprises a semiconductor diode preferably in a symmetrical diode pair configuration.

3,599,105

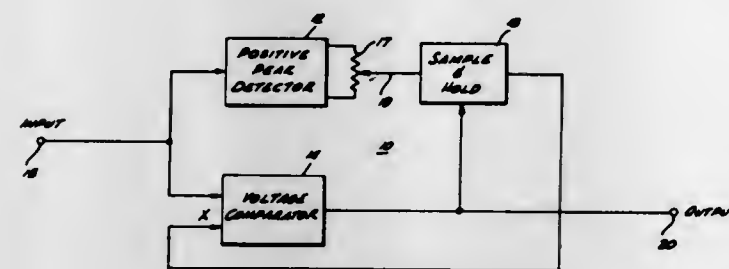
AMPLITUDE DISCRIMINATOR WITH AN ADAPTIVE THRESHOLD
 Donald E. Weir, Harbor City, and Thomas D. Wright, Fountain Valley, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
 Filed July 24, 1969, Ser. No. 846,301
 Int. Cl. H03k 5/00, 17/00

U.S. Cl. 328-146

8 Claims

An amplitude discriminator which includes a peak detector with a fixed selected discharge rate and which charges up to the peak amplitude of a first input signal, and to the peak amplitude of any subsequent input signal, whose peak amplitude exceeds the amplitude of peak detector's output. A selected percentage of the amplitude of the peak detector output is fed to a comparator, which compares the percentage amplitude with the amplitude of each input signal and

provides an output signal of a first binary level only when the amplitude of the input signal is not less than the selected percentage of the peak detector output. An incorporated hold



circuit is triggered by the comparator output signal of the first binary level to maintain the percentage of the amplitude of the peak detector output which is supplied to the comparator constant during the comparison duration.

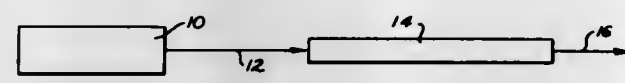
3,599,106

HIGH INTENSITY-HIGH COHERENCE LASER SYSTEM
Elias Snitzer, Wellesley, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Nov. 6, 1968, Ser. No. 773,888
Int. Cl. H01s 3/14

U.S. Cl. 330-4.3

10 Claims



A gas laser oscillator optically coupled to one or more glass laser amplifiers is provided. A high output from the gas laser is optically coupled to the single lowest order mode of the first stage of the glass amplifier. By matching the output of the gas laser to the peak of the fluorescent emission of the glass laser an amplified output results which output has high intensity and high coherence.

3,599,107

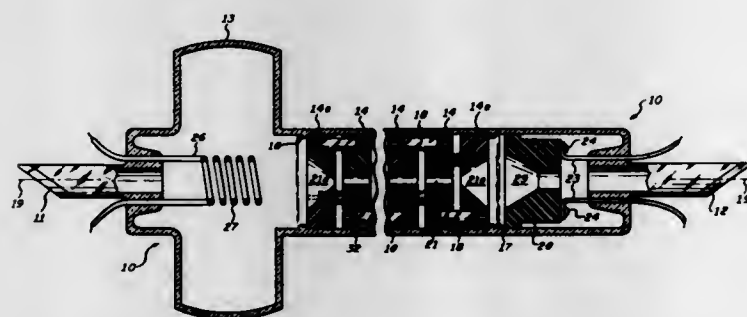
THERMALLY COMPENSATED LASER DISCHARGE STRUCTURE

Karl J. Knudsen, East Rockaway, and Robert J. Gartner, Carle Place, both of, N.Y., assignors to Sperry Rand Corporation

Filed Nov. 25, 1968, Ser. No. 778,529
Int. Cl. H01s 3/05

U.S. Cl. 330-4.3

6 Claims



A gas laser including a quartz insulator tube enclosing a stack of graphite discs having a central aperture forming a laser discharge path wherein the individual discs are spatially separated and electrically insulated from one another by quartz rods inserted into spacer holes disposed about the central aperture, the depth of the spacer holes in the discs intermediate the end discs being constructed and arranged in a manner to compensate for thermally induced variations in the length of the stack.

3,599,108

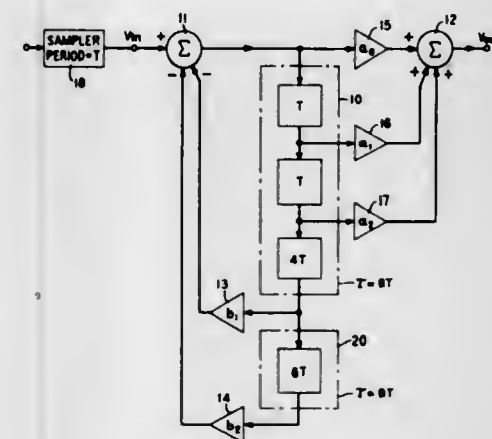
DISCRETE-TIME FILTERING APPARATUS

William A. Gardner, Shutesbury, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 14, 1969, Ser. No. 876,831
Int. Cl. H03h 7/10

U.S. Cl. 333-70 A

10 Claims



In a discrete-time filter, sensitivity to coefficient variation is substantially reduced by using a unit delay interval, for the delay networks of the filter, which is not equal to the sampling interval. Furthermore, in realizing higher order filter systems, a plurality of such filters may be cascaded, each having a delay interval different from that of the other filters. The periods of repetition of the poles of the overall filter function are therefore different, resulting in improved filter performance.

3,599,109

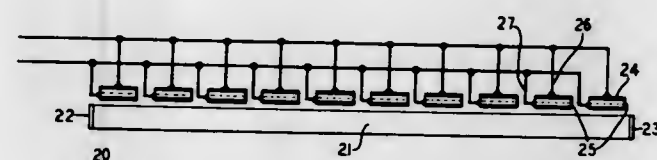
SECOND PHOTON VISIBLE EMITTING PHOSPHOR AND DEVICE UTILIZING SAME

Howard J. Guggenheim, Somerville, and Leo F. Johnson, Bedminster, both of, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Apr. 16, 1969, Ser. No. 816,734
Int. Cl. H01s 3/16

U.S. Cl. 331-94.5

11 Claims



Light output in the visible spectrum results from up conversion of infrared radiation within a composition illustrated by erbium-doped BaYbF₆. The composition may be used as a coating on an infrared-emitting GaAs diode.

3,599,110

SELF-CLOCKING SYSTEM HAVING A VARIABLE FREQUENCY OSCILLATOR LOCKED TO LEADING EDGE OF DATA AND CLOCK

Abraham M. Gindi, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

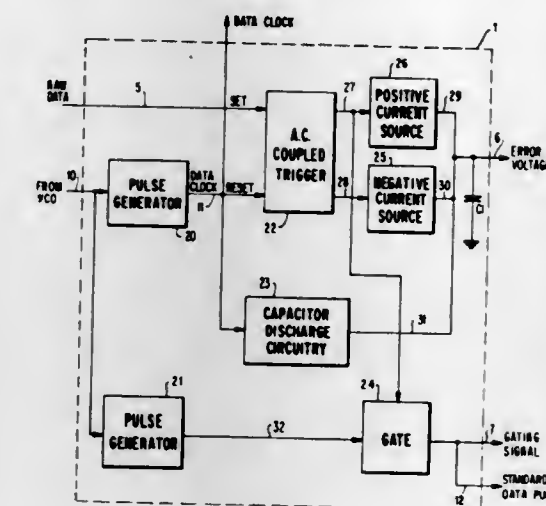
Filed Mar. 31, 1970, Ser. No. 24,310
Int. Cl. H03b 3/06

U.S. Cl. 331-10

6 Claims

The invention relates to a self-clocking system having a variable frequency oscillator which corrects for changes in

frequency and phase between a data signal and a clock signal, such that the data signal will have the same phase



3,599,111

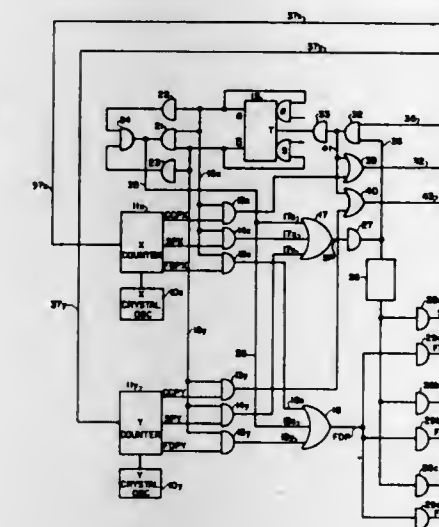
CRYSTAL-OSCILLATOR-CONTROLLED SIGNAL-GENERATING CIRCUIT

Luther C. Butler, Jr., Garden Grove; Thomas W. Grasmehr, Costa Mesa, Calif., and Robert S. Jamieson, assignors to Lorain Products Corporation, Lorain, Ohio

Filed Feb. 5, 1970, Ser. No. 8,770
Int. Cl. H03b 3/00

U.S. Cl. 331-55

23 Claims



A highly reliable signal-generating circuit for providing, at an output, a plurality of phase-coordinated trains of pulses of high-frequency stability despite circuit failures within the signal-generating circuitry. A pair of crystal oscillators cause respective counter circuits to produce responsive sets of synchronism control pulses for regulating the frequency of a plurality of relaxation oscillator circuits. A clock selector circuit samples the output of the relaxation oscillators and, in accordance therewith, determines which counter circuit shall be utilized to supply synchronism control pulses to the relaxation oscillators. Corrective circuitry brings the nonselected counter circuit into synchronism with the selected counter circuit so that the former may be substituted for the latter if the latter fails to properly control the relaxation oscillator circuits. Phase control circuitry assures that necessary corrective activity occurs at times when such activity will not cause transient changes in the frequency of output pulses. Circuitry is provided to suppress the outputs of both counter circuits upon the occurrence of predetermined circuit failures. Under the latter conditions the output is maintained on an emergency basis by the relaxation oscillators.

3,599,112

LASER HAVING A TELESCOPIC SYSTEM RELATED TO THE OUTPUT REFLECTOR TO KEEP THE DIRECTION OF THE OUTPUT BEAM CONSTANT

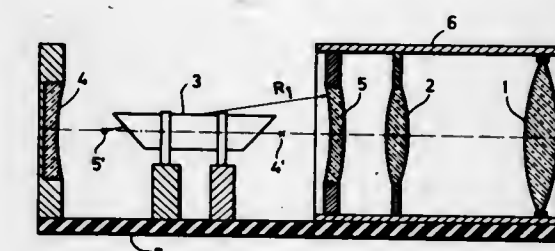
Eberhard Holtz, Aachen, Germany, assignor to Carl Zeiss-Stiftung, Heidenheim on the Brenz, Wurttemberg, Germany

Filed Mar. 27, 1970, Ser. No. 23,414
Claims priority, application Germany, Mar. 28, 1969, P 19 15 890.8

U.S. Cl. 331-94.5

Int. Cl. H01s 3/00

7 Claims



Apparatus for generating a laser beam in a constant spatial direction by a laser tube between a spherical resonator reflector and a spherical semipermeable tune-out reflector, includes a telescopic system, consisting of an objective lens and an ocular lens, rigidly mounted in optical axial alignment with the tune-out reflector. The focal point of the combination of the tune-out reflector and telescopic system coincides with center of curvature of the front surface of the tune-out reflector. In a preferred form the radius of curvature of the surface of the output side of the tune-out reflector is in accordance with the formula $R_2 = (R_1 + d) \times 1 - 7/n$, R_1 being the radius of the front surface, d the thickness at the axis and n the index of refraction of the tune-out reflector. In one form a horizontalizing compensator is included between the ocular and objective lens of the telescopic system. Preferably the tune-out reflector and the telescopic system and the resonator reflector and the laser tube are mounted in operative relation so as to be thermally separated. The telescopic system is preferably afocal.

3,599,113

LASER DEVICE

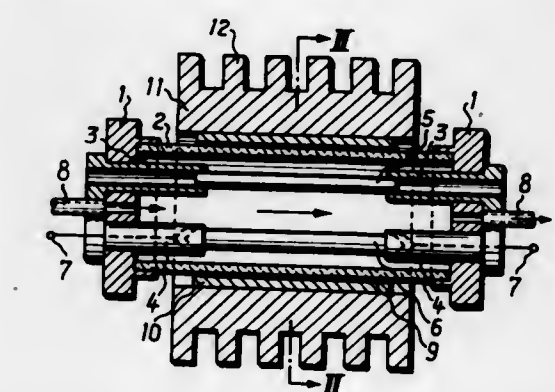
Gregor Cremosnik, Zurich, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland

Filed Apr. 8, 1970, Ser. No. 26,566
Claims priority, application Switzerland, Apr. 25, 1969, 6293/69

U.S. Cl. 331-94.5

Int. Cl. H01s 3/02

6 Claims



A laser device with a glass tube of elliptical cross section. A laser rod and a rod-shaped light source are each located on a line passing through a respective focus of the ellipse parallel to the longitudinal axis of the glass tube. A reflecting film covers the outer surface of the glass tube, and a protective film of thermally conductive material covers the reflective film. A metal body having cooling fins surrounds the outer surface of the protective film. A coolant such as water is passed through the glass tube and the refractive index of the coolant is substantially equal to that of the glass in the tube.

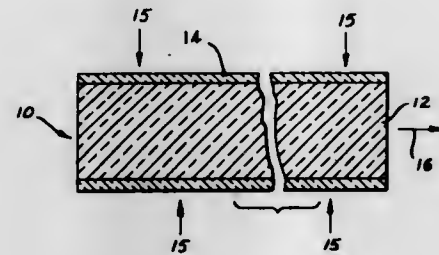
3,599,114

LASER CONSTRUCTIONS

Elias Saitzer, Wellesley, Mass., and Richard F. Woodcock, Woodstock, Conn., assignors to American Optical Corporation, Southbridge, Mass.
Filed Apr. 30, 1968, Ser. No. 725,378
Int. Cl. H01s 3/02

U.S. Cl. 331-94.5

4 Claims



Laser construction employing an elongated core of preselected laser glass including erbium as an active ion therein and a cladding of selectively absorbing material including praseodymium in surrounding relation to said core for providing coherent laser emission substantially at 1.5 microns wavelength and at high operating efficiency.

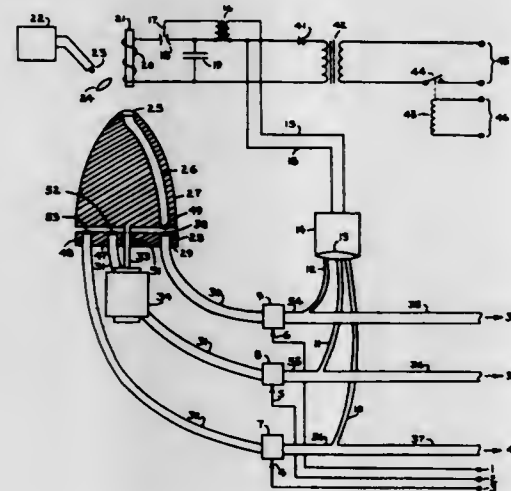
3,599,115

LASER SEQUENCING

Dale L. Beezley, P. O. Box 41, Los Altos, Calif.
Filed July 8, 1968, Ser. No. 743,146
Int. Cl. H01s 3/02

U.S. Cl. 331-94.5

1 Claim



The present invention relates to the time sequencing of laser high energy pulses from a single lasing source into a multiplicity of laser actuated functions. In the embodiment of the invention disclosed, the time sequencing is achieved by the synchronized triggering of the laser source into a continuously rotating fiber optic light guide that sweeps past a manifold of stator light guides leading to the multiplicity of laser actuated functions. The coincidence of the rotating light guide's axis with the axis of a particular stator light guide's axis concurrently with the condition of a light shutter, between the stator and a particular laser actuated function, being open, results in a low-level trigger light from the rotor energizing the trigger circuits of the laser source, this action occurring so rapidly that the laser source lases into the fiber optics, passing higher level laser energy into the laser actuated function designated by the shutter actuation. Thus is achieved any sequencing pattern desired without the acceleration-deceleration forces (hence, unreliability) in a stepping motor, while achieving perfect synchronization and alignment of the rotor light guide with the stator light guides.

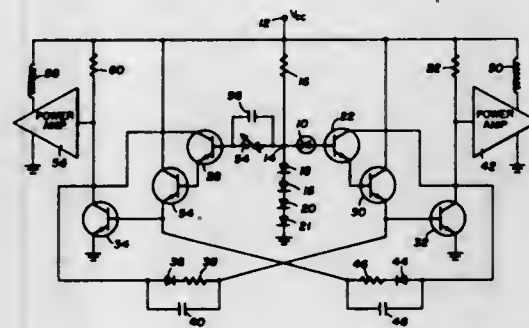
3,599,116

LIGHT SENSITIVE SIGNAL GENERATOR

Hilton W. Spence, Richardson; Ralph O. Bohannon, Richardson, and Edward N. Jeffrey, Plano, all of, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed July 5, 1968, Ser. No. 742,730
Int. Cl. H03k 3/282

U.S. Cl. 331-113 R

4 Claims



A circuit for producing an electrical signal proportional to light intensity having two amplifiers interconnected in a multivibrator configuration. The timing circuit of one amplifier is a standard RC circuit and in the second a photodiode. In one configuration, the amplifiers including associated transistors, resistors and capacitors along with a light sensitive diode are fabricated as an integrated circuit on a monolithic substrate. Because the device responds to light in the visible range which is absorbed close to the incident surface of silicon, the diffused diode must be as thin as possible to obtain the desired high light current. A process for fabricating the light sensitive diode and associated circuitry includes the step of a dilute deposition of phosphorous oxytrichloride for the transistor emitter. Special processing techniques are employed to minimize thermal shock and dislocations.

3,599,117

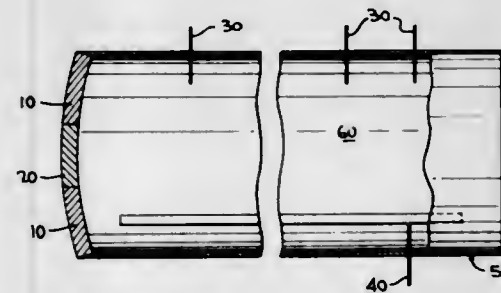
METHOD AND APPARATUS FOR TRACKING AN INVISIBLE GAS LASER BEAM

Colin S. Willett, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Army

Filed May 18, 1970, Ser. No. 38,160
Int. Cl. H01s 3/22

U.S. Cl. 331-94.5

19 Claims



Method and apparatus for tracking an invisible gas laser beam. A superradiant transient-type laser material is added to a gas laser such as the CO₂-far infrared laser and the combination is excited by extremely fast rise-time excitation pulses that induce laser emission in both the CO₂ and the superradiant additive to produce a dual simultaneous emission. If the superradiant material is one whose stimulated emission falls within the visible spectrum, it will provide a visible tracer for the invisible 10.6 micron CO₂-laser beam. The superradiant additive can also be chosen so that its wavelength falls just outside the visible spectrum where good detectors or image intensifiers are available, thus improving greatly the detection means normally available for the CO₂-laser beam alone. A compound mirror can be utilized at one end of the gas laser cavity for enhancing the oscillations of both lasing materials.

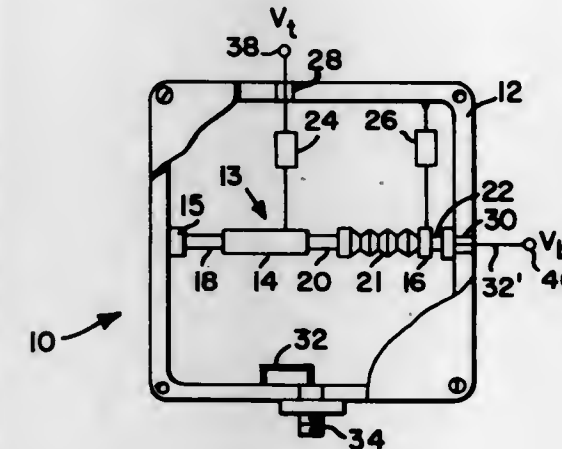
3,599,118

VARACTOR TUNED NEGATIVE ASSISTANCE DIODE MICROWAVE OSCILLATORS

David J. Large, Sunnyvale, Calif., assignor to Kruse-Storke Electronics, Mountain View, Calif.
Filed Oct. 16, 1969, Ser. No. 866,919
Int. Cl. H03b 7/14

U.S. Cl. 331-96

2 Claims



A varactor tuned oscillator circuit comprising an outer conductor of a TEM line and an inner conductor comprised of varactor means in series with an active two terminal solid state power generation device driving the line.

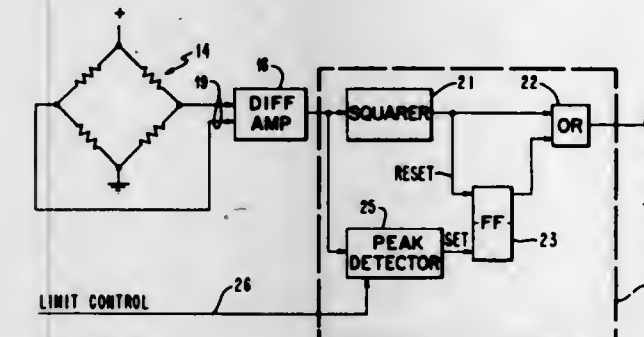
3,599,119

AMPLITUDE CONTROL CIRCUIT FOR RESONATOR OSCILLATOR

William G. Crouse, and Phillip R. Epley, both of Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 29, 1969, Ser. No. 828,906
Int. Cl. H03b 5/36

U.S. Cl. 331-116

3 Claims



An automatic gain control circuit for a resonator, i.e., a mechanical oscillator, formed from a single silicon crystal, can be diffused directly into the crystal. The circuit requires no phase reactive components and the entire oscillatory unit can be fabricated by monolithic circuit techniques.

ERRATUM

For Class 332-23 see:
Patent No. 3,599,237

3,599,120

DOUBLE HELIX MICROWAVE STRUCTURE FOR COUPLING A MICROWAVE MAGNETIC FIELD FROM A FIRST TO A SECOND REGION

Ronald M. Thibault, Franklin Park, and Dale W. Schutt, So. Bend, both of, Ind., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 7, 1969, Ser. No. 864,480
Int. Cl. H01p 5/00

U.S. Cl. 333-24 R

1 Claim

The device comprises a first helix, a second helix and a stem structure interconnecting the first and second helices.

The first helix of the device is inserted into a resonant cavity of a microwave spectrometer to couple the microwave magnetic field therein, via the stem structure, to the second helix



mounted about a sample placed outside the cavity. After interaction of the electromagnetic field with the sample, the second helix reflects the electromagnetic field back into the cavity, via the stem structure and the first helix.

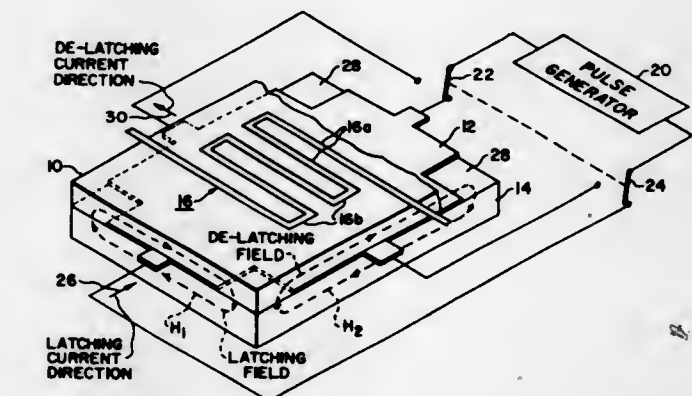
3,599,121

MICROSTRIP LATCHED FERRITE PHASE SHIFTER WHEREIN LATCHING PULSES PASS THROUGH GROUND PLANE

Daniel C. Buck, Hanover, Md., and Aleksander I. Braginski, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 7, 1970, Ser. No. 26,199
Int. Cl. H01p 1/18, 1/32

U.S. Cl. 333-31 R

9 Claims



A latching ferrite phase shifter for microstrip transmission lines compatible with integrated circuits and incorporating two ferrite materials, one of which is sandwiched between the transmission line and a ground plane and the other of which is on the side of the ground plane opposite the transmission line. The ferrite material between the transmission line and the ground plane is designed to control the amount of phase shift produced by the phase shifter; while the other ferrite material on the side of the ground plane opposite the transmission line is isolated from microwave frequencies but forms a magnetic circuit with the first and has a coercive force and saturation magnetization much greater than that of the first to hold it in a magnetized state above its remanent point.

3,599,122

FILTER NETWORK INCLUDING AT LEAST ONE TAPPED ELECTROMAGNETIC DELAY LINE

Peter Leuthold, Erlenbach, Switzerland, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 6, 1969, Ser. No. 863,999
Claims priority, application Switzerland, Oct. 10, 1968, 15170/68

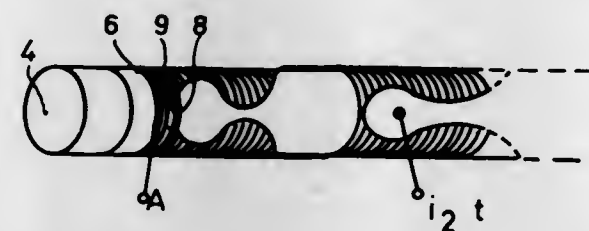
Int. Cl. H03h 7/34

U.S. Cl. 333-29

10 Claims

A delay line for use in a filter has a strip or coil conductor continuously coupled to the conductor. The conductor has a

longitudinally varying impedance such as resistance, capacitance, or inductance. This is achieved by varying the

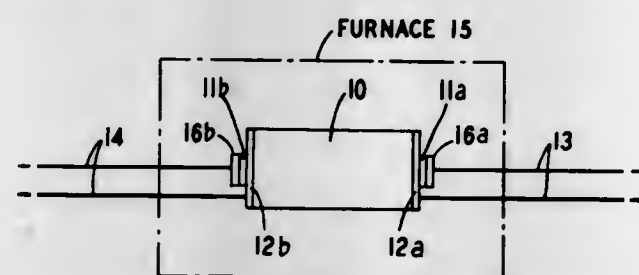


thickness, width, or pitch of the conductor, so that many transfer functions can be synthesized.

3,599,123
HIGH TEMPERATURE ULTRASONIC DEVICE
John T. Krause, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 24, 1969, Ser. No. 860,821
Int. Cl. H03h 7/38

U.S. Cl. 333-30 R

2 Claims

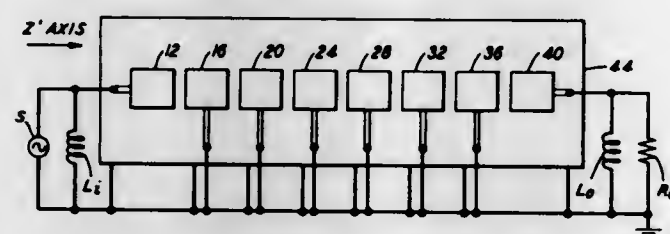


Certain gold alloys containing from about 12 to about 67 percent indium when used in ultrasonic bonds have been found to permit the operation of fused silica delay lines at temperatures of from 200 to 550° C. resulting in at least a 50 percent increase in frequency of acoustic waves transmitted for a given loss level as compared with room temperature operation.

3,599,124
CRYSTAL FILTERS
Warren L. Smith, Allentown, and Roger A. Sykes, Bethlehem, both of, Pa., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Apr. 24, 1968, Ser. No. 723,677
Int. Cl. H03h 9/20, 7/38

U.S. Cl. 333-72

2 Claims

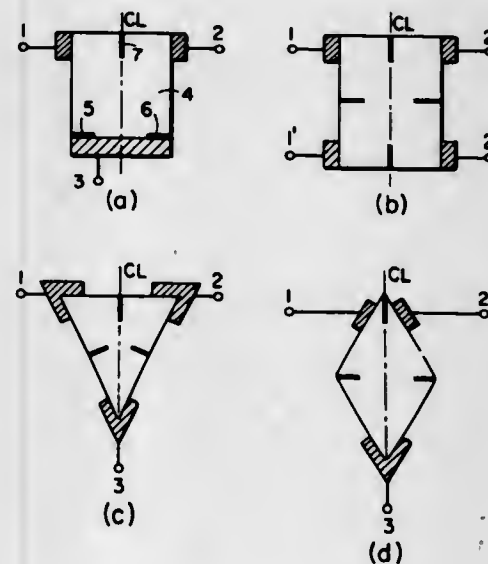


Three or more resonator-forming electrode pairs and a crystal wafer on which they are mounted, form a multiresonator crystal filter with respective inductors connected to two of the pairs. The electrode pairs have masses such as to tune the frequency exhibited by the unconnected resonator to a frequency f_p . The inductors tune the interelectrode capacitances of the connected resonators to the frequency f_p . The masses of electrodes in the connected resonators tune the mechanical resonance of the crystal between the electrodes to the frequency f_p . The electrode spacings in view of their masses are such as to achieve predetermined couplings between resonators.

3,599,125
THIN FILM RESISTANCE ATTENUATOR
Nobuyoshi Yoshida, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Nov. 3, 1969, Ser. No. 873,605
Claims priority, application Japan, Nov. 4, 1968, 43/80842

Int. Cl. H01p 1/22, 7/00
U.S. Cl. 333-81 R

5 Claims

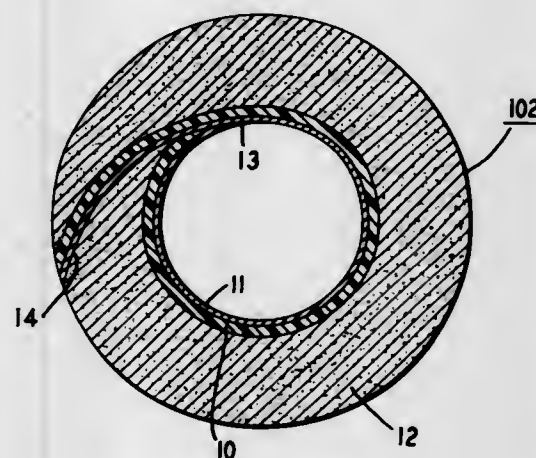


A thin film resistance attenuator comprises more than two band-shaped insulation regions or band-shaped conduction regions selectively provided therein. The lengths of these regions are adjusted whereby the characteristic impedance and attenuation value of the attenuator are independently adjusted.

3,599,126
CIRCULAR WAVEGUIDE FORM FROM A FLEXIBLE RIBBON CARRYING A CONDUCTOR PATTERN
Nicholas Ostfchin, Kinnelon, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.Y.
Filed Oct. 8, 1969, Ser. No. 864,662
Int. Cl. H01p 11/00, 3/12

U.S. Cl. 333-95

4 Claims

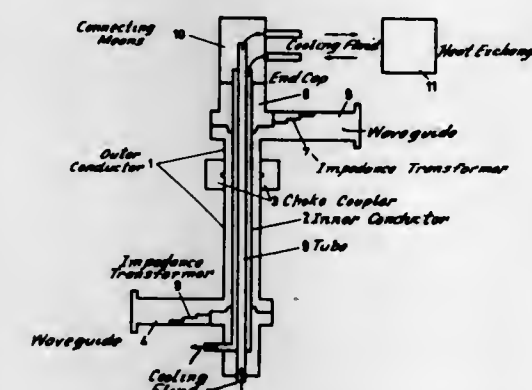


Circular waveguide is formed from a flexible wiring carrier or ribbon. An appropriate conductor pattern is printed on a dielectric ribbon, such as mylar tape, to form the ribbon. The ribbon may also contain layers of lossy material on one side, thereof. The ribbon is continuously wrapped transversely about a mandrel to form a longitudinal seam. The wrapped ribbon is drawn from the mandrel, cured, and encased with a protective sheath. Various types of circular waveguide, such as spaced-ring helix or solid waveguides, each having the option of a dielectric lining, may be fabricated by the same principles.

3,599,127
ROTARY WAVEGUIDE JOINTS HAVING A LIQUID TRANSPORT SYSTEM
Jacobus Willem Hendrik Krijger, Borne, Netherlands, assignor to N.V. Hollandse Signaalapparaten, Hengelo, Overijssel, Netherlands
Filed Mar. 17, 1969, Ser. No. 807,826
Claims priority, application Netherlands, Mar. 20, 1968, 6803914

Int. Cl. H01p 1/06, 1/30; H01b 7/34
U.S. Cl. 333-98 TN

5 Claims

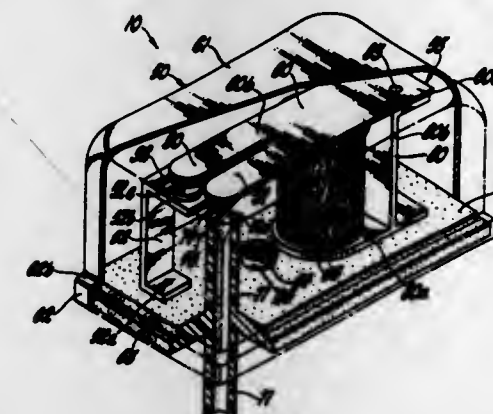


The invention relates to a rotary waveguide joint comprising a coaxial line having an outer conductor divided into a fixed lower part and an upper part which is rotatable with respect to said lower part which is rotatable with respect to said lower part about a fixed hollow inner conductor, a choke-coupler and two rectangular waveguides, which are connected to the end portion of said upper and lower part respectively in a direction at right angles to said coaxial line. The inner conductor contains a tube through which a cooling liquid is forced upwards, while the cooling liquid is carried off downwards through the space between the inner conductor and said tube. Said cooling liquid is conveyed to a heat exchanger located on a rotating platform.

3,599,128
CONTROL MECHANISM FOR SIMULTANEOUSLY CONTROLLING OPERATION OF FLUID AND ELECTRICALLY OPERATED DEVICES
Jonathan N. Fruth, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed June 18, 1969, Ser. No. 834,471
Int. Cl. H01h 9/00

U.S. Cl. 335-1

6 Claims

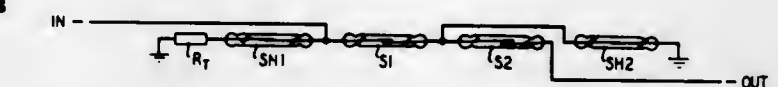


In a preferred form, a control mechanism for simultaneously controlling operation of an electrically driven blower and a pneumatically actuatable air vent for controlling admission of fresh air to the blower of a comfort control system of an automotive vehicle is disclosed. The control mechanism comprises an electromagnetic relay means carried by a housing and which includes a bifurcated armature which functions both as a switch and a valve actuator for controlling energization of the electrically driven blower and for controlling operation of the pneumatically actuatable fresh air vent control.

3,599,129
COAXIAL CABLE SWITCH
Frank J. Arvey, Scotch Plains, and Robert A. Sutton, Fanwood, both of, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Nov. 20, 1969, Ser. No. 878,521
Int. Cl. H01h 51/27

U.S. Cl. 335-5

5 Claims



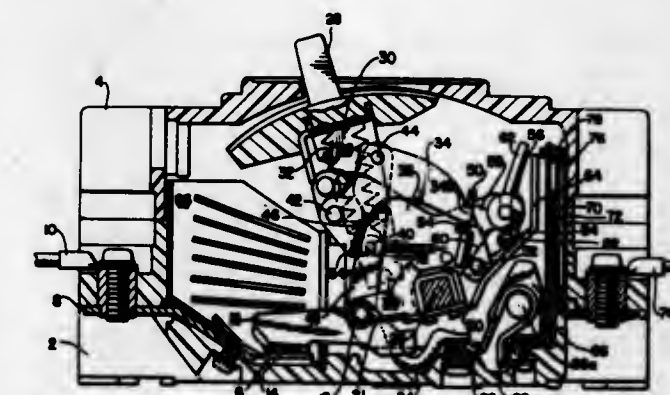
A high isolation coaxial cable switch is formed by employing a pair of serially connected sealed reed switches with the conducting path between the switches connectable to ground through a third reed switch. The serial switches are make contacts and the ground path switch is a break contact. All switches are operated simultaneously.

3,599,130
CIRCUIT INTERRUPTER
Wasaburo Mural, and Kiyoshi Hiroi, both of Osaka, Japan, assignors to Terasaki Denki Sangyo, Kabushiki, Kaisha, Osaka, Japan
Filed July 10, 1969, Ser. No. 840,728
Claims priority, application Japan, July 15, 1968, 43/48,999

U.S. Cl. 335-43

Int. Cl. H01h 73/48

1 Claim



A circuit interrupter comprises a trip plate including a stop for limiting the stroke of a movable contact arm. Upon an excessive current flow the interrupter a bimetal and/or an electromagnet causes the trip plate to be moved in such a direction that the movable contact is separated from the stationary contact by a distance greater than that provided by the normal opening operation.

3,599,131
TIMING DEVICE WITH PNEUMATIC DELAY MEANS
Robert M. Flanagan, and Glenn W. Johnson, Jr., both of Summit, N.J., assignors to Amerace Ena Corporation, New York, N.Y.
Filed Feb. 26, 1969, Ser. No. 802,546
Int. Cl. H01h 7/03

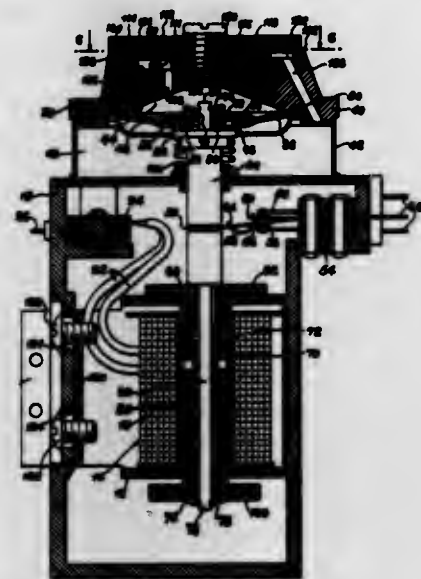
U.S. Cl. 335-61

14 Claims

A pneumatic timing device in which a timing head includes an air chamber, a diaphragm is movable relative to the timing head to effect a change in the volume of the air chamber and establish a flow of air into or out of the air chamber, a timing member is coupled by movement with the diaphragm at a rate determined by the rate of flow of air to or from the air chamber, a passage in the timing said head communicates with the air chamber for conducting the flow of air, a body of porous material is in the passage for throttling the flow to a predetermined maximum rate of flow, the body of porous material having a surface of prescribed area through which the airflow passes, and a shutter is in close engagement with the surface of the body of porous material and includes a

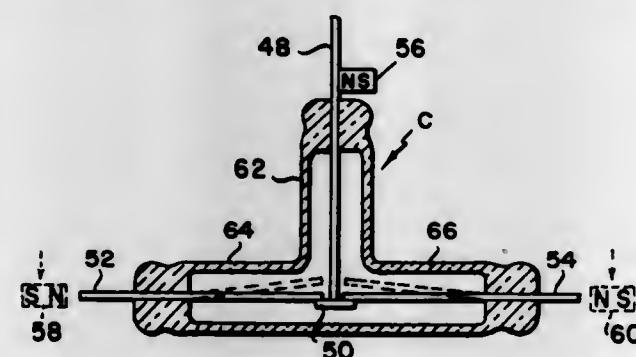
relatively nonporous member selectively movable along the surface relative to the body to close off at least portions of

side of an air gap without sacrificing core diameter and coil winding relationship.



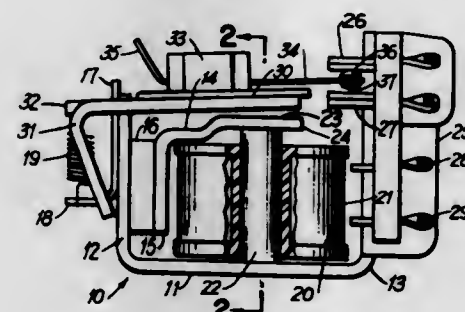
the area to the airflow for selectively varying the rate of the flow to regulate the rate of movement of the timing member.

3,599,132
PERMANENTLY POLARIZED REED SWITCH
Edward Shlesinger, Jr., 3906 Bruce Lane, Annandale, Va.
Continuation-in-part of application Ser. No. 669,614, Sept. 21, 1967, now Patent No. 3,447,105, dated May 27, 1969.
This application Aug. 2, 1968, Ser. No. 749,737
Int. Cl. H01h 51/22, 51/28
U.S. Cl. 335-153



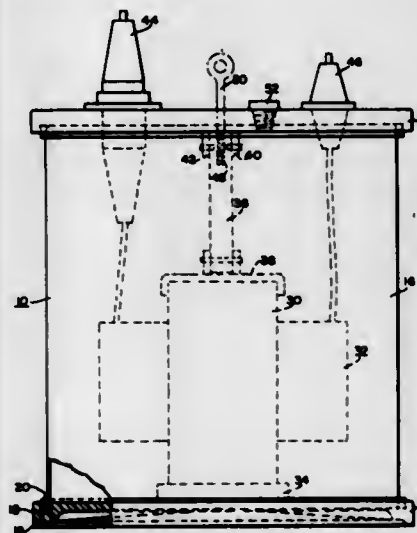
A reed switch comprising a permanently polarized reed; at least two temporarily polarizable reeds; one of the polarizable reeds which when not polarized being in contact with the permanent polarized reed; and the one of said polarizable reeds when polarized being out of contact with the permanent polarized reed.

3,599,133
LATCH RELAY MOTOR STRUCTURE
Walter J. Richert, Princeton, Ind., assignor to AMF Incorporated
Filed Mar. 10, 1970, Ser. No. 18,054
Int. Cl. H01f 7/08
U.S. Cl. 335-230



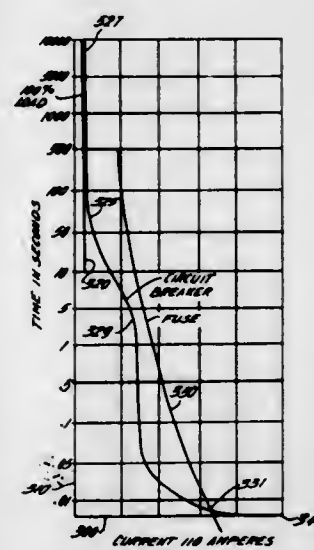
A clapper-type magnetic latch relay with electromagnetic operating means having a remanent magnet core with one end surface coupled with an optimum pole face area on one

3,599,134
NONMETALLIC CORROSION-RESISTANT ENCLOSURE FOR ELECTRICAL APPARATUS
Dudley L. Galloway, Sharpsville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 25, 1970, Ser. No. 22,477
Int. Cl. H01f 27/02
U.S. Cl. 336-90



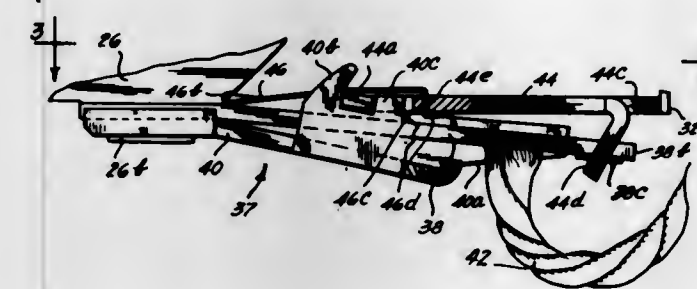
A nonmetallic corrosion-resistant enclosure for electrical apparatus comprising an outer housing or casing made from rubber or plastic material which will not deteriorate or corrode and develop leaks when exposed for an extensive period of time in a high moisture content environment.

3,599,135
CIRCUIT PROTECTION ARRANGEMENT INCLUDING COORDINATED OPERATION OF A CIRCUIT BREAKER AND A CURRENT LIMITING FUSE
Carl E. Gryetko, Haddon Heights, N.J., assignor to I T E Imperial Corporation, Philadelphia, Pa.
Continuation of application Ser. No. 647,999, June 22, 1967, now abandoned. This application Jan. 12, 1970, Ser. No. 1,958
Int. Cl. H01h 73/50, 85/54
U.S. Cl. 337-6



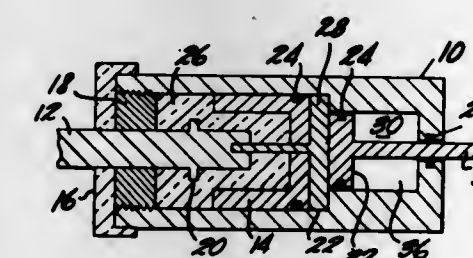
A circuit protective arrangement which utilizes a circuit breaker and current limiting fuse to achieve reliable current interruption when connected to a source having an available current in excess of the rated current interruption rating of the circuit breaker. The source voltage is above the rated voltage of the circuit breaker device, as well as above the rated voltage of the fuse. A compact unitized structure for the circuit breaker and current limiting fuse is also shown for both single phase and multiphase installations.

3,599,136
MOLDED-CASE CIRCUIT BREAKER HAVING IMPROVED OVERCURRENT RELEASABLE LATCH
John DeTorre, and Henry S. Wingard, both of Albemarle, N.C., assignors to Federal Pacific Electric Company
Filed July 28, 1969, Ser. No. 845,274
Int. Cl. H01h 71/16, 71/64; H01b 75/12
U.S. Cl. 337-71



A circuit breaker of the molded case type incorporating an overcurrent releasable latch including a low-profile armature return spring which is better able to withstand hot arc-generated gasses without damage.

3,599,137
CURRENT LIMITING DEVICE
Toshio Ito; Toshio Miyamoto, and Yuichi Wada, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed July 1, 1969, Ser. No. 838,238
Claims priority, application Japan, July 5, 1968, July 5, 1968, 43/46884; 43/46887
Int. Cl. H01h 85/06
U.S. Cl. 337-21

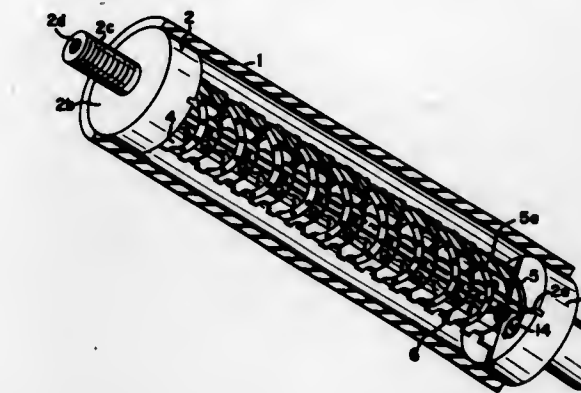


Two opposite electrodes electrically interconnected through a current limiting material are united into a unitary structure with a solid insulation interposed between them. A flow of overcurrent through the electrodes causes the material to evaporate to isolate the electrodes from each other. Simultaneously, a portion of the current limiting material disposed on that side of one electrode remote from the other electrode evaporates to move a piston for a compressed gas-filled cylinder. Alternatively, the unitary structure can act as the piston. After the material has been restored to its original solid or liquid state, the moved parts automatically return to their original positions.

3,599,138
HIGH-VOLTAGE FUSE
Frederick J. Kozacka, South Hampton, N.H., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed Nov. 13, 1969, Ser. No. 876,445
Int. Cl. H01h 85/08, 85/14
U.S. Cl. 337-159

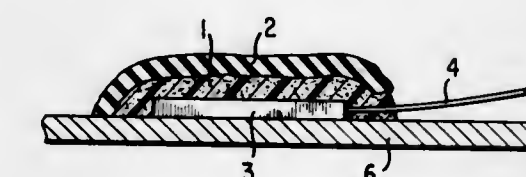
A high voltage fuse with a helically wound fuse link includes an arc-extinguishing filler of quartz sand and a low thermal conductivity arc-extinguishing filler, both fillers having an interface. The low thermal conductivity filler is so densely packed as to preclude mixing of the fillers. The helically wound fuse link is supported by insulating plates parallel to the axis of the fuse casing having axially outer edges en-

gaging grooves formed in the axially inner end surfaces of a pair of terminal plugs closing the axially outer ends of the



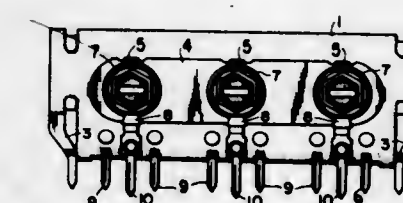
fuse casing. The terminal plugs are provided on the outer end surfaces thereof with coaxial multifunction projections.

3,599,139
STRAIN GAGE PROTECTIVE COVER
Malcolm E. Low, Annisquam, Mass., assignor to BLH Electronics, Inc., Waltham, Mass.
Filed Mar. 14, 1969, Ser. No. 807,169
Int. Cl. H01c 1/02
U.S. Cl. 338-2



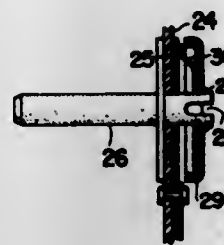
A strain gage covering, a method for waterproofing, salt-proofing and protecting strain gages from environmental stresses, and a protected strain gage assembly wherein a strain gage is covered by a plural layered laminated having a first layer of a rubberlike elastomer, characterized by a modulus of elasticity of less than 10⁷ p.s.i., adhesively bound to a second layer of a soft, compliant, moldable hydrocarbon resin which is sag free and resilient at temperatures of at least 180° F.

3,599,140
VARIABLE RESISTOR DEVICE PROVIDED WITH A PLURALITY OF VARIABLE RESISTORS
Katsumi Ichikawa; Heiroke Tanaka, and Katsuyoshi Onda, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 1, 1969, Ser. No. 846,905
Claims priority, application Japan, Aug. 6, 1968, Aug. 6, 1968, Aug. 6, 1968, Aug. 6, 1968, Oct. 17, 1968, 43/68110; 43/68111; 43/68112; 43/68116; 43/92303
Int. Cl. H01c 9/02
U.S. Cl. 338-128

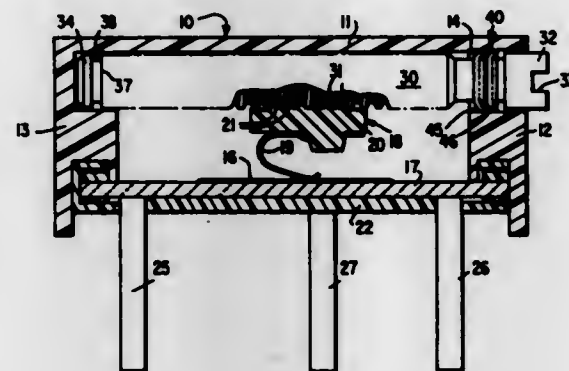


A semifixed, gang and print type variable resistor which is economical and used mainly with a color television set at its

reverse side and in which a plurality of variable resistor elements can readily be fitted on a single insulating base plate.



3,599,141
VARIABLE RESISTOR HAVING MEANS FOR SEALING BETWEEN A LEAD SCREW AND THE HOUSING
 Bradrick A. Hildreth, Huntington Beach, and Robert D. Hill, Jr., West Covina, both of, Calif., assignors to Spectrol Electronics Corporation, City of Industry, Calif.
 Filed July 7, 1969, Ser. No. 839,348
 Int. Cl. H01c 9/02
 U.S. Cl. 338—180



A potentiometer having a closed casing in which is disposed a resistance element, a wiper element, and a helically threaded, axially extending lead screw member. A plurality of frustoconical, radially extending, integral, resilient plastic sealing ribs are provided about a reduced diameter portion of the lead screw. A cylindrical aperture is formed in one end wall of the housing having a cylindrical interior surface against which the annular sealing ribs are resiliently engaged and deformed for inhibiting the entrance of foreign matter into the housing.

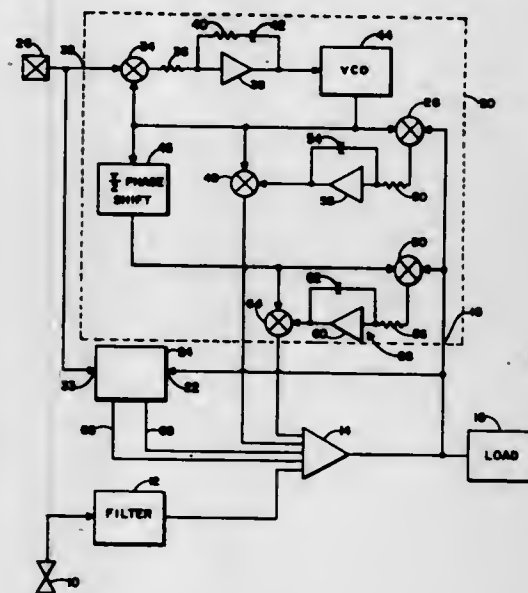
ERRATA

For Classes 339—4, 339—125 see:
 Patent Nos. 3,599,164 thru 3,599,174

3,599,142
CONTROL APPARATUS
 Stanley Rust, Seattle, Wash., assignor to Honeywell, Inc., Minneapolis, Minn.
 Filed May 28, 1969, Ser. No. 828,677
 Int. Cl. H04b 1/10
 U.S. Cl. 340—5 R

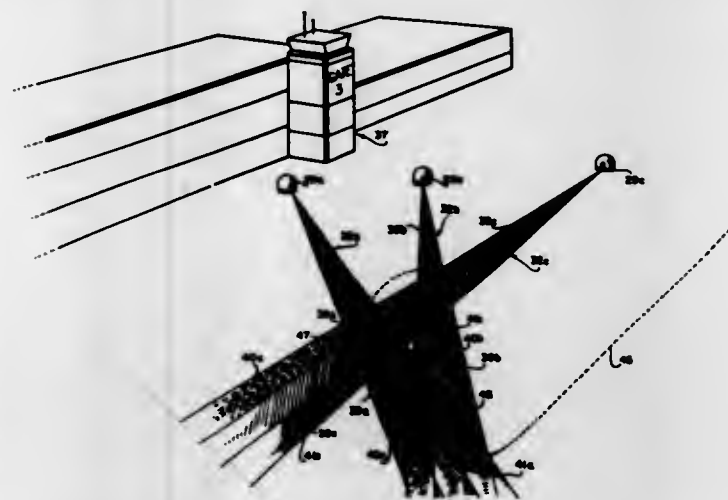
A method and apparatus for providing subtraction of self-generated interference signals through the use of an interference sensor mounted on board a vessel receiving sonar signals. One or more phase lock loops are used to follow each particular self-generated frequency signal. The phase

lock loops incorporate amplitude and phase scaling to account for the continual change in both amplitude and phase



of a signal between the time of generation and the time of reception by a sonar receiver.

3,599,143
VISUAL SURFACE GUIDANCE APPARATUS
 Albert D. Brown, Atlanta, Ga., and William H. Tygart, Marietta, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
 Filed Feb. 7, 1968, Ser. No. 703,589
 Int. Cl. F21q 3/00
 U.S. Cl. 340—26

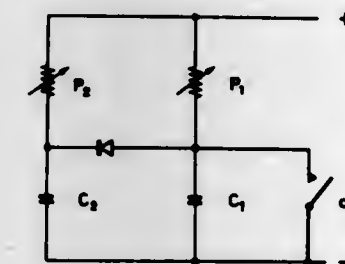


Guidance apparatus providing lateral and longitudinal visual guidance information to the operator of an aircraft or other vehicle to facilitate vehicular surface maneuvering. A light projection apparatus and a filter provide several multicolor laterally disposed beam segments to provide course guidance and also provide a longitudinal guidance beam portion positioned either above or below the laterally disposed segments to be undershot or overshoot by the line of vision of the vehicle operator.

3,599,144
GREEN EXTENSION CIRCUIT FOR TRAFFIC CONTROL
 Jean Dressayre, Orsay, France, assignor to U. S. Philips Corporation, New York, N.Y.
 Filed Dec. 26, 1968, Ser. No. 787,046
 Claims priority, application France, Dec. 21, 1967, 133350
 Int. Cl. G08g 1/08; H02J 5/00
 U.S. Cl. 340—31

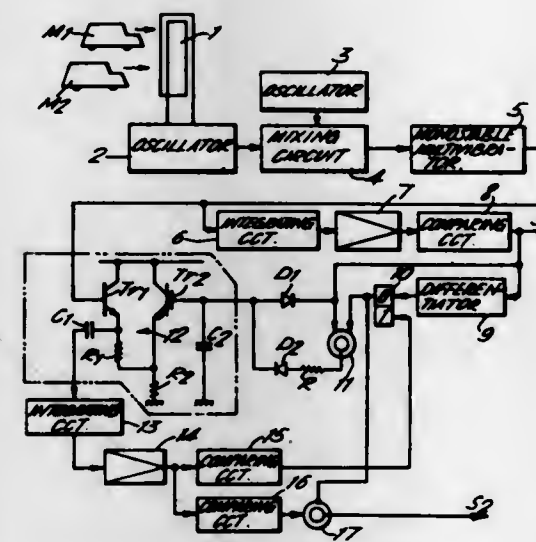
A self-adaptive traffic light control system for varying the green light period as a function of the traffic volume. The system employs a first resistor and a first capacitor serially

connected across a DC voltage source and a second resistor and a second capacitor also serially connected across said source. The first series circuit has a lower RC time constant than the second series circuit. The junction points of each series circuit are interconnected by a diode. The first capacitor is discharged at the start of a green light period and is rapidly



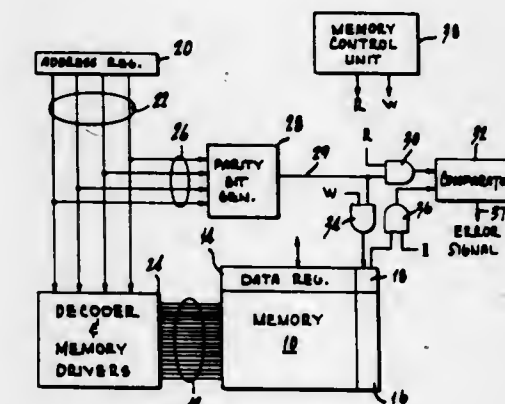
discharged each time a vehicle passes a sensing device in the road. The second capacitor is charged at a low constant rate which is not changed for high volume traffic. When the traffic is light, the first capacitor is allowed to charge up rapidly and, by means of the diode, acts upon the second capacitor to reduce its charge time and thus reduce the total green light period.

3,599,145
SINGLE ELEMENT PLURAL LANE DETECTOR
 Hironobu Ando, Kyoto, and Tamotsu Sugimoto, Osaka, both of, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan
 Filed July 29, 1968, Ser. No. 748,246
 Claims priority, application Japan, Aug. 17, 1967, 42-52834
 Int. Cl. G08g 1/01
 U.S. Cl. 340—38 L



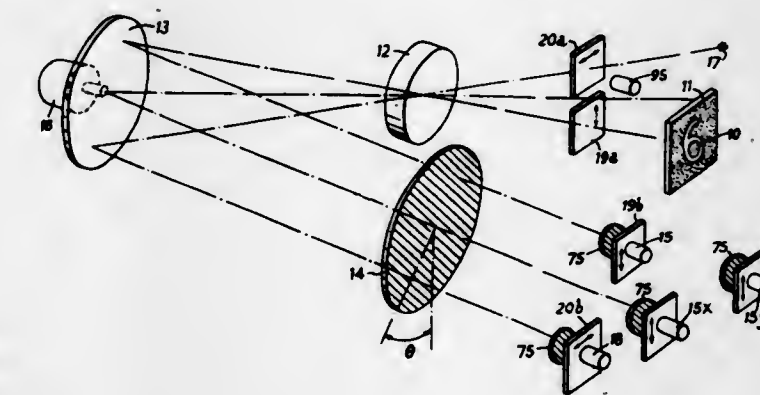
An apparatus for simultaneously detecting vehicles on a plurality of lanes of a street with a single detecting element. The single detecting element is dimensioned to extend across a plurality of lanes of a street and is included in an oscillating circuit, the frequency of which is changed by the presence of a vehicle within the field of the detecting element. When a first vehicle comes into the detecting field, an electrical signal corresponding to the change caused by the vehicle in the frequency is produced to indicate the detection of the first vehicle. At the same time, the value of the electrical signal is memorized. Under this condition, when a second vehicle is detected along with the first, a greater change occurs in the frequency and a corresponding electrical signal is produced. This signal is then compared with the memorized signal to produce an electrical signal corresponding to the difference therebetween, by which the detection of simultaneous presence of the two vehicles is indicated.

3,599,146
MEMORY ADDRESS FAILURE DETECTION
 Joseph A. Weisbecker, Cherry Hill, N.J., assignor to RCA Corporation
 Filed Apr. 19, 1968, Ser. No. 722,588
 Int. Cl. G11c 29/00; G06k 5/00
 U.S. Cl. 340—146.1



A system for detecting errors in the operation of a random access memory which is particularly useful in memories employing semiconductor decoder elements and semiconductor memory elements. Each word storage location in the memory contains a memory address parity bit for the address of that word storage location. When a word storage location is accessed for readout, the parity bit of the memory address employed is compared with the memory address parity bit stored in the word location. If the bits are different, an error signal is generated.

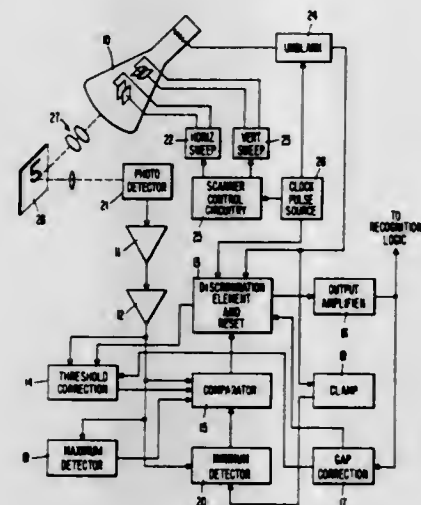
3,599,147
CHARACTER RECOGNITION SYSTEMS AND APPARATUS
 Gordon Leonard Rogers, Ian Leifer, and Noel W. F. Stephens, all of Gosta Green, Birmingham, England, assignors to National Research Development Corporation
 Filed Sept. 11, 1968, Ser. No. 758,969
 Claims priority, application Great Britain, Sept. 12, 1967, Mar. 26, 1968, 41,641/67; 41,443/68
 Int. Cl. G06r 9/08
 U.S. Cl. 340—146.3



Method of and apparatus for effecting recognition of patterns, especially written or printed characters in which a representation of the pattern in incoherent light, moving electrons or other charged particles is caused to cast shadows of a grating on to a plurality of photoelectric or equivalent sensing devices thereby to derive a number of electric signals representing respectively different Fourier coefficients of one or more spatial frequency components of the pattern and in which such derived signals are comparatively examined in logical circuit means to derive an output signal identifying the pattern.

3,599,148
QUANTIZING CIRCUIT CORRECTION FOR CHARACTER RECOGNITION SYSTEMS
 David M. Stern, Merion Station, Pa., assignor to Burroughs Corporation, Detroit, Mich.
 Filed Apr. 22, 1969, Ser. No. 818,285
 Int. Cl. G06k 9/00
 U.S. Cl. 340-146.3 R

8 Claims



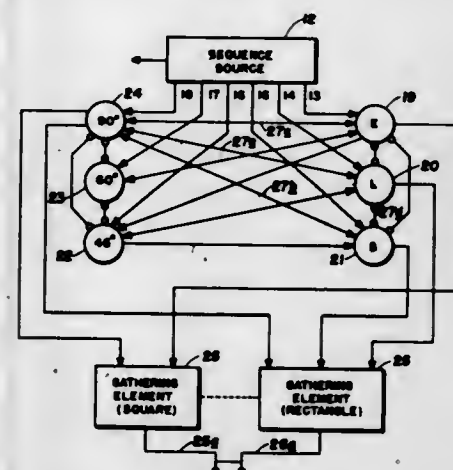
This disclosure relates to a character recognition system having a quantizing circuit which employs a tunnel diode as a discrimination element. This element is adapted to be triggered to produce an output pulse in response to a varying voltage signal generated during the scan of the character. Means are provided to adjust the bias of the discrimination element so that it may have either two stable states or one stable state respectively corresponding to a storage mode and a tracking mode. The condition determining the mode of operation of the discrimination element is the output signal of the quantizing circuit such that, if the circuit has produced an output signal indicating the detection of a portion of a character during the previous clock period, then, the discrimination element will be placed in the tracking mode during the current clock period. If the circuit has produced no output signal during the previous clock period, then, the discrimination element will be placed in the storage mode. Means are provided to vary the threshold level at which the discrimination element is triggered which variation is a function of the previous maximum and minimum input signals received and also to shift that threshold level to detect the incoming signals received during the character scan that rise above a preset minimum value. In this manner, the circuit can self-adjust its threshold level in accordance with the degree of difference in shade between the scanned character and its background, the circuit can produce an output pulse of sufficient width for character recognition even though the portion of the character scanned is a very thin line, and the circuit can respond to the detection of a small gap between two relatively heavy lines in the character being scanned.

3,599,149
SEQUENCE RECOGNITION SYSTEM
 Carroll T. Pardoe, Ellicott City, Md., assignor to The United States of America as represented by the Secretary of the Navy
 Filed Apr. 9, 1969, Ser. No. 814,561
 Int. Cl. G06k 9/00, 11/02
 U.S. Cl. 340-146.3 S

13 Claims

An incoming sequence of events is detected by the average excitability level of event recognizing circuit elements which are interconnected so as to form one closed loop for each sequence in the system repertoire. As each recognizer element in a particular loop is triggered by an incoming event, it increases or decreases the excitability of the other recognizer elements in the system depending upon whether or not the other recognizer elements may be triggered next for some particular sequence. A plurality of gathering circuit elements are provided and each is assigned to a different sequence in

the system repertoire and each has inputs from the event recognizer elements corresponding to the events in the associated sequence. Each gathering element generates an analog output signal indicating whether or not all of its inputs have been excited during the preceding N command inputs and, if so, what was the average level of excitation. The out-



put analog voltages from all of the gathering elements are then compared against one another to produce an output signal indicating which of the gathering elements has produced the largest magnitude analog output signal; i.e., which sequence in the system repertoire is nearest to the incoming sequence of events under investigation.

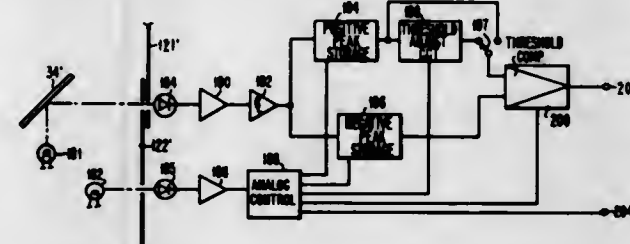
3,599,150
STABILIZED ALUMINUM HYDROXIDE SUSPENSIONS
 Joseph George Feinberg, London; Alan Philip Fosker, Buckinghamshire, and Patrick James Mill, Buckinghamshire, all of, England, assignors to Miles Laboratories Incorporated, Elkhart, Ind.
 Filed Aug. 1, 1969, Ser. No. 846,966
 Int. Cl. A61k 23/00; C12k 5/00
 U.S. Cl. 424-88

9 Claims

A freeze stable suspension of an aluminum hydroxide gel having an antibody-producing or immunizing substance adsorbed thereon comprising a suspension of said gel and the addition thereto of certain polyhydric alcohols such as glycerol, mannitol or sorbitol or water-soluble polymers such as polyvinylpyrrolidone or dextran.

3,599,151
CHARACTER RECOGNITION PHOTOSENSING APPARATUS HAVING A THRESHOLD COMPARATOR CIRCUIT
 Jerome Danforth Harr, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed Dec. 29, 1969, Ser. No. 888,628
 Int. Cl. G06k 9/00
 U.S. Cl. 340-146.3 A

8 Claims

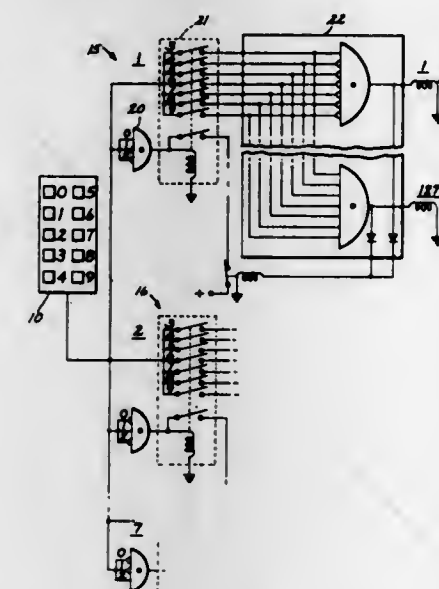


The recognition of human and machine readable characters of a family of type of which each character has one or more narrow line segments on a contrasting background and is enhanced by a positive and negative peaked level photosensing arrangement. The sensing apparatus comprises an optoelectronic circuitry for interpreting optomechanical gated scanning of short straight line segments in seriatim. It produces an electric representation in response to the presence and absence of a character line segment in the image. A photosensitive element is arranged to receive light

from an area on a document. The highest and lowest light values are translated in a reference level clamping circuit followed by positive and negative peak storage circuits. A threshold comparator circuit is individually coupled to the positive and negative peak storage circuits for delivering potential levels of two values indicating marks or spaces (the absence of marks). Preferably, threshold adjusting circuitry is interposed between one of the peak storage circuits and the threshold comparator circuit. Dynamic adjusting thresholding circuitry is included. Analog control circuitry is coupled to the storage and thresholding circuitry for timing and controlling the overall system by timing pulses conventionally obtained.

3,599,152
METHOD AND APPARATUS FOR DISTRIBUTING DRUGS AND THE LIKE
 Robert L. Williams, 4354 Meadowwood, Rapid City, S. Dak.
 Filed Nov. 15, 1968, Ser. No. 776,200
 Int. Cl. H03k 13/00; H04q 9/00
 U.S. Cl. 340-147 R

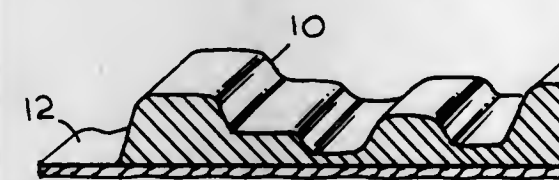
3 Claims



Command means located at a central pharmacy, including a touch-tone or rotary dial phone or some other signal transmitting device, operatively connected to a plurality of remotely positioned dispensing stations, such as cabinets located at patients' bedsides or at centrally located nursing stations, the remote dispensing stations each containing a plurality of drugs or the like and including dispensing means and signal accepting means, such as commercially available decoders, for accepting and identifying signals from the command means to dispense the correct drug at the correct station upon the receipt of a signal therefor.

3,599,153
MAGNETIC AUTHENTICATION OF SECURITY DOCUMENTS HAVING VARYING INK LEVEL CODING
 Jerry Lewis, Mahwah, N.J., and Raymond J. Zablocki, Garden City, N.Y., assignors to United States Banknote Corporation, New York, N.Y.
 Filed May 23, 1969, Ser. No. 827,403
 Int. Cl. H04q 3/00
 U.S. Cl. 340-149

9 Claims

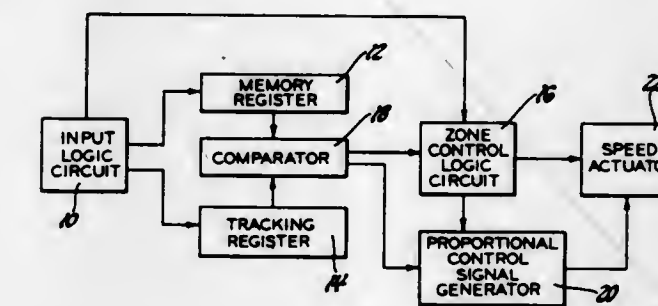


A document authentication technique is provided wherein at some predetermined region on the surface of said document there is printed a portion of an image in magnetic ink.

The magnetic ink is deposited with predetermined variation of layer thicknesses, as is accomplished using the intaglio process. For readout, the magnetic ink is saturated by a constant magnetic field, and then passed under a magnetic reading head, which produces as its output, a signal having a unique multilevel waveform which is readily associated with the multilevels of magnetic ink which are deposited on the document. This unique waveform can be identified by comparison with a standard.

3,599,154
DIGITAL SPEED CONTROL SYSTEM
 John A. Carol, Jr., Flint; Charles S. Cardani, Grand Blanc, and Arthur J. Schoendorf, Flint, all of, Mich., assignors to General Motors Corporation, Detroit, Mich.
 Filed Mar. 19, 1970, Ser. No. 21,076
 Int. Cl. G05d 13/00
 U.S. Cl. 340-172.5

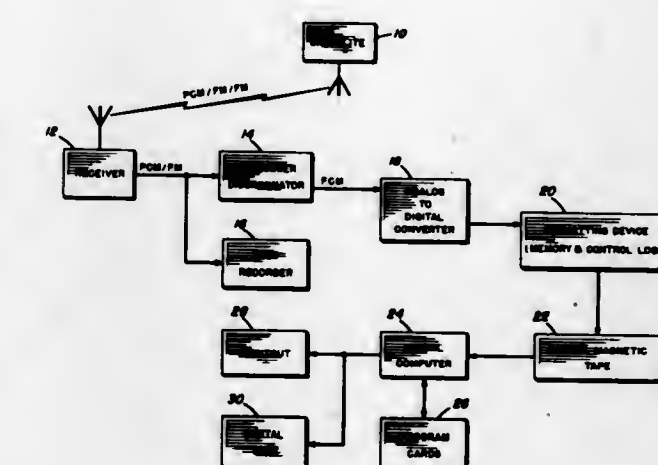
7 Claims



A controlled apparatus digital speed control system employing a memory register for counting a series of pulses having a frequency corresponding to the speed of the controlled apparatus for a specified duration of time and a tracking register for periodically counting the series of pulses for the same specified duration of time. A comparator compares the number of pulses counted in the memory register with the number of pulses counted in the tracking register and generates outputs which are utilized to maintain the speed of the controlled apparatus.

3,599,155
METHOD FOR EXTRACTING INFORMATION CONTAINED IN A SIGNAL DEGRADED BY NOISE
 Robert B. McDowell, Beltsville, and Ronald V. Schrelber, Laurel, both of, Md., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Apr. 4, 1966, Ser. No. 540,093
 Int. Cl. G06f 7/00; H04b 15/00
 U.S. Cl. 340-172.5

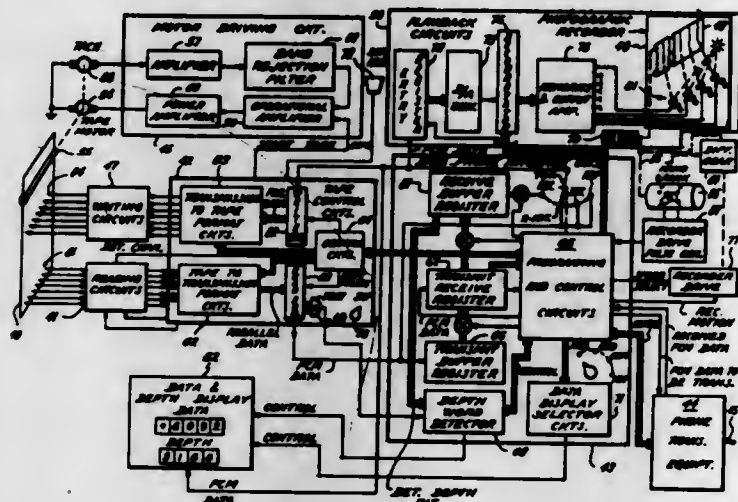
7 Claims



A method for recovering pulse code modulation (PCM) telemetry severely degraded by noise. In a preferred embodiment of the invention a noise degraded PCM signal is digitized after demodulation from its associated carrier to produce an output consisting of data words. A computer performs logical and numerical operations on the data words to enable the detection of the PCM waveform, ignoring the associated noise.

3,599,156
METHODS AND APPARATUS FOR TRANSMITTING DATA BETWEEN REMOTE LOCATIONS
 Gerald K. Miller, and William D. Sauter, both of Fairfield County, Conn., assignors to Schlumberger Technology Corporation, New York, N.Y.
 Filed Feb. 6, 1968, Ser. No. 703,427
 Int. Cl. G11b 5/00, 15/00
 U.S. Cl. 340-172.5

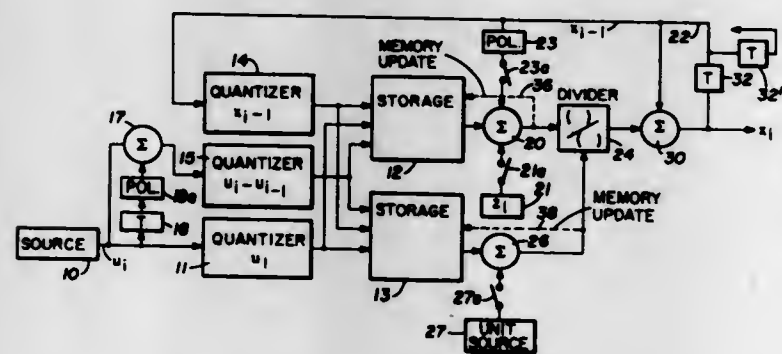
31 Claims



In accordance with an illustrative embodiment of the invention, a system for transmitting data between remote locations is disclosed. The data transmission system is especially desirable for the transmission of well logging data derived from an exploring means moved through a borehole. More specifically, data is read from a magnetic tape at a transmitting location and supplied to a transmission link for transmission to a receiving location. At the receiving end of the transmission link, the data is received and subsequently written on a magnetic tape. The transmitting and receiving ends of the transmission link are synchronized with each other by a periodically transmitted sync word which can be inhibited to allow for the transmission of borehole depth words. Additionally, apparatus is provided for displaying data and recording it on photographic film during transmission. Provision is also made for playing back a tape for recording on film or display.

3,599,157
FEEDBACK MINIMIZED OPTIMUM FILTERS AND PREDICTORS
 William C. Choute, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
 Filed May 27, 1968, Ser. No. 732,152
 Int. Cl. G06f 15/18
 U.S. Cl. 340-172.5

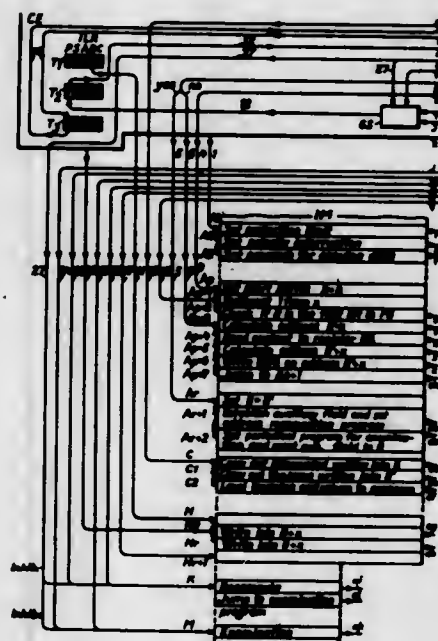
11 Claims



A nonlinear adaptive signal processor is provided wherein during a training phase, based upon a prior knowledge of the desired processor response to a given input, the output signal preceding the contemporary value of the output signal is employed in the feedback sense for minimizing storage required of the desired responses of the processor which, when trained, responds as desired to a different input having the same statistics as the input employed in the training phase.

3,599,158
METHOD FOR MOVING VARIABLE DATA DURING OPERATION FROM A FIRST STORE FIELD TO A SECOND STORE FIELD IN THE DATA STORE OF A COMPUTER
 Lars-Olof Noren, Huddinge, and Goran Anders Henrik Hemdal, Tyreso, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
 Filed Dec. 18, 1968, Ser. No. 784,847
 Claims priority, application Sweden, Dec. 19, 1967, 17/372/1967
 Int. Cl. G06f 9/18
 U.S. Cl. 340-172.5

1 Claim



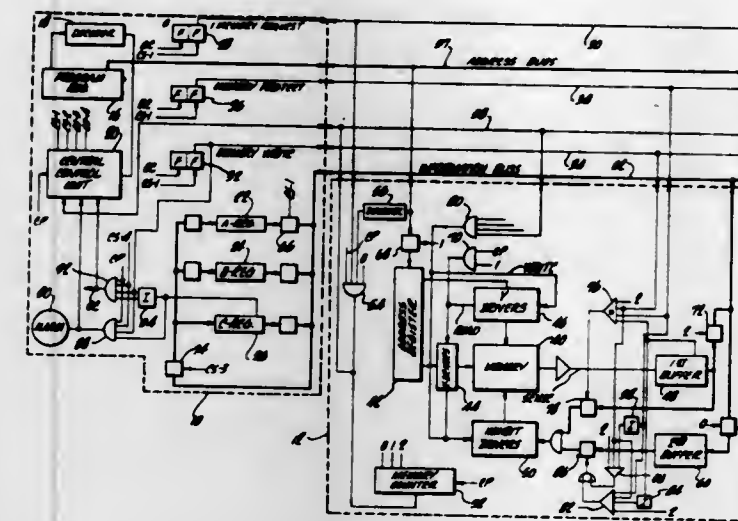
For a digital computer operating under a multilevel periodically occurring priority routine wherein information is transferable from a first field to a second field of a data store only during the lowest priority level, there is disclosed a method for updating information stored in the first field. The method contemplates preventing indiscriminate access to the first field. Instead, when during any level but the top priority level access is required to the first field for updating, the work being performed is interrupted and the computer switched to the top priority level. In this level, the updating information is simultaneously stored in corresponding locations of the first and second fields. Thereafter, the computer is restored to perform the interrupted work.

3,599,159
DIGITAL MEMORY WITH AUTOMATIC OVERWRITE PROTECTION
 Bobby A. Creech, Glendora; Erwin A. Hauck, Arcadia; Carl B. Carlson, Santa Barbara; and Iver C. Hansen, Arcadia, all of Calif.
 Continuation-in-part of application Ser. No. 670,101, Sept. 25, 1967
 Filed Apr. 9, 1970, Ser. No. 27,190
 Int. Cl. G05b 1/00
 U.S. Cl. 340-172.5

3 Claims

There is disclosed a digital computer in which words in memory may each have a special binary bit that is set to one, for example, to prevent that word from being changed. Whenever a particular command attempts to write a new word in memory, the special bit is sensed in the memory buffer on reading out the existing word at the start of the memory cycle, and, if the bit has been set to one, the new word is rejected and the existing word is automatically restored in the same location in memory. The existing word

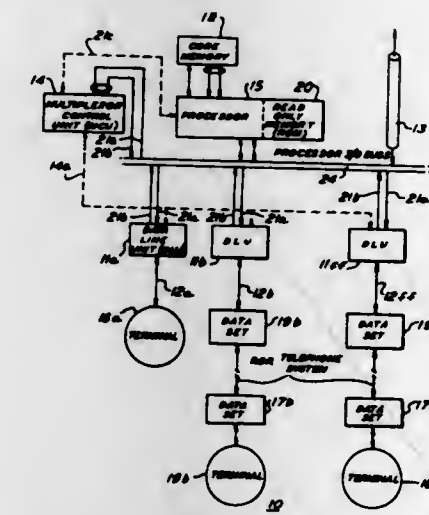
in memory is also transmitted to the processor. The processor is interrupted by the presence of the special bit in the



word transmitted from memory, indicating that a protected location in memory has been addressed.

3,599,160
TIME DIVISION MULTIPLEXING
 Elliot Nestle, Neptune, and Robert F. Schunnehan, New Monmouth, both of N.J., assignors to Interdata Incorporated
 Filed Mar. 6, 1969, Ser. No. 804,959
 Int. Cl. G06f 9/18; H04j 3/00
 U.S. Cl. 340-172.5

15 Claims



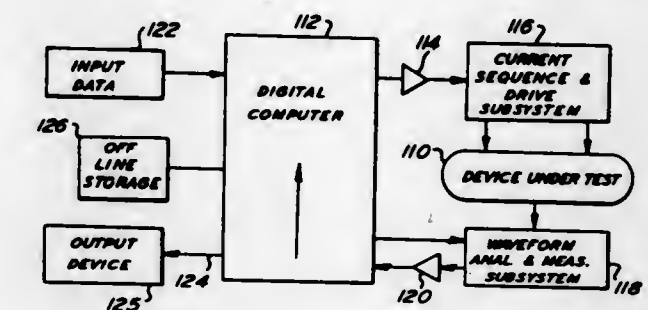
Digital time division multiplexing system and method for multiplexing and demultiplexing between serial data from a plurality of data lines and data in the form of parallel characters. Individual data line units are operable for loading and unloading data and a multiplexor control unit controls in sequence groups of the data line units. A processor controls input serial data flow from each data line unit through a bus and the processor into core memory. A fixed wired program has logic connections to the processor, core memory, multiplexor control unit and clock and has fixed program instruction blocks to control the operation of the multiplexor control unit, to determine the start of a character and to then control the strobing of the input serial data in the core memory.

3,599,161
COMPUTER CONTROLLED TEST SYSTEM AND METHOD
 Alan M. Stoughton, Cinnaminson, and William R. Blatchley, Delran, both of N.J., assignors to Computer Test Corporation
 Filed Apr. 3, 1969, Ser. No. 813,165
 Int. Cl. G06f 11/00; G05b 23/00
 U.S. Cl. 340-172.5

9 Claims

A test system and method directed in operation by a programmed digital computer for measuring and evaluating a

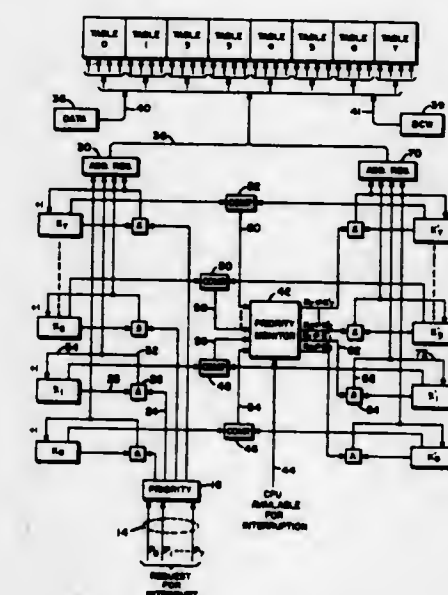
device which produces a nonrepetitive waveform upon application to the device of an input stimulating signal. There is applied to an input of the device a stimulating signal having a predetermined waveform at a selected signal sequence. The



amplitude and time characteristics of the resultant non-repetitive waveform are explicitly measured and output reports are generated. In response to the explicit measurements a differing waveform and signal sequence may be selected for the stimulating signal.

3,599,162
PRIORITY TABLING AND PROCESSING OF INTERRUPTS
 Paul D. Byrns; Duane H. Anderson, St. Paul, and Peter A. Meyer, Roseville, all of Minn., assignors to Comcet Incorporated, St. Paul, Minn.
 Filed Apr. 22, 1969, Ser. No. 818,324
 Int. Cl. G06f 9/18
 U.S. Cl. 340-172.5

3 Claims



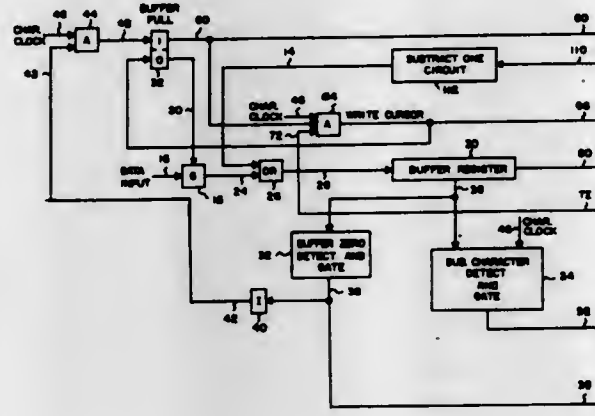
A circuit for tabling and processing interrupts on a priority basis including a separate table for each level of interrupt priority.

3,599,163
CIRCUIT FOR PERFORMING MULTICHARACTER POSITION ADVANCE
 Stephen A. Grosky, Monroe, Conn., assignor to The Bunker-Ramo Corporation, Stamford, Conn.
 Filed June 30, 1969, Ser. No. 837,824
 Int. Cl. G06f 3/14; G06f 13/02
 U.S. Cl. 340-172.5

8 Claims

A circuit for performing a multicharacter position advance at a remote terminal in response to the receipt of only two input characters. The detection of the first of the input characters sets a control device which is operative to store the following character in a buffer and to cause the following character to be counted down by one each time a character position at the remote terminal passes a write position. When

the count in the buffer reaches a predetermined value, such as zero, the control device is reset, permitting the next placement, and between the members is provided in axially spaced array a series of isolated flexible electrical conductors



that are coiled and uncoiled between the said members with rotative displacement between the members.

3,599,166

IGNITION TERMINAL

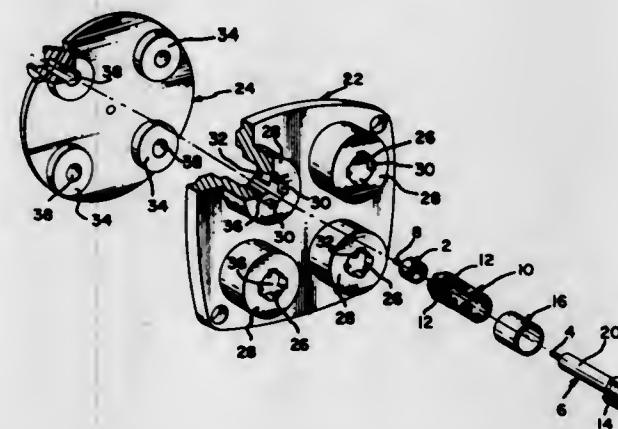
Carmen Achille Cea, Winston-Salem, N.C., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 14, 1969, Ser. No. 876,820

Int. Cl. H01r 13/44

U.S. Cl. 339-27 R

10 Claims



The disclosure relates to ignition terminals of the type used in aircraft, the terminals being of the plug and socket type and being detachable. The termination is crimpable and locks into its counterpart magneto, spark plug or the like to provide proper termination.

3,599,167

THREE-UNIT ELECTRICAL CONNECTOR

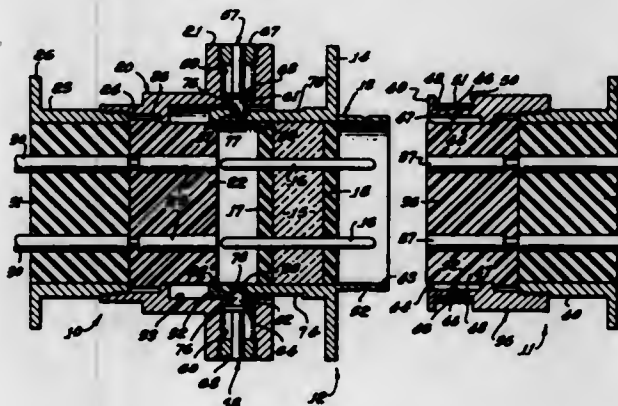
David T. Adrian, and Norman C. Robman, both of Banning, Calif., assignors to The Deutsch Company Electronic Components Division, Banning, Calif.

Filed Apr. 10, 1969, Ser. No. 815,053

Int. Cl. H01r 13/44, 13/54, 13/60

U.S. Cl. 339-42

22 Claims



The electrical connector includes two plugs which mate with an intermediate receptacle. A yieldable coupling connects the receptacle and one of the plugs, permitting separa-

character applied to the terminal to be written into the character position then being accessed.

3,599,164

ARTICULATED CONDUCTOR CONNECTION

Winfried Oltersdorf, Augsburg Str. 22, 1 Berlin 30, Germany

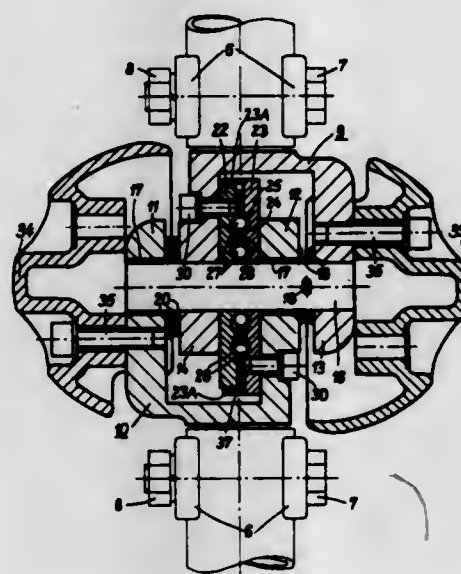
Filed Apr. 17, 1969, Ser. No. 816,968

Claims priority, application Germany, Apr. 19, 1968, P 17 65 211.8

Int. Cl. H01r 39/28

U.S. Cl. 339-4

5 Claims



An articulated conductor connection has a rotation axis and has two conductor plates disposed perpendicular to this axis. The conductor plates have mutually opposing surfaces each with a conical groove coaxial with the axis. The grooves define an annular channel of wedge-shaped cross section. Rollers are placed in the channel and function to transmit current between the plates; and springs are positioned intermediate the plates for radially pressing the rollers into the channel.

3,599,165

ROTARY CONDUCTOR

George Wendell, Le Roy J. Kniskern, and Walter F. O'Brien, Jr., all of Blacksburg, Va., assignors to Litton Precision Products, Inc., Blacksburg, Va.

Filed Mar. 2, 1970, Ser. No. 15,712

Int. Cl. H01r 39/00

U.S. Cl. 339-5

14 Claims

An electrical coupling device providing a series of continuous, unbroken, unsliding electrical connections between two relatively rotatable members over a limited angular displacement. The coupler is provided with two coaxially related members that are rotatably interconnected for angular dis-

tion upon the exertion of a predetermined force. The other plug includes spring-pressed pins which enter transverse slots in the receptacle upon limited relative separating movement, holding the parts in a dead-face position with the receptacle in front of the other plug and the electrical circuit interrupted. Therefore, an outward pull on the first plug initially moves the other plug to the dead-face position, following which the first plug is separated from the receptacle. The receptacle is removable from the other plug by first rotating it, which moves the spring-pressed pins out of the transverse slots and permits complete separation of the parts.

3,599,168

HANDLE ASSEMBLY FOR ELECTRICAL FISHING MOTORS

Gordon L. Long, Bloomington, Ill., assignor to Osborn Engineering Corporation

Filed Dec. 29, 1969, Ser. No. 888,778

Int. Cl. H01r 15/10

U.S. Cl. 339-58

4 Claims



A tubular control handle for electric outboard fishing motors with an electrical outlet socket press fitted within the handle. The socket is tubular with the electrical parts recessed within the handle. The tubular handle is received within a bore in a housing of the assembly and held by a set-screw which provides a ground connection for the electrical elements.

3,599,169

LAMP LOCK MEANS

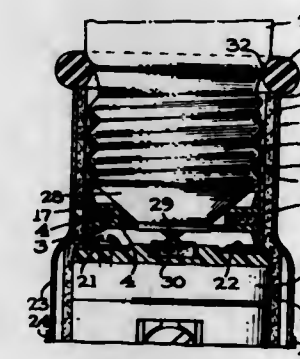
Lewis Detch, 2133 Chalfant St., Pittsburgh, Pa.

Filed Mar. 10, 1969, Ser. No. 805,589

Int. Cl. H01r 33/12

U.S. Cl. 339-93 L

11 Claims



Locking means for incandescent lamps, particularly those having screw-threaded bases for assembly insertion in complementally screw-threaded lamp sockets, and serving to tightly seat the lamps in such sockets to the end that vibration, shock, heating and other possible service conditions will not cause the lamps to become loose, or "freeze," in the sockets, thus ensuring long life to the lamps, establishment of

continuous good electrical contact between the lamp bases and sockets, guarding against escape of the lamps from the sockets with possible injury to persons in their vicinity, particularly when the lamps are installed in overhead locations, and generally serving to provide for improved lamp operation. The locking means comprise a substantially circular, yieldable or resilient insert device for installation in that portion of the socket adjacent to the inner termination of the screw threads thereof with a snap action so that it will normally be retained therein, and provided with an axially substantially centrally located, radially inwardly extending circumferential flange the free edges of which are preferably chamfered for cooperation with the usual frustoconical end of the lamp base, and with axially offstanding, preferably outwardly tapered, circumferential outer lip portions for seating engagement with the inner surface of the lamp socket; the said circumferential flange being provided with radially inwardly extending, outwardly opening groove means serving to enhance the normal yieldability or resiliency of the device, such groove means serving, by choice, to contain a normally compressible plastic substance, or a resilient member, which will function to maintain the original characteristics of the device for continuous and repeated use. The formation of the device is such that it may effectively function no matter which of its axial faces is disposed outwardly of the socket, thus guarding against improper installation by relatively unskilled operatives. The device is preferably formed from a moldable plastic substance, such as nylon, which is capable of withstanding the operating temperatures of incandescent lamps, and when the aforesaid groove is filled with a normally compressible substance such substance may be a silicone adhesive, for example that known as "RTV."

3,599,170

FLEXIBLE HERMETICALLY SEALED CONNECTOR

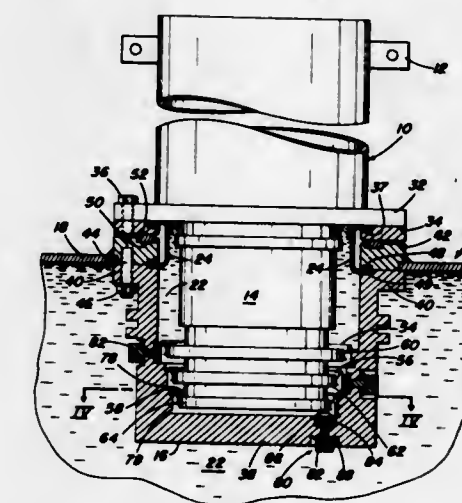
Albert G. Kurisu, Westminster, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 29, 1969, Ser. No. 863,005

Int. Cl. H01r 13/52

U.S. Cl. 339-94 M

3 Claims



An electrical connection which has a flexible coupling boot that seals the connector members together, the connection having a system of flexible contacts that in association with the coupling boot permits three dimensional relative movement between the members while maintaining a hermetically sealed integrity.

3,599,171

IGNITION CABLE CONNECTOR

Arnold E. Anderson, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of application Ser. No. 504,503, Oct. 24, 1965, now abandoned. This application Nov. 21, 1968, Ser. No. 777,562

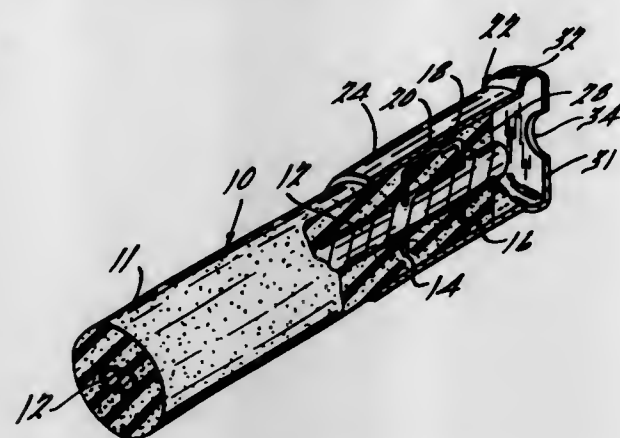
Int. Cl. H01r 11/20

U.S. Cl. 339-97 C

4 Claims

The disclosure relates to a dependable electrical termination for a high-voltage, low-current insulated electrical con-

ductor, i.e., an ignition cable and to the process of making the electrical termination. The termination comprises a metallic staple, preferably of U-shaped construction, which is driven through the insulating sheath of the ignition cable into firm electrical contact with a central current-carrying

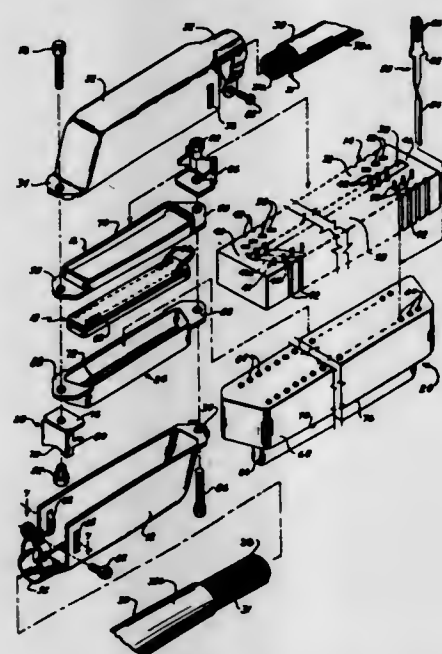


member of the nonmetallic type. The plane of the metallic staple is approximately parallel to the central current-carrying member, and the central portion of the staple is exposed. A conductive cylinder or ferrule is positioned over the end of the ignition cable and in electrical contact with the exposed central portion of the staple.

3,599,172
CABLE TERMINAL CONNECTOR, QUICK-CONNECT
Jeff Tucht, Don Mills, Ontario, Canada, assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed June 12, 1969, Ser. No. 832,796
Int. Cl. H01r 11/20

U.S. Cl. 339-98

8 Claims



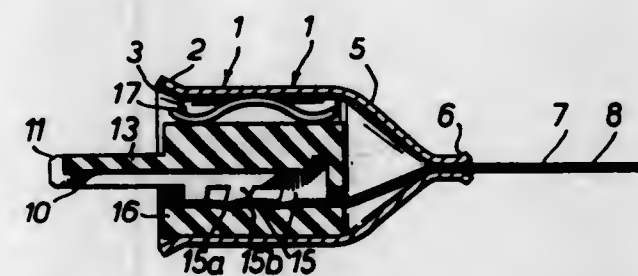
Cable connector in which the individual conductors can be put in position manually, without special tools, and in response to fitting one connector member together with a counterpart connector member, the conductors are automatically connected with corresponding contacts.

3,599,173
ELECTRICAL CONNECTORS
Kenneth F. Bridle, London, England, assignor to A. B. Electronics Components Limited, Glamorgan, Wales
Filed May 21, 1969, Ser. No. 826,639
Claims priority, application Great Britain, May 22, 1968, 24430/68
Int. Cl. H01r 11/20

U.S. Cl. 339-99

An electrical connector for attachment to a tape cable comprises a four-layer sandwich consisting of a toothed con-

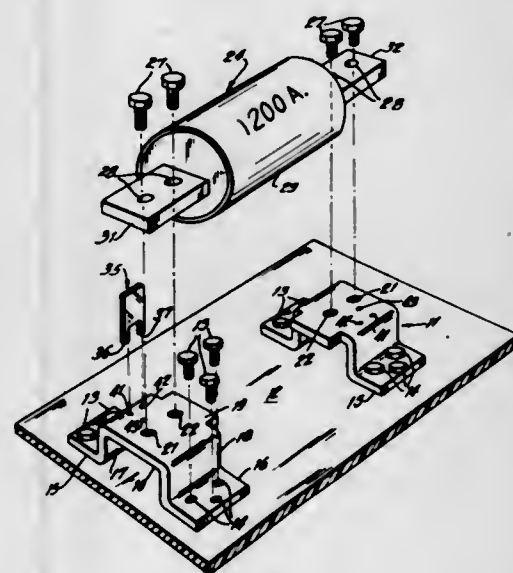
tact to engage one side of the cable, a resilient pad to engage the other side of the cable and a spring to press the contact



into the cable, the sandwich being compressed and inserted into a tubular housing which holds it compressed. The housing may then be crimped onto the cable behind the sandwich.

3,599,174
MEANS TO PREVENT OVER-FUSING
Shardha Singh Dhaliwal, Sterling Heights, Mich., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed July 18, 1969, Ser. No. 843,065
Int. Cl. H02b 1/02; H01r 11/22
U.S. Cl. 339-125 R

10 Claims



Terminal straps to which cartridge fuses are bolt or screw connected are provided with locating means which establish predetermined operative positions for a reject member securable to one or more of the terminal straps. When the reject member is not present, fuses of relatively high intermediate and low ratings may be mounted to the terminal straps. When the reject member is mounted in one of its operative positions, only the low rated fuse may be mounted to the terminal straps, and when the reject member is in another one of its operative positions, both the low and intermediate rated fuses may be mounted to the terminal straps, but high rated fuses may not be mounted thereto.

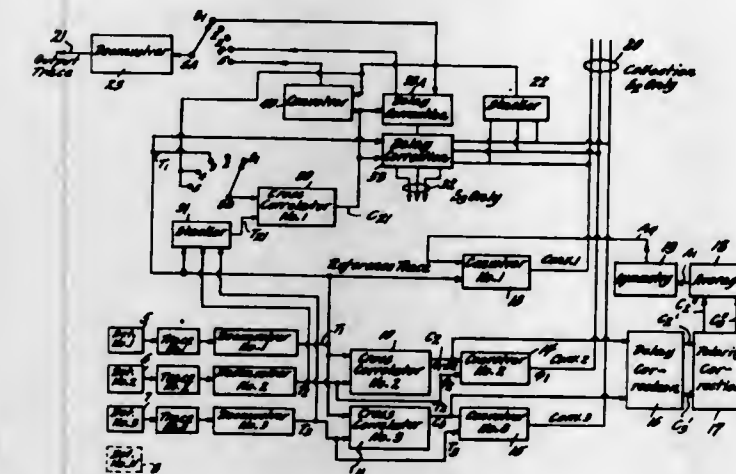
3,599,175
SYSTEM AND METHODS OF PROCESSING SEISMIC DATA AND THE LIKE
Timothy J. Hollingsworth, and James D. Morgan, both of San Antonio, Tex., assignors to Petty Geophysical Engineering Co., San Antonio, Tex.
Continuation of application Ser. No. 606,245, Dec. 30, 1966, now abandoned. This application Sept. 12, 1969, Ser. No. 857,605
Int. Cl. G01v 1/28

U.S. Cl. 340-15.5 AC

3 Claims

This invention discloses data processing system embodiments and methods for analyzing a set of seismic signals, which embodiments and methods are useful for processing other sets of signals of this sort. Thus, signals recorded from a set of spaced seismic detectors and preliminarily processed for availability in recorded form are reproduced and cross-

correlated against a reference signal which typically is derived from the output of the detector closest to the seismic impact or shot source. The resulting signals are further processed to correct for any variations in timing and polarity and are averaged together as a single signal trace. In this form the signals, which have an amplitude peak at midpoint, are halved and one-half is symmetrically reproduced on either side of the midpoint to produce a modified signal, which may be convolved against the reference signal to form

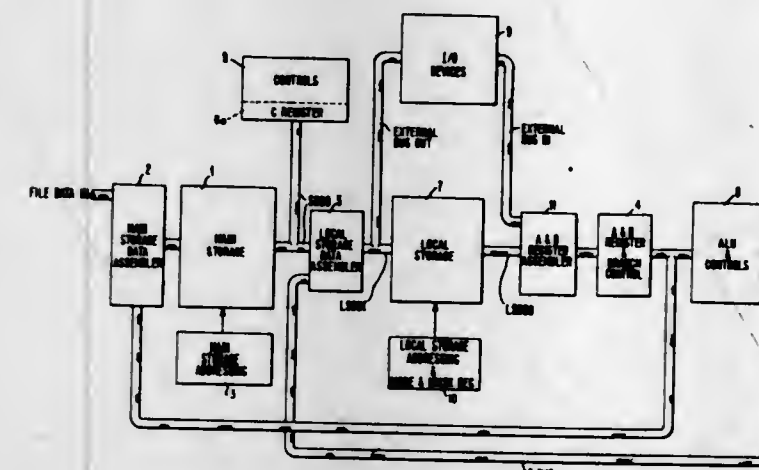


one signal in a collection with others obtained from convolving each trace with its corresponding cross-correlated signal. This collection may be further processed by simply stacking, or by correcting for delays by comparison with the reference trace, to provide a single output trace after deconvolution. In some cases the stacked trace may be convolved with a trace derived from a stacked collection of the original recorded traces cross-correlated with the reference trace, which resulting trace is deconvolved to produce a single output trace.

3,599,176
MICROPROGRAMMED UTILIZING IMPROVED STORAGE ADDRESSING MEANS
Humberto Cordero, Jr., Endicott; Edward G. Drimak, Johnson City; Richard J. Hutchinson, Vestal; Michael F. Schaugency, Endwell, and Everett M. Shimp, Endwell, all of, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 2, 1968, Ser. No. 695,081
Int. Cl. G06f 9/16

U.S. Cl. 340-172.5

15 Claims



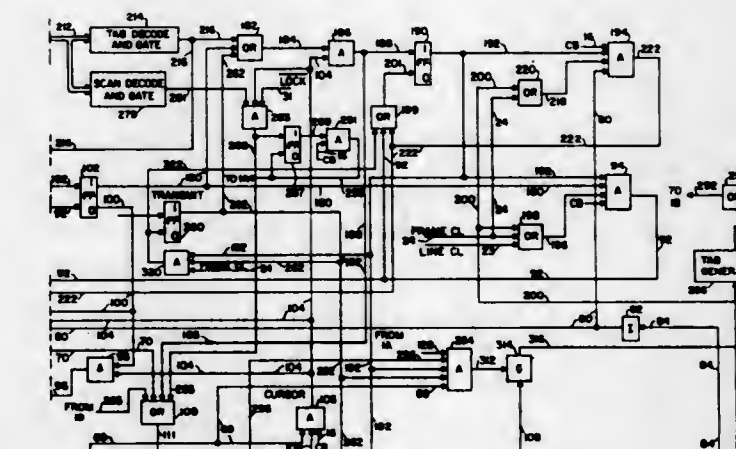
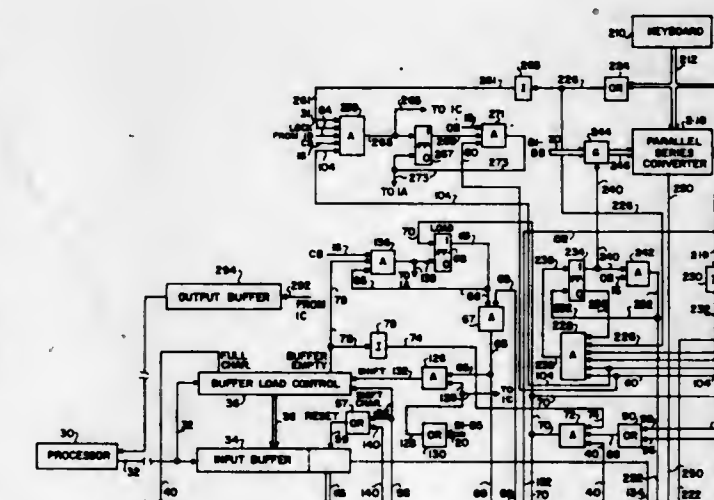
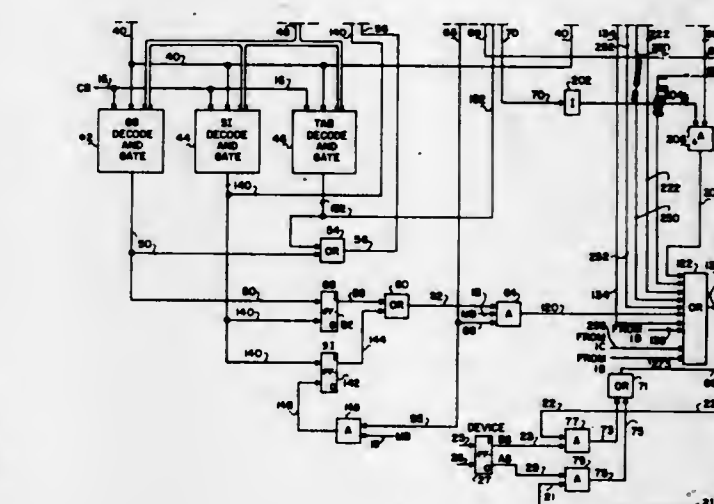
A data processing system characterized by a high speed local storage unit used for storage of addresses and data involved in a variety of operations. Accesses to a main storage unit, containing both macroprogram and microprogram information, is under the control of addresses held in local

storage. Transfer from a main line program to an interrupt subroutine is also handled by the local storage unit.

3,599,177
CHARACTER STORAGE AND DISPLAY SYSTEM
Dixon Teh-Chao Jen, Stamford; Stephen A. Grosky, Monroe, and Robert J. Duggan, Monroe, all of, Conn., assignors to The Bunker-Ramo Corporation, Stamford, Conn.
Continuation-in-part of application Ser. No. 727,934, May 9, 1968, now abandoned. This application Sept. 16, 1968, Ser. No. 767,559
Int. Cl. G06f 3/14

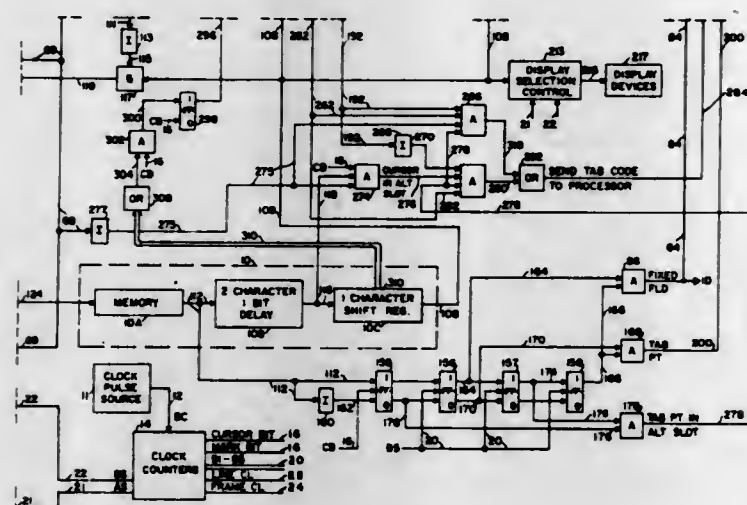
U.S. Cl. 340-172.5

23 Claims



A system for storing characters of information in a selected form in a storage means which has a plurality of character positions. Characters are recorded in each position in a multi-bit code and means are provided for storing an additional control bit in each of the character positions. A selected form may be stored in the storage means by storing bits in

selected ones of the control bit positions in accordance with a predetermined logical pattern. The state of each control bit is detected and utilized for controlling the field in the storage



means in which new characters applied to the system are stored. In particular, the control bits may be utilized to identify tab positions in a particular form or to effect the protection of fixed field characters.

3,599,178 METHOD OF STORING INFORMATION ON AND RETRIEVING INFORMATION FROM A MAGNETIC DRUM

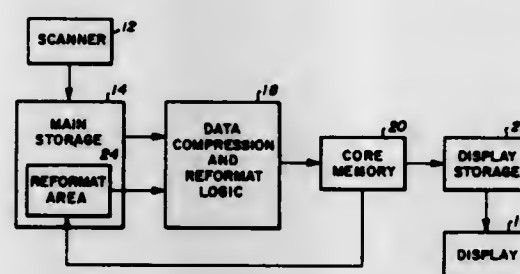
David G. Jackson, Los Altos, and Bernie F. Jackson, Cupertino, both of, Calif., assignors to Singer-General Precision, Inc., Binghamton, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,323

Int. Cl. G11b 5/00

U.S. Cl. 340—172.5

5 Claims



The disclosed embodiment of the present invention is a method of storing pictorial information on and retrieving pictorial information from a movable storage media to permit rapid access and retrieval of such information for displaying either the whole or a submultiple of the whole of the pictorial information in a minimum of time. The disclosed method comprises writing blocks of such information on a magnetic drum, with each block being formed of one or more lines of the scanned information. The blocks are arranged in step fashion on the drum with each successive block being spaced along the direction of travel of the drum a distance equal to the line length of the smallest picture to be displayed. In the disclosed embodiment, each block is formed of four scan lines written in 16-bit parallel format on the drum, and the spacing of each block is equal to the distance occupied by one-fourth of a scan line of information. Since the scanned information is greater than the displayed information, that portion of the information which is to be displayed is read from the drum, compressed by means of logic circuits, and supplied to a display storage. The information in the display storage is continuously read and supplied to a CRT for display to an operator.

3,599,179 FAULT DETECTION AND ISOLATION IN COMPUTER INPUT-OUTPUT DEVICES

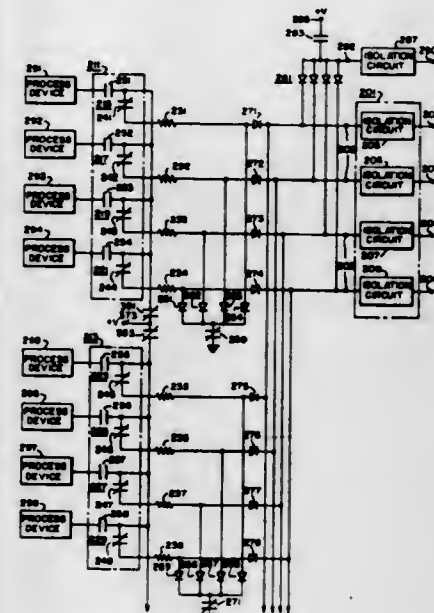
Wayne E. Arnold, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 28, 1969, Ser. No. 828,625

Int. Cl. G06f 11/00

U.S. Cl. 340—172.5

20 Claims



Computer-control systems, in addition to the computer itself, require various peripheral equipment to transmit computer commands to the process and to receive general and emergency information from the process. Failure of this equipment can cause serious malfunctions in the process. A system is disclosed for locating and isolating faults in these input-output devices before the controlled process gets out of control. This is accomplished by monitoring the back contacts of the relays or switch devices to see if the relays or switch devices have operated properly.

3,599,180 RANDOM ACCESS READ-WRITE MEMORY SYSTEM HAVING DATA REFRESHING CAPABILITIES AND MEMORY CELL THEREFOR

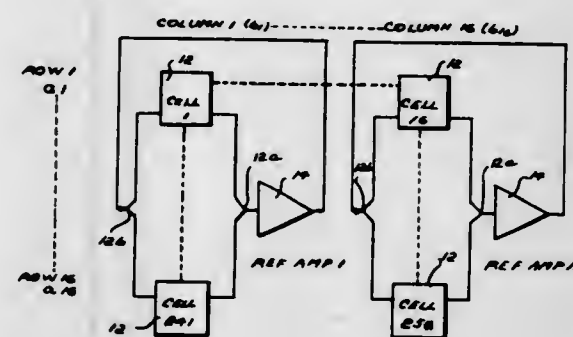
Richard B. Rubinstein, New York; John O. Paivinen, Huntington; Leo Cohen, Commack, N.Y.; John Leland Seeley, Salt Lake City, Utah, and Attila Tetik, New York, N.Y., assignors to General Instrument Corporation, Newark, N.J.

Filed Nov. 29, 1968, Ser. No. 780,005

Int. Cl. G11c 11/40

U.S. Cl. 340—173 R

55 Claims



Means are provided in a memory system for refreshing stored data signals, said means being associated with the memory cell address circuitry provided for selecting the desired word location or address. Also disclosed is a novel three device memory cell defining each data storing location of the system, and a novel refresh amplifier used in the data refreshing mode of system operation. In one disclosed embodiment refreshing of the stored data is automatically effected during read and write operation by a novel address logic system.

3,599,181 SOLID STATE COMPUTER MEMORY DEVICE

Geoffrey Dearnaley, Abingdon, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Dec. 6, 1968, Ser. No. 781,721

Claims priority, application Great Britain, Dec. 7, 1967, 55787/67

Int. Cl. G11c 11/34

U.S. Cl. 340—173 CR

3,599,183 FIXED VALUE STORER

Ingo Groeger, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

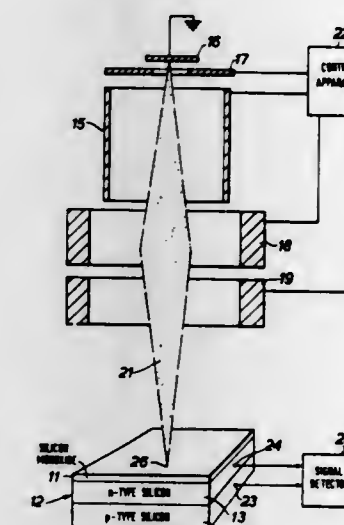
Filed Oct. 28, 1969, Ser. No. 870,038

Claims priority, application Germany, Dec. 5, 1968, P 18 12 963.0

Int. Cl. G11c 13/00, 17/00

8 Claims U.S. Cl. 340—173 R

4 Claims



A film of oxide or fluoride on a conducting or semiconducting substrate is scanned by a finely focused electron beam. According to the intensity of the electron beam, filamentary conducting paths through the film may be set up, detected without destruction, or erased. Depending upon the size of the electron beam spot up to 10^7 bits of binary information per square centimeter may be stored in the device.

3,599,182 MEANS FOR REDUCING POWER CONSUMPTION IN A MEMORY DEVICE

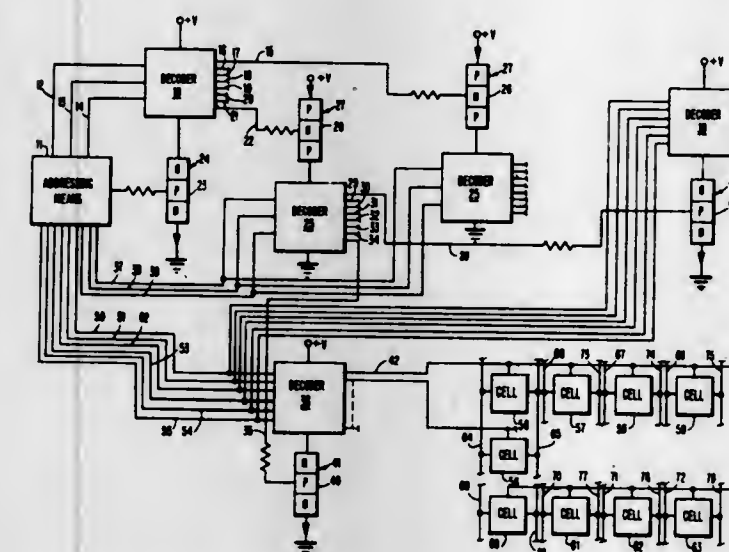
Robert A. Henle, Hyde Park, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1969, Ser. No. 791,306

Int. Cl. G11c 7/00, 5/02

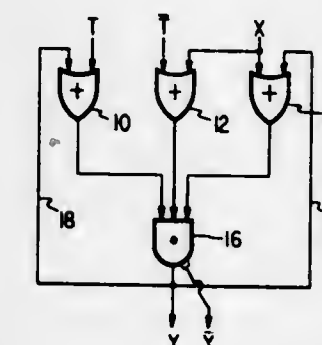
U.S. Cl. 340—173 R

14 Claims



The decoding means, which is utilized to select a storage cell or word in a memory device, is divided into a main decoder and at least a first group of decoders whereby only one of the first group of the decoders is activated when the main decoder is energized. Each of the decoders of the first group may be divided into a plurality of decoders that form a second group so that only one of the decoders of the second group also needs to be activated when the decoder of the first group is energized.

A plurality of two-input logic gates such as OR gates supplying their outputs to a three-input logic gate such as an AND gate and including a feedback connection from the three-input gate to all but one of the two-input gates. A control signal is applied to the two-input gate not receiving feedback and the complement of this control signal is applied to one of the other two-input gates. An information signal is applied to the two-input gate not receiving feedback and to a two-input gate not receiving the complement of the control signal.



3,599,185 FERROELECTRIC CAPACITOR OUTPUT AMPLIFIER DETECTOR

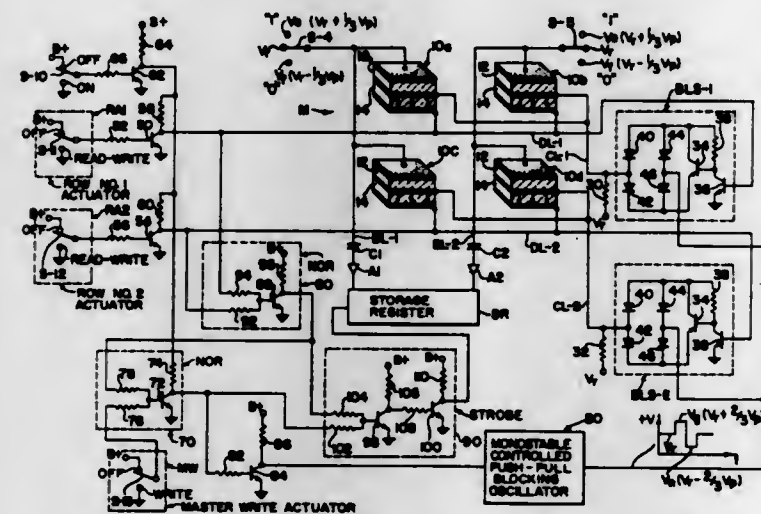
Peter G. Bartlett, Davenport, Iowa, and Joseph E. Meschi, Lyons, Ill., assignors to Gulf & Western Industries, New York, N.Y.

Filed July 10, 1968, Ser. No. 748,582

Int. Cl. G11c 11/22

U.S. Cl. 340-173.2

5 Claims



An improvement is provided for two-plate internally polarized nondestructive readout ferroelectric ceramic capacitor, binary memory elements in which one plate serves as the drive plate and the other serves as the memory plate. There is an electrical bit line connection to the memory plate from which a positive or negative voltage is obtained, depending upon the binary information which has been stored in the memory plate. A normally conductive amplifier is provided for normally providing a first signal of the first value and serving to increase the value of the first signal when the bit line output voltage is positive and to decrease the value of the first signal when the bit line voltage is negative. A signal level detector is also provided having first and second outputs responsive to the first signal for energizing the first and second outputs in accordance with whether the value of the first signal is above or below a predetermined value.

**3,599,186
MEMORY-CENTERED COMPUTER SYSTEM**
Frederick T. May, and Thomas H. Williams, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of application Ser. No. 668,599, Sept. 18, 1967.
This application May 14, 1970, Ser. No. 37,324
Int. Cl. G06f 9/16

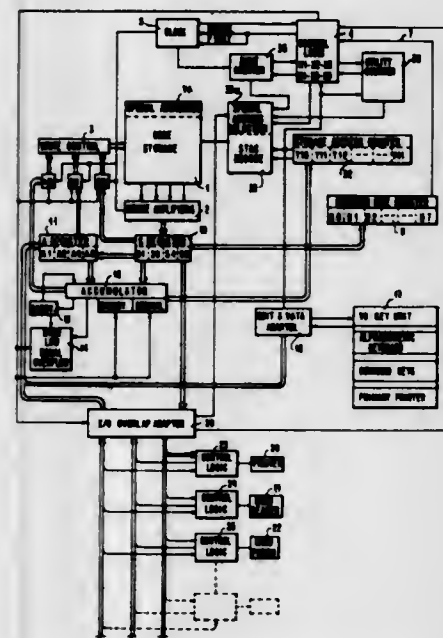
U.S. Cl. 340-172.5

5 Claims

The invention concerns a computer system with the usual input and output devices, arithmetic facilities, clocking facilities, associated control logic and incorporating memory facilities, such as a core memory, arranged in a centralized manner with respect to the other facilities of the system, and having uniquely arranged instruction and data accessing control circuitry for establishing a more efficient utilization of hardware. Basically, the core memory is arranged in a conventional manner as far as reading, writing, and transferring of data is concerned, but beyond this, has particular addressable areas designated Special Addresses for facilitating the processing of both instructions and data with a minimum amount of external hardware. The system operates with only a single address register for accessing both instruction and operand information. In a usual case, an operand is accessed and placed in the special address section of memory by using the addressing facilities. Thereafter, another operand is accessed and the operation required is performed with one operand in the special address section accessed by implied addressing, rather than accessing by the conventional addressing facilities. The foregoing arrangement requires a somewhat longer processing interval, but permits the satisfactory accomplishment of all processing required by the use of a unitary essentially single addressing facility.

The system is considered to be memory-centered since the memory is involved in practically all of the operations performed in the system. Thus, for example, the memory is used in storage of data and instructions, contains index registers and input/output data address, input/output length counts, editing formats, command key conditions, and various special words required during processing of information.

The system operates according to predetermined clocking intervals during which the accessing of instructions, data, input/output transfers, etc. are performed, and in connection with the memory-centered aspect of the system, the clocking



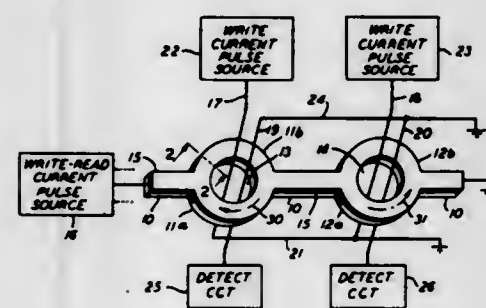
circuits are arranged for permutation in order that only a single operand or a pair of operands may be accessed, as circumstances may require.

The system incorporates various counting means associated with the aforementioned primary addressing facilities to control the reading and writing of information both directly, sequentially, and sequentially within a selected block of information. The latter is particularly advantageous in operations requiring a repetitive accessing of selected areas of memory, such as during certain arithmetic operations, recomplementing, Multiply operations, and so on.

**3,599,187
MAGNETIC MEMORY CIRCUITS**
Andrew H. Bobeck, Chatham; Iryne Danyichok, Morristown, and Umberto F. Gianola, Florham Park, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y.
Filed Nov. 6, 1962, Ser. No. 235,612
Int. Cl. G11c 11/14, 11/08, 7/00

U.S. Cl. 340-174 CH

44 Claims



An elongated electrical conductor having parallel branch conducting paths wherein portions of the conductor comprising the branch conducting paths are made of magnetic material having rectangular hysteresis characteristics. A closed magnetic flux is induced around the branch conducting paths by applying a write current pulse to one end of the conductor coincidentally with a write current pulse applied to a write conductor which threads the aperture formed by the branch conducting paths.

3,599,188 SOLENOID ARRAY MEMORY HAVING BIPOLAR OUTPUT SIGNALS

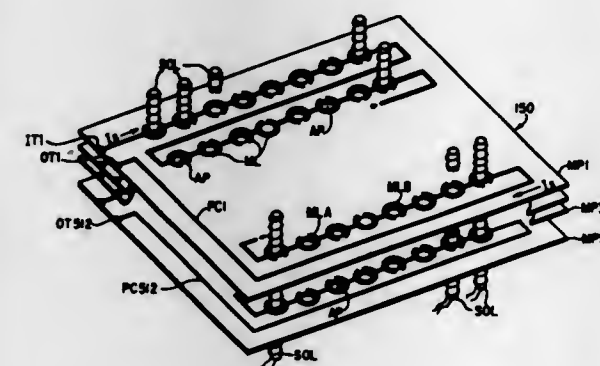
James M. Donnelly, Carol Stream, Ill.; Kenneth E. Larabee, Waseca, Minn., and Bernard J. Reklere, Addison, Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Continuation of application Ser. No. 379,941, July 2, 1964, now abandoned. This application Aug. 18, 1969, Ser. No. 860,141

Int. Cl. G11c 11/04, 17/00

U.S. Cl. 340-174 SP

5 Claims

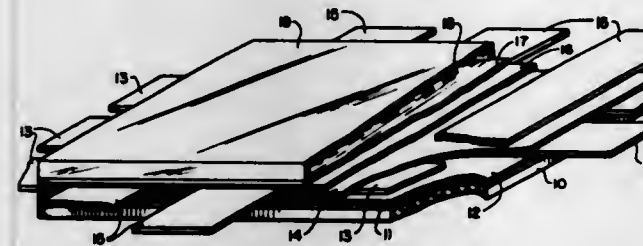


Card changeable read only solenoid array memory systems employ printed data planes as the storage medium. In one system the data planes are connected to and directly energized by word drivers, while a second system employs solenoid driven connectionless planes. The printed conductors of the data planes partially encircle the sensing solenoids in a clockwise or counterclockwise direction to store binary coded data and provide bipolar output signals.

**3,599,189
DISPLAY MEMORY**
David R. Hadden, Jr., Eatontown, and Lorenz M. Sarlo, Matawan, both of N.J., assignors to The United States of America as represented by the Secretary of the Army
Filed Oct. 14, 1969, Ser. No. 866,182
Int. Cl. G11c 11/42, 11/14, 5/02

U.S. Cl. 340-174 YC

6 Claims



A combination digital display and memory element comprising a thin film of magnetic material having a uniaxial anisotropy, a matrix of crossed conductors, and a thin film of rotatable anisotropic magnetic material having a dense banded domain structure. A colloidal suspension of ferromagnetic particles covered with a transparent chamber is placed over the magnetic material. Light directed at the colloidal suspension will be reflected to produce an image of the domain structure contained in the magnetic films. The domains are selectively produced by generating currents on the crossed conductors.

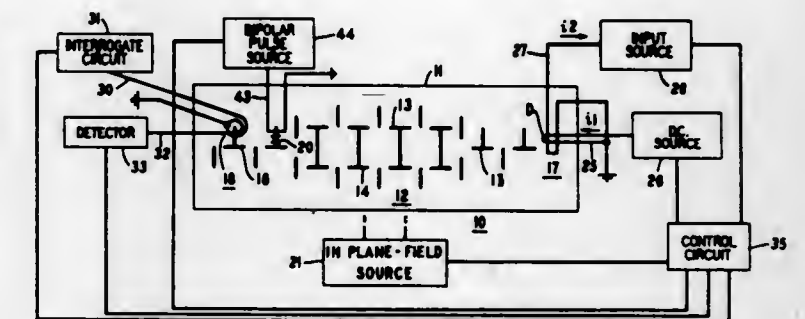
**3,599,190
MAGNETIC DOMAIN LOGIC ARRANGEMENT**
James L. Smith, Bedminster, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 20, 1969, Ser. No. 878,411

Int. Cl. G11c 19/00, 11/14

U.S. Cl. 340-174 TF

8 Claims



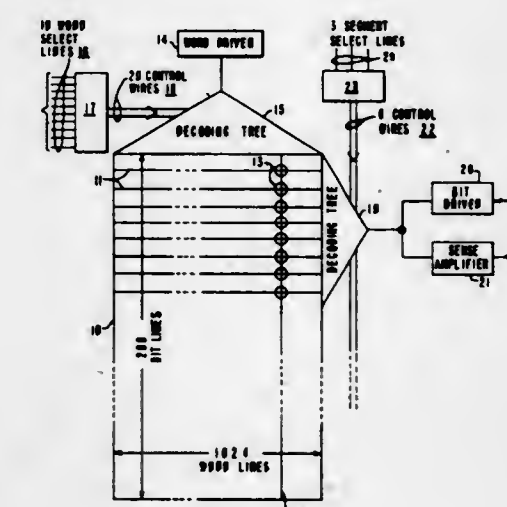
Single wall domains are moved in a sheet of magnetic material along paths defined by pole patterns in magnetically soft overlays in response to reorienting magnetic fields in the plane of the sheet. The direction in which domains move is determined by the magnetic state of high coercive force material adjacent selected portions of the overlay for selectively modifying pole patterns.

**3,599,191
DATA STORAGE APPARATUS**
John B. Gillett, Whitenap, Romsey, England, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 30, 1969, Ser. No. 820,424
Claims priority, application Great Britain, May 2, 1968, 20766/68

Int. Cl. G11c 11/14, 5/02, 7/00

U.S. Cl. 340-174 TF

8 Claims



A magnetic film memory is non-destructively interrogated by applying an oscillatory signal of frequency f to a selected word line. Output data signals of frequency $2f$ are generated on the bit lines as a result, the phase of which is characteristic of the information stored. Superimposed on each data signal is a capacitive noise signal of frequency f . The composite signal on each bit line is passed to a filter network which separates the capacitive noise component from the data component. The data signal is sampled once per cycle under control of strobe signals generated from the capacitive noise signal. The strobe signals are timed to coincide with a region of maximum fluctuation of the data signal, the sampled signals indicating the phase of the data signal and hence the binary value stored.

3,599,192 TRANSDUCER SUPPORTING ARRANGEMENT FOR DISK MEMORY

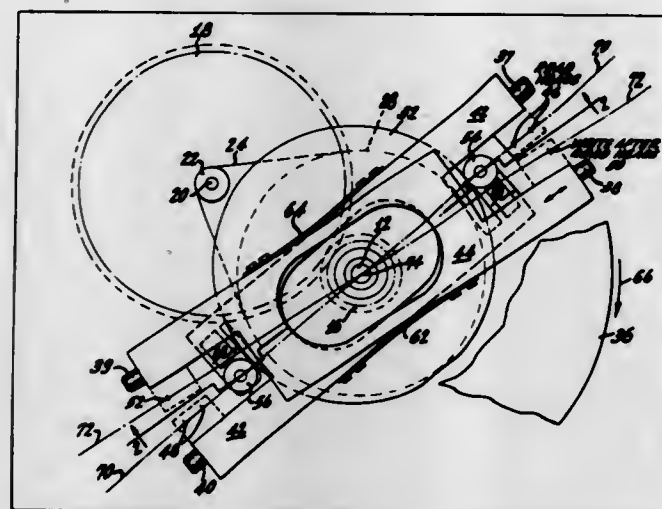
Jan W. Rabek, Los Angeles, Calif., assignor to RCA Corporation

Filed Dec. 11, 1968, Ser. No. 782,926

Int. Cl. G11b 5/48, 21/04

U.S. Cl. 340—174.1 B

5 Claims



A disk storage system in which the spacing between a pair of heads employed to respectively write on and read from the disk is a function of the spacing of the heads from the center of the disk. The heads are moved along radial lines relative to the center of the disk while maintaining them substantially equidistant from the center of the disk to maintain constant the number of bits recorded in the length of track between the heads.

3,599,193 TRIFURCATED GIMBAL HEAD MOUNT

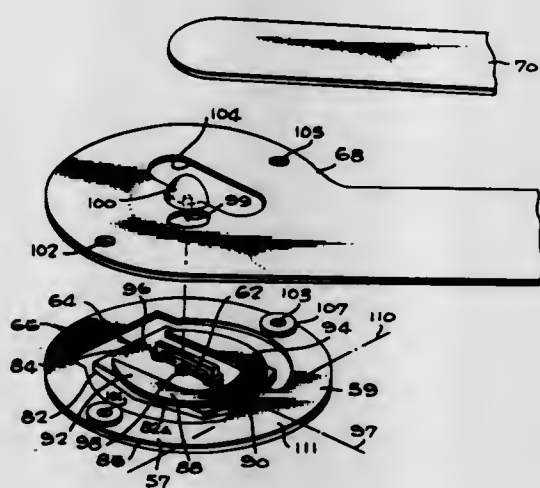
Lawrence Cote, Englewood, Colo., and Carl C. Roocks, Palos Verdes Estates, Calif., assignors to Data Products Corporation, Culver City, Calif.

Filed Feb. 24, 1969, Ser. No. 804,359

Int. Cl. G11b 5/60

U.S. Cl. 340—174.1 E

8 Claims



Apparatus for use in a disc storage system to support the read/write heads on the flying disc surface, comprising a gimbal formed as a flat sheet of spring material with an outer ring portion, a central portion within the outer ring portion for supporting the head, and a narrow neck connecting them. Each gimbal is held on a long flexible support leaf, and the heads are landed and withdrawn by landing springs which can depress or release the support leaves.

3,599,194 REMOTE REGISTER APPARATUS FOR INTEGRATING DEVICES

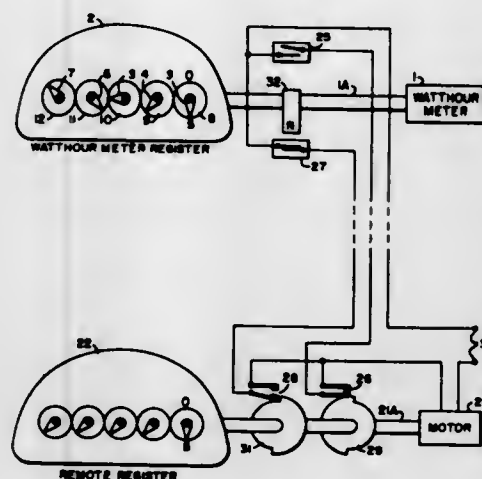
George W. Lipcomb, Raleigh, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 26, 1969, Ser. No. 802,534

Int. Cl. G08c 19/16, 19/20

U.S. Cl. 340—203

7 Claims



An arrangement is provided for indicating at a remote point the readings of an integrating device such as an electrical watt-hour meter. The meter may have a register which comprises a train of gears for driving pointers over a series of dials. The pointers coact with the dials to register respectively the digits zero through nine in the various orders such as units, tens, hundreds etc. of the meter reading at any time. A duplicate series of pointers and dials are operated by a motor at a remote point. Two pairs of switches in multiple with each other connect the motor to its power supply. Each pair of switches comprises a switch located at the meter which is operated to closed condition briefly for each occurrence of a predetermined increment in the reading of the meter. Each pair of switches also includes at the remote point a switch which is held closed during a predetermined advance of the remote register and which is held open during the next corresponding advance of the remote register. The arrangement may be such that the switching system causes the units pointer at the remote register to advance a half revolution as soon as the units pointer of the meter registers values of zero and five. In this arrangement, the units pointer at the remote register always reads within five units of the meter register.

3,599,195 DUAL ALARM, COAXIAL LINE RESONATOR, INTRUSION DETECTION SYSTEM

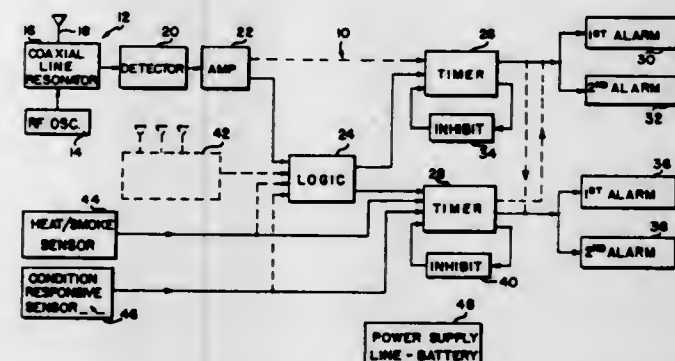
George Boyko, Framingham, Mass., assignor to Pinkerton's Incorporated, New York, N.Y.

Filed May 31, 1968, Ser. No. 733,671

Int. Cl. G01s 9/44; G08b 13/22; H03f 3/60

U.S. Cl. 340—258

6 Claims



An alarm system having at least one condition responsive sensor. A plurality of sensors can be employed in the system to detect such conditions as the presence of a moving intruder within a protected area, heat and/or smoke, the movement of windows and doors, the presence or absence of in-

frared and/or visible radiation, and any other condition that can be monitored by sensing means. The system preferably includes a logic circuit that is programmed to respond to the output signals from one or more preselected sensors. At least one timer is used to actuate a first alarm device in response to a first alarm signal from one or more of the condition responsive sensors. If a second alarm signal occurs within a predetermined period of time after the first alarm signal, a second alarm device is actuated. The timer is reset if the second alarm signal does not occur within the predetermined time period. False alarm signals are minimized by inhibiting the second alarm portion of the timer for a short interval after the first alarm signal and at the end of each full timing cycle. The alarm system employs full solid-state circuitry and has a standby DC power capability.

3,599,196 PLURAL CHAMBERED, OSCILLATOR-COAXIAL LINE RESONATOR-DETECTOR ASSEMBLY FOR MOVING OBJECT DETECTION SYSTEMS

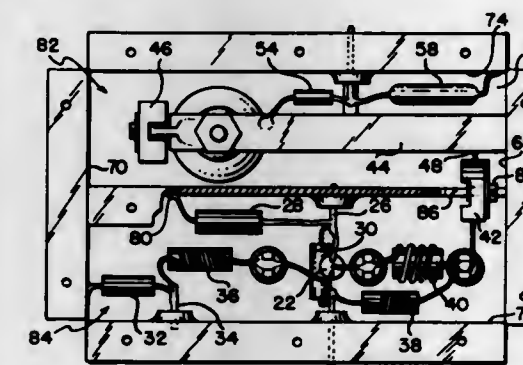
George Boyko, Framingham, Mass., assignor to Pinkerton's, Incorporated, New York, N.Y.

Filed May 31, 1968, Ser. No. 733,672

Int. Cl. G08b 13/22; G01s 9/44; H03f 3/60

U.S. Cl. 340—258

5 Claims



A plural chambered assembly for electromagnetic moving object detection systems. One chamber forms the outer conducting surfaces of a cavity resonator having a centrally disposed conductor short-circuited at one end to the conducting surfaces and open at the other end. Collectively the center conductor and outer conducting surfaces define a coaxial line resonator. A rectifier and rectifier load are electrically connected to the center conductor and physically mounted within the cavity chamber. A second contiguous chamber houses a solid-state, sinusoidal, continuous wave oscillator. A radiator is capacitively coupled to the center conductor of the coaxial line resonator.

3,599,197 ELECTROMAGNETIC MOVING OBJECT DETECTION SYSTEM UTILIZING A COAXIAL LINE RESONATOR

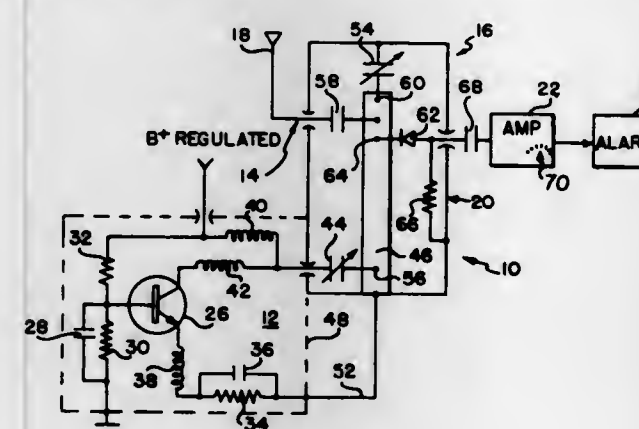
George Boyko, Framingham, Mass., assignor to Pinkerton's, Incorporated, New York, N.Y.

Filed May 31, 1968, Ser. No. 733,673

Int. Cl. G08b 13/22; G01s 9/44; H03f 3/60

U.S. Cl. 340—258

7 Claims



A continuous wave, electromagnetic moving object detection system which responds to impedance changes in the an-

tenna circuit produced by motion of an object through the area protected by the system. Increased sensitivity for a given level of radiated power and isolation of the oscillator circuitry from the detuning effects of changes in the protection environment are achieved by utilizing a coaxial line resonator. Alarm means actuated by detection of the impedance changes are employed to give an electrical, visual and/or audible indication of the presence of a moving object within the protected area.

3,599,198 CONTROL SYSTEM FOR MULTIFUNCTIONING MACHINE

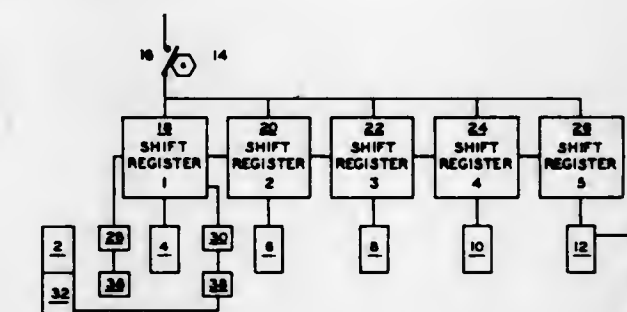
Melvin R. Harrell, Kansas City, Mo., assignor to Phillips Petroleum Company

Filed Oct. 23, 1969, Ser. No. 868,827

Int. Cl. G08b 21/00

U.S. Cl. 340—267

5 Claims



An improved control system comprising a plurality of shift registers associated with sensing means and machine components of a multifunctioning machine for interrupting the operation of a machine component in response to a signal indicating a prior malfunctioning machine component.

3,599,199 SYSTEM FOR SIMULTANEOUSLY INDICATING A UNIT STATUS AT A PLURALITY OF STATIONS

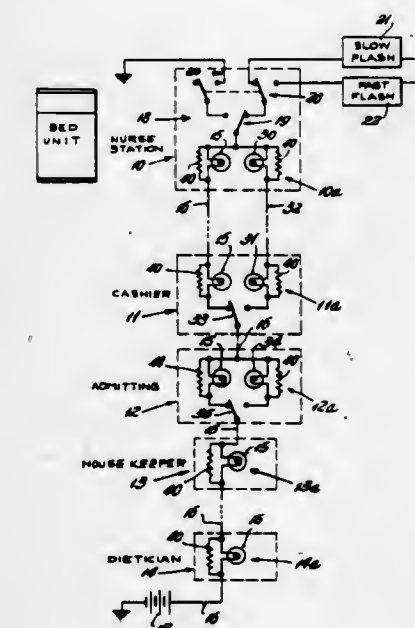
Earl L. Bunting, Westport, Conn., assignor to Bunting Sterisystems, Inc., Bridgeport, Conn.

Filed Dec. 6, 1968, Ser. No. 781,864

Int. Cl. G08b 25/00

U.S. Cl. 340—286

7 Claims

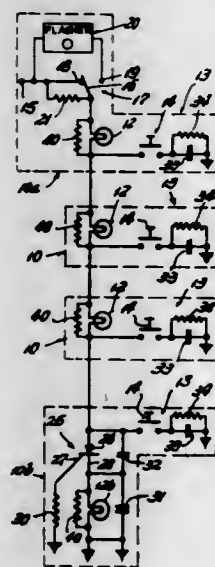


A system for indicating to a plurality of administrative stations, by signal means, the status of the individual unit. Preferably, the administrative station adjacent the unit has means controlling the signals to energize the signaling means in all stations simultaneously to indicate the status of the unit. For example, in a hospital the system would indicate the status of a patient-bed unit. It would be controlled at the nur-

ses' station to supply the proper signals to energize the signal means and alert the cashier, admitting office, housekeeper, dietician and other desired administrative stations that the bed is occupied, the patient is to be discharged, the patient has left the bed and it should be made up, and that the bed is ready for occupancy so that each administrative station can be ready to perform its required function.

Heretofore in a hospital, for example, the records for each patient-bed unit were filed in filing cabinets at each administrative station and the status of each unit was not readily discernible. When there was any change in the unit status, it was necessary for the nurse or someone to advise each station individually. The record was then removed from the file and acted upon accordingly.

3,599,200
DOCTORS REGISTER
Earl L. Bunting, Westport, Conn., assignor to Bunting Sterisystems, Inc., Bridgeport, Conn.
Filed Dec. 4, 1969, Ser. No. 882,121
Int. Cl. G08b 5/22
U.S. Cl. 340-286 3 Claims



A doctors register system for hospitals or the like adapted to simultaneously indicate by a signal at a plurality of stations located in different parts of the hospital whether the doctor has checked in or out of the hospital, said system being capable of being actuated from any of the stations each of which has a plurality of units, one for each doctor, with the corresponding units in the stations connected together. Also, means can be provided for altering the character of the signal to provide additional information.

3,599,201
SELECTIVELY CONTROLLED ALARM
Lewis L. Clardy, Montgomery; Joe C. Stubblefield, Montgomery, Ala., and Lois M. Stubblefield, executrix, of said Joe C. Stubblefield, deceased, assignors to Leon L. Clardy, a.k.a. Lewis L. Clardy
Filed Apr. 23, 1968, Ser. No. 723,440
Int. Cl. G08b 23/00
U.S. Cl. 340-326 6 Claims

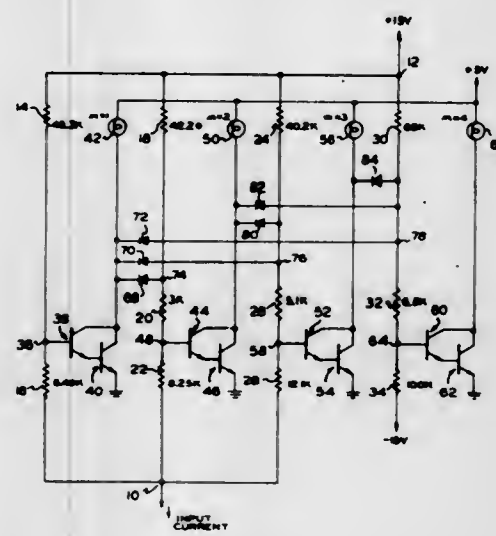
Switch means selectively energizes one of two parallel circuit branches. The first branch includes a lighting lamp and photocell switch connected in series and housed within a lamp post for providing general illumination when ambient

light conditions are lowered to a predetermined range. Upon actuation of the switch means, the first branch is opened and



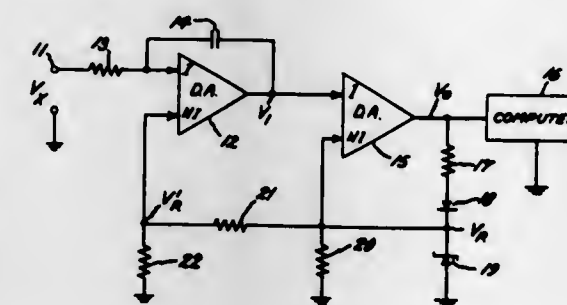
the second branch is closed to operate an emergency colored lamp, an audio alarm and a flasher.

3,599,202
ANALOG-TO-DIGITAL CONVERTER
William J. Devey, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Jan. 21, 1969, Ser. No. 792,691
Int. Cl. G08c 9/00; H03k 13/17
U.S. Cl. 340-347 AD 6 Claims



An analog-to-digital converter comprises a plurality of amplifiers each employing a Darlington pair of transistors. The input to each amplifier is supplied from a voltage divider, and all the voltage dividers are connected to a common input terminal from which a current is drawn indicative of an analog input value. The voltage dividers are proportioned for turning off each amplifier at a different current value as the current drawn from the input terminal increases. Also, diode coupling means are disposed between the output terminal of each amplifier and the voltage divider associated with each subsequent amplifier, causing each subsequent amplifier to remain in a nonconducting state until the previous amplifier is turned off. As the input current increases, only one transistor amplifier conducts at a time.

3,599,203
ASYNCHRONOUS ANALOG TO LOGIC LEVEL SIGNAL CONVERTER
James W. Conley, Scotia, N.Y., assignor to General Electric Company
Filed July 30, 1969, Ser. No. 846,007
Int. Cl. H03k 13/02
U.S. Cl. 340-347 AD 10 Claims



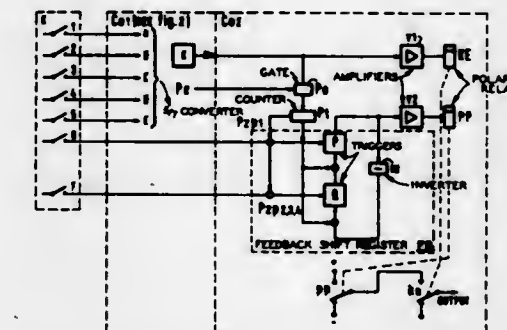
An asynchronous analog to logic level signal converter is described as comprising a first differential amplifier with means for integrating an input analog signal and applying the integrand signal to a second differential amplifier to produce a logic level output signal having a period, T_1 , inversely proportional to the amplitude of the input signal. A reference signal controllably applied to the other differential inputs of the first and second differential amplifiers produces a changed logic level having a period, T_2 , inversely proportional to the difference in amplitudes between the reference signal and the input signal. The amplitude of the input analog signal is obtained by computing the product of the reference voltage and the ratio of T_2 to T_1 plus T_2 .

3,599,204
TECHNIQUE FOR HIGH SPEED ANALOG-TO-DIGITAL CONVERSION
John A. Severin, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 29, 1967, Ser. No. 694,531
Int. Cl. H03k 13/02
U.S. Cl. 340-347 AD 1 Claim



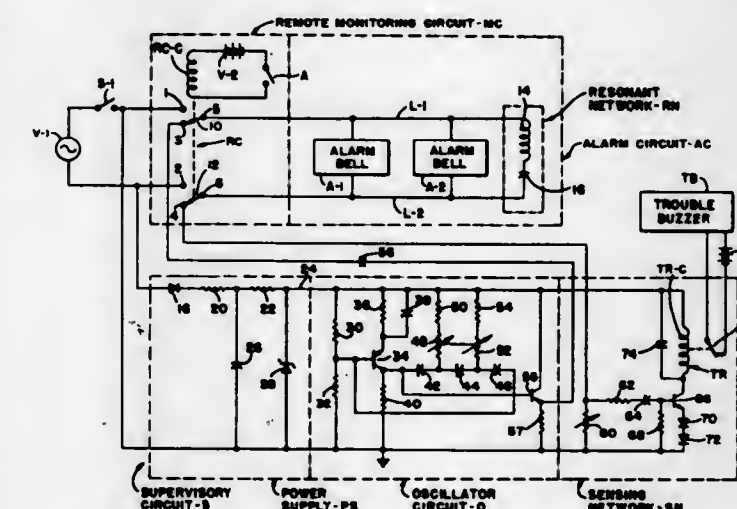
An analog signal is sequentially sampled and fed into a plurality of series connected identical encoder circuits. Each of the encoder circuits successively generates analog outputs representative of the sampled values of the analog signal. The encoder circuits also successively generate binary bit outputs representative of the relationship of each of the analog outputs to a preselected reference value. The binary bit outputs are stored in sequential order of generation until each of the encoder circuits has generated a binary bit output associated with a particular sampled value of the analog signal, whereupon all the stored binary bit outputs are simultaneously read out as a parallel digital word representative of the particular sampled value of the analog signal.

3,599,205
BINARY TO TERNARY PROTECTED CODE CONVERTER
Hendrik Cornelis Anthony Van Duuren, Wassenaar, and Herman Da Silva, Voorburg, both of, Netherlands, assignors to De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door De Directeur-Generaal Der Posterijen, Telegrafie En Telefonie
Filed Aug. 28, 1968, Ser. No. 756,020
Claims priority, application Netherlands, Sept. 4, 1967, 6712110
Int. Cl. H04l 3/00; G06l 5/00; H03k 13/24
U.S. Cl. 340-347 DD 10 Claims



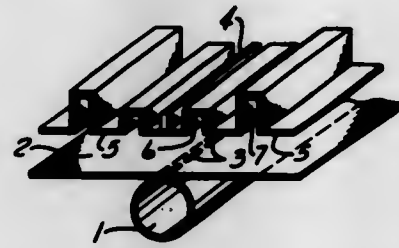
A first code converter comprising two shift registers, one with a counter, and a logic circuit for converting binary code signals having a specified number of bits into protected code signals preferably having the same number of bits and preferably exhibiting a specified 0-bit/1-bit ratio, and a second code converter comprising a counter, a feedback shift register, and two keying devices for converting the 1-bits for transmission at two levels, such as potentials, amplitudes, or frequencies, different from the level at which the 0-bits are transmitted, to form a ternary code with the number of 1-bits transmitted at one level and the number of 1-bits transmitted at the other level exhibiting a constant ratio.

3,599,206
ALARM CIRCUIT SUPERVISORY MEANS
Robert B. McLeod, Clinton, Mass., assignor to N Galf & Western Systems Company, New York, N.Y.
Filed Nov. 17, 1969, Ser. No. 877,107
Int. Cl. G08b 29/00
U.S. Cl. 340-409 20 Claims



There is disclosed in an alarm system, a supervisory signal monitoring circuit for providing an indication of a disruption in the system and comprising supervisory conductor means for normally carrying a supervisory current, termination circuit means coupled to the supervisory conductor means, and a trouble indicating circuit coupled to the supervisory conductor means. The trouble indicating circuit includes an oscillator circuit having first circuit means for developing an oscillating signal and second circuit means for applying the oscillating signal to the supervisory conductor means to

ground plate and are provided with parallel grooves which extend longitudinally and have a depth of about one-fourth the cutoff wavelength of the antenna so that the input im-



pedances for the modes propagating in space between the grooved plates and the ground plate is infinite thereby preventing stray interferences.

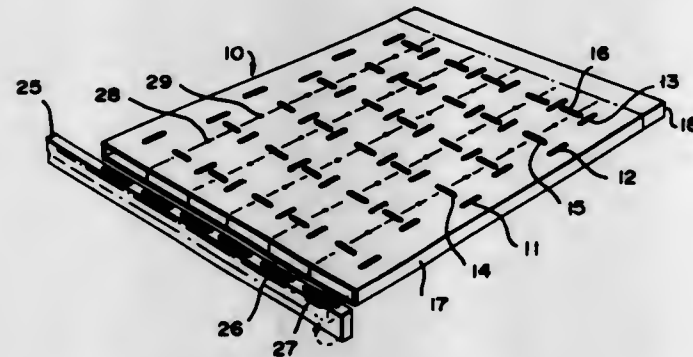
3,599,216 VIRTUAL-WALL SLOT CIRCULARLY POLARIZED PLANAR ARRAY ANTENNA

T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, Arthur F. Seaton, Palos Verdes Estates, Calif.

Filed Aug. 11, 1969, Ser. No. 848,810
Int. Cl. H01q 13/10

U.S. Cl. 343-771

22 Claims



A circularly polarized planar array antenna is provided by a multimode waveguide with alternately displaced transverse slots over virtual walls for one component, and conventional series or shunt slots between virtual walls for the other component of a circularly polarized beam. Actual walls may be inserted in the place of the virtual walls for unbalanced excitation of the array with a quarter-guide wavelength choke under each wall slot.

3,599,217 LOG PERIODIC DIPOLE ANTENNA ARRAY

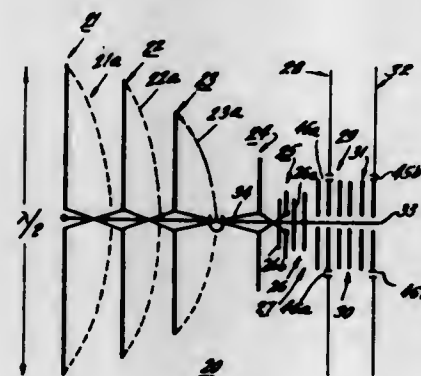
Ronald D. Grant, Urbana, Ill., assignor to J. F. D. Electronics Corp., Brooklyn, N.Y.

Filed Aug. 19, 1968, Ser. No. 753,590

U.S. Cl. 343-792.5

Int. Cl. H01q 11/10

14 Claims



An antenna preferably designed in accordance with log-periodic principles having a superior radiation pattern and an

excellent front-to-back ratio to provide exceptional performance in fringe areas. The antenna employs straight dipole arms and for VHF operation is comprised of a forward and rearward active region. The rearward active region is comprised of a plurality of dipoles having electrical lengths selected to operate in the $\lambda/2$ mode for low band VHF reception. The forward active region is comprised of dipoles selected to operate in the $\lambda/2$ mode for high band VHF reception. During low band VHF operation the forward active region has an insignificant effect upon the rearward active region enabling signals in the low band VHF to be of high gain and having a good front-to-back ratio, as well as providing excellent directional characteristics.

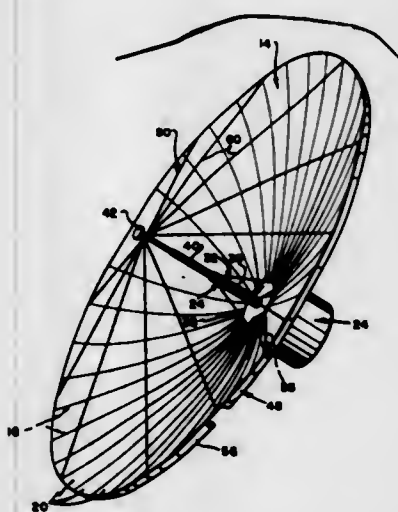
3,599,218 LIGHTWEIGHT COLLAPSIBLE DISH STRUCTURE AND PARABOLIC REFLECTOR EMBODYING SAME

Clyde E. Williamson, and Michael E. Bochory, both of Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Sept. 11, 1968, Ser. No. 759,136
Int. Cl. H01q 19/12, 15/20

U.S. Cl. 343-840

13 Claims



A collapsible lightweight, dish-shaped structure is provided for use as a parabolic reflector and other uses. The structure has a dish constructed of a lightweight, thin film membrane, such as an aluminized polymeric plastic film selected from the class including Mylar and Kapton. Lightweight elastic ribs or beams, which are preferably slender tubes constructed of the same thin film material as the dish, are bonded to the rear surface of the dish and are preformed to cause the dish to normally assume a predetermined geometric configuration, such as a parabolic shape. The structure may be folded for stowage in a container, or the like, in such a way that the structure, when released from the container, is deployed to its predetermined configuration by the elastic strain energy stored in the folded beams of the structure. Deployment of the dish structure from its folded configuration may be aided by auxiliary deployment means, such as leaf springs secured to the inner ends of the beams, an inflatable ring secured about the rim of the dish, guy wires extending between the rim and a telescopic actuator at the center of the dish, and/or a separable thin film cover defining with the dish an inflatable chamber.

3,599,219 BACKLOBE REDUCTION IN REFLECTOR-TYPE ANTENNAS

Alfred G. Holtum, Jr., Oak Forest; Thomas E. Charlton, Orland Park, and Laurence H. Hansen, Oak Lawn, all of Ill., assignors to Andrew Corporation, Orland Park, Ill.

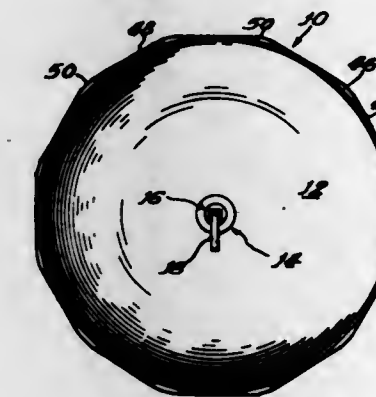
Filed Jan. 29, 1969, Ser. No. 794,857
Int. Cl. H01q 19/12

U.S. Cl. 343-840

18 Claims

The axial backlobe of a circular parabolic antenna dish is greatly reduced by providing variation of the phase of radiation diffracted at successive portions of the edge. The phase is varied by providing an edge configuration in which successive portions of the edge are at differing distances from the

feed. A dual-polarized antenna employs a polygonal rim surrounding the round reflector. A large increase in front-to-



back ratio is obtained. The theory of operation is described to enable use in other structures.

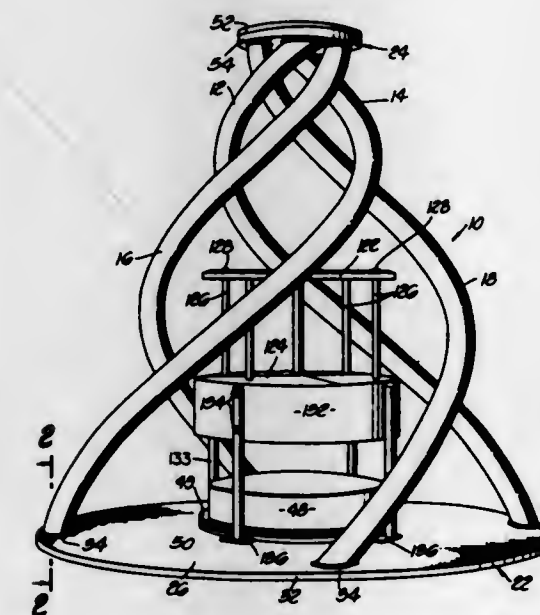
3,599,220 CONICAL SPIRAL LOOP ANTENNA

Richard C. Dempsey, Chatsworth, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 24, 1968, Ser. No. 770,340
Int. Cl. H01q 1/36

U.S. Cl. 343-845

8 Claims



The invention relates to an antenna having a plurality of pairs of spirally wound radiating arms. The radiating arms are wound in the shape of a cone and terminate at one end in a truncated portion. Impedance matching means are provided between each of the pairs of radiating arms at the truncated end. A ground plane is provided for each frequency of operation.

3,599,221 RECORDING CRT LIGHT GUN AND METHOD

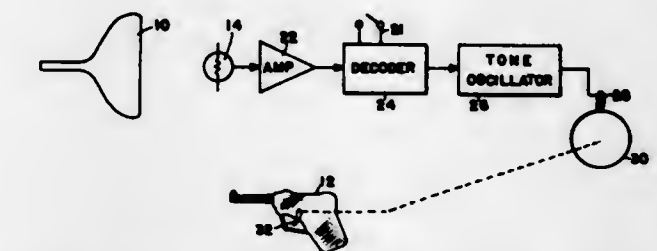
Ralph H. Baer, Manchester, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed Mar. 18, 1968, Ser. No. 713,954

Int. Cl. G01d 5/26; H04n 5/76

U.S. Cl. 346-1

16 Claims



Apparatus and method for recording a coded pattern on a CRT display comprises a detector for detecting the coded pattern, a decoder for recognizing the coded pattern, apparatus for generating a signal in response to a decode, and apparatus for recording the generated signal in a nondeceptive manner by recording the decode immediately subsequent the occurrence thereof. Alternatively, a signal is generated in response to a detected signal and recorded directly without decoding.

3,599,222 VELOCITY SHOCK RECORDER

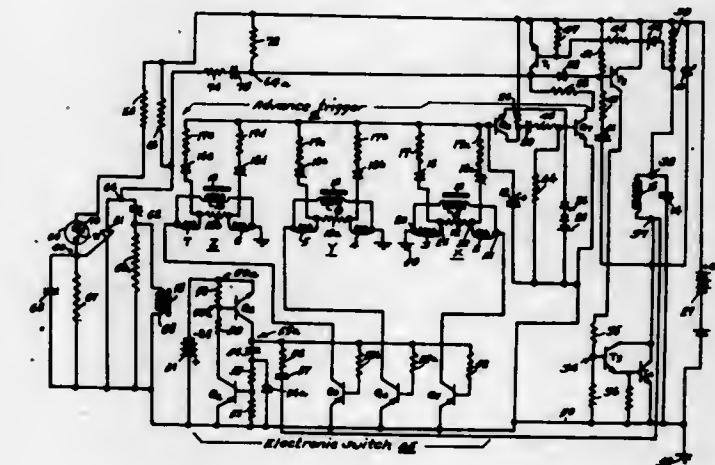
David M. Franklin, Lexington, and Clive L. Nickerson, Ashland, both of Mass., assignors to The United States of America as represented by the Secretary of the Army

Filed May 15, 1970, Ser. No. 37,644

Int. Cl. G01p 15/08; G11b 5/00

U.S. Cl. 346-7

4 Claims

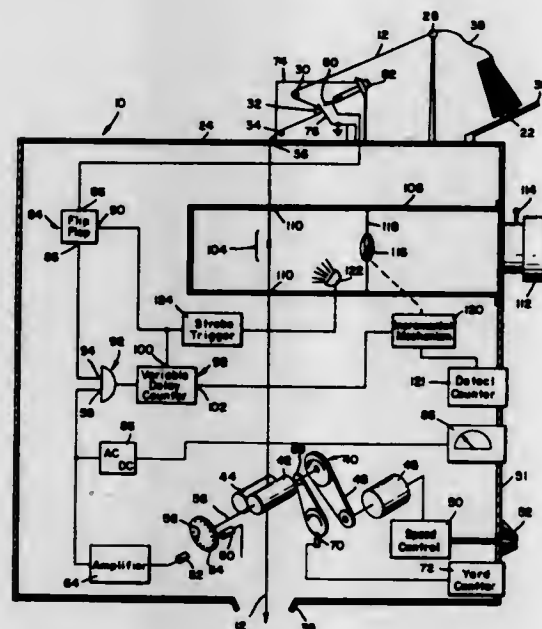


A velocity shock recorder is described which is capable of measuring and recording shock environments, in terms of impact velocity or drop height, to which containers are subjected to in shipment, handling and storage. A basic magnetic tape recorder is employed within the container wherein are affixed to the inside walls thereof electromagnetic transducers coupled to the magnetic recording heads of said recorder. At impact a voltage proportional to the impact velocity is generated by a related electromagnetic transducer and is coupled to a magnetic recording head which in response thereto causes a signal to be recorded on the tape while it is stationary. This generated voltage is also coupled to a transistor actuating circuit which in response thereto causes a series of transistor switches to be biased into conduction whereupon a path is provided for a capacitor power supply to discharge through the stepping motor of said recorder whereby the magnetic tape is advanced and whereby through such action a negative voltage step is obtained. A transistor switch means is set into operation in response to the negative step voltage associated with operation of the stepping motor and functions to cutoff the aforementioned voltage on the initial positive cycle at a value slightly beyond the maximum value and also prevents activa-

tion of the magnetic recording heads by secondary signals for a period of two seconds.

3,599,223
PHOTOGRAPHIC DEFECT RECORDER
Edwin R. Bridenbaugh, and Lawrence W. Sherman, both of Huntsville, Ala., assignors to Automation Industries, Inc., Los Angeles, Calif.

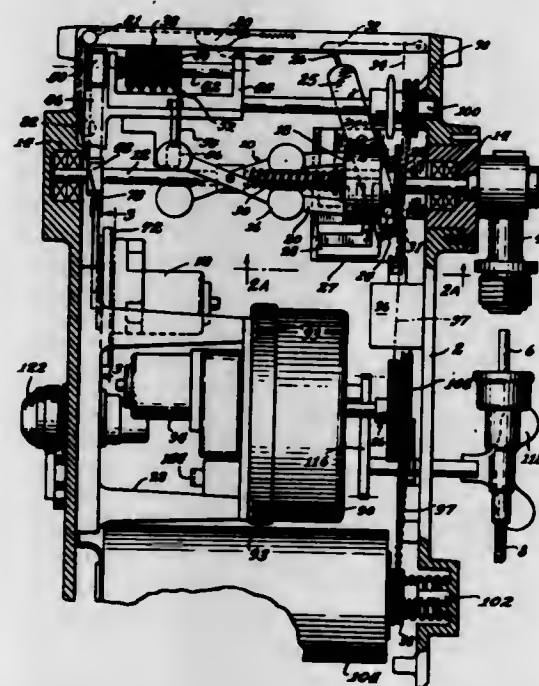
Filed Nov. 6, 1969, Ser. No. 874,635
Int. Cl. G01d 9/42
U.S. Cl. 346—33 F 10 Claims



A machine is disclosed herein for rapidly inspecting threads and/or yarns for defects, such as slubs, neps, doubles and/or knots, etc. The machine automatically counts the total number of yards of thread or yarn inspected, the total number of defects present in the inspected thread or yarn and makes a permanent record, such as a photograph of each and every defect.

3,599,224
COMBINED RECORDING DEVICE FOR TRUCKS AND THE LIKE
George V. Hahn, Smithtown, N.Y., assignor to TEK Bearing Company, Inc.

Filed Jan. 27, 1969, Ser. No. 794,165
Int. Cl. G07c 5/12; G01d 9/30
U.S. Cl. 346—61 18 Claims

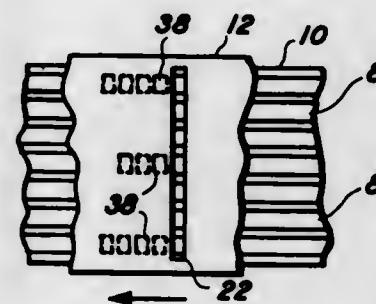


A compact, primarily automatic recording device for use on trucks, particularly those involved in interstate commerce,

for recording time, speed and related matters and other selected conditions in a permanent tamperproof manner to thereby furnish detailed records for truck fleet operator's use or Interstate Commerce Commission use.

3,599,225
ELECTROSTATIC RECORDING APPARATUS
William Babcoff, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Nov. 28, 1967, Ser. No. 686,238
Int. Cl. G01d 15/06, 15/20
U.S. Cl. 346—74 ES 6 Claims



An electrostatic recording apparatus wherein a corona source including a plurality of equidistant conductors are selectively pulsed to generate a corona stream in a space between a backing electrode and the pulsed conductor, this space being defined by an aperture in a dielectric member which moves the aperture in a direction substantially parallel to said conductors.

3,599,226
MAGNETIC RECORD ELEMENT
Theodoor Maria Albert Lips, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 2, 1969, Ser. No. 812,804
Claims priority, application Netherlands, Apr. 27, 1968, 6,806,033
Int. Cl. G01d 15/12, 15/34; G11b 25/04
U.S. Cl. 346—74 MD 5 Claims

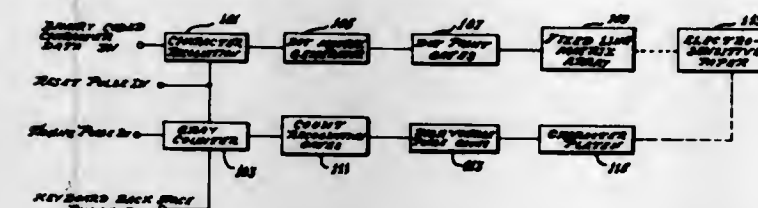


A magnetic recording element for recording and/or playing back magnetic records by means of one or more magnetic heads comprised of a wheel-shaped disc having a hub and rim connected by spoke elements. The record medium is carried on a disc-shaped foil which forms the upper and lower surfaces of the wheeled disc. The foil has a central opening which is larger than the diameter of the hub of the wheel so that a plurality of chambers are formed between the foils, the two adjacent spokes and the rim of the wheel with the inner end opened to the ambient atmosphere so that as the disc is rotated on the recording apparatus, centrifugal force causes the ambient to enter the chamber and produce an outward pressure on the foil so as to insure good contact between the record medium and the recording heads.

3,599,227
ELECTRO-ARC PRINTING SYSTEM
Earl H. Cobb, 4513 Edinburg Drive, Woodbridge, Va.
Filed Nov. 19, 1968, Ser. No. 777,009
Int. Cl. G01d 15/06; H04l 15/34

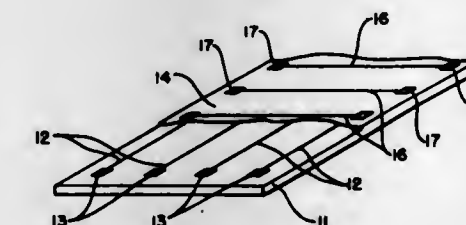
U.S. Cl. 346—74 ES 3 Claims
An input typewriter-output printer system where characters originate from either a keyboard or computer and are encoded to binary form to be recognized by an AND gate circuit. The outputs of the AND gates are fed to a matrix generator that activates high-voltage gates to form characters. Each character is parallel fed along a fixed line that is in

alignment with electrosensitive paper upon which the characters are printed by arcing through to a conducting platen divided into segments by insulators, each segment corresponding to one of the parallel characters on the fixed line. A bi-



nary up-down counter controlling the voltage to the segments sequentially completes the arcing circuit of the parallel characters through the paper.

3,599,228
THERMAL RECORDER
Charles E. Coco, Temple, and Stanley M. Welsh, Reading, both of, Pa., assignors to Wyomissing Corporation
Filed Feb. 4, 1969, Ser. No. 796,434
Int. Cl. G01d 15/10 5 Claims



A system is provided to convert electrically coded intelligence into a visual display of such intelligence. In a preferred form of the invention, a sheet of material carrying a thermally responsive coating material is provided with a plurality of closely spaced electrical junctions. The junctions include a resistive component that causes heat to be generated when current passes through the junctions. This heat is used to develop a visual image on the thermally reactive paper.

In the preferred practice of this invention, the junctions are defined by a first series of linear conductors located in a first plane, a second series of linear conductors angularly disposed with respect to the first conductors located in a second plane, and a resistive element in the form of a continuous film or coating separating the first and second conductors.

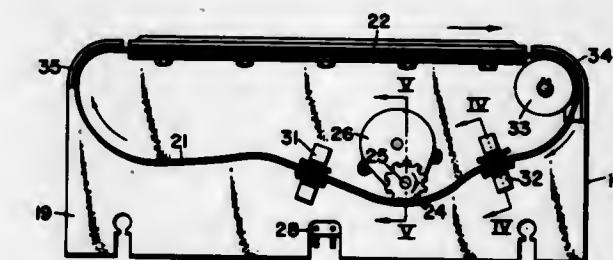
3,599,229
APPARATUS FOR PRINTING IN CODED INKS AND RETRIEVING THE INFORMATION
Charles N. Merrell, Plainview, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Aug. 23, 1967, Ser. No. 662,657
Int. Cl. B41f 31/02; B41j 27/00; G01d 15/18
U.S. Cl. 346—75 6 Claims



Messages in coded inks in which the code is the presence or absence of photoluminescent components are effected by imprinting in spatially separated marking areas equal in number to the components, moving the marking areas one space and imprinting the coding components for a second

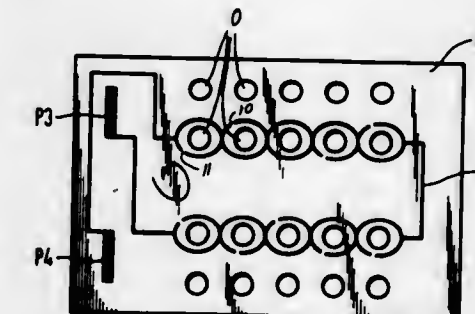
symbol. As a result, no marking area will receive the same coded component corresponding to more than one symbol and some marking areas will receive coding components corresponding to more than one symbol. Retrieval is by ultraviolet illumination, photoluminescence of the components being received by separate detectors and the signals read out as symbols.

3,599,230
RECORDER BLADE ASSEMBLY
Milton Alden, Needham, Mass., assignor to Alden Research Foundation, Brockton, Mass.
Filed Jan. 22, 1969, Ser. No. 793,130
Int. Cl. G01d 15/24 5 Claims



This invention relates to a recorder blade assembly and, more particularly, to a recording apparatus wherein a movable electrode is provided in the form of a loop and is continuously driven for movement in a straight line through the recording area.

3,599,231
CONSTANT VALUE STORER
Gunter Rapp, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Dec. 4, 1968, Ser. No. 782,515
Claims priority, application Germany, Dec. 12, 1967, P 15 49 065.0
Int. Cl. G11c 17/00, 11/04, 7/02
U.S. Cl. 340—174 SP 1 Claim

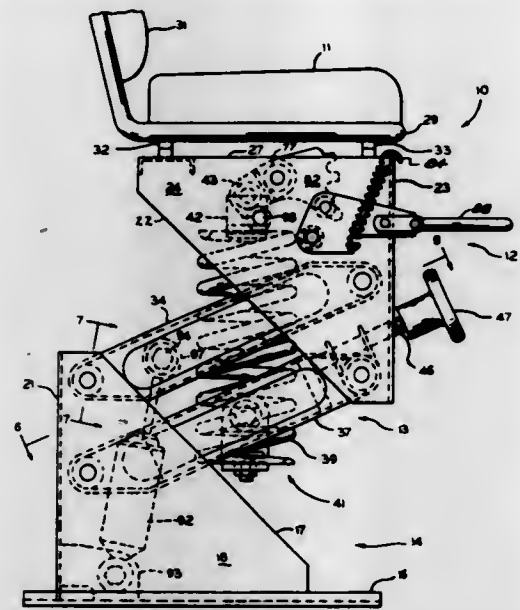


Structures forming transformer read-only storers so as to substantially eliminate capacitive coupling between adjacent layers of stacked storers so as to substantially eliminate incorrect output signals from the storer. Alternate storage planes are formed with input leads transposed so as to substantially eliminate capacitive coupling.

3,599,232
VEHICLE SEAT SUSPENSION SYSTEM
Paul C. Tabor, Roseville, Mich., assignor to Freedman Seating Co., Evanston, Ill.
Filed Apr. 28, 1969, Ser. No. 819,576
Int. Cl. B60n 1/02 15 Claims

Improved suspended vehicle seat having a suspension system comprising means to enable a vehicle operator to adjust the riding height of the seat and to maintain the seat suspension rate while driving. In one embodiment, the suspension rate is adjusted by varying the angle of a seat

suspension spring by means of a positionable rail-riding bracket having one end of the spring associated therewith.



The height adjustment of the spring is made by selectively preloading the compression of the suspension spring.

3,599,233

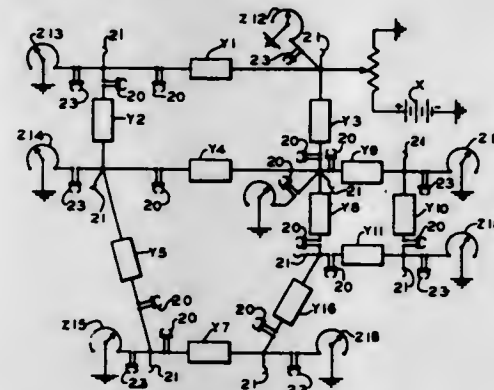
APPARATUS FOR ANALYZING PIPELINE NETWORKS AND COMPUTING ELEMENTS THEREFOR

Richard W. Meyer, 2626 Letchworth Parkway, Toledo, Ohio
Continuation of application Ser. No. 462,770, Mar. 15, 1965, now abandoned, which is a continuation of application Ser. No. 16,042, Mar. 18, 1960, now abandoned. This application Jan. 12, 1970, Ser. No. 1,959

Int. Cl. G06g 7/50

U.S. Cl. 235—151.34

18 Claims



An apparatus for analyzing pipeline networks comprising an electrical circuit system arranged to simulate pipes and loads in a pipeline network comprising a plurality of interconnected computing elements, each connected to represent a pipe, a source of applied voltage connected to the electrical circuit system at a point where a source of pressure is connected to the pipeline network, and variable resistors connected to represent the loads in the system, such that varying voltage drops will occur across the computing elements as the applied voltage varies. Each computing element simulates the variation in fluid flow through a fluid conduit with variation in fluid pressure drop across the conduit over a predetermined range of pressure variation.

3,599,234

RECEPTACLE FOR MODULAR CIRCUIT ELEMENT
John Andreini, Irvington, N.J.; Edwin Harley Borchard, Boulder; Karl-Helmut Fohl, Boulder, Colo., and Joseph Anthony Puccio, East Brunswick, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 22, 1970, Ser. No. 4,912

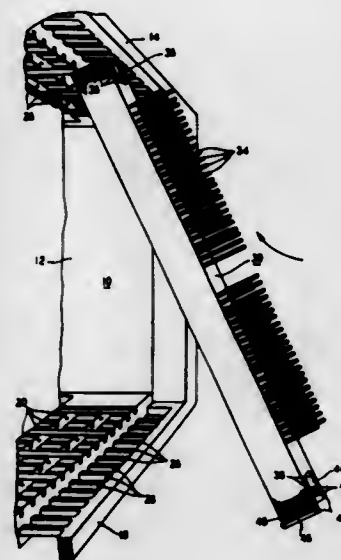
Int. Cl. H02b 1/02

U.S. Cl. 317—101 DH

10 Claims

The receptacle includes spaced sides having opposed grooves, each side having a plurality of spaced parallel struts

extending rearward of the grooves. The grooves accommodate the lateral edges of a circuit board and guide the circuit board into engagement with a connector extending between the sides. Each end of the connector has a pair of



tines that are accommodated by the spaces between the struts, and the tines at one end of the connector include lips that extend behind the struts and secure the connector in place.

3,599,235

ROUTE SELECTING SYSTEM IN A TELEPHONE EXCHANGE

David Christopher Haigh, London, England, assignor to The General Electric Company Limited, London, England
Filed Apr. 11, 1968, Ser. No. 720,513

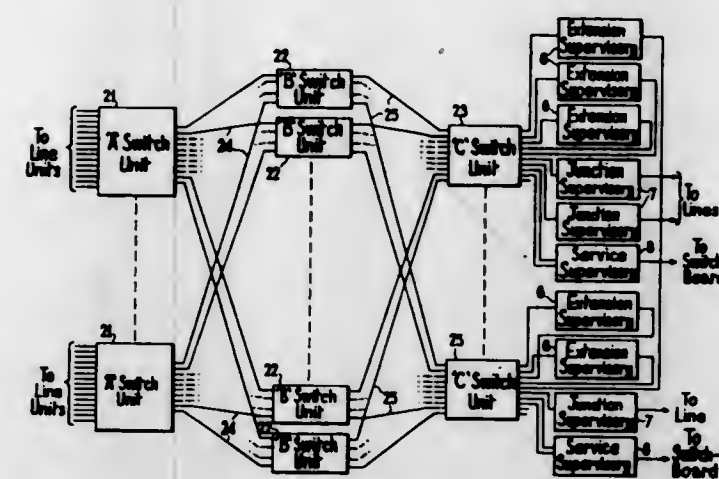
Claims priority, application Great Britain, Apr. 12, 1967,

16,883/67

Int. Cl. H04q 3/56

U.S. Cl. 179—18

5 Claims



A telephone switching system, for example a P.A.B.X., has tandem-connected A, B and C switching stages connected between input speech paths and supervisory units of a plurality of different types which types are utilized for different types of call through the system. Each switching stage consists of a plurality of full-availability reed relay switch units. There is only a single A-B link between each A switch unit and each B switch unit and a single B-C link between each B switch unit and each C switch unit. Selection of a free route through the switching stages between an input path and a free supervisory unit of a particular type to which the path is to be connected is effected by selecting each C switch unit in turn and examining the pairs of links from each B switch unit to the A switch unit to which the line is connected and to the selected C switch unit to ascertain if there is a free route to that C switch unit. When a suitable C switch unit is found, the pairs of links terminating on the individual B switch units

are examined in turn to find a suitable B switch unit. Finally, a free supervisory unit connected to the selected C switch unit is chosen and the required connection through the three stages can then be established.

3,599,236

CONTROL OF SYNCHRONOUS DYNAMO-ELECTRIC MACHINES

Roy Hutchins, Redhill, England, assignor to Associated Electrical Industries Limited, London, England
Filed June 30, 1969, Ser. No. 837,859

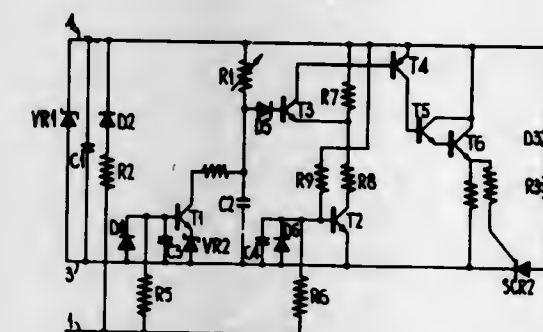
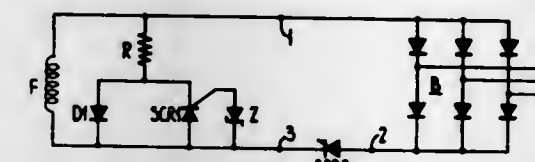
Claims priority, application Great Britain, July 4, 1968,

32,050/68

Int. Cl. H02p 1/50

U.S. Cl. 318—176

3 Claims



An electronic circuit arrangement for connecting the DC excitation to a synchronous machine near the beginning of a positive half-cycle of its slip-frequency voltage when the speed is found to be sufficient by timing the preceding negative half-cycle. Resistance-capacitance timing means ener-

gized by an auxiliary voltage source and reset by a transistor switched on by the positive half-cycles. Transistor trigger means switched on by a combination of positive slip-frequency voltage (or the auxiliary voltage if the machine has already pulled into synchronism) and sufficient voltage from the timing means. A brushless machine construction employs solid-state devices including an SCR switch fired by the circuit arrangement.

3,599,237

MODULATOR AND FREQUENCY MODULATED PHASE-SHIFT OSCILLATOR ARRANGEMENT

Jean Victor Martens, Deurne-Zuid, Switzerland, assignor to International Standard Electric Corporation, New York, N.Y.

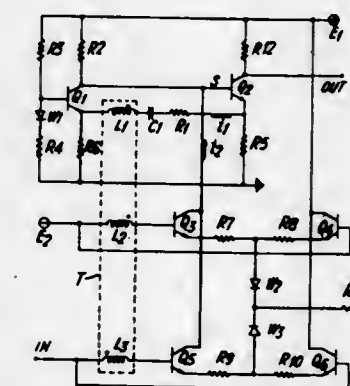
Filed Nov. 18, 1968, Ser. No. 776,474

Claims priority, application Belgium, Dec. 27, 1967, 47,535

Int. Cl. H03c 3/00

U.S. Cl. 332—23

9 Claims



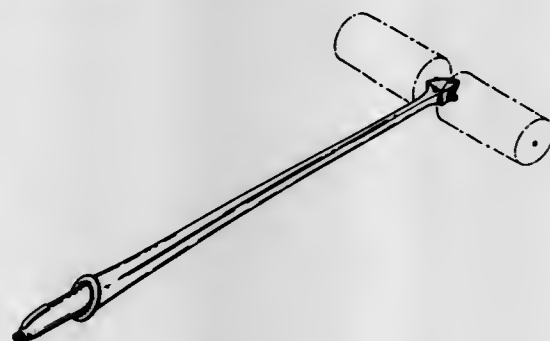
A circuit arrangement is provided having first and second signal transducing circuits with parallel outputs, a first input signal is applied to the inputs of both of said circuits and a second input signal is applied at least to one of said circuits, whereby said second input signal is applied at least to said input of said first circuit where it is superposed to said first input signal.

DESIGNS

AUGUST 10, 1971

221,374
MOTOR, HANDLE AND MOUNTING UNIT FOR
ROTATABLE BRUSHES
Ralph H. La Bossier, 27915 10th Ave. S.,
Auburn, Wash. 98002
Filed Dec. 23, 1969, Ser. No. 20,615
Term of patent 14 years
Int. Cl. D4—04

U.S. Cl. D4—38



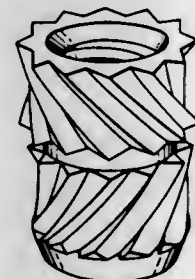
221,375
COMBINATION LOCK FOR BICYCLES
OR THE LIKE
Hisashi Saito, Nagoya, Japan, assignor to Kabushiki
Kaisha Salkosha Seikakusho, Kasugai, Aichi Prefecture,
Japan
Filed Feb. 5, 1970, Ser. No. 21,287
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—114



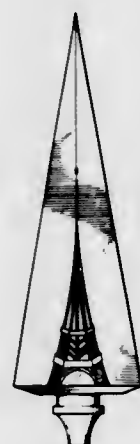
221,376
HELICAL INSERT
John M. Tildesley, Stratford, 93 Wrottesley Road,
Tettenhall, Wolverhampton, Staffordshire, England
Filed Dec. 29, 1969, Ser. No. 20,687
Claims priority, application Great Britain July 1, 1969
Term of patent 14 years
Int. Cl. D8—04

U.S. Cl. D8—272



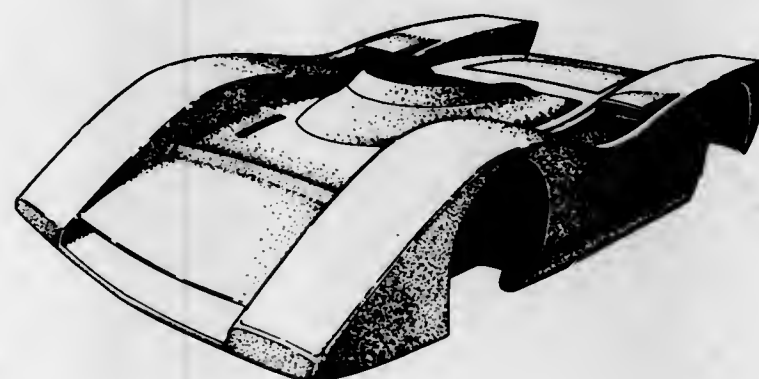
221,377
HANDLE FOR A BOTTLE CAP
Joseph F. Schneider, 2326 Sawtella Blvd.,
Los Angeles, Calif. 90064
Filed Feb. 4, 1970, Ser. No. 21,270
Term of patent 14 years
Int. Cl. D9—99

U.S. Cl. D9—266



221,378
RACING CAR BODY
Michael D. Williams, Roselle, Ill., assignor to Armco
Steel Corporation, Middletown, Ohio
Filed Nov. 10, 1969, Ser. No. 20,025
Term of patent 14 years
Int. Cl. D12—08

U.S. Cl. D14—3



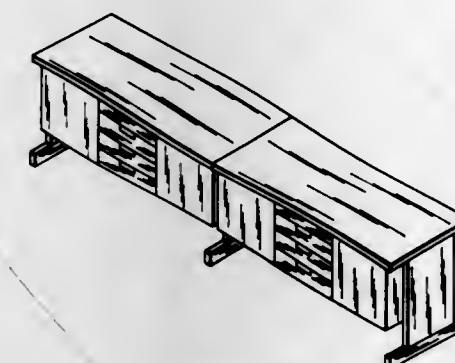
AUGUST 10, 1971

U. S. PATENT OFFICE

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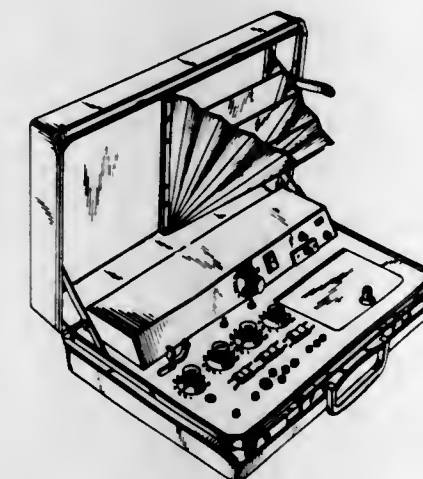
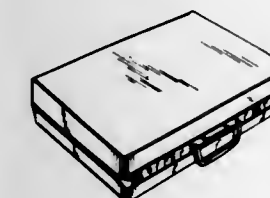
221,379
LABORATORY CABINET
John P. Salegiver, West Acton, Mass., assignor to United
Technical Corporation, West Concord, Mass.
Filed Dec. 18, 1969, Ser. No. 20,561
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D16—2



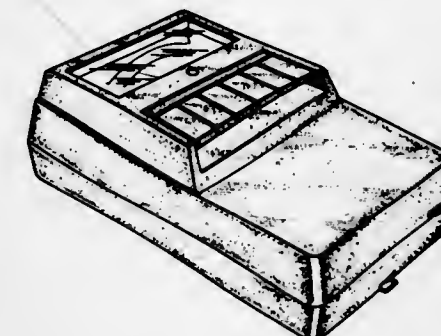
221,380
PORTABLE DENTAL UNIT
Alvin M. Chasen and Alan N. Miller, Spring Valley, N.Y.,
assignors to Majesco, Inc., New York, N.Y.
Filed Apr. 24, 1970, Ser. No. 22,622
Term of patent 3½ years
Int. Cl. D24—03; D3—01

U.S. Cl. D24—1



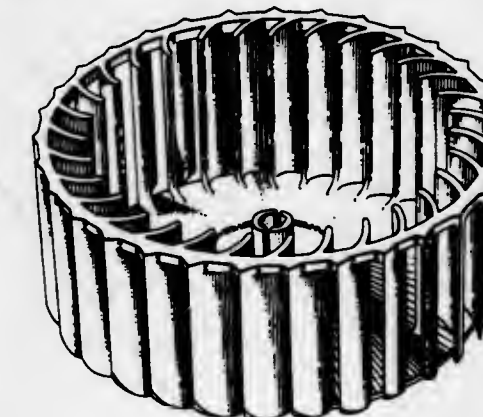
221,381
PORTABLE VOLT-AMMETER OR THE LIKE
Takeo Kuramoto, Tokyo, Japan, assignor to Kyoritsu
Electrical Instruments Works, Ltd., Tokyo, Japan
Filed Mar. 23, 1970, Ser. No. 22,033
Claims priority, application Japan Sept. 29, 1969
Term of patent 7 years
Int. Cl. D10—10

U.S. Cl. D26—1



221,382
BLOWER WHEEL
Daniel F. Bubb, Grafton, and James M. Callihan, Elyria,
Ohio, assignors to The General Industries Company,
Elyria, Ohio
Filed Jan. 12, 1970, Ser. No. 20,898
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—165



221,383
CASSETTE TAPE RECORDER
John S. Maliskas, North Syracuse, N.Y., assignor to
General Electric Company
Filed June 5, 1970, Ser. No. 23,334
Term of patent 14 years
Int. Cl. D14—01, 03

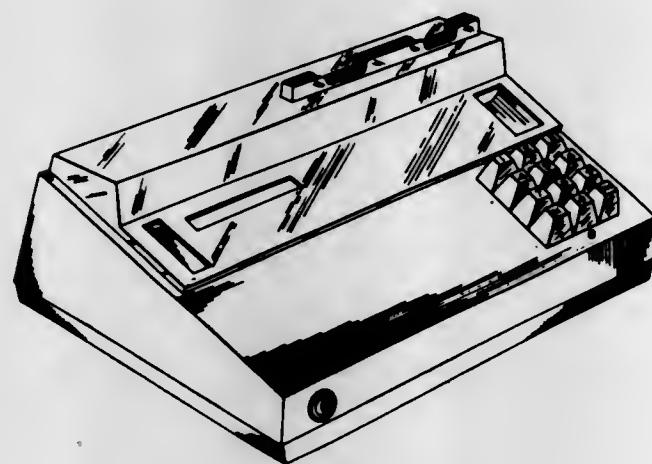
U.S. Cl. D26—14



221,384
DATA PROCESSING CONTROL UNIT
 Thomas A. Molyneux, Waterford Township, Oakland County, Mich., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Mar. 6, 1970, Ser. No. 21,771
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5



221,386
FOLDABLE VOTING BOOTH
 John W. Babbs, Torrance, Arthur H. Krugler, Whittier, and Harry D. Jacoby, Palos Verdes Estates, Calif., assignors to Hitco

Filed Feb. 20, 1970, Ser. No. 21,548
 Term of patent 14 years
 Int. Cl. D6—04

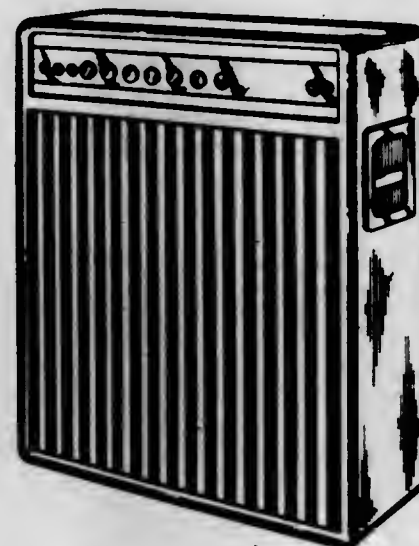
U.S. Cl. D33—7



221,385
COMBINED ELECTRIC GUITAR AMPLIFIER AND LOUDSPEAKER HOUSING UNIT OR SIMILAR ARTICLE

Charles A. Ross, Chanute, Kans., assignor to Kustom Electronics, Inc., Chanute, Kans.
 Filed Apr. 9, 1970, Ser. No. 22,342
 Term of patent 14 years
 Int. Cl. D14—01, 04

U.S. Cl. D26—14



221,387
LIQUID DISPENSER
 Louise E. Bacon, North Canton, and Siegfried Garbe, Canton, Ohio, assignors to Spartan International Corporation, Glendale, N.Y.

Filed Nov. 24, 1969, Ser. No. 20,239
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—30



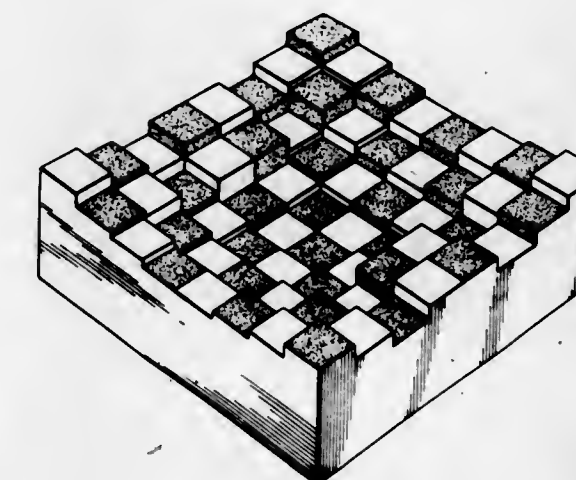
221,388
MOLDED TOY ANIMAL FIGURE
 Don A. Winton, Pasadena, Calif., assignor to J. L. Prescott Company, Passaic, N.J.
 Filed July 22, 1969, Ser. No. 18,338
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—2



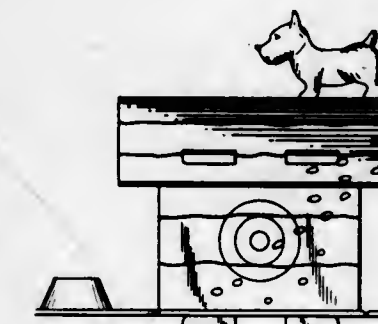
221,390
CHESSBOARD
 David R. Skillman, 414 Ridge Road 2, Greenbelt, Md. 20770
 Filed July 29, 1970, Ser. No. 24,214
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5



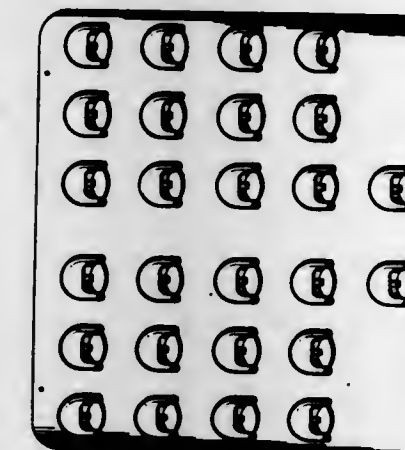
221,391
NOVELTY GLIDER TOY
 William Littlejohn, 23425 Malibu Colony Drive, Malibu, Calif. 90265
 Filed Jan. 9, 1970, Ser. No. 20,864
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—15



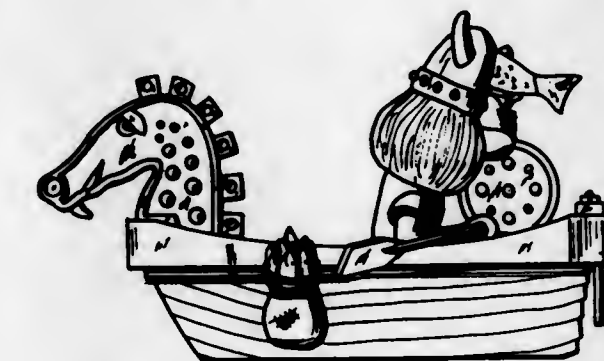
221,389
ORNAMENTAL TEAM STANDING INDICATOR
 Lawrence J. Rhea, 4356 Chateau Deville Drive 63129, and William P. Britt, 5032 Kempf Drive 63128, both of St. Louis, Mo.
 Filed Mar. 18, 1970, Ser. No. 21,959
 Term of patent 7 years
 Int. Cl. D21—01

U.S. Cl. D34—5

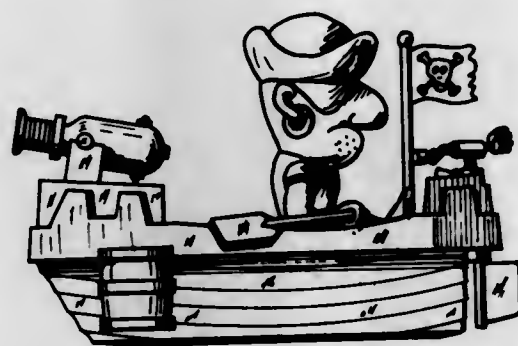


221,392
COMBINED VIKING AND ROWBOAT TOY
 John P. McNett, Short Hills, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
 Filed Feb. 3, 1970, Ser. No. 21,281
 Term of patent 7 years
 Int. Cl. D21—02

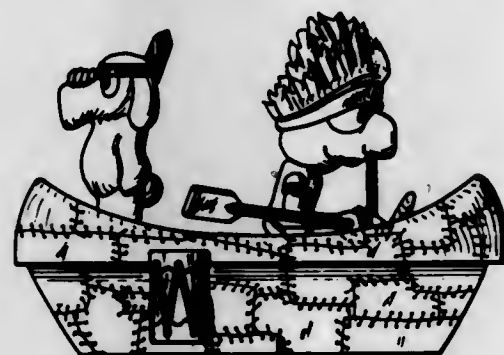
U.S. Cl. D34—15



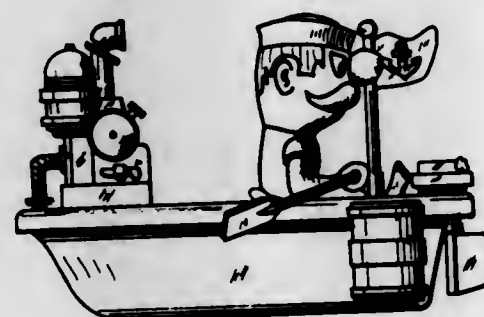
221,393
COMBINED PIRATE AND ROWBOAT TOY
 John P. McNett, Short Hills, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
 Filed Feb. 5, 1970, Ser. No. 21,283
 Term of patent 7 years
 Int. Cl. D21-02
 U.S. Cl. D34-15



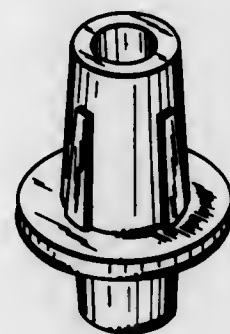
221,394
COMBINED INDIAN AND CANOE TOY
 John P. McNett, Short Hills, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
 Filed Feb. 5, 1970, Ser. No. 21,282
 Term of patent 7 years
 Int. Cl. D21-02
 U.S. Cl. D34-15



221,395
COMBINED SAILOR AND ROWBOAT TOY
 John P. McNett, Short Hills, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
 Filed Feb. 5, 1970, Ser. No. 21,284
 Term of patent 7 years
 Int. Cl. D21-02
 U.S. Cl. D34-15



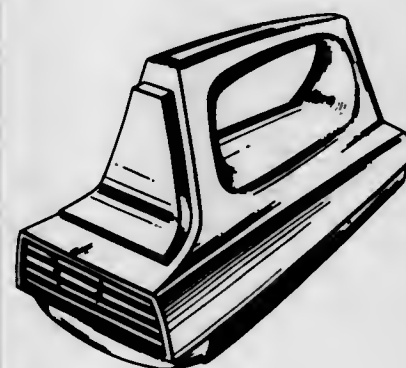
221,396
ACCESSORY FOR TOY TOP OR THE LIKE
 Anthony D. Miller, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Mar. 25, 1970, Ser. No. 22,041
 Term of patent 7 years
 Int. Cl. D21-02
 U.S. Cl. D34-15



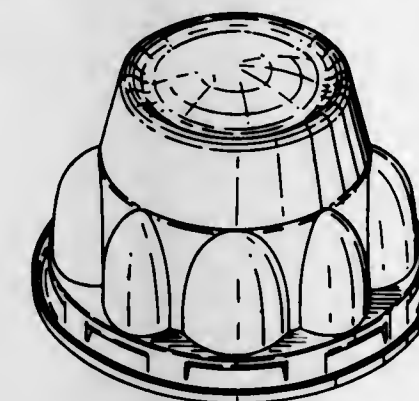
221,397
COOKING UTENSIL
 Joyce Chen, 47 Alpine St., Cambridge, Mass. 02138
 Filed Mar. 9, 1970, Ser. No. 21,795
 Term of patent 14 years
 Int. Cl. D7-02
 U.S. Cl. D44-1



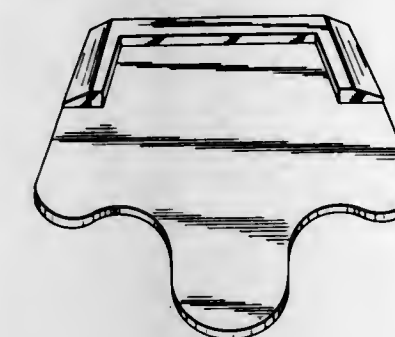
221,398
FOOD MIXER POWER UNIT
 Paul O. Rawson, Jr., Easton, John J. Hamilton, Avon, and Robert J. Emmons, Manchester, Conn., assignors to Dynamics Corporation of America, New York, N.Y.
 Filed Mar. 25, 1970, Ser. No. 22,054
 Term of patent 14 years
 Int. Cl. D7-05
 U.S. Cl. D44-1



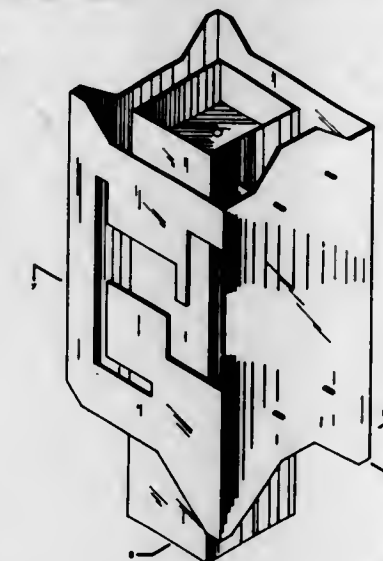
221,399
MOLD FOR A MOUSSE OR THE LIKE
 Cyril Alfred Melling, London, England, assignor to Lever Brothers Company, New York, N.Y.
 Filed Apr. 6, 1970, Ser. No. 22,255
 Claims priority, application Great Britain Oct. 9, 1969
 Term of patent 14 years
 Int. Cl. D7-99
 U.S. Cl. D44-1



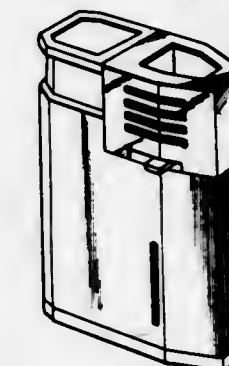
221,400
FLOOR MAT
 Thomas P. O'Donnell, Kings County, N.Y.
 (220 Highland Blvd., Brooklyn, N.Y. 11207)
 Filed Oct. 28, 1968, Ser. No. 14,195
 Term of patent 14 years
 Int. Cl. D6-05
 U.S. Cl. D44-31



221,401
HANGING LAMP
 Victor A. Johnson, 5555 Hazel Ave., Philadelphia, Pa. 19143
 Filed Oct. 10, 1969, Ser. No. 19,499
 Term of patent 7 years
 Int. Cl. D26-02
 U.S. Cl. D48-23



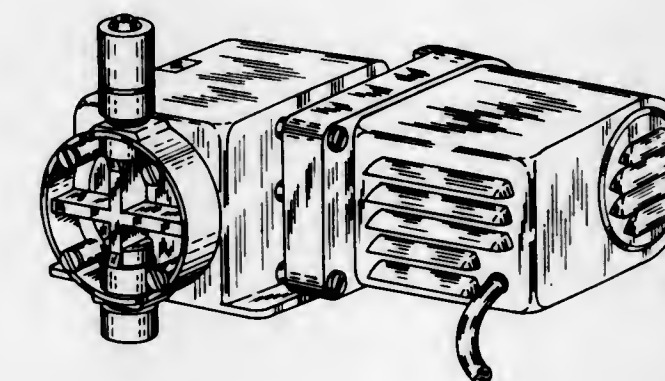
221,402
LIGHTER
 Takeo Hayaashi, Tokyo, Japan, assignor to Kabushiki Kaisha Crown Sangyo, Tokyo, Japan
 Filed Apr. 3, 1970, Ser. No. 22,241
 Claims priority, application Japan Oct. 4, 1969
 Term of patent 14 years
 Int. Cl. D27-05
 U.S. Cl. D48-27



221,403
WATERPROOF CASE FOR A PHOTOGRAPHIC CAMERA
 Nobuki Matsumoto, Sadao Okada, Masayuki Sakuma, Ohiko Yagi, and Masatoshi Hideshima, Tokyo, Japan, assignors to Kabushiki-Kaisha Ricoh, Tokyo, Japan
 Filed Mar. 31, 1970, Ser. No. 22,138
 Claims priority, application Japan Feb. 5, 1970
 Term of patent 7 years
 Int. Cl. D16-07
 U.S. Cl. D61-1

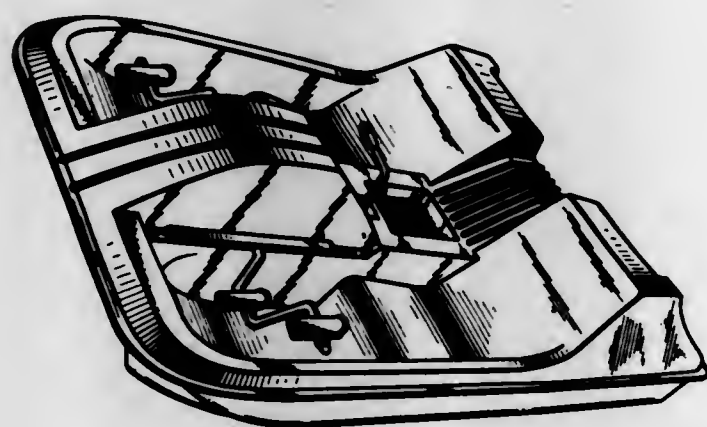


221,404
CHEMICAL FEED PUMP
 Norman R. Hussey, Amesbury, Mass., assignor to A & D Fabricating Company, Inc., Lowell, Mass.
 Filed Mar. 16, 1970, Ser. No. 21,921
 Term of patent 14 years
 Int. Cl. D15-02
 U.S. Cl. D65-1



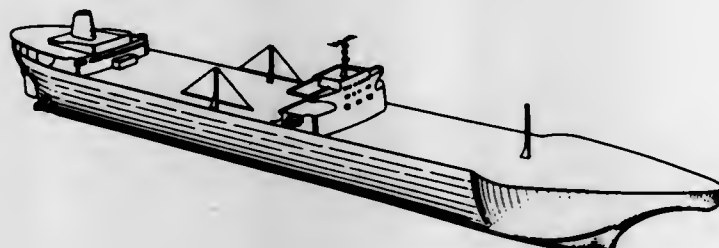
221,405
PEDAL BOAT
 Fred Schropfer, 509 Champlain St.,
 Fabreville, Quebec, Canada
 Filed Apr. 7, 1970, Ser. No. 22,300
 Term of patent 14 years
 Int. Cl. D12-06

U.S. Cl. D71-1



221,406
ICEBREAKING VESSEL
 Peter M. Kimon, Cos Cob, Conn., and Charles Lincoln
 Crane, Jr., Madison, N.J., assignors to Esso Research
 and Engineering Company
 Filed Feb. 9, 1970, Ser. No. 21,327
 Term of patent 14 years
 Int. Cl. D12-06

U.S. Cl. D71-1



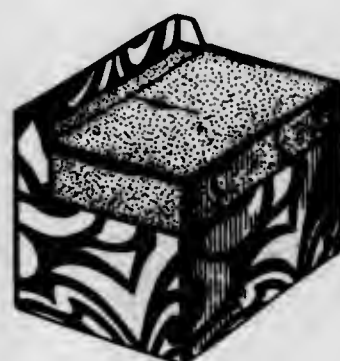
221,407
CERVICAL COLLAR
 John L. Bond, P.O. Box 1306,
 North Wilkesboro, N.C. 28659
 Filed Jan. 12, 1970, Ser. No. 20,882
 Term of patent 14 years
 Int. Cl. D24-04

U.S. Cl. D83-1



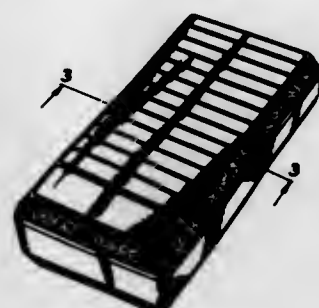
221,408
STORAGE BOX
 Irwin J. Ferdinand, Glencoe, and Irwin R. Kulbersh,
 Morton Grove, Ill., assignors to The Hirsch Company,
 Skokie, Ill.
 Filed Feb. 13, 1970, Ser. No. 21,429
 Term of patent 14 years
 Int. Cl. D3-02

U.S. Cl. D87-1



221,409
STORAGE CONTAINER FOR TAPE CASSETTE
 William C. Gerber, Wooster, Ohio, assignor to
 Rubbermaid Incorporated, Wooster, Ohio
 Filed Aug. 10, 1970, Ser. No. 24,387
 Term of patent 14 years
 Int. Cl. D3-99; D14-99

U.S. Cl. D87-1



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 10TH DAY OF AUGUST, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Aaronson, Stephen F.; and Jackson, Harry Y. Laterally movable shuttle assembly with an article probe device. 3,598,265, Cl. 214-730.
- AB Akerlund & Rausing: See—
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 Jeppsson, Torsten; Holmstrom, Kjell Ingvar; and Dilot, Rolf Magnus, 3,598,681.
- AB Kabi: See—
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- AB Pulsvarme: See—
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- AB Turnkey-Projekt: See—
 Hellstrom, Per-Olov, 3,598,048.
- Abbiati, Ettore, to Olivetti, Ing., C., & C., S.p.A. Number setting mechanism for a calculating and such machines. 3,598,305, Cl. 235-60.
- Abbott Laboratories: See—
 Jones, Peter Hadley, 3,598,805.
- Abe, Hidehiko: See—
 Nakajima, Koe; Naoi, Hisashi; Kishikawa, Kanichi; Abe, Hidehiko; and Tanaka, Kazunari, 3,597,954.
- Abe, Ikuya; Kaga, Akio; and Eoka, Hideo, to Moritake Iron Works Co., Ltd. Filter press. 3,598,240, Cl. 210-230.
- A. B. Electronics Components Limited: See—
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- Abert, Jack C.; and Farnbach, Fred A., said Farnbach assor. to said Abert. Lightweight tent construction. 3,598,133, Cl. 135-1.
- Abex Corporation: See—
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- Accumulatorenfabrik Sonnenschein G.m.b.H.: See—
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- ACF Industries, Incorporated: See—
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- Achon, Marco A., to General Tire and Rubber Company, The. Process for polymerizing cyclic oxides with a catalyst consisting of an organozinc compound and another material. 3,598,765, Cl. 260-2.
- Ackermann, Hans: See—
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- Acme General Corporation: See—
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- Acme Products Incorporated: See—
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- Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Musical tone-forming circuitry including filter and random noise modulation. 3,598,891, Cl. 84-1.24.
- Adair, John D., to Singer Company, The. Impulse generator for meters. 3,599,022, Cl. 310-75.
- Adamation Inc.: See—
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- Adams, Irving; and Friedrich, Richard F., to Loral Corporation. Means and method for crucible leak detection. 3,598,532, Cl. 23-230.
- Adams, Robert H., to Lockheed Aircraft Corporation. High-power direct-current to square-wave converter utilizing an inductively coupled gas-discharge tube. 3,599,074, Cl. 321-2.
- Adcock, William E., to Shell Oil Company. Glycidamides. 3,598,843, Cl. 260-348.
- Addamiano, Arrigo, to General Electric Company. Formation of junctions in silicon carbide by selective diffusion of dopants. 3,598,666, Cl. 148-187.
- Addamitis, Domas; and Turner, Howard M., to Continental Can Company, Inc. Bottom end structure for plastic containers. 3,598,270, Cl. 215-1.
- Addressograph Multigraph Corporation: See—
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- Addressograph-Multigraph Corporation: See—
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- Adrian, David T.; and Robman, Norman C., to Deutsch Company Electronic Components Division, The. Three-unit electrical connector. 3,599,167, Cl. 339-42.
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- Advanced Technology Center, Inc.: See—
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- AEG-Elotherm GmbH: See—
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- Meckl, Heinz; and Haseler, Helmut, 3,598,588.
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- Aktiebolaget Cellico: See—
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- Allen-Bradley Company: See—
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- Alliance Machine Company, The: See—
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- Allied Chemical Corporation: See—
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- Dawson, Chester H.; Catlin, Robert T.; Swain, Robert O.; and Turton, Robert J., to Remington Arms Company, Inc. Methods for producing armored metal tools. 3,598,554, Cl. 51-293.
- Deacon, George P. Radiant ceiling heating unit. 3,598,960, Cl. 219-345.
- Deano Dyno-Soars, Inc.: See—
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- Dee, Alfred G.; and Van Marrewyk, Jos, to Eaton Yale & Towne, Inc. mesne. Electronic signaling device for interconnection with telephone system interfacing devices. 3,598,918, Cl. 179-5.
- Deering Milliken Research Corporation: See—
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- Deering Milliken Research Corporation: See—
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- Delistovich, John; Golden, Edward J.; Talish, Roger J.; and Urgovitch, Kenneth J., to Bendix Corporation. The Mixed pod rocket release system. 3,598,015, Cl. 89-1.814.
- Dell, Robert; and Crews, John Benjamin, to Advance Data Systems Corporation. Data processing systems and apparatus therefor. 3,598,964, Cl. 235-61.6.
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- DeMets, Albert. Continuous-working press, particularly for the manufacture of fibre plates, and plant provided with such a press. 3,598,040, Cl. 100-154.
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- De Noyer, Donald B., to Beloit Corporation. Offset calender rolls. 3,598,041, Cl. 100-163.
- Deprez, Thomas A.; and Snook, Alvin W., to Gleason Works, The. Dresser structures. 3,598,100, Cl. 125-11.
- De Puy, Arthur H., to International Business Machines Corporation. Process of producing an array of integrated circuits on semiconductor substrate. 3,598,604, Cl. 96-36.2.
- De Raedt, Egide Jacob Hendrik; and De Bruyme, George Pieter Adolf Mathildis, to International Standard Electric Corporation. Automatic signal transmission system. 3,598,917, Cl. 179-5.
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- Descarries, Raymond: See—
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- De Souza Dias, Madiane Gilbert, to Societe Vitos Etablissements Vitoux, mesne. Endless band stenciling apparatus. 3,598,049, Cl. 101-122.
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- De Vos, Krijn Jacobus; and Naastepad, Pieter Aart, to U.S. Phillips Corporation. Method of manufacturing anisotropic permanent magnets. 3,598,662, Cl. 148-103.
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- Dodds, Phyllis; and Chiola, Vincent, to Sylvania Electric Products Inc. Group VI-B transition metal-amino phosphorodithioates and method for producing same. 3,598,848, Cl. 260-429.
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- Yano, Shinkichi; and Kawakatu, Fujio, said Kawakatu assor. to said Shinkichi. Cutter means for use with tool for tapping already laid water-service pipes and the like without interruption of water flowing therethrough. 3,598,141, Cl. 77-38.
- Yasuda, Nobuaki; Higashinakagawa, Iwao; and Okamoto, Hiroaki, to Tokyo Shibaura Electric Co., Ltd. Vacuum deposition apparatus. 3,598,957, Cl. 219-271.
- Yasuoka, Kouzo. Fastening device and a process for making the same. 3,597,807, Cl. 24-87.
- Yates, John; and Payne, David H., to Shell Oil Company. N,N-disubstituted amino acid herbicides. 3,598,859, Cl. 260-471.
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- Yegge, Lawrence R. Method and apparatus for post-tensioning and anchoring prestressing tendons. 3,597,830, Cl. 29-452.
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- Zucker, Daniel, to Telrad Telecommunication & Electronic Industries. Line holding circuit for a multi line telephone system. 3,598,924, Cl. 179-99.
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- La Bossler, Ralph H. Motor, handle and mounting unit for rotatable brushes. 221,374, 8-10-71. Cl. D4-38.
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- Schneider, Joseph F. Handle for a bottle cap. 221,377, 8-10-71. Cl. D9-266.
- Schropper, Fred. Pedal boat. 221,405, 8-10-71. Cl. D71-1.
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3,597,790	3,598,264	3,598,724	3,599,218	3,599,005	3,598,499
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3,598,759	3,599,197	3,597,893	3,598,014	3,599,194	3,598,520
3,599,048	3,599,206	3,597,896	3,598,025	Re. 27,164	3,598,551
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3,599,015	3,597,799	3,598,065	3,598,100	3,597,820	3,598,689
3,599,185	3,597,819	3,598,105	3,598,113	3,597,955	3,598,740
20 : 3,598,021	3,597,880	3,598,111	3,598,114	3,597,959	3,598,753
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PATENT OFFICE NOTICES

Printing of Chemical Patents

In view of financial and scheduling considerations associated with the closing of Fiscal Year 1971, no chemical patents will appear in the patent issues of August 24 and 31, and September 7 and 14, 1971. Chemical patents will again be issued on September 21, 1971.

RICHARD A. WAHL,
Acting Commissioner of Patents.
July 6, 1971.

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3,902,900, H. Zinkin, BODY EXERCISING APPARATUS; 3,116,043, same, EXERCISING APPARATUS, filed Feb. 22, 1971, D.C., W.D. Pa. (Pittsburgh), Doc. 71-166, Universal Athletic Sales Co. v. American Gym, Recreational and Athletic Equipment Corporation, Inc. et al.

3,901,000, E. Albers-Schoenberg, SQUARE LOOP FERRITES, filed Feb. 22, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c478, Electronic Memories & Magnetics Corp. v. Control Data Corp.

3,913,900, G. S. Levey, CLOSED SYSTEM RECIRCULATING ASSEMBLY, filed Apr. 1, 1969, D.C., S.D. Tex. (Houston), Doc. CA-69-H-287, The Spec-Flo Manufacturing Corporation v. Binks Manufacturing Company. Final judgment by consent; patent valid and infringed. Injunction issued, Feb. 25, 1971.

3,943,400, Juvinall and Marsh, ELECTROSTATIC SPRAY COATING SYSTEM, filed Jan. 10, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c47, Rensburg Electro-Coating Corp. v. The De Vries Co. and Rembrandt Lamp Corp. Judgment, patent valid and infringed. Defendants enjoined, Apr. 19, 1971.

3,975,900, Balamuth and Kuris, DENTAL INSTRUMENT; 3,976,904, Kleesattel, Balamuth and Kuris, ACOUSTICALLY VIBRATED MATERIAL CUTTING AND REMOVING DEVICES; 3,912,537, same, SUPPLY AND CONTROL APPARATUS FOR VIBRATORY CUTTING DEVICE, filed July 14, 1966, D.C., S.D. Fla. (Miami), Doc. 66-856, Cavatron Corporation v. Ultrasonic Research Corporation. Final judgment, patents valid and infringed, defendants enjoined, Feb. 26, 1971.

3,976,904. (See 3,975,288.)

3,977,724, Stoddard and Seem, APPARATUS FOR PROCESSING YARNS; 3,991,912, same, METHOD OF PROCESSING STRETCH YARN AND YARNS PRODUCED THEREBY, filed Jan. 26, 1971, D.C., M.D.N.C. (Greensboro), Doc. C-38-G-71, Universal Textured Yarns, Inc. v. Lee Tex Ltd., Inc. et al. Same, filed Mar. 24, 1971, D.C., M.D.N.C. (Greensboro), Doc. C-72-G-71, Text Industries, Inc. v. Lee Tex Ltd., Inc. and Lecoona Corporation.

3,991,900, B. Edwards, NESTABLE CUP; 3,120,212, same, filed Oct. 14, 1970, U.S. Ct. of App., 1st Cir. Mass. (Boston), Doc. 7731, Sweetheart Plastics, Inc. v. Illinois Tool Works, Inc. Order of the District Court is affirmed, Feb. 24, 1971.

3,991,912. (See 3,977,724.)

3,991,912, Stoddard and Seem, METHOD OF PROCESSING STRETCH YARN AND YARNS PRODUCED THEREBY, filed Jan. 21, 1971, D.C., S.D. Fla. (Miami), Doc. 71-85-C-JLK, Lee Tex Ltd., Inc. v. Alcon Inc., doing business as Alcon Sportswear. Same, filed Jan. 21, 1971, D.C., S.D. Fla. (Miami), Doc. 71-86-C-PF, Lee Tex Ltd., Inc. v. Text Industries, Inc. (Text-Lively Knits, Inc.). Notice of dismissal without prejudice, Feb. 26, 1971. Same, filed Jan. 21, 1971, D.C., S.D. Fla. (Miami), Doc. 71-87-C-TC, Lee Tex Ltd., Inc. v. Jonathan Logan, Inc. (Butte Knits, Inc.). Plaintiff voluntarily dismisses this action without prejudice, May 18, 1971. Same, filed Mar. 10, 1971, D.C., S.D. Fla. (Miami), Doc. 71-386-C-CA, Lee Tex Ltd., Inc. v. Hialeah Knitting Mills, Inc. Same, filed Mar. 10, 1971, D.C., S.D. Fla. (Miami), Doc. 71-386-C-JB, Lee Tex Ltd., Inc. v. Universal Knitting Mills, Inc. (Bodin

Mills). Same, filed Mar. 10, 1971, D.C., S.D. Fla. (Miami), Doc. 71-387-C-PF, Lee Tex Ltd., Inc. v. Leumas Knitting Mills, Inc.

3,996,324, Goldstein (deceased) and Lichtenstein, CORRUGATED PAPER BOARD PRODUCT, filed Jan. 22, 1964, D.C., S.D.N.Y., Doc. 64-C-217, Tri Well Containers, Inc. v. Continental Can Co., Inc. Ordered, judgment against the plaintiff dismissing the complaint, Feb. 5, 1971.

3,110,905, T. M. Rhodes, TUFTED PILE FABRIC COMPRISING A FLAT WOVEN SYNTHETIC PLASTIC BACKING, filed Jan. 4, 1971, D.C., M.D. Ga. (Thomasville), Doc. 923, Burlington Industries, Inc. v. Moultrie Cotton Mills.

3,116,002. (See 2,932,509.)

3,131,700, A. Radwan, TOBACCO MOISTENING PROCESS, filed Mar. 15, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c644, John Mohr & Sons v. Vacudyne Corp., Arthur N. Lederman.

3,130,312. (See 3,091,300.)

3,154,000, Ahlfield, Baldwin, Hold, Rapetaki and Scharer, CONTINUOUS INTERNAL STIFF-GEL MIXER; 3,230,578, same, filed Feb. 3, 1971, D.C., N.D. Ohio (Cleveland), Doc. C71-120, Farrel Company, Div. of USM Corporation v. Intercooled Automation, Inc.

3,164,120, P. R. Rigtterink, AUTOMATIC NEST GUARD, filed Mar. 23, 1971, D.C., S.D. Ind. (Indianapolis), Doc. IP71C-157, U.S. Industries, Inc. v. Anderson Box Company, Inc.

3,168,900. (See 2,971,259.)

3,183,104, R. Ironfield, ELECTROMAGNETIC ENERGY SEAL, filed Feb. 10, 1971, D.C., N.D. Ohio (Cleveland), Doc. C71-131, Raytheon Company v. Teppen Company and Montgomery Ward & Co., Inc.

3,212,537. (See 3,075,288.)

3,229,412, H. K. Bross, TOYS AND RACK ACTUATING MEANS THEREFOR; 3,229,543, same, RACKS; D. 205,450, same, FLEXIBLE PULL STRAP FOR AN AERIAL TOY OR THE LIKE, filed Dec. 24, 1970, D.C.N.J. (Newark), Doc. 1728-70, Kenner Products Company v. Helmut Keri Bross and Frank T. Johann. Order of dismissal of action, Mar. 26, 1971.

3,229,543. (See 3,229,413.)

3,231,246, Deem, Friedland and Roost, MIXING APPARATUS FOR ATTACHMENT TO TRACTORS, filed Mar. 8, 1971, D.C., S.D. Ill. (Springfield), Doc. C-4768, American Equipment Corporation v. Wilcom Manufacturing Company.

3,238,572, R. C. Allen, DETONATING FUSE TERMINATION; 3,238,574, same, METHOD FOR THROUGH-BULK-HEAD SHOCK INITIATION, filed Feb. 3, 1971, D.C., N.D. Calif. (San Francisco), Doc. C-71-227AJZ, Teledyne McCormick Selph v. Lockheed Missiles & Space Company.

3,238,576. (See 3,238,573.)

3,239,578. (See 3,154,808.)

3,243,573, L. Schmitz, FLASH-BACK ARRESTER FOR WELDING INSTALLATIONS, filed Sept. 19, 1967, D.C., E.D. Okla. (Muskogee), Doc. 67-176-C, General Steel Industries, Inc., doing business as Flow-O-Lite Division v. Corning Glass Works, Inc. Order demand for injunction be denied, action be dismissed on the merits, Mar. 2, 1971.

3,249,570. (See D. 204,175.)

3,257,000. (See 3,293,003.)

3,266,173, G. H. Sheridan, TRAINING APPARATUS, filed Feb. 9, 1971, D.C., S.D. Ind. (Indianapolis), Doc. No. IP71-C-77, Singer-General Precision, Inc. v. Visual Edcom, Inc., Actna Life and Casualty Co., and Actna Casualty and Surety Co.

3,267,587, Niemiec and Satterlee, HAIR DRYER, filed Mar. 26, 1969, D.C. Del. (Wilmington), Doc. 3691, Rayette-Faberge, Inc. v. Schick Electric Inc. Consent judgment, plaintiff owner of patent; defendant has infringed, Feb. 17, 1971.

3,269,905, W. E. Evans, BLANKED STRIP FROM WHICH FEMALE CONTACTS ARE TO BE FORMED FOR ELECTRICAL CONNECTING SYSTEM, filed Feb. 27, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70-C-253, Amp, Inc. v. North American Specialties Corp. Consent decree, Mar. 24, 1971.

AUGUST 17, 1971

U. S. PATENT OFFICE

713

3,293,003, T. D. Cronin, SURGICALLY IMPLANTABLE HUMAN BREAST PROSTHESIS; 3,257,000, S. A. Braley, SILICONE RUBBER PROSTHETIC EAR FRAME, filed Feb. 19, 1971, D.C., E.D. Wis. (Milwaukee), Doc. 71-C-75, Dow Corning Corporation v. Surgitek, Inc. and Medical Engineering Corp.

D. 204,175, B. Zuckerman, GARMENT HANGER; 3,249,270, same, GARMENT SUPPORT MEANS, filed Aug. 12, 1968, D.C., S.D. Fla. (Miami), Doc. 68-957-C-JE, Mr. Hanger, Inc. v. Apparel Plastics, Inc. Final judgment, patents valid and infringed, defendant enjoined, Mar. 17, 1971.

D. 205,450. (See 3,229,413.)

Erratum

At volume 884, page 971, column 2, line 29 of "Adjudicated Patents," (C.A. Mass.) Anderson et al. Reissue Patent No. 26,672 (76-112), for METHOD OF MAKING BAND SAW BLADE, Held claims 1 and 2 valid and infringed, Contour Saws, Inc. v. L. S. Starrett Co., 428 F.2d 314, 164 USPQ 208.

Change to:

(C.A. Mass.) Anderson et al. Reissue Patent No. 26,676 (76-112), for METHOD OF MAKING BAND SAW BLADE. Judgment vacated and cause remanded, Contour Saws, Inc. v. L. S. Starrett Co., 428 F.2d 314, 164 USPQ 208.

Certificates of Correction for the Week of Aug. 17, 1971

D. 220,167	3,549,439	3,562,420	3,570,037
3,306,757	3,549,497	3,562,484	3,570,390
3,374,132	3,549,520	3,562,607	3,570,814
3,376,221	3,549,654	3,562,664	3,571,842
3,389,336	3,550,078	3,562,758	3,571,910
3,400,038	3,550,267	3,563,105	3,571,990
3,446,844	3,550,603	3,563,124	3,571,991
3,454,402	3,550,985	3,563,171	3,571,998
3,462,812	3,552,259	3,563,813	3,572,299
3,463,749	3,552,535	3,563,932	3,572,790
3,478,677	3,552,547	3,563,984	3,573,029
3,479,817	3,553,104	3,564,086	3,573,082
3,483,180	3,553,245	3,564,125	3,573,231
3,494,001	3,553,420	3,564,159	3,573,325
3,499,853	3,555,317	3,564,193	3,573,444
3,502,664	3,555,769	3,564,221	3,573,457
3,505,386	3,555,805	3,564,346	3,573,849
3,507,932	3,556,470	3,564,466	3,573,850
3,509,681	3,556,937	3,564,688	3,574,116
3,516,400	3,557,590	3,564,728	3,574,211
3,516,572	3,557,858	3,564,870	3,574,344
3,522,416	3,558,471	3,564,907	3,574,537
3,523,129	3,558,473	3,565,476	3,574,606
3,524,860	3,558,475	3,565,638	3,574,608
3,528,836	3,558,490	3,565,812	3,574,755
3,528,998	3,558,607	3,565,843	3,574,908
3,532,549	3,558,629	3,565,896	3,575,852
3,533,405	3,558,639	3,565,908	3,575,843
3,533,842	3,558,696	3,566,188	3,576,217
3,535,626	3,558,763	3,566,477	3,576,489
3,537,993	3,559,179	3,567,117	3,576,782
3,539,278	3,559,921	3,567,638	3,576,964
3,541,513	3,560,109	3,567,810	3,577,024
3,541,625	3,560,157	3,567,822	3,577,159
3,542,950	3,560,540	3,568,157	3,577,435
3,542,992	3,560,567	3,568,221	3,577,723
3,543,654	3,560,933	3,568,670	3,577,995
3,544,571	3,561,089	3,568,941	3,578,655
3,545,236	3,561,339	3,569,670	3,578,961
3,546,677	3,561,731	3,569,719	3,579,490
3,547,941	3,561,953	3,569,742	3,579,860
3,548,384	3,562,059	3,569,922	

Errata

All references to Patent No. 3,596,951 to Fred A. Kovac, for 3-Claw Door Catch, appearing in the OFFICIAL GAZETTE of August 3, 1971 should be deleted as the application was withdrawn from issue and the patent was not issued.

All references to Patent No. 3,597,004 to Garland B. Keith, for Conduits for Plastics Conveying Systems Having Patterned Indentations in the Internal Surface of the Conduits, appearing in the OFFICIAL GAZETTE of August 3, 1971 should be deleted as the application was withdrawn from issue and the patent was not issued.

Dedication

3,548,632.—John B. Damrel, Jr., and Jerry L. Fruit, Houston, Tex. APPARATUS FOR CALIBRATING ALTIMETERS, AIR SPEED INDICATORS, ETC. Patent dated Dec. 22, 1970. Dedication filed Feb. 12, 1971, by the assignee, Texas Instruments Incorporated.

Hereby dedicates to the Public the entire term of said patent.

Disclaimers

2,725,372.—Louis M. Minsk, Rochester, N.Y. LIGHT SENSITIVE UNSATURATED ESTERS OF POLYVINYL ALCOHOL. Patent dated Nov. 29, 1955. Disclaimer filed June 8, 1971, by the assignee, Eastman Kodak Company.

Hereby disclaims all of the claims of said patent.

3,531,693.—Joel B. Buice, Columbia, S.C. ELECTROLYTIC CAPACITOR WITH RUTHENIUM METAL CATHODE SURFACE. Patent dated Sept. 29, 1970. Disclaimer filed June 25, 1971, by the assignee, General Electric Company.

Hereby enters this disclaimer to claims 1, 2, and 3 of said patent.

3,564,763.—Dale P. Cleveland, Torrance, and Thomas R. Wilson, Manhattan Beach, Calif. YO-YO DOLL. Patent dated Feb. 23, 1971. Disclaimer filed Apr. 30, 1971, by the assignee, Mattel, Inc.

Hereby enters this disclaimer to claim 5 of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 27, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
* Date of Oldest Application (New)	
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	5-04-70
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	3-05-70
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	7-01-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director....	8-03-70
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..	*2-24-70
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	11-02-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	*2-18-70
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	6-30-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	7-08-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 260—R. L. EVANS, Director.....	6-19-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	6-29-70
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	7-02-70
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Apparatuses; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	5-01-70
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	6-03-70
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	8-10-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	7-01-70
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 22, 1944 (58 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 263. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

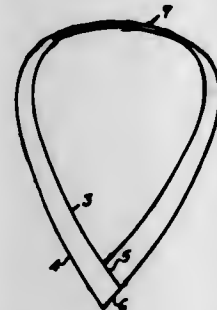
Patents..... Numbers 2,682,658 to 2,685,084, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

PATENTS

GRANTED AUGUST 17, 1971

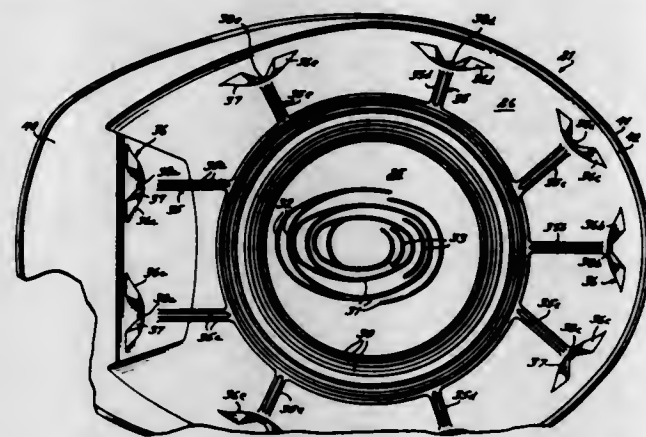
GENERAL AND MECHANICAL

3,599,238
SAFETY SASH
 Frank E. Matthews, Reston, Va., assignor to Matthews Research, Inc., Alexandria, Va.
 Filed Oct. 30, 1969, Ser. No. 872,583
 Int. Cl. A41d 3/00
 U.S. Cl. 2-1 1 Claim



A high-visibility, low-cost safety sash which can be worn over the shoulder and around the body of a wearer, and which is shaped to fit snugly and remain in place without any adjustments by wearers of different size and dress.

3,599,239
PROTECTIVE HEADGEAR
 David Tatum, Swarthmore, Pa., assignor to The Fibre-Metal Products Company, Chester, Pa.
 Filed Oct. 6, 1969, Ser. No. 870,507
 Int. Cl. A42b 3/00
 U.S. Cl. 2-3 R 11 Claims



An outer shell and a suspension construction for engagement with a wearer's head and supporting the shell in spaced relation thereto, the suspension being specifically configured by shape and thickness for directionally controlled distention under impact applied to the shell, and the shell being provided with resilient means by shape and thickness for obliquely deflecting an article impinging on the shell.

3,599,240
ARTISTIC OR FANCY WEARING APPAREL
 Fredun Shapur, London, England, assignor to Trenderon Limited, Old Malton, Yorkshire, England
 Filed June 30, 1969, Ser. No. 837,586
 Claims priority, application Great Britain, July 30, 1968, 36246/68
 Int. Cl. A41d 11/00
 U.S. Cl. 2-75 6 Claims

The invention comprises wearing apparel in the form of an inverted sack comprising front and rear panels joined by side gussets, arm holes in the gussets, a viewing opening in the

front panel, a characteristic design printed on the front panel and the closed top, as worn, of the sack of a formation to suit



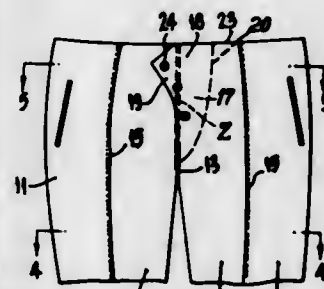
the design. The sack top may be shaped to form pointed or other ears.

3,599,241
PANTYHOSE
 Werner Rosier, Margerethen 1, 8972 Semthoden, Germany
 Filed Oct. 8, 1969, Ser. No. 864,634
 Claims priority, application Germany, Oct. 11, 1968, P 18 02 491.4
 U.S. Cl. 2-224 2 Claims



A knitted pantyhose is provided with a panty portion, each side of which extending from the vertical front seam to the vertical rear seam is made of at least two parts which are connected with each other along a vertical line disposed between said vertical front and rear seams. The number of rows of stitches in the part disposed adjacent the vertical rear seam is greater than the number of rows of stitches in the other part which is disposed adjacent the vertical front seam.

3,599,242
TROUSER GARMENTS
 Emil Kozdal, 11 Rotherwood Road, Ivanhoe, Victoria, Australia
 Filed Aug. 5, 1969, Ser. No. 847,606
 Claims priority, application Australia, Aug. 12, 1968, 41975/68
 Int. Cl. A41d 1/06
 U.S. Cl. 2-234 4 Claims



The invention relates to trouser-type garments and provides a construction where the leg panels are united along

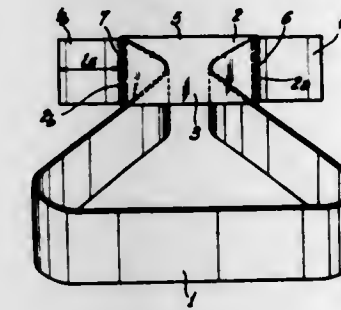
AUGUST 17, 1971

GENERAL AND MECHANICAL

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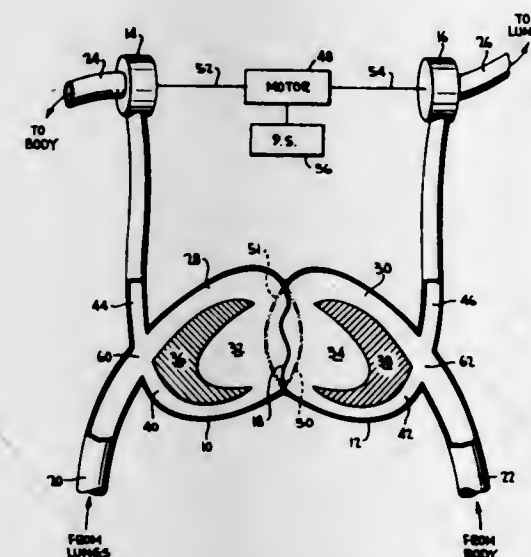
the normal front and rear crease lines to permit the use of overlapping flaps in the fly area with inner lining portions joined with the garment along the front crease lines.

3,599,243
METHOD OF MANUFACTURING AN ELASTIC BELT
 Gilbert Sivel, Nîmes, France, assignor to Eminence, Nîmes, France
 Filed Mar. 5, 1969, Ser. No. 804,455
 Claims priority, application France, Mar. 12, 1968, 143,349
 Int. Cl. A41f 3/02; A47f 9/00; A41f 15/100
 U.S. Cl. 2-338 5 Claims



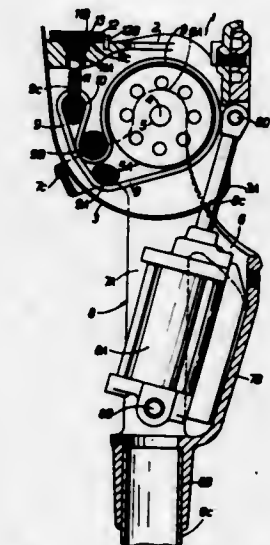
An elastic belt comprising an elastic strip having its ends joined by a connection element including two leaves hinged along a folding line is made by disposing the connection element astride the oppositely directed ends of an elastic strip, fixing the edges of the said connection element adjacent to the respective ends of the strip, for example by stitching, and then turning the connection element so that the originally inwardly facing surfaces of its leaves face outwardly and vice versa.

3,599,244
DYNAMIC ACTION VALVELESS ARTIFICIAL HEART UTILIZING DUAL FLUID OSCILLATOR
 Donald E. Wertman, 609 Muriel St., Rockville, Md.
 Filed Nov. 20, 1969, Ser. No. 878,484
 Int. Cl. A61f 1/24
 U.S. Cl. 3-1 3 Claims



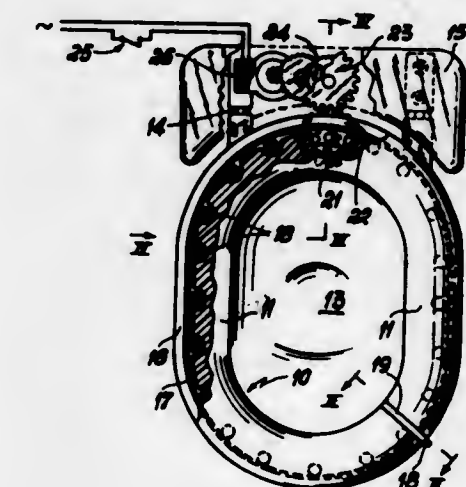
An artificial heart intended for supplementing or temporarily replacing the natural heart for circulating blood through the body. The heart relies on the dynamic flow properties of the blood for its operation, utilizing a unique dual fluid oscillator with a common diaphragm for providing the pulsing action to a pair of pumps that have pressure-volume flow relationships that simulate the natural heart.

3,599,245
ARTIFICIAL LEG HAVING A PRESET AUTOMATIC FRICTION BAND TENSION CONTROL
 Brian G. Blatchford, Basingstoke, England, assignor to Chas. A. Blatchford & Sons Limited, Basingstoke, England
 Filed June 23, 1969, Ser. No. 835,583
 Claims priority, application Great Britain, June 26, 1968, 30454/68
 Int. Cl. A61f 1/04, 1/08
 U.S. Cl. 3-28 4 Claims



An artificial leg in which flexion about the knee axis is controlled in known manner by knee control mechanism of the kind having a friction band looped around a drum, the drum being connected to the shin of the leg and the friction band to the thigh. Wear in the knee control mechanism, and "bedding down" of its component parts, is compensated by a preset clock-type coil spring, which automatically adjusts tension applied to the friction band.

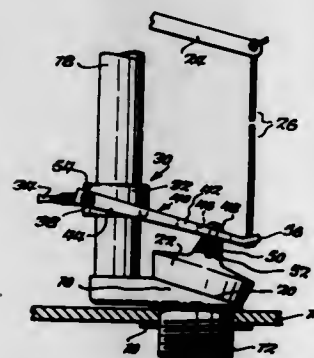
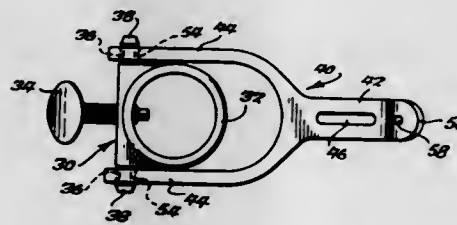
3,599,246
WATER-CLOSET-SEAT-CLEANING DEVICE
 Angelo Bramati, and Paolo Pierlorenz, both of 46 Via Marchetti, 60100 Ancona, Italy
 Filed Oct. 1, 1968, Ser. No. 764,224
 Claims priority, application Italy, Oct. 4, 1967, Mar. 23, 1968, 816,691; 207-A/68
 Int. Cl. E03a 11/00, 9/00
 U.S. Cl. 4-233 6 Claims



An annular seat designed to cover a water closet bowl and having a human-body-contacting upper face, comprising a chain arranged in closed loop thereabout, sweeper means secured to a point of such chain and including a cleaning and disinfecting pad positioned for frictionally engaging said upper face and cleaning the same as progressed thereon and about upon causing said chain to progress in the path defined

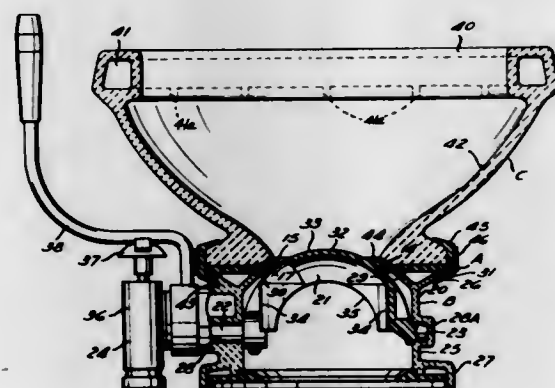
by its loop, and motor means drivingly connected to said chain for rotating same and causing said pad to sweep along said face.

3,599,247
FLUSH VALVE ASSEMBLY
Dan Kamphausen, Littleton, Colo., assignor to Twentieth Century Products Corporation, Englewood, Colo.
Filed July 18, 1969, Ser. No. 839,929
Int. Cl. E03d 1/34
U.S. Cl. 4-57



A toilet flush valve assembly having a bracket releasably secured to an overflow pipe of a flush tank and a lever pivotally mounted on said bracket carrying a valve member adapted to seat on either an inclined or a horizontal seating surface. The lever is provided with an angled end portion having a tapered opening for receiving an actuating cord. The lever is pivotally mounted on the bracket by means of openings which receive projections extending radially outwardly from the bracket. Sufficient play is permitted between the lever openings and the projections in longitudinal and lateral directions to allow the valve member to properly seat itself.

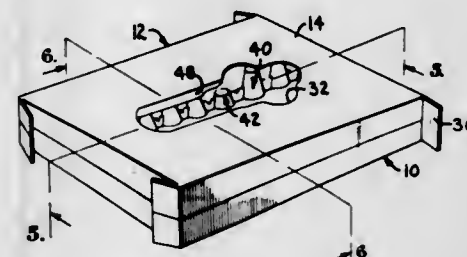
3,599,248
TRAPLESS TOILET BOWL FIXTURE AND RING DIAPHRAGM THEREFOR
Howard A. Fulton, and Vaughn D. Finner, both of Big Prairie, Ohio, assignors to Mansfield Sanitary Inc., Perrysville, Ohio
Filed Dec. 11, 1968, Ser. No. 782,808
Int. Cl. E03d 11/10
U.S. Cl. 4-79



A trapless water flush toilet bowl plumbing fixture including a trapless bowl mounted on a waste water discharge unit

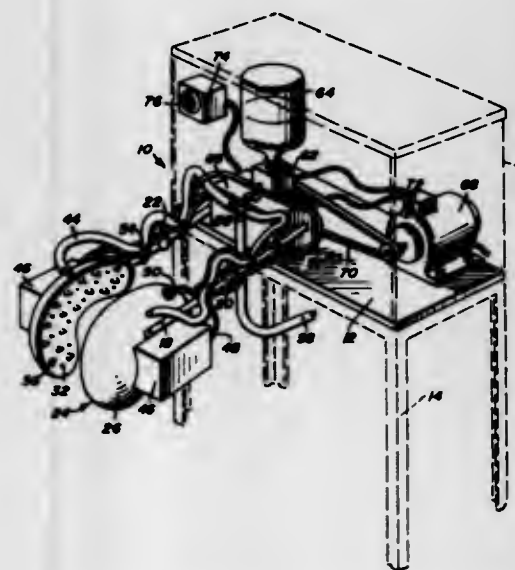
and a water seal ring diaphragm positioned between the bowl and waste water discharge unit, the said discharge unit having a ball valve mounted therein for a water seal frictional engagement with said diaphragm when the said ball valve is closed.

3,599,249
DISPOSABLE BEDPAN
James S. Reed, Lawrence, Kans., assignor to GMR, Inc., Lawrence, Kans.
Filed Mar. 27, 1969, Ser. No. 811,094
Int. Cl. A61g 9/00
U.S. Cl. 4-112



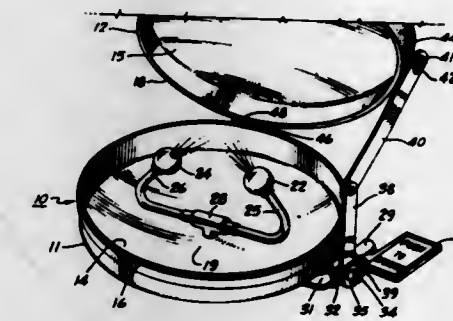
A disposable bedpan comprising a folded box of initially flat cardboard material and a separate waste-receiving tray of disposable material. Integral spaced-apart projections in the tray support the box at the desired contour under the weight of a patient. Each side of the box has a waste-receiving opening and the openings are of different sizes to permit reversal of the box with respect to the tray to accommodate either children or adult patients.

3,599,250
SHAMPOO MACHINE
Gracie H. Colomb, 1009 East St. Mary Blvd., Lafayette, La.
Filed Oct. 16, 1969, Ser. No. 866,959
Int. Cl. A47d 19/00
U.S. Cl. 4-159



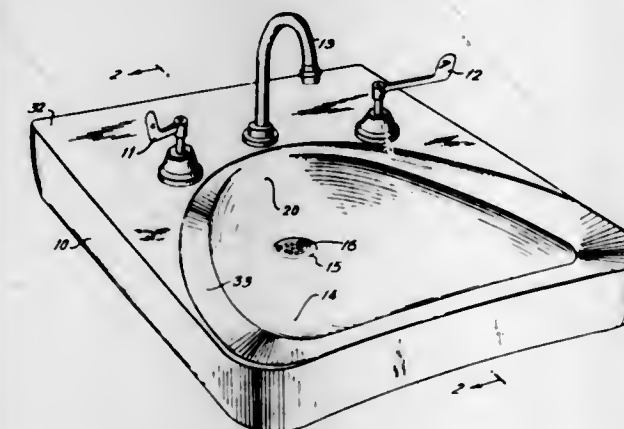
A pair of head engaging members having a contour generally conforming with the shape of the scalp and provided with inwardly extending fingers for engaging the scalp, a vibrator for vibration thereof and a hollow interior communicated with a source of shampoo and water together with apertures directing the cleaning solution and rinse water toward the scalp. The head engaging members are supported on adjustable arms which are vibrated or oscillated in a manner to scrub and massage the scalp and a shampoo dispenser is provided for introducing shampoo into a supply conduit at the appropriate time during a shampoo cycle thereby enabling a hairdresser to be occupied with other duties while a person is receiving a shampoo.

3,599,251
COVERED EYEWASH FOUNTAIN
Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Faucet Company, Berkeley, Calif.
Filed June 6, 1969, Ser. No. 831,100
Int. Cl. A47k 1/04
U.S. Cl. 4-166



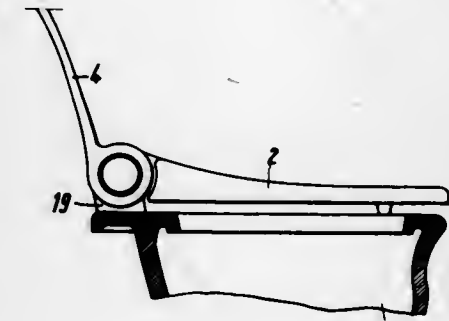
An eyewash fountain especially useful in industrial and laboratory environments to provide a water discharge suitable for flushing irritants from the eyes of a workman. The fountain includes a bowl having a chamber provided with at least one nozzle therein through which an eye-bathing flow of water can be discharged for so flushing the eyes of a workman. A cover ordinarily closes the chamber and overlies such nozzle, and a valve connected in the water supply line controls the flow of water to the nozzle. Operating mechanism interconnecting the valve and cover move the same concurrently upon manual manipulation of a lever provided for this purpose so that when the valve is closed, the cover is in its chamber-covering position and when the valve is open the cover is in its chamber-uncovering position.

3,599,252
LAVATORY
E. Peter Robare, Louisville, Ky., assignor to American Standard Inc.
Continuation of application Ser. No. 618,669, Feb. 27, 1967, now abandoned. This application Dec. 24, 1969, Ser. No. 884,778
Int. Cl. A47k 1/04
U.S. Cl. 4-166



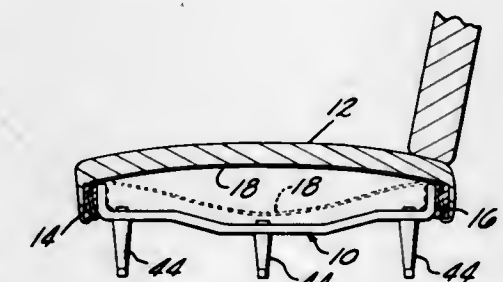
A lavatory especially for use by persons confined in a sitting position in wheelchairs and the like, said lavatory having an integral extended body portion cantilever supported by a concealed arm support system extending from the wall adjacent to the rear of the lavatory of a room containing the lavatory, and having substantially no underlying obstructions which would prevent said persons from easy access to the lavatory. The lavatory also includes a drain slope defining the opening of its bowl, which serves not only to allow splash water to drain back into the bowl, but also as a splash deflector.

3,599,253
TOILET FITTING
Hans Maier, Rotenfel, Germany, assignor to Eisenwerke Gaggenu GmbH, Gaggenu, Germany
Filed Sept. 18, 1969, Ser. No. 858,971
Claims priority, application Germany, Feb. 25, 1969, P 19 09 300.6
Int. Cl. E03d 9/05; A47k 13/00
U.S. Cl. 4-213



A toilet fitting comprising a hollow seat adapted to be mounted on a toilet bowl and containing suction orifices through which air is drawn off into a suction chamber and thence to atmosphere or to an outlet pipe by an air extractor. To simplify servicing and to reduce noise the air extractor comprising a fan, an electric motor and the necessary switchgear is mounted in a replaceable cartridge-like device which is housed in a hollow extension of the seat.

3,599,254
FRAME RAIL ATTACHMENT FOR SEATING STRUCTURES
Albin J. Niewulis, Lexington, Ky., assignor to Hoover Ball and Bearing Company, Saline, Mich.
Filed Dec. 6, 1968, Ser. No. 781,838
Int. Cl. A47c 7/00, 23/00
U.S. Cl. 5-264

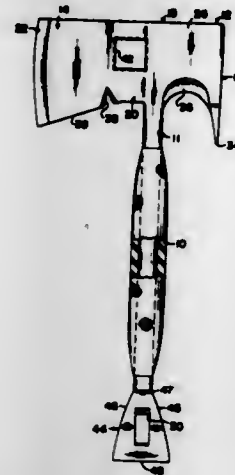


An attachment for the frame rails in seating structures for maintaining the rails in a predetermined spaced relation comprising a one piece metal body formed from a thin gauge rolled or formed section. The body is bent so as to form an elongated main section, of a length corresponding substantially to the desired spacing between the frame rails, and upturned end sections. The main section is a cross-sectional shape to provide for an efficient utilization of the metal therein to resist seat spring loads which tend to move the rails toward each other, and this same cross-sectional shape is utilized in the upturned end sections to preclude squirming of the attachment on the rails.

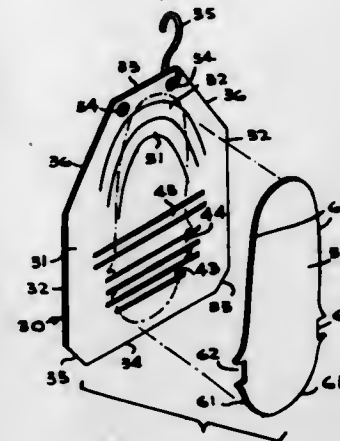
3,599,255
COMBINATION TOOL
Thomas P. Carroll, Sr., 444 32nd St. N.W., Canton, Ohio
Filed Oct. 21, 1968, Ser. No. 769,214
Int. Cl. B25f 1/00; B25d 1/00, 17/10
U.S. Cl. 7-8.1 R

A combination tool having an insulated handle and a head with a top, bottom, front and rear section attached at one end of the handle. A cutting edge is formed along the edge of the front section of the head. The thickness of the

head increases from the cutting edge to the rear section which terminates in a blunt rear face. The sides of the rear face converge downwardly to form a prying point. A concavely shaped ripping edge is formed along the bottom of the head between the prying point and the handle. An aper-



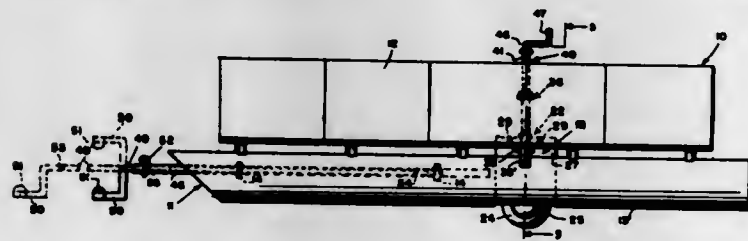
3,599,258
COMBINATION HANDS-AND-FEET SWIMMING FINNS
Steve A. Marawski, 13422 Ave. K., Chicago, Ill.
Filed Aug. 13, 1969, Ser. No. 849,656
Int. Cl. A63b 31/04, 31/10, 31/18
U.S. Cl. 9-307 2 Claims



A swimming device that includes a member made of a flexible material that has bands or straps thereon for engagement by the user's hands or feet.

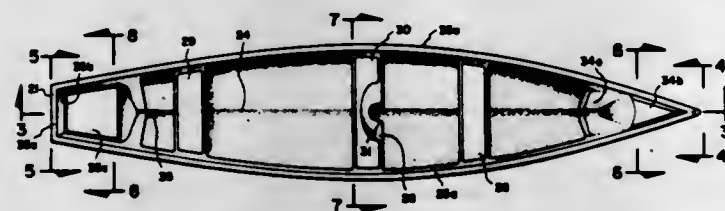
ture in the head is adapted to fit a water hydrant valve and a nail puller is formed by a V-shaped indentation along the bottom edge of the head between the front section and the handle. The other end of the handle has a wedge-shaped projection which acts as a wrecking bar head and an aperture in the wrecking bar head is adapted to fit a gasoline valve.

3,599,256
BOAT WITH RUNNING GEAR
Noble L. Carroll, Jr., Box A1, Barryton, Mich.
Filed Apr. 2, 1970, Ser. No. 25,165
Int. Cl. B63c 13/00
U.S. Cl. 9-1 T 7 Claims



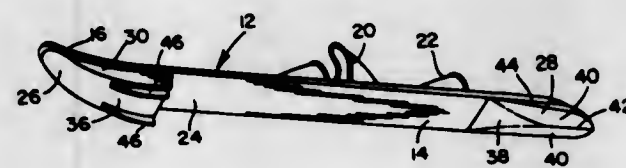
A pair of corresponding running gear assemblies detachably mounted in a boat and having ground-engaging wheels enabling the boat to be trailed by a draft vehicle without the use of a separate trailer. The running gear assemblies are readily retractable to positions above the water line when the boat is afloat or the running gear assemblies may be readily detached and completely removed from the boat.

3,599,257
CANOE AND METHOD OF CONSTRUCTION THEREOF
Keith Daune Erickson, 3727 South 900 East, Salt Lake City, Utah
Filed Sept. 22, 1969, Ser. No. 859,956
Int. Cl. B63b 5/24
U.S. Cl. 9-6 5 Claims



A resinous canoe having preformed, adhesively secured inner and outer hull units, foam flotation, a reinforced keel constructed to add to the buoyancy of the craft and a unique method of construction including preforming flotation blocks to insure complete usage of all available space for flotation.

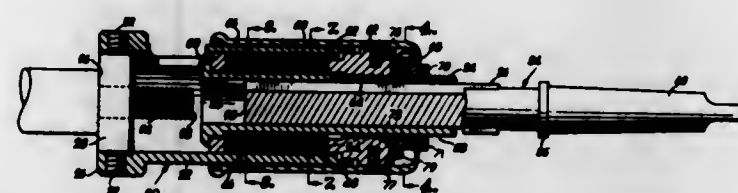
3,599,259
WATER SKI IMPROVEMENT
Daniel C. Shewmon, 3702 Mount Laurel Road, Cleveland Heights, Ohio
Filed Nov. 20, 1969, Ser. No. 878,384
Int. Cl. A63c 15/00
U.S. Cl. 9-310 A 12 Claims



A water ski having a pair of steps affixed to the underside of the ski close to the front and rear ends of the ski. The steps are remote from the center of the ski where the skier stands, and are dimensioned to maintain the center generally away from the surface of the water while under way. The ski thereby flexes resulting in optimum comfort for the rider in choppy waters.

The steps can be made integral with the ski, or can be separately molded and affixed to the ski. Preferably the front step is dimensioned to provide a greater lift than the rear step. This causes the skier to fall backwards in the event of a spill making the ski safer to use.

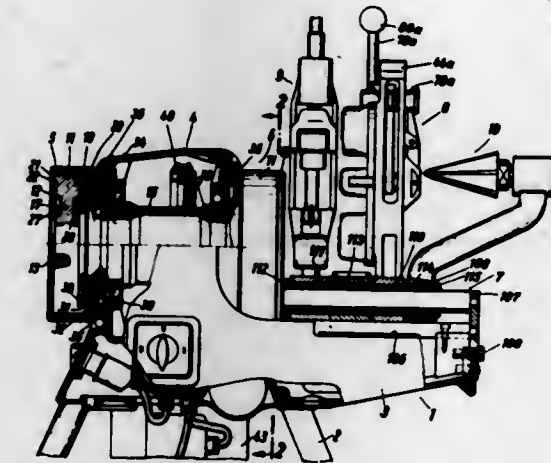
3,599,260
THREADING CHUCK
Raymond L. Lesh, 1740 Berry Road, Independence, Mo.
Filed Oct. 3, 1968, Ser. No. 764,829
Int. Cl. B23g 1/00, 5/06, 5/14
U.S. Cl. 10-89 6 Claims



A threading chuck for use with a machine tool has a pair of relatively rotatable, coaxial elements, one of the elements

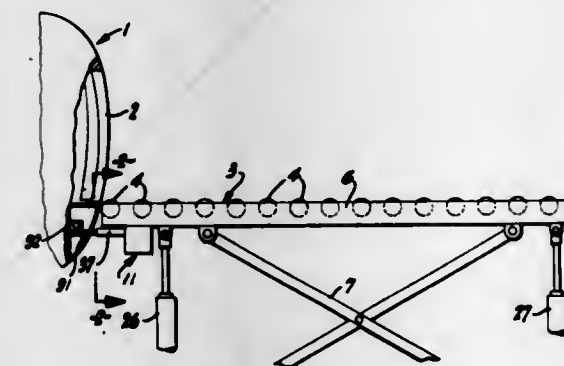
having a threading tool secured thereto. The other element is mounted on the work axis of the machine. A clutch is interposed between the elements and is adapted, when engaged, to hold the elements against relative rotation. However, when the clutch is released, the element carrying the threading tool is permitted to rotate relative to the other element, thereby discontinuing the threading operation.

3,599,261
APPARATUS FOR MACHINING PIPES AND THE LIKE
Artur Fohl, Haubersbrom, Germany, assignor to Rems-Werk Christian Fohl & Sohne, Waiblingen, Germany
Filed Aug. 19, 1968, Ser. No. 753,615
Int. Cl. B23g 1/00
U.S. Cl. 10-107 4 Claims



An apparatus for clamping and rotating workpieces such as pipes and for performing machining operations, such as pipes, in which the workpiece is clamped by devices which have clamp levers pivoted at their outer ends to a rotary housing and have their inner workpiece engaging ends inclined and in which the machining operation for cutting threads is carried out by cutting elements moveable radially on a support therefor. The cutting elements are spring biased toward retracted position and are held in cutting position by a stop element which is adapted to be moved to ineffective position by movement of a member which is engaged and moved by the end of a workpiece machined.

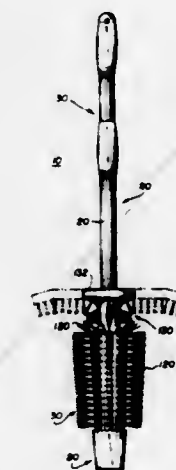
3,599,262
ATTITUDE SENSING SYSTEM FOR USE DURING LOADING AND UNLOADING OF VEHICLES
Victor H. Carder, Carmel; Sheldon K. Green, Salinas, and Christopher R. Wood, Salinas, all of, Calif., assignors to Cochran Western Corporation, Salinas, Calif.
Filed Apr. 21, 1970, Ser. No. 30,454
Int. Cl. B65g 11/00, 67/02
U.S. Cl. 14-71 14 Claims



An electromechanical sensing system used in conjunction with a vehicle-loading bridge to automatically adjust the

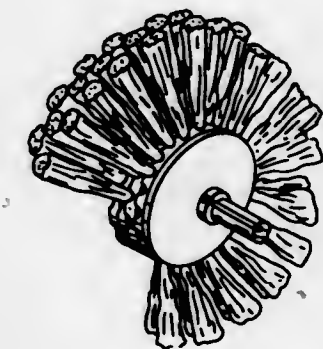
orientation of the bridge in accordance with changes in attitude of elevation and/or angular displacement of a vehicle during loading and unloading thereof. Means for raising or lowering the loading bridge or tilting its forward end to maintain the bridge properly aligned with an access door of a vehicle is controlled by signals from limit switches actuated by a linkage mechanism responsive to vehicle attitude changes. A four bar linkage mechanism is actuated by a sensor arm operatively engaged with the vehicle. The disclosed system has particular utility in conjunction with loading and unloading aircraft, but its utility with other cargo carrier-type vehicles also is recognized.

3,599,263
COMBINATION BRUSH AND SCRAPER
Samuel S. Chelton, 317 Magnolia St., Highland Park, N.J.
Filed Oct. 14, 1968, Ser. No. 767,191
Int. Cl. A47i 17/02
U.S. Cl. 15-111 8 Claims



A combination brush and scraper, particularly suited for cleaning toilet bowls, comprising an elongated body having a specially shaped scraper at the end remote from the handle and including a region of bristles extending back from the scraper to about the center of the body. At this point, a generally C-shaped array of bristles is provided for engaging the generally C-shaped upper rim of a toilet bowl.

3,599,264
LAMINATED ROTARY BRUSH APPARATUS
Courtland N. Smith, Jr., Glen Ridge, and Edward L. Verhagen, Rahway, both of, N.J., assignors to Sherman Car Wash Equipment Co., Palmyra, N.J.
Filed Aug. 4, 1969, Ser. No. 847,087
Int. Cl. A46b 3/16, 9/02
U.S. Cl. 15-181 5 Claims



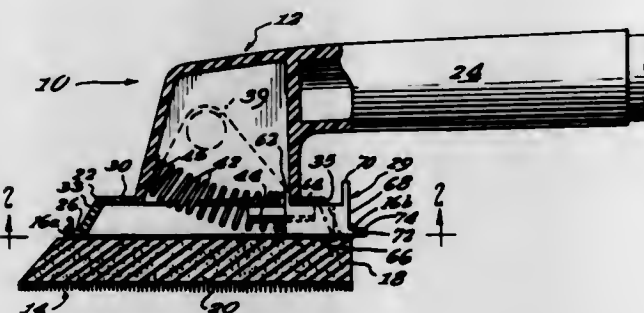
A laminated rotary brush is disclosed wherein bristle tufts are coupled to individual identically formed disk members, the disk members being stacked on a common shaft to define a cylindrical brush. Axially extending detent portions inter-

connect adjacent disk members to preclude relative rotation therebetween, but permit positioning of adjacent disk members in a plurality of selectable relative angular positions, such positions providing, selectively, a brush with axially aligned or angularly offset bristles. The disk members, in one form of the invention, include a hub portion provided with angularly spaced keyways, whereby the keyways of the individual disk members may be aligned for securement to a common shaft-engaging key, regardless of the selected alignment of the bristles.

3,599,265 PAINT APPLYING INSTRUMENT WITH RELEASE LATCH

Giuliano C. D'Ercoli, Park Forest, Ill., and Albert A. Mischak, Milwaukee, Wis., assignors to E Z Painter Corporation

Filed Mar. 16, 1970, Ser. No. 19,956
Int. Cl. A46b 5/00; B25g 3/18, 3/38
U.S. Cl. 15—210 R



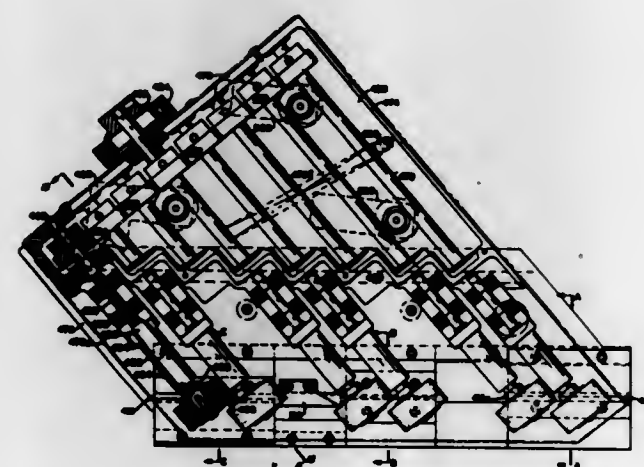
A pad-type painting applicator of the type having a handle and a replaceable applicating pad, characterized by the provision of a movable latch member on the handle for releasably retaining the applicator pad on the handle portion.

3,599,266 APPARATUS FOR BRUSHING AND POLISHING ZIPPER CHAIN

Guido Ferrella, Montreal, Quebec, Canada, assignor to Dynacast International Limited, Glasgow, Scotland
Division of Ser. No. 637,518, May 10, 1967, Pat. No. 3,482,301.
Filed July 7, 1969, Ser. No. 858,222
Int. Cl. B08b 1/02

U.S. Cl. 15—21 D

1 Claim



A brushing and polishing assembly for use in the manufacture of zipper chain. The assembly includes a body having a chain guide path and a number of brushing members disposed over the path to brush and polish exposed surfaces of the chain as it passes through the assembly.

3,599,267 WINDSHIELD SCRUBBER

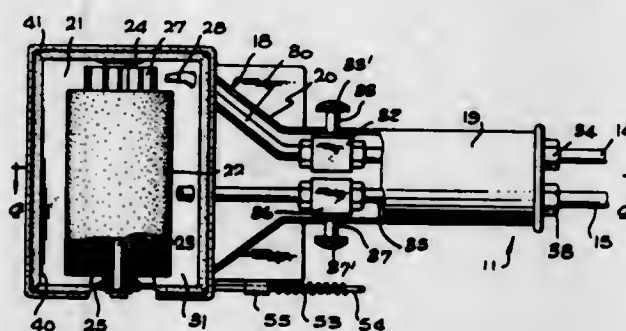
Robert N. Fairles, 565 North Elsie Way, Covina, Calif.

Filed June 9, 1969, Ser. No. 831,458

Int. Cl. A46b 13/04

U.S. Cl. 15—24

8 Claims



A device including a casing housing an air-driven rotary brush that partially projects through an opening in the casing and a resilient skirt surrounding the opening and capable of serving as a squeegee. The casing is provided with a trap chamber adjacent the brush and with a pivoted closure shoe normally closing an opening to the trap chamber but adapted to pivot to open position to deflect liquid and other residue resulting from a cleaning operation from the brush into the chamber.

3,599,268 PAINT LINE MARKER

Lawrence W. Simpkins, 7344 Simpson Lane, and Lawrence W. Simpkins, Jr., 5608 Eastwood Court, both of Clinton, Md.

Filed Jan. 16, 1969, Ser. No. 791,576

Int. Cl. B44d 3/22, 3/28

U.S. Cl. 15—230.11

3 Claims



This is a paint line marker which is especially useful in marking parking lots for vehicles and small confined areas such as pedestrian crossways at road intersections. Basically, the concept involves the in-line mounting of plural paint rollers in a frame, wherein the particular rollers are self-wiping, continuously self-aligning to ensure the accurate positioning of the device as a paint line is deposited, substantially indelibly.

3,599,269 HEADLIGHT-CLEANING APPARATUS

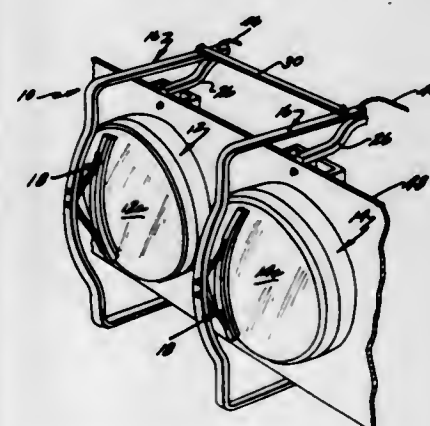
R. J. Max Congdon, 0-1421 Baldwin, Jenison, Mich.

Filed Oct. 25, 1968, Ser. No. 770,502

Int. Cl. B60s 1/66

U.S. Cl. 15—250.04

5 Claims



Resilient wiper blade elements carried by a portion of a reciprocally mounted frame which projects forwardly of the

face or front wall of a headlight on an automobile or the like, with a fluid-transfer conduit carried by the frame and communicating with the wiper, and with the wiper arranged to apply cleaning fluid to the face of the headlight while simultaneously reciprocating across the same to clean it.

3,599,270 WINDSHIELD WIPER

Yoichi Mori, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

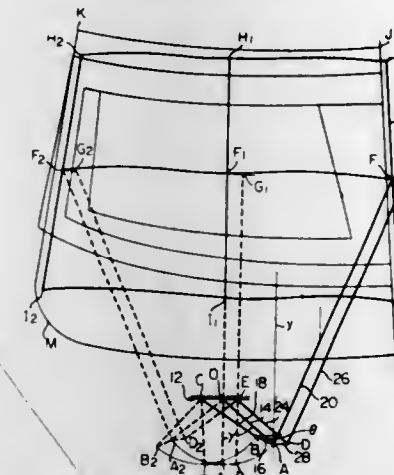
Filed Feb. 4, 1970, Ser. No. 8,526

Claims priority, application Japan, Feb. 7, 1969, 44/8771

Int. Cl. A471 1/00; B60s 1/02

U.S. Cl. 15—250.23

4 Claims



A vehicle windshield wiper assembly of a quadric chain mechanism type, having a wiper blade adapted for sweeping practically the total area of the windshield by oscillating along a horizontal, nearly trochoidal path and maintaining a position perpendicular or nearly perpendicular to the horizontal line throughout the sweeps. The nearly trochoidal curve along which the centerpoint of the wiper blade moves is drawn by using a rotatable crank arm and a rotatable guide arm which are hingedly connected by a rod. The wiper blade is held in a position perpendicular or nearly perpendicular to the horizontal line by a rod held parallel to the crank arm and a linkage structure formed by the wiper arm and three connected rods.

3,599,271 MULTIPURPOSE VACUUM CLEANER NOZZLE

Hans Georg Ljung, Jakobsberg, and Torsten Birger Palmeth, Sollentuna, both of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden

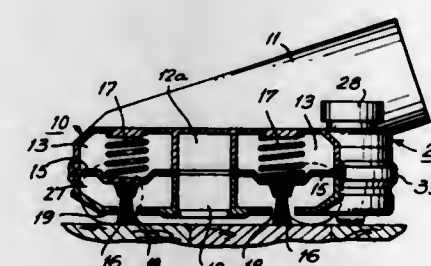
Filed Feb. 2, 1970, Ser. No. 7,703

Claims priority, application Sweden, Feb. 4, 1969, 1450/69

Int. Cl. A471 9/02

U.S. Cl. 15—319

12 Claims



This invention relates to a multipurpose vacuum cleaner nozzle having a suction inlet which is movable over a porous object like a rug to remove dirt therefrom. A brush is mounted on the nozzle at the vicinity of the suction inlet for movement between upper and lower positions, the brush in its lower position being below the suction inlet and operable to remove dirt from a nonporous object like a floor. The suction inlet becomes operable to remove dirt from a porous object when the brush is in its upper position above the suction inlet.

The brush is moved between its upper and lower positions by pneumatically operated mechanism having a control chamber connected by a passageway to a region of the nozzle in which the air normally is at a partial vacuum. A valve, which is connected in the last-mentioned passageway, is kept in its closed position by a sensing member when it probes a nonporous object over which the nozzle is moved and is actuated to its open position by the sensing member when it probes a porous object over which the nozzle is moved.

When the valve is open and the air in the chamber is at a first pressure which is a partial vacuum, the pneumatically operated mechanism functions to move the brush to its upper position against the biasing action of spring means. When the valve is closed and the air in the chamber is at a second higher pressure, which can be ambient air at atmospheric pressure, the mechanism functions to move the brush to its lower position with the biasing action of the spring means.

3,599,272 VACUUM MOP

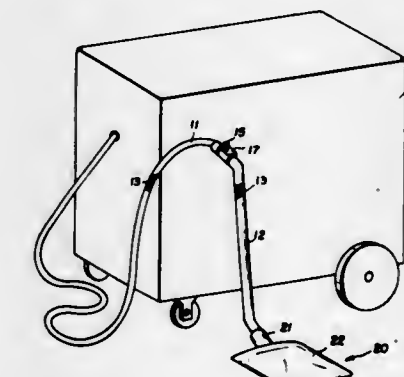
John T. Merrick, 629 Thurston Road, Rochester, N.Y.

Filed Jan. 15, 1970, Ser. No. 2,983

Int. Cl. A471 11/29

U.S. Cl. 15—321

6 Claims



A powered vacuum mop has the cleaning liquid line arranged as a flexible tube inside the vacuum hose and wand and has a pushbutton valve on the upper end of the wand. Also, an improved cleaning tool has a main housing receiving the wand, and a separator plate under the main housing closes off all the space under the housing except narrow vacuum intake openings along the front and rear edges of the housing. A perforated plate under the separator plate between the intake openings carries a porous scrubbing tool, and a squeegee is arranged in each of the intake openings. The cleaning liquid line leads to a liquid passageway extending through a separator plate and into a perforated tube extending over the perforated plate.

3,599,273 VACUUM CLEANER

Konomu Shirayanagi, Yokohama-shi; Yoshitoma Iijima, Matsudo-shi; Kosaku Urano, Tokyo; Sadao Kobayashi, Tokyo; Tsuneo Kozuki, Machida-shi; Yutaka Tanigawa, Tokyo; Akio Watanabe, Kodaira-shi; Terunobu Takahashi, Tokyo; and Tsuneo Sakagami, Kamakura-shi, all of Japan, assignors to Tokyo Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 1, 1968, Ser. No. 764,225

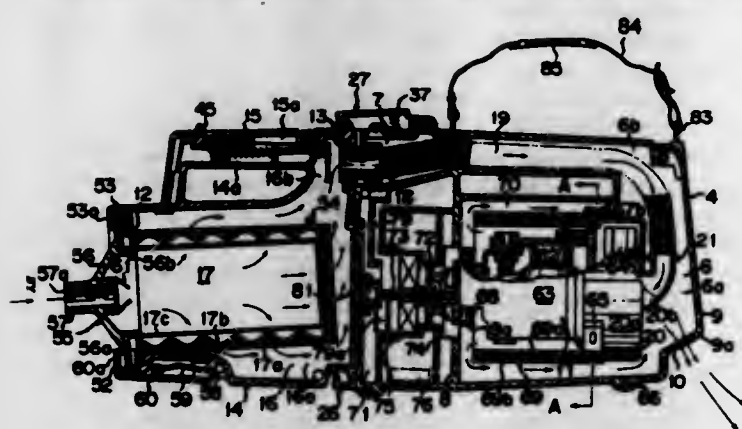
Claims priority, application Japan, Apr. 17, 1968, Apr. 17, 1968, May 28, 1968, May 28, 1968, June 26, 1968, June 26, 1968, July 23, 1968, July 23, 1968, July 23, 1968, July 23, 1968, 43/31,307; 43/31,308; 43/44,079; 43/44,080; 43/53,665; 43/53,666; 43/62,603; 43/62,604; 43/62,605
Int. Cl. A471 5/24

U.S. Cl. 15—326

19 Claims

A vacuum cleaner consisting of a body separable into two

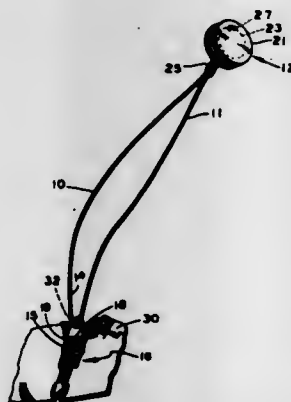
sections, wherein the airpaths of the sections are serially



hinges of the type commercially known as "Paumelle" hinges. The hinge structure disclosed herein is representative of one embodiment of the invention and comprises a pair of cooperatively disposed hinge members each having a hinge plate and a hinge knuckle positioned intermediate the upper and lower margins of each plate. One plate is for attachment to a door-supporting frame and the other is designed for attachment to a fixed door frame structure such as a door jamb. The door hinge knuckle adjacently superimposes the other hinge knuckle and a hinge pin extends through and is secured against axial displacement with respect to both of the knuckles. Hinge knuckle caps are frictionally attached to the lower and upper extremities of the combined knuckles.

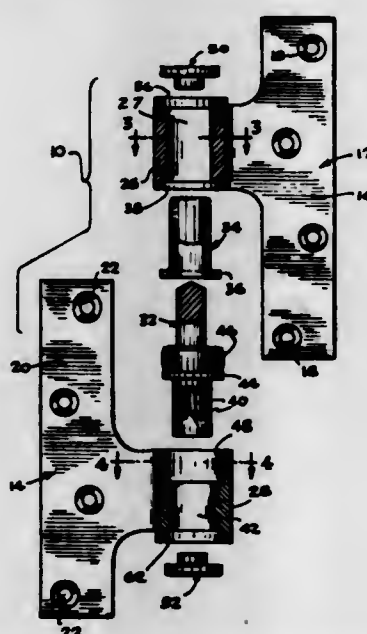
joined by a flexible hose to be housed in a tubular chamber formed in the sections.

3,599,274
ACTUATOR FOR SLIDE FASTENER
Marion Donovan, 435 E. 52nd St., New York, N.Y.
Filed Dec. 6, 1968, Ser. No. 781,780
Int. Cl. A44b 11/00, 19/26
U.S. Cl. 16-110



Means for moving a slider of a slide fastener for joining opposed edges of a body garment opening extending down the back of said garment between the waist and the neck, and including a flexible cord of elastic extensible material and provided at one end with means for detachably securing said cord to the slider, and a finger-engaging piece at the free end of the cable.

3,599,275
HINGE STRUCTURE
Kurt H. Granzow, Sterling, Ill., assignor to Lawrence Brothers, Inc., Sterling, Ill.
Filed Jan. 2, 1970, Ser. No. 38
Int. Cl. E05d 11/04
U.S. Cl. 16-136

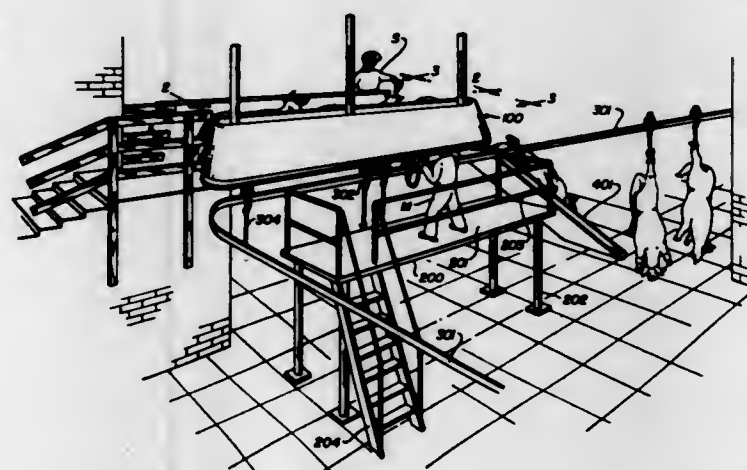


This invention relates generally to improvements in door hinges and more particularly to the improvements in door

3,599,276
APPARATUS AND METHOD FOR PREPARING ANIMALS FOR SLAUGHTER

Everett Edwards, St. Paul, Minn., assignor to Armour and Company, Chicago, Ill.
Filed Oct. 3, 1968, Ser. No. 764,773
Int. Cl. A22b 1/00
U.S. Cl. 17-1

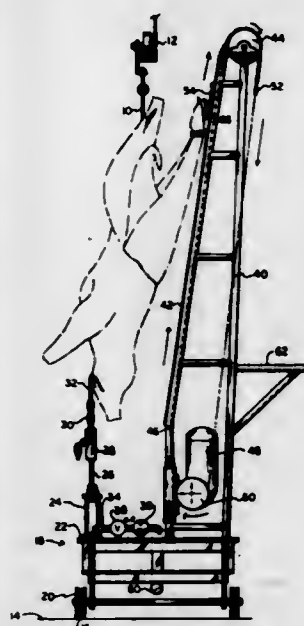
5 Claims



An apparatus and method for preparing meat animals for slaughter in which the animals are confined in an elevated bottomless pen, stunned and shackled while in the pen, and discharged directly to a conveyor rail for slaughter.

3,599,277
HOG SKINNING
Kenneth J. Brown, P.O. Box 1534, Plainview, Tex.
Filed Oct. 27, 1969, Ser. No. 869,828
Int. Cl. A22b 5/20
U.S. Cl. 17-21

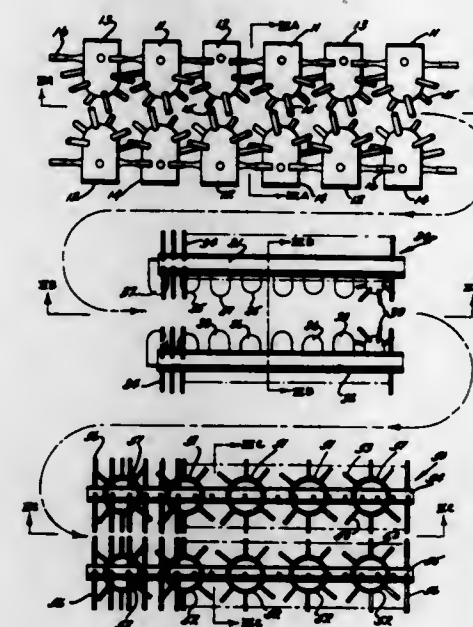
9 Claims



A hog hung by the hamstrings is skinned by cutting the skin from the belly, legs, and head, then holding the head down while pulling the hide upward.

3,599,278
METHOD FOR PICKING POULTRY
Edward J. Crane, Ottumwa, Iowa, assignor to International Agri-Systems, Inc., Ottumwa, Iowa
Filed July 15, 1969, Ser. No. 841,807
Int. Cl. A22c 21/02
U.S. Cl. 17-47

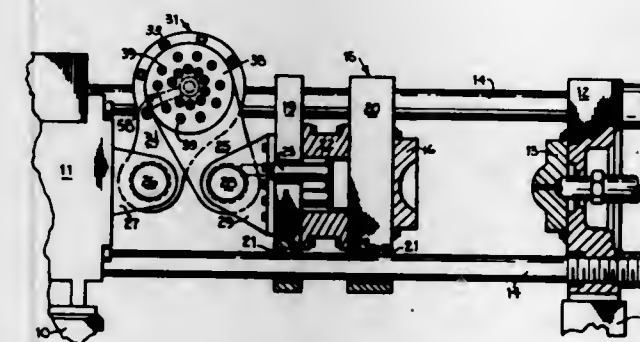
3 Claims



A method of picking poultry wherein birds suspended in flexible fashion from an overhead conveyor are conveyed through three different picking environments to completely defeather them. The initial picking stage includes a series of offset, counterrotating bullet-shaped supports having flexible fingers extending therefrom positioned on either side of the path. The two subsequent picking sections include (1) two overhead drum-type pickers having therebelow a pocket defined by upper and lower rows of bullet-shaped pickers which are offset with respect to one another; and (2) two horizontal drum-type pickers positioned to contact the wing and upper body portions of the bird having positioned thereabove a series of circular finger supports having fingers extending radially therefrom and rotatable about vertical axis to contact the legs of the birds. The latter two sections may be arranged in any order so long as they both follow the initial section described.

3,599,279
CLAMPING MECHANISM
David I. McDonald, Cincinnati, Ohio, assignor to The Cincinnati Milling Machine Co., Cincinnati, Ohio
Filed Mar. 20, 1970, Ser. No. 21,252
Int. Cl. B29f 1/00; B30b 1/10
U.S. Cl. 18-30 LT

10 Claims

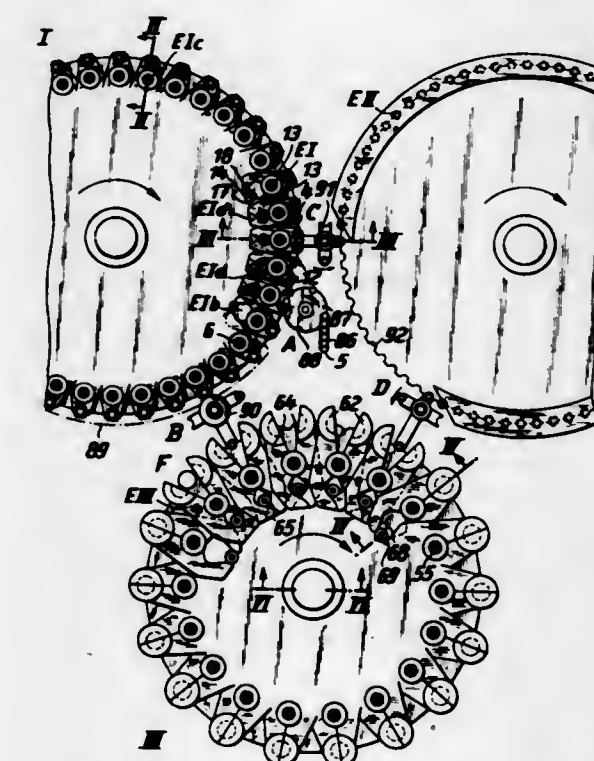


A hydraulically actuated clamping mechanism for moving a movable member into and out-of-cooperative relationship

with a stationary member. A pair of rigid link arms is pivotally interconnected at one end of each of the arms to form a toggle. The free end of one of the toggle arms is pivotally connected to a stationary portion while the free end of the other arm is pivotally connected to a movable member. The pivotally interconnected ends of the toggle arms define a knee-type joint which incorporates an integral hydraulic rotary actuator which upon the application of hydraulic pressure, causes relative motion between the arms and thereby moves the movable member into and out of cooperative relationship with the stationary member.

3,599,280
MACHINE FOR MAKING HOLLOW ARTICLES, ESPECIALLY BOTTLES, OF THERMOPLASTICS
Otto Rosenkranz, and Karl-Heinrich Seifert, both of Hamburg, Germany, assignors to Heindenreich & Harbeck, Wiesendamm, Germany
Filed Aug. 13, 1968, Ser. No. 752,302
Claims priority, application France, Jan. 16, 1968, 136,177
Int. Cl. B29d 23/03
U.S. Cl. 18-5 BM

28 Claims



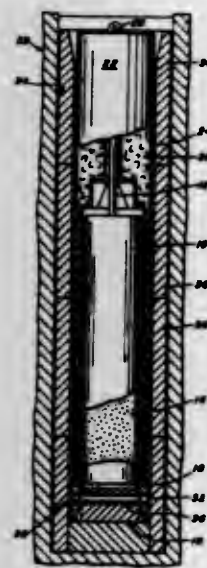
Hollow articles of thermoplastics, especially bottles, are made from tubular blanks by heating the ends thereof and press molding first their bottom and neck portion. Then the preformed blanks are heated around their center portion and are transferred into blow molds for inflating them to the final shape. The machine consists of a first rotary table with pre-heating and press molding means, a second rotary table with final heating means and a third rotary table with blow molds. The rotary tables are connected by transfer stations so that the blanks can be automatically transmitted and conveyed around all tables. The high production allows installation in prior sequence to filling plants.

3,599,281
HEAT INSULATING CASING
Charles Benjamin Boyer, Columbus, Ohio, assignor to Crucible Inc., Pittsburgh, Pa.
Filed Nov. 1, 1968, Ser. No. 772,681
Int. Cl. B22f 3/12
U.S. Cl. 18-5 H

10 Claims

This invention relates to the compacting of powdered-metal charges by fluid-pressure application in an autoclave, while said charge is at elevated temperature to eliminate the need for heating in the autoclave. In accordance with the in-

vention, heat dissipation from the charge is minimized by the cavity. The hopper has a complex rotational movement use of a removable heat-insulating casing that covers the which serves to distribute the mix uniformly throughout the



charge after it has been heated externally of the autoclave and until compacting has been completed in the autoclave.

3,599,282

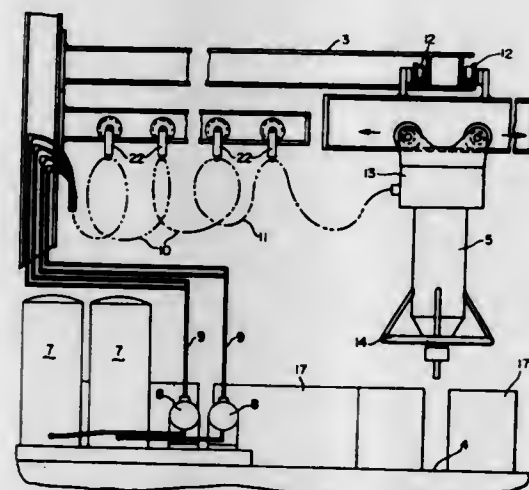
APPARATUS FOR MOLDING FOAM ARTICLES

Dale J. Meyers, and James E. Ditty, both of Logan, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 2, 1969, Ser. No. 812,692
Int. Cl. B29c 3/04

U.S. Cl. 18-5 P

3 Claims



This disclosure relates to a molding apparatus having a mold support means with molds positioned thereon and means above the molds to permit a mixing head to move above the molds and having flexible connections to the foamable ingredient's supply system.

3,599,283

MACHINE FOR USE IN THE MANUFACTURE OF GRINDING WHEELS

Robert E. Budai, and Philip McDowell, both of Downsview, Ontario, Canada, assignors to G & B Automated Equipment Limited, Downsview, Ontario, Canada

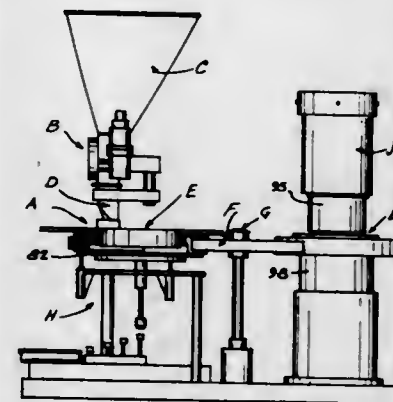
Filed May 5, 1969, Ser. No. 821,720

Int. Cl. B29d 31/00

U.S. Cl. 18-5 R

6 Claims

A machine with a worktable in which a mold cavity is formed. A hopper discharges grinding wheel mix into this



3,599,284

DEVICE FOR CONTINUOUSLY MOLDING HOLLOW ARTICLES FROM THERMOPLASTIC MATERIAL

Yuko Osa, and Okitada Hara, both of Tokyo-to, Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Yokyo-to, Japan

Filed Apr. 17, 1969, Ser. No. 817,086

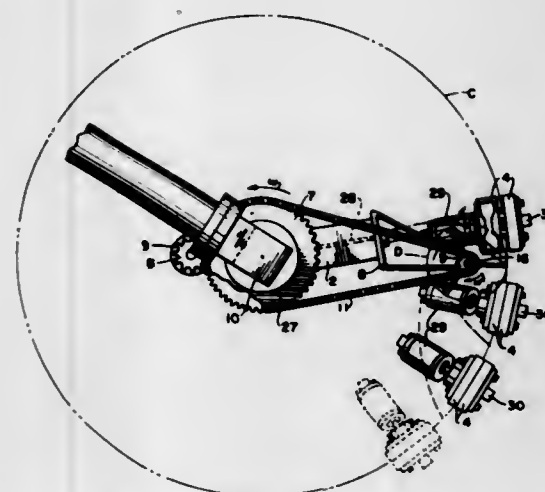
Claims priority, application Japan, Apr. 19, 1968,

43/26298

Int. Cl. B29d 23/03

U.S. Cl. 18-5 BP

3 Claims



A device that is composed of a number of split dies for molding hollow articles disposed equiangularly along the circumference of a circle, a rotary guide which rotatably moves keeping a certain relation to said split dies and sends to said split dies by turns thermoplastic material pushed out in the form of a pipe, and a pipe die means that blows air or the like into the pipe of thermoplastic material and pushes out the pipe which rotates in accordance with the moving of said rotary guide.

3,599,285

PELLETIZING DIE PLATE

William F. Hamilton, Houston, Tex., assignor to Myron & Mallay d/b/a Mallay Tool Service, Houston, Tex.

Filed Oct. 10, 1968, Ser. No. 766,597

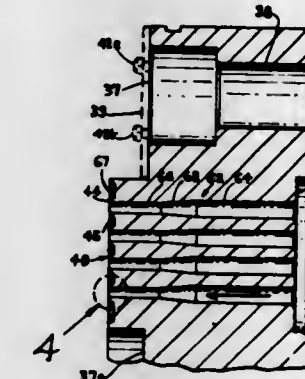
Int. Cl. B29f 1/022

U.S. Cl. 18-12 A

7 Claims

A pelletizing die plate and wherein a relatively small area of nozzle discharge end face metal around nozzle discharge openings is traversed by knives revolved to sever plastic pellets extruded through the nozzle bores. At the same time the knives traverse a substantially greater area of backing surface of harder, more brittle, carbide, ceramic or harder metal material over the discharge face around the softer metal an-

nuli around the extrusion bores. Thus the extrusion bores, formed through the relatively softer and more uniformly



3,599,286

THERMALLY INSULATED EXTRUSION DIE AND METHOD OF MAKING

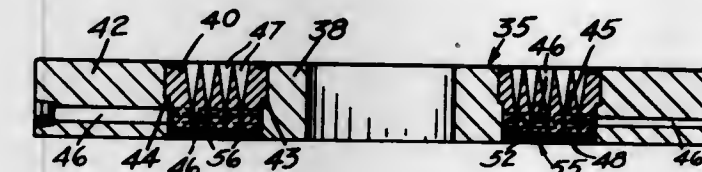
James M. Karet, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Filed Nov. 12, 1968, Ser. No. 774,835

Int. Cl. B29f 3/04

U.S. Cl. 18-12 A

13 Claims



A heated die plate for a plastic pelletizer, construction and method for applying alternate layers of metal and ceramic thermal insulating material that fills the space between a plurality of extrusion nozzles, the final layer of ceramic material being sealed against penetration by cooling fluids and also having uniform wear resistant qualities to reduce uneven abrasion of the cutting face and of the cooperating cutting edge of a rotary knife passing over the cutting face.

3,599,287

END-FORMING TOOL FOR THERMOPLASTIC TUBING

Basil Alfred Buck, Broken Hill, New South Wales, Australia, assignor to Broken Hill South Limited, Melbourne, State of Victoria, Australia

Filed July 9, 1968, Ser. No. 743,349

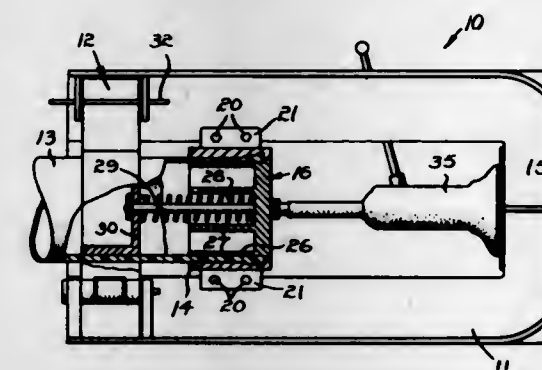
Claims priority, application Australia, July 10, 1967,

24296/67

Int. Cl. B29c 17/02

U.S. Cl. 18-19 TE

1 Claim



A tool, and also a method, for forming a ring on the end of thermoplastic tubing, wherein the tool is provided with a

clamp to clamp the tubing near one end and a mold formed from two half molds to clamp over the end, the half molds having an inner annular recess, and a die having a skirt to support the end of the tube against inward collapse, the die and mold being heated to render the tubing plastic, and the die and mold then being urged towards the clamp to force plastic flow of the tubing into the recess in the mold.

3,599,288

SCAN AVERAGE MEMORY CONTROL SYSTEM

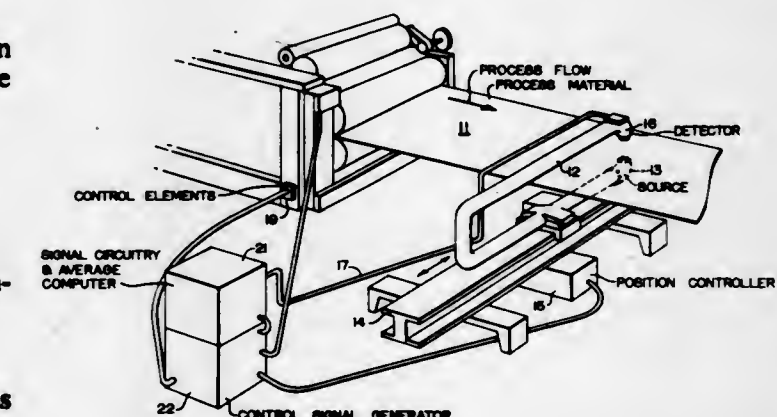
Stephen L. Eakman, Framingham, Mass., assignor to Laboratory for Electronics, Inc., Waltham, Mass.

Filed Jan. 23, 1969, Ser. No. 793,341

Int. Cl. B29d 7/14

U.S. Cl. 18-2 HA

2 Claims



A process control system for controlling the adjustments in spacing between calender rolls to adjust the thickness of a process material sheet. A sensing head is scanned transversely across the material sheet producing a profile scan of the thickness of the material and this signal is used to compute the average deviation of thickness from a target value for three transverse zones, the left edge, the center, and the right edge. At the completion of a scan the relative values of these three signals are compared to one another and control signals for both edge corrections and crown correction are developed which take into consideration the interaction between adjustments at each edge and in the center. Each correction is undertaken only with a full set of values across the width of the strip.

3,599,289

MOLD-CLOSING APPARATUS FOR MOLDING MACHINE

Umberto Girola, Via Monte Ceneri 60, Milan, Italy

Filed Oct. 1, 1969, Ser. No. 862,876

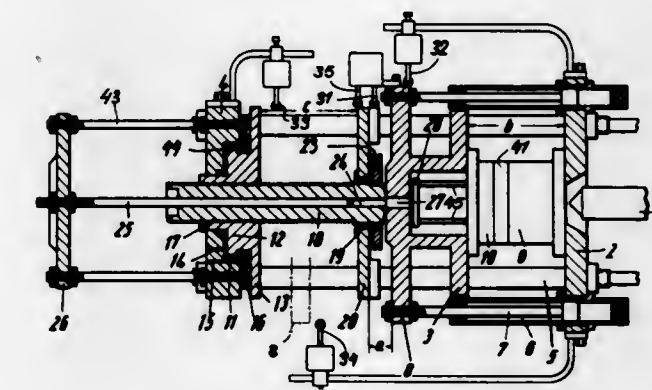
Claims priority, application Germany, Oct. 2, 1968, P 18 01

394.0

Int. Cl. B29f 1/00

U.S. Cl. 18-30 LA

14 Claims

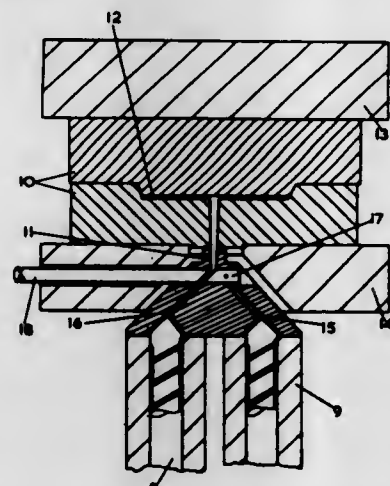


A fixed mold-supporting plate and a fixed backstop plate, spacedly mounted on the bed of a molding machine, are interconnected by tie bars on which a movable mold-supporting plate and a holding plate are slidably mounted, with the

holding plate disposed between the backstop and movable mold-supporting plates. The backstop plate forms a fluid chamber receiving a piston which also rides the tie bars and is axially slidable thereon, relatively to the backstop plate, over a distance of a few millimeters. As the complementary mold portions on the two mold-supporting plates are being brought together by hydraulic or pneumatic displacement of the movable mold-supporting plate, a drive motor on the holding plate rotates a screw extending axially therethrough or a nut carried on that screw to provide a brace substantially spanning the gap between the mold and the backstop plate whereupon pressure in the fluid chamber of the latter plate generates a supplemental thrust to hold the mold closed.

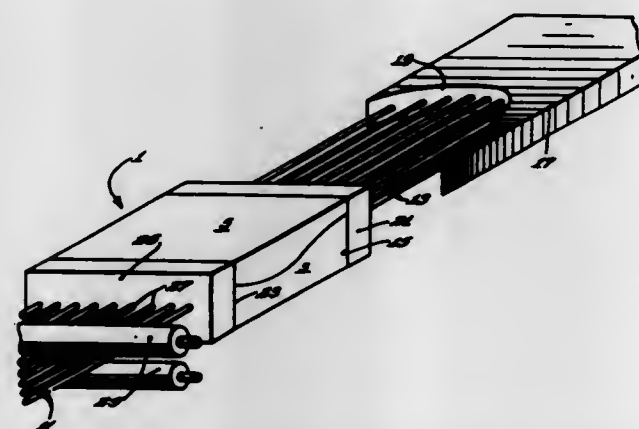
3,599,290
INJECTION MOLDING MACHINES
Paul Johnson Garner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Dec. 6, 1968, Ser. No. 781,763
Claims priority, application Great Britain, Dec. 15, 1967, 57081/67
Int. Cl. A43d 3/00; B28b 1/24
U.S. Cl. 18—30 AA



There is provided a method and apparatus for molding laminar articles. Two screw-injection barrels sequentially pass resinous materials through a valve in a single sprue into a mold cavity. The valve is controlled so that material from one screw-injection barrel does not pass while material flows from the other screw-injection barrel. The control means is synchronized so that the desired quantities of materials from the two injection barrels are placed in the mold cavity.

3,599,291
FILAMENT LAMELLAE FORMING APPARATUS
John A. Alexander, Palmesville, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed Oct. 27, 1969, Ser. No. 869,624
Int. Cl. B29f 1/022
U.S. Cl. 18—30 WM

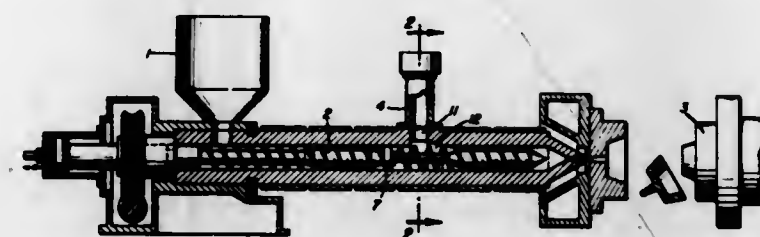


Filament-reinforced lamellae for fabricating composite turbine blades are made by feeding filaments into matched

grooves formed in the faces of a split die having a contour corresponding exactly to that of the desired lamella form. The distance to which the individual reinforcing filaments are inserted into the die block is determined by wire stop elements inserted from the opposite end. After the reinforcing filaments are properly placed the stop wires are removed and molten or liquid resin is injected between the die faces to bind the filaments together into a ply. The die is then heated to cure or chilled to solidify the resin or binder, the filaments are sheared and the ply lamella is ejected from the mold.

A machine feeds the reinforcing filaments into the grooves between the die faces after the wire stops have been positioned from the opposite end. The machine removes the wire stops and injects the molten or liquid resin or binder, solidifies the resin or binder in the closed mold, shears the filaments after solidification and ejects the lamella from the mold.

3,599,292
EQUIPMENT FOR THE INJECTION MOLDING OF THERMOPLASTIC MATERIALS HAVING A HIGH CONTENT OF VOLATILE SUBSTANCES
Isidoro Ronzoni, Camerlata, and Mario Miani, Rho, both of Italy, assignors to Montecatini Edison S.p.A.
Filed July 10, 1968, Ser. No. 743,794
Claims priority, application Italy, July 17, 1967, 18,475
Int. Cl. B29f 1/00
U.S. Cl. 18—30 SM

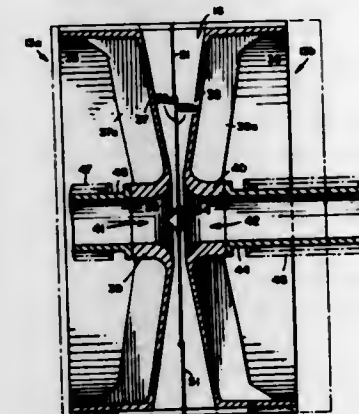


Equipment is provided for the injection molding of thermoplastic materials containing high quantities of volatile substances which is of the type having a degassing zone constituted by the reduction at some point along the diameter of the core of the pressing screw, in registration with a vent hole adjacent the cylinder in which said screw moves. The particular improvement here involved is characterized by the provision, in combination with said degassing zone and preferably at a location immediately on the inlet side of the degassing zone itself, of a device shaped like a spinneret constituted by at least a plate provided with holes connected with the screw shaft and suitable for causing a high pressure on the thermoplastic material on the inlet side of said degassing zone and for increasing the surface of the thermoplastic material being subjected to said degassing. In addition, at least one part of the length of the cylinder containing said pressing screw is provided with a wide countersink or ovalization suitable for facilitating the advancing of the thermoplastic material through the equipment. Moreover, the said cylinder, starting from an end adjacent said vent-hole, is provided with a flared zone suitable to further facilitate the injection-molding operation.

3,599,293
APPARATUS FOR FORMING FLUFF
Ernst Daniel Nystrand, and Thomas E. Broeren, both of Green Bay, Wis., assignors to Paper Converting Machine Company Inc., Green Bay, Wis.
Filed July 16, 1969, Ser. No. 842,146
Int. Cl. D01g 25/00
U.S. Cl. 19—155

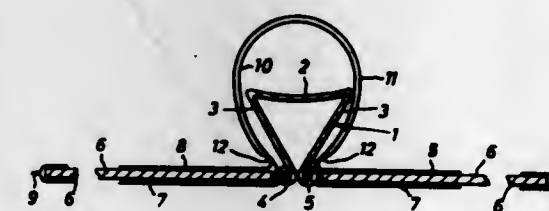
A machine for forming articles of fluffed cellulosic material includes a drum having first and second sections mounted coaxially for rotation and spaced apart to provide a chamber through which the fluff moves radially. An air-pervious web travels with the drum sections and covers the periphery of the chamber for receiving shredded cellulosic material which

enters each of the drum sections axially and is forced against opposite sides of a baffle plate mounted between and rotating with the drum sections. The baffle plate is in the general shape of oppositely extending cones, the apexes of which divert the inflow of shredded material radially outward. A



plurality of sets of tabs spaced about the baffle plate with each set at a different radial distance cause an even distribution of the fluff material against the travelling web. The drum sections are adapted for adjustable spacing; and the machine thus has the capacity of making articles of substantially larger width than heretofore has been feasible.

3,599,294
LOOSELEAF BINDERS
Michael John Anthony Lawes, 11, Jew St., Brighton, Sussex, England
Filed Sept. 8, 1969, Ser. No. 856,076
Claims priority, application Great Britain, Sept. 24, 1968, 45393/68
Int. Cl. B42f 1/00
U.S. Cl. 24—67.7

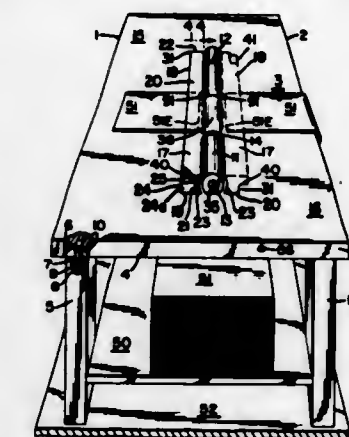


A looseleaf binder in which a pair of clamping elements are biased towards each other by one or more curved springs, in a manner permitting sheets of paper to be gripped between said clamping elements, has a first pocket of synthetic plastics material housing one of the clamping elements, and a second pocket of synthetic plastics material housing the other one of the clamping elements, said first pocket being integral with, or forming part of, a front cover of synthetic plastics material, said second pocket being integral with, or forming part of, a rear cover of synthetic plastics material.

3,599,295
ATTACHABLY ADAPTED CLAMP AND WRITING PLATFORM THEREFOR
Thomas P. O'Donnell, 220 Highland Blvd., Brooklyn, N.Y.
Continuation-in-part of application Ser. No. 472,950, July 19, 1965, now Patent No. 3,423,798, dated Jan. 28, 1969. This application June 3, 1968, Ser. No. 733,855
Int. Cl. B42f 1/00
U.S. Cl. 24—67.7

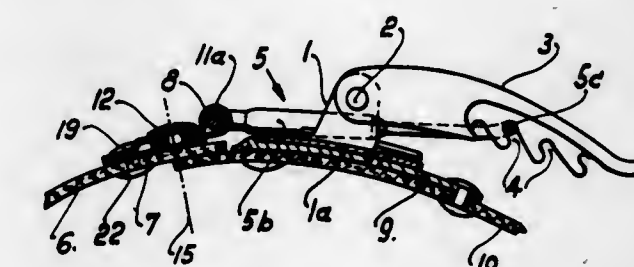
A paper supporting clamp 17 best shown in FIG. 2 is hingedly mounted on a flat paper receiving surface 3 by knuckle

portions 61, 62 and 72. The clamp has an arcuate centrally recessed portion 65 adapted to receive a curled over edge of a sheet of paper. Free edge 66 of the clamp is undercut at 68



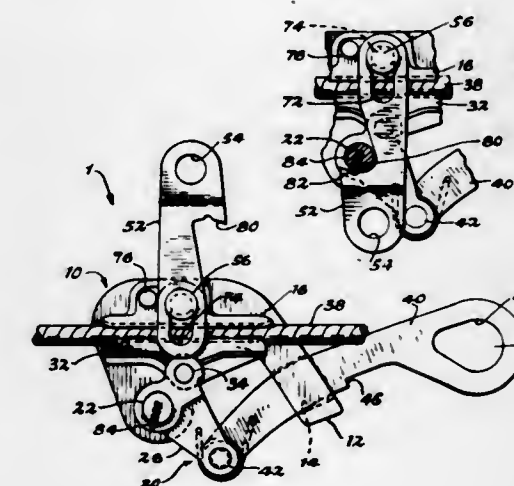
to provide a finger engageable end portion to facilitate opening of the clamp to release paper engaged thereby. Indented finger engageable portions 40 and 44 are provided and an opening to facilitate viewing of clamped paper is provided.

3,599,296
BUCKLE FOR SKI AND MOUNTAINEERING SHOES
Loris Baso, Corno Milano 19, Padua, Italy
Filed July 9, 1969, Ser. No. 840,357
Claims priority, application Italy, July 25, 1968, 19426A/68
Int. Cl. A43c 11/14
U.S. Cl. 24—70 SK



A buckle for ski and/or mountaineering shoes wherein the clamping loop is releasably secured to a mounting plate fixedly secured to the shoe by a screw.

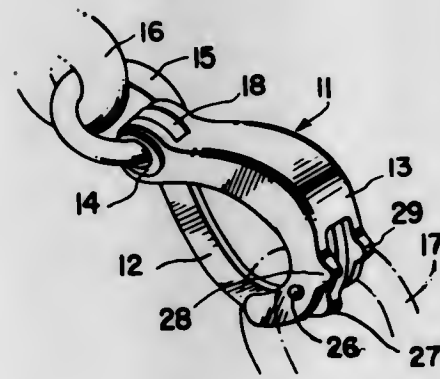
3,599,297
WIRE GRIP
Henry T. Slevers, Jamestown, N.Y., assignor to Crescent Niagara Corporation, Jamestown, N.Y.
Filed June 18, 1970, Ser. No. 47,435
Int. Cl. F16g 11/09, 11/12
U.S. Cl. 24—132 WS



A wire grip including a novel safety latch device by which the grip is manually applied to and removed from a wire to

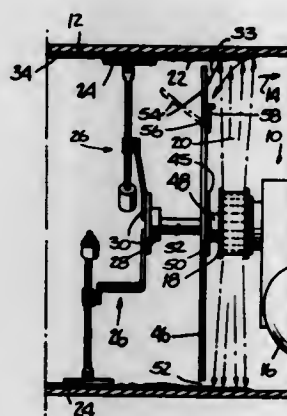
be stretched; the device automatically serving to provide a temporary lock to retain the grip on the wire as the grip is applied thereto. Upon manipulation of the grip to position the jaws thereof in gripping engagement with the wire, the device is manually movable into a permanent locking position, wherein it assists in transmitting loads between the wire clamping jaws.

3,599,298
CLASP FOR JEWELRY AND THE LIKE
Olof Verner Anderson, North Kingston, R.I., assignor to Anson Inc., Providence, R.I.
Filed Feb. 17, 1969, Ser. No. 799,787
Int. Cl. A44b 13/00
U.S. Cl. 24—232 1 Claim



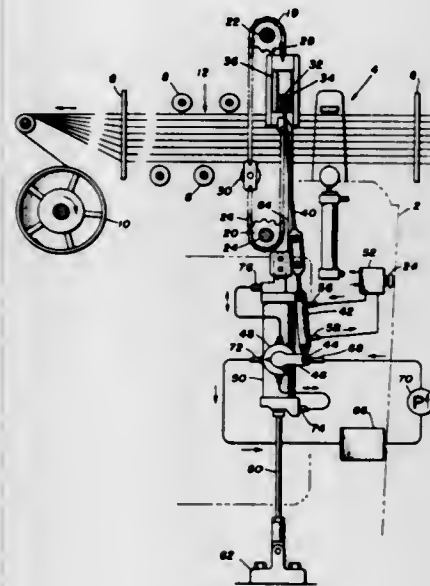
A clasp of the sister hook type is provided with a journaled hook which mates with an oppositely disposed journaled hook.

3,599,299
LINING MACHINE
Clifford A. Padgett, Lakewood, N.J., and Lester C. Slade, Escalon, Calif., assignors to Raymond International, Inc., New York, N.Y.
Filed Dec. 12, 1968, Ser. No. 783,301
Int. Cl. B28b 21/24
U.S. Cl. 25—38 4 Claims



A machine for applying a fluent lining material to the inside of a pipe which is arranged to be progressed through the pipe and which includes distributor means for slinging material in a generally radial spray on the walls of the pipe, and spaced trowelling means for smoothing the lining material on the wall, and a diaphragm interposed between the distributor means and the trowelling means for intercepting rebound particles and preventing them from imbedding in the freshly trowelled surface.

3,599,300
FLUID PRESSURE AUTOMATIC TENSIONER
Robert W. Timble, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.
Filed Feb. 11, 1970, Ser. No. 10,566
Int. Cl. D02h 13/26
U.S. Cl. 28—35 9 Claims



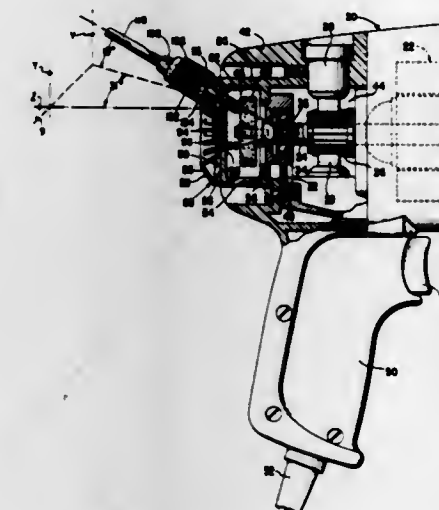
A tensioner, for controlling tension in winding and spooling operations of continuous strands, yarns, tows, sheets and the like, having oppositely displaceable, cooperating rolls, one of which is adapted to feel or sense tension variations in a material normally passing between the rolls and to position a fluid pressure means for applying a compensatory lesser or greater amount of tension to the material.

3,599,301
METHOD OF MAKING A FISHHOOK
Shigekatsu Fujii, No. 281 Gamae, Nishiwaki Hyogo, Japan
Division of Ser. No. 774,678, Nov. 12, 1968. Filed Sept. 24, 1969, Ser. No. 870,813
Claims priority, application Japan, Nov. 16, 1967, 42/73765
U.S. Cl. 29—9 1 Claim



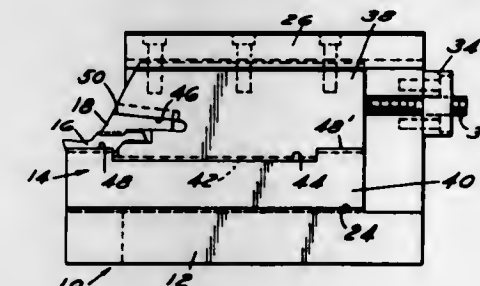
A method of making a fishhook including the steps of stamping a paddle-shaped block from a planar section of sheet material while leaving one end of the block connected to the sheet material, forming a gap in the sheet material about the part of the block spaced from its connected end, forming a tapered portion adjacent a pointed end in the free end of the block and then bending the free end arcuately so that the block has a J-shaped configuration and then separating the block from the sheet material.

3,599,302
INTEGRAL BIT SHARPENER FOR POWER TOOLS
Edmund C. Dudek, St. Charles, Ill., assignor to The Singer Company, New York, N.Y.
Filed Nov. 18, 1968, Ser. No. 776,556
Int. Cl. B23b 45/02
U.S. Cl. 29—26 2 Claims



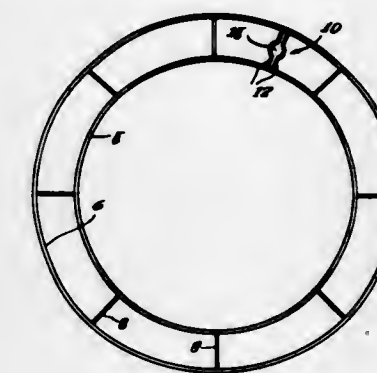
This disclosure relates to a power tool having an integral bit or implement sharpener which permits a bit to be sharpened by the power tool whenever the need arises. One example of this would be a portable power drill in which the drill or implement is normally driven by the electric motor mounted in the housing. A grinding wheel is connected at the opposite end of the motor so that whenever the bit needs sharpening it is simply removed from its driven connection or chuck and placed in a support assembly for manual turning in contact with the grinding wheel. Also, cam means are provided on the support assembly whereby the proper rake angle for the cutting edge being sharpened will be maintained. The support assembly provides for aligning for the axis of the drill with respect to the grinding wheels surface at a predetermined surface angle and coacts with the cam means so as to produce the desired rake angle for the cutting edge in question.

3,599,303
CUTTING TOOL INSERT
Terry L. Sletten, Westland, Mich., assignor to The Valeron Corporation
Filed Jan. 21, 1969, Ser. No. 792,403
Int. Cl. B26d 1/00
U.S. Cl. 29—95 14 Claims



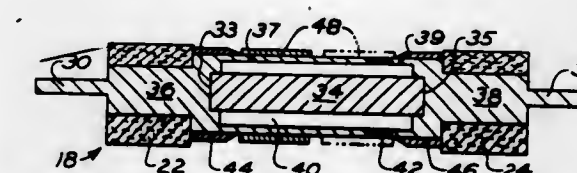
A cutting tool insert formed from a cylindrical blank to include a cutting edge in an axial plane across at least one end thereof and having a chip control relief therebehind and extending relatively below the cutting edge plane to provide side clearance.

3,599,304
DANDY AND WATERMARK ROLLS
Kenneth Senior, Frinton on sea, England, assignor to W. Green Son & Waite Limited, Kent, England
Filed Dec. 1, 1967, Ser. No. 687,213
Claims priority, application Great Britain, Dec. 5, 1966, 54,390/66
Int. Cl. B21b 27/02
U.S. Cl. 29—121 R 7 Claims



The specification deals with the construction of the supporting rings in the frame structures of dandy rolls and watermark rolls and discloses how such rings can be built up from elongate material formed to shape in place of conventional stamped plate members. In a preferred arrangement, two lengths of wire are formed into inner and outer circles which are connected concentrically by intermediate members, which may again be of wire, and which comprise locations for the attachment of longitudinally extending support members, such as spirally wound wires, of the roll frame structure.

3,599,305
MAGNETIC SHUNT ROLL ASSEMBLY
Christoph W. Aurich, 224 Camelot Road, Clemson, S.C.
Continuation-in-part of application Ser. No. 743,869, July 10, 1968, now abandoned. This application Apr. 29, 1970, Ser. No. 32,814
Int. Cl. B21b 31/08
U.S. Cl. 29—129.5 11 Claims

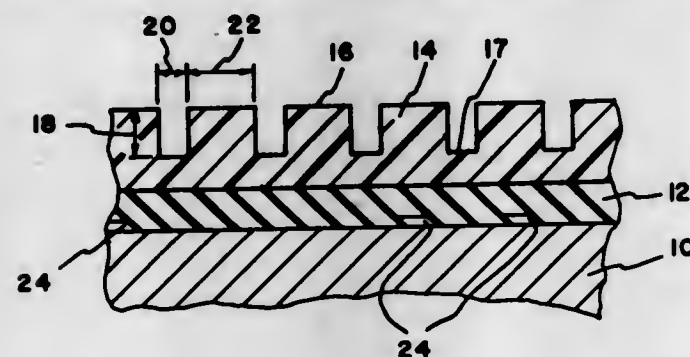


A magnetic shunt roll assembly is disclosed, providing a shunting circuit of magnetic flux conducting material which is normally discontinuous, and a switch having a graspable element of flux conducting material which is moveable to close the circuit and reopen it. The assembly is useful in conjunction with textile machines for facilitating positioning thereon and removal therefrom.

3,599,306
ROLL COMPOSITION
Donald A. Brafford, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Continuation-in-part of Ser. No. 784,606, Dec. 18, 1968.
This application June 13, 1969, Ser. No. 832,918
Int. Cl. B21b 31/08
U.S. Cl. 29—132 5 Claims

A roll for use in a nip defining relationship with another roll, including an inner core, an elastomeric layer around the

inner core and an outer shell wrapping core consisting of a nonwoven mat bonded with a thermosetting resin. Preferred

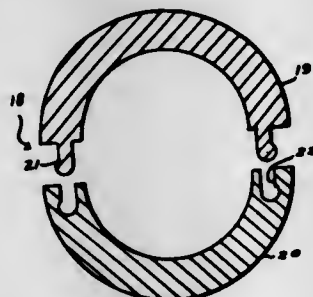


mats for the present invention are acrylic nonwoven mats, and preferred resins are those of the epoxy resin family.

3,599,307 PRODUCTION OF HOLLOW BALL OR ROLLER BEARING BY SWAGING OR OTHER COMPRESSIVE METHOD

Gabe L. Campbell, Greenville, and Henry A. Johnson, Dayton, both of, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force
Filed Aug. 5, 1969, Ser. No. 847,653

Int. Cl. B23p 11/00; B21h 1/14; F16c 33/32, 33/34
U.S. Cl. 29-148.4 A 6 Claims

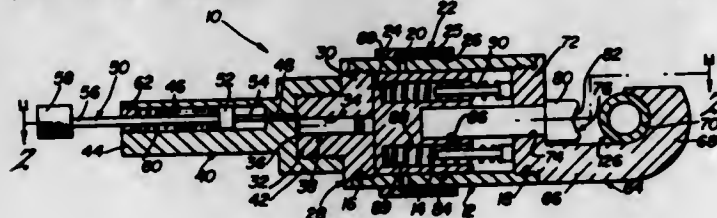


A unique hollow type of ball or roller bearing, fabricated from a pair of half-shell members having a matching male and female type of mechanical joint-reinforcing means extending therebetween, is initially joined along a well-defined joint area, and is thereafter swaged or otherwise compressed into a smaller-and-smaller diameter until a substantial migration of metal is interchanged between, and thereby eliminates the previously well-defined joint area to thus provide a more stable and stronger union.

3,599,308 CRIMPING TOOL

Robert K. Fielder, Flagler Beach, Fla., assignor to Earl L. Halladay, a part interest

Filed Jan. 27, 1969, Ser. No. 794,155
Int. Cl. H01r 43/04; B23p 19/04; B21l 15/24
U.S. Cl. 29-203 D 10 Claims



A tool for crimping tubular or sleeve-like connectors onto electrical conductors and comprising relatively fixed die means adapted to operatively support a connector during a crimping operation, first and second relatively movable die means adapted to independently cooperate with the fixed die means to crimp a connector therebetween, explosive means for moving the relatively movable die means from deactuated to actuated positions, means for detonating the explosive means, and means for biasing the relatively movable die means toward their respective deactuated positions.

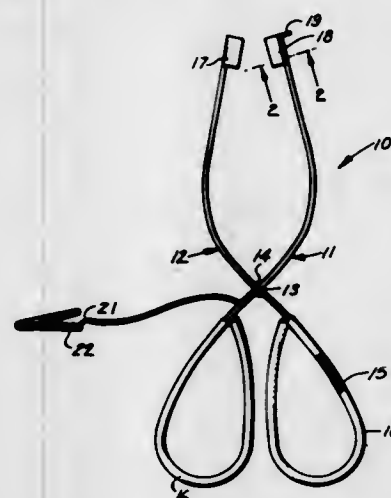
3,599,309 VACUUM TUBE PULLING TOOL

Randy Lee Mulligan, 607 W. Grant Box #5, Onarga, Ill.

Filed Oct. 17, 1969, Ser. No. 847,266

Int. Cl. B25b 7/00, 27/02

U.S. Cl. 29-203 H 4 Claims



A tonglike instrument for pulling tubes in the high-voltage box of television sets, the device including a pair of pivotable arm members each of which has a circular gripping end which when closed together will encompass and grip the tube easily from its socket without the user coming into contact with the high voltage, one of the gripping ends having a discharge prong, and the instrument including an alligator clip for electrically engaging a television set chassis.

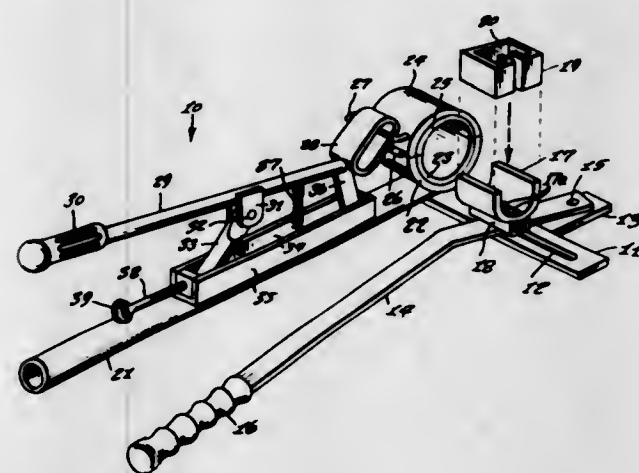
3,599,310 PIPEFITTING SECURING TOOL

Wilbur H. Brownlee, Route #1, Box 19, Claysville, Pa.

Filed Jan. 22, 1968, Ser. No. 699,527

Int. Cl. B23p 19/04

U.S. Cl. 29-237 1 Claim



A tool for applying fittings such as adapters and elbows to soft plastic pipe, the tool including a pipe-holding clamp for holding the pipe, a cradle to hold and guide a fitting to be secured upon the pipe, reversible part for pushing the fitting and manual means for operating the parts.

3,599,311 DEVICE FOR PULLING A REMOVABLE MECHANISM FROM A LOCK

John B. Ellis, 844 West Marion St., Shelby, N.C.

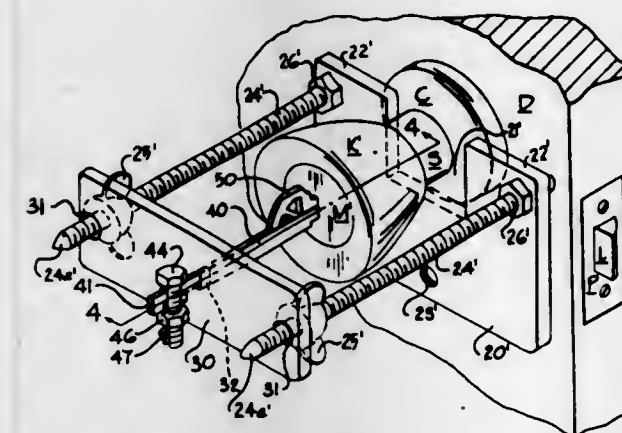
Filed Mar. 6, 1969, Ser. No. 804,904

Int. Cl. B23p 19/04

U.S. Cl. 29-259 5 Claims

A device for pulling a removable key-operated mechanism from a lock including a support plate adapted to straddle the key-operated mechanism of the lock and engage a non-removable, door-mounted portion of the lock, a key-operated mechanism pulling means disposed in spaced apart parallel relation to the support plate and adapted to engage

the key-operated mechanism, and means connecting the support plate and pulling means and mounting said pulling dimensions, and mounting the bonded frames together by



means for translational movement toward and away from the support plate.

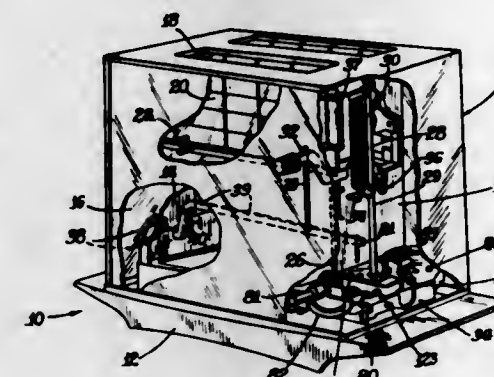
3,599,312 TOASTER TIMER HAVING EXTERNAL ADJUSTMENT

Franklin C. Hitzeroth, Centerville, Iowa, assignor to McGraw-Edison Company, Elgin, Ill.

Filed Mar. 10, 1970, Ser. No. 18,256

Int. Cl. A47J 37/08

U.S. Cl. 99-329 9 Claims



A bimetal timing mechanism having first and second externally actuated adjustment means that change the orientation of the bimetal relative to the release latch means effective thereby, respectively, to factory calibrate the mechanism to its particular use, such as in a toaster for timing the toasting cycle, and to accurately vary this factory-set cycle control for individually satisfying the user's preferences.

3,599,313 FRAME AND YOKE ASSEMBLY FOR HIGH-SPEED PRINTERS AND METHOD OF MAKING SAME

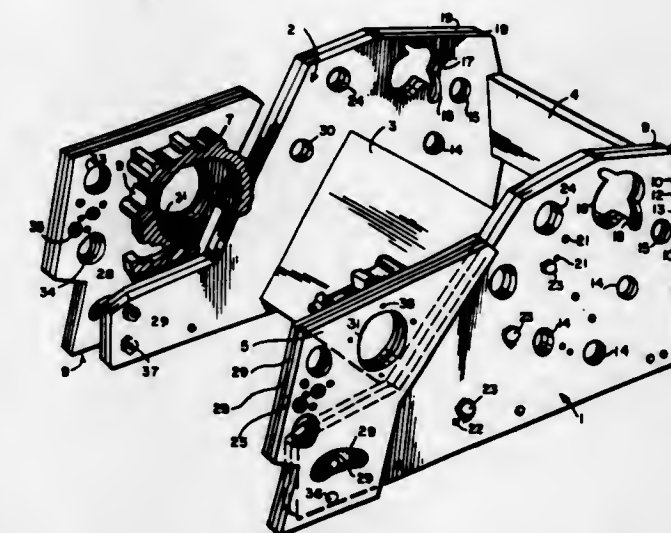
Melvin L. Litvin, Chestnut Hill, Mass., assignor to Data Printer Corp., Boston, Mass.

Filed May 8, 1969, Ser. No. 823,022

Int. Cl. B23q 17/00

U.S. Cl. 29-407 7 Claims

A method of making the frame and yoke of a high-speed printer, comprising stamping out a number of identical pieces, each conforming in shape to the side frames or the yoke frames of the printer to be completed but of thinner material, in which locating holes for the working parts of the printer are stamped in the same operation; bonding sets of the stamped parts together to form main frames and yoke frames of the desired final thickness, boring or grinding the



framing members located with dowels installed in the holes provided in the side frames and precision bored as described.

3,599,314 METHOD FOR MAKING FORGINGS

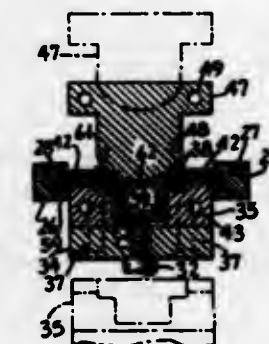
George Harrison, Berwyn, and Nelson K. Harrison, Riverside, both of, Ill., assignors to North American Rockwell Corporation, Pittsburgh, Pa.

Division of Ser. No. 584,695, Oct. 6, 1966, Pat. No. 3,445,904.

Filed Jan. 13, 1969, Ser. No. 801,908

Int. Cl. B23p 17/00; B23k 19/00

U.S. Cl. 29-418 6 Claims



A method of casting and forging metal pieces in which the casting metal is caused to engage a support adjacent to the casting mold and, following casting, the cast piece is separated from the mold and carried by the support to a forging station for the forging operation and is thereafter carried by the support to the trimming station where the forged part is separated from the trim part.

3,599,315 METHOD FOR EMPLOYING NEW PIPE ALONG PREVIOUSLY LAID PIPE

Remo R. Pizzagalli, Shelburne, Vt., assignor to Atlas Pipe Popper Corporation, Farmingdale, Long Island, N.Y.

Division of Ser. No. 584,196, Oct. 4, 1966, Pat. No. 3,469,298.

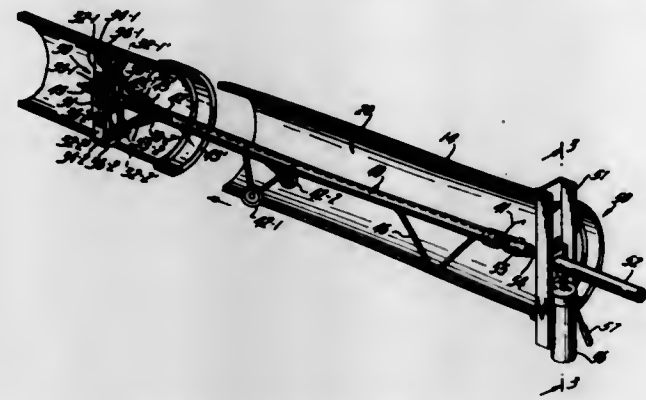
Filed Mar. 10, 1969, Ser. No. 812,542

Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29-431 2 Claims

A method of emplacing a newly laid section of pipe with respect to a previously laid section of pipe by positioning a

support member within both said sections, coupling a hydraulic jacking unit to said support, and operating said



jacking unit to displace the newly laid section against said previously laid section.

3,599,316

METHOD OF JOINING CEMENTED CARBIDE TO STEEL
Max D. Moskal, La Grange, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 699,038, Jan. 19, 1968, now abandoned. This application Dec. 15, 1969, Ser. No. 885,286

Int. Cl. B23k 31/02

U.S. Cl. 29-473.1

8 Claims

A method of making composite articles of cemented tungsten carbide and steel wherein the tungsten carbide is bonded to a steel which, during cooling, undergoes a martensitic transformation whereby the net contraction of the steel is about equal to the contraction of the carbide.

3,599,317

METHOD OF METALS JOINING

David L. Purdy, and John F. Williams, both of Indiana, Pa., assignors to Nuclear Materials and Equipment Corporation, Apollo, Pa.

Filed Mar. 21, 1967, Ser. No. 624,916

Int. Cl. B23k 35/12

U.S. Cl. 29-501

2 Claims



The method of joining members of copper and tungsten and members of copper and corrosion- and/or temperature-resistant nickel-base alloys in the practice of which a mass of titanium is interposed between the members and the joint is heated to produce a eutectic of copper and titanium and then permitted to solidify.

The like method for joining members of niobium and aluminum oxide in which a mass of nickel and titanium or of titanium alone are interposed between the members.

Brazed assemblies produced by the methods.

A high-temperature-resistant vacuum seal of niobium and aluminum oxide.

3,599,318

METHOD OF BONDING SHEETS

Walter D. Behlen, Columbus, Nebr., assignor to Behlen Manufacturing Company, Inc., Columbus, Nebr.

Continuation of application Ser. No. 629,505, Apr. 10, 1967, now abandoned. This application Feb. 2, 1970, Ser. No. 7,367

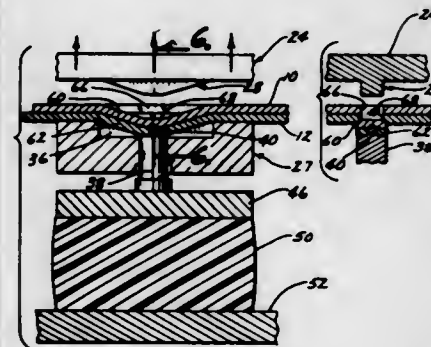
Int. Cl. B21d 39/00; B23p 11/00

U.S. Cl. 29-509

1 Claim

A mechanical splice for rolls of metal in continuous metal fabrication wherein each splice includes a portion deformed

from adjacent sheets of metal thereby limiting relative movement therebetween. In one embodiment, the portion of material deformed is spread after it is deformed to prevent it from returning to its original condition. A die for performing the deformation and spreading includes a flat die surface with oppositely outwardly flaring end surfaces which press superimposed portions of the sheets of metal into a depression in a second die against a yieldable pin which spreads at least one of the portions by at least the time the movable die has bottomed out but after the one portion is deformed out of its sheet of material. The method of forming the mechanical splicing involves the deforming of the elongated portion



thereby forming an opening in the sheet of material and then the spreading of the deformed portion such that it cannot pass back into the opening. The spreading may begin at the same time as the deforming step begins but is not completed until the deforming step has been completely finished. A second embodiment of the splicing includes semielliptical portions the mirror image of each other on opposite sides of a perpendicular plane to the sheets of material being deformed on opposite sides of a parallel plane to the sheets of material to lock the sheets against relative movement. The dies for forming the semielliptical deformations are the mirror image of each other and have convex outer surfaces whereby they register with each other.

3,599,319

METHOD AND APPARATUS FOR PRODUCING FINE-GRAINED THERMOELECTRIC MATERIAL

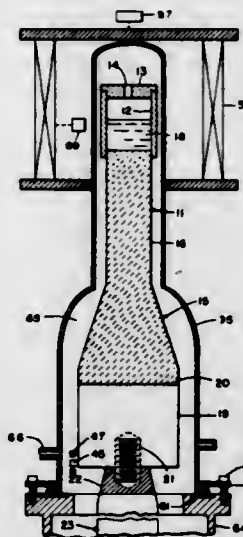
Martin Weinstein, Wayland, and Naim Hemmat, Lexington, both of, Mass.

Filed Mar. 15, 1968, Ser. No. 715,124

Int. Cl. B23p 17/00

U.S. Cl. 29-527.6

5 Claims



System having a carbon ultrasonic transmission line and crucible for obtaining the desired metallurgical effects upon a liquid and a solidifying melt to produce high-purity, high-temperature, fine-grained thermoelectric material wherein abrupt nucleation takes place while the entire melt is constantly being stirred to provide an invariant liquid composition during solidification.

3,599,320

METASTABLE AUSTENITIC STAINLESS STEEL

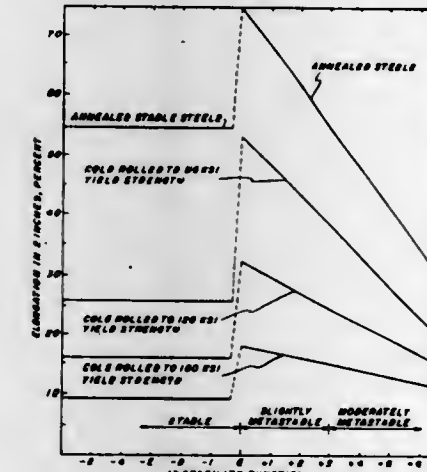
Kenneth G. Brickner, Wilkesburg Borough, and David C. Ludwison, Hempfield Township, Westmoreland County, both of, Pa., assignors to United States Steel Corporation

Filed Dec. 26, 1967, Ser. No. 693,205

Int. Cl. C22c 39/20; B23p 17/00

U.S. Cl. 29-527.7

4 Claims



A metastable austenitic stainless steel containing 0.07 to 0.18 percent carbon, 0.9 to 6.2 percent manganese, 4.1 to 7.7 percent nickel, 14.1 to 17.9 percent chromium and 0.01 to 0.14 percent nitrogen, the balance essentially iron. The steel has an Instability Function (IF) of 0.0 to 2.9 as determined by the following equation:

$$IF = +37.193 - 51.248 (\% C) - 1.0174 (\% Mn) - 2.5884 (\% Ni) - 0.46770 (\% Cr) - 34.396 (\% N)$$

3,599,321

INVERTED SPACE CHARGE LIMITED TRIODE

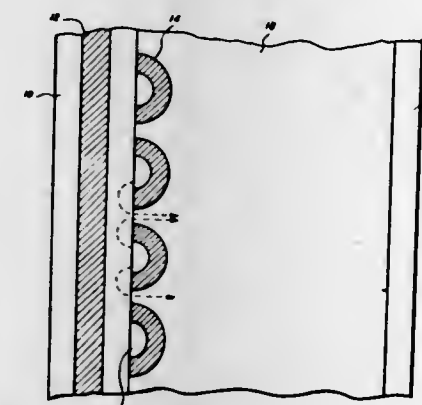
Fred William Schmidlin, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 620,319, Mar. 3, 1967. Filed Aug. 13, 1969, Ser. No. 871,007

Int. Cl. B01j 17/00; H011 7/00

U.S. Cl. 29-576

4 Claims



This disclosure is directed toward a method of fabricating an inverted space charge limited solid-state triode and to the device resulting therefrom. The method, in general, comprises depositing a continuous film of conductive metal to act as a gate, oxidizing the exposed side of the gate metal to form an insulating layer, depositing a semiconductive layer on the top of the insulated gate, depositing a pinhole cathode grid on the semiconductor, oxidizing the exposed side of the cathode grid to form an insulating coating, depositing more semiconductor over the cathode insulation and depositing a continuous film of conductive metal over the semiconductor to act as a collector.

3,599,322

SPEAKER MAGNET ASSEMBLY

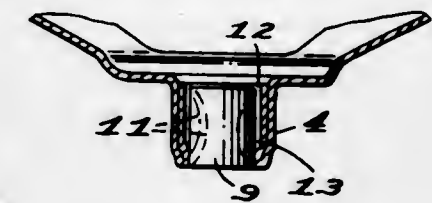
Rollin J. Parker, Greenville, Mich., assignor to General Electric Company

Division of Ser. No. 515,322, Dec. 21, 1965, Pat. No. 3,466,495. Filed Dec. 16, 1968, Ser. No. 798,544

Int. Cl. H04r 7/04

U.S. Cl. 29-594

3 Claims



A process for manufacturing permanent magnet speaker assemblies consisting essentially only of a permanent magnet and a return path element integral with and formed from the same metallic sheet as the basket. The process comprises forming a central depression in the sheet, piercing the depression to form a central aperture, shaping the remaining depressed portion into a return path element and the remaining portion of the sheet into a basket and fitting a permanent magnet within the return path element.

3,599,323

HOT CARRIER DIODE HAVING LOW TURN-ON VOLTAGE

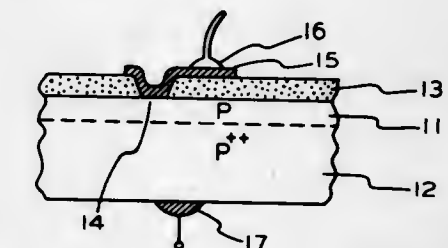
Arjun N. Saxena, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Nov. 25, 1968, Ser. No. 778,533

Int. Cl. B01j 17/00; H011 7/24

U.S. Cl. 29-590

2 Claims



A hot carrier diode is provided by depositing vaporized chromium onto a prepared P-type silicon surface. Current flow is by the Schottky emission of hot holes from silicon over the relatively low barrier at the chromium-silicon interface resulting in a device with a characteristically low turn-on voltage.

3,599,324

METHOD FOR WINDING STATOR COILS

Robert W. Peters, Menomone Falls, Wis., assignor to Lincoln Tool & Manufacturing Co.

Division of Ser. No. 662,597, Aug. 23, 1967, Pat. No. 3,484,923.

Filed July 17, 1969, Ser. No. 861,523

Int. Cl. H02k 15/00

U.S. Cl. 29-596

2 Claims



A stator winding machine attachment which is adapted to be mounted on a stator prior to winding and includes a pair of semicircular members hinged together for

movement from an open to a closed position. A number of tabs are equally spaced around the interior edge of each of the members in corresponding relation to the distance between the slots in the stator. The attachment includes a locator ear which projects inwardly from the interior edge of one of the members to positively locate the attachment relative to the stator.

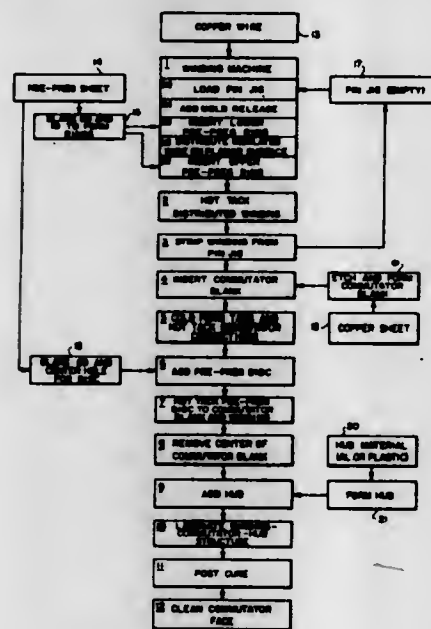
3,599,325 METHOD OF MAKING LAMINATED WIRE WOUND ARMATURES

Robert P. Burr, and Raymond J. Keogh, both of Huntington, N.Y., assignors to Photocircuits Corporation, Glen Cove, N.Y.

Filed June 9, 1969, Ser. No. 831,556
Int. Cl. H01r 43/00

U.S. Cl. 29—597

9 Claims



A method of making self-supporting wire-wound disc armatures by laminating the radial conductor portion of the armature and by coupling the winding to the commutator and hub by means of a laminate layer. The sequence of operations is arranged so that commutator connections can conveniently be made by hot stacking and the commutator can be formed from a thin sheet metal blank.

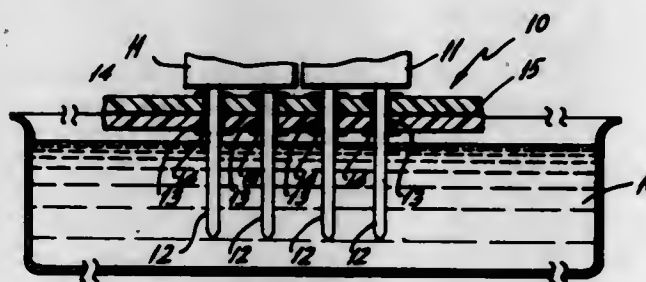
3,599,326 METHOD OF FORMING ELECTRICAL CONNECTIONS WITH SOLDER RESISTANT SURFACES

Simon DiRenzo, Philadelphia, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 27, 1969, Ser. No. 794,090
Int. Cl. H05k 3/30

U.S. Cl. 29—626

5 Claims



A method of manufacturing printed circuit boards of the type having a plurality of contact pins projecting from one side thereof and adapted for use as wire wrap terminals connecting board-carried wiring to external circuits. The method includes selectively coating portions of the pins spaced from the board with a material to which solder will not adhere to maintain such portions free of solder, and in condition for making wire-wrap connections, followed by immersing the pins and adjacent board regions in molten solder to connect the pins to circuits carried by the board.

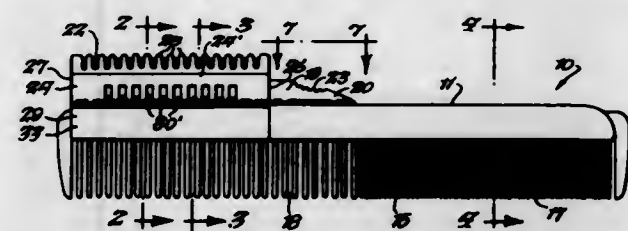
3,599,327 RAZOR AND COMB HOLDER

Sam S. Calandra, 141 Greenfield Drive, Tonawanda, N.Y.

Filed May 12, 1969, Ser. No. 823,923
Int. Cl. B26b 21/12

U.S. Cl. 30—30

9 Claims



A holder for selectively mounting a razor, a razor-guard, and a comb consisting of an elongated channel-shaped member having first and second ends for receiving the back of a comb with a longitudinal sliding fit, and an U-shaped razor holder attached rigidly at one end of the channel-shaped member and having second legs which extend in an opposite direction from said pair of legs for receiving a blade, a razor guard including a channeled portion for mounting on the razor holder with a longitudinal sliding fit and including a guard portion which can lie on either side of a razor mounted in the holder to permit the razor to be used for thinning or shaving while the guard is mounted thereon by either a right-handed or a left-handed person by merely reversing the guard on the holder, and a third channel-shaped member secured to the guard for also attaching the guard to the back of the comb when said guard is in position on said holder to thereby stabilize said razor and said comb relative to each other.

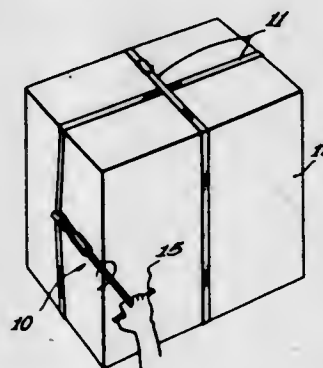
3,599,328 STRAP REMOVAL TOOL

Galdino Ursetta, Chicago, Ill., assignor to I-T-E Imperial Corporation

Filed Nov. 21, 1969, Ser. No. 878,704
Int. Cl. B25f 1/04

U.S. Cl. 30—128

10 Claims



A tool for removing strap such as steel strap from encircling relationship about a strapped object such as a package or bundle. The tool includes a slotted end portion adapted to receive the strap and a torquing portion adapted to be manually turned to effect a breaking of the strap and a rolling up of the strap on the end portion. The tool further includes manually operable means for expedited removal of the rolled strap from the tool subsequent to the removal of the strap from about the object.

3,599,329 APPARATUS FOR DEHORNING ANIMALS SUCH AS CATTLE

Donovan Batt, Elm Glen, Limerick, County Cork, Ireland

Filed Oct. 10, 1968, Ser. No. 766,467
Claims priority, application Ireland, Oct. 13, 1967, 830/67
Int. Cl. B26b 15/00

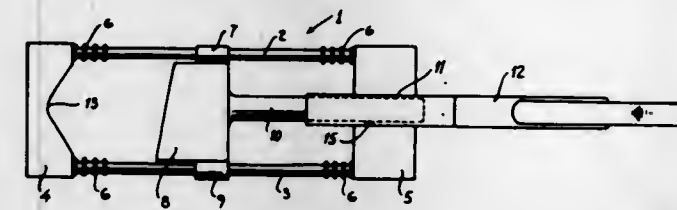
U.S. Cl. 30—228

6 Claims

Animal deborning apparatus including horn embracing means for receiving an animal horn, a percussion mechanism

actuable to propel a cutting blade towards the horn embracing means, movement of the cutting blade being guided by a

short helical torsion spring having a relatively long vertical lever arm adapted to engage the tooth to urge it to turn in a desired direction.



3,599,332 FLUID ACTUATED DENTAL PROPHYLAXIS INSTRUMENT

Joseph A. Graceffo, Seneca Falls, N.Y., assignor to Helida R. Graceffo, a part interest

Filed June 11, 1969, Ser. No. 832,314
Int. Cl. A61c 1/10

U.S. Cl. 32—27

4 Claims

pair of parallel and spaced apart bars connecting the horn embracing means to a support for the percussion mechanism.

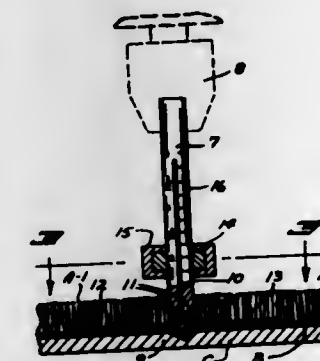
3,599,330 UNDERCUTTING TOOL

Jacob A. Roming, 3525 Irving Ave. South, Minneapolis, Minn.

Division of Ser. No. 632,629, Apr. 21, 1967, Pat. No. 3,558,384.
Filed June 8, 1970, Ser. No. 44,527
Int. Cl. B26b 3/08

U.S. Cl. 30—300

6 Claims



A cutting tool having a shank adapted to be rotated from one end and having flexible cutters mounted in and axially adjustable with respect to the shank for projection radially outwardly from the other end of the shank so as to operate in a plane perpendicular to the shank axis, with means for adjusting the cutters longitudinally of the shank during rotation thereof to thereby control the effective cutting diameter of the cutting elements.

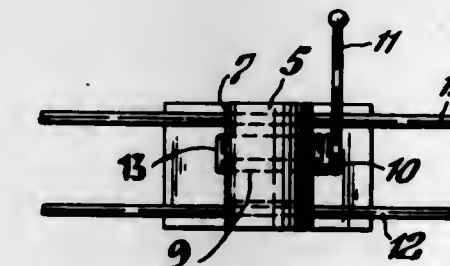
3,599,331 ORTHODONTIC ELEMENTS

Brian W. Lee, 24 Mount Ida Ave., East Hawthorn, Australia

Filed June 26, 1969, Ser. No. 836,896
Int. Cl. A61c 7/00

U.S. Cl. 32—14

4 Claims



The arch wire of an orthodontic tooth straightening assembly is attachable at any selected one of several different levels with respect to the crown thereof as treatment proceeds by means of a U-shape ribbon arch bracket having side slots for the arch wire located adjacent the base in the top and bottom of the sidewalls of the bracket arch itself. The bracket is attached to a band which embraces the tooth, and is also provided with a longitudinally arranged relatively

A dental instrument for administering prophylactic treatment such as cleaning. The device is a hand tool in which external gear pump type gearing is fluid driven to rotate a conventional rubber cup. The pressure of the fluid within the instrument prevents the ingress of the abrasive dentifrice thereby eliminating the cause of the excessive wear that occurs in conventional prophylactic instruments of this type.

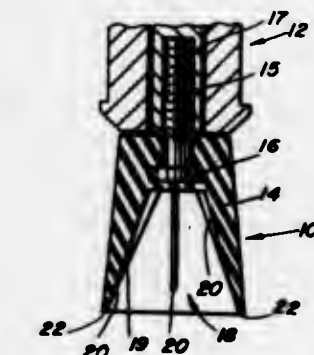
3,599,333 DENTAL PROPHYLAXIS IMPLEMENT

Joseph C. Muhler, Indianapolis, Ind., assignor to Indiana University Foundation, Bloomington, Ind.

Continuation-in-part of application Ser. No. 833,644, June 16, 1969, now abandoned. This application Apr. 29, 1970, Ser. No. 32,992
Int. Cl. A61c 3/06

U.S. Cl. 32—59

15 Claims



An improved dental prophylaxis implement comprises a prophylaxis cup formed of resilient material and having a cavity into which a charge of dental prophylaxis paste or the like may be placed, with up to about 15 percent by weight of an anticariogenic agent being incorporated in the resilient material of the prophylaxis cup. Additionally, or alternatively, the cup may comprise up to about 50 percent by weight of a dental cleaning and polishing agent.

3,599,334 CURVED INTRA-ORAL VISUAL PARALLELIZER

Fuller Warden, Tulsa, Okla., assignor to Grace Development Company

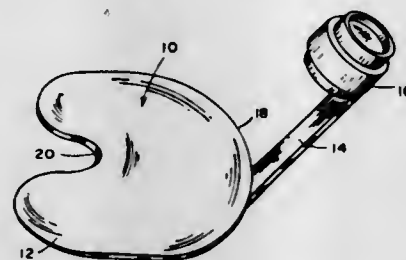
Filed Aug. 19, 1969, Ser. No. 851,253
Int. Cl. A61c 3/00

U.S. Cl. 32—67

1 Claim

A curved intraoral mirror for providing an accurate visual determining of the degree of parallelism of two or more teeth in the preparation of dental bridgework, and particularly fixed bridgework. The arcuate mirror is carried by a handle

member having a lens secured thereto for facilitating viewing of the teeth and providing the optimum positioning for the



eye with respect to the reflecting surface for visual accuracy of the parallelism of the teeth.

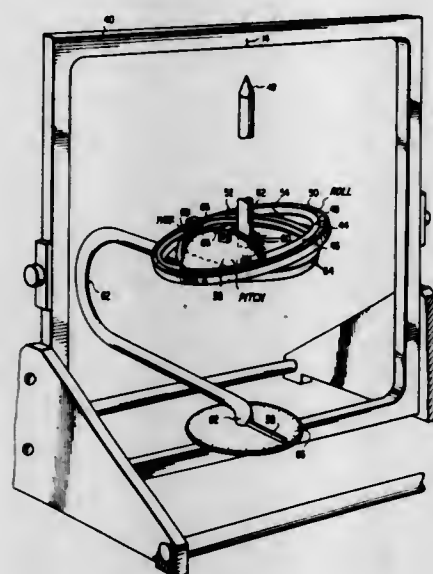
3,599,335

ANALOG SPATIAL MANEUVER COMPUTER

George E. MacVeigh, Bethesda, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 6, 1969, Ser. No. 831,118
Int. Cl. G01b 5/24

U.S. Cl. 33-15 A

12 Claims



An analog spatial maneuver computer provides an indication of three output angles through which a body in space must move so as to obtain a desired spatial attitude. These output angles are obtained by means of a plurality of gimbal rings arranged concentrically or connected by axes. The gimbals are selectively adjustable so that one of the rings indicates a first spatial attitude of the body and another of the rings is adapted to indicate the desired attitude of the body. The ring indicating the body's first spatial attitude is placed therein by selective adjustment of other rings among which are a third ring adjusted to represent a plane tangent to the earth at a known point; a fourth ring representing a spatial attitude of an earth support for the body prior to the time it is placed in space; and a fifth ring's attitude is adjusted to correspond to an inertial reference device located within the body. If desired, other selectively adjustable rings can be added to correct for drift of the inertial reference means.

3,599,336

PIPE TARGET SYSTEM AND METHOD FOR ALIGNING PIPES AND THE LIKE WITH LASER BEAMS

Robert R. Walsh, Wilmington, Del., assignor to Technidyne, Inc., Wilmington, Del.

Filed Nov. 21, 1968, Ser. No. 777,778

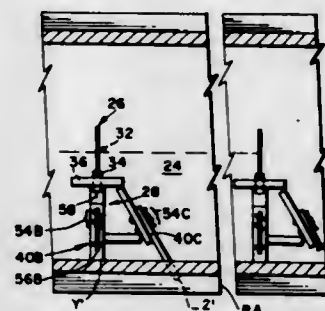
Int. Cl. G01c 15/12

U.S. Cl. 33-46

8 Claims

Target structures and a system and method for aligning pipe sections to a laser beam with same are provided which are substantially universally adaptable to position a reference index at the centerline of a pipe section, internally thereof, with a minimum number of adjustments. The target structures comprise a unique three-point mounting structure which once adjusted for a given pipe size, may be thereafter placed in the same size pipe without any adjustment and will

constrain the reference point indicia thereon corresponding to that pipe size on the axial centerline of that pipe section in which it is inserted. When a target having symmetrical perforations is placed in one end of a pipe section and a target having a translucent surface with reference marks thereon is



placed in the other end of that section, if the pipe is positioned such that a laser beam aimed through the perforation of one target and onto the corresponding reference mark of the other, the pipe section will be constrained to a position in which its axial centerline is coincident with the laser beam.

3,599,337

SIGHT FOR FIREARM USING HIGH TRAJECTORY AMMUNITION

Robert E. Snodgrass, Davenport, Iowa, assignor to The United States of America as represented by the Secretary of the Army

Filed Nov. 7, 1969, Ser. No. 874,736

Int. Cl. F41g 1/24, 1/52

U.S. Cl. 33-47

7 Claims



A gunsight includes a metering bar with a rack formed on opposite sides for selective engagement by a pinion gear in which the sight aperture is centered. The pinion gear is mounted in a slide which permits lateral displacement of the pinion gear relative to the bar between a position wherein it is engaged to a selected one of the racks to permit fine adjustment of the sight, and a disengaged position wherein it is disengaged from the selected rack and thereby free to be slid along the bar for rapid sight adjustment. The two racks permit adaptation of the sight for right and left-hand shooters by reversing the slide on the bar without other structural changes.

3,599,338

DRAFTING DEVICE INCLUDING A SEMITRANSSPARENT REFLECTOR

Norman J. Gillespie, 204 Snowden Ave., Toronto, 12 Ontario, and George A. Scroggie, 56 Hawksbury Drive, Willowdale, Ontario, both of Canada

Filed May 20, 1970, Ser. No. 39,031

Int. Cl. B43 1/00; B43 13/00

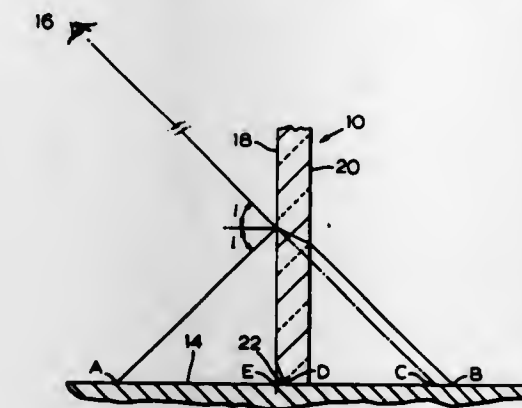
U.S. Cl. 33-75

9 Claims

This invention relates to a geometric instrument that consists of a mirror and means for standing the mirror in a vertical disposition on a drawing surface. The mirror is formed with a guide means such as a rebated bottom edge for scribing a line on the drawing surface that is parallel to the planar reflecting surface and a distance behind the planar reflecting surface taken along a line perpendicular to the plane of said

planar reflecting surface to constitute the said line the right bisector of a line joining a first point in front of the mirror

trolled manually operated mechanism is provided for locking the pendulum against rotation when use of the level indicator



and a second point behind the mirror. The device has many applications in geometric construction.

3,599,339

MEASURING APPARATUS

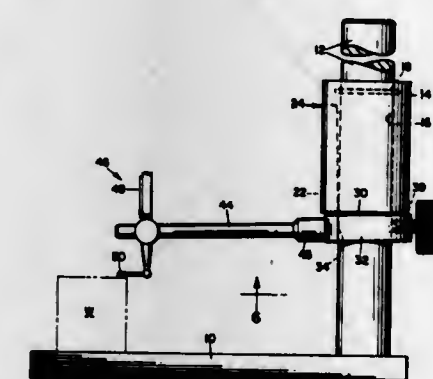
Edward S. Adamczyk, 47 Mazarin St., Indian Orchard, Mass.

Filed July 30, 1969, Ser. No. 846,060

Int. Cl. G01b 3/22, 5/00, 3/32

U.S. Cl. 33-172

3 Claims



Measuring apparatus, cooperant with a platform having a post extendable vertically upwardly thereof, in the form of a clamping device slideable and rotatable on and relative to the post and including, first, a body sleeved in friction fit relation on the post and, second, a ring vertically spaced from and vertically below the body and sleeved in loose fit relation on the post and, third, a vertically extending yieldable reed connecting between the body and ring and normally spaced outwardly from the post and, fourth, an arm extending radially and outboard of the ring, and a screw means threadedly engaged in the ring diametrically opposite to the reed and in axial alignment with the arm with a manual adjusting of the screw means creating a pulling force on the ring such as to produce a slight deflection downwardly of the ring and arm as the reed pivots with respect to the body.

3,599,340

PENDULUM DAMPING DEVICE FOR DEGREE AND ANGLE INDICATOR

George S. Stockton, Artesia, N. Mex., assignor to Universal Equipment Co., Inc., Artesia, N. Mex.

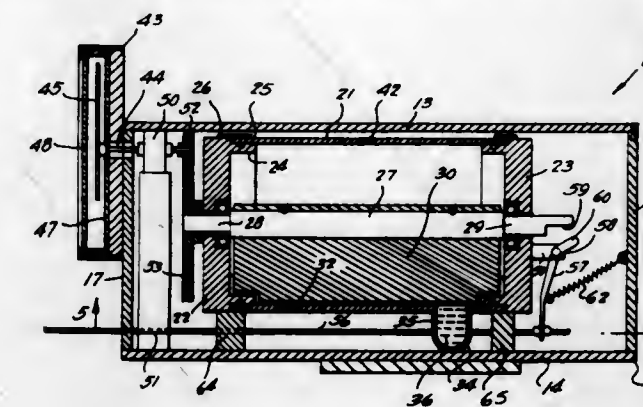
Filed Sept. 26, 1969, Ser. No. 861,293

Int. Cl. G01c 9/08

U.S. Cl. 33-220 R

10 Claims

A pendulum-type level indicator for use on earth-working vehicles. The indicator has a pendulum housing to which is connected a reservoir of damping liquid provided with a piston to force damping liquid into the housing. The degree of movement of the piston is controlled manually by the operator of the vehicle to provide the correct amount of pendulum damping in accordance with the type of terrain on which the vehicle is working or in accordance with the temperature conditions under which it is working. A cable-con-



is not required, so as to prevent unnecessary wear on its moving parts.

3,599,341

METHOD AND APPARATUS FOR DRYING A WEB

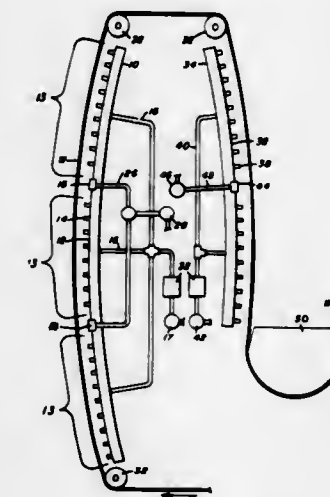
Milton P. Darcy, and Joseph N. Tomlinson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of application Ser. No. 762,242, Sept. 16, 1968, now abandoned. This application Feb. 9, 1970, Ser. No. 9,825

Int. Cl. F26b 3/00

U.S. Cl. 34-23

8 Claims



A method and apparatus for drying a web, moving in a generally convex arc of no more than 90°, by impinging air from a plenum on the concave side of the web, without contacting the convex side of the web with air jets or other support means. The efficiency of the plenum is increased by employing a plenum with a generally convex profile facing the concave side of the web and directing impinging air on the web from groups of air jet means positioned on the generally convex profile of the plenum. Intermediate adjacent air jet groups, there is positioned on the plenum supplemental air discharging means for directing air at the concave side of the web at a volume and speed different from that discharged by the air jet means to control the position of the web relative to the air jet means.

3,599,342

DRYER CONTROL

Curran D. Cotton, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Mar. 3, 1969, Ser. No. 803,687

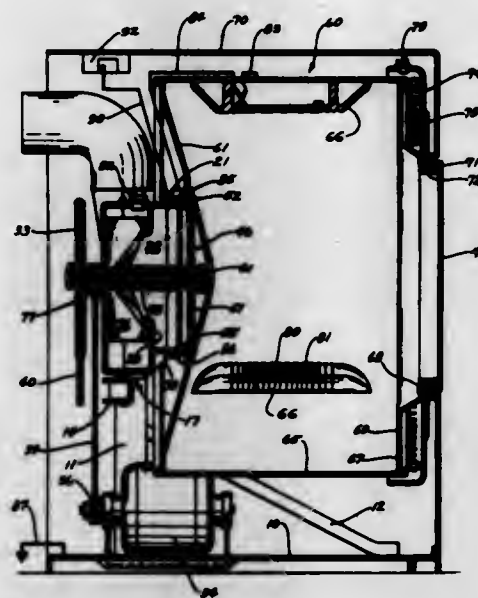
Int. Cl. F26b 13/10

U.S. Cl. 34-45

16 Claims

This control system for a clothes dryer includes a fabric dryness sensing circuit comprising a resistance-capacitance circuit portion, a neon tube, and a thyristor in the form of SCR operable for initiating termination of the dryness

sensing operation. A chime indicating the end of the drying or sensing operation is operable during the cooldown operation.



tion in a repeating manner under control of the resistance-capacitance timing circuit.

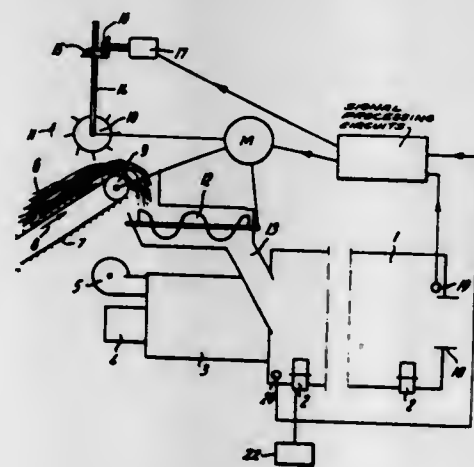
3,599,343
DRYING APPARATUS, PARTICULARLY FOR DRYING GREEN CROPS INTENDED TO BE MADE INTO BRIQUETTES

Alfred Thygesen Nielsen, Holte, Denmark, assignor to Unidry K/S Engineering and Development Group, Copenhagen, Denmark

Filed July 10, 1969, Ser. No. 840,754
Claims priority, application Denmark, July 12, 1968, 3423/68
Int. Cl. F26b 13/10

U.S. Cl. 34-52

7 Claims



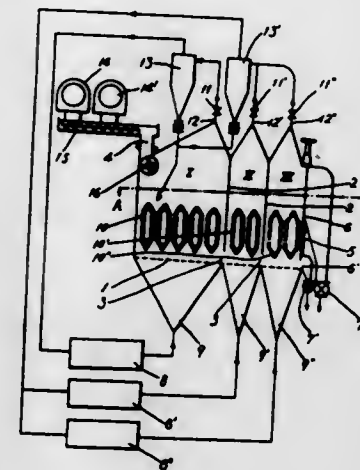
In a drying apparatus, primarily for drying green crops, a rotary drying drum receives the raw material at one end at which also a flow of heated drying air is admitted to the drum for flowing therethrough in substantially axial direction. Two temperature feelers are placed respectively at the inlet and outlet ends of the drum, and a mixture of pulses or signals from these feelers is utilized to control the supply of raw material to the drum in such a way that a balance is ensured between the constant heat production and the heat consumption.

3,599,344
APPARATUS FOR DRYING PULVERANT MATERIALS
Jiyuichi Nara, 2-7-8 Higashi-Oei Shinagawa-Ku, Tokyo, Japan

Filed June 11, 1969, Ser. No. 832,166
Claims priority, application Japan, June 19, 1968, 43/42361
Int. Cl. F26b 17/14

U.S. Cl. 34-57 A

1 Claim



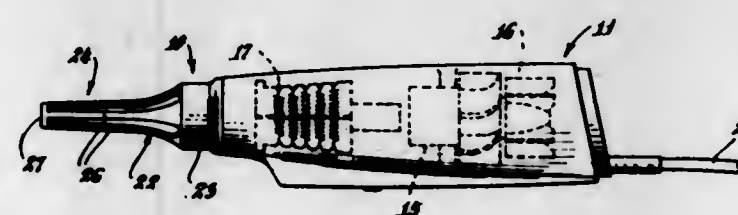
Apparatus for drying pulverant materials through continuous fluidization which comprises a means for keeping the gas pressure in the first drying chamber at a lowest level and increasing the gas pressure gradually in the ensuing chambers until it reaches a maximum in the last drying chamber, while, on the contrary, a means for maintaining the pulverant material layer at the highest level in the first drying chamber and decreasing the height gradually in the ensuing chambers until it reaches a minimum.

3,599,345
HAIR-STYLING DEVICE
Robert J. Tohmie, Fairfield, Conn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Oct. 13, 1969, Ser. No. 865,873
Int. Cl. A45d 20/10

U.S. Cl. 34-97

10 Claims



A hair-styling device comprising an instrument adapted for insertion into the interior of a hollow hair roller. The instrument is provided with vents through which is discharged heated air which is directed outwardly of the interior of the hair roller through openings in the walls of the hair roller to set and dry hair wound about the exterior surface of the hair roller.

3,599,346
ROTARY INDUSTRIAL DRIERS
Guy Quessel, GM, France, assignor to Stein & Reubatz, Paris, France

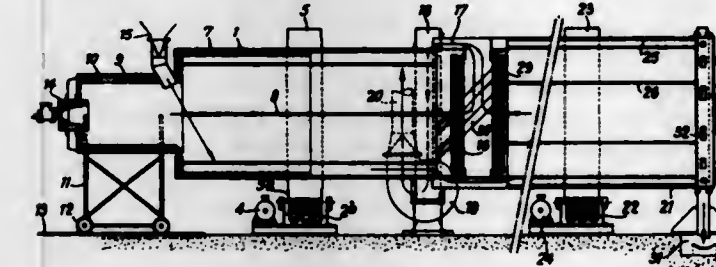
Filed Feb. 18, 1969, Ser. No. 800,148
Claims priority, application France, Feb. 22, 1968, 140827
Int. Cl. F26b 13/18

U.S. Cl. 34-109

4 Claims

A rotary drier and cooler having cylindrical drums resting on sets of pneumatic tires is driven in rotation about horizontal axes. The hot drying gas is generated in a hearth which is mounted on a carriage travelling on rails parallel to the axes

of the drums. Filter screens rotate with the drums to clean the hot drying gas and the cooling gas flowing in a counter-



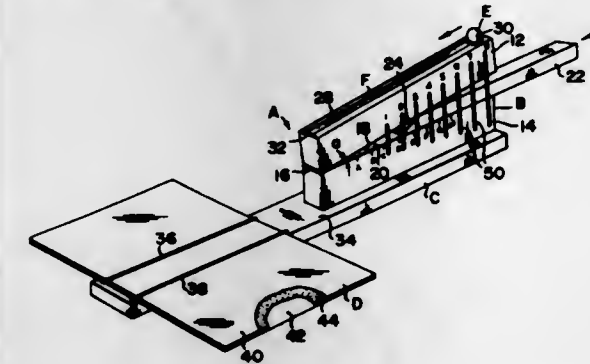
current through the cooler. Hooded helical ducts convey the material from the drier to the cooler.

3,599,347
EDUCATIONAL DEVICE
Roger W. Bodley, Chesterland, Ohio, assignor to Education Research Council of America, Cleveland, Ohio

Filed June 23, 1969, Ser. No. 835,498
Int. Cl. G09b 23/06

U.S. Cl. 35-19 R

5 Claims



An educational device which is useful in training and testing students in such basic thought processes as problem analysis and extrapolation. The device consists of a pair of articulated members, one of which defines an inclined track. A rolling member launched along the track is projected from the track lowermost end onto a hard surface equipped with means for recording the points of initial and secondary impact of the rolling member. The student is trained or tested by analyzing the variations in impact points.

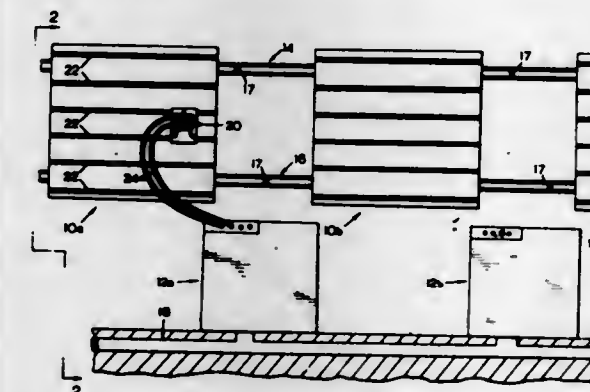
The device also has a plurality of parallel uniformly spaced elastic bands extending between the members the lengths of which increase with distance from the point of articulation of the members. The plural bands permit the extrapolation of values which differ with different angles of articulation of the members.

3,599,348
COMPONENT DISPLAY BOARD
Raymond George Richardson, Toronto, and Stanley Ajax Watkins, Ontario, both of Canada, assignors to Richardson Equipment Company Limited, Ontario, Canada

Filed Dec. 29, 1969, Ser. No. 888,642
Int. Cl. G09b 23/06

U.S. Cl. 35-19 R

3 Claims



This invention provides an improved component display board adapted to receive components such as parts of a

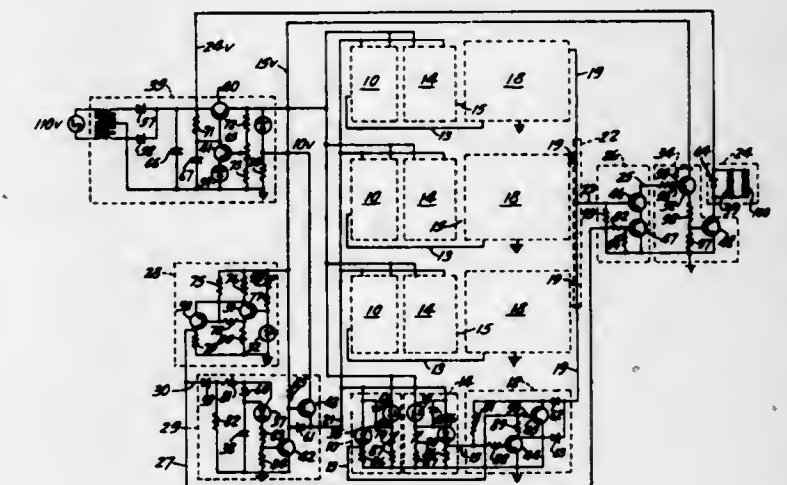
hydraulic circuit. Each component can be releasably clamped to horizontal support bars on the board in any desired position. The board is supported vertically on a track for horizontal movement and is normally locked frictionally on the track. To release the board moderate pressure is exerted on the lower side of the board, whereupon the board can be moved to abut a second board, whereupon the board and more complex circuits to the boards.

3,599,349
TEST ANALYZER
Donald E. Albright, Hugo, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed June 2, 1969, Ser. No. 829,357
Int. Cl. G09b 7/06

U.S. Cl. 35-48

6 Claims



A test analyzer for use in a test-grading device, wherein in response to the sensing of answer indications in the corresponding answer indication areas of an answer sheet and an answer key, a binary comparison signal is provided by means of "exclusive or" logic for each answer indication area indicating whether the student's answer indication agrees or disagrees with the answer indication in the corresponding answer indication areas of the answer key. In a preferred embodiment, an OR logic circuit which is operatively responsive to the binary comparison signals provides an error signal for actuating a scoring device for each question in which such a disagreement is sensed. The answer indication sensing means each include a programmable unijunction transistor (PUT) having its gate lead connected to a voltage dividing network which includes an answer indication sensor in order to provide and retain at its cathode lead a binary sensing signal having the reference voltage provided at the PUT anode lead.

3,599,350
EDUCATIONAL DEVICE FOR USE IN CONVERSION BETWEEN NUMBER SYSTEMS
Arthur Moskowitz, Winter Park, Fla., assignor to The United States of America as represented by the Secretary of the Navy

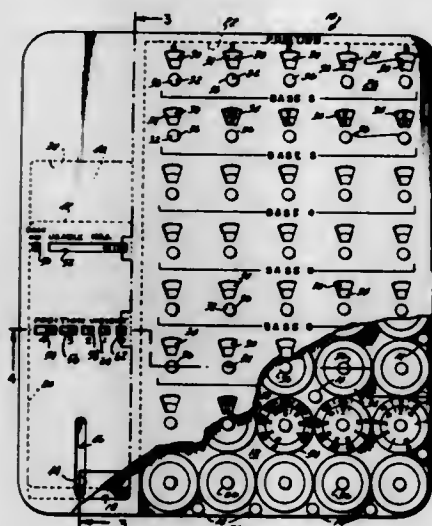
Filed Apr. 15, 1970, Ser. No. 28,839
Int. Cl. G09b 19/02

U.S. Cl. 35-30

9 Claims

An educational device comprising a base member, a front panel having a plurality of windows, arranged in rows and columns movable indicator members viewable through the windows to provide numeric information useful in the conversion between number systems. In one embodiment the

movable indicator members include a slide member and a plurality of rotatable discs. In a second embodiment the



movable indicator members comprises a plurality of rotatable drums.

3,599,351

SKI BOOT WITH RIGID OUTER SHELL

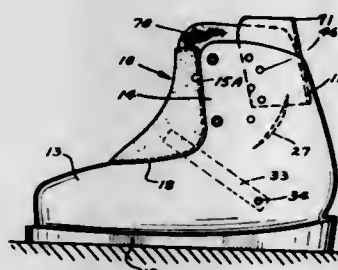
Donald R. Check, Bloomington, Minn., assignor to Sports Technology, Inc., South Edina, Minn.

Filed Feb. 4, 1970, Ser. No. 8,455

Int. Cl. A43b 00/00

U.S. Cl. 36—2.5 AL

12 Claims



A ski boot having a rigid outer shell comprising a sole and an upper boot portion including side members extending upwardly along the lower leg of the wearer in one rigid assembly. The shell is closed at the rear and is open to the front of the lower leg. The opening extends forwardly over the instep toward the toe of the shell to permit the foot to be inserted into the shell. An inner boot is provided which holds and pads the foot. Forward movement of the leg is resisted elastically with a resilient band extending across the open end of the rigid shell in front of the lower leg.

3,599,352
SNOWSHOE

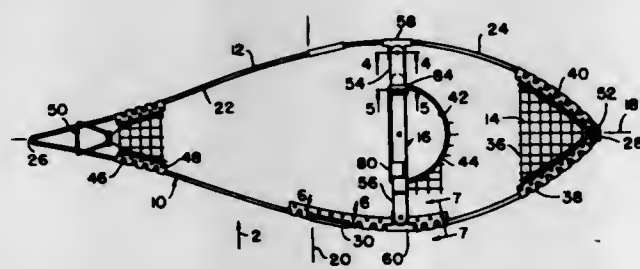
Thomas L. Novak, and Stanley Novak, both of Saint Clair Shores, Mich., assignors to Northlite Industries, Incorporated, Detroit, Mich.

Continuation-in-part of application Ser. No. 675,449, Oct. 16, 1967, now Patent No. 3,484,958. This application Dec. 22, 1969, Ser. No. 887,193

Int. Cl. A63c 13/00

U.S. Cl. 36—4.5

20 Claims



A snowshoe including a resilient frame and webbing collapsible toward the central longitudinal axis thereof and

foldable about a transverse axis therethrough and the method of collapsing and folding the snowshoe. The snowshoe frame may be parted at the opposite sides thereof prior to folding the snowshoe about the transverse axis therethrough. The snowshoe includes a transversely extending centrally located brace having a scissors configuration and including means for preventing overcenter movement thereof, means for locking the brace in a bracing condition and for preventing entanglement of the ends of the brace in a collapsed condition with the webbing of the snowshoe. The webbing includes mesh laced to lace-securing members secured to the frame at the sides of the snowshoe and laced to brackets at each end of the snowshoe.

3,599,353

SHOE STRUCTURE

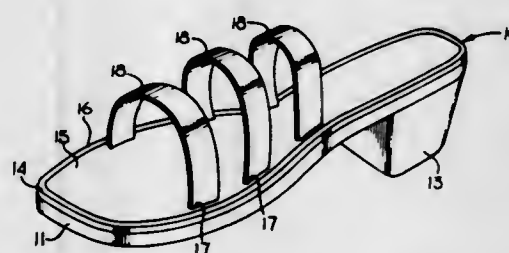
Herbert Magidson, 1450 Carla Ridge, Beverly Hills, Calif.

Filed Aug. 6, 1969, Ser. No. 847,979

Int. Cl. A43b 3/12; A43d 9/00

U.S. Cl. 36—11.5

6 Claims



A shoe comprised of two plastic sole sections and a method of fabricating same. Upper and lower sole sections of injection-molded plastic are formed, the lower sole section having a hollow, ribbed heel. The bottom surface of the upper sole section is ribbed and adapted to receive foot-holding straps and to cooperatively engage the lower sole section. The top surface of the upper sole section is covered by a plastic-backed fabric, or other appropriate covering, the covering being secured during the molding process. Foot-holding straps are disposed through openings in the upper sole section and secured to the bottom surface of the upper sole section.

3,599,354

APPARATUS FOR REMOVING WEEDS FROM SOIL UNDER WATER

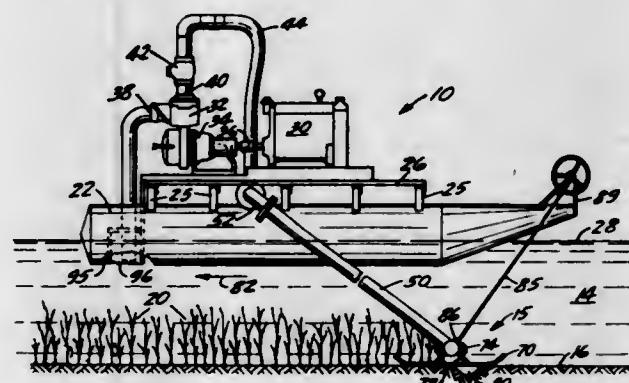
Winston C. Larson, 1117 Minnesota Ave., Detroit Lakes, Minn.

Filed Oct. 18, 1968, Ser. No. 768,866

Int. Cl. E02f 5/28

U.S. Cl. 37—78

1 Claim



An apparatus for removing weed growth from soil under water through the use of hydrojet action. The apparatus employs a jet tube assembly with spaced jets along the extent of the same which provides a sweeping action to remove soil from around the roots of weeds for the purpose of removing weeds from the bottom. It employs a floatable platform to which the jet assembly is attached with the jet assembly being pivoted on the platform which mounts a motor-driven jet assembly being pivoted on the platform and forcing it through the jet assembly under high pressures. The jet assembly is ad-

justable relative to the soil surface to insure proper cleaning operation.

3,599,355

SNOW MOWER AND TRACTOR COMBINATION

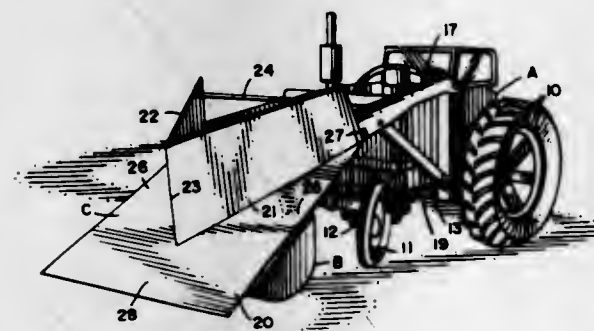
Kenneth E. Lockwood, RRT. 2, Mallard, Iowa

Filed May 26, 1969, Ser. No. 827,688

Int. Cl. E01h 5/06

U.S. Cl. 37—49

2 Claims



A snow mower is removably mounted on a bucket-equipped tractor or tractor front support and has a lift blade wider than the tractor with plow wings extending to the top portion of the tractor for raising a mass of snow, dividing the mass and discharging it at an elevation laterally of the tractor path.

3,599,356

ELECTRIC IRONING MACHINE

Hans Buchner, Karlsruhe-Durlach, Germany, assignor to G. M. Pfaff AG, Kaiserlauternpfalz, Germany

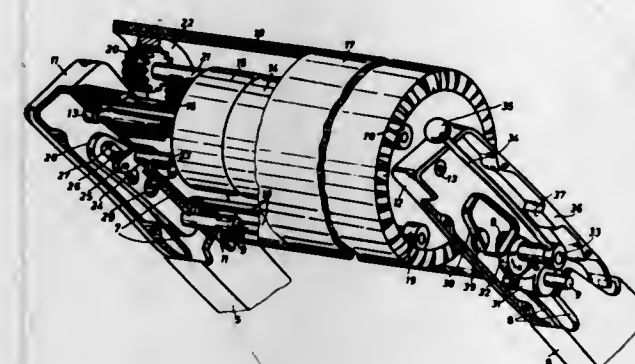
Filed Jan. 19, 1970, Ser. No. 3,876

Claims priority, application Germany, Jan. 21, 1969, G 69 02 061

Int. Cl. D06f 63/00, 65/08

U.S. Cl. 38—59

7 Claims



An electric ironer comprises a stationary iron pad and a rotatable ironing roller operable into engagement with and retraction from said pad. The roller-operating mechanism comprises a torsion rod mounted upon the frame of the machine and serving as a rotating axis for a pivot tube bridging a pair of parallel oscillating arms to which is further connected a supporting tube carrying an electric driving motor and gearbox and rotatively supporting the ironing roller enclosing the motor and gearbox. The latter has two output shafts selectively rotatable depending upon the direction of rotation of the motor, one of said shafts being operably connected with the ironing roller and the other shaft having a crank and pin engaging a guide slot in an abutment lever secured to one end of the torsion rod whose opposite end is rotatable by a tensioning lever cooperating with a cam for the adjustment of the torsion bias of the rod and in turn of the ironing pressure. The rotation of the motor in one direction causes operation of the roller aggregate via said levers into engagement with and retraction from the ironing pad and rotation of the motor in the opposite direction drives the roller during the ironing operations.

3,599,357

ELECTRIC PRESSING IRON

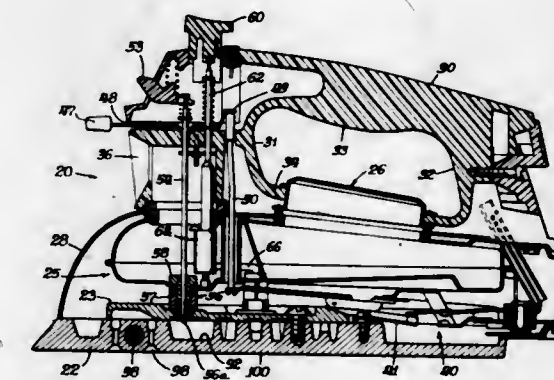
Jerry P. Gronwick, Park Ridge, and Donald J. Westphal, South Elgin, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Sept. 17, 1969, Ser. No. 858,723

Int. Cl. D06f 75/06

U.S. Cl. 38—77.5

33 Claims



An electric pressing iron having a valve for feeding water slowly from a tank to a steam-generating cavity in a soleplate as well as a pump for feeding water rapidly into said cavity with the result that steam can issue through the discharge ports in the bottom of the soleplate selectively at a relatively low velocity or at a very high velocity for deeply penetrating the fabric being ironed. In addition, the pump can be used to supply water to a spray nozzle positioned in a handle for spraying water particles in front of the soleplate.

3,599,358

IRONING TABLE WITH MAGNETIC KEEPER FOR IRON

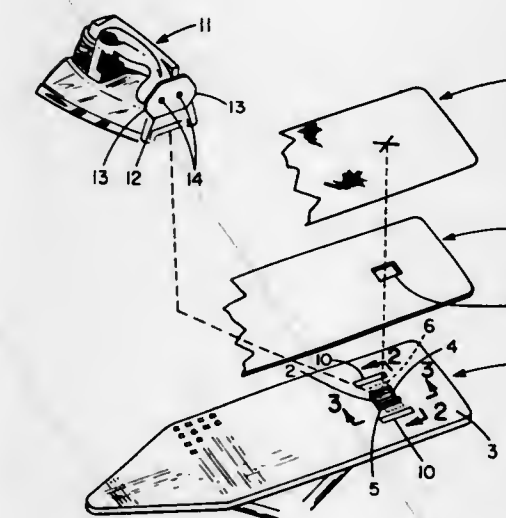
Orville R. Butts, Cherry Hill; John R. Dörner, Moorestown, N.J., and Raymond L. Hanisco, Lansdale, Pa., assignors to Proctor-Silex Incorporated, Philadelphia, Pa.

Filed July 14, 1970, Ser. No. 54,718

Int. Cl. D06f 79/02, 81/00

U.S. Cl. 38—107

10 Claims



A conventional ironing table having an opening in its board receiving a magnet and flux-shunting plate which are both movably retained therein by a bracket fixed to the underside of the board. Since a pad is generally used on the board, the magnet and shunting plate preferably project above the plane of the board and the pad is provided with an opening configured similarly to the opening in the board to receive the projections to minimize the airgap between the magnet and iron and properly balance the moments and forces acting on the iron. To supplement the retention of the iron on the table by attraction of the magnet to the steel tank of the iron, a flux-shunting plate having projecting wings for additional stabilization may be attached to the heel of the iron.

3,599,359

JEWELRY PIECE

John Graham Michael, c/o Brown Wholesale Co. 2095 N. 63rd St., Philadelphia, Pa.

Filed Oct. 2, 1968, Ser. No. 764,548

Int. Cl. G091 3/18

U.S. Cl. 40-10

8 Claims



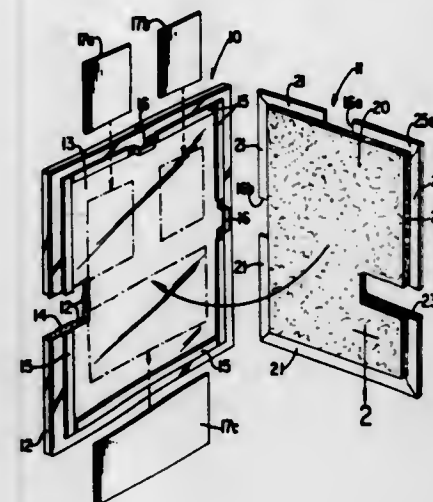
A jewelry piece comprising a jewelry body member, a bezel channel formed in the body member, and a sign plate mounted in the bezel channel, said sign plate including a developed photographic film with intelligence thereon, and a reflecting backing on the film, said sign plate being beveled.

A method for making a series of sign plates of the same design for jewelry pieces, comprising photographing artwork on a series of frames of film having sprocket holes so that the artwork on each frame is registered with respect to the sprocket holes, developing the film to obtain a roll of film frames, affixing a reflecting backing to the developed film, positioning each film frame precisely beneath a stamping die by using the sprocket holes, stamping out the sign plates, affixing the sign plates to a jewelry piece body, and beveling the sign plate.

A sign plate comprising a developed photographic film with intelligence thereon, and a reflecting backing on the developed film.

A method of making a sign plate comprising a photographing artwork on film, developing the film to obtain a developed film with intelligence thereon, and affixing a reflecting backing to the film.

means fixed to marginal portions thereof. The front panel has a transparent viewing area that overlies a support surface for photos, provided on the back panel. The magnetic means



join the panels together, holding the articles confined in place by the pressure resulting on them between confronting surfaces of the panels.

3,599,362

DRINKING GLASS

Johannes Klobner, Schwein, Westphalia, Germany, assignor to Firma Hans Klobner, Schwein/ Westphalia, Germany

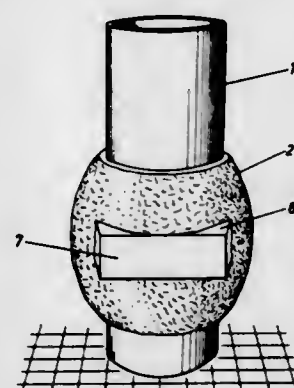
Filed Apr. 16, 1969, Ser. No. 816,581

Claims priority, application Germany, Nov. 13, 1968, P 18 08 631.2

Int. Cl. G091 3/06

U.S. Cl. 40-324

5 Claims



A drinking glass slightly conically widening in upward direction including a marking means for the content to be provided therein carried by the cone, which comprises a ring member slidable onto the drinking glass and clamping itself onto the drinking glass in an engaging fit. The ring member has an arcuate outer face spaced from the drinking glass, and the latter symbolizes by shape, design and color the content to be provided in the drinking glass.

3,599,363

ENVIRONMENTAL SPACE SUIT TOY

Albert R. Baginski, Torrance; David T. Okada, Hermosa Beach, and Edwin O. Stastny, Santa Ana, all of, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Nov. 29, 1968, Ser. No. 780,154

Int. Cl. A63h 33/30

U.S. Cl. 46-39

9 Claims

A toy comprising an astronaut figure, a space capsule around the upper portion of the figure, pneumatically operated tools mounted on the capsule, an air pump, and tubes for coupling the pump to the tools, the tubes passing through the capsule to provide the appearance that the astronaut figure is controlling tool operation. One grasping tool

3,599,361

DISPLAY FRAME FOR PHOTOS OR THE LIKE

Robert G. Bowman, Darien, Conn., and John B. Woodyard, New Providence, N.J., assignors to The C. R. Gibson Company, Norwalk, Conn.

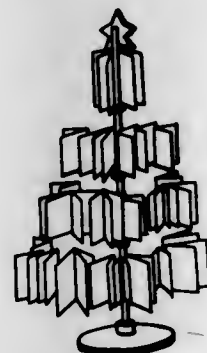
Filed Aug. 4, 1969, Ser. No. 847,275

Int. Cl. G091 1/12

U.S. Cl. 40-156

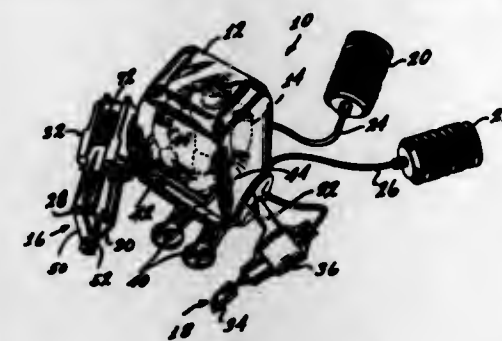
9 Claims

A display frame for photos or other sheetlike articles consists of two separable mating panels, each having magnetic



A greeting card display tree having an upright pole upon which can be mounted several sets of branches or outwardly extending arms having mounting platforms at their outer extremities for mounting a plurality of greeting cards in an upright and slightly open position. The radius of the arms decreases from the bottom to the top of the structure to give it a treelike shape.

has jaws operated by a bellows that is expanded by air pressure. Another tool includes a thrust element mounted on the unit has been cocked by the operator, a force will be applied to the toy vehicle to further propel it along the trackway as



DANCING DOLL WITH MEANS INTERFERING WITH FORWARD MOVEMENT THEREOF

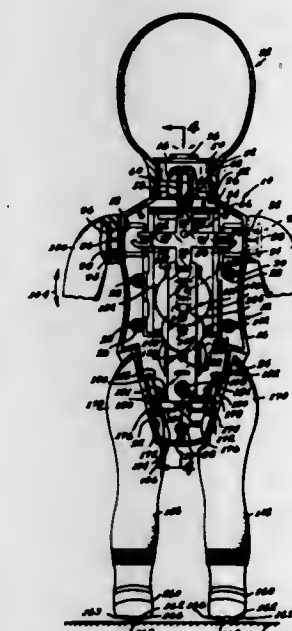
Armando J. Garcia, Sylmar, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Sept. 25, 1969, Ser. No. 860,998

Int. Cl. A63h 13/02

U.S. Cl. 46-136

7 Claims



A walking doll of the type having a leg frame pivotally mounted in an upright torso on a generally fore-and-aft axis and drivably connected to the torso by a crank for oscillating the torso and frame relative to each other about the fore-and-aft axis and in a lateral direction so that the weight of the doll is cyclically thrown onto one of the doll's legs while the other leg is lifted free of a supporting surface for forward movement. The doll is provided with a greater-than-normal crank throw and with friction-reducing means between the ground-contacting ends of the legs and the supporting surface for increasing the oscillating amplitude and for impeding forward movement of the doll so that the doll simulates dancing action. An oscillator bar connects the leg frame to the doll's arms and head for oscillating them to heighten the dancing simulation.

3,599,365

TOY VEHICLE PROPULSION UNIT

Richard N. Carver, Erie, and Walter Hubiak, Lawrence Park, both of, Pa., assignors to Louis Marx & Co., Inc.

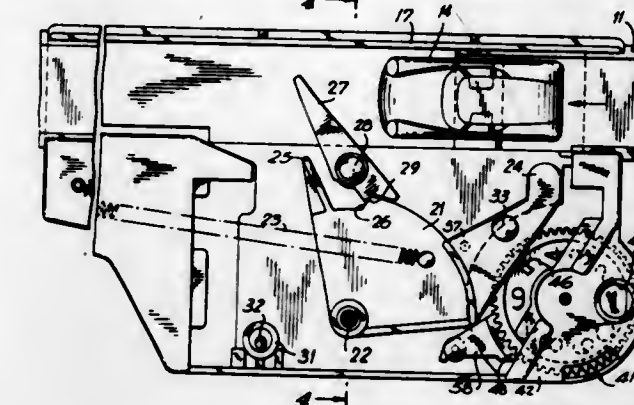
Filed Nov. 28, 1969, Ser. No. 880,819

Int. Cl. A63h

U.S. Cl. 46-202

7 Claims

A propulsion unit forming a propulsion station located along a closed-circuit trackway so that, when the propulsion



the toy vehicle traveling along the trackway passes through the propulsion station.

3,599,366

AXLE MOUNTING FOR TOY ARTICLES

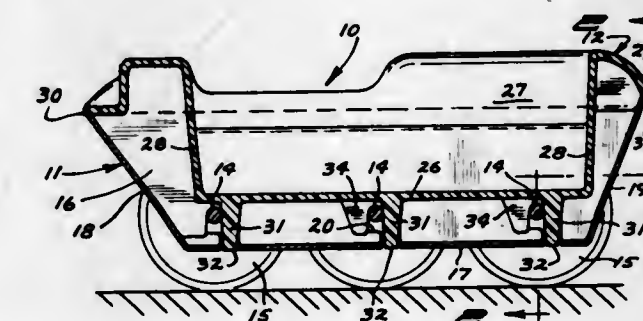
Ronald R. Pauly, Mound, and Thomas W. Good, Plymouth, both of, Minn., assignors to Tonka Corporation, Mound, Minn.

Filed Nov. 25, 1969, Ser. No. 879,714

Int. Cl. A63h 17/26

U.S. Cl. 46-221

4 Claims



An axle mounting for a toy vehicle wherein the vehicle chassis is provided with transversely aligned downwardly opening notches having their upper closed ends offset from the open ends, an axle disposed across the chassis with its end portions seated in the upper ends of the notches, and a body member in the chassis above said notches and having a rigid projection depending vertically in alignment with the open ends of the notches and downwardly to the horizontal plane thereof to engage and retain the axle in its seated position.

3,599,367

TOY ELECTRIC RAZOR

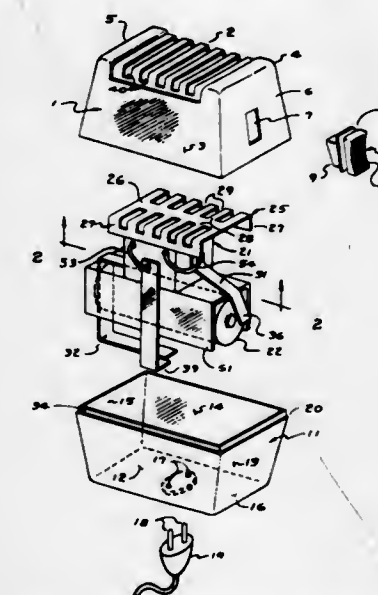
Beverly W. Taylor, Hermann, Mo., assignor to Steven Manufacturing Co.

Filed July 16, 1970, Ser. No. 55,411

Int. Cl. A63h 33/26

U.S. Cl. 46-243

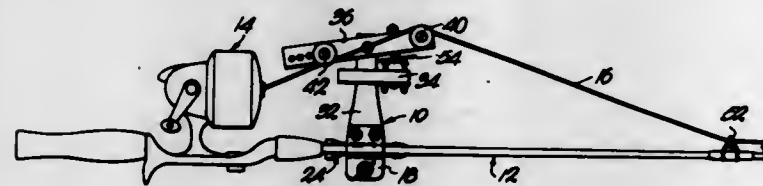
5 Claims



A toy electric razor has a reciprocating shaving comb driven by battery powered electric operating means. Realistic

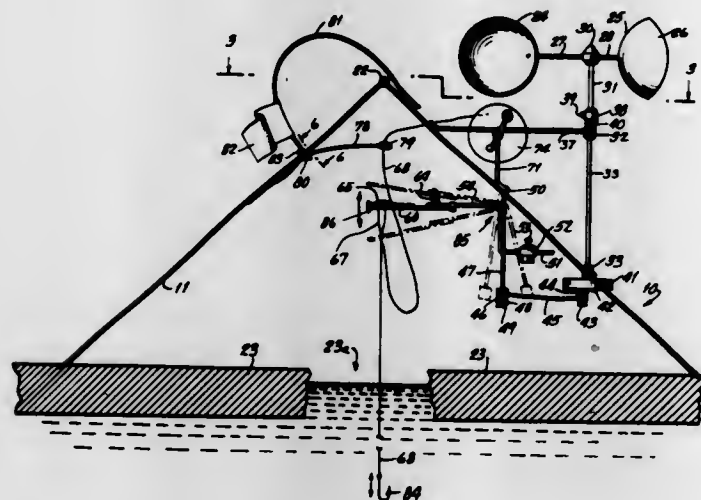
operation is provided by requiring two distinct steps to be taken to complete the electric circuit in connecting the electric operating means, which activates the comb, with its associated battery or batteries. Attachment of a simulated wall plug closes a part of the electrical circuit, while selective manipulation of an on-off switch completes that circuit.

3,599,368
SIGNAL DEVICE FOR FISHING ROD
Oathie Lee Riley, 7141 Paseo, Kansas City, Mo.
Filed May 22, 1969, Ser. No. 826,854
Int. Cl. A01k 97/12
U.S. Cl. 43-17



A signal device for a fishing rod having a reel and length of fishing line, the device indicating the presence of a fish on the line through movement of a swingable arm which has idler wheels having the line trained thereover, the arm moving a contact plate into engagement with contact points whereby to actuate either a visual or an audio signal device when the arm is swung by virtue of the presence of a fish on the line. The swinging arm is balanced with respect to the upright post which is clamped to the rod and which carries the arm, such balancing, under conditions of use being achieved by selectively positioning one of the idler wheels on the swinging arm.

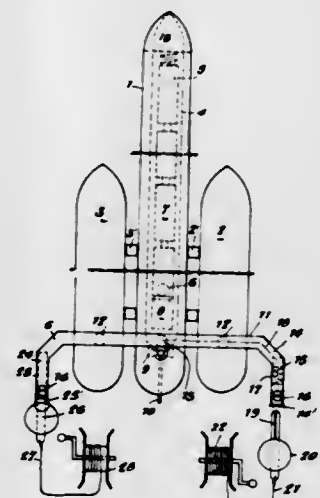
3,599,369
FISHING DEVICE
Arthur P. Carlson, Millertown Road, Bedford, N.Y.
Filed June 13, 1969, Ser. No. 833,127
Int. Cl. A01k 97/12
U.S. Cl. 43-17



A fishing device including a tripod which can be set over an ice hole and which supports a wind-driven motor on one of the tripod legs. The motor rotates a flywheel to impart reciprocating motion to a link connecting a crankpin on the flywheel to one end of an arm of a bellcrank lever. A loop of a fishing line is disengageably supported on the other arm of the bellcrank lever and has an end with a baited hook

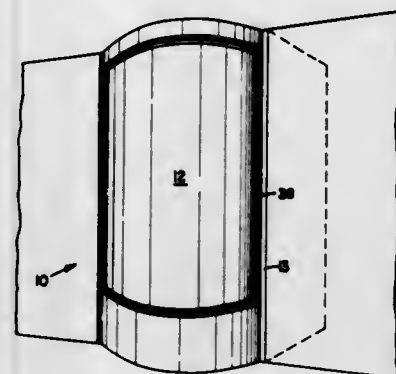
thereon extending through the ice hole. Thus, the action of the wind motor imparts a reciprocating jiggling motion to the line. The device also has a spring-carried flag which may be released by a pull on the fishing line.

3,599,370
SELF-PROPELLED CONVEYOR DEVICE FOR POSITIONING FISHING GEAR OFFSHORE
Pietro Armata, and Aurelio Genovese, both of 99 Via Felica Cavalotti, Rome, Italy
Filed Apr. 18, 1969, Ser. No. 817,307
Claims priority, application Italy, Apr. 20, 1968, Dec. 23, 1968, 36,414A/68; 42,184A/68
Int. Cl. A01k 89/00
U.S. Cl. 43-26.1



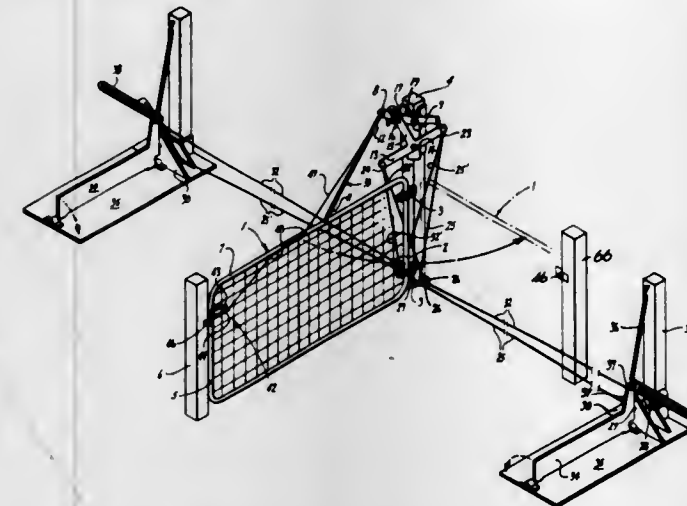
The conveyor device serves to transport, position and eventually to drop fishing implements at a great distance from the shore, and it comprises a float powered by a motor, and means to carry and drop the fishing implements at the desired location, as well as a line connecting them to the shore, in addition to a second line to recover the float.

3,599,371
DOOR OPENING AND CLOSING MEANS
Louis F. Barroero, 1585 Daniels Drive, San Leandro, Calif.
Filed July 3, 1969, Ser. No. 838,850
Int. Cl. E05f 15/20
U.S. Cl. 49-30



A refrigerator display case has a curved or semicylindrical door which is opened by means of a button being pressed. The door continues to open after the button is released, until the door is fully open. The door remains fully open for a certain period of time, and then starts to close. If the edge of the door, as the door moves closed, contacts the arm of the person removing product from the case or the product, the door automatically moves back to the fully open position, and remains there for such certain period of time.

3,599,372
GATE OPENER AND CLOSER
George N. Curtis, 4011 Millcreek Road, Healdsburg, Calif.
Filed Sept. 24, 1969, Ser. No. 860,478
Int. Cl. E05f 13/00
U.S. Cl. 49-263



A swinging gate is hinged on a post, and a coil spring is connected at one end to the top rail of the gate and at its other end to a rocking arm so that when the rocking arm is rocked one way over center, the spring is at an angle to pull the gate closed and when the arm is rocked the opposite way over center, then the spring pulls the gate the other way into open position. There is a crossbar coordinated with the rocking arm and the opposite ends of the crossbar are connected to distant rocking elements on posts spaced from the gate in opposite directions. The rocking arm and the crossbar are in a plane at an acute angle to the plane of the gate in closed position, each rocking element is connected at each end by a cable to the respective ends of the crossbar, and a treadle plate is pivoted so it is normally held upright by a spring anchored on the adjacent post, but when an automobile runs over the plate toward the closed gate, then the treadle plate turns to operate the cables for turning the crossbar and the rocking arm over center for opening the gate, and as the car or vehicle going away from the gate runs over the other treadle beyond the gate then the other treadle moves to operate its cables for rocking the crossbar and the rocking arm over center into the previous or initial gate closing position.

3,599,373
PREFABRICATED DOOR ASSEMBLY
Wayne C. Coykendall, 2172 Reed Drive, Denver, Colo.
Filed Sept. 22, 1969, Ser. No. 859,855
Int. Cl. E06b 1/10
U.S. Cl. 49-380

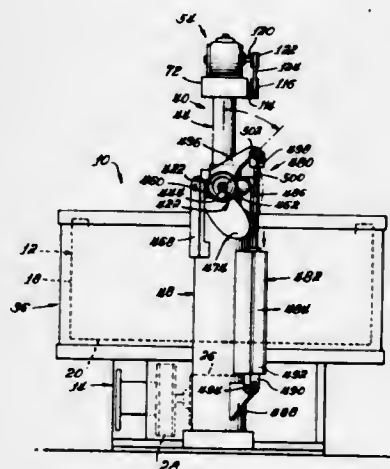


A prefabricated prehung door assembly comprises two complementary frame members each including vertical joint

7 Claims

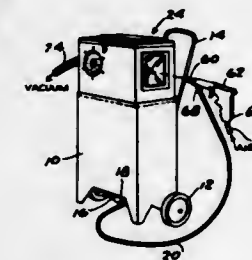
and horizontal head portions together with door casing attached to respective edges thereof. Flat plate clamps are secured along the edges of the jamb and head portion of one frame member and are held by nails driven through the portions and locked by locking perforations in the plate clamps. Door stop strips cooperate with the clamp to facilitate positioning of the two frame members. The assembly is secured to the studs of the door opening by driving the nails into the studs while maintaining the locking engagement of the nails and clamps—the clamps being retained in position against the jamb and head portions.

3,599,374
ROTARY-FINISHING MACHINE
Frank W. Porter, Montgomery, and Achille K. Ferrara, Addison, both of, Ill., assignors to Ultramatic Equipment Co., Addison, Ill.
Filed Sept. 15, 1969, Ser. No. 857,689
Int. Cl. B24b 19/00
U.S. Cl. 51-7



In a rotary finishing machine of the type generally comprising a rotatable bowl adapted to contain a mass of abrasive finishing media, means for rotating the bowl, and spindle means for turning workpieces in the path of the mass of abrasive finishing media during rotation of the bowl, the spindle means is arranged for vertical, angular, and radial adjustments and is pivotally supported in a manner designed to facilitate insertion and removal of workpieces.

3,599,375
SAND-BLASTING DEVICE
Frank D. Nunemaker, 816 Shore Drive, Boynton Beach, Fla.
Filed Dec. 13, 1968, Ser. No. 783,671
Int. Cl. B24c 3/86
U.S. Cl. 51-8



A sandblasting device in the form of a generally rectangular cabinet communicating with a sand hopper at its lower end, the cabinet having a transparent viewing window in its

26 Claims

3 Claims

top wall, an arm opening in its front wall, and a flexible panel in either an end wall or at a front corner of the cabinet. The nozzle portion of a sandblasting gun is removably secured in a central opening in the flexible panel and a baffled opening on the opposite end wall is adapted to be connected to a source of vacuum. The top wall of the cabinet is a hinged cover. An operator is adapted to insert one hand through the arm opening in the front wall to manually hold an article to be sand blasted and manipulate the gun with the other hand to direct a stream of sand against the article.

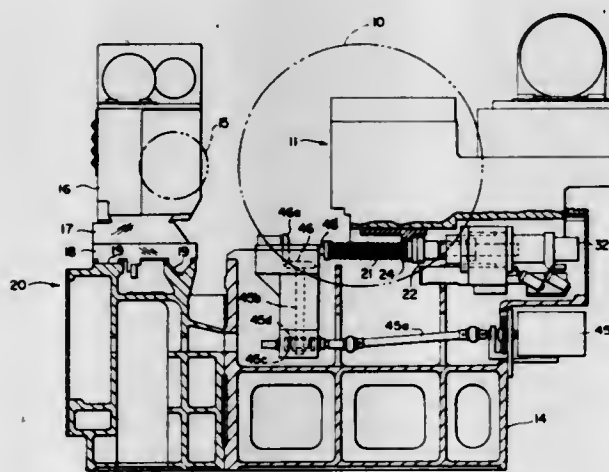
3,599,376

APPARATUS FOR AUTOMATIC GRINDING
Howard W. Renner, and Rolf Grzymek, both of Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Nov. 22, 1968, Ser. No. 778,208
Int. Cl. B24b 49/00

U.S. Cl. 51-165.8

22 Claims



A grinding wheel is moved to a reference position by a hydraulic piston, which carries a stepping motor therewith. The stepping motor advances the grinding wheel into the workpiece at varying rates and for various distances depending on the desired size of the workpiece. After completion of advancement of the grinding wheel into the workpiece, the grinding wheel may be retracted to a predetermined distance before dwell occurs.

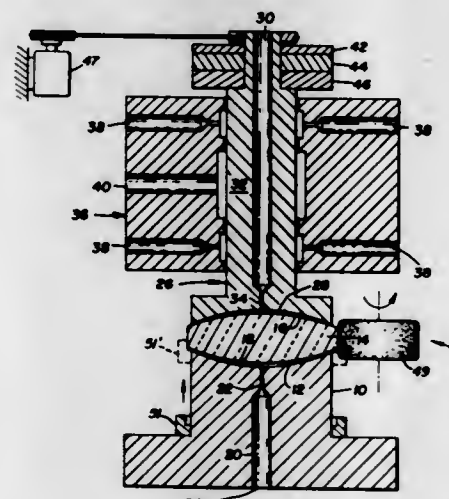
3,599,377

LENS ALIGNMENT USING GAS BEARINGS
Robert C. Dartnell, Brighton, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed July 22, 1968, Ser. No. 746,350
Int. Cl. B24b 11/00, 9/14

U.S. Cl. 51-284

7 Claims



Disclosed is a device for aligning a lens element on an axis through the center of curvature of the major lens surfaces.

The device is characterized in that spherical fluid bearings are used to position the lens so that it can be clamped for rotation about its geometrical axis.

3,599,378

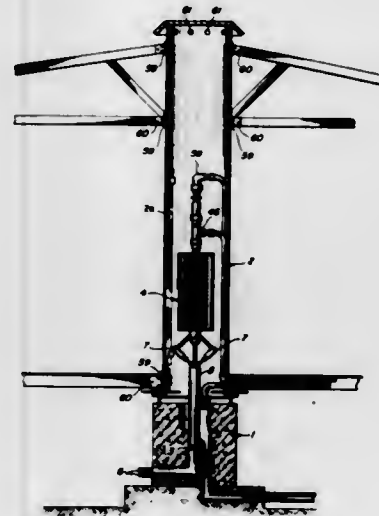
SELF-CONTAINED COMBINATION CENTRAL SUPPORT MEMBER AND UTILITIES-ENTRANCE MODULE FOR A ROTATABLE BUILDING STRUCTURE

Joseph K. Kachnic, 823 Black Drive, Prescott, Ariz.

Filed Nov. 14, 1969, Ser. No. 876,734
Int. Cl. E04b 1/346; E04f 19/08

U.S. Cl. 52-29

2 Claims



A tubular central support column provides means for attaching the major load bearing structural components of a rotatable building structure, such that the entire building structure can be lifted and transported by means attached to the top of the central column. This vertical hollow central support column encloses within it a novel utilities-entrance module which provides means for introducing all utilities at one place in a compact centrally located module. Means are also provided for removing effluent.

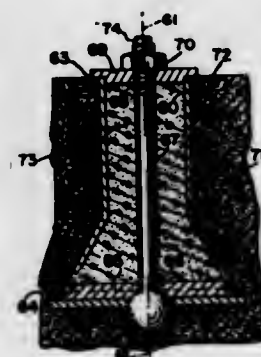
3,599,379

BOLT-ANCHORING DEVICES FOR CONCRETE
Clarence D. Tuska, Princeton, N.J., assignor to Abram N. Spanel, Princeton, N.J.

Filed Jan. 21, 1969, Ser. No. 792,604
Int. Cl. E04b 1/41; E04c 5/16

U.S. Cl. 52-127

2 Claims



An anchoring device for use in a concrete foundation employs a longitudinal, tubular member disposed about a given axis. A bolt, having a threaded end, and a head end, is pivotally mounted by means coupled to the head end within the tubular member, and below the top open face end of the member, at a distance which is less than the length of the bolt. The head end, as coupled, permits rotational motion of the bolt about axis perpendicular to the given axis, to allow the threaded end of the bolt to be positioned at any point within the area bounded by the top open face end.

3,599,380

SOIL-ENGAGING ELEMENT FOR A CONSTRUCTION MACHINE

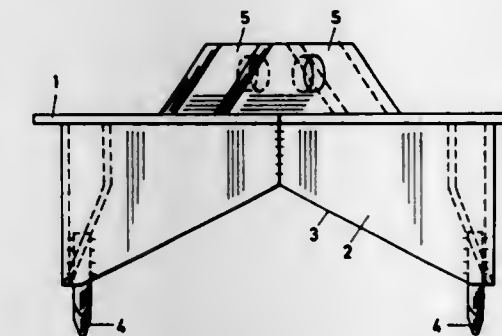
Ernst Menzi, Widnau, Switzerland, assignor to Ernst Menzi AG, Widnau, Switzerland

Filed Dec. 31, 1968, Ser. No. 788,994

Claims priority, application Austria, Jan. 3, 1968, A41/68
Int. Cl. E02d 5/80

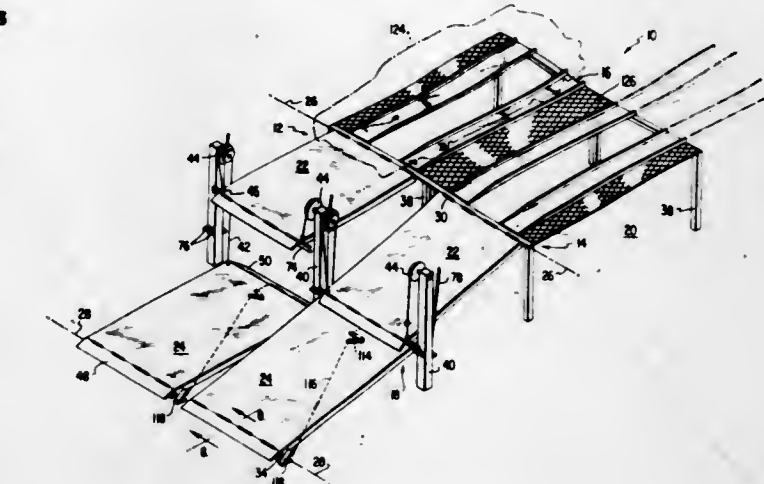
U.S. Cl. 52-155

7 Claims



A soil-engaging, supporting foot for an excavating machine or other heavy construction machine consists essentially of a plate, a hinge on the plate for attaching the plate to the machine in a normally horizontal position, a skirt depending from the plate and having a lower cutting edge extending in a closed path, and spikes downwardly projecting from the skirt. The upper edge of the skirt and the circumference of the plate define openings in the plane of the plate.

driven from a lower level to an elevated parking location. The ramps are mounted for pivotal movement in a common vertical plane between a first position defining an inclined path of wheel travel from the lower level to the elevated parking location and a second position in which the ramps



are vertically spaced a distance sufficient to permit an automobile to be driven over one of the ramps and beneath the other of the ramps.

The ramps are interconnected in such a manner that each of the ramps acts to counterbalance the other ramp so that a prime mover is not required to selectively position the ramps.

3,599,383

PILE-AND-CONCRETE CONNECTOR

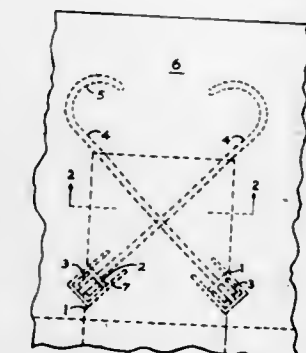
Robert Fred Moore, 1625 Third Ave., Picayune, Miss., and Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.

Filed July 22, 1969, Ser. No. 843,516

Int. Cl. E04b 1/41, 1/30, 5/16

U.S. Cl. 52-250

15 Claims



A device anchoring a concrete slab to the top of a wooden or concrete pile, preventing the concrete, when subjected to uplift, from tearing away from the pile. A notch on each side of the pile has a surface inclined upward and outward from the pile's axis and supporting concrete-anchoring means. This inclined surface resists uplifting force on the slab. One type of anchoring device comprises a rod extending thru the pile, inclined to a plane containing its axis, and ending above it in a concrete-anchoring hook. Another type comprises an angle iron, fixed in the notch, and extending laterally beyond the sides of the pile. To this angle a hooked concrete-anchoring rod (or pair of rods) optionally may be fixed.

3,599,382

AUTOMOTIVE SUPPORT STRUCTURE

Wayne B. Stone, Jr., 5115 Flanders Ave., Kensington, Md.
Continuation of application Ser. No. 730,426, May 20, 1968, now abandoned. This application Oct. 27, 1969, Ser. No. 869,959

Int. Cl. B65g 11/18; E04b 6/38

U.S. Cl. 52-175

7 Claims

The disclosure relates to an automotive support structure including a pair of ramps over which an automobile may be

3,599,384

ROOF DECK ASSEMBLY

John D. Carlson, Bradford Woods; Jack C. Lawrence, and James P. Weldeman, Pittsburgh, all of Pa., assignors to Köppers Company, Inc.

Filed June 2, 1969, Ser. No. 829,221

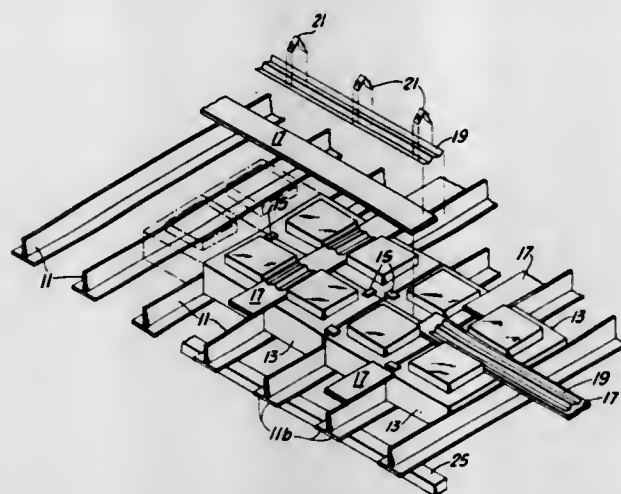
Int. Cl. E04d 1/36; E04b 1/66

U.S. Cl. 52-309

8 Claims

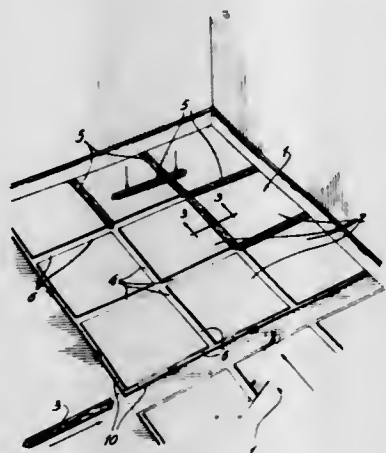
A waterproof and weatherproof roof deck assembly comprises a plurality of beams, and a plurality of adjacent water-

proof panels that rest on the beams. Each panel has a shoulder on all sides thereof that is adjacent to the shoulder of another adjacent panel to form a joint. A strip of deformable material is disposed onto the adjacent shoulders and compressed against the shoulders by a compressing means that is



placed against the material. An urging means forces the compressing means against the deformable material and a suitable sealant is placed into the joint and is subsequently bonded to the sides of the panels to form a waterproof and weatherproof joint.

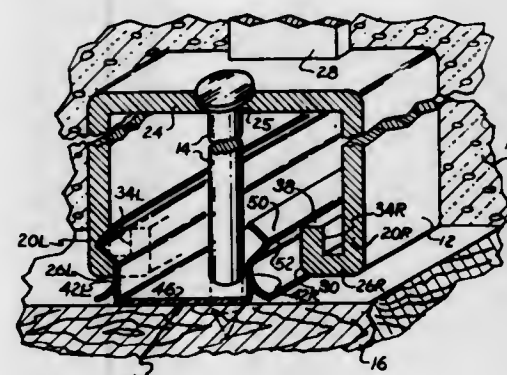
3,599,385
WOOD FLOOR FINISHING CONSTRUCTION
Leonard LaRue, 560 Belee St., St. Dorothy, Laval, Quebec, Canada
Filed Sept. 25, 1969, Ser. No. 861,043
Claims priority, application Canada, Oct. 1, 1968, 031403
Int. Cl. E04F 15/14
U.S. Cl. 52-460 1 Claim



A finishing wood covering laid over a subfloor and comprising a plurality of finishing wood panels secured over the subfloor in edge abutting relationship with each other, each panel being cut out along the abutting edges to define a recess, at the top, having a horizontal ledge and an inclined inner lateral wall, and being further cut out at the bottom along the abutting edges to form a horizontal groove. The recess and the groove of a panel define therebetween an overhanging tongue that extends fully around the panel, the top recesses of abutting panels thus having a dovetail configuration. A plurality of fastening clips are mounted on the tongues of abutting panels to hold them together and fasten them to the floor. Each clip is formed of an upstanding web disposed between the facing ends of the tongues of the corresponding abutting panels and lateral prongs projecting from the top and bottom of the upstanding web to overlie the horizontal ledges of the tongues and to be received in the bottom grooves of the corresponding abutting panels, respectively. There is for each clip, two spaced top prongs extending in one direction from the web and a further top prong extending in opposite direction between the first two prongs. There is also provided, for each clip, two spaced bottom

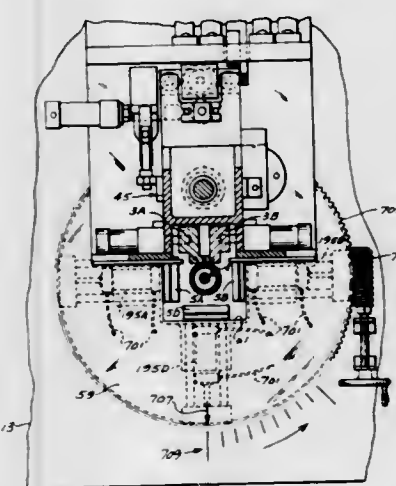
prongs that extend in the said opposite direction while a further bottom prong extends in the one direction aforesaid between the first bottom prongs. The panels are secured to the subframe by means of a nail, for each clip, driven in the space between the first two top prongs, driven through the tongue, through the further bottom prong and into the sub-floor. Finally, filler wood strips of dovetail cross section are set in the said recesses defined between the abutting panels.

3,599,386
PROTECTIVE CLOSURE MEMBER AND PROCESS FOR USING THE SAME
Carl Henry LaLonde, Warren, Ohio, assignor to The Youngstown Sheet and Tube Company, Mahoning, Ohio
Filed Dec. 26, 1967, Ser. No. 693,593
Int. Cl. E04b 1/38
U.S. Cl. 52-710 2 Claims



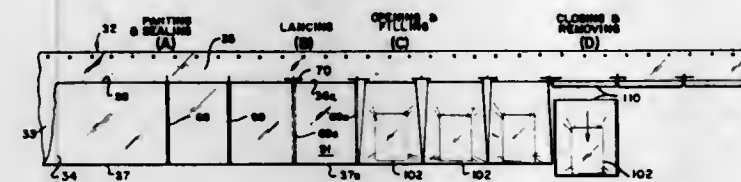
A protective closure member particularly adapted for closing, the slot opening of a structural support element, such as a channel, during the process of embedding said element in a castable matrix, such as concrete. The closure member having a configuration complementary to portions of the support element to provide mutual interlocking and/or positioning means.

3,599,387
FORM-FILL-SEAL PACKAGING APPARATUS AND METHODS
Robert C. James, Sheboygan, Wis., assignor to Packaging Frontiers, Inc., Sheboygan, Wis.
Filed Apr. 1, 1969, Ser. No. 812,274
Int. Cl. B65b 9/08, 51/30
U.S. Cl. 53-28 15 Claims



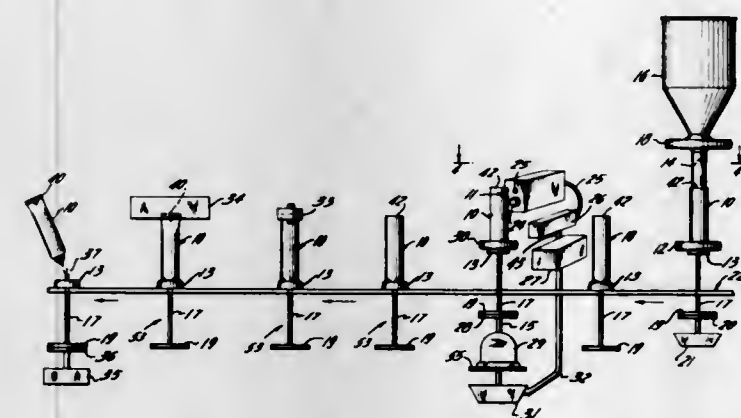
Packaging apparatus of the type in which a web of flexible packaging material is formed into a tube around a mandrel, fed downward off the lower end of the mandrel in package length increments, and transversely sealed at package length intervals, adapted to form tetrahedron-shaped packages, pillow-style packages, three side seal pouches with or without gussets, and four side seal pouches, and method of utilizing the apparatus for making such packages.

3,599,388
METHOD OF AND APPARATUS FOR FORMING AND LOADING CONTAINERS
Norman Feingold, 25 Train Drive, Great Neck, N.Y.
Continuation-in-part of application Ser. No. 726,443, May 3, 1968, now abandoned. This application Dec. 13, 1968, Ser. No. 787,297
Int. Cl. B65b 9/08, 43/04
U.S. Cl. 53-29 23 Claims



The present invention includes apparatus for forming plastic bags from plastic sheet material and loading same, the material being folded upon itself to form first and second superimposed layers with a section for supporting and advancing the material during processing, the apparatus including means for engaging and advancing the folded sheet material, means along the path of the material for forming side closures and mouths of adjacent bags, means for thereafter cutting reliefs adjacent each mouth, optional compressed-air means for blowing air into each bag thereby opening each mouth thereof, loading means, and means further along the path of the material for simultaneously sealing each mouth and separating each formed bag from the supporting section.

3,599,389
TUBE-FILLING MACHINE WITH TUBE-POSITIONING MECHANISM
Curtis Arnold Hartman, Elmira, N.Y., assignor to Dart Industries, Inc., Los Angeles, Calif.
Filed June 9, 1969, Ser. No. 831,578
Int. Cl. B65b 57/00
U.S. Cl. 53-51 3 Claims

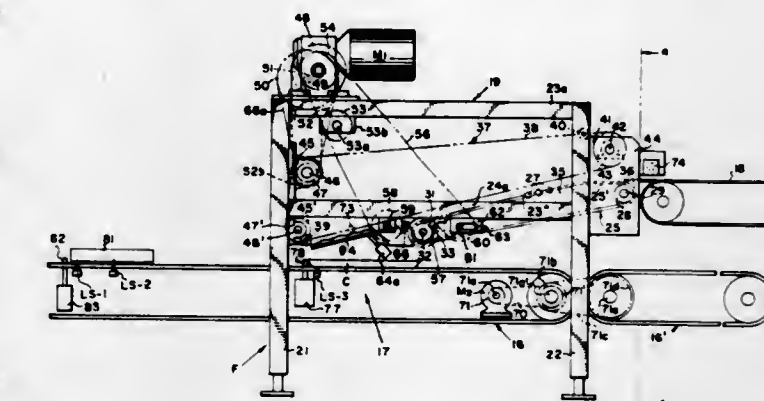


A process and apparatus for positioning a tube on a filling machine by printing a fluorescent area on the tube. The tube is then irradiated with ultraviolet light from an ultraviolet light source causing the fluorescent area to emit visible light. The tube is then rotated until the flowing fluorescent area is detected by a visible light detector and rotation is then stopped.

3,599,390
CONTAINER-LOADING SYSTEM
Norman D. Krenke, Saginaw, and Charles E. Ingram, Free-land, both of, Mich., assignors to Baker Perkins Inc., Saginaw, Mich.
Filed Sept. 24, 1969, Ser. No. 860,481
Int. Cl. B65b 57/06, 57/12, 35/44
U.S. Cl. 53-55 43 Claims

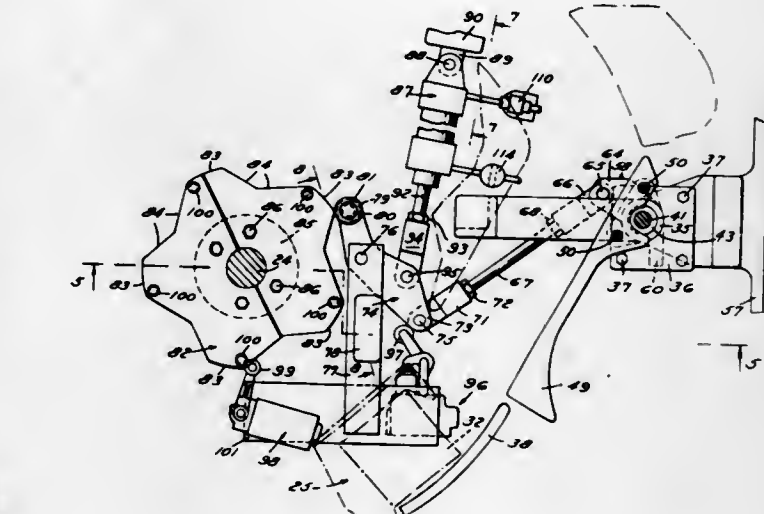
A first conveyor for containers is supplied with containers on a demand basis and is disposed under a product conveyor for conveying articles such as packaged bread which has a

discharge portion in superposed generally convergent relation with the container conveyor. A stop momentarily halts each container just forwardly of the discharge portion of the product conveyor and a pusher, which is controlled by a sensor indicating that a full group of articles is available, moves the articles down the product conveyor and into the con-



tainer in a manner to compress the products in the direction of travel thereof and pack them into the container. The products which are to be delivered to a given container are supplied as a group which entirely fills the container and a downstream transverse pusher member operates to transversely press or pack the articles into the container when the container is again halted.

3,599,391
AUTOMATIC CONTAINER EJECTOR APPARATUS
Robert J. Allen, Farmington; Philip C. Martin, Walled Lake, and Jack M. Neumayer, Farmington, all of, Mich., assignors to Ex-Cell-O Corporation, Detroit, Mich.
Filed Feb. 16, 1970, Ser. No. 11,635
Int. Cl. B65b 43/26
U.S. Cl. 53-186 7 Claims



An automatic container ejector apparatus for use with a continuous motion packaging machine which erects, fills and closes containers. The ejector apparatus permits the operator to remove a carton or container for inspecting the container bottom for quality control purposes without stopping the machine. The automatic ejector apparatus includes a swingably mounted ejector arm means which is adapted to be selectively swung inward across the path of a container being moved from a bottom forming machine to a filling machine and for swinging outwardly to eject the selected container. An operating linkage means is provided for interconnecting the operation of the ejector arm means with the rotary movement of a rotary transfer unit for transferring the containers from the bottom forming machine to the filling machine. A control means is provided for selective operation of the ejector arm means.

3,599,392

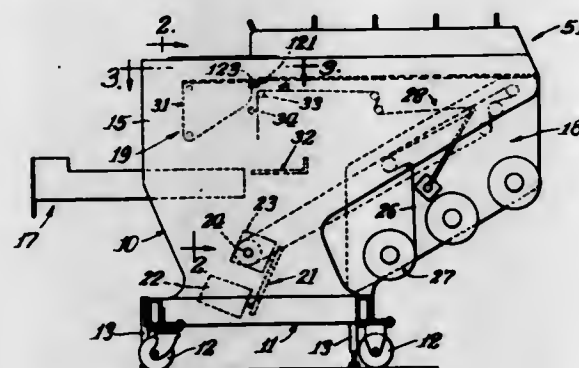
SHEAR MECHANISM FOR A WRAPPING MACHINE
Eugene E. Geber, Omslan, Ind., assignor to Franklin Electric Co., Inc., Bluffton, Ind.

Filed Apr. 3, 1969, Ser. No. 813,157

Int. Cl. B65b 11/20

U.S. Cl. 53-210

7 Claims



This application deals with an automatic wrapping machine including a wrapping mechanism for wrapping in a section of thin protective film each article in a series of articles. The wrapping mechanism receives film from a film feed mechanism, loops a section of the film about an article, shears the section of film from the film supply, and seals the film about the article. The mechanism for shearing the film comprises a stationary blade and two movable blades which are engageable with the stationary blade. The two movable blades are supported on joints, and a simplified mechanism is provided to simultaneously shift both movable blades at the proper time in each wrapping cycle to sever the film.

3,599,393

TAPE-LOADING APPARATUS

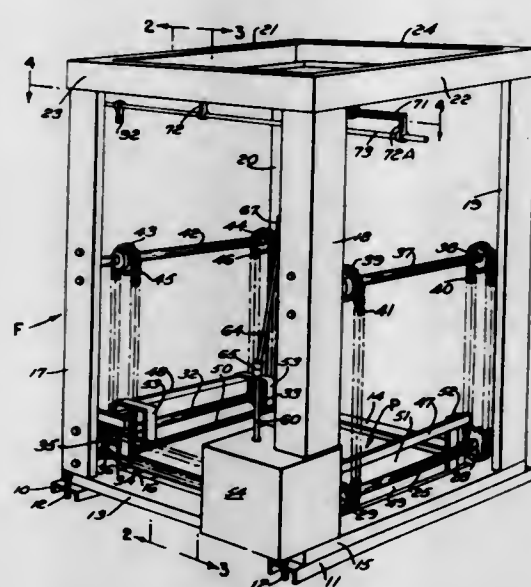
Owen Rodwell Read, 71 Orchard Drive, Cumberland, R.I.

Filed Mar. 24, 1969, Ser. No. 809,504

Int. Cl. B65b 39/00

U.S. Cl. 53-245

4 Claims



This specification discloses apparatus for loading tape into one or more boxes through the open top thereof to achieve an orderly arrangement of the stored tape. The apparatus comprises essentially a horizontal platform on which boxes are received, mechanism for supporting the platform in a desired elevated position and which provides for lowering of the platform, a worm and worm wheel included in said mechanism which maintains the elevated position of the platform, a clutch and means for actuating the second clutch to index downward movement of the platform a distance equal to the thickness of one layer of tape which is delivered to a box through its open top together with mechanism for rendering the actuating means effective upon the completion of each such layer.

3,599,394

AUTOMATIC WRAPPING MACHINES

Erik O. Vilen, Niles, Ill., assignor to Triangle Package Machinery Company, Chicago, Ill.

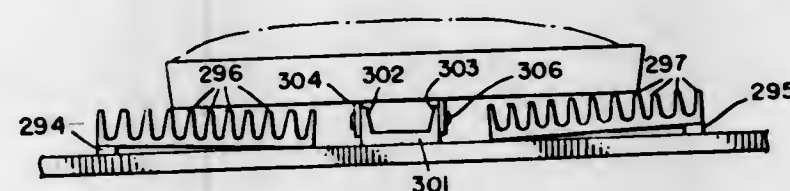
Division of Ser. No. 632,959, Apr. 24, 1967, Pat. No. 3,486,294.

Filed Aug. 26, 1969, Ser. No. 853,181

Int. Cl. B65b 51/10

U.S. Cl. 53-388

6 Claims



A package to be wrapped with a heat-sealable material and sealed is conveyed to a wrapping station, and after being wrapped and the outwardly extending ends of the wrapping material being folded under the package it is conveyed over a concave element so that a substantially flat-bottomed package will be supported on the heating element at the outer edges of the package where the layers of material are thicker and will be spaced from the heating element inwardly of such edges where the layers of material are thinner.

3,599,395

CROP-HARVESTING AID

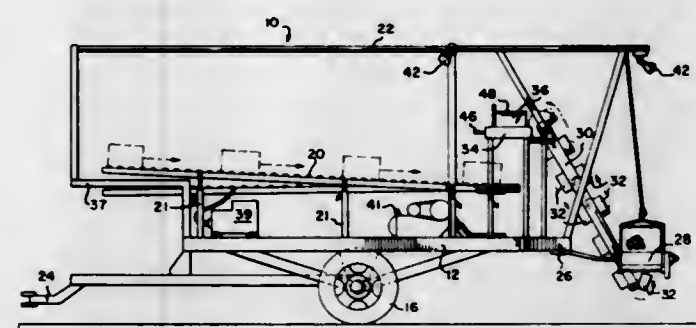
Joseph Rodriguez, Long Pond, Pa.; Rafael R. Rodriguez, Long Pond, Pa.; Rafael Rodriguez, Shavertown, Pa., and Herman R. Fry, R.D. 5, Shavertown, Pa.

Filed June 5, 1969, Ser. No. 830,804

Int. Cl. B65b 76/02

U.S. Cl. 53-391

6 Claims



A tractor-drawn harvesting aid particularly suited for use in the harvesting of crops such as cabbage, cauliflower and head lettuce. The crops are cut by hand and placed upon a conveyor which brings them to an elevator. The elevator deposits the crops at a packing station which is supplied with containers by a second conveyor. The elevator buckets are staggered, and the packing station includes a movable divider so that the crops are distributed between two work areas of the packing station in accordance with the packing speed of the crews at those two work areas. The packed containers are moved to a closing station and then to a storage location.

3,599,396

APPARATUS FOR PACKING ROD-SHAPED OBJECTS IN CONTAINERS

Alfred Schürmann, 62 Körnerstrasse, Gevelsberg, Westphalia, Germany

Filed July 28, 1969, Ser. No. 845,272

Claims priority, application Great Britain, Aug. 14, 1968,

38,786/68

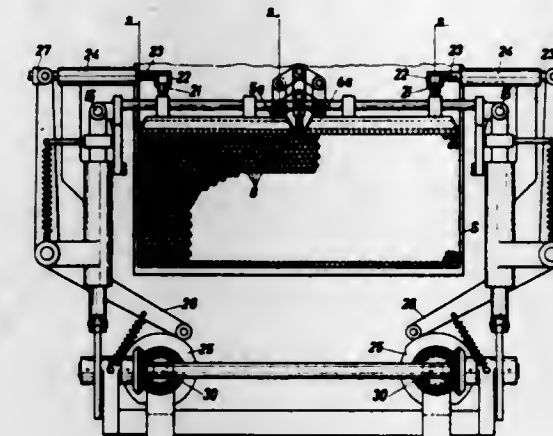
Int. Cl. B65b 5/08, 5/10, 19/10

U.S. Cl. 53-149

5 Claims

An apparatus for packing articles, such as cigarettes, cigars or cigarillos, comprising a takeup device for picking up rows of objects and depositing each row in a container with the ar-

titles of one row lie in the recesses formed by articles of the row below. The takeup device comprises at least two parts separable from one another to vary the number of objects to



be picked up depending on whether the sections are joined together or separated from one another. Further means are provided for delivering a series of the articles over a path so that they may be picked up by the takeup device.

3,599,397

CASE LOADER

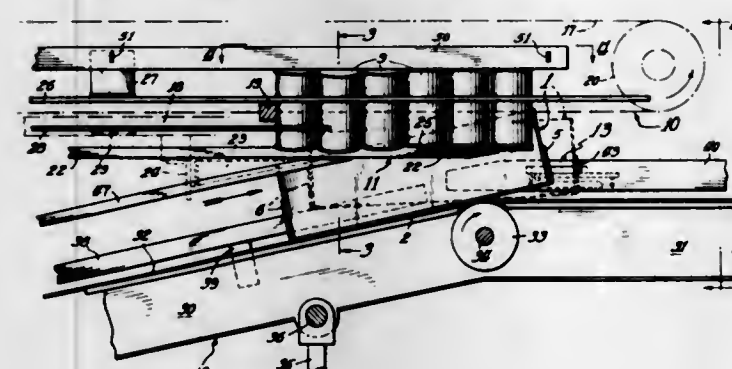
Wendell E. Standley, Lake Forest; John E. Karlovitz, Chicago, and William C. Pfeil, Jr., Lincolnwood, all of, Ill., assignors to Johns-Nigrell-Johns, Inc., Skokie, Ill.

Filed Sept. 16, 1968, Ser. No. 760,024

Int. Cl. B65b 5/10, 39/00

U.S. Cl. 53-250

2 Claims



A loader for open top cases having regular height sidewalls, and having end walls in which the portions adjacent the corners are of regular height, but the central portions are of reduced height. The articles to be loaded are propelled past the end of a cantilever support to drop into the case. The cantilever support is in the form of a thin plate which is narrow enough to be accommodated between the regular height portions of the end wall. The outside leading articles will engage against the regular height end wall portions to advance the case as the articles are deposited therein.

3,599,398

METHOD AND APPARATUS FOR SEPARATING FOREIGN MATTER FROM GASES

Walter Jaeger, and Theo H. Kellpart, both of Laval des Rapides, Quebec, Canada, assignors to Ovitron Corporation, Newburgh, N.Y.

Continuation of application Ser. No. 693,002, Dec. 22, 1967, now abandoned. This application Jan. 12, 1970, Ser. No. 1,971

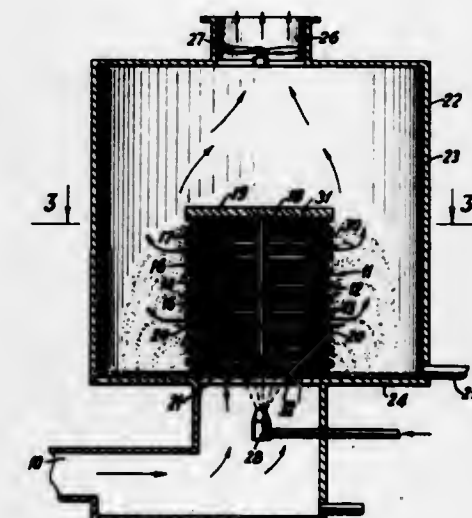
Int. Cl. B01d 47/10

U.S. Cl. 55-84

16 Claims

A method and device are disclosed for separating entrained dusts and mists from a gaseous stream. The device includes a chamber for receiving a mixture of a suspended washing liquid and the gaseous stream, the chamber having

at least one orifice slot passing through the wall thereof, the orifice slot being characterized by an enlarged gas entry portion which extends into the chamber wall and converges into a reduced linear throat portion. The length of the slot along the wall surface is substantially greater than the width opening of the throat portion, means being provided for accelerat-



ing the flow of the gaseous mixture through the gas entry portion and out through the throat of said slot. By accelerating the gas mixture through the slot to a speed of about 30 to 200 meters per second, the entrained material is caused to agglomerate into heavier particles which are allowed to fall out of the gas mixture after passing through the throat portion of the slot.

3,599,399

APPARATUS FOR FILTERING POLLUTANTS

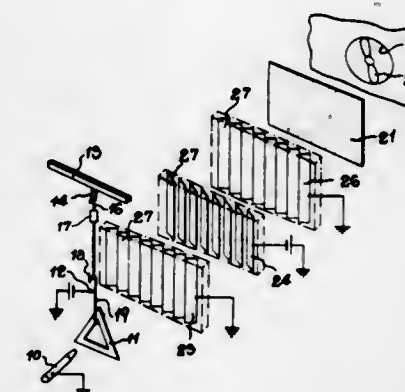
Thomas J. Gallen, 1516 Buck Road, Feasterville, Bucks County, Pa.

Filed Mar. 8, 1968, Ser. No. 713,271

Int. Cl. B03c 3/00

U.S. Cl. 55-131

3 Claims



Apparatus and method for selectively withdrawing pollutants from an airstream by means of alternately grounded and charged filters.

3,599,400

CENTRIFUGAL CRUDE OIL SEPARATOR

Pierre P. Orioux, Paris, France, assignor to Compagnie Française Des Pétroles, Paris, France

Filed Nov. 13, 1969, Ser. No. 876,414

Claims priority, application France, Nov. 14, 1968, 173,657

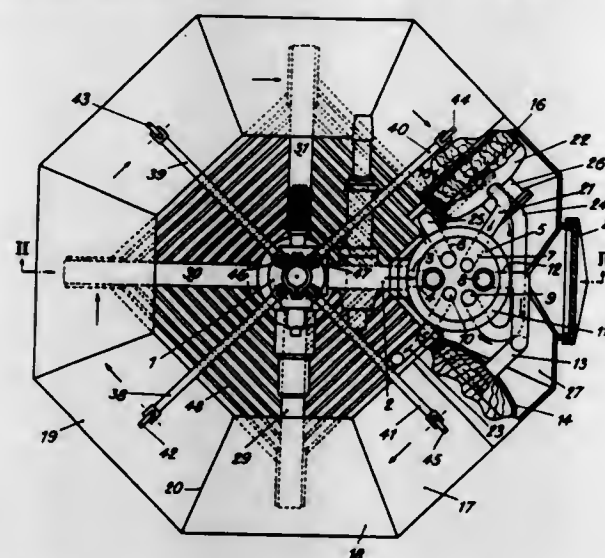
Int. Cl. B01d 53/24

U.S. Cl. 55-203

9 Claims

An oil and gas separator for underwater installation

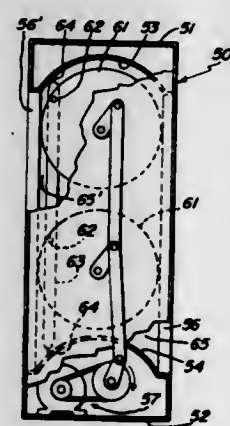
receives crude oil at one end of an octagonal toroidal-shaped container and discharges the centrifugally separated oil and



3,599,401
AIR FILTER SYSTEM
Theodore A. Rich, Scotia, and James N. Grooves, Schenectady, both of, N.Y., assignors to General Electric Company
Filed Mar. 14, 1966, Ser. No. 533,888
Int. Cl. B01d 46/44

U.S. Cl. 55-471

1 Claim

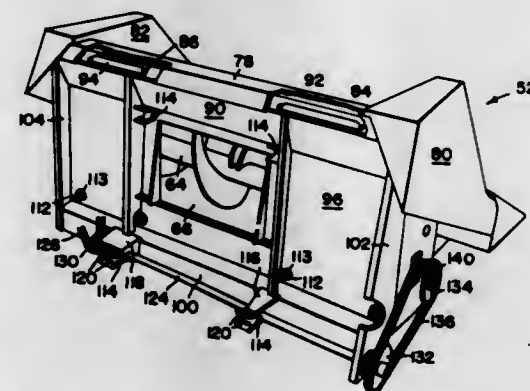


Apparatus is disclosed which comprises an air filter which closes at least one side of an expandable chamber. The effective volume of the chamber is constantly and cyclically varied between a maximum and a minimum by a movable wall member whereby air is drawn through the filter into the chamber and then expelled through the same filter to provide a double-filtering action.

3,599,402
CORN-HEAD-MOUNTING STRUCTURE
Robert Albert Heising, Bloomfield, and William Frederick Manns, Ottumwa, both of, Iowa, assignors to Deere & Company, Moline, Ill.
Filed Feb. 16, 1970, Ser. No. 11,618
Int. Cl. A01d 73/00, 45/02

U.S. Cl. 56-2

7 Claims



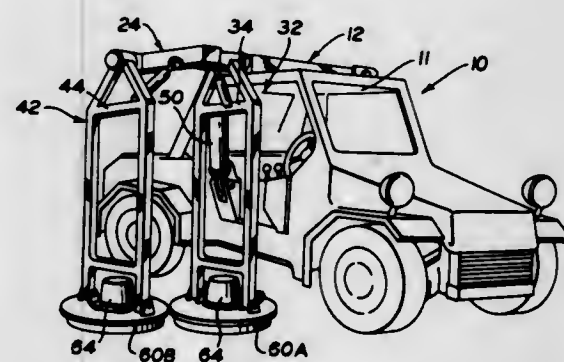
An adapter structure for mounting a combine corn head on the cutterhead housing of a forage harvester. The struc-

ture utilizes the available mounting points on the respective units and includes a platelike member substantially enclosing the crop outlet opening of the corn head, the platelike member having an opening in fore-and-aft register with the inlet opening of the forage harvester cutterhead housing. The structure further includes mechanism for driving the operating components of the corn head from a power source on the forage harvester.

3,599,403
DUAL-PATH MOWER VEHICLE
Marion A. Gantz, 1937 High St., Cuyahoga Falls, Ohio
Filed July 15, 1970, Ser. No. 55,039
Int. Cl. A01d 35/26

U.S. Cl. 56-10.4

9 Claims

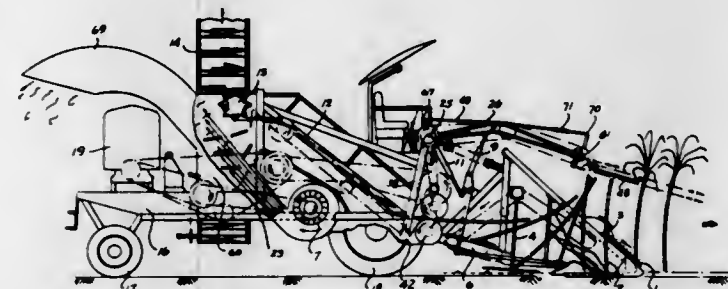


A vehicle carrying dual-path mowing heads for cutting vegetation primarily from both sides of continuous or discontinuous obstructions such as fences, posts, highway guard rails and the like. Two rotary mower blades are mounted within rotatable housings which absorb the impact encountered by said posts and the like to minimize deflection. The housings swing at right angles to each other as they depend from a horizontal boom extruding outward from the vehicle, the housings being positioned with respect to each other by hydraulic cylinders or other power device. The boom is pivotally mounted to the vehicle so that the mower blades can be raised and retracted for storage, transportation or avoidance of an obstacle. The length of the boom is also adjustable so that areas more remote from the vehicle can be readily reached. All of the adjustments and controls are completely operable from within the cab of the vehicle.

3,599,404
SUGAR CANE HARVESTERS
Carlos Manuel Cruz Fernandez, 7605 55th St. Mariano; Rogelio Rodriguez Valdes, 21415, 67 Ave. LaLisa Mariano, and Delfin Perez Alberto, 68 Perkins St. Luyano Mariano, all of Havana, Cuba
Filed Apr. 8, 1969, Ser. No. 814,338
Claims priority, application Cuba, Apr. 9, 1968, 207-744
Int. Cl. A01d 45/10

U.S. Cl. 56-12.8

1 Claim



A sugarcane harvesting combine has a mobile chassis with a supporting framework and wheels, and adjustable cane top severing mechanism consisting of a shielded disc with blades, and hydraulic adjustment means, rods to direct the cane to

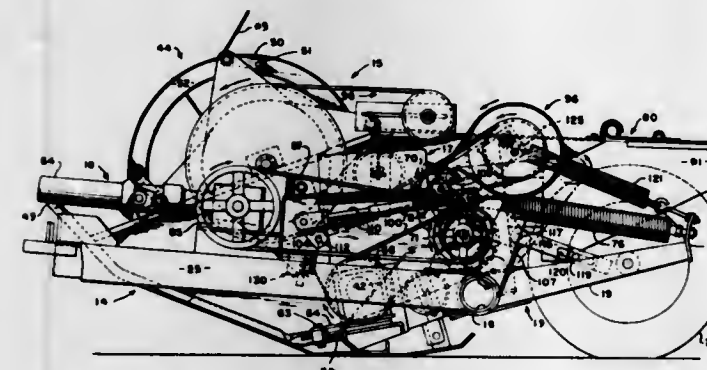
the top cutting area, curved paddles to discharge the cane tops, and a stalk severing mechanism with oppositely rotating horizontal cutters on hydraulically controlled skids, means directing fallen cane into the stalk cutting mechanism, and a series of conveying means to dispose of the cut cane.

3,599,405
HEADER SUSPENSION
Joseph C. Hurlburt, Leola, Pa.; Horace G. McCarty, New Holland, Pa., and Joseph H. Cyr, Longvic Cote D'Or, France, assignors to Sperry Rand Corporation, New Holland, Pa.
Continuation of application Ser. No. 589,543, Oct. 26, 1966, now abandoned. This application Dec. 17, 1969, Ser. No. 882,403

U.S. Cl. 56-14.4

Int. Cl. A01d 43/10

16 Claims

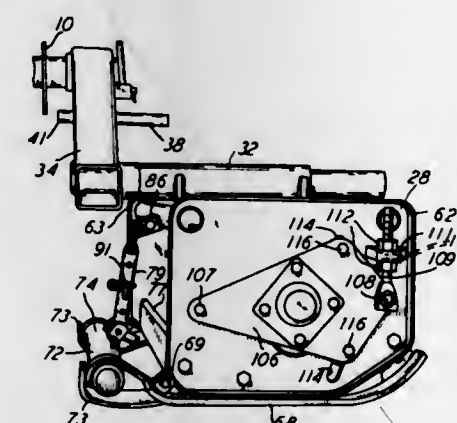


An agricultural machine adapted for travel forwardly over the ground including a wheel supported frame, a header having crop-treating elements thereon pivotally mounted on the frame, link means operatively connecting the header to the frame, and lift means on the frame for pivoting the frame about a horizontal axis.

3,599,406
TRACTOR-SUPPORTED LAWN MOWER
Sahag C. Akgulian; Donald G. Haffner, and Sherman C. Heth, all of Racine, Wis., assignors to Jacobsen Manufacturing Company, Racine, Wis.
Filed Apr. 9, 1970, Ser. No. 26,998
Int. Cl. A01d 35/26, 55/20

U.S. Cl. 56-17.2

6 Claims

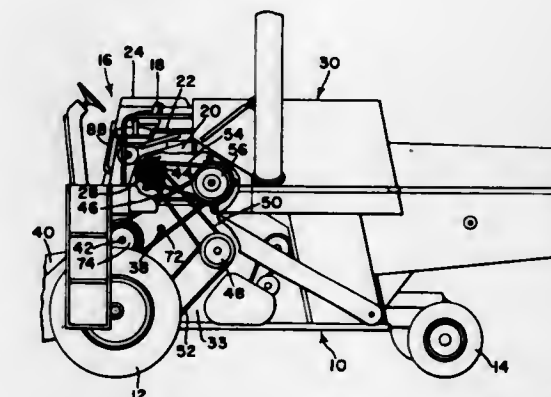


A tractor-supported lawn mower including a tractor and mowers pivotally mounted on pivot arms on the tractor. The mower has two spaced-apart side members, and the mower is of the reel type having a reel and a bed knife extending between the side members. Two skid shoes are pivotally attached to the mower to extend rearwardly thereof and to support a connector extending between the spaced-apart skid shoes. The skid shoes are movable up and down for governing the cutting height of the mower. Two additional skid shoes are attached to the side members for up-and-down adjustment to govern the positioning of the mower reel in

3,599,407
DECLUTCHABLE BELT DRIVE FOR COMBINE COMPONENTS
Darwin Carl Bichel, East Moline, Ill., assignor to Deere & Company, Moline, Ill.
Filed Oct. 9, 1969, Ser. No. 865,078
Int. Cl. A01d 61/02

U.S. Cl. 56-11.8

10 Claims

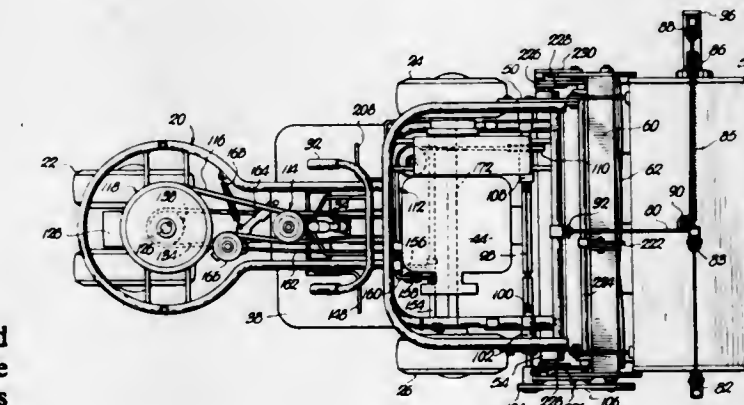


A self-propelled combine has a main separator body with a transverse engine and an operator's station mounted above the front end of the body. The separator drive, which drives the driven components in the separating system, and the header drive, which drives the various driven components on the header, are both driven through a transverse shaft disposed above the main separator body behind the operator's station and the engine. The transverse shaft in turn is driven by the engine through a declutchable belt drive, which includes a drive sheave on the engine output shaft and a driven sheave on the transverse shaft, the end of the shaft on which the driven sheave is mounted being swingable toward and away from the drive sheave to respectively disengage and engage the belt from the sheaves, the swinging of the shaft being controlled by the operator from the operator's station through a mechanical linkage.

3,599,408
RIDING GREENS MOWER
Walter Scott Craven, and George R. Brown, both of Route #1, Cleveland, Ga.
Filed Nov. 29, 1968, Ser. No. 779,747
Int. Cl. A01d 35/24

U.S. Cl. 56-14.4

8 Claims



A riding mower having a driven wheel unit which is also steerable through 360°. The prime mover is mounted on the main frame and is stationary therewith, power being delivered to the driven wheel unit on the same vertical axis about which the unit is rotated to steer the mower. A grass catcher is employed which has an opening through which a

load of clippings is discharged by a reciprocable pusher plate within the catcher. The cutter assembly is raised to an elevated, inoperative position by a winch drum powered by a friction drive connection with another of the wheel units of the mower.

3,599,409

MAIN FRAME FOR CORN HEADS

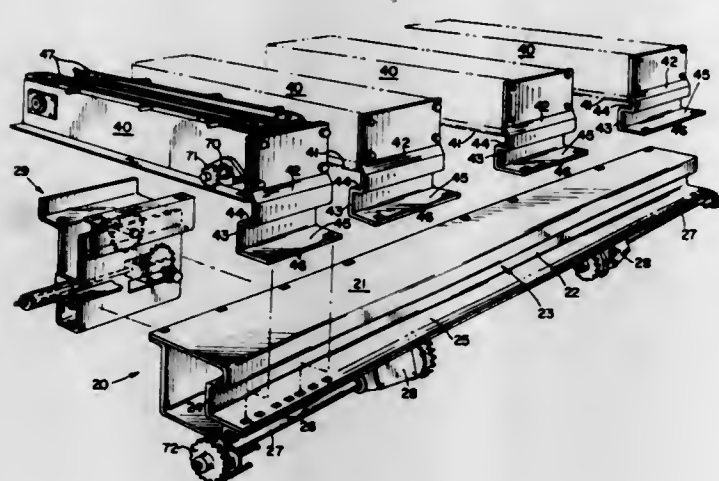
Martin J. Whitney, East Moline, and William L. Forsberg, Moline, both of, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Apr. 1, 1970, Ser. No. 24,684

Int. Cl. A01d 45/02

U.S. Cl. 56—105

8 Claims



A row-crop-gathering attachment having a plurality of row-crop-harvesting units that can be slid transversely of the attachment while being supported thereby. The row-crop-harvesting units can be releasably secured to the gathering attachment at selected locations to accommodate crops of various row spacings.

3,599,410

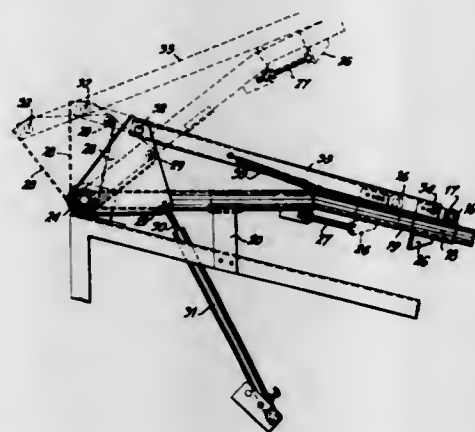
ADJUSTABLE MOUNTING FOR A REEL ON A HEADER
Frans J. de Coene, Zedelgem, and Daniel C. C. Dewaele, Beselare, both of, Belgium, assignors to Sperry Rand Corporation, New Holland, Pa.

Filed June 19, 1969, Ser. No. 834,731

Claims priority, application Belgium, June 28, 1968, 48078

Int. Cl. A01d 57/04

U.S. Cl. 56—221



A header for an agricultural harvester has a rotatable reel supported on the header by two adjustable mounting mechanisms and two positioning jacks to move the reel in a horizontal fore-and-aft direction by a slidable movement and

in a vertical direction by a pivotal movement about a shaft extending transversely to the rear of the reel.

3,599,411

TRANSPORT LOCKOUT FOR HARVESTERS

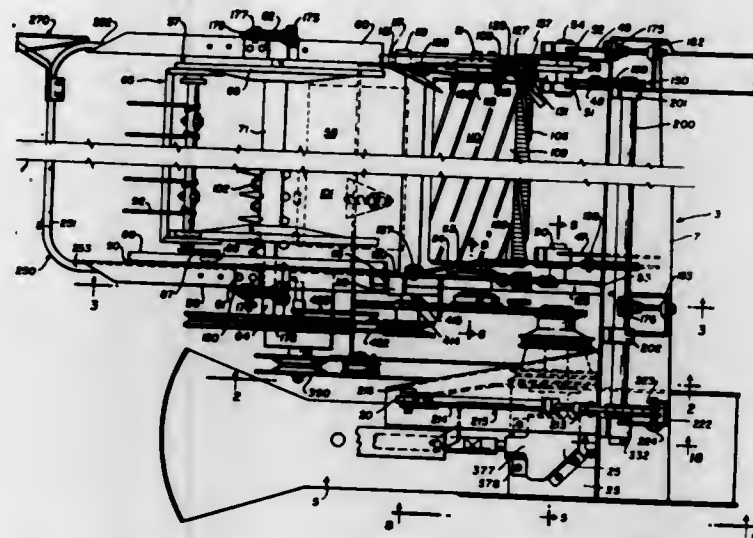
Thomas J. Scarnato, Barrington; H. Mervin Rasm, Western Springs; Martin H. Meyer, Elmhurst, and George B. Cicci, Broadview, all of, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Feb. 5, 1970, Ser. No. 9,023

Int. Cl. A01d 75/22

U.S. Cl. 56—288

10 Claims



A locking device for holding an implement which is hung from a ground traversing frame in elevated transport position. The device comprises a free swing link pivoted on the frame and which is moving in a lifting direction is abutable with a lever of the lifting linkage connected between the frame and the implement. The lever has a slot elongated in the direction of its movement and the slot is transversely alignable with a slot on an anchor lug fixed to the frame. These slots receive a pin therethrough for locking the lever to the anchor and accommodate the free link to swing away from the lever to permit separation of a hydraulic ram connected between the link and the frame. The extent and position of the slots permit storing the pin in either slot when the linkage is operational without the pin interfering with the operation of the linkage or causing the parts to break during operation of the ram if the pin is left in locking position.

3,599,412

FLAIL SHREDDER

Alain P. Lefevre, Perrigny lez Dijon, and Daniel M. Fournet, Chenove, both of, France, assignors to Sperry Rand France S.A., Les Dijon, France

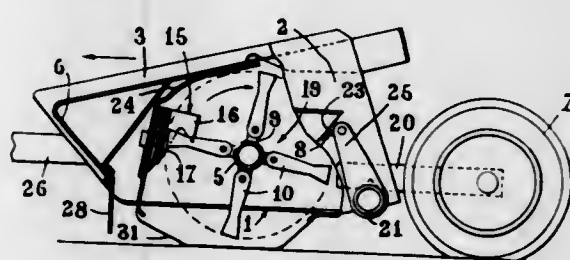
Filed Apr. 25, 1969, Ser. No. 819,379

Claims priority, application France, May 6, 1968, 150654

Int. Cl. A01d 49/00

U.S. Cl. 56—505

13 Claims



A crop cutting and shredding machine comprising a plurality of axially spaced flail elements having V-shaped notches forming a pair of reversible cutting edges and a plurality of axially spaced U-shaped stationary comb members having spaced, notched cutting edges, the flail cutting edges and the comb cutting edges cooperating to form a closing quadrilateral as the flail rotates to cut and shred crop material therebetween.

3,599,413

APPARATUS ON A DOUBLE TWIST SPINDLE FRAME FOR SUPPLYING THE SPINDLES WITH BOBBINS AND FOR CARRYING AWAY THE EMPTY YARN CARRIERS
Klaus Nitz, Krefeld, and Gustav Franzen, Neersen Bez. Dusseldorf, both of, Germany, assignors to Palitex Project Company GmbH, Krefeld, Germany

Filed Nov. 25, 1969, Ser. No. 879,708

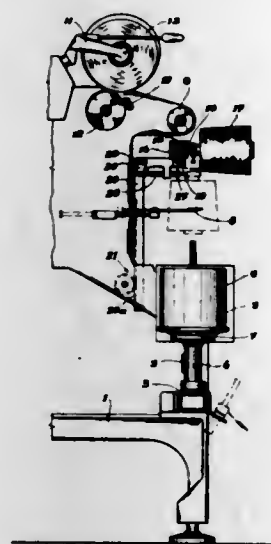
Claims priority, application Germany, Dec. 6, 1968, P 18 13

110.7

Int. Cl. D01h 9/18, 9/04

U.S. Cl. 57—53

15 Claims



A textile machine comprising a plurality of spindles is provided with a track above the spindles, into which track there is insertable and removable a chain carrying means to hold yarn packages or yarn package supports whereby the spindles may be provided with fresh yarn packages and the yarn supports of the exhausted packages may be removed. Moreover, removal of the exhausted yarn supports from the spindles and supplying of the fresh yarn packages can be accomplished automatically by providing the chain with expanding mandrels to grip the yarn packages or yarn package supports when not positioned to service the spindles and to be freely retractable from or insertable into the yarn package or yarn package supports when positioned to service the spindles.

3,599,414

TWISTING AND FORMING DEVICE FOR A PNEUMATIC SPINNING SYSTEM

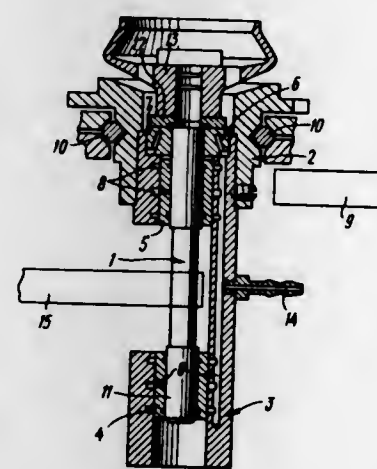
Lev Judelevich Polyakovskiy, 13 Parkovaya ulitsa, 27, korpus 4, kv. 51; Lidia Petrovna Kovaleva, Varshavskoe shosse, 9/1, kv. 40; Stanislav Markovich Balandin, Nikolo Yamsky pereulok, 4/6, kv. 64, and Igor Vladimirovich Kornev, Pogodinskaya ulitsa, 14/16, kv. 28, all of Moscow, U.S.S.R.

Filed July 17, 1969, Ser. No. 833,965

Int. Cl. D01h 7/00; F16c 17/16

U.S. Cl. 57—58.89

2 Claims



A twisting and forming device for a pneumatic spinning system includes a twisting and forming bowl supported on a

shaft mounted for rotation in a pair of radial bearings adapted to be lubricated by a compressed air and also a thrust bearing assembly. The radial bearings are rigidly connected with each other and are supported on an elastic shock damping member common to both of them, the thrust bearing assembly also being adapted to be lubricated by compressed air. The thrust bearing assembly is disposed between the twisting and forming bowl and the upper of the two radial bearings, a bearing plate of the thrust bearing assembly being formed as an annular ring mounted around the rotary shaft of the device.

3,599,415

SPINDLE STOPPING METHOD AND APPARATUS FOR IMPLEMENTING SAME

Rudolf Jaeggli, Bern, Switzerland, assignor to Reiter Machine Works Ltd., Winterthur, Switzerland

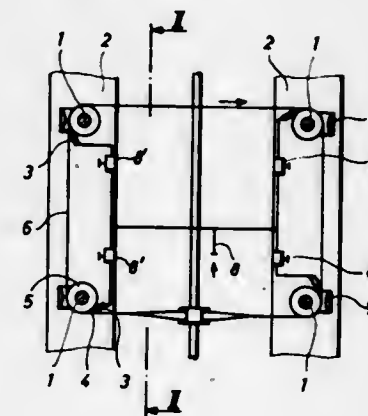
Filed June 13, 1969, Ser. No. 832,890

Claims priority, application Switzerland, June 14, 1968, 9145/68

Int. Cl. D01h 1/24, 7/22

U.S. Cl. 57—88

14 Claims



A method of stopping spindles of drawtwisting or heavy ring twisting machines having a moving drive tape in contact with a rotating spindle whorl, comprising the steps of relieving the contact pressure between the tape and the spindle whorl by injecting compressed air into the converging space defined by the tape and the spindle whorl and braking each spindle by pressing a braking element against such spindle. There is also disclosed an apparatus for stopping a spindle of a multiple spindle tape drive having a moving tape in contact with a spindle whorl, which apparatus comprises tape lifting means for relieving the contact of the tape on the whorl, the tape lifting means comprising a nozzle injecting compressed air between the tape and the whorl in the direction of movement of the tape.

3,599,416

METHOD OF AND APPARATUS FOR SPINNING, DOUBLING AND TWISTING

Kurt Helmar Reuter, Oederan; Maria Elisabeth Steinhauser, Karl-Marx-Stadt; Horst Sacher, Karl-Marx-Stadt, and Karl Heinz Silbermann, Mittweide, all of, Germany, assignors to Vereinigung Volkseigener Betriebe Baumwolle Wissenschaftlich-Technisches Zentrum Baumwollspinnerei Und Zwirnerei, Karl-Marx-Stadt, Germany

Filed June 9, 1969, Ser. No. 831,543

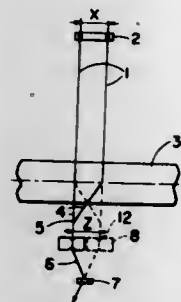
Int. Cl. D01h 13/04

U.S. Cl. 57—106

11 Claims

A method of and apparatus for spinning, doubling, and twisting in which fiber bands are discharged separately and at

a given distance from each other from a drafting device, are combined in a free-floating point into a thread, and the thread is guided and calmed at a point between the free-



floating point and the twisting member, while the imparted twist can unimpededly be transmitted between said free-floating point and the drafting device.

3,599,417

METHOD OF PLACING PACKAGES OF STRAND ON A TWIST FRAME

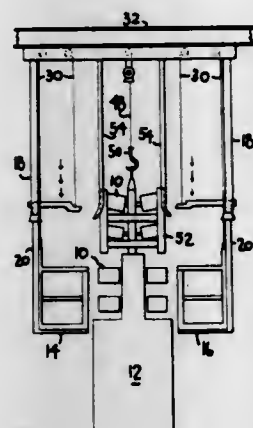
George B. Zurhede, Upper St. Clair, and Frank E. Harvey, Pittsburgh, both of, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 672,211, Oct. 2, 1967, Pat. No. 3,468,434, Filed Mar. 6, 1969, Ser. No. 804,909

Int. Cl. D01h 9/00

U.S. Cl. 57-156

3 Claims



A crane movable along selected paths and with platforms is used to pull up storage racks on which are stored tubular fiber packages and to convey the racks to twist frames for loading with the packages. The platforms are movable vertically, adjustably and independently to positions for use of handling the packages from the storage rack to the twist frame spindles.

3,599,418

HEAT CLEANABLE COATING FOR GLASS FIBERS

Homer G. Hill, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation

Filed Dec. 13, 1967, Ser. No. 690,053

Int. Cl. D02g 3/36; C03c 25/02

U.S. Cl. 57-164

12 Claims

Glass fibers coated with an easily heat cleanable size comprising a high boiling organic lubricant and a methacrylate polymer or copolymer.

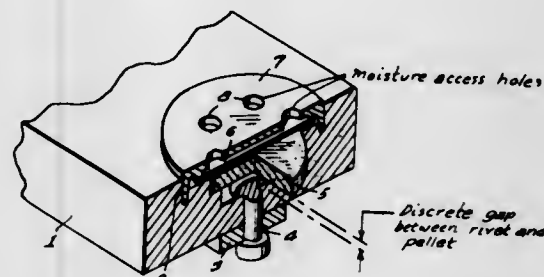
3,599,419
CHEMO-MECHANICAL TIMER
Keith D. Anderson, Upland, Calif., assignor to The United States of America as represented by the Secretary of the Army

Filed May 23, 1969, Ser. No. 827,395

Int. Cl. G04f 1/02

U.S. Cl. 58-1 R

5 Claims



A chemical-mechanical timing device for automatically releasing a retained member at the end of a predetermined period of time. The apparatus includes a chemical pellet, and associated rivet, which are kept dry until the timing action is to begin. Then the pellet is exposed to the moisture in the ambient air, or water for underwater devices, and a chemical action is initiated between the pellet and rivet. The rivet is partially consumed and weakened to the point of releasing a retained member.

3,599,420

ELECTROMECHANICAL TIMEPIECE

Henri Oguey, Peseux, Switzerland, assignor to Centre Electronique Horloger S.A., Neuchatel, Switzerland

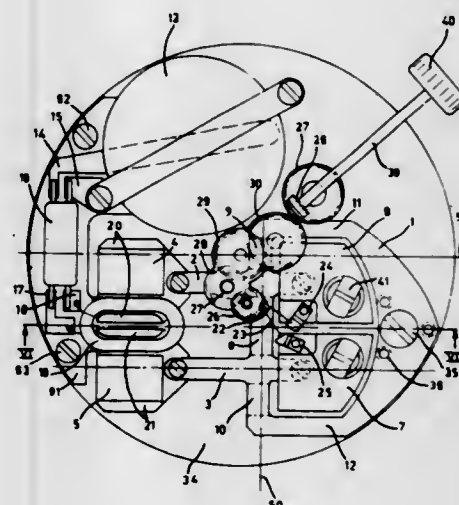
Filed June 21, 1968, Ser. No. 739,117

Claims priority, application Switzerland, June 27, 1967, 9115/67

Int. Cl. G04c 3/00

U.S. Cl. 58-23 V

12 Claims



This disclosure is concerned with an electronic mechanical timepiece using a torsion resonator and having two extended masses oscillating in opposite phase around a common axis, the torsive axis of the resonator being at least approximately parallel to the plate of the timepiece and the oscillating masses being connected by a first torsion spring and connected each to a common support by separate springs.

3,599,421
WATCH WITH MANUALLY ADJUSTABLE TIME-ZONE-SETTING MECHANISM
Erich Werner Walker, Bienne, Switzerland, assignor to Bulova Watch Company, Inc., New York, N.Y.

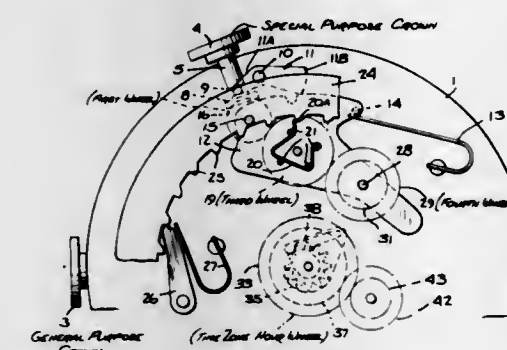
Filed Sept. 24, 1969, Ser. No. 860,712

Claims priority, application Switzerland, Mar. 11, 1969, 3606/69

Int. Cl. G04b 19/22

U.S. Cl. 58-42.5

5 Claims



A watch provided with a time-zone-setting mechanism which is manually adjustable to incrementally shift the position of a local time hour hand in either direction, the various hands of the watch being otherwise settable by a general purpose crown. The watch also includes a date calendar or other indicator, a special purpose crown being provided which, in one axial position, adjusts the time-zone-setting mechanism and, in another position, adjusts the date calendar or other indicator.

3,599,423
REGULATING DEVICE FOR A TIMEPIECE
Pierre Beguin, and Pierre-Andre Beguin, both of Le Locle, Switzerland, assignors to Portescap Le Porte, Echappement Universel S. A. La Chaux, De Fonds, Switzerland

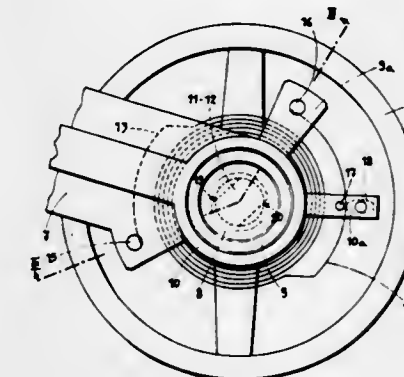
Filed Nov. 24, 1969, Ser. No. 879,129

Claims priority, application Switzerland, Nov. 29, 1968, 17,874/68

Int. Cl. G04b 17/14

U.S. Cl. 58-109

7 Claims



A regulating device employing two balance springs, preferably exerting the same couple, which are drawn from alloys having approximately the same thermal compensation. The two balance springs can either be coiled in the same direction or in opposite directions. The adjustments of the balance springs being such that, during their movements of expansion and contraction, their centers of gravity shift in diverging directions so as to compensate, at least partially, for the radial pressures exerted on the balance shaft.

3,599,424

POWER CONVERSION SYSTEM

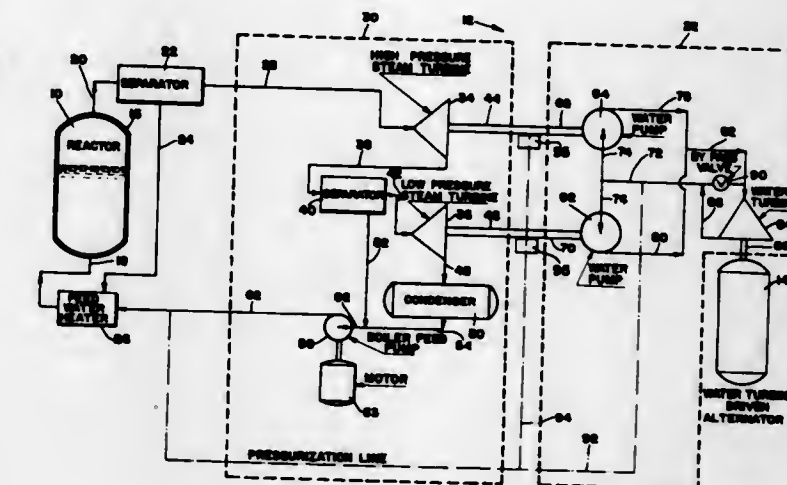
Jack S. Yampolsky, San Diego, Calif., assignor to Gulf Oil Corporation, San Diego, Calif.

Filed Oct. 2, 1968, Ser. No. 764,530

Int. Cl. F01b 21/00

U.S. Cl. 60-20

16 Claims



An improved power conversion system is provided for converting energy between thermal energy and mechanical energy which solves the problems of incompatibilities between the characteristics of input energy and desired output. A first subsystem is provided with first energy conversion means interacting in series with a first working fluid. A second subsystem is provided with second energy conversion units interacting in parallel with a second working fluid. Energy is transmitted between the two subsystems by a direct mechanical linkage between the output of the first conversion units and the second conversion units. A third energy conversion means converts energy between mechanical energy of the second working fluid and mechanical kinetic energy. Lubrication of the system is provided by the working fluids.

3,599,422
MAINSRING SLIPPING RING FOR A SELF-WINDING TIMEPIECE
Jean Haueter, Geneva, Switzerland, assignor to Vimetel S.A., Geneva, Switzerland

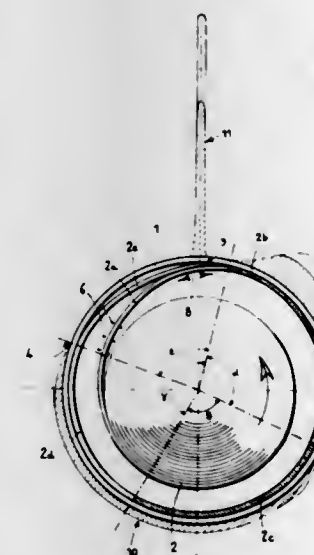
Filed Oct. 27, 1969, Ser. No. 869,561

Claims priority, application Switzerland, Oct. 29, 1968, 16111/68

Int. Cl. G04b 1/16

U.S. Cl. 58-86

7 Claims



An overwind release terminal blade of a main spring in a barrel comprising one portion increasing in thickness and a second portion decreasing in thickness in the direction of the outer extremity of the terminal blade.

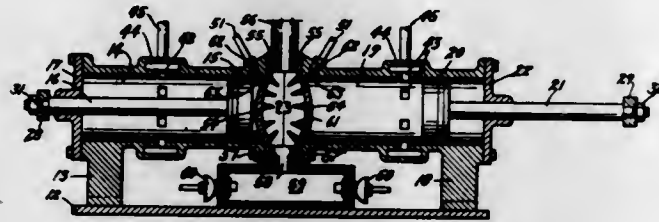
3,599,425

STREAM ENGINES

Paul M. Lewis, P.O. Box 803, Sidney, Nebr.
Filed June 11, 1969, Ser. No. 832,296
Int. Cl. F02b 75/10, 41/00

U.S. Cl. 60—27

2 Claims



Two axially aligned cylinders joined to and projecting oppositely outward from the opposite sides of an externally fueled heating chamber. A piston in each cylinder and a piston rod projecting outwardly from each piston through the outer extremities of the cylinders. A longitudinally reciprocating piston frame connecting the outer extremities of the two piston rods so that said pistons move in unison. Means for alternately projecting jets of water against the heating chamber within said cylinders to produce charges of steam to alternately urge said pistons outwardly to impart rotation to a power shaft.

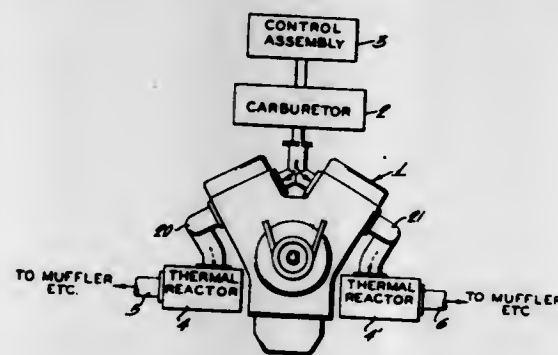
3,599,426

MOTOR VEHICLE EMISSION CONTROL SYSTEM

Paul E. Oberdorfer Jr., Devon Township, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 6,832, Jan. 29, 1970. This application May 18, 1970, Ser. No. 38,176
Int. Cl. F02b 75/10; F02m 23/00, 23/04

U.S. Cl. 60—29

9 Claims



Emission from motor vehicle exhausts of oxides of nitrogen, carbon monoxide, hydrocarbons, and aldehydes is reduced by a combination of enrichment, under off-idle operating conditions, of the fuel-air mixture fed to the engine, and an exhaust converter, e.g., a thermal exhaust reactor. The enrichment is brought about by a mechanical modification of the carburetor, and a selective carburetor control arrangement responsive to engine speed is utilized for enrichment of the fuel-air mixture at higher engine speeds.

3,599,427

EXHAUST GAS PURIFICATION

James H. Jones, Dearborn, and Ervin E. Weaver, Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

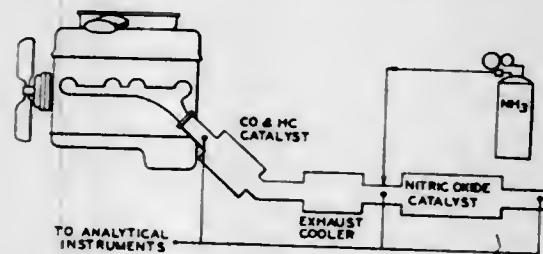
Filed Sept. 22, 1969, Ser. No. 859,765
Int. Cl. F01n 3/14, 3/16

U.S. Cl. 60—30

4 Claims

This invention is concerned with a process for the effective removal of carbon monoxide hydrocarbons and the oxides of nitrogen from the exhaust stream of mobile internal combustion engines. This purification is accomplished by passing the exhaust gas from an engine operating at near the stoichiometric fuel-air ratio through a high-temperature catalyst. This catalyst is normally a noble metal catalyst. The

exhaust gas is then cooled to a temperature in the vicinity of 700° F., ammonia is added and the ammoniated stream is



passed over a second catalyst which can be either a base metal catalyst or a noble metal catalyst.

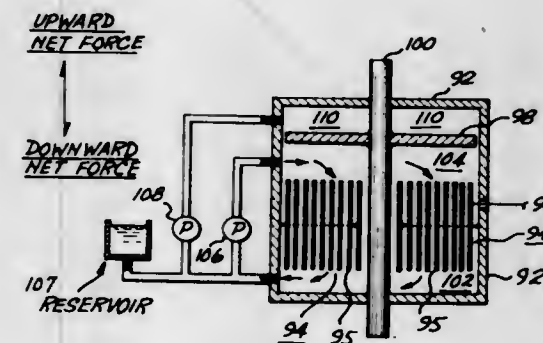
3,599,428

ELECTRIC FLUID ACTUATOR

Harold K. Chaney, and Halvor T. Strandrud, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.
Division of Ser. No. 763,039, July 29, 1968,
Patent No. 3,552,275, which is a division of application Ser. No. 503,032, Oct. 23, 1965, now Patent No. 3,416,549.
Filed Apr. 29, 1970, Ser. No. 871,308
Int. Cl. F15b 15/18, 21/06

U.S. Cl. 60—52 R

4 Claims



Electric fluid actuator apparatus utilizing electrically conducting plates with a field control source whereby an electric or magnetic field is established between the plates to control the effective viscosity of fluid located therebetween. Flow of fluid within the actuator mechanism is initiated by a constant flow pumps and controlled by the field control source to establish fluid pressures acting to displace the actuator mechanism.

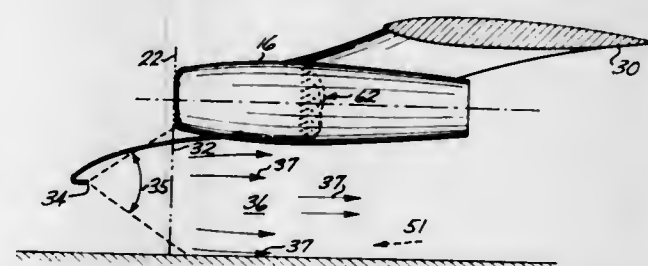
3,599,429

VORTEX PREVENTING METHOD AND APPARATUS FOR AIRCRAFT JET ENGINES

Charles F. Bigels, Issaquah; Jeffrey L. Colehour, Bellevue; G. Dennis Davidson, Mercer Island; Bannister W. Farquhar, Seattle, and Andreas Heiberg, Renton, all of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed May 2, 1969, Ser. No. 821,427
Int. Cl. F02c 7/04; B64d 33/02

U.S. Cl. 60—39.09 P

3 Claims



A method and apparatus for preventing the formation of a vortex between ground and jet engine inlet so that the problem of ingestion of foreign particles through the vortex

into the engine is eliminated. The principle of operation resides in creating an artificial headwind of sufficient velocity underneath the jet engine area in order to entrain fluid flows in a direction which prevents the necessary conditions for the origin of a vortex stagnation point. An artificial headwind of sufficient velocity is created by a source of pressurized fluid connected via a conduit, extending in front of the inlet with nozzle means directed toward the area between the jet engine inlet and the ground level underneath the inlet.

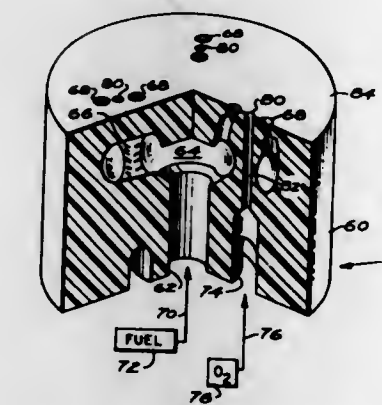
3,599,430

ABLATIVE INJECTORS

Robert V. Kromrey, Fair Oaks, Calif., assignor to Airojet General Corporation, El Monte, Calif.
Continuation-in-part of application Ser. No. 771,388, Oct. 29, 1968, now abandoned. This application Nov. 13, 1969, Ser. No. 876,610
Int. Cl. F02k 9/02

U.S. Cl. 60—39.74

6 Claims



An injector according to the present disclosure comprises an ablative body having an injector face adapted to form a portion of a rocket combustion chamber. A plurality of ports is disposed in the injector face for injecting propellant into the combustion chamber and manifold means is integrally formed within the body for supplying propellant to said ports. According to one feature of the present invention, a mold is provided for casting the ablative injector. The injector formed by means of the mold according to the present disclosure is a unitary ablative injector for injecting propellant into the combustion chamber of a rocket engine.

3,599,431

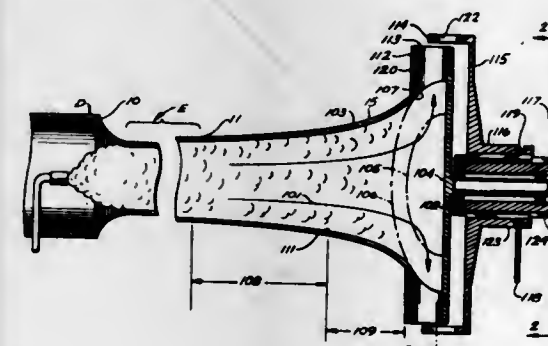
FLUID-DYNAMIC ENGINE

Giusto Fonda-Bonardi, Los Angeles, Calif., assignor to Robert S. Estes, Los Angeles; Edward S. Merrill, Palm Springs; Emmett Steel, Los Angeles; Jay Kurtz, Pacific Palisades; James Linahan, Pacific Palisades; Carl Clement, Pacific Palisades and Royal M. Glavin, Pacific Palisades, Calif., part interest to each

Filed Apr. 18, 1969, Ser. No. 817,490
Int. Cl. F01k 3/18; F02c 9/00; F02k 1/00

U.S. Cl. 60—59

9 Claims



This invention relates to a fluid-dynamic engine wherein a gas is accelerated through the engine at the speed of sound at

the sonic speed of the gas and imparting energy to the gas while maintaining it at the sonic speed. The engine may comprise a duct having a sonic duct section interposed between convergent and divergent sections so that it is successively accelerated to the sonic speed through the convergent section at the sonic speed. The engine includes means for deriving power from the fluid stream by coupling a fluid-responsive element to the stream and recompressing the fluid of the fluid stream while moving at the sonic speed.

3,599,432

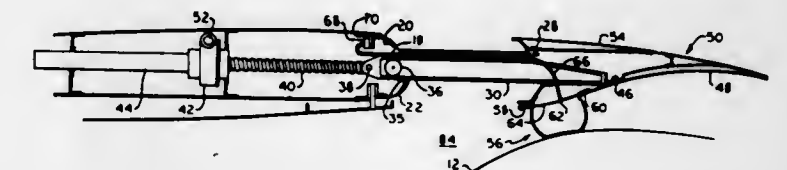
THRUST REVERSING APPARATUS FOR TURBO-FAN PROPULSION UNIT

Peter H. Ellis, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Apr. 2, 1970, Ser. No. 25,133
Int. Cl. F02k 3/02

U.S. Cl. 60—226

4 Claims



A cowl is spaced around housing of aircraft turbo-fan engine to define therewith an annular passage for flow of fan air to the atmosphere. Cascaded thrust reversing vanes are mounted at aft end of cowl and in cruise flight are covered by a sleeve attached to the cowl, the sleeve being movable rearwardly to thereby uncover the vanes when thrust reversal is required. In one embodiment of the invention a narrow, expandable diaphragm encircles the inner wall of the sleeve, and means are provided to expand this diaphragm radially inward and into abutment with the engine housing to thereby block the fan air passage and deflect fan air through the thrust-reversing vanes. In a second embodiment, the diaphragm is mounted on the engine housing and expands outward against the deployed sleeve to block the fan air passage. In a third embodiment both the sleeve and the engine housing are provided with diaphragms which abut when expanded radially of the fan air passage.

3,599,433

METHOD OF SOIL STABILIZATION AND LEAKAGE PREVENTION

Takao Murata, Yaitzu, and Atsushi Kudo, Fujieda, both of Japan, assignors to Sumitomo Durez Company, Ltd., Tokyo, Japan

Filed July 22, 1968, Ser. No. 746,530
Claims priority, application Japan, July 24, 1967, 47187/1967

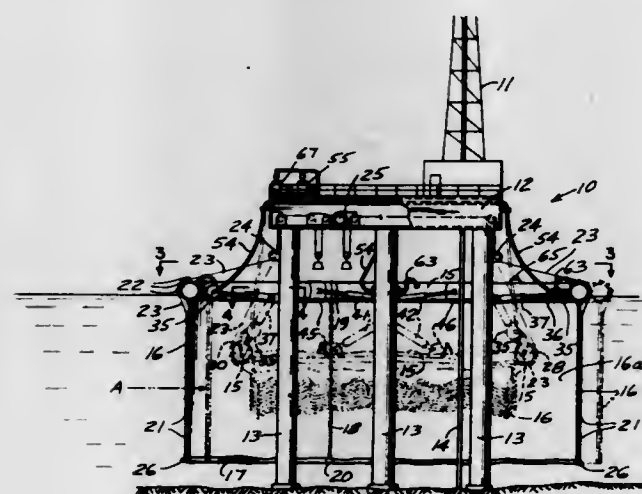
Int. Cl. E02d 3/12; E21b 33/13

U.S. Cl. 61—36

5 Claims

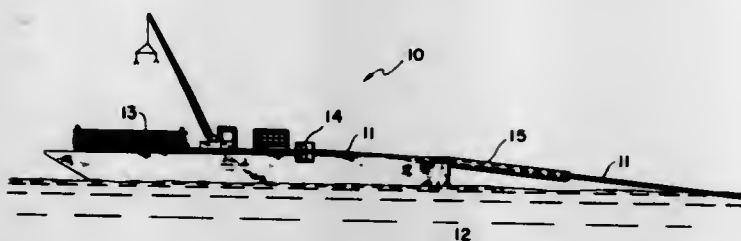
The present invention relates to the method of soil stabilization and leakage prevention by means of a so-called "chemical grout" using synthetic resin compositions which comprise a strong alkaline phenol formaldehyde resin liquid and a required hardening agent and/or a suitable gelation inhibitor, for example, by filling the said resin composition into the crevices and cracks of the rock bed, construction joints of concrete dam, voids of gravel, etc., for the prevention of leakage, and by grouting the said resin composition into soft ground for solidification, or by grouting into the wall of petroleum well for the prevention of crumbling and other applications for the prevention of seepage of spring water which occurs frequently in the various civil engineering works.

3,599,434
DEVICE FOR CONFINING OIL RELEASED BY
LEAKAGE DURING OFFSHORE OIL DRILLING
OPERATIONS
 Louis Missud, 61-15 43rd Ave., Woodside, L.I., N.Y.
 Filed June 3, 1969, Ser. No. 829,865
 Int. Cl. E02b 17/00, 15/04
 U.S. Cl. 61-46



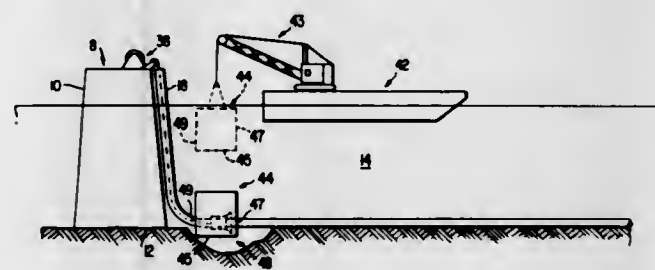
A floatable tube and skirt assembly encircling an offshore oil drilling rig for collecting oil released by leakage during the drilling operation, and movable between an operative oil-confining position and an inoperative position in noninterfering relation to the drilling shaft. The tube is connected to the rig structure by telescopically extensible arms, there being (in one embodiment) a plurality of floatable lift canisters connected to said arms and tube, each canister having perforated walls and an inner inflatable bag, an air pump on the rig being connected to said canisters and said tube. When all the canister bags and the tube are deflated, they will sink to an inoperative position, pivotally guided inwardly to that position by said telescopic arms, said arms also serving to guide the tube into its operative floating position. A drawstring arrangement contracts the skirt into compact form against the tube, in noninterfering relation to the drilling shaft.

3,599,435
METHOD FOR LAYING COATED PIPELINES
UNDERWATER
 Robert H. Kolb, Cypress, Tex., assignor to Shell Oil Company, New York, N.Y.
 Filed Aug. 28, 1969, Ser. No. 853,720
 Int. Cl. F16I 1/00, 9/14
 U.S. Cl. 61-72.1



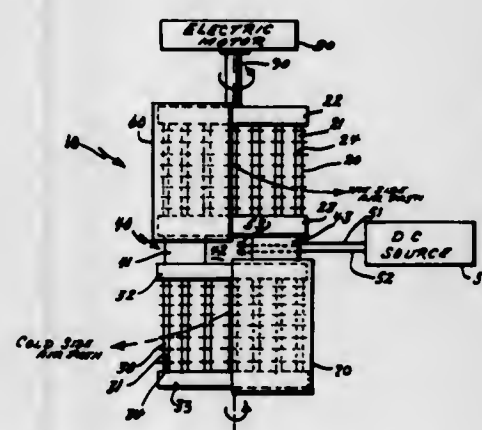
A method and apparatus for laying a pipeline underwater by coating a substantial portion of the pipeline with a corrosion-preventing masticlike material in its soft state, the material having a tendency to flow plastically. A plurality of raised portions are formed in the outer surface of the masticlike material while the material is in its soft state and the material including the raised portions is solidified. A cementitious material is applied over the hardened masticlike material; the cementitious material is then solidified and the coated pipeline is passed through a pipe-tensioning device and lowered underwater while under tension.

3,599,436
PIPELINE CONNECTIONS WITH UNDERWATER WORK
CHAMBER
 Joe C. Lochridge, and William R. Rochelle, both of Houston, Tex., assignors to Brown & Root, Inc., Houston, Tex.
 Filed Apr. 18, 1969, Ser. No. 817,495
 Int. Cl. F16I 25/00, 35/00
 U.S. Cl. 61-72.3



A method and apparatus for completing a connection of a pipeline to an underwater installation characterized by the use of an underwater work chamber to isolate the submerged termini of the pipeline and an installation conduit from the water body prior to welding the two into fluid communication.

3,599,437
THERMOELECTRIC COOLING DEVICE
 Joseph F. Panas, Arlington, Mass., assignor to the United States of America as represented by the Secretary of the Air Force
 Filed Mar. 3, 1970, Ser. No. 16,101
 Int. Cl. F25b 21/02
 U.S. Cl. 62-3

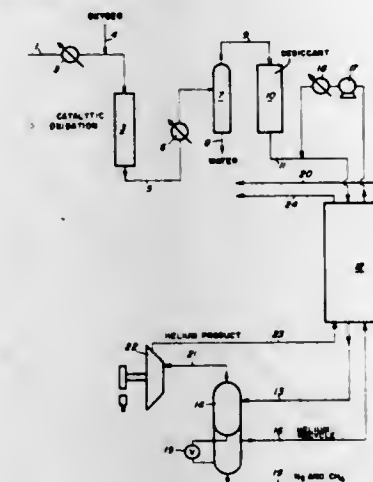


A thermoelectric cooling device. Thermoelectric modules are interposed between two cylindrical rotors of the type similar to centrifugal fan rotors, with the vanes of the rotors hollowed and filled with a reflux heat transfer fluid. The hollow vanes have fins attached to them. The thermoelectric modules are fed by a direct current source and cause one rotor to get cold and the by, rotor to get hot. The air which is flowing by, and near, each rotor becomes cool or warm, as the case may be. Shrouds around the rotors direct the air flows. The rotors and the thermoelectric modules are rotated, as one unit, by an electric motor.

3,599,438
CRUDE HELIUM ENRICHMENT PROCESS
 Wayne W. Blackwell, and Herbert S. Kalman, both of Amarillo, Tex., assignors to The United States of America as represented by the Secretary of the Interior
 Filed Oct. 7, 1968, Ser. No. 765,282
 Int. Cl. F25J 1/02, 3/06
 U.S. Cl. 62-22

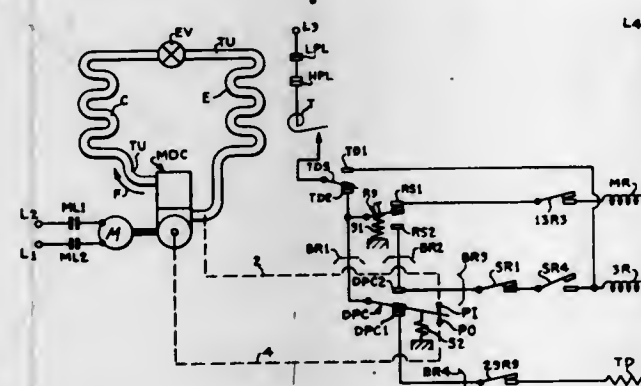
A crude helium stream is enriched by liquefaction and separation of contained impurities in a process wherein low temperature level refrigeration is provided by isentropic ex-

pansion of the enriched helium stream at its lowest temperature in the process.



This invention resulted from work done by the Bureau of Mines of the Department of the Interior, and the domestic title to the invention is in the Government.

3,599,439
SAFETY CONTROL FOR A MOTOR DRIVEN
COMPRESSOR
 Dwight C. Lewis, Elkhart, and Justin E. Wilder, Goshen, both of Ind., assignors to Penn Controls, Inc., Oak Brook, Ill.
 Filed Oct. 29, 1969, Ser. No. 872,188
 Int. Cl. F25b 19/00
 U.S. Cl. 62-158

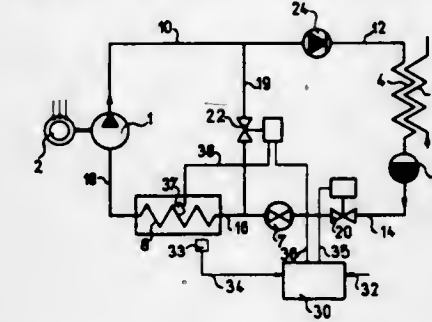


An oil pressure responsive control for a motor-driven refrigeration compressor, which control permits a predetermined, consecutive number of starts of the compressor motor. If during such starts proper lubricating oil pressure is sensed by a pressure responsive switch, the compressor motor is placed in the running mode subject to stopping by normal operating controls, such as a thermostat. Should the oil pressure fail to obtain the desired level for proper lubrication during such automatic predetermined number of starts, the system is placed on "lock out" for attention by a mechanic. Upon any successful running, the cycling starting control is automatically reset to its initial zero position.

3,599,440
CONTROLLABLE COMPRESSOR COOLING
INSTALLATION
 Ludwig Mellon, Buchrain, Oberrohrdorf, Switzerland, assignor to Luwa AG, Zurich, Switzerland
 Filed Sept. 23, 1969, Ser. No. 860,309
 Claims priority, application Switzerland, Sept. 26, 1968, 14369/68
 Int. Cl. F25b 29/00
 U.S. Cl. 62-158

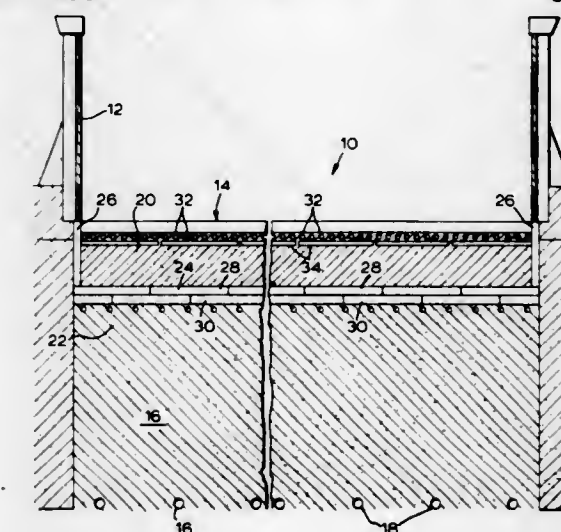
A novel controllable compressor cooling installation is disclosed, the installation being provided with a primary coolant circulation path from a compressor, through a condenser, a shutoff valve, in expansion valve, an evaporator, and then back to the compressor. An auxiliary or secondary coolant circulation path is provided from the outlet of the compressor to the inlet of the evaporator, this secondary or auxiliary coolant path containing a second shutoff valve. In the preferred inventive embodiment, a check or relief valve is

provided in the primary coolant circulation path between the branchoff of the auxiliary path and the condenser. Importantly, both shutoff valves in the primary and in the auxiliary coolant paths can be controlled in a time-delayed fashion.



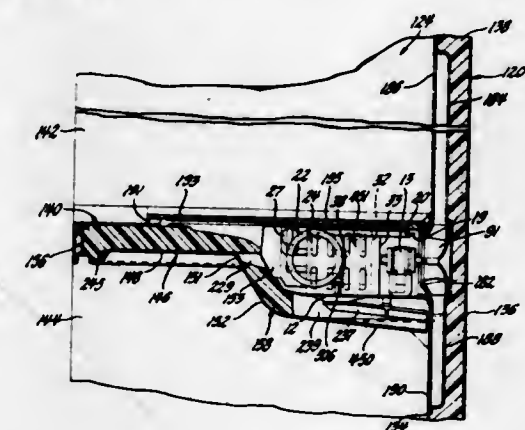
with respect to one another by means of a two-stage control process. The control is such that, in each instance, the shutoff valve in the primary coolant circulation path closes first and, thereafter, the shutoff valve in the auxiliary or secondary coolant circulation path opens.

3,599,441
CONSTRUCTION OF THE SUBSURFACE OF AN ICE
RINK
 Wilmen Robert Sills, c/o Doublerink Arenas Limited, R.R. #1, Downsview, Ontario, Canada
 Filed Sept. 25, 1969, Ser. No. 861,112
 Int. Cl. A63c 19/10
 U.S. Cl. 62-235



The base of an ice rink is formed of a compressed layer of sand contained in a tank of insulating material such as polyurethane; cooling pipes preferably made of plastic are located in the compressed sand.

3,599,442
UNITARY FAN EVAPORATOR ASSEMBLY
 Robert S. Hanson, Dayton, Ohio, assignor to General Motors, Detroit, Mich.
 Filed Sept. 22, 1969, Ser. No. 859,779
 Int. Cl. F25d 17/06
 U.S. Cl. 62-419



In the preferred form, a refrigerator cabinet is provided with a sheet metal outer shell and a plastic inner liner with

polyurethane foam insulation in between. The interior of the inner liner is divided into an upper freezing compartment and a lower above freezing compartment by a sheet metal wall having a lower portion in the rear and a higher portion in the front. Above this lower portion there is provided cast foam insulation beneath an evaporator compartment having inlets extending to it from the front of the upper freezing compartment and from the lower compartment through the portion of the sheet metal wall between the lower and higher portions. Resting upon the cast foam insulation is a large drain pan which extends beneath and supports a tubular horizontally extending evaporator having upright fins extending from the front to the rear. The drain pan also has brackets and a vibration-absorbing mounting for supporting the fan motor at the rear of the evaporator having a drive shaft extending rearwardly through the rear wall of the inner liner where it is provided with a side inlet centrifugal fan which draws the air through the inlets and the evaporator and discharges it into an upwardly extending duct extending to the upper compartment and a downwardly extending duct extending to the lower compartment, both of which are housed in the plastic foam insulation between the rear walls of the inner liner and outer shell.

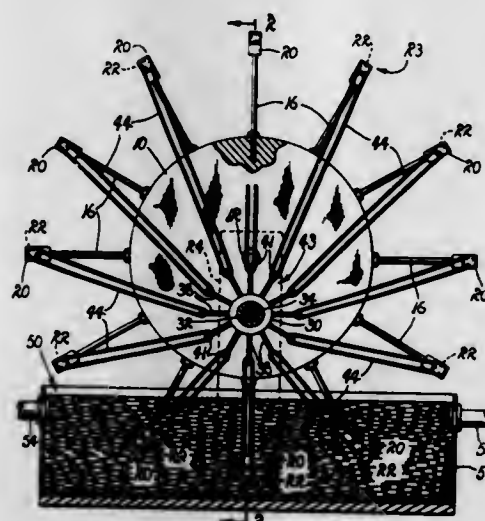
3,599,443

MANUALLY ACTUATED HEAT PUMP

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and William D. Hutchinson, Altadena, Calif.
Filed Oct. 22, 1969, Ser. No. 868,530
Int. Cl. F25b

U.S. Cl. 62-467

8 Claims



A manually actuated heat pump particularly suited for use as an auxiliary device in selectively warming and cooling an ambient medium, characterized by a pair of abaxially related, independently mounted rotatable hubs, interconnected through a plurality of elastomeric bands extending between the peripheries of the hubs and which, upon being rotated, achieve alternating elongation and contraction for the bands, whereby the bands cyclically are caused to experience a continuously reversing heat transfer process, in accordance with the principles of the so-called Joule effect in rubber, for selectively delivering and extracting heat energy from an ambient atmospheric medium, a feature of the pump being an employment of a fluid bath which receives therein the bands in selected states of elongation for effecting a heat transfer between the fluid of the bath and the bands whereby a selective preheating and precooling of the bands are achieved in a medium divorced from the ambient atmosphere for thus controlling the reversibility of the transfer of energy within the atmosphere.

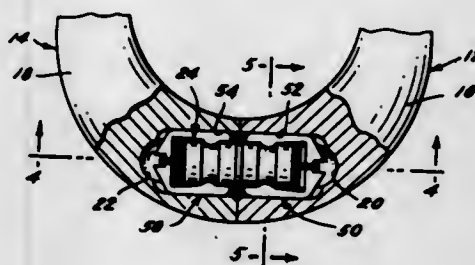
3,599,444
PIVOT ASSEMBLY IN A NONPIERCING HOOP
EARRING

James P. Demers, Garden City, and Igor Kling, East Williston, both of, N.Y., assignors to Demming, Inc., New York, N.Y.

Filed Apr. 8, 1968, Ser. No. 719,584
Int. Cl. A44c 7/00

U.S. Cl. 63-14 D

3 Claims



A nonpiercing earring having curved interconnected members that define a hoop, a connecting assembly pivotally interconnecting adjacent ends of the members and urging the opposite disconnected ends of the members toward each other and toward a common plane, whereby the disconnected ends may be urged into positive engaging relation with an ear, simulating a pierced earring. The connecting assembly comprises a spring housed in two sleeves, one sleeve being located in an end cavity of each said member and held therein by a U-shaped member force-fitted into a slot associated with the respective cavity.

3,599,445

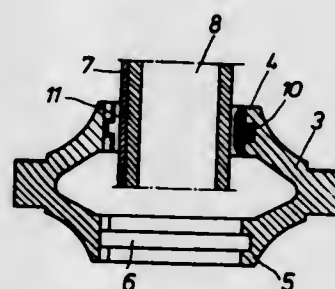
COUPLING ARRANGEMENTS FOR DRILL RODS OF EARTH-DRILLING TOOLS

Achim Kehrberger, Neellingen, Germany, assignor to Delmag-Maschinenfabrik Reinhold Dornfeld, Esslingen, Germany
Filed Feb. 20, 1970, Ser. No. 13,080
Claims priority, application Germany, Feb. 28, 1969, P 19 10 360.7

Int. Cl. F16d 3/06

U.S. Cl. 64-23.5

7 Claims



A coupling member for transmitting rotational displacement to a drill rod is disclosed. The drill rod, which has one or more rib members projecting from its periphery, passes through a bore in the coupling member. One or more expandable bearing strip members are detachably mounted on the coupling member and project into the bore to cooperate with the respective rib members to transmit rotational displacement to the drill rod. Preferably, each of the expandable bearing strip members comprises a plurality of parts and is provided with a built-up weld in that region of the respective bearing strip member which is adjacent to a cooperating projecting rib member.

3,599,446

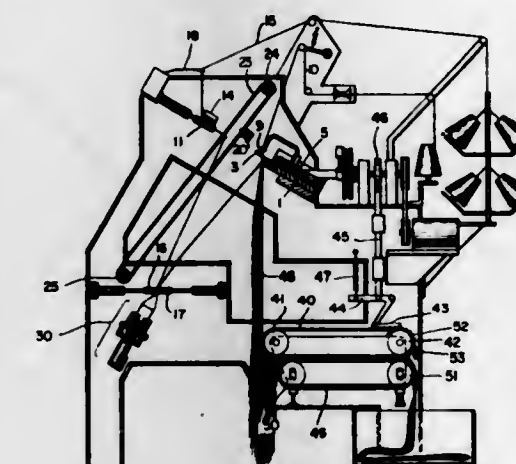
TERRY KNIT FABRIC, MACHINE AND METHOD OF PRODUCING SAME

John B. Lawson, Central Falls, R.I., and Daniel Frishman, Andover, Mass., assignors to Reid-Meredith, Inc., Lawrence, Mass.

Filed Mar. 21, 1969, Ser. No. 809,078
Int. Cl. D04b 7/12

U.S. Cl. 66-61

11 Claims



The present invention is directed to a terry knit fabric having a plain jersey base with long warp yarns interknit in selected rows of needle loops running from course to course, a method and machine for knitting same wherein long lengths of warp yarns after being engaged with hooks in the needle bed are drawn to their desired long length, clamped and either cut or left in loop condition.

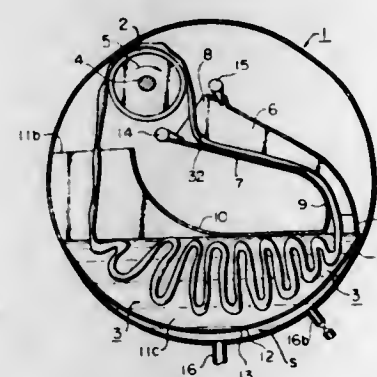
3,599,447

APPARATUS FOR TREATING TEXTILE MATERIALS WITH A TREATING LIQUID

Masahiro Arashi, Komatsu-shi, Japan, assignor to Komatsu Seiren Co., Ltd., Komatsu-shi, Japan
Filed Jan. 16, 1970, Ser. No. 3,461
Int. Cl. B05c 3/02; D06f 17/02

U.S. Cl. 68-177

12 Claims



An apparatus is provided for treating textile material with a treating liquid and comprises a tank containing a treating liquid and means for circulating the textile material through the tank. The tank is provided with a plurality of treating passages each comprising an accumulating zone and a transfer zone. The transfer zone has an inclined bottom portion inclined from 15 to 45 degrees with respect to a horizontal plane and ejecting means are provided for ejecting the treating liquid into the transfer zone in such a manner that the textile material is opened while in a substantially relaxed condition as it flows through the transfer zone thereby eliminating wrinkles formed in the textile material.

3,599,448

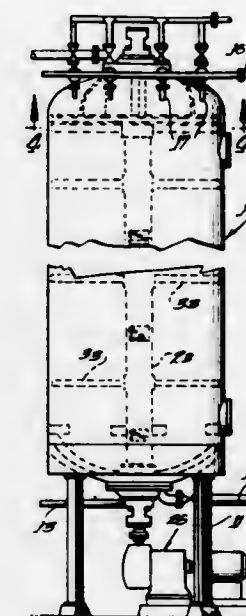
DIFFUSION PULP WASHER

Frank B. K. Green, 10835 S. W. Mulrwood Drive, Portland, Oreg.

Filed Sept. 19, 1969, Ser. No. 859,319
Int. Cl. D21d 5/28; D06f 39/10

U.S. Cl. 68-181 R

3 Claims



A pulp washer and method wherein pulp and washing liquid are flowed in countercurrent relation along a given path, the path being interrupted transversely by a plurality of rotating arms which develop a plurality of high-dilution zones.

3,599,449

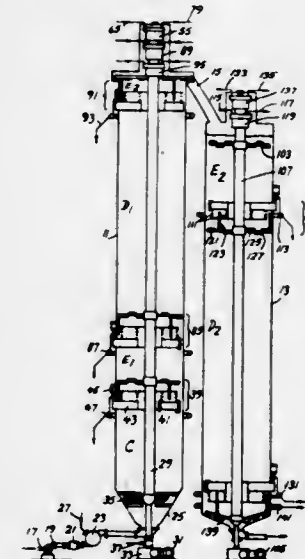
CELLULOSE BLEACH TOWER WITH MEANS FOR SPREADING A BLEACHING AGENT THEREIN

Johan C. F. C. Richter, St. Jean Cap Ferrat, France, assignor to Aktiebolaget Kamy, Karlstad, Sweden
Filed Nov. 5, 1968, Ser. No. 773,385
Claims priority, application Sweden, Nov. 6, 1967, 15150/1967

Int. Cl. D21d 5/02

U.S. Cl. 68-181 R

4 Claims



A cellulose bleach tower in which at least two different bleaching steps are performed upon pulp flowing continuously therethrough, is provided with a set of concentric cylindrical screens through which a liquid containing used bleaching chemicals is drawn off the pulp at the end of the first bleaching step. A liquid containing the bleaching chemical of the second step is spread by nozzles moving between

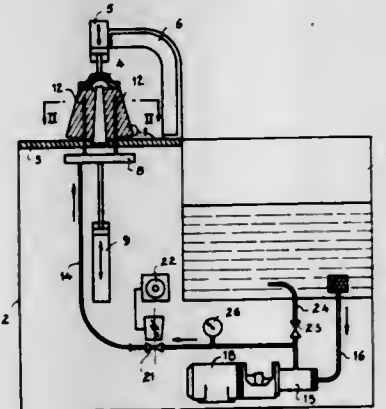
or laterally of the screens. After the pulp has passed the screens and before the main part of the second bleaching step has taken place, the concentration of the bleaching chemical is equalized over the cross section of the tower by means of rotating scrapers which in a short zone of the tower displace the pulp back and forth in the transverse direction of the tower, whereas the pulp else flows truly axially of the tower.

3,599,450

APPARATUS FOR MOISTENING THREAD BOBBINS
Philippe L. A. Giesler, Saint Germain en Laye; Robert F. MJ Desurmont, Tourcoing, and Raphael G. G. DeJonckheere, Bondue, all of, France, assignors to Societe D'Application Des Procédes Giesler, Acheres, France
Filed Aug. 6, 1969, Ser. No. 847,873
Claims priority, application France, Sept. 25, 1968, 167,454
Int. Cl. B05c 3/00

U.S. Cl. 68-201

3 Claims



The invention provides an apparatus for moistening cylindrical or tapered cross-wound thread bobbins of all dimensions, by injection of an appropriate fluid, such as water with the addition of a wetting agent, by means of hollow needles which are implanted in the bobbins.

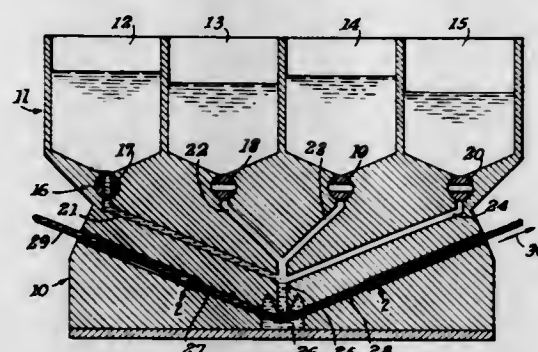
The ends of the needles are closed and blunted in the form of a solid of revolution, for example in ogive form, while their bodies have lateral holes distributed over various generatrices.

3,599,451

YARN-DYEING APPARATUS
John L. Getz, San Pedro, and Ralph L. Johnson, San Gabriel, both of, Calif., assignors to Advance Dye Systems, Los Angeles, Calif.
Filed Jan. 21, 1970, Ser. No. 4,504
Int. Cl. B05c 1/04

U.S. Cl. 68-207

8 Claims



Yarn-dyeing apparatus having a dye head through which a plurality of threads or yarns, that are highly absorbent, are passed, is provided with at least two dye-dispersing tanks and with flow valve means to selectively conduct liquid dye from said tanks to a dye chamber in said head to be absorbed by threads or yarns passing transversely therethrough. Each tank is provided with a float that, according to the level of dye

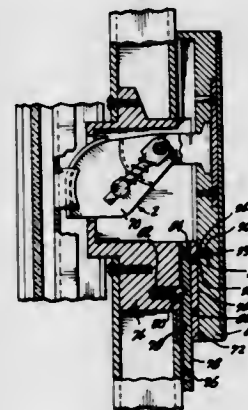
therein, controls flow of dye from replenishing reservoirs to the respective tanks. The valve means is controlled by cams, solenoids, or similar program-type means and operative to differently color the threads or yarns along different longitudinal portions thereof and by preselected color schemes.

3,599,452

COLLISION-SAFEGUARDED LATCH MECHANISMS FOR SLIDABLE SASHES

Tooshiaki Maruyama, Yokohama, and Isamu Yamanishi, Tokyo, both of, Japan, assignors to Fujisash Industries, Ltd., Kawasaki, Japan
Filed Apr. 11, 1969, Ser. No. 815,414
Claims priority, application Japan, Apr. 22, 1968, July 19, 1968, 43/25552; 43/61255
Int. Cl. E05b 47/00, 63/20, 65/08
U.S. Cl. 70-90

5 Claims

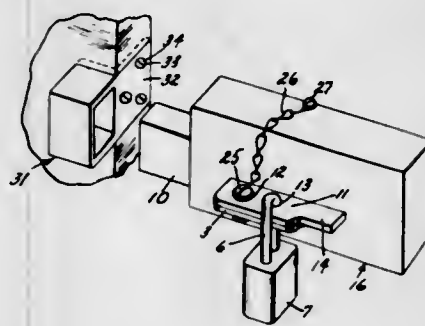


A collision-safeguarded latch mechanism is disclosed for slidable sashes. The latch is extendible from one sash, to engage with a keeper on the other sash, when the sashes are closed; but a latch-retainer mechanism is employed to prevent the latch from being extended when the sashes are relatively displaced in the open condition thereof. The latch may be operated by a handle-actuated toggle mechanism, and may be locked in the latched position thereof by a magnetically actuated pinlock mechanism which is released by a key.

3,599,453

SECURITY LOCK
Joseph Bauernfeind, 64 Washington Ave., West Sayville, N.Y.
Filed Apr. 29, 1970, Ser. No. 32,831
Int. Cl. E05c 1/04; E05b 9/00
U.S. Cl. 70-129

8 Claims

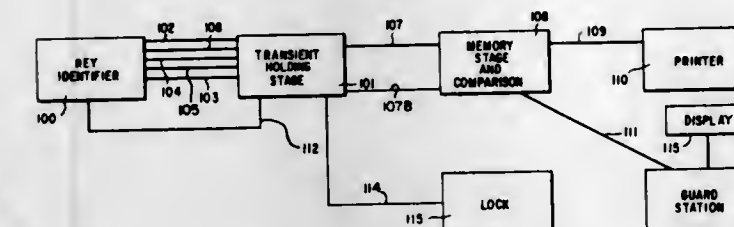


A security lock which is tamperproof and can be affixed to the inside or outside of a door which opens either from the right or left, capable of functioning as a security bolt per se, a security bolt with a padlock and/or a key. The security lock comprises a baseplate provided with a pair of integral guide means for a sliding bar, one guide means being provided with an integral padlock accommodation means which cooperates with a padlock accommodation means integral with said sliding bar. A swivel lever attached to the baseplate and actuated by a key is capable of sliding the sliding bar into an open or closed position. This provides for both padlocking and locking with a key any type or size door.

3,599,454

KEY READER AND IDENTIFIER SYSTEM
John A. Hill, New Haven, and Charles A. Bauer, Woodbridge, both of, Conn., assignors to Sargent and Company, New Haven, Conn.
Filed Dec. 31, 1969, Ser. No. 889,405
Int. Cl. E05b 47/04, 47/06, 63/14
U.S. Cl. 70-265

11 Claims

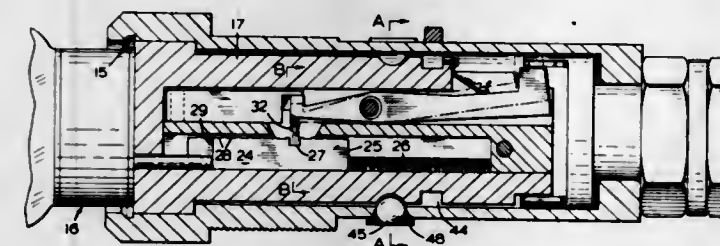


A strictly mechanical key is used both as an information-carrying medium and as a device for mechanically unlocking a lock in a conventional manner. The information stored on the mechanical key is read at an independent station prior to use in the mechanical lock. The intelligence imparted to the station is of significance in permitting or not permitting the functioning of the lock.

3,599,455

TUMBLER LOCK
Aksel Pilvet, Coe Hill, Ontario, Canada, assignor to Sigmund Knaul, Toronto, Ontario, Canada, a part interest
Filed July 1, 1970, Ser. No. 51,497
Claims priority, application Canada, July 24, 1969, 057834
Int. Cl. E05b 17/04, 19/12, 29/08
U.S. Cl. 70-363

7 Claims

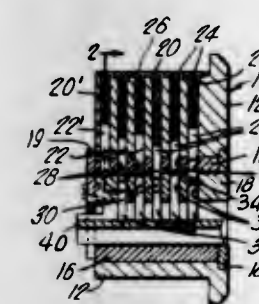


In a tumbler lock including a freely rotatable plug and a clutch element which is permitted to move into an operative lock-engaging position only when the tumblers have been set by a proper key, the clutch element is normally biased to an inoperative position and an inertial cam member is provided for moving the clutch element towards its operative position in response to rapid rotation of the plug.

3,599,456

LOCK MECHANISM
Bessim Bessim, 349 Arcand St., Cap-De-La-Madeleine, Quebec, Canada
Filed Apr. 13, 1970, Ser. No. 27,471
Int. Cl. E05b 25/00, 27/00, 35/08
U.S. Cl. 70-364 A

10 Claims



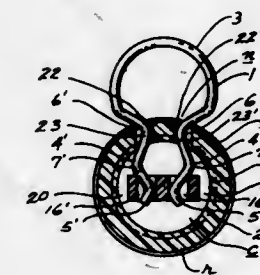
A lock incorporating two locking positions and formed by a body with a key plug and cylinder coaxially rotatable

3,599,457

KEY HOLDER
Emil W. Kamp, 242 Palm Drive, Hazelwood, Mo.
Filed Aug. 20, 1970, Ser. No. 65,387
Int. Cl. A44b 15/00

U.S. Cl. 70-459

7 Claims

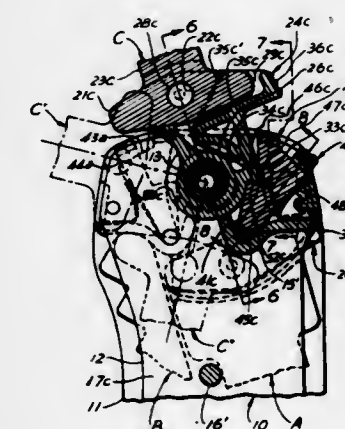


A key holder comprising a key ring formed from a length of resilient wire stock and bent to provide a loop and a pair of leg portions, a discoidal body formed of plastic, means for mounting a flat, indicia-bearing element on at least one side of said body, means for detachably engaging said key ring leg portions within said body inwardly of the indicia-bearing member, and a leg retainer provided interiorly of said body for accepting said ring legs to prevent contact between same and the indicia-bearing member.

3,599,458

KEY CASE
Ho Chow, and Junlin Wong Chow, both of 31 Coles Court, River Edge, N.J.
Filed Sept. 15, 1969, Ser. No. 857,860
Int. Cl. A47g 29/10
U.S. Cl. 70-459

27 Claims



A convenient key case having one or more pockets structured to have a nonremovable holding means for each pocket to hold a key having a head and a body and to move the desired key to a load, store or use position, at the load position the key is easily and quickly inserted in or removed from the holding means, at the store position the key is stored in the pocket of the case, and at the use position the body of the key is exposed and has a part of the head remaining inside the pocket and nondetachable from the holding means.

3,599,459

SHAPE OF SHEET MATERIAL

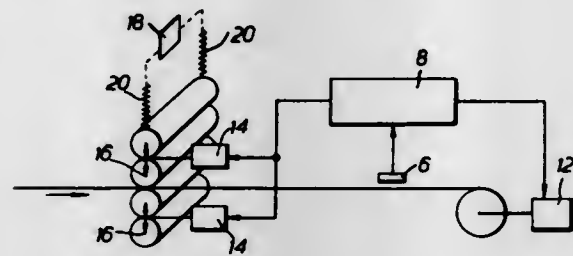
Kenneth A. Yeomans, Workshop, and Bruno Sabatini, Thames Ditton, Surrey, both of, England, assignors to The British Iron and Steel Research Association, London, England
Filed Mar. 20, 1969, Ser. No. 808,962

Claims priority, application Great Britain, Mar. 25, 1968, 14325/68

Int. Cl. B21b 37/12

U.S. Cl. 72-8

12 Claims



Method and apparatus for correcting and controlling the profile of the gap between loaded work rolls by first detecting differences in fractional reduction causing bad shape of rolled strip material leaving the work rolls, and then deriving in a particular way from the detected differences in fractional reduction, control signals to control a plurality of different rolling mill control means for adjusting the profile of the gap.

3,599,460

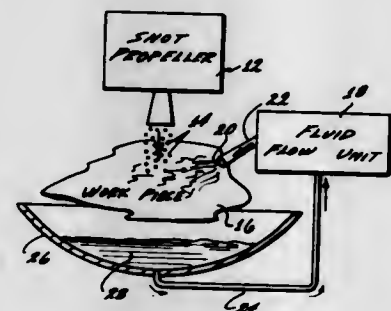
METAL-TREATING PROCESS AND APPARATUS
Eugene F. Finkin, 817 Second St. Apt. 106, Santa Monica, Calif.

Filed May 22, 1968, Ser. No. 731,098

Int. Cl. C21d 7/06

U.S. Cl. 72-53

8 Claims



A system is disclosed for processing metallic members, to accomplish residual compressive stresses in surfaces thereof. It has been discovered that the provision of a defined fluid film over a metal member, while the member undergoes surface cold working (as by peening) accomplishes more effective peening without substantial attendant surface damage. This unexpected improvement stems from the use of a fluid having a pressure coefficient of viscosity which is above a critical level and as somewhat related to the modulus of elasticity of the metal undergoing surface treatment. Specifically, for example, in peening steel, a fluid is required having a pressure coefficient of viscosity which is substantially at least 7×10^{18} p.s.i. ¹¹. As a specific example of such a fluid, mineral oil may be employed along with oxidation inhibitors and other additives.

3,599,461

ELECTROMAGNETIC FORMING ELEMENT

Jaromir Astl, Solana Beach, Calif., assignor to Gulf Oil Corporation

Filed Nov. 21, 1968, Ser. No. 777,640

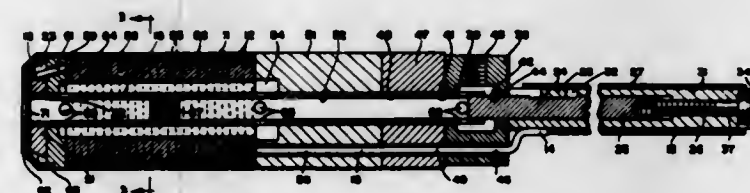
Int. Cl. B21d 26/14

U.S. Cl. 72-56

7 Claims

A forming element is described for use in magnetic forming apparatus. The forming element includes a conductor and

a support member comprised of ceramic material. The sup-



port member, in addition to supporting the conductor, affords a vehicle for conducting heat from the conductor.

3,599,462

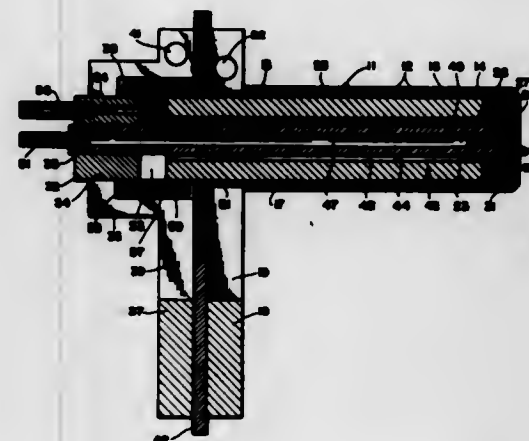
CERAMIC CORE ELECTROMAGNETIC FORMING COIL
James A. Kline, and Paul Wildt, both of San Diego, Calif., assignors to Gulf Oil Corporation

Filed Nov. 25, 1968, Ser. No. 778,675

Int. Cl. B21d 26/14

U.S. Cl. 72-56

8 Claims



A forming element is described for use in magnetic forming apparatus. The forming element includes a conductor and a support member comprised of ceramic material. The support member, in addition to supporting the conductor, affords a vehicle for conducting heat from the conductor.

3,599,463

GEAR ROLLING

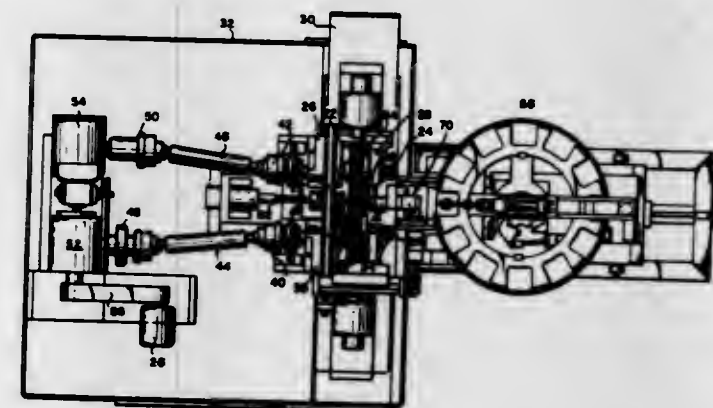
Harold R. Sennstrom, Waynesboro, and John Leonard, Jr., Fayetteville, both of, Pa., assignors to Teledyne Mid-America Corporation, Los Angeles, Calif.

Filed Dec. 10, 1968, Ser. No. 782,605

Int. Cl. B21h 5/02

U.S. Cl. 72-108

5 Claims



Method and apparatus for forming or finishing gear teeth on a workpiece and particularly for establishing on the workpiece a series of gear teeth formed on a pitch circle essentially concentric with the axis of a central bore in the workpiece. The workpiece is rotated between a pair of forming dies having peripheral gear-forming profiles. Guide surfaces

essentially on the pitch circle of the profiles on the dies which cooperates with a guide surface disposed essentially at the intended pitch circle of the gear teeth on the workpiece are brought together under pressure while the profiles on said dies are in rolling engagement with the gear teeth on said workpiece.

3,599,464

APPARATUS FOR ROLL FORMING WORKPIECES

John E. Leonard, Jr., and Harold R. Sennstrom, both of Waynesboro, Pa., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Apr. 21, 1969, Ser. No. 817,669

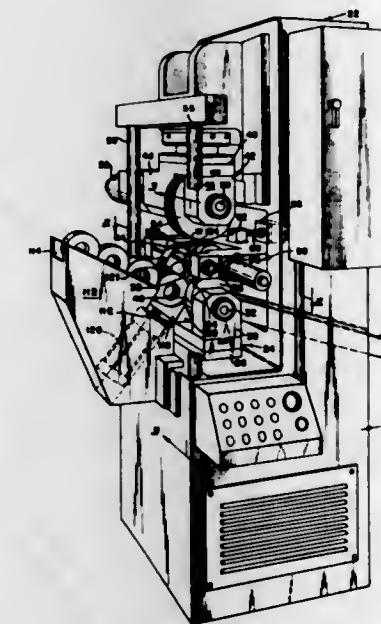
Int. Cl. B21h 5/02

U.S. Cl. 72-102

5 Claims U.S. Cl. 72-245

Int. Cl. B21b 31/32

9 Claims



Apparatus for forming toothed workpieces by rolling them in high pressure contact with a single forming die, the workpieces being held in precise relation with the die during at least the final stage of the rolling operation by locating members associated, respectively, with the workpiece and the basic machine, the locating members being in rolling contact during at least the final stages of the rolling operation.

3,599,465

METHOD AND APPARATUS FOR FORMING PATTERNS IN METAL PANELS

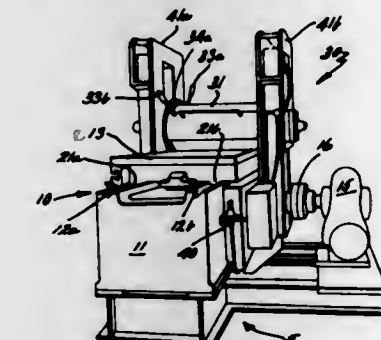
Paul A. Chenevier, Sydney, New South Wales, Australia, assignor to Aluminum Textures, Inc., Grand Rapids, Mich.

Filed Apr. 17, 1969, Ser. No. 816,900

Int. Cl. B21b

U.S. Cl. 72-207

22 Claims



A machine and a method for embossing sheet aluminum in which an embossing die having a pattern or design formed by etching or machining is placed on a movable table, a sheet of aluminum is placed on the embossing die, and the die and sheet of aluminum is progressively compressed by rolling over said sheet of aluminum a large, cylindrical compression

roller; then the embossed sheet of aluminum is distressed in curving and straightening rollers.

3,599,466

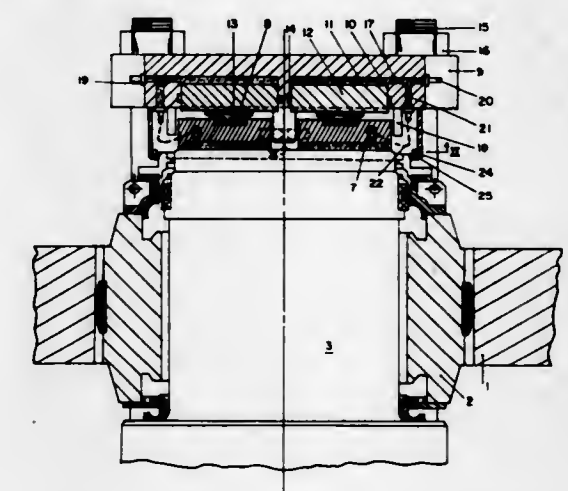
METHOD OF AND APPARATUS FOR BENDING THE BACKING-UP ROLLS OF FOUR-HIGH ROLLING MILLS AND THE WORK ROLLS OF TWO-HIGH ROLLING MILLS

Lucien Diolot, Neuilly, France, assignor to Societe Nouvelle Spidem, Paris, France

Filed Oct. 10, 1968, Ser. No. 766,601

Claims priority, application France, Oct. 10, 1967, 123961

Int. Cl. B21b 31/32



The invention relates to a rolling mill construction in which a roll is arranged to have pressure applied to the oppositely disposed end faces thereof through pressure-operated devices so that it may be bent about its longitudinal axis.

3,599,467

DIE-CHANGING MECHANISM FOR AN EXTRUSION PRESS

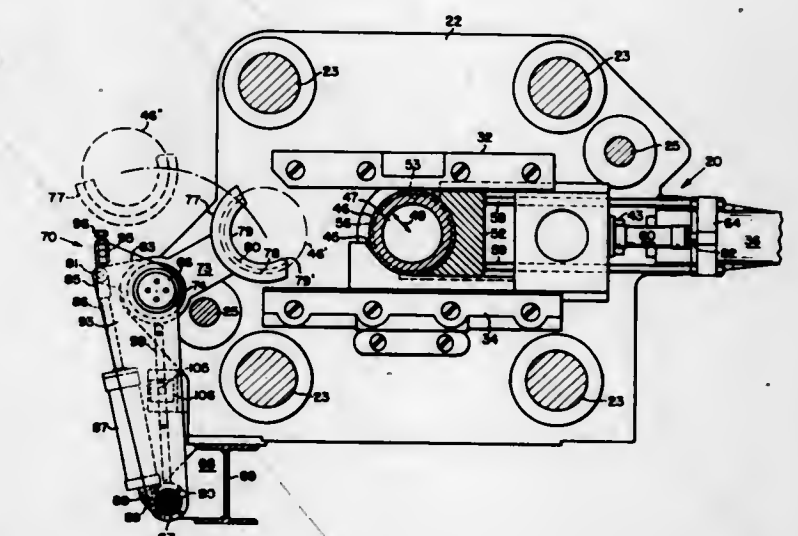
Robert K. Valks, Penfield, N.Y., assignor to Farrel Corporation, Rochester, N.Y.

Filed Sept. 24, 1968, Ser. No. 762,032

Int. Cl. B21c 23/00

U.S. Cl. 72-263

5 Claims



The die is held in axial alignment with the billet container during extrusion by a reciprocable die slide and a cooperating locking member. The die slide has a U-shaped pocket in one end for releasably holding the die carrier and its support.

ing bolster. The locking member is adapted to engage in a peripheral groove in the die carrier. To change a die, the locking member is disengaged and the die slide is moved laterally to a position where a pivotable receptacle can engage the carrier. The receptacle is then pivoted to lift the carrier out of the pocket in the slide, and swing it to a position where the carrier and die can readily be lifted out of the receptacle. For greater convenience two receptacles may be provided that are movable axially along their common pivotal axis so that a new die can be loaded in one receptacle while the previously used die is being removed from the other receptacle.

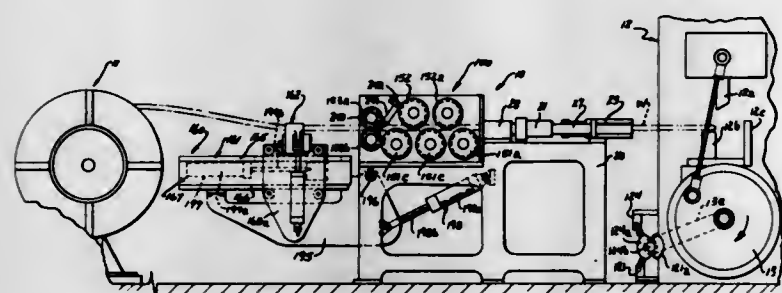
3,599,468

WIRE DRAWING AND FEEDING APPARATUS
Richard A. Alcock; Robert B. Johnston, and Robert M. Guthrie, all of Rockford, Ill., assignors to Fastener Engineers, Inc., Rockford, Ill.

Filed Apr. 17, 1969, Ser. No. 816,908
Int. Cl. B21c 1/28

U.S. Cl. 72-287

10 Claims



An hydraulically operated wire drawing and feeding apparatus having stationary draw grippers for gripping and holding the wire during a draw stroke, a movable wire-drawing die which is hydraulically actuated to draw a section of wire during a draw stroke of one hydraulic actuator, and stock feed grippers mounted for movement with the draw die to feed a section of drawn wire during a return stroke of the hydraulic actuator, in which fluid under relatively high pressure is supplied to the hydraulic actuator during the drawing stroke and fluid under a relatively low pressure is supplied to the hydraulic actuator during the feed stroke.

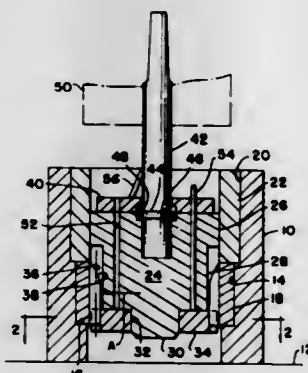
3,599,469

APPARATUS FOR FORMING GEARS
Arthur B. Bassoff, Oak Park, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Aug. 19, 1968, Ser. No. 753,661
Int. Cl. B21h 5/00

U.S. Cl. 72-343

2 Claims



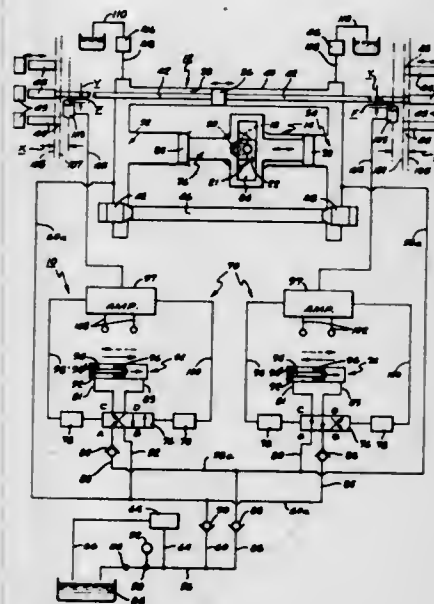
Method and apparatus for forming a gear from a cylindrical blank by forcing it through a circular-toothed die. The ends of the teeth of the die are tapered to facilitate displacement of metal. The blank is subjected to a multiplicity of rapid impacts by means equivalent to an air hammer.

3,599,470 CONTROL SYSTEM FOR CONTAINER MANUFACTURING APPARATUS

A. Dean Smith a.k.a. Arthur Dean Smith, San Lorenzo, and Fred R. Waechter, Oakland both of, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Sept. 22, 1969, Ser. No. 859,997
Int. Cl. B21d 22/20; B21j 7/12

U.S. Cl. 72-349

16 Claims



Improved device for sensing and replenishing fluid losses in selected portions of a closed fluid driving circuit within which a piston is mounted, said piston having at least one punch means attached to each side thereof so as to effectively regulate the amount of travel of the piston in either direction at all times as well as the punches attached thereto.

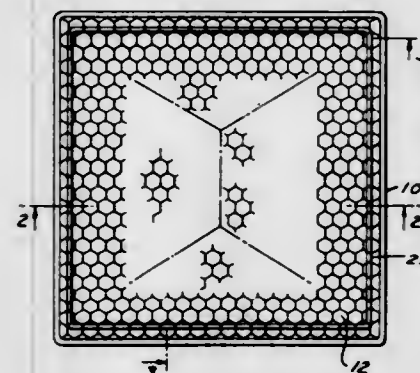
3,599,471

EXPLOSIVE CAPPING FOR HEX DIES
Foster E. Whitacre, Farmington, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 21, 1969, Ser. No. 878,719
Int. Cl. B21j 13/02

U.S. Cl. 72-414

3 Claims



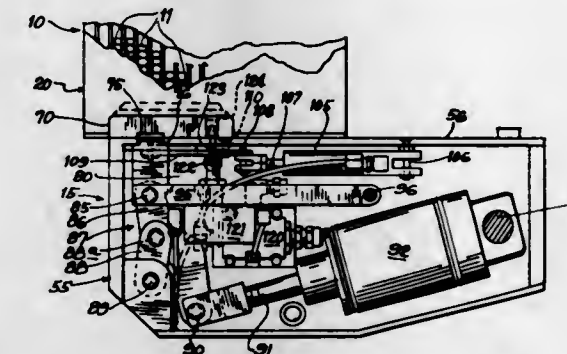
An incremental die construction comprising individual rod increments that are premachined and arranged in registry, one end of each rod forming an increment of a precalibrated surface contour, and a metal cap bonded to the ends of the rods over which sheet metal may be drawn during metal-forming operations.

3,599,472 MAGAZINE AND CRIMPING MACHINE FOR TUBULAR ELECTRICAL CONNECTORS

Peter K. Koletsos, Schaumburg, and Robert H. Dawson, Lake Bluff, both of, Ill., assignors to Reliable Electric Company, Franklin Park, Ill.

Filed May 26, 1969, Ser. No. 827,606
Int. Cl. B21d 43/20; H01r; B23q 23/10
U.S. Cl. 72-424

11 Claims



A magazine containing a commercial quantity of tubular communications electrical connectors, for example, 600 connectors, the magazine having a plurality of side-by-side passageways each containing a stack of connectors spring biased toward a discharge end of the passageway. The magazine functions with a crimping machine, and the two have cooperating mounting, guiding and indexing means so that the magazine may be mounted on and moved endwise in indexing manner with respect to the machine in order to bring a side-by-side pair of connector stacks in the magazine to a crimping station in the machine. A movable shuttle plate in the machine ejects a pair of connectors laterally from the pair of stacks at the crimping station, and locates them more or less rigidly between two anvils, one stationary and the other movable. Conductors are inserted manually into each connector, after which the movable anvil is actuated to perform a crimping operation on the pair of connectors between the anvils, thereby securing the inserted conductors in place. The movable anvil and shuttle plate operate in timed sequence in the operating cycle of the machine, and between crimping operations the crimped connectors are ejected and a new pair of connectors are positioned in the space between the anvils in readiness for the next conductor-inserting and crimping operations.

3,599,473

STAMPING PRESS

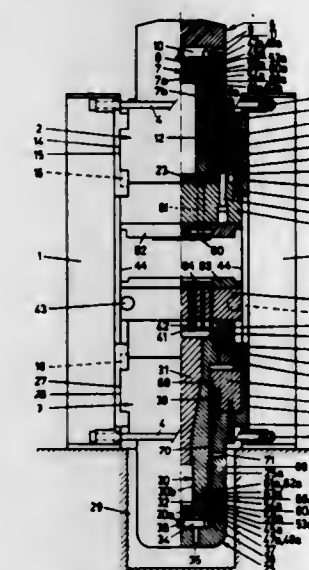
Walter Wanner, Romanshorn, and Heinz Lampert, Buchs, both of, Switzerland, assignors to Hydrel A.G., Romanshorn, Switzerland

Filed Apr. 30, 1969, Ser. No. 820,497
Claims priority, application Switzerland, May 2, 1968, 6530/68

Int. Cl. B21j 13/04

U.S. Cl. 72-455

13 Claims



Press includes two subunits incorporating each a cylinder, piston, and a tool holder and independently removable from

the press frame by removing tension bolts and knocking out supporting wedges.

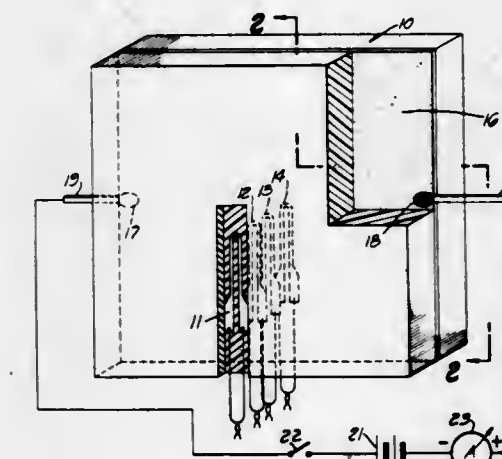
3,599,474

SELF-CALIBRATING HEAT FLUX TRANSDUCER
Ronald E. Brown, Altadena, and David R. Garfinkle, Sherman Oaks, both of, Calif., assignors to Whittaker Corporation

Filed July 25, 1969, Ser. No. 844,785
Int. Cl. G01k 7/02, 19/00

U.S. Cl. 73-1 F

5 Claims



A heat flux transducer comprises a body of low heat conductivity material within which is embedded at least one pair of differential thermocouples. A sheet of uniform thickness and of conductive material is disposed between such thermocouples and has electrical connections thereto for passage of current through such sheet for calibration of such transducer.

3,599,475

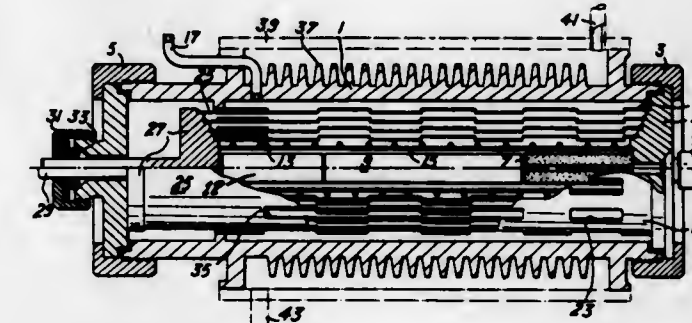
APPARATUS FOR THE STUDY OF THERMAL CYCLING OF ELEMENTS PARTICULARLY NUCLEAR REACTOR FUEL ELEMENTS

Claude Dubouch, Gonesse, and Maurice Petit, Manosque, both of, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Dec. 30, 1968, Ser. No. 787,679
Claims priority, application France, Jan. 5, 1968, 135 095
Int. Cl. G01n 25/00

U.S. Cl. 73-15

5 Claims



The apparatus known as a "cyclor" is made up of a gastight container in which a gas pressure can be maintained, a specimen-carrier fitted with thermocouples, a furnace surrounding said specimen-carrier and an internal heat-insulation system placed between the specimen-carrier and the internal wall of the container. The heat-insulation system is essentially made up of a stationary portion and a portion which

is capable of moving with respect to this latter. The stationary portion is constructed with metallic sheets provided with aligned windows and maintained in spaced relation. The movable portion is constructed with metallic sheets provided with windows which are identical with those of the stationary portion. And the sheets of the movable portion are interposed between the sheets of the stationary portion.

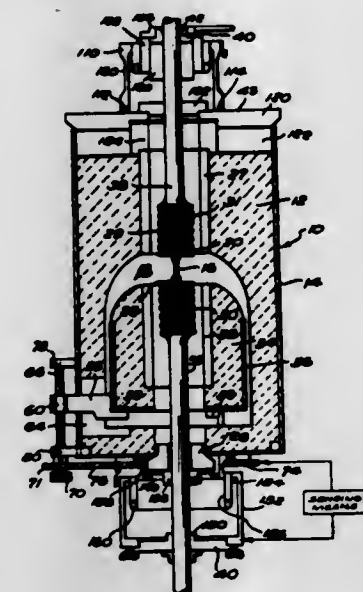
3,599,476

THERMAL TESTING APPARATUS

Robert B. Corbett, Mars, Pa., assignor to Corbett Associates, Inc., Mars, Pa.
Continuation-in-part of application Ser. No. 465,675, June 21, 1965, now abandoned. This application Oct. 31, 1969, Ser. No. 873,765
Int. Cl. G01n 3/18

U.S. Cl. 73-15.6

21 Claims



Apparatus for determining accurately the creep properties of material, such as hot tensile creep or creep rupture or stress relaxation. Precision is achieved by heating the specimen 16 uniformly, suppressing chimney effect, which would produce localized cooling of the specimen, and precisely aligning the specimen. Uniform heating is achieved by heating the specimen 16 indirectly through couplings 29 and 52 which are directly heated by heating elements 27 and 50 positionable to compensate for deformation of the specimen during stressing. Chimney effect is suppressed by heating and stressing in a chamber sealed at the ends (rolling loosely hanging seals 160 of high temperature-resisting, pliable collapsible membranes). These seals are prevented from collapsing by the pressure within the specimen chamber 10. Alignment is effected by suspending the specimen 16 from couplings 38 including bearings so that the specimen is suspended from the bearings and not from threads 84.

3,599,477

APPARATUS FOR CONVERTING ACOUSTIC ENERGY INTO A VISIBLE IMAGE

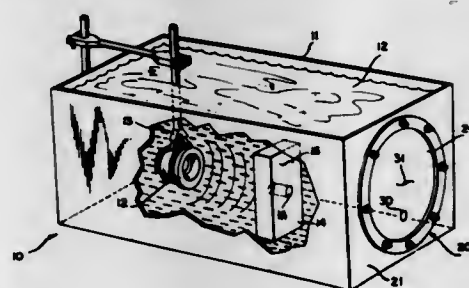
Sherman E. Cohen, Atlanta, and William H. Sproot, Sr., Smyrna, both of Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed May 14, 1969, Ser. No. 824,645

Int. Cl. G01n 29/04

U.S. Cl. 73-67.5 R

8 Claims



Apparatus for converting information in the acoustic domain into visible patterns. Acoustic energy is conducted

through a wave-transmitting medium to impinge on an absorptive layer which converts the acoustic energy into thermal energy. The thermal energy is transmitted to a layer of a suitable thermochromic substance such as cholesteric liquid crystals, so that the thermochromic layer undergoes a characteristic color change corresponding to the intensity and the location of the wave of vibratory energy.

3,599,478

SELF-CALIBRATING ULTRASONIC THICKNESS-MEASURING APPARATUS

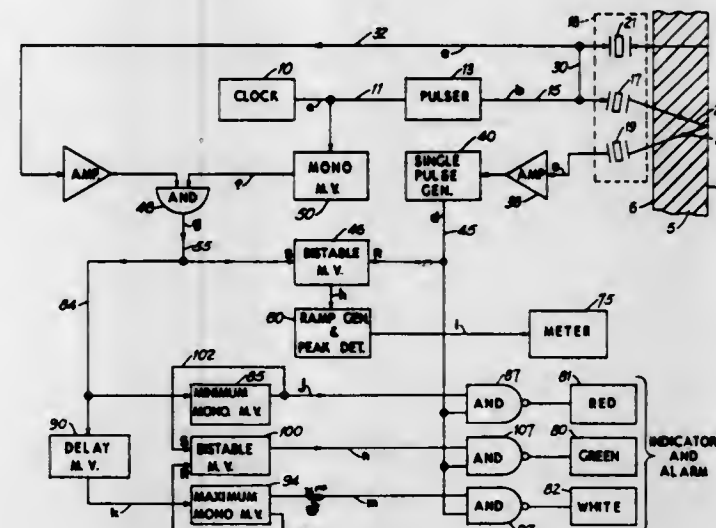
Hillel Weinbaum, Houston, Tex., assignor to AMF Incorporated

Filed Dec. 3, 1968, Ser. No. 780,663

Int. Cl. G01n 29/04; G01b 17/02

U.S. Cl. 73-67.7

3 Claims



Pulsed ultrasonic thickness-measuring apparatus utilizing three ultrasonic transducers equally spaced from the adjacent surface of an object whose thickness is to be measured. Two transducers function as conventional transmitter and receiver to direct pulses of ultrasonic energy into the object and receive energy reflected from the far surface of the object or from a defect within the object. The third transducer is a transceiver that directs pulses of ultrasonic energy onto the adjacent surface of the object and receives reflections therefrom. A reflection received by the third transducers commences a time measuring operation indicating thickness of the object, or location of defect, as measured by the first two transducers. Use of a third transducer eliminates from timing operation the transit time of ultrasonic energy from transmitter transducer to adjacent surface, and from said surface to receiver transducer, thereby providing a measure only of thickness of object.

3,599,479

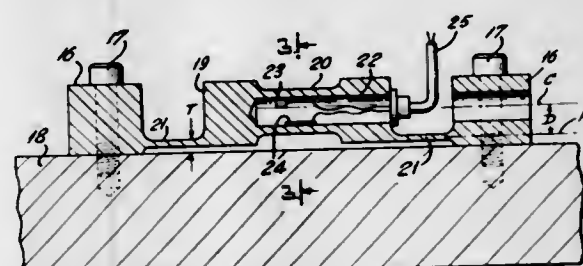
STRAIN GAGE

All Umit Kutsay, 3520 Lewis Road, Newton Square, Pa.
Filed May 29, 1969, Ser. No. 828,873

Int. Cl. G01b 7/18

U.S. Cl. 73-88.5 R

8 Claims



The probe unit includes a small central gaging beam portion, spaced end blocks adapted to be bolted or otherwise

clamped to the structure to be tested, and hinge plate portions connecting the blocks to the central portion in planes offset from the axis of the gaging beam. The hinge plates are relatively thin, and hence flexible, in the direction of the clamping attachment pressures, relieving the gaging beam of and significant initial bending stress in case of misalignment of the attaching surfaces. Electrical strain gages are bonded to the beam, preferably internally, in respectively outwardly and inwardly spaced relation to the beam's axis in the direction of the latter's offset from the plane of the connecting plates. Changes in strain of the tested member between the attachment blocks are transmitted via the blocks and plates to the offset gaging beam, causing the beam to bend, thus unbalancing the resistances of the strain gages. The imbalance is detected by calibrated means, giving a measure of the stress in the tested structure.

3,599,480

THRUST STAND

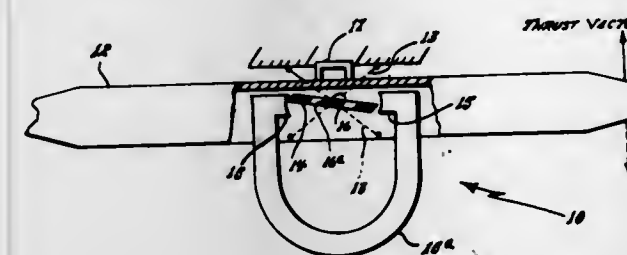
Walter F. Krieve, Palos Verdes Peninsula, Calif., assignor to TRW Space Technology Laboratories

Filed Jan. 29, 1970, Ser. No. 6,873

Int. Cl. G01m 15/00

U.S. Cl. 73-117.4

5 Claims



The propulsion device or thruster is mounted on the balance beam so that the force it produces is normal to the plane of the beam and pivot line of the suspension system. The force will cause the beam to rotate about the pivot line of the crossed flexures, producing an electrical output which is proportional to the impulse produced during the thrust pulse. The time rate of change of the electrical output is proportional to the instantaneous thrust.

3,599,481

TORQUE SUPPORT FOR A TRANSMISSION

Karl Grimpe, Mulheim/Ruhr-Speldorf, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany

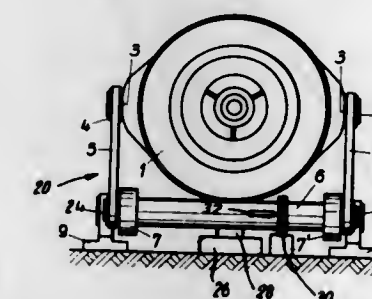
Filed Mar. 31, 1970, Ser. No. 24,267

Claims priority, application Germany, Apr. 12, 1969, P 19 18 689.1

Int. Cl. G01l 3/02

U.S. Cl. 73-136 R

10 Claims



A support for a transmission includes a crossmember in the form of a rotatable rod which is supported at each end on bearing pedestals and which carries a crank lever adjacent each end which is articulated at its outer end to a torque support in the form of a link member. The link member is pivotally connected at its upper end to a respective side of a housing for a transmission for a main shaft with which it is as-

sociated. The torque supports on each side of the housing provides means for supporting the transmission centrally over the rotatable rod and the rod may be additionally supported such as by a spring or a fluid pressure cylinder. The torsion stressed rod for the two torque supports may serve as a holder and as a measuring means for the measurement of the torque which is developed at the transmission housing by the associated shaft.

3,599,482

HEAVY DUTY DYNAMIC TORQUE MEASURING DEVICE

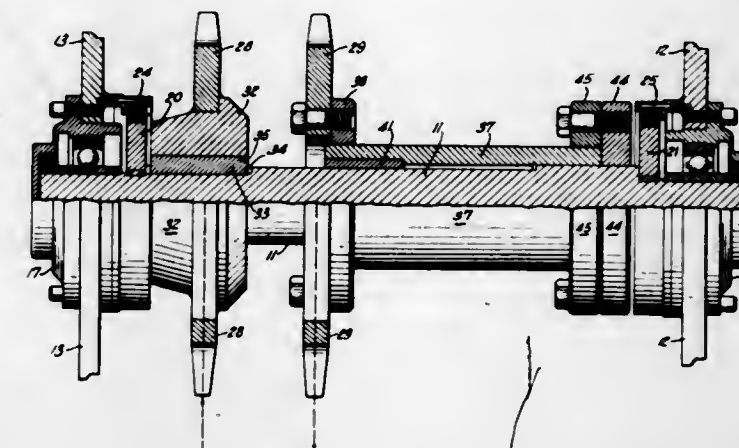
Herbert A. Rundell, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed June 16, 1969, Ser. No. 833,383

Int. Cl. G01l 3/04

U.S. Cl. 73-136 A

5 Claims



A heavy duty coupling mechanism for use in measuring high torque. It includes a torque shaft with dynamic torque measuring instruments mounted thereon spaced longitudinally apart along the shaft. There is a pair of sprockets at one end of the torque shaft. One sprocket is solidly mounted on the shaft, and the other is mounted for free relative rotation at that end of the shaft but with heavy-duty connection to the other end.

3,599,483

TORQUE WRENCH TRANSLATING DEVICES

Kenneth R. Larson, Des Plaines, Ill., assignor to Snap-on Tools Corporation, Kenosha, Wis.

Filed June 7, 1968, Ser. No. 735,401

Int. Cl. G01l 5/24

U.S. Cl. 73-139

6 Claims



The invention involves a self-contained torque-measuring wrench that is provided with an elongated lightweight member between a work-engaging member and a meter spaced therefrom to effectively translate the twist load in the work-engaging member to a calibrated meter with minimum friction and without variation for accurate meter measurement commensurate with the manually applied work-engaging turning load irrespective of whether or not frictional variations should develop owing to departures from the prescribed manual application of the turning force which may inadvertently occur. This is accomplished with an improved twist-translating arm and mount therefor which is subject to minimum frictional displacement and negligible deflection responses even though the applied directional manual force for fastener turning is not entirely in the plane of fastener rotation therewith.

3,599,484

SHIELDED LOAD CELL

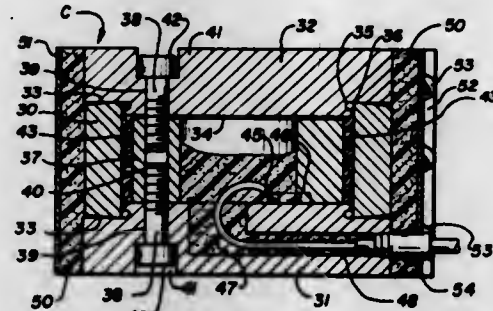
Donald R. Stewart, and Howard B. Dutro, both of Denver, Colo., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Dec. 18, 1968, Ser. No. 784,850

Int. Cl. G01e 5/12

U.S. Cl. 73-141 A

4 Claims



A cylindrical load cell of the type which is adapted to support large compressive loads and which has a sensitive, calibrated transducer means within the cell to indicate the magnitude of such loads. In the improved construction, the load cell is shielded by a layer of closed-pore foam to prevent percussive shocks as from blasting, from damaging the transducer means or altering the calibration of this transducer means. The closed-pore foam shield is effective to attenuate the force of a shock striking the cell with the cell in the air or with the cell being submerged in water.

3,599,485

PROCESS FOR MEASUREMENTS OF LONGITUDINAL STRESSES IN METAL BANDS UNDER LONGITUDINAL TENSION

Wolfgang Muhlberg, Gertrudstrasse 9, Krefeld-Bockum, Germany

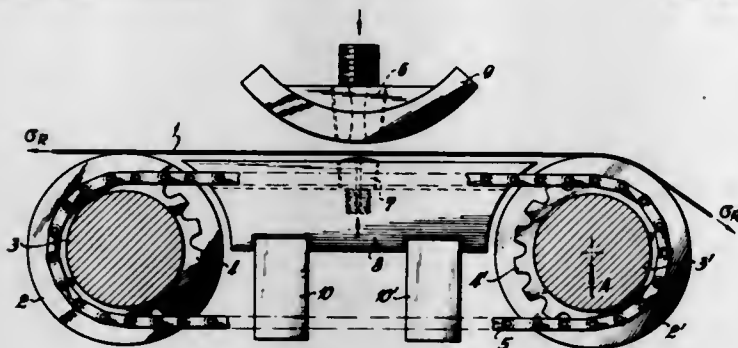
Continuation of application Ser. No. 603,377, Dec. 20, 1966.

This application June 26, 1969, Ser. No. 853,577. Claims priority, application Germany, Dec. 22, 1965, Sept. 6, 1966, M 67,742, M 70,826

Int. Cl. G01l 5/04

U.S. Cl. 73-144

4 Claims



A process for the measurement of the longitudinal stresses prevailing across metal bands which are under longitudinal tension, by subjecting the bands to transverse deflection at different spots and determining the magnitude of the deflection which are a direct measure of the tensions within the different zones. The deflection is produced by mechanical means, i.e., a knocking device, gas or liquid bursts, acoustical or magneto-electrical means.

3,599,486

TIRE SHOULDER TESTING MACHINE

Franz Pernau, Vienna, and Karl Klerr, Möllersdorf, both of Austria, assignors to Sempert Österreichisch-Amerikanische Gummiwerke Aktiengesellschaft

Filed Sept. 3, 1969, Ser. No. 854,945

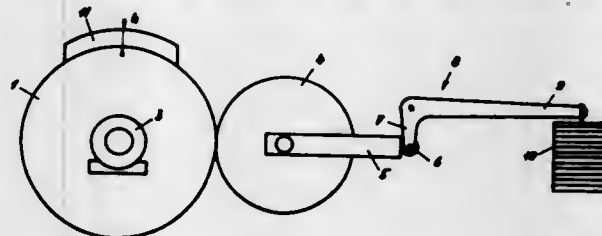
Int. Cl. G01m 17/02

U.S. Cl. 73-146

6 Claims

A machine for testing the shoulder tensile strength of a pneumatic tire has a revolving drum on which the tire rolls,

and an obstacle that is mounted on the drum and projects



into the region of the tire shoulder to simulate the mounting of the tire on a curbstone.

3,599,487

HYPERSONIC WIND TUNNEL THROAT PLUG

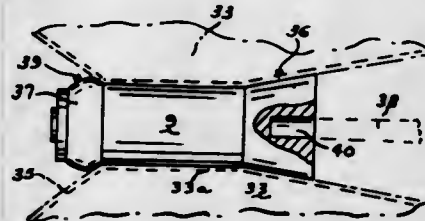
Anthony J. Brigalli, Fairborn, Ohio, assignor to The United States of America as represented by the Secretary of the United States Air Force

Filed Oct. 27, 1969, Ser. No. 869,674

Int. Cl. G01m 9/00

U.S. Cl. 73-147

4 Claims



A plug which is insertable into the throat of a hypersonic wind tunnel and is yieldably retained therein, and initially completely isolates any relative pressure in a wind tunnel pebble storage heater for supplying heated air, from a vacuum being built up in the wind tunnel test leg section. The plug is insertable into the wind tunnel throat through the wind tunnel nozzle exit area section and comprises a body snugly fitting the throat having an annular resilient sealing and retaining lip which engages the "upstream" end of the throat section to yieldably retain the plug in place in sealed relation against a "hard" vacuum being built up "downstream" in the diffuser and test section of the tunnel until a predetermined pressure differential from the pebble storage heater on the upstream end of the plug builds up and blows the plug out of the throat and into the diffuser section due to the pressure of the heated air from the pebble storage heater.

3,599,488

APPARATUS FOR MEASURING AIR TURBULENCE ENCOUNTERED BY AIRCRAFT

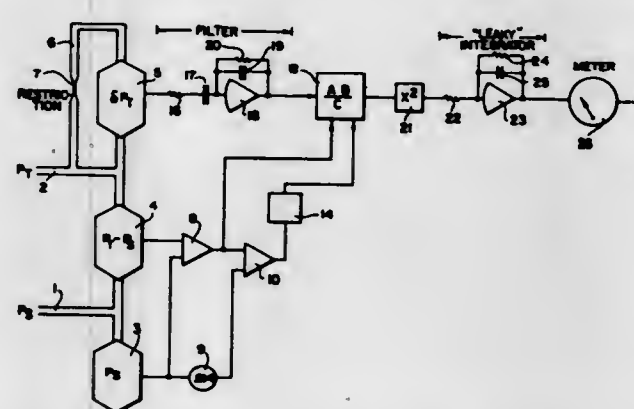
Graeme K. Mather, and Donald F. Daw, both of Ottawa, Ontario, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed Mar. 9, 1970, Ser. No. 17,758

Int. Cl. G01c 21/00

U.S. Cl. 73-178

5 Claims



Air turbulence encountered by an aircraft is measured according to the equation

$$I \propto \frac{P_T \delta P_T}{(P_T - K \cdot P_S)^2}$$

wherein, with respect to turbulent air through which an aircraft is passing, I is a measure of the intensity of the longitudinal component of the turbulence, P_T is the static air pressure, P_S is the total air pressure, δP_T is the fluctuation of the total air pressure, and K is a function of the slope of a linear approximation to a graph of actual values for P_T/P_S versus V/T_T , where V is the average true airspeed and T_T is the total absolute temperature. A system for rendering a solution to the equation includes air pressure transducers on the aircraft for providing electrical signals corresponding to $P_T \delta P_T / (P_T - K P_S)^2$. The electrical signals corresponding to $P_T \delta P_T / (P_T - K P_S)^2$ are applied to the input of a leaky integrator circuit to render an average electrical signal indicative of an approximate measure of turbulence in terms of wind velocity.

3,599,489

NUCLEAR MASS FLOWMETER

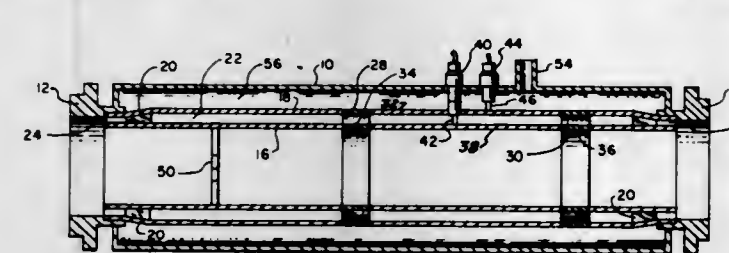
Thomas N. Marshall, Jr., Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Mar. 24, 1970, Ser. No. 22,320

Int. Cl. G01f 1/00

U.S. Cl. 73-194 F

8 Claims



A flowmeter utilizing a Beta source positioned upstream of a cylindrical capacitor formed by two spaced-apart concentric cylindrical sections. The concentric cylindrical sections form the capacitor electrodes and they are a part of two concentric, inner and outer, tubular members which are mounted in an outer housing that is adapted to be connected into a flow line so that fluid flows through both the inner and outer tubular members. The capacitor electrodes are insulated from the tubular members by means of dielectric ring members connected therebetween. Means are provided for detecting any potential difference between the two electrodes and for evacuating the space between the outer tubular member and the housing.

cylindrical surface extends generally parallel to the axis of the overall configuration of the seal. The outer cylindrical surface of the seal also extends parallel with the axis from the nongrooved axial end to a point along the length of the seal midway between the two axial ends. From this midpoint to the grooved axial end, the outer cylindrical surface diverges from the axis of the seal. When the seal is disposed about a rotatable shaft, the only friction between the two is generated along a circumferential contact line defined by the outer periphery of the annular bead. A pressure differential applied across the seal forces the sides of the groove apart and urges a substantial portion of the inner surface of the seal against the shaft so as to apply a braking force thereto. The fluid tightness of the seal is directly proportional to the pressure differential applied thereacross.

3,599,491

QUICK RESPONSE RECORDING THERMOMETER

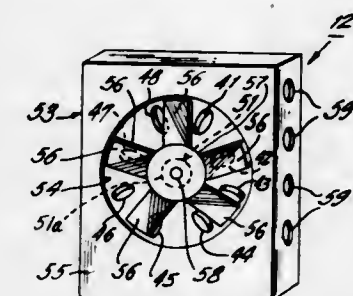
Donald I. Bohn, 1501 N. Miracle Mill, Tucson, Ariz.

Filed July 16, 1969, Ser. No. 842,115

Int. Cl. G01k 1/16, 7/22

U.S. Cl. 73-349

8 Claims



The galvanometer of an electrically driven recorder is connected to the output terminal of a bridge circuit, one leg of which consists of a plurality of thin disk temperature-sensing thermistors, disposed in a circular array positioned at the intake side of an axial blower in the airstream produced thereby. The thermistor faces are generally parallel to the direction of the airflow, so that the temperature of the thermistors changes rapidly and closely follows temperature changes of air impinging thereon.

3,599,492

COAXIAL GRAVITY METER

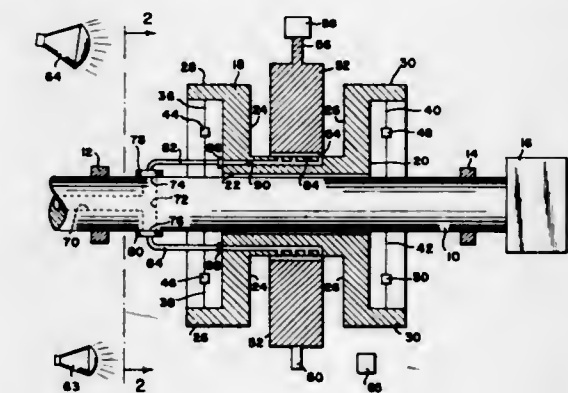
Henry P. Kalmus, and Billy M. Horton, both of Washington, D.C.

Filed Sept. 2, 1969, Ser. No. 854,472

Int. Cl. G01v 7/00

U.S. Cl. 73-382

8 Claims



A gravity meter having two masses which are both fixed to independently rotate about the same axis. Strain gauges are connected from one mass to its center of rotation to detect centrifugal and gravitational forces acting on the mass and the angular velocities of both masses are adjusted to provide an AC null in the output of the strain gauges. When such a null is attained, the centrifugal force developed by the masses balances the force due to gravity. Since the angular velocities

3,599,490

SAFETY SEAL FOR DIRECT READING FLOW METER

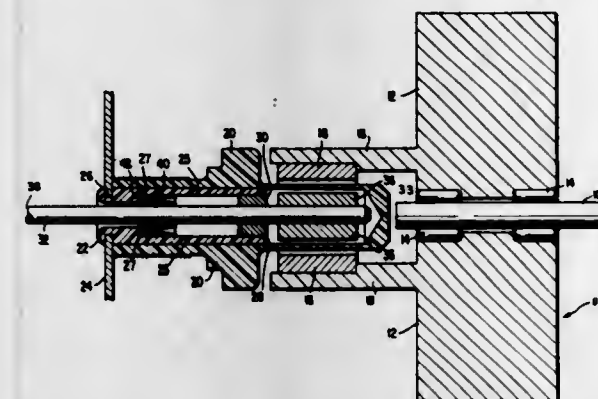
Robert G. Love, and Paul A. Moore, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed July 11, 1969, Ser. No. 840,932

Int. Cl. G01f 15/10; F17j 15/32

U.S. Cl. 73-272 R

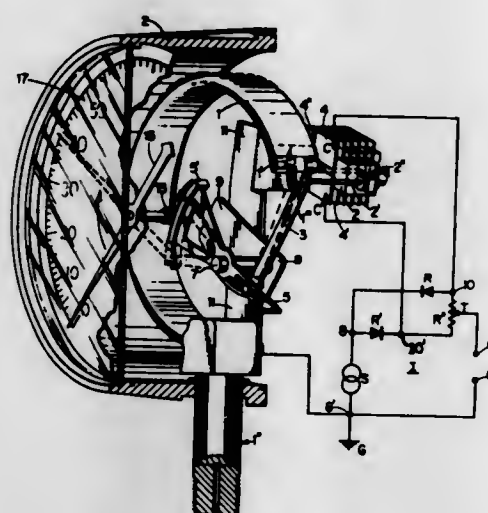
6 Claims



A seal is provided having a resilient, hollow, generally cylindrical body. An annular V-shaped groove extends longitudinally within the cylindrical body from one axial end of the seal through approximately two-thirds of the length thereof. An annular bead is formed on the inner cylindrical surface of the seal adjacent the grooved axial end. The inner

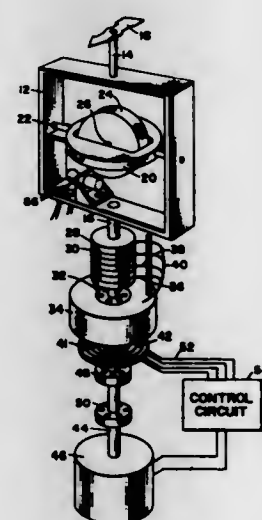
of the masses are directly related to the centrifugal force, a measurement of the angular velocity provides a measure of gravity.

3,599,493
PRESSURE TRANSDUCER APPARATUS
Paul Bert Thomas, Canton, Mass., assignor to Joseph Kaye & Company, Inc., Cambridge, Mass.
Filed Aug. 21, 1969, Ser. No. 852,048
Int. Cl. G011 9/12
U.S. Cl. 73-398 C 8 Claims



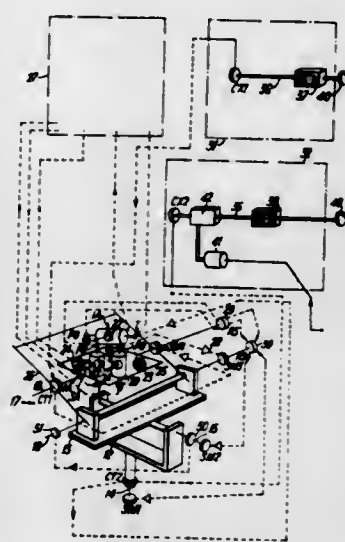
This disclosure deals with pressure transducer apparatus particularly adapted for connection with Bourdon tube sensors, and preferably embodying a variable impedance element coupled with such tube sensors and connected in a bridge-type circuit for producing electrical signals corresponding to the pressure sensed by the sensors.

3,599,494
GYROSCOPE PICK-OFF AND TORQUER DEVICE
Henry P. Lichte, Jr., 4130 Villanova, Houston, Tex.
Filed July 10, 1968, Ser. No. 743,681
Int. Cl. G01c 19/28
U.S. Cl. 74-5.6 14 Claims



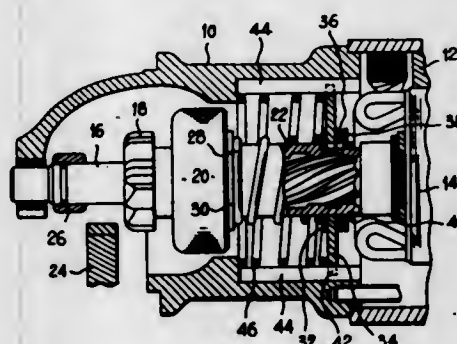
A torquing motor for applying a restorative force to the gimbal of a gyro in order to maintain the rotor housing of the gyro perpendicular to the outer gimbal. A light sensitive device is utilized for transmitting indications of rotor tilt to the restoring motor with the restoring torque being applied to the vertical bearings of the outer gimbal by means of slip rings and brushes.

3,599,495
SYSTEMS FOR GYROSCOPICALLY STABILIZING AND CONTROLLING EQUIPMENT MOUNTED ON VEHICLES
Kenneth Robson Brown, Midlothian; Charles Ian Crawford, Edinburgh, and Erskine Robert Reid, Midlothian, all of Scotland, assignors to Ferranti, Limited
Filed Sept. 23, 1969, Ser. No. 860,277
Claims priority, application Great Britain, Sept. 26, 1968, 45734/68
Int. Cl. G01c 19/32
U.S. Cl. 74-5.34 8 Claims



A system by which equipment mounted on a vehicle, such as an aerial on a ship, may be stabilized and controlled comprises mounting the equipment on a three-axis gimbal system with the elevation axis comprising the inner gimbal axis, providing on the equipment a control and stabilizing unit including a gyroscopically stabilized platform which defines a vertical reference axis, the unit being arranged to drive the servomechanisms associated with the gimbal axes to stabilize and control the equipment, and the stabilized platform being tended to be rotated by a fourth, precision servomechanism about an axis parallel to the inner gimbal axis in response to elevation positional information signals.

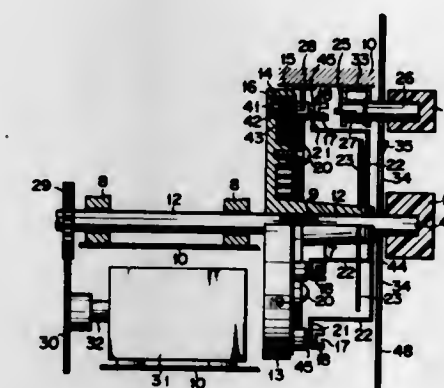
3,599,496
STARTER DRIVE
Pierre Toullet, Ville D'Avray, France, assignor to Societe Anonyme D.B.A.
Filed Sept. 25, 1969, Ser. No. 861,099
Claims priority, application France, Sept. 27, 1968, Dec. 4, 1968, 167,901; 176,562
Int. Cl. F02n 11/00
U.S. Cl. 74-7 13 Claims



The starter drive has a driving unit mounted on and in threaded engagement with a driving shaft which is automatically advanced into driving engagement with a part of the engine as a result of said threaded engagement when it is retarded relatively to rotation of the driving shaft by a braking device. The latter comprises a nonrotatable axially movable friction plate slipped on the driving unit and frictionally engaged by friction washer means driven in rotation by the latter and resiliently urged against said plate, resilient return

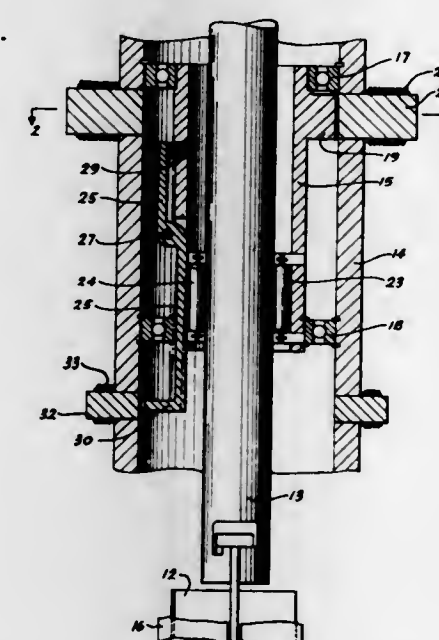
means opposing the advance of said driving unit. Said resilient return means consist of a spring means compressed between the friction plate and the housing structure, said friction plate being squeezed between said friction washer means and a thrust ball bearing supporting the load of said spring means.

3,599,497
CHANNEL SELECTING DEVICES
Akira Fukumitsu, Kawasaki, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki, Japan
Filed May 6, 1970, Ser. No. 35,079
Claims priority, application Japan, May 7, 1969, 44/34515
Int. Cl. F16h 35/18
U.S. Cl. 74-10.41 9 Claims



A channel-selecting device comprises a channel selector shaft, a support mounted on the channel selector shaft, a plurality of individually adjustable tuning elements mounted on the support concentrically with the selector shaft, a stop mechanism to arrest one of the elements, indicators connected to the elements, a channel dial connected to said channel selector shaft, a preset and fine-tuning mechanism to rotate said support while said channel-selecting elements are being arrested by said stop mechanism in order to preset said arrested elements to the desired channels and a tuner interlocked with the channel selector shaft.

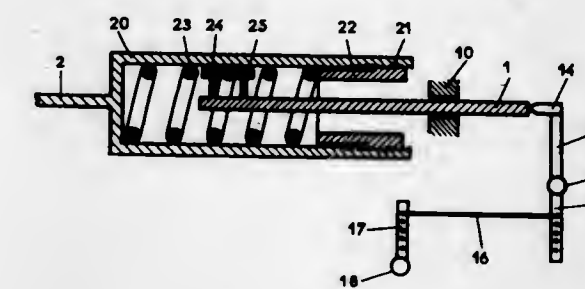
3,599,498
CONTROL ROD DRIVE MECHANISM
Angelo J. Mientl, Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Apr. 15, 1969, Ser. No. 816,193
Int. Cl. F16h 21/16
U.S. Cl. 74-25 3 Claims



In a nuclear reactor a cylindrical control rod extension is surrounded by a cylindrical form which contains three rollers.

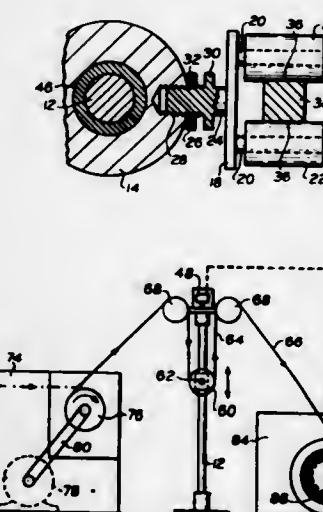
This cylindrical form is rotatably mounted within a surrounding pressure vessel and includes a rotor. A stator winding surrounding the pressure vessel effects rotation of the cylindrical form. The rollers are in pressure contact with the control rod extension and at a slight angle so that rotation of the cylindrical form effects longitudinal movement of the control rod. Operation of an electrical coil moves a magnetic arm releasing one of the rollers effecting scram of the reactor control rod.

3,599,499
CONTROL DEVICES
Francis Steiner, 10 rue des Chataigniers, 91 Verriere Le Buisson, France
Filed Nov. 14, 1968, Ser. No. 775,882
Int. Cl. F16h 27/02
U.S. Cl. 74-89.15 8 Claims



A control apparatus having an adjustable gain or transmission ratio. The apparatus has a controlling device which accepts an input quantity and a controlled or output device which produces an output quantity. A regulator is interposed between the controlling and the controlled devices. The regulator has an adjustable transmission ratio which is varied in response to the magnitude of the output quantity.

3,599,500
ZERO BACKLASH, LOW-FRICTION LINEAR-ROTARY TRANSLATOR
Ben Bravin, 215 W. 88th St., New York, N.Y.
Filed June 25, 1969, Ser. No. 836,282
Int. Cl. F16h 27/02, 1/18
U.S. Cl. 74-89.15 7 Claims



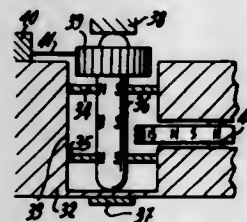
A linearly movable actuator contacts with flat faces on opposite sides of a shaft. The faces extend helically along the shaft. Axial movement of the actuator along the shaft causes the shaft to rotate, and the actuator can be adjusted into canted positions so that it contacts with the opposite sides of the shaft at the same time, thereby eliminating backlash from the system.

3,599,501

PAWL ARRANGEMENT

Max Hetzel, Bienne, Switzerland, assignor to Centre Electronique Horloger S.A., Neuchatel, Switzerland
 Filed Aug. 18, 1969, Ser. No. 850,885
 Claims priority, application Switzerland, Aug. 19, 1968, 12454/68
 Int. Cl. F16h 27/02; G04c 3/00
 U.S. Cl. 74-142

27 Claims



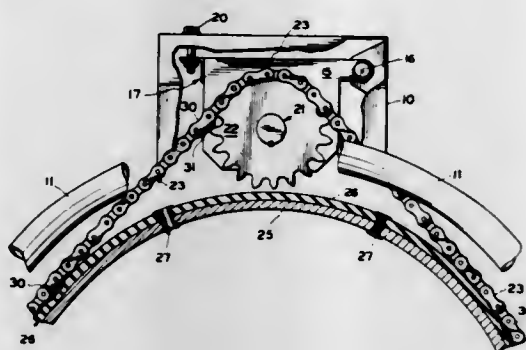
This application discloses an improved mechanism for watches comprising a brush in a pawl arrangement which functions to prevent backward movement of an index wheel which is advanced stepwise by a pawl actuated in turn by a vibrating member, such as a mechanical resonator, operating at an audio frequency. The functions of the pawl and brush can be reversed. The index wheel can be radially magnetized, or mounted on a radially magnetized arbor to provide magnetic coupling to a dial train.

3,599,502

FRICTION CHAIN DRIVE

John T. Craft, Sturgis, S. Dak.; John D. Forbes, Overland Park, Kans., and Merle E. Vig, Mud Butte, S. Dak., assignors to Jolyn Corporation, Sturgis, S. Dak.
 Filed Feb. 2, 1970, Ser. No. 7,588
 Int. Cl. F16h 7/00, 15/00, 7/10
 U.S. Cl. 74-219

5 Claims



The device consists of an endless link chain drive rotatable by a conventional sprocket driven by a suitable motor. The chain element is intended to encircle and to drive a rotary object such as a wheel or drum (e.g. the drum of a concrete mixer). A circumferential band or belt of resilient material is applied to the periphery of the wheel or drum with which the chain makes frictional contact. The resilient belt is applied by a suitable material of adhesive nature to the wheel or drum to be driven. A tensioning device such as a tension bolt to adjust the spacing between the sprocket and drum, allows adjustment of the amount of frictional contact of the chain with respect to the belt. Spaced metallic feet carried by the chain may be employed to make contact with the belt.

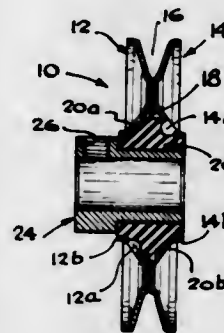
The above arrangement allows for a desirable and adjustable amount of slippage between the driving and driven elements to prevent damage to the elements and their connections.

3,599,503

SHEAVE CONSTRUCTION

Edward H. Schultz, Jrl, Chicago, Ill., assignor to Nagel-Chase Manufacturing Company, Chicago, Ill.
 Filed Oct. 16, 1969, Ser. No. 866,894
 Int. Cl. F16h 55/44
 U.S. Cl. 74-230.8

8 Claims



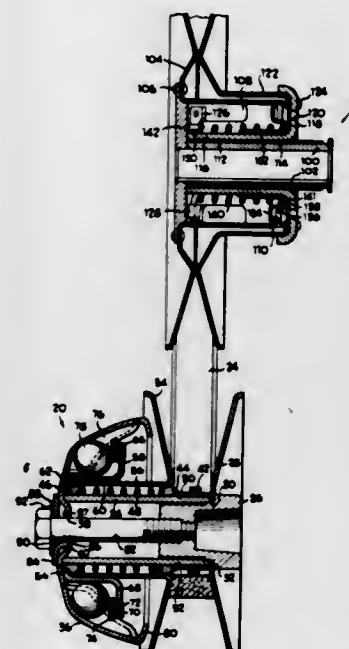
The present invention relates generally to improvements in pulleys or sheaves of the sheet metal type and more particularly to a novel and very practical arrangement whereby such sheet metal parts or stampings may be mounted upon a driving member or bushing. The embodiment of the invention disclosed herein consists of a pair of annular sheet metal members secured in face-to-face relation with the outer margins thereof defining a space for accommodating a belt and the inner margins defining a space for accommodating the outer periphery of the yieldable coupling collar. This collar may be made of suitable rubberlike yieldable material, such as Neoprene, and the outer periphery thereof is firmly impinged by the inner margins of the sheet metal members. The inner margin of the collar aggressively impinges or is bonded to the outer periphery of a driving member such as a bushing.

3,599,504

AUTOMATIC TRANSMISSION

Charles F. Taylor, Boulder, Colo., assignor to Borg-Warner Corporation, Chicago, Ill.
 Filed Feb. 2, 1970, Ser. No. 7,925
 Int. Cl. F16h 55/22
 U.S. Cl. 74-230.17 E

16 Claims



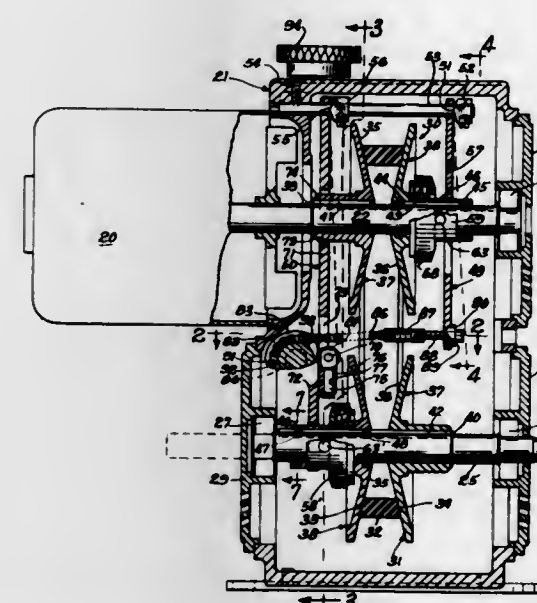
An automatic transmission assembly comprising a centrifugally responsive unit and a torque-responsive unit connected by a pulley belt in which various elements subjected to stress are constructed of wrought material for ease of manufacturing and for safety, the construction of the units being such to provide positive drive between a driven shaft and a driving shaft.

3,599,505

VARIABLE SPEED PULLEY DRIVE

George H. Logan, Northbrook, and Claes L. Hultgren, Clarendon Hills, both of, Ill., assignors to Logan Engineering Co., Chicago, Ill.
 Filed Aug. 19, 1969, Ser. No. 851,281
 Int. Cl. F16h 55/22
 U.S. Cl. 74-230.17

12 Claims



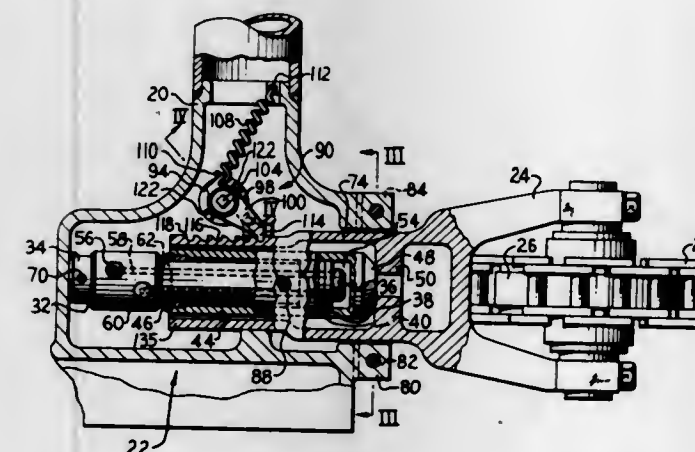
A variable speed power transmission which uses drive and driven pulley, each of which has an axially shiftable section to change the effective diameter thereof, the transmission having more uniform belt tension. Positive devices are provided for moving each shiftable pulley section toward its axially fixed section in place of the spring normally used on one of the pulley sections, and a single-control knob positions both shifting devices. The shifting devices comprise a rotatable cam and follower for each shiftable pulley section, with the followers actuating shift levers connected through a form of universal connection to said shiftable sections to relieve the pulleys of eccentric forces produced by the levers. Two forms of levers are described.

3,599,506

CHAIN ADJUSTER WITH SELF-LOCKING MECHANISM

Gary P. Freese, Will County, Ill., assignor to Caperrpillar Tractor Co., Peoria, Ill.
 Filed Jan. 19, 1970, Ser. No. 3,791
 Int. Cl. F16h 7/12; F01b 15/02, 7/20
 U.S. Cl. 74-242.1 FP

7 Claims



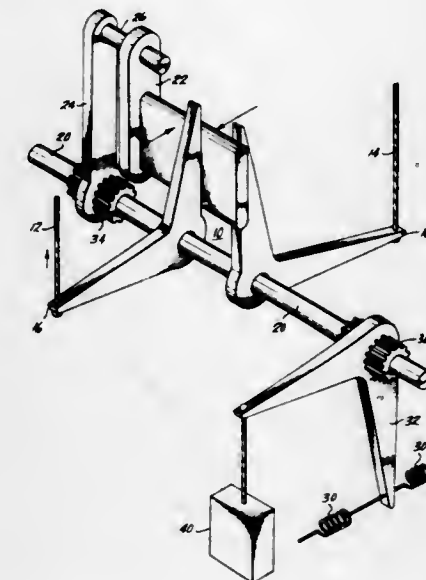
A hydraulic adjuster assembly is provided for the endless chain of an elevator to provide a means for easily adjusting the tension in the chain. The adjuster assembly is provided with a self-locking mechanical lock means which automatically prevents the transmission of forces in the elevator to the adjuster after an adjustment has been made.

3,599,507

CABLE FAILURE COMPENSATOR

Alfred F. Exton, Issaquah, Wash., assignor to The Boeing Company, Seattle, Wash.
 Filed May 4, 1970, Ser. No. 34,011
 Int. Cl. G05g 1/00
 U.S. Cl. 74-469

5 Claims



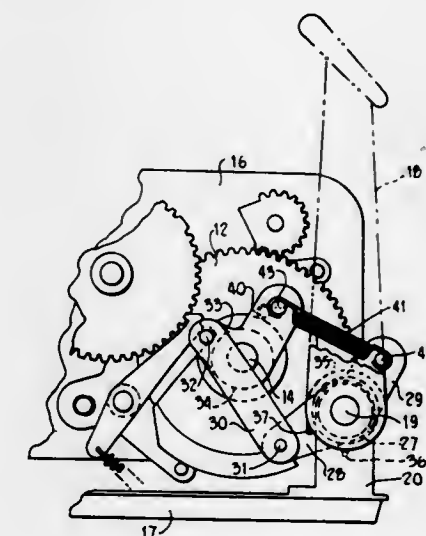
A pair of bellcranks rotatably positioned for disposing a clamping force against each side of a bar. Control cables are connected to the bellcranks for moving the bellcranks about their axis of rotation and thereby transfer displacement to the bar. The bar is indirectly connected to an actuating member which in turn controls the positioning of an output means. The actuating member is rotatably positioned and has a lever which has opposing spring connections so that the actuating member positions itself about its rotational axis in a center or neutral position, which can be overcome by the driving force of the bar only. Cable failure which results in cable tension loss will remove the clamping force from the bellcranks holding the bar and thereby disconnect the bellcranks from the bar so that the actuating member will center itself automatically about its axis into the neutral position advocated by the opposing spring force means connected to the actuating member lever.

3,599,508

POWER TRANSMISSION SYSTEM

Ray S. Richmond, Placitas, N. Mex., assignor to The Singer Company, New York, N.Y.
 Filed Apr. 27, 1970, Ser. No. 32,016
 Int. Cl. G05g 1/04
 U.S. Cl. 74-491

9 Claims



An energy storage mechanism provides maximum torque near the rest end of the stroke of a crank arm in a drive

mechanism. A double extended arm is carried on one shaft controlled by the crank arm while a second double extended arm is carried by a driven shaft. A coil spring is supported between the two arms on one side of the axes of the two shafts while the other two opposed arms are connected by a link on the other side of the axes of the shafts. The one opposed, or moment, arm actuated by the crank arm is longer than the other so that the rocking of the crank arm preloads the coil spring to provide sufficient restoring torque.

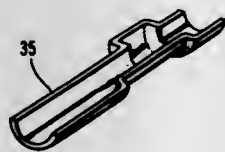
3,599,509
CRANKSHAFT, PARTICULARLY FOR ENCASED REFRIGERANT COMPRESSORS, AND A METHOD FOR ITS MANUFACTURE

Bendt Wegge Romer, Ulkebol Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Oct. 2, 1969, Ser. No. 863,227
Claims priority, application Germany, Oct. 8, 1968, P 18 01 719.1

Int. Cl. F16c 3/10
U.S. Cl. 74-598

10 Claims



The invention is a crankshaft made from two sheet metal stampings having longitudinally extending edges which are joined as by welding to form a unitary crankshaft.

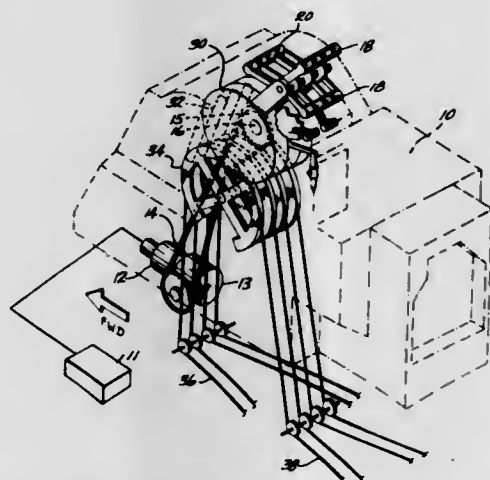
3,599,510
CONTROLLED DEVICE COMPRISING ALTERNATE MANUAL OR POWER OPERATORS

John W. Scott, Sr., Canoga Park, Calif., and John A. Hockenson, Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Oct. 6, 1969, Ser. No. 866,791
Int. Cl. B64c 13/04; F16d 13/10

U.S. Cl. 74-625

5 Claims



A control system utilizing a compact clutch assembly which will allow an output member to be driven by either of two input members, and the output member to back drive one of said input members. The preferred embodiment involves an aircraft engine throttle control system which has a clutch assembly located adjacent to the manual operating levers in the pilot's control console. The clutch utilizes friction shoes which are pivotally mounted on the output member and normally spring biased into frictional contact with an autopilot servo-controlled disk. For manual operation, cam means are employed to lift the frictional contact with the servodisk for direct drive of the output members by a manual throttle lever. The clutch will allow manual override through slipping of the shoes in the event the cam means

fails to function, and will similarly allow a back drive of the output member and the manual lever by feedback forces from a thrust reverser actuated mechanism.

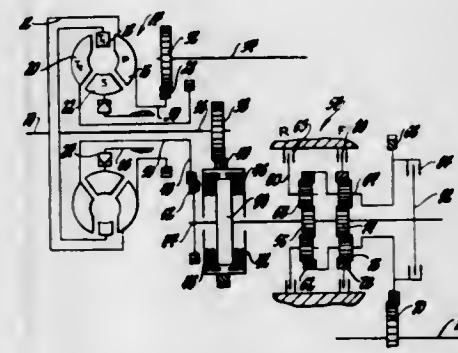
3,599,511
TORQUE CONVERTER TRANSMISSION WITH FREEWHEEL FRICTION CLUTCH

John E. Storer, Jr., Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 11, 1969, Ser. No. 856,985
Int. Cl. F16h 47/00; F16d 13/22; F16h 55/18

U.S. Cl. 74-718

10 Claims



Torque converter transmission having first and second turbines coupled to associated gearsets for driving a range transmission through a power-combining drive shaft. There is a special freewheel friction clutch between the first turbine gearing and the drive shaft which is subjected to a clutch drag force exerted through a cam mechanism by a tickle spring so that the clutch can be fully engaged by the cam mechanism without lash for a first phase of converter operation. At a predetermined transmission speed ratio first turbine torque becomes negative, the cam mechanism releases the clutch and the second turbine overruns the first turbine. During this second phase of converter operation when only the second turbine is driving, centrifugal force reduces and finally cancels the tickle spring force to eliminate clutch drag. Clutch-engaging cam plates are inertia tickled during rapid speed reduction to exert a drag force on the clutch so that the device will reengage with no backlash when the first turbine provides drive torque.

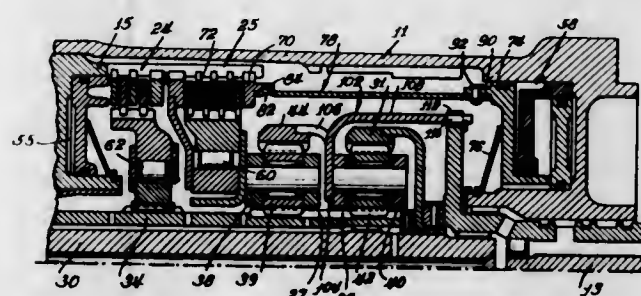
3,599,512
TRANSMISSION MECHANISM

Robert W. Wayman, Bloomfield Hills, Mich., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed July 29, 1969, Ser. No. 845,806
Int. Cl. F16h 57/10; F16d 51/00, 25/00

U.S. Cl. 74-763

17 Claims



An automatic transmission structure of the planetary type including a planetary gear set providing a plurality of forward-driving ratios and a reverse-driving ratio and having remote means for applying a friction brake to establish one of the ratios, the remote means including an annular member extending from a hydraulic servomotor on one side of the planetary gear set to a friction brake mechanism on the other side of the planetary gear set so as to apply said friction brake remotely and further includes a sheet metal part interconnecting two elements of the planetary gear set and the output shaft of the transmission.

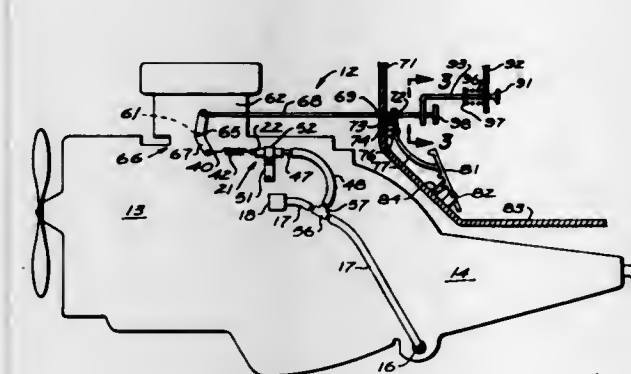
3,599,513
VACUUM REGULATOR FOR ENGINE AUTOMATIC TRANSMISSION

David G. Buno, 6820 4th Ave., Rio Linda, Calif., and General C. Fletcher, 3630 Way Country Club, Sacramento, Calif.

Filed Sept. 16, 1969, Ser. No. 858,448
Int. Cl. B60k 13/02

U.S. Cl. 74-877

4 Claims



A predetermined amount of air at substantially atmospheric pressure is bled into the vacuum line connecting the engine intake manifold and the automatic transmission of a vehicle engine in order to reduce the transmission line vacuum and thereby compensate for many types of slips in transmission members, exemplary being the slips resulting from "varnished" or "glazed" clutch plates and bands. The corrective airflow is controlled by a valve operatively connected to the engine throttle, with valve movement arranged to be a function of throttle position.

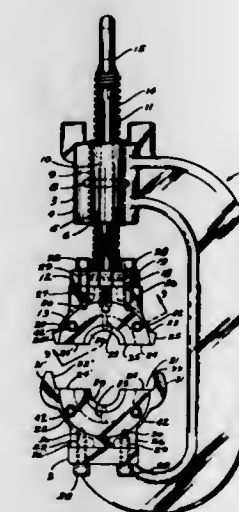
3,599,514
INSULATION REMOVAL TOOL

Theodore A. Fornkahl, 919 W. Douglas, Jacksonville, Ill.

Filed Oct. 15, 1969, Ser. No. 866,625
Int. Cl. H02g 1/12

U.S. Cl. 81-9.5 R

4 Claims



A tool for removing insulation of electrical conductors, incorporating a pair of jaw members adapted for movement toward and away from each other, cutting elements carried in each of said jaw members. Each of said cutting elements having a pair of arcuate cutting blades and a linear cutting blade extending therebetween; said blades being of such depth and extend for severing a section of insulation from a conductor; said tool being adapted for high temperature heating prior to operation, for effecting a sealing of the exposed ends of the insulation after severing, to prevent unauthorized contact of the conductive component with moisture and the like.

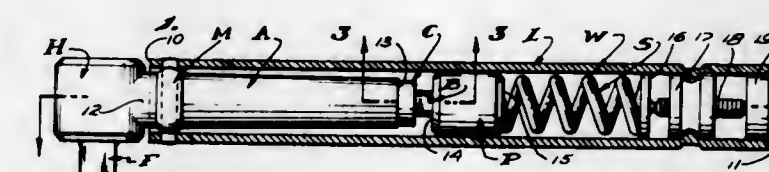
3,599,515
CAM MEANS FOR TORQUE WRENCHES

Bozko Grabovac, c/o C.D.I., 818 East Broadway, San Gabriel, Calif.

Filed Oct. 3, 1969, Ser. No. 863,558
Int. Cl. B25b

U.S. Cl. 81-52.5

6 Claims



A self-centering cam means for use in torque wrenches comprising axially spaced, normally aligned, axially inwardly opening and opposing truncated conical recesses in spaced, normally opposing ends of a laterally shiftable spring-loaded plunger, and an elongate normally axially extending cam block between the arm and plunger, with flat opposite ends normally establishing flat seated engagement on the bottoms of the recesses, flat, laterally outwardly disposed longitudinal sides on planes normal to the pivotal axis of the arm and converging with the ends to define straight pivot edges extending along cord lines across the bottoms of the recesses and radially outwardly disposed longitudinally extending convex intermediate sides, the ends of which define arcuate edges, the radiuses of which are equal with the radiuses of bottoms of the recesses and which normally engage in the corners established by the bottoms and side of the recesses.

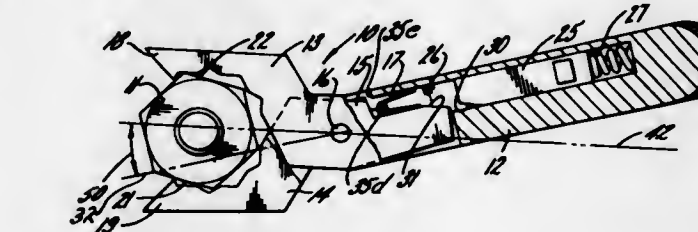
3,599,516
WRENCH

Richard W. Smedley, c/o The Smedley Co., 1008 Alann Drive, Joliet, Ill.

Filed June 16, 1969, Ser. No. 833,275
Int. Cl. B25b 13/32

U.S. Cl. 81-116

2 Claims



An open end wrench is provided for operating upon a nominal size of nuts and bolts, which need not be removed from the nut or bolt head being operated upon to obtain a new bite. The wrench includes a fixed jaw and a wrench handle integral therewith, and a movable jaw and a locking lever integral therewith, the movable jaw and lever being pivotally mounted upon the fixed jaw and handle, biasing means which cooperates with the locking lever and handle in scissors fashion to selectively force the wrench jaws into a nut- or bolt-grasping position, and a slide lock for locking the jaws into such position. Alternative slide lock arrangements are provided.

3,599,517
BORING AND FACING HEAD FOR MACHINE TOOLS

Johann Muller, Unterhaching, Germany, assignor to Friedrich Deckel Praezisions Mechanik und Maschinenbau, Munich, Germany

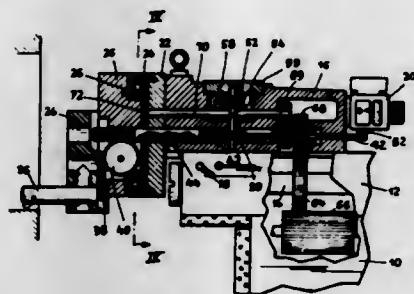
Filed May 8, 1969, Ser. No. 822,953
Claims priority, application Austria, May 13, 1968, Feb. 7, 1969, A 4590/68; A 1290/69

U.S. Cl. 82-2 E

10 Claims

A boring and facing head for machine tools, in which the tool slide is radially displaceable on a rotating carrier. For radial adjustment of the tool slide, the slide is provided with a

rack engaged by a gear mounted on and rotating with the slide carrier, the gear being turned for adjustment purposes by a nonrotating adjusting member extending along the axis of rotation of the carrier and projecting out the back of the housing, the projecting end of the adjusting member being provided with a scale which can be read while the carrier is



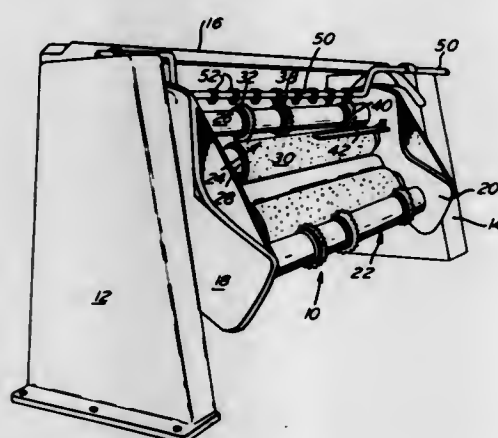
rotating. The rotating carrier is driven by a shaft parallel to but offset radially from the axis of rotation. In one form of the invention, gauging stops are provided on a turret, for cooperation with a dial gauge or an end gauge, in order to determine accurately the position of the axially movable adjusting member which serves to adjust the radial position of the tool slide on the rotating slide carrier.

3,599,518

PAPERBOARD CUTTING APPARATUS AND METHOD
Walter J. Goettach, Kenilworth, Ill., assignor to Harris-Inter-type Corporation, Cleveland, Ohio
Continuation-in-part of application Ser. No. 706,179, Feb. 16, 1968, now Patent No. 3,508,460. This application Nov. 17, 1969, Ser. No. 877,356
Int. Cl. B26d 1/22

U.S. Cl. 83-13

9 Claims



Corrugated paperboard is cut or slit by rotating circular blades having a serrated edge while the paperboard is supported by a full face rotating brush roll juxtaposed to said circular blades. Nozzle means are provided for discharging a mist on the circular blades to clean the same during operation. A support plate is provided adjacent the nip on the feed-in side to prevent the paperboard from drooping and thereby assure a good clean cut.

3,599,519

PROCESS OF HOLDING AND PERFORMING AN OPERATION ON THE OUTER COIL OF A TIMEPIECE HAIR SPRING

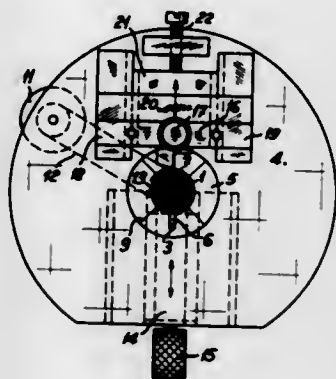
Ulrich Leupin, Bienne, Switzerland, assignor to Societe des Fabriques de Spraux Reunis, Bienne, Switzerland
Filed Feb. 20, 1969, Ser. No. 800,992
Claims priority, application Switzerland, Feb. 28, 1968, 2912/68
Int. Cl. B26d 7/14

U.S. Cl. 83-18

3 Claims

A process for facilitating operations to be made on the outer coil of a timepiece hair spring consists in positioning the hair spring on a support and holding it by its inner end,

and pressing together against the center the coils located on the side opposite the center of the location on the outer coil where it is desired to effect this operation in order to increase the spacing between the coils on the other side. A



device for carrying out this process has a frame in which is mounted a rotating broach for maintaining the inner end of the hair spring and a horizontal slider moving in the direction of the broach and having a vertical finger intended to compress the coils of the hair spring.

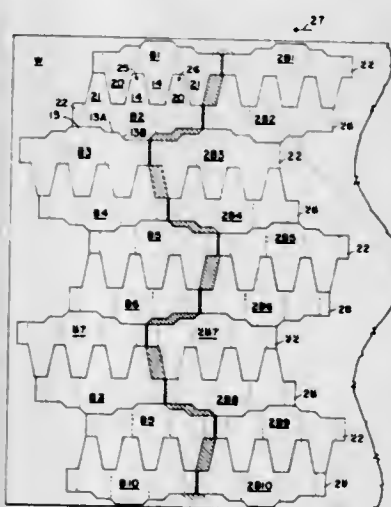
3,599,520

METHOD OF DIECUTTING A BLANK

Prentice J. Wood, Jonesboro, Ga., assignor to The Mead Corporation
Filed Oct. 29, 1969, Ser. No. 872,289
Int. Cl. B31b 1/20

U.S. Cl. 83-32

4 Claims



A method of diecutting a blank having a plurality of projections extending along one side edge thereof and an outwardly extending protrusion along the opposite side edge thereof and disposed intermediate tapered end portions along the said opposite side edge, the method comprising arranging a die so that the blanks are cut from a web in aligned rows with the blanks of each row disposed in the same orientation and with the rows arranged in pairs of rows. Each blank in each row is arranged so that the outwardly extending projections along one side edge thereof occupy all of the cutaway areas between the outwardly extending projections of a nested blank in the other row of each pair of blanks. The blanks in corresponding rows of alternate pairs of rows are disposed in transverse alignment with each other so that a single course of articles in a direction transverse of the web from which blanks are cut may be cut and detached from the remaining portion of the web simultaneously.

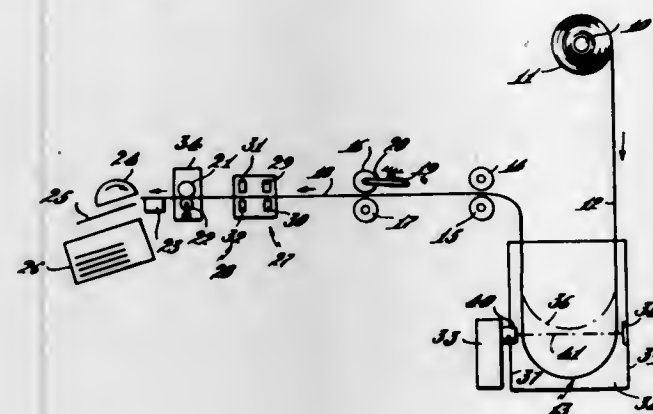
3,599,521

AUTOMATIC FILM CUTTER

Richard G. Lee, Weston, Mass., assignor to Alves Photo Service, Inc., Braintree, Mass.
Filed June 25, 1969, Ser. No. 836,253
Int. Cl. B26d 5/32, 5/34

U.S. Cl. 83-210

7 Claims



An apparatus for automatically and accurately cutting frames from a film strip, which apparatus uses a control system which advances the film strip to a cutter, at a high speed, changes the film strip advancement to a lower speed after the strip reaches a first predetermined position relative to the cutter, and brakes the film strip when it reaches a second predetermined position, at which latter position the cut is made. This operation is performed cyclically as the film advances so that a plurality of accurately cut frames results. Means are further provided for supplying the film strip material without longitudinal tension to avoid damage thereto.

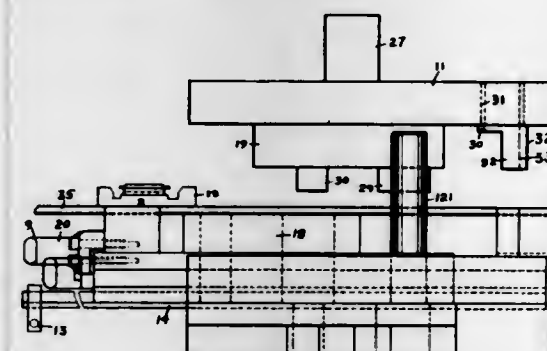
3,599,522

DIE SET

Peter A. Traphagen, and Karol T. Dyczynski, both of Erie, Pa., assignors to Hanley Development Corporation, Erie, Pa.
Filed Mar. 7, 1969, Ser. No. 805,210
Int. Cl. B26d 5/26

U.S. Cl. 83-399

5 Claims



The device disclosed provides a punch and die set in which accurate locating guides are provided to match the punch to the die perfectly to avoid damaging the cutting edges. The shearing operation on soft rubber requires an absolute match between punch and die without the clearance usually used in other forms of trimming dies. This has especial utility in shearing operations on soft rubber and the like.

3,599,523

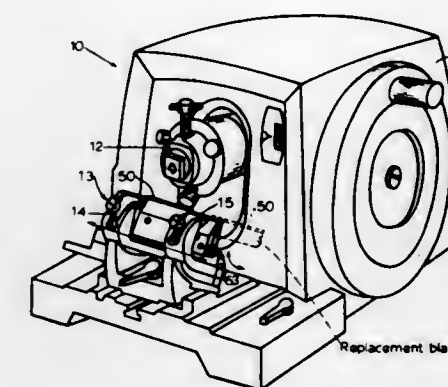
DISPOSABLE BLADE AND HOLDER FOR MICROTOME
John E. P. Pickett, 3323 Pinafore Drive, Durham, N.C.
Filed Dec. 15, 1969, Ser. No. 885,143
Int. Cl. G01n 1/06

U.S. Cl. 83-412

7 Claims

The conventional, thick, microtome knife that is resharpened after use is replaced by a thin, flexible, disposable and commercially available blade which has a microtome quality cutting edge and which is held by a blade holder that in turn

is received by a conventional knife clamp. The blade holder is adapted to flex, clamp and tension the disposable blade



and includes an adjustable cam mechanism which allows the technician to replace blades without disturbing the holder.

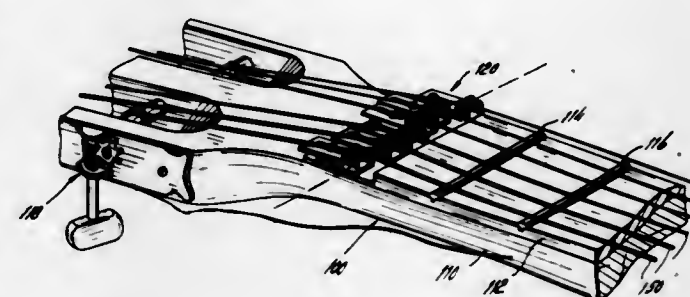
3,599,524

NUT-MOUNT FOR STRINGED INSTRUMENT FINGERBOARDS

Ralph S. Jones, Hyattstown, Md.
Continuation-in-part of application Ser. No. 722,620, Apr. 19, 1968. This application Dec. 22, 1969, Ser. No. 887,437
Int. Cl. G10d 3/14

U.S. Cl. 84-314

5 Claims



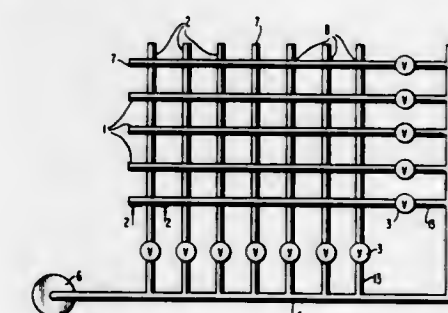
The present invention is applicable to stringed musical instrument having movable bridge, and comprises novel means for achieving intonation selectivity string for string in the tuning of an instrument and to ensure the consistent turning thereof during operation. Essentially the system is a method and apparatus for correcting the tuning of fretted and nonfretted instruments by offsetting longitudinally individual contact "nut" and bridge supports for preselected strings a variable distance from the 12th fret or center of scale length.

3,599,525

PNEUMATIC CROSSBAR DEVICE

Paul A. Klann, P.O. Box 2398, Waynesboro, Va.
Filed May 14, 1970, Ser. No. 37,242
Int. Cl. G10b 1/00; H01h 35/40; F16l 55/14
U.S. Cl. 84-331

6 Claims



A pneumatic crossbar device includes a plurality of flexible inflatable tubes positioned on two levels with the tubes in each level being spaced apart and parallel to one another and with the tubes of each level lying at right angles to and ad-

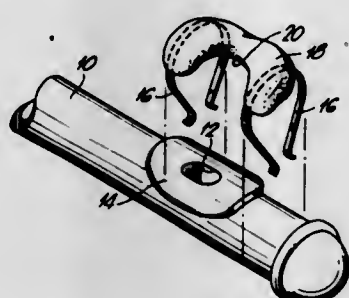
adjacent the tubes of the other level. Each tube of the crossbar device is sealed at one end and the other end is connected to an individually operated valve for controlling the supply of air pressure to the tube. Each tube may be individually inflated or deflated by actuating the valve connected thereto, thereby presenting a matrix of crossover points which may be used to actuate switches, operate valves, or apply pressure at selected intersections of the tubes. Three different cross-sectional dimensions may be obtained at each intersection by selectively deflating both tubes, inflating one tube and deflating the other tube, or by inflating both tubes.

3,599,526

"EASY FIND" EMOUCHURE ATTACHMENT TO FLUTE OR PICCOLO AND LIKE INSTRUMENTS
Vito Sollecito, 2316 Cambreleng Ave., Bronx, N.Y., and Thomas Cavolina, 1548 Kennelworth Place, Bronx, N.Y.
Filed Jan. 16, 1970, Ser. No. 3,327
Int. Cl. G10d 9/00

U.S. Cl. 84—384

6 Claims



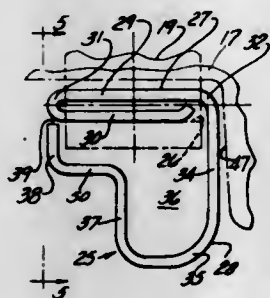
A device which can be permanently or detachably secured to any flutelike wind instrument having an open embouchure hole which enables a user to automatically find the proper placement of embouchure relative to lower lip placement and blowing angle.

3,599,527

KEEPER KEY
William H. Howells, Cleveland, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio
Filed Apr. 14, 1969, Ser. No. 815,901
Int. Cl. F16b 21/14

U.S. Cl. 85—8.3

4 Claims



A reusable keeper key of formed resilient wire adapted for use in retaining one member in a fixed position relative to a second member and which may be applied manually in one simple operation without the use of tools.

3,599,528

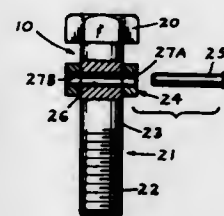
PRESSURE RELIEF BOLT
Julian H. Kushnick, Brooklyn, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Aug. 21, 1969, Ser. No. 851,807
Int. Cl. F16b 31/02

U.S. Cl. 85—62

4 Claims

A bolt with annular collar slidably mounted upon the shank and retained in place by means of a shearpin passing through the collar and shank. When the tensile load on the

bolt exceeds the design limit of the pin, the pin will shear and the collar will slide up against the bolthead, thereby relieving



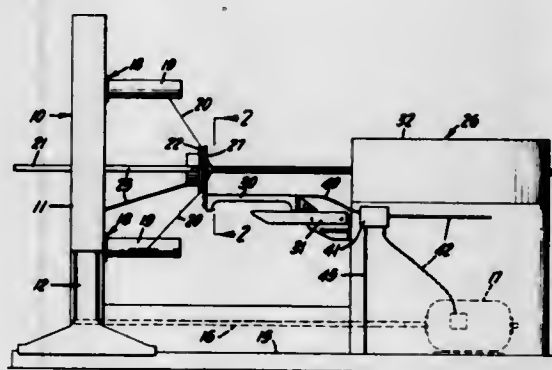
the pressure causing the excessive tensile load while all components remain captive.

3,599,529

DEFECTIVE STRAND DETECTOR MEANS FOR BRAIDING MACHINES
Donald Richardson, Wyomissing Hills, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Apr. 9, 1970, Ser. No. 26,816
Int. Cl. D04c 3/38

U.S. Cl. 87—19

4 Claims



Detector means for braiding machines adapted to braid multifilament wire strands in forming braided armored coverings for high-pressure hose and the like, the detector means including a ring member, positioned between the strand carriers of the machine and the braided covering, and ring member being adapted when contacted by both slack and broken filaments of the strands to open the electrical operating circuit for the motor of the machine.

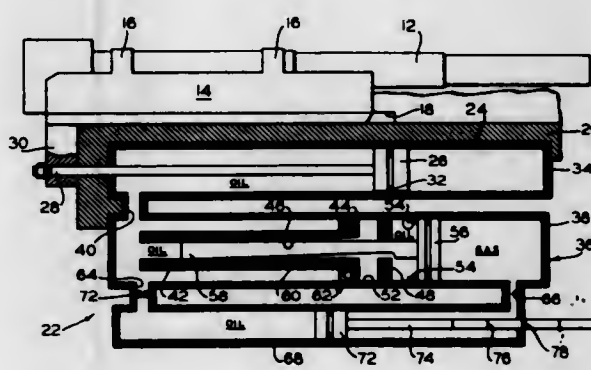
3,599,530

AUTOMATIC REPLENISHER FOR THE HYDRO-PNEUMATIC RECOIL SYSTEMS OF LARGE CALIBER GUNS

Robert E. Seamands, Moline, Ill., and Elmer J. Henning, Bettendorf, Iowa, assignors to The United States of America as represented by the Secretary of the Army
Filed Nov. 19, 1969, Ser. No. 878,121
Int. Cl. F41f 19/02

U.S. Cl. 89—43 R

4 Claims



In order to maintain a uniform starting point for the reciprocable piston in a hydropneumatic recuperator of the

type utilized in the recoil systems of large caliber guns, a reservoir is jointly connected to each of the gas and oil chambers in the recuperator and is provided with a floating piston arranged to separate the oil and the gas into individual areas and maintain an equilibrium position therebetween arranged to return the recuperator piston against a fixed stop at the end of each firing cycle regardless of any change in the volume of the oil.

3,599,531

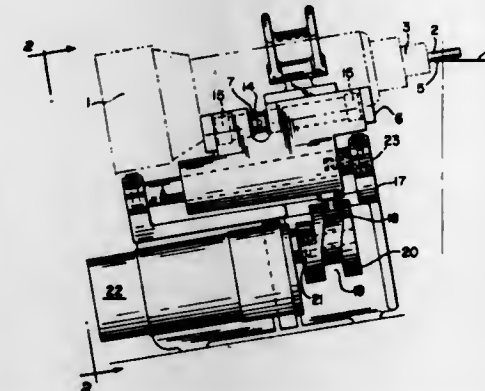
RECIPROCATING MARGIN-FINISHING APPARATUS
Norbert L. Wright, Park Ridge, and John W. Grek, Lisle, both of, Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,441

Int. Cl. B23c 3/12; B24b 9/00

U.S. Cl. 90—14

4 Claims



A reciprocating margin-finishing apparatus for applying the side of a rotating burr tool along the margin of a piece of flexible flat stock. To avoid wear of the burr tool in a restricted area, the burr tool is reciprocated along its longitudinal axis by reciprocating the high-speed motor which turns it. The motor is mounted on a slide element and the slide element is reciprocated by a constant feed cam to distribute wear evenly across the cutting edge of the burr tool.

3,599,532

APPARATUS FOR ACCURATELY POSITIONING THE MOVABLE TABLE OF A MACHINE TOOL
Kingo Matsumi, 428, Takaoka-cho, Hamamatsu-shi, Japan

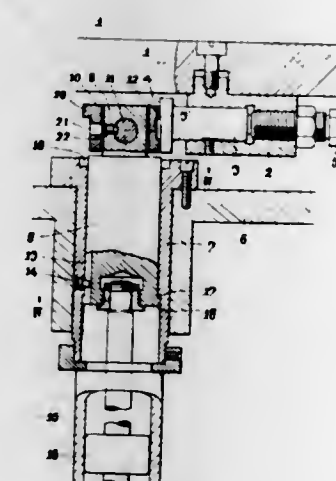
Filed July 2, 1969, Ser. No. 838,711

Claims priority, application Japan, July 17, 1968, 43/50136

Int. Cl. B23d 7/08

U.S. Cl. 90—58 R

3 Claims



An apparatus for accurately positioning the table of a machine tool comprising a member on the table having a contact surface and a member on the bed having a receiving surface, the member on the bed being movable into and out of position wherein it can engage the member on the table and being rotatable about a vertical axis, one of said mem-

3,599,533

BROACHING MACHINE

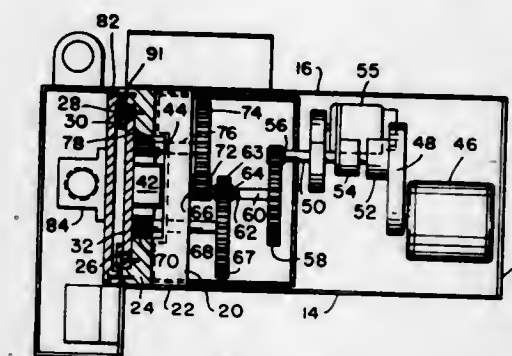
Russell W. Anthony, Harper Woods, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed June 27, 1969, Ser. No. 837,098

Int. Cl. B23d 41/08; F16h 57/00

U.S. Cl. 90—96

10 Claims



A broaching machine having relatively reciprocable work and broach-supporting members comprising a pair of racks and pinions for effecting reciprocation of one member, a drive motor connected to a spline shaft, a pair of rigidly interconnected helical gears on said spline shaft, and gearing connecting each of said gears to one of said pinions so as to effect equal division of the load on each of said pinions.

3,599,534

PREFILL VALVE FOR HYDRAULIC CLAMPING DEVICES

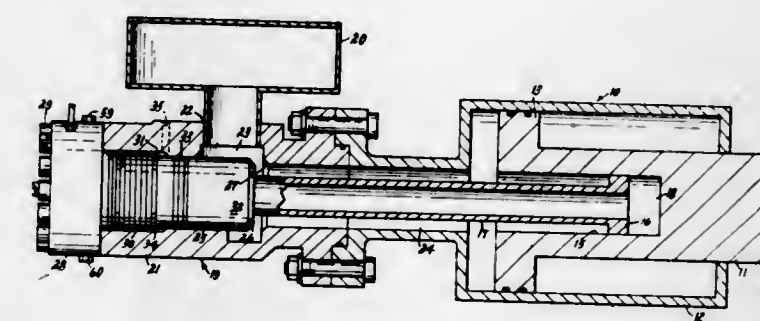
Richard Purchon, Warwickshire, England, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Feb. 2, 1970, Ser. No. 7,600

Int. Cl. F15b 11/00

U.S. Cl. 91—411 A

6 Claims



A prefill valve for providing a large quantity of relatively low-pressure hydraulic fluid to fill the space behind a moving piston for a portion of its operating cycle and thereafter sealing off the low-pressure source and providing communication between that space and a separate, high-pressure fluid source. The valve includes a slidable sleeve having a double-acting piston at one end and a face at its other end which cooperates with the valve body to effect closing of the low-pressure fluid source. The valve is actuated by one or more hydraulically actuated auxiliary pistons which move the slidable sleeve to the closed position and interconnect the high-pressure fluid source with the space behind the piston.

3,599,535

ROTARY CHUCKING CYLINDER FOR MACHINE TOOL
Gunter Horst Rohm, Sonthelm, Germany, assignor to Rohm-Gesellschaft m.b.H., Werkzeug- und Maschinenfabrik, Sonthelm-Brenz, Germany

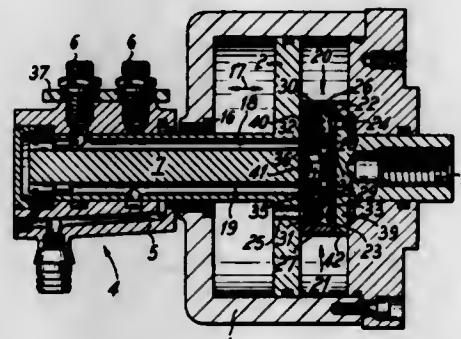
Filed Mar. 18, 1970, Ser. No. 20,671

Claims priority, application Germany, Apr. 11, 1969, P 19 18 423.7

Int. Cl. F15b 11/08, 13/042

U.S. Cl. 91-420

2 Claims



A cylinder piston unit which is controlled by a pressure fluid for operating a chucking tool comprising a valve unit having two check valves and a small intermediate control piston within a transverse bore in a hub of the piston shaft, which hub has a diameter equal to the total length of the valve unit. The valve unit is held in place by a single locking ring.

3,599,536

TORQUE MOTOR

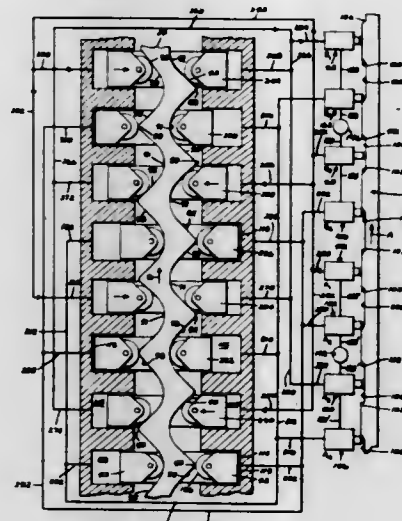
Lester L. Myers, Fort Wayne, Ind., assignor to Mobile Aerial Towers, Inc., Fort Wayne, Ind.

Filed Aug. 28, 1969, Ser. No. 853,778

Int. Cl. F01b 3/04, 13/04

U.S. Cl. 91-480

14 Claims



An output shaft has coaxially secured thereto a generally cylindrical shaped rotor. The rotor has undulating opposite end surfaces characterized by a plurality of lobes. A carrier slidably supports a plurality of individual double-acting pistons. These pistons each carry a pair of bearings for engaging the end surfaces, respectively, of the rotor. A flow control device is connected with a suitable source of fluid pressure and includes poppet valves which are operated by cam means carried on the outer periphery of the rotor for controlling the flow of fluid to the pistons in predetermined sequence to cause rotation of the rotor and the output shaft.

3,599,537

CONSTANT SPEED DRIVE

Charles Phillip Smith, Wolverhampton; Stanley George Glaze, Brierley Hill, and John Roger Wynne, Wolverhampton, all of, England, assignors to H. M. Hobson Limited, London, England

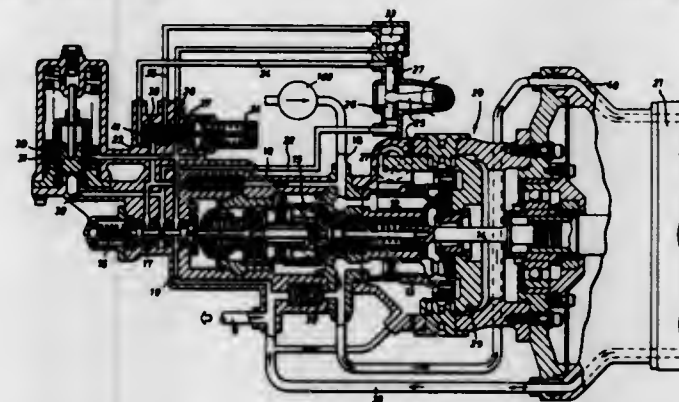
Filed Nov. 12, 1969, Ser. No. 875,936

Claims priority, application Great Britain, Nov. 12, 1968, 53598/68

Int. Cl. F04b 1/02, 49/00

U.S. Cl. 91-506

2 Claims



The invention provides mechanism for driving a load at constant speed, comprising a hydraulic pump which develops a substantially constant delivery pressure, a variable displacement hydraulic motor driven by liquid supplied by the pump and having an output shaft arranged to drive the load and means sensitive both to the speed and to the rate of change of speed of the output shaft for adjusting delivery control mechanism of the motor to maintain the output shaft at a constant speed.

3,599,538

THREE DIMENSIONAL BAG FORMING METHOD AND APPARATUS

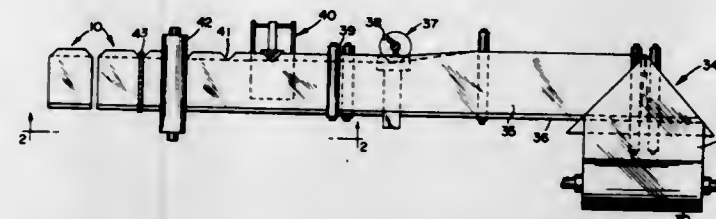
Thomas E. Plazze, Mount Vernon, Ohio, assignor to Continental Can Company, Inc., New York, N.Y.

Filed May 7, 1969, Ser. No. 822,527

Int. Cl. B31b 1/22, 49/04, 45/00

U.S. Cl. 93-33 H

9 Claims



A method of fabricating side sealed square bottom bags from a web of heat sealable plastic film material wherein the web is folded upon itself with a bellows fold formed at the edge which has a width one-half the width of the bottom desired for the bag and the outside surfaces which overlie each other are treated so as to prevent sealing in the areas thereof in which the bottom forming seals are to be made, the folded web is advanced intermittently across a platen at a bottom seal forming station where a V-shaped hot knife device is operated to cut through the bellows fold margin at spaced intervals so as to form a bottom seal on each of two adjoining bag formations, the resultant triangular-shaped waste portion is discharged laterally of the path of advance of the web and the web is advanced for separation into successive bags by operation of a transverse hot knife sealing device which forms the side seals and separates the bags on a transverse line extending from the apex of the triangular waste portion. The bottom seal-forming device is in the form of an attachment comprising a platen, a V-shaped hot sealing knife mounted for cooperation with the platen and a means for disposing of the triangular waste chip resulting from the operation of the hot knife which comprises a driven roller and cooperating clamping rollers operating to close on the chip and remove the same in a direction laterally of the sealing station.

3,599,539

METHOD OF MAKING A SEWN CLOSURE SQUARE BOTTOM BAG

Stephen L. Coverstone, and Raymond K. Hughes, both of Richmond, Va., assignors to Hoerner Waldorf Corporation, Ramsey, Minn.

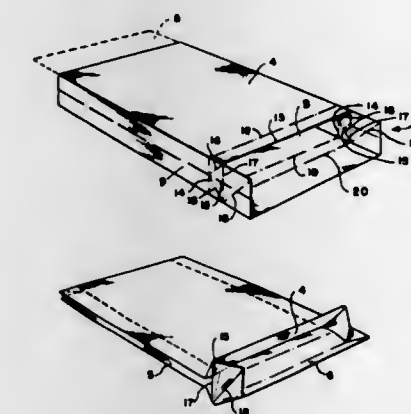
Division of Ser. No. 702,065, Jan. 31, 1968, Pat. No. 3,473,724.

Filed Apr. 15, 1969, Ser. No. 816,283

Int. Cl. B31b 1/26, 1/90, 45/00

U.S. Cl. 93-35 SB

15 Claims



A sewn closure square bottom gusseted bag, and process for making same, wherein the bottom construction thereof is such that one side of the bag is integral with a bottom panel, which panel is sealingly attached by sewing along one edge to the edge of the inner face of the other side of the bag. A flap may be attached to said other side which is either folded over the bottom panel or tucked between the bottom panel and said other side of the bag.

3,599,540

METHOD OF MAKING COMBINATION OF CONTAINER BODY AND CLOSURE THEREFOR

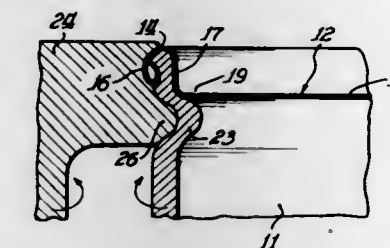
Melvin A. Koboldt, St. Louis, and Lester W. Uhles, Pacific, both of, Mo., assignors to Container Corporation of America, Chicago, Ill.

Filed Apr. 9, 1969, Ser. No. 814,700

Int. Cl. B31b 17/74

U.S. Cl. 93-39.1

1 Claim



A method of making the combination of a container body and a closure therefor of the type where the closure and the can body are interconnected by a seaming flange, and wherein the closure is provided with a weakened score line of smaller transverse dimension than the transverse dimension of the resultant seaming flange so that the weakened score line is spaced a small distance from said seaming flange, comprising the simultaneous forming of such seaming flange and a rib in said container body having an inside transverse dimension which is slightly less than the transverse dimension of said weakened score line whereby upon removal of that part of the closure between said weakened score line, said rib will protect against injury occasioned by the remaining portion of said closure adjacent to said seaming flange.

3,599,541

CONTAINER BLANK VARIABLE-SPEED FEEDER APPARATUS

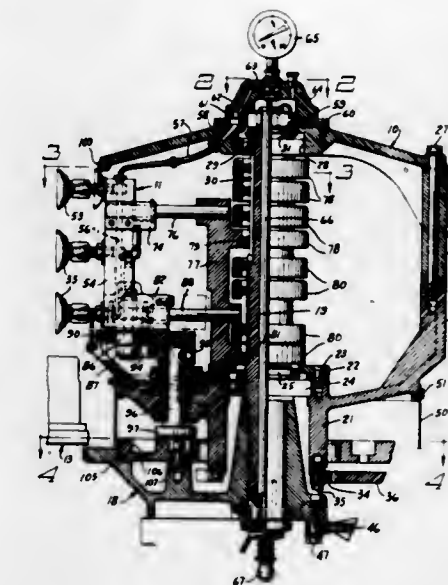
Robert J. Allen, Farmington, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich.

Filed May 22, 1969, Ser. No. 826,928

Int. Cl. B31b 1/76

U.S. Cl. 93-53 R

8 Claims



A container blank feeder apparatus for feeding containers in a collapsed form from a container magazine to a feeding station on a machine for erecting the containers for forming and filling operations, and which includes a base, a rotatable turret mounted on said base for rotation about a vertical axis, power means for rotating the turret at a constant angular speed in one direction, a plurality of suction cup means movably mounted for rotation about said vertical axis and for radial outward and inward movements relative to said turret for gripping and removing collapsed containers from the magazine and conveying them to said feeding station, and means operative in response to rotation of the turret about said vertical axis for rotating said suction cup means simultaneously with said turret between said container magazine and said feeding station, and for stopping each of said suction cup means at said magazine and moving them radially outward to grip a collapsed container in said magazine and thence radially inward to withdraw the container from said magazine and transfer it at constant speed to said feeding station.

3,599,542

WARPED PLANE BERM

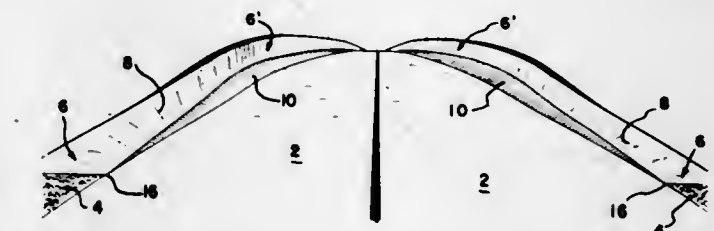
James A. Morrett, Jr., R. D. 4, Box 986, Harrisburg, Pa.

Filed June 30, 1969, Ser. No. 837,423

Int. Cl. E01c 1/00

U.S. Cl. 94-1

3 Claims



This invention relates to a structural configuration, the purpose of which is to eliminate the possibility of having a mismanaged vehicle collide with the ends of parapet walls, piers or other conventional bridge components. Said structural configuration is a long, warped plane which begins as a concrete extension and continuation of a highway or road berm or shoulder and gradually evolves into a more or less vertical position, forming the parapet for a bridge. Said warped plane will cause a mismanaged vehicle to be

gradually led back on the highway, away from the parapet or other obstruction. My invention precludes the possibility of a head-on collision with parapet walls and the like by eliminating their end profiles or areas. This is done by blending the more or less vertical obstruction into the more or less horizontal plane of the berm or shoulder via the warped plane.

3,599,543

VIBRATORY MACHINES

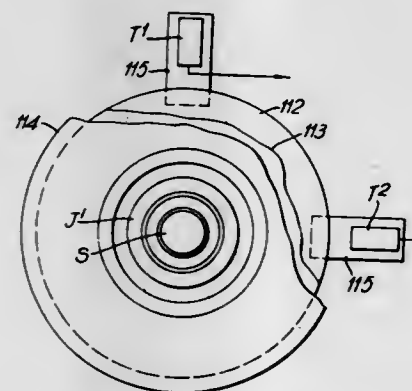
Norman Edward Kerridge, Salford near Bristol, Somerset, England, assignor to Stothert & Pitt Limited, Bath, Somerset, England

Continuation-in-part of application Ser. No. 718,638, Apr. 3, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 509,856, Nov. 26, 1965, now abandoned. This application Feb. 18, 1969, Ser. No. 800,213

Int. Cl. E01c 19/28

U.S. Cl. 94-50

11 Claims



In a vibratory machine having a member which is vibrationally excited by a force of substantially constant amplitude and frequency, and which is placed against the surface of material to be compacted, the degree of compaction achieved is measured by producing a signal proportional to the magnitude of the maximum instantaneous amplitude of the vibratory movement of the vibratory member due to its excitation and the effects of the material, the signal being passed to a display unit and/or used to control an operating parameter of the machine. The machine may be a vibratory roller, the roll of which is the vibrated member. Preferably one or more acceleration transducers are mounted on the vibratory member, and their outputs are integrated twice against time to provide a signal proportional to the instantaneous amplitude of vibration on the operative axis of the transducer or transducers. Two transducers may be placed at right angles and their signals combined, or an appropriate number of transducers may be placed on different axes so that one at least will always have an integrated output closely approximating to the maximum instantaneous amplitude, the correct signal, if more than one transducer is used, being chosen by selecting the largest integrated output for passage to a display unit.

3,599,544

PHOTOCOMPOSING APPARATUS

George F. Cavanaugh, 1210 Lyndon St., South Pasadena, Calif.

Filed Mar. 7, 1968, Ser. No. 711,410

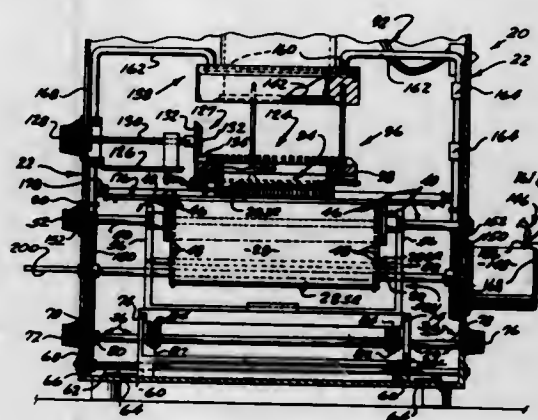
Int. Cl. B41b 15/02

U.S. Cl. 95-4.5

7 Claims

The specification disclosed photocomposing apparatus for producing printing plates without the use of conventional type, but by a photocomposing method wherein optical mats or matrices capable of use in direct photographic contact printing of a photosensitive film panel, may be handset in a composing stick in a manner using all of the conventional skills of a printer who has normally been trained in handset setting conventional type in a composing stick. Thus, the only difference that such a printer will find in using the apparatus of the present invention is that he will handset the

optical mats or matrices instead of conventional type, and after he has composed a line of copy he will insert the composing stick in the machine, and it will be moved downwardly into contact-printing relationship with respect to a line exposure portion of an underlying photosensitive film panel and will then be subjected to light which will pass through transparent portions of the line of optical mats or matrices and will not pass through opaque portions thereof, thus exposing



the line exposure portion of the underlying photosensitive film panel in a manner which, when developed, will bear the desired sequence of alpha-numeric symbols, such as letters or numbers, comprising the various words of the desired line of copy. This operation is repeated for each line of copy, and means is provided for correspondingly moving the underlying film panel in a positively externally indicating manner for copy positioning and correlation purposes.

3,599,545

PHOTOGRAPHIC CAMERAS WITH ELECTRONIC EXPOSURE CONTROL

Helmut Durr; George Klepek, and Rainer Vesper, all of Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

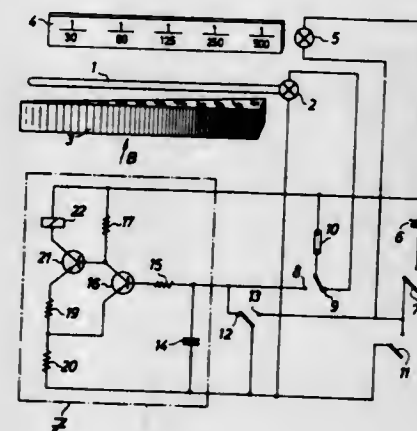
Filed Feb. 3, 1970, Ser. No. 8,187

Claims priority, application Germany, Feb. 6, 1969, P 19 05 842.5

Int. Cl. G01j 1/08, 1/44; G03b 7/02

U.S. Cl. 95-10 C

15 Claims



A photographic camera with electronic exposure control and an exposure time indicator. A time scale is arranged along the length of an elongated light source which provides light at uniform intensity and as a function of the brightness condition prevailing at the object to be photographed. The light intensity of the source is varied through a photosensitive element in the electronic exposure control unit. A light attenuating member in the form of a wedge-shaped element in front of the light source extends along the length of the timing scale and provides attenuation which varies continuously in a progressive manner from one end of the wedge-shaped element to the other. A glass member with interference layers and illuminated from an auxiliary light source, is arranged to provide more precise indicating results.

3,599,546

EXPOSURE CONTROL WITH LOW LIGHT SIGNAL

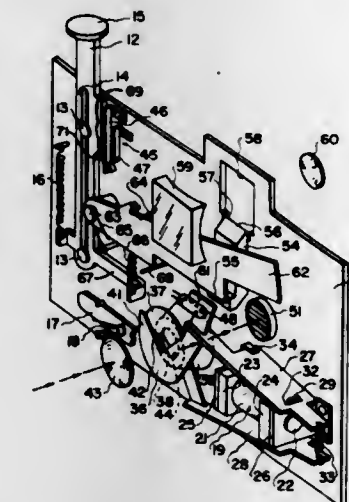
Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 27, 1969, Ser. No. 853,434

Int. Cl. G03b 7/08, 17/20

U.S. Cl. 95-10 C

12 Claims



The disclosure relates to cameras of the type provided with an automatic exposure control system including an armature which assumes one of two positions according to whether an electromagnet is energized above or below a predetermined energization level as a function of the intensity of scene illumination detected by a photocell. During the initial movement of a shutter operating member, the armature first serves to provide a warning signal if scene illumination is below a predetermined energization level. In response to further movement of the shutter operating member, the warning signal is terminated, whereupon the same armature then serves to adjust an exposure controlling element of the camera.

3,599,547

PHOTOGRAPHIC APPARATUS WITH AUTOMATIC EXPOSURE CONTROL MEANS

Karl Wagner, Ottobrunn, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

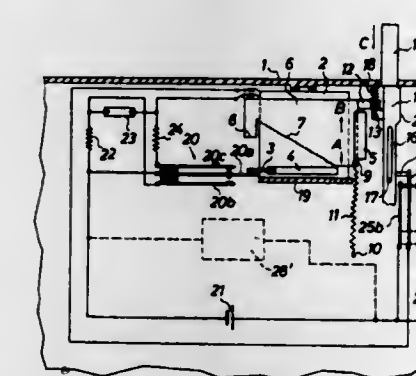
Filed May 27, 1969, Ser. No. 828,147

Claims priority, application Germany, June 1, 1968, P 17 72 558.5

Int. Cl. G03b 7/14

U.S. Cl. 95-10 C

11 Claims



A photographic apparatus wherein the needle of the light meter is movable between first and second ranges of positions which respectively indicate higher and lower scene brightnesses. A detector which is movable into engagement with the needles in response to actuation of the camera release selects the size of the diaphragm aperture as a function of a higher scene brightness and selects a constant medium aperture size when the brightness of the scene is low. The exposure time is selected as a function of scene brightness; however, the rate at which the exposure time changes when the needle moves within the first range of positions is different from the rate at which the exposure time changes when the needle moves within the second range of positions, i.e., when the aperture size remains constant.

3,599,548

RELEASE MEANS FOR PHOTOGRAPHIC APPARATUS

Fridolin Hennig, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

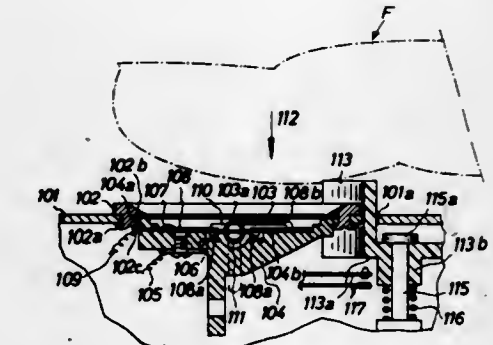
Filed Apr. 13, 1970, Ser. No. 27,531

Claims priority, application Germany, Apr. 15, 1969, P 19 19 014.8

Int. Cl. G03b 17/00

U.S. Cl. 95-11 R

10 Claims



A release for motion picture cameras or still cameras wherein the deformation of a diaphragm results in closing of a switch which can open the shutter. A knob is mounted close to the diaphragm and is displaceable by the finger which exerts a deforming stress on the diaphragm to thereby close a second switch which can complete the circuit of the exposure control and/or a battery tester. The knob surrounds at least a portion of the diaphragm to facilitate simultaneous application of finger pressure against the knob and against the central part of the diaphragm.

3,599,549

IMAGE AND SOUND TRACKS SUPPORTS, RECORDING APPARATUS AND APPARATUS FOR READING SAID TRACKS

Emile Jean Duzet, Meudon, France, assignor to Societe Industrielle Des Nouvelles Techniques Radioelectriques Et De Electronique Francaise (Sintra), Asnieres (Hauts de Seine), France

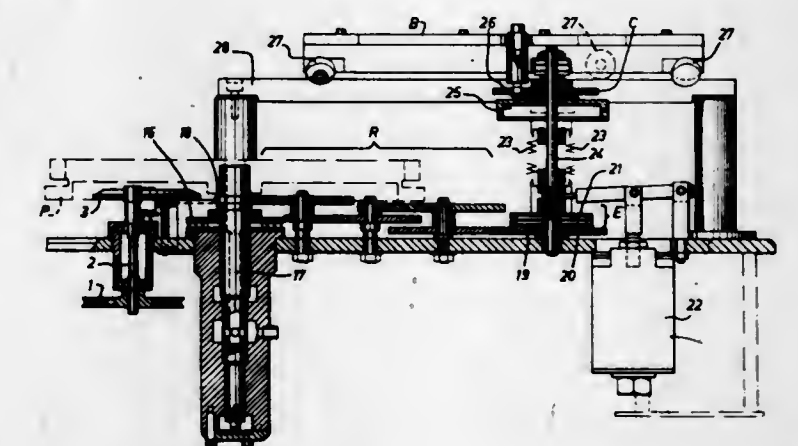
Filed Apr. 11, 1968, Ser. No. 720,657

Claims priority, application France, Apr. 13, 1967, 102,658

Int. Cl. G03b 31/06

U.S. Cl. 95-12

16 Claims

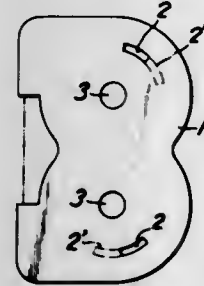


The invention relates to a film presenting a series of sound tracks and a series of images. Each sound track is a spiral lodged between two concentric circles and each image is placed inside the smallest circle of a sound track. The invention also refers to an apparatus for the optical recording of such sound tracks and images. It comprises a light modulator, means for effecting the two movements capable of generating a spiral, and recording means. The invention also concerns an apparatus for the optical reading of such sound tracks in spiral. It comprises an optical outfit of which at least one of the elements is subjected to a movement resulting from a movement of rotation and a rectilinear movement.

3,599,550

FILM MAGAZINE FOR MOVIE CAMERAS

Keezi Kaneko, Minamishigara-Machi, Japan, assignor to Fuji Shashin Film Kabushiki Kaisha, Minamishigaramachi, Ashigarakami-gun, Japan
 Division of Ser. No. 427,733, Jan. 25, 1965, Pat. No. 3,434,782
 Filed June 12, 1968, Ser. No. 736,407
 Int. Cl. G03b 17/26, 19/04
 U.S. Cl. 95-31 FS 4 Claims

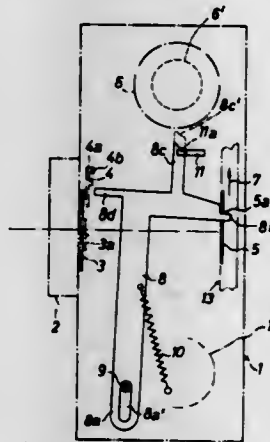


Film magazine for use in movie cameras wherein the sensitivity of the film within the magazine is mechanically represented by arcuate grooves upon the side thereof; the length of said grooves being proportional to the sensitivity of the film.

3,599,551

FILM-METERING AND SHUTTER-COCKING DEVICE

Gerhard Lemme, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
 Filed Apr. 18, 1969, Ser. No. 818,188
 Claims priority, application Germany, Apr. 19, 1968, P 17 72 245.1
 Int. Cl. G03b 1/62, 9/68
 U.S. Cl. 95-31 FM 10 Claims



A camera for use with film having a perforation for each film frame and having a shutter blade which can be propelled to open position, a film-transporting wheel, and a one-piece slotted slide which is pivotable about and movable lengthwise of a fixed pin. The slide is biased by a helical spring and has a first arm which is biased by the spring against the film so that the first arm enters a perforation and is entrained by the film to the extent determined by the length of the slot for the pin, a second arm which can propel the shutter blade to open position when the first arm is disengaged from the film by a release, and a third arm which is located in the path of the release when the first arm extends into the perforation and the film is transported by the full length of a frame.

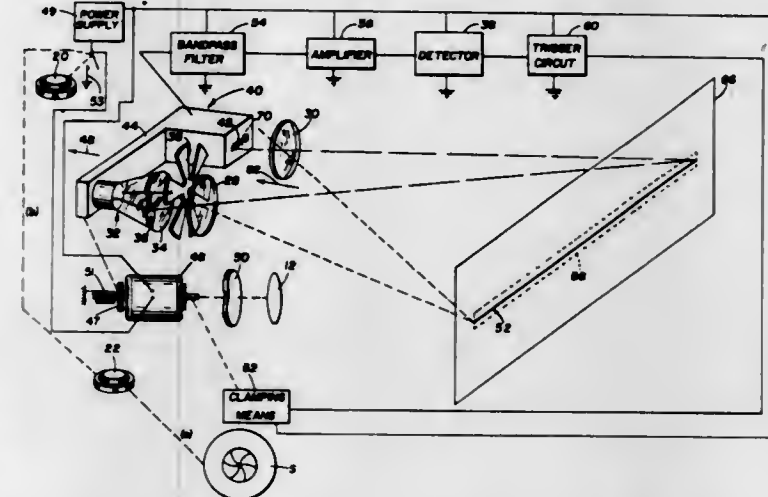
3,599,552

AUTOMATIC FOCUSING DEVICE

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester
 Filed Aug. 26, 1969, Ser. No. 853,093
 Int. Cl. G03b 3/00
 U.S. Cl. 95-44 C 8 Claims

A camera having an electrical power supply, a light emitting shutter, an objective lens, and apparatus for auto-

matic focusing having first and second lenses. Modulated radiant energy of predetermined frequency is transmitted through the first lens toward the subject. The reflected image from the subject is passed by the second lens and received by a light sensitive transducer. The energy emitting source and the light sensitive transducer are displaced in unison to vary the modulated radiant energy reflected from the subject.

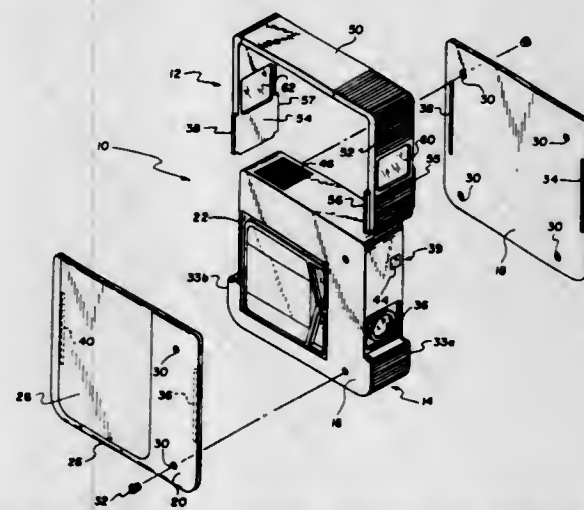


Electronic detection circuitry is coupled to the light sensitive transducer to develop an output signal when the modulated radiant energy incident on the light sensitive transducer is at a maximum. The output signal is applied to arrest further displacement of the energy emitting source and the light sensitive transducer. The objective lens is moved toward a position that is determined by the displacement of the energy emitting source and the light sensitive transducer.

3,599,553

SLIDABLE COVER AND HANDLE MEMBER FOR PHOTOGRAPHIC CAMERAS

David E. Hansen, Fairport, and Arthur H. Crapey, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 Filed June 26, 1969, Ser. No. 836,752
 Int. Cl. G03b 17/56
 U.S. Cl. 95-86 3 Claims

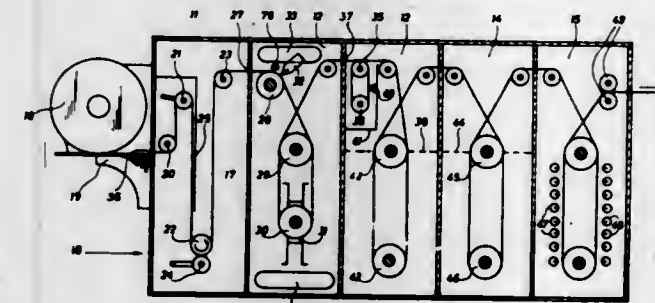


A combined cover and handle member for a still or motion picture camera has a substantially rigid U-shaped configuration and is mounted on the camera casing for movement between an extended position and a retracted position. In the extended position the handle member serves as an aid for supporting the camera while taking pictures, and for carrying the camera between picture-taking operations. In the retracted position the handle member does not substantially increase the exterior dimensions of the camera and can be used as a cover for enclosing various camera mechanisms, such as the objective, light-sensitive cell, viewfinder, and trigger-operating member. Moreover, such camera mechanisms can be covered in the closed position of the handle member even though the mechanisms are located on more than a single side of the camera.

3,599,554

METHOD AND APPARATUS FOR VISCOUS PROCESSING

Marcel Frans Aelterman, and Louis Achilles Meeussen, both of Mortsel, Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium
 Filed July 3, 1968, Ser. No. 742,065
 Claims priority, application Great Britain, July 3, 1967, 30,626/67
 Int. Cl. G03d 5/00
 U.S. Cl. 95-89 R 16 Claims

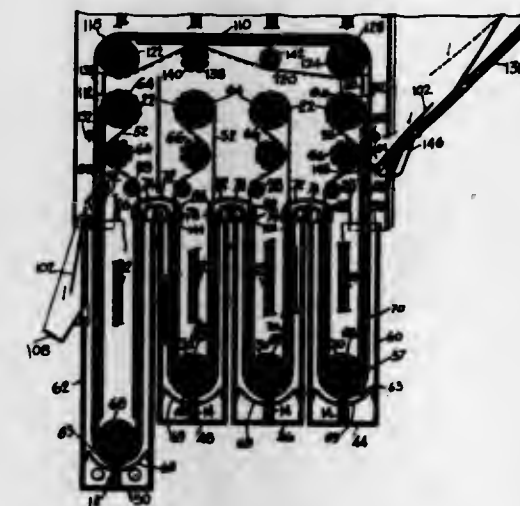


Method and apparatus for processing an exposed photographic film in which the film has a thin coating of a processing composition applied thereto after which it is maintained in a processing zone having a controlled atmosphere for a predetermined period of time and then has the composition removed therefrom. The atmosphere of the processing zone is maintained at a substantially constant wet bulb temperature and at a relative humidity which is not greater than the relative humidity at which the coating of processing composition is in equilibrium therewith.

3,599,555

AUTOMATIC CONVEYOR FOR X-RAY FILM PROCESSING

Emery Dutch, 320 W. 77th St., New York, N.Y.
 Filed Mar. 5, 1970, Ser. No. 16,820
 Int. Cl. G03d 3/12
 U.S. Cl. 95-94 R 8 Claims

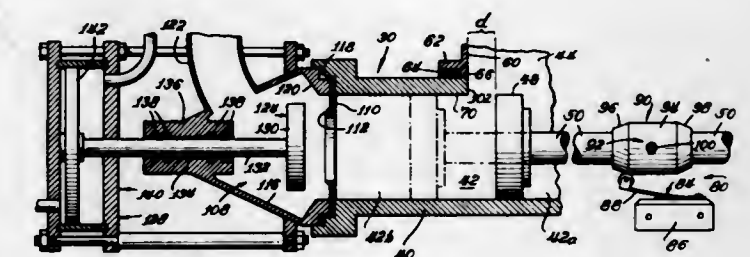


An apparatus for treating sheet film such as an X-ray film in which the film is automatically transported into and between a number of processing receptacles and then through a drying chamber. The film is retained on a film engaging and carrying device in a manner ensuring its secure retention as it travels between the processing receptacles. The film is transported through each receptacle by a separate conveyor here shown as a dentated belt, and is automatically removed from one belt and conveyed onto another belt in the succeeding receptacle. As the film approaches the end of the drying chamber it is automatically stripped.

3,599,556

VACUUMIZING APPARATUS

Ditlev P. Madsen, Palos Park, Ill., assignor to Chemetron Corporation, Chicago, Ill.
 Filed Jan. 29, 1970, Ser. No. 6,802
 Int. Cl. B65b 31/00
 U.S. Cl. 99-272 10 Claims

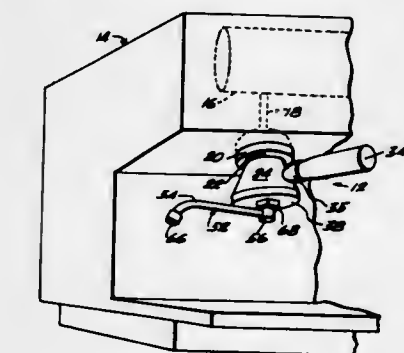


In vacuumizing apparatus for removing air from meat emulsions and like food products, an improved pump is provided to substantially reduce problems of surging and smearing of food products. The improved pump comprises actuating means for actuating control means to cause the piston of the pump to assume a predetermined adjusted rest position and improved checking return flow of food products to the pump chambers.

3,599,557

COFFEE-BREWING ASSEMBLY FOR ESPRESSO COFFEEMAKING DEVICE

Virgilio Leal, 323 Almeria St., Urb. Valencia-Rio Piedras, P.R.
 Filed May 19, 1970, Ser. No. 38,787
 Int. Cl. A47j 31/06
 U.S. Cl. 99-302 R 8 Claims



A hand-manipulative coffee-brewing unit for detachable use with a South American-type espresso coffeemaking apparatus. The coffee-brewing unit includes a bowl-like body adapted for containing a quantity of ground coffee and is adapted to be twist lock engaged with a hot water outlet of the coffeemaking apparatus. The coffee-brewing unit includes filter means for filtering the coffee and swing spout means for use in dispensing the coffee liquid into a cup or the like.

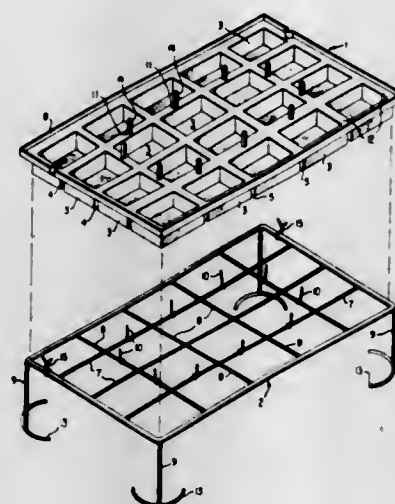
3,599,558

COOKING ACCESSORY

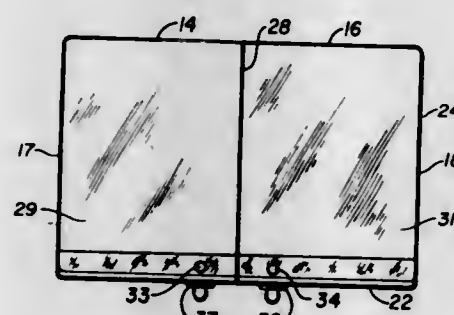
Allan R. Goldberg, Whittletree Farm, North Stanwich Road, Greenwich, Conn.
 Filed June 3, 1969, Ser. No. 829,951
 Int. Cl. A47j 43/00
 U.S. Cl. 99-339 11 Claims

Disclosed herein is a cooking accessory including a rack having an open network of supporting ribs and at least three legs for spacing said ribs from the bottom of an oven, and a disposable broiler pan having a plurality of compartments

defining a network of channels adapted to mate with the network of supporting ribs of said rack. Said broiler pan is constructed of lightweight inexpensive material to be thrown away after a single use and the supporting rack gives strength to the lightweight pan.



3,599,559
COMBINATION WET-DRY GRIDDLE
Roy Eugene Presley, 4434 Shady Lane, Indianapolis, Ind., and Hubert Eugene Hakcomb, P.O. Box 1595, Indianapolis, Ind.
Filed Jan. 2, 1970, Ser. No. 141
Int. Cl. A47j 37/12
U.S. Cl. 99-339
7 Claims

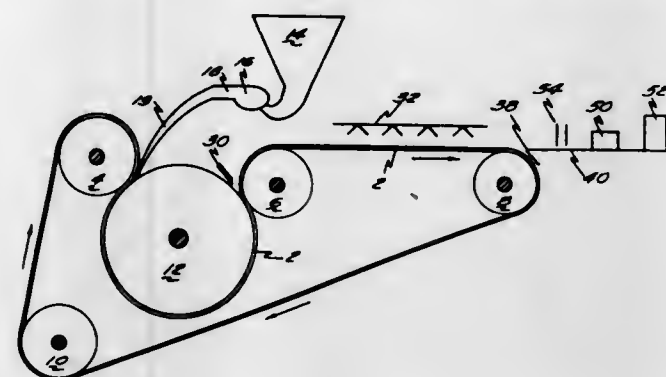


A settling trough provided at the front of a griddle plate has an exterior wall extending well above griddle plate level and around the side and rear portions of the perimeter of the griddle plate to contain oil or fat for deep frying of food products. An integral divider is provided from the front to the back and a drain is provided at the bottom of each settling trough with a separate valve in each drain permitting withdrawal of oil from one side of the divider independent of the other side, for simultaneous dry griddling at the one side and wet frying at the other. Independently controlled heating means are provided for each side of the divider.

3,599,560
SLICED MEAT MANUFACTURE
Ogden A. Clemens, Chicago, Ill., assignor to Swift & Company, Chicago, Ill.
Filed Jan. 12, 1970, Ser. No. 2,301
Int. Cl. H05b 7/06
U.S. Cl. 99-355
3 Claims

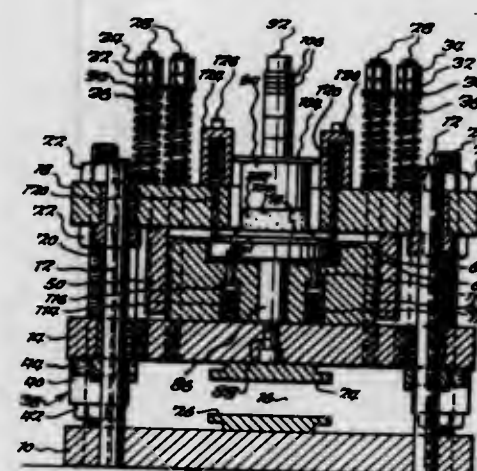
An apparatus for producing continuous ribbons of cooked meat emulsions suitable for individual slices comprising: a forming roller having at least one continuous forming zone on the outer surfaces; a feeding means for supplying a meat emulsion to each said forming zone; an endless conductive belt passing around a portion of the periphery of said roller and operable to move in unison therewith, whereby at least one enclosed forming zone is produced between the belt and roller in which the meat emulsion is encased; and an electric

circuit means for passing an electric current from the roller through the meat emulsion to the belt when the meat emulsion is encased in the forming zone, said current being sufficient to at least partially coagulate the meat protein.



3,599,561
PNEUMATIC PRESS
John F. Reeves, Tonawanda, N.Y., assignor to Robert Paul Lickliter and Earl Abbott, Hamburg, N.Y.
Filed Nov. 17, 1969, Ser. No. 877,067
Int. Cl. B30b 1/38, 15/16
U.S. Cl. 100-53
13 Claims

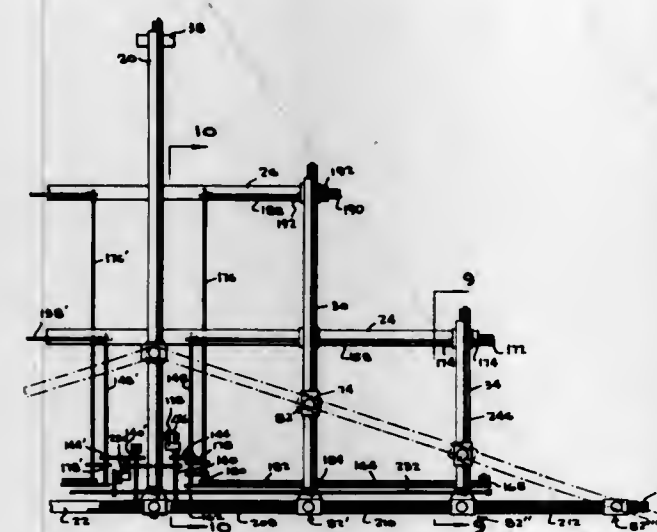
A pneumatic press has a piston and cylinder mounted between an upper mounting plate and a ram plate for driving the latter downwardly. An exhaust valve controls flow of air from the cylinder through a large exhaust opening in the upper mounting plate to atmosphere. Air under pressure is trapped in a chamber provided between the piston and the exhaust valve upon closing of the exhaust valve to preload the piston for the succeeding operation. Such air pressure in conjunction with spring-biased means holds the exhaust valve closed until their force is exceeded by the force of a mechanical actuator movable with the piston.



3,599,562
APPARATUS FOR FABRICATING MULTIPLE TYPE TRUSS MEMBERS
Ralph W. Hutchens, Sr., P.O. Box 128, Toano, Va.
Filed Oct. 22, 1969, Ser. No. 868,464
Int. Cl. B30b 15/00
U.S. Cl. 100-100
25 Claims

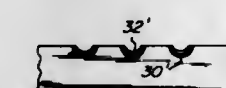
A plurality of power-actuated press devices are adjustably supported for movement to desired positions in which the timber components of a truss are positioned with the juncture of one or more timber elements being supported by the press devices which upon actuation impress nail plates into the various timber members for joining the timber members to each other; all of the timber members are positioned in the final form of the truss with all of the press assemblies being simultaneously actuated to provide the finished truss. Changeover from one form of truss assembly to another is enabled by electric motor drive means connected to the press assembly.

blies by drive transmission chains for automatically positioning the press devices in accordance with the nature of the truss to be assembled. Another aspect of the invention



3,599,563
METHOD OF MARKING MATERIALS SUBJECT TO ELONGATION EMPLOYING HEATED DIES
Richard Stephen Schwartz, Union Township, Union, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed May 19, 1969, Ser. No. 825,912
Int. Cl. B44c 1/24; B41c 1/02
U.S. Cl. 101-32
7 Claims

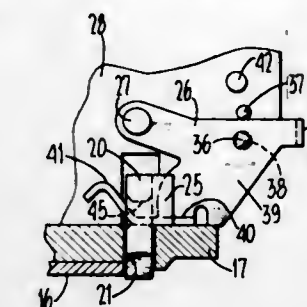
The disclosure is directed to the method of marking materials subject to elongation as by stretching. The method comprises the steps of placing in a surface of the material at least one groove in a direction generally transverse to the direction of elongation of the material and applying to the groove coloring material in such a manner that the coloring material adheres to the sidewalls of the groove, thus permitting the coloring material to elongate with the material without breaking, flaking or separating from the sidewalls of such groove. A first method permits the forming of the groove and adding the coloring material thereto by the use of a colored metallic foil inserted between a heated die and the material itself. The heated die forming the groove causes the adherence of the colored foil to the groove walls. According to other methods the grooves may be preformed as by use of cold dies or by premolding the material to have the groove within it and then coloring the groove by means of stamping through a colored foil or painting.



3,599,564
PRINT CONTROL DEVICE
Helmut K. Walbel, San Lorenzo, Calif., assignor to The Singer Company, New York, N.Y.
Filed Aug. 4, 1969, Ser. No. 847,282
Int. Cl. B41j 1/60
U.S. Cl. 101-109
4 Claims

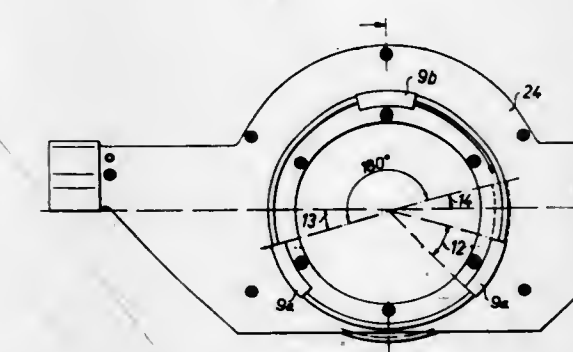
A printing slug which forms a part of the postal indicium plate of a postage meter and is movable between a print and nonprint position by means of a manually controlled lever.

The relationship of the printing surface of the slug to that of the indicium is not critical since the manually settable lever resiliently retains the slug in print position.



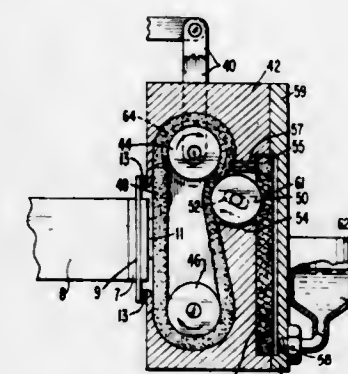
3,599,565
ROTARY SCREEN PRINTING MACHINE WITH IMPROVED MOUNTING FOR THE SCREEN
Kurt Feiler, Riedholz; Hans Werthmüller, Wiler, and Max Brettenmoser, Wiler near Utzenstorf, all of Switzerland, assignors to Firma Fritz Buser AG, Wiler near Utzenstorf, Switzerland
Filed Sept. 23, 1968, Ser. No. 761,526
Claims priority, application Switzerland, Sept. 26, 1967, 13406/67
Int. Cl. B41f 15/38; B41i 13/06
U.S. Cl. 101-116
8 Claims

There is disclosed an improved rotary screen printing machine of the type wherein the printing stations are each equipped with a circular printing screen which, as required, can be removed and again remounted. According to an important aspect of the invention, the circular printing screen is secured through the agency of a resiliently biased intermediate member to the mounting or support disk means arranged at the machine frame.



3,599,566
SEALED PRINTING MECHANISM USING HIGHLY VOLATILE INKS
Leslie A. Fish, 180 Bowers Ave., Phillipsburg, N.J.
Filed June 10, 1968, Ser. No. 735,800
Int. Cl. B41k 1/42
U.S. Cl. 101-333
6 Claims

A printing attachment in which a sealed housing containing an ink carrier is supplied with all types of inks including



highly volatile inks. An opening in the housing exposes a portion of the ink carrier for purposes of periodically transferring ink from the carrier by means of a printing member to a printing surface, and the printing member is provided with a sealing means for closing the opening in the housing when contacting the ink carrier.

3,599,567

DRIVE POINT FOR EXPLOSIVE CHARGE

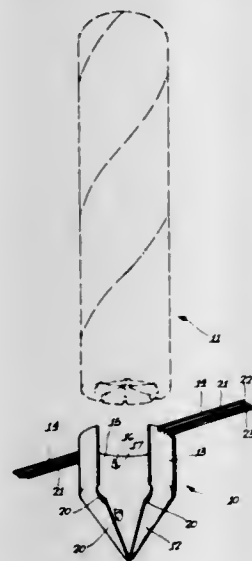
Stanley T. Graham, and Gordon Robert Rintoul, both of Calgary, Alberta, Canada, assignors to Ace Explosives Ltd., Alberta, Canada

Filed Dec. 26, 1968, Ser. No. 786,907

Int. Cl. E21b 43/26; F42b 3/00; F42c 3/00

U.S. Cl. 102-21.8

3 Claims



A hollow plastic drive point for connection to the end of a cylindrical explosive charge prior to depositing the charge in a drill hole. The drive point is in the form of an integrally moulded body providing a conical forward portion and an open-ended rear portion defining a cylindrical inner surface for engaging the charge as the drive point is slid over the end of the charge so as to frictionally hold the drive point on the charge.

3,599,568

LONG-RANGE SHOTSHELL

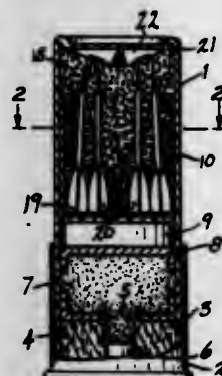
Richard J. Shelmutt, Northford, and Earl R. Jenkins, Clinton, both of, Conn., assignors to Olin Mathieson Chemical Corporation

Filed Mar. 31, 1965, Ser. No. 444,142

Int. Cl. F42b 7/02, 13/16

U.S. Cl. 102-42 C

12 Claims



A cartridge including a casing, said casing having a base at one end and a mouth at the other end, a propellant in said casing adjacent said base, ignition means to ignite said propellant, wad means positioned over said propellant, a projectile-surrounding member adjacent said wad means, a plurality of elongated projectiles arranged in said member and extending substantially longitudinally of said casing, filler

means dispersed in and occupying the spaces between said projectiles to maintain the projectiles in a predetermined arrangement and control the dispersion of the projectiles, and a closure closing said mouth.

3,599,569

SPEAR HAVING FRANGIBLE NOSE WITH EXPLOSIVE DEVICE TO BE DETONATED ON IMPACT

Olaf Heartness, 41 Van Reppen Street, Jersey City, N.J.

Filed Mar. 20, 1969, Ser. No. 808,815

Int. Cl. F42b 13/54

U.S. Cl. 102-48

9 Claims



A disposable, explosive spear head with a frangible nose section weakened in a predetermined manner and including a gas expansion chamber to burst the nose portion with an explodable cartridge arranged in the chamber and in a fixed position relative to the main spear casing and in the path of travel of a firing pin captivated in the spear and adapted to be driven into the firing pin against a spring-biasing means to ignite the cartridge and burst the nose portion.

3,599,570

AMMUNITION ANTIDEFUZING DEVICE

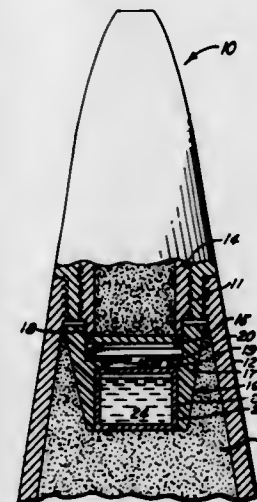
William C. Ingersoll, Huntsville, Ala., and Jack W. Shepherd, Hyland, N.Y., assignors to Thiokol Chemical Corporation, Bristol, Pa.

Filed Aug. 28, 1969, Ser. No. 853,705

Int. Cl. F42b 13/02

U.S. Cl. 102-57

10 Claims



A device consisting of a container, which is filled with a liquid chemical material having combustion characteristics, that is positioned in a bomb or shell in conjunction with the fuze therefor, so that upon impact of the bomb or shell with the target, the container will be ruptured and cause the liquid chemical material to be dispersed in the explosive in the bomb or shell and in the event the bomb or shell is a dud, that any attempts to remove the fuze therefrom, will result in the liquid chemical material being exposed to the atmosphere, water or the perspiration of any one removing the fuze, to cause the liquid chemical material to combust and thus ignite or detonate the explosives within the bomb or shell.

3,599,571

WALKING GRENADE

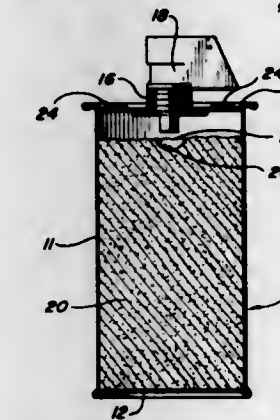
Jack Y. Richardson, Mouth-of-Wilson, Va., assignor to Brunswick Corporation, Chicago, Ill.

Filed Apr. 18, 1969, Ser. No. 817,539

Int. Cl. F42b 27/00

U.S. Cl. 102-65

18 Claims



This disclosure describes a new type of grenade. The grenade comprises a housing with an aerosol generating mixture therein. Fuse means is provided to ignite the fuel-oxidizer portion of the aerosol generating mixture causing it to burn and thereby causing another portion of the aerosol generating mixture to vaporize. The pressure developed in the grenade opens ports that dispense the vapor in a preselected direction and concomitant therewith causes the grenade to move. The vapor can be any desired vaporizable material such as an insecticide, antipersonnel reagent, etc.

3,599,572

SAFING AND ARMING SYSTEM FOR A MUNITION

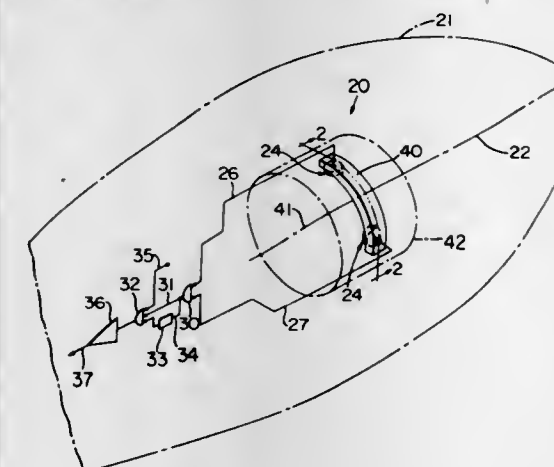
Donald A. Brackman, Englewood, Ohio, assignor to AVCO Corporation, Richmond, Ind.

Filed Oct. 22, 1969, Ser. No. 868,412

Int. Cl. F42c 13/00; F42b 21/38

U.S. Cl. 102-70.2

16 Claims



A control apparatus comprising a safing and arming system for a munition wherein such apparatus requires only two sensors mounted about a reference axis in angularly spaced relation. The sensors are operatively connected to provide an effective arming signal for the munition only by the simultaneous provision of a signal from both sensors under conditions of sustained free fall and the sensors are incapable of providing signals simultaneously during normal handling of the munition, making it safe to handle.

3,599,573

COMPOSITE PREFORMED PENETRATORS

Joseph L. Sliney, West Concord, Mass., assignor to Whittaker Corporation, Nuclear Metals Division, West Concord, Mass.

Filed May 31, 1968, Ser. No. 733,596

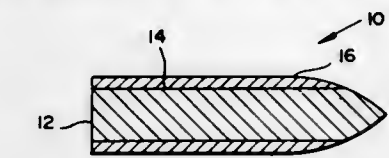
Int. Cl. F42b 11/00

U.S. Cl. 102-92.4

9 Claims

An improved armor-piercing projectile has a hard but brittle inner core metallurgically bonded to a tough but ductile

outer shell which protects the core from brittle fracture on impact. The bimetallic structure of the projectile provides a



higher penetration ability against "hard-faced" armor plate for a given size projectile than heretofore obtainable with homogeneous projectiles.

3,599,574

CENTER PLATE WEAR LINER RING

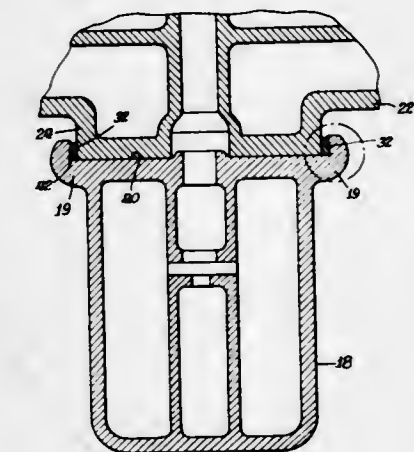
Hugh G. Robertson, Alliance, Ohio, assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed Apr. 1, 1969, Ser. No. 811,984

Int. Cl. B61f 5/14, 5/11; F16c 17/04

U.S. Cl. 105-199 C

1 Claim



A wear ring is provided in the recess of the truck bolster center plate to protect the vertical annular wall of said recess. The annular wall is inclined outward from top to bottom, and the outer surface of the ring is similarly tapered outward to restrain the ring from vertical movements. The ring has a gap to enable expansion of the ring against the interior wall. The ring is welded to the wall at the gap.

3,599,575

WEAR RESISTANT SURFACE FOR POLYURETHANE FOAM MATERIAL ON SURFACE OF RAILWAY CAR

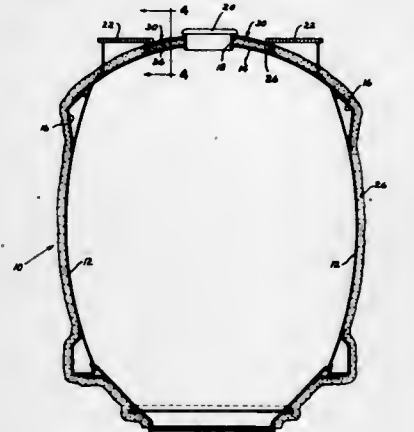
Frank R. Yurkoski, Bridgeton, and Philip J. De Frank, Hazelwood, both of, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed June 9, 1969, Ser. No. 831,418

Int. Cl. B61d 5/00, 5/04

U.S. Cl. 105-358

1 Claim



An insulated covered hopper railway car having a layer of rigid polyurethane foam applied on the outer surface thereof

by spraying in place. An outer coat of a polyester resin is applied, such as by manual brushing, onto the outer surface of the polyurethane foam material on certain areas of the polyurethane foam material which are exposed to wear and abrasion, such as roof areas adjacent the walkway or running board and areas between the separate hatch covers. A layer of fibrous material, such as woven fiberglass, is then positioned on the coat of polyester resin. Then, the fibrous material is brushed and rolled to remove any air and to embed the material in the coat of polyester resin. The resin is then allowed to gel and cure which will be around 45 minutes at 77° F.

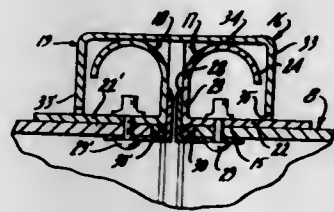
3,599,576

COVER CONSTRUCTION FOR RAILROAD CARS

Harold E. Vickerman, Milwaukee, Wis., assignor to The General Tire & Rubber Company, Akron, Ohio
Filed Feb. 17, 1969, Ser. No. 799,811
Int. Cl. B61J 39/00

U.S. Cl. 105-377

11 Claims



This disclosure includes a plurality of adjacent top covers for a railroad freight car opening with rain deflectors and batten sealing of the joint between the adjacent covers. The rain deflector includes a horizontal mounting flange and bottom plate defining a mounting clip conforming to and projecting over a generally flat end of the cover. Caulking material is placed between the end edge of the cover and the base portion of the mounting clip. The batten rests on the upper edge of the deflectors with depending vertical sidewalls closely spaced to the mounting flange.

Ribbed sealing elements are secured to the deflector sidewalls and extend outwardly into engagement with an adjacent deflector to horizontally seal the space between the deflectors. The batten resting on the rain deflectors in combination with the sealing members establish an effective seal against light and liquid leakage.

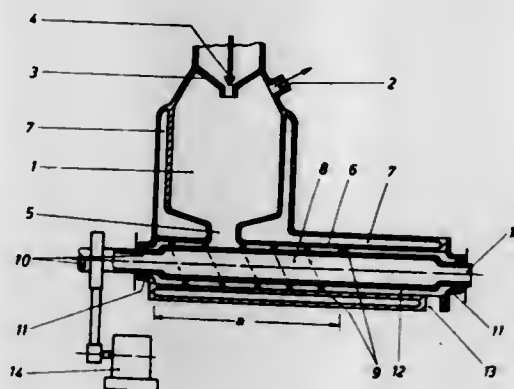
3,599,577

APPARATUS FOR WITHDRAWAL OF VISCOUS OR PULPY HARD SUGAR MASSES FROM OPEN SPACES UNDER VACUUM, IN PARTICULAR IN COOKING MACHINES

Gunter Nieblsch, Bemerode, Germany, assignor to Otto Hansel GmbH, Hannover, Germany
Filed Aug. 26, 1969, Ser. No. 853,130
Int. Cl. A21c 11/20; B29J 3/08

U.S. Cl. 107-4

7 Claims



An apparatus for withdrawal of viscous or pulpy hard sugar masses from spaces under vacuum, in particular in cooking machines, which comprises a feeding chamber, and a vacuum chamber connected with the feeding chamber. At least one

threaded conveyor screw is operable in the feeding chamber and steplessly controllable as to its speed. The threads of the conveyor screw extend only along a part of the length of the feeding chamber, and the latter has an outlet and a storage chamber for masses to be conveyed cooperating with the feeding chamber.

3,599,578

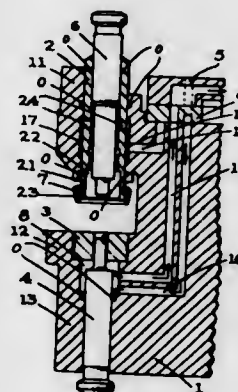
APPARATUS FOR PRODUCING PRESS-MOLDED ARTICLES

Fumio Sato, 7-24, 6-bancho, Koshien, Nishinomiya-shi, Hyogo Pref., Japan

Filed Nov. 18, 1969, Ser. No. 877,769
Claims priority, application Japan, Nov. 18, 1968, 43/84292
Int. Cl. B30b 11/10

U.S. Cl. 107-17

10 Claims



A combination provided in each compressing unit of a conventional rotary punch-and-die tablet forming machine, including an upper punch, a guide sleeve bearing the upper punch, an upper surface of a matrix having a die cavity and capable of forming a top airtight chamber encircling the upper punch when the sleeve reaches its lowest position, and a bottom airtight chamber formed by a recess formed in a rotational structure which is covered with the matrix and encircling a lower punch. Each of these components is employed in collaboration with a pressure regulating means mounted on a stationary frame portion of the machine coupled with a vacuum pump and capable of local and timed reduction of the pressure within each of said top and bottom airtight chambers, for effective production of press-molded articles.

3,599,579

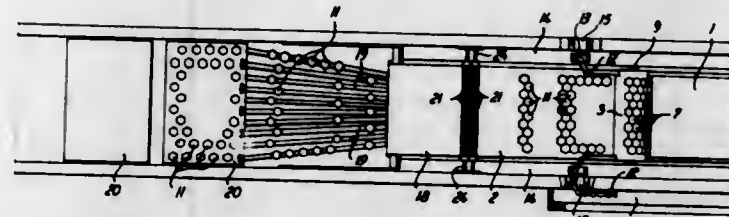
APPARATUS FOR PREPARING DOUGH PIECES IN SPACED RELATIONSHIP FOR BAKING

Julius Barclay Estrup Paaskeesen, Naverland 17-19, 2600 Glostrup, Denmark

Filed Aug. 27, 1969, Ser. No. 853,389
Claims priority, application Denmark, Sept. 4, 1968, 4247/68
Int. Cl. A21c 11/10; B26D 7/06

U.S. Cl. 107-69

2 Claims



Dough pieces for baking buns or the like are punched out in polygonal, in particular hexagonal shape from a dough band advanced on a conveyor below a punching tool. The dough pieces are transferred to baking pans which are advanced below the dough band conveyor, by means of a plurality of narrow conveyors which are arranged in a fanlike configuration and driven at a higher speed than the dough band conveyor whereby the dough pieces are spaced from each other on the baking pan in the longitudinal and lateral directions thereof.

3,599,580

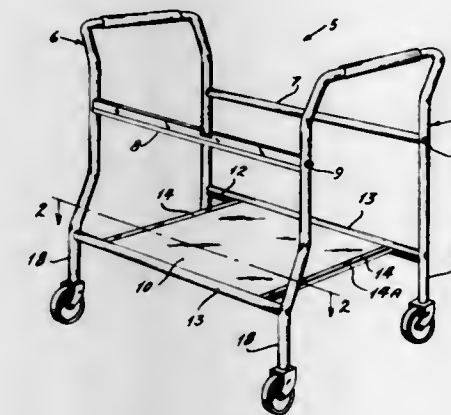
TABLE ASSEMBLY

Lowell E. Adair, St. Louis, and Walter Gusdorf, Creve Coeur, Mo., assignors to Gusdorf & Sons, Inc., St. Louis, Mo.

Filed June 1, 1970, Ser. No. 41,817
Int. Cl. A47b 3/06

U.S. Cl. 108-153

6 Claims U.S. Cl. 110-9



An assembly for tables or carts in which longitudinal stretcher members which interconnect the vertical legs are formed to receive the margins of a shelf, the transverse stretchers are grooved to receive the end edges of the shelf, the stretchers are interconnected in a manner to prevent rotation or loss of support for the shelf, and key elements lock the legs and stretchers together to provide a substantially rigid assembly.

3,599,581

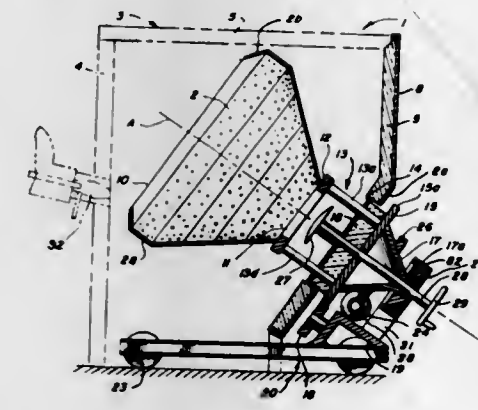
INCINERATOR

Fritz Schoppe, Max-Ruetgers-Strasse 24, 8026 Ebenhausen, Germany

Filed May 20, 1969, Ser. No. 826,130
Int. Cl. F23g 5/06

U.S. Cl. 110-8 R

5 Claims



An improved maintenance system in a pyrometric cone incinerator having a conical basketlike hollow body located in a housing and having perforated walls. The basketlike hollow body is positioned rotatably about an axis inclined at an angle to the horizontal line and has an obliquely upwardly directed large feed opening and an obliquely downwardly directed smaller discharge opening. The discharge opening is aligned with a bar cage attached to the lower end of the conical body and coaxial therewith. The outer end of the bar cage is rotatably supported on a suitable bearing which supports the body and the bar cage on a portable frame. An access door is provided in the lower axial discharge opening of the conical body. An operating means including an operating shaft extends axially outwardly from the access door through the bar cage, drive means and bearing means to an external operating handle.

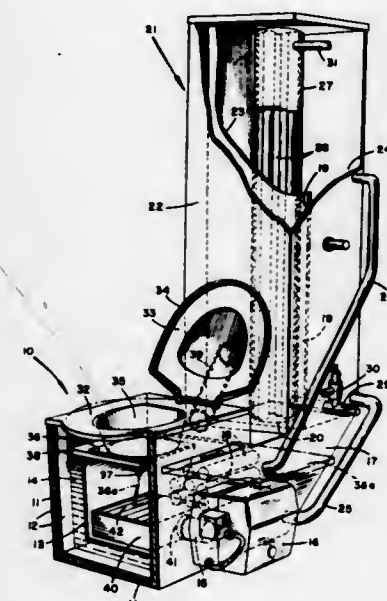
3,599,582

CENTRAL HEATING SYSTEM

Goran Emil Lagstrom, Essingeren 72C, Stockholm, Sweden

Filed Apr. 8, 1969, Ser. No. 814,321
Claims priority, application Sweden, Apr. 19, 1968, 5302/68
Int. Cl. A47k 11/02

4 Claims



A central heating system in which the combustion chamber of the system also constitutes the combustion chamber of a nonflush-type toilet, in which waste matter is destroyed by combustion.

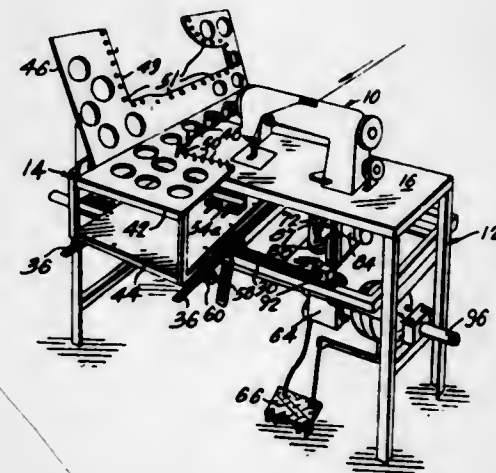
3,599,583

AUTOMATIC SEWING MACHINE

Ichchok Majer Berman, 3117 Brighton Avenue; Lorenzo Bru-nozzi, 4243 Delorimier Street, and Rejean DeGuire, 6285 Louis Hebert Street, all of Montreal, Quebec, Canada
Continuation-in-part of application Ser. No. 646,994, June 19, 1967, now abandoned. This application Mar. 17, 1969,
Ser. No. 814,229
Int. Cl. D05b 21/00

U.S. Cl. 112-121.12

11 Claims

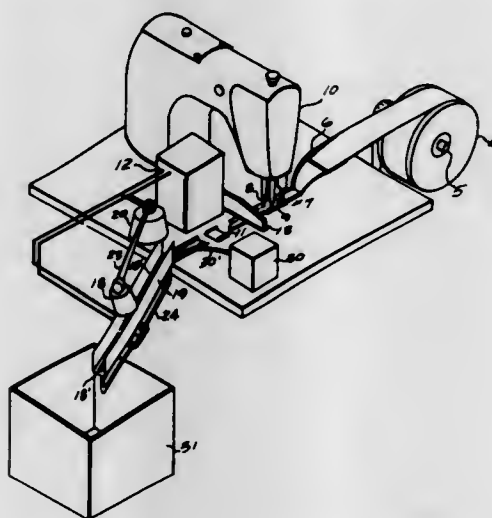


An automatic sewing machine having a laterally moving carriage. The sewing machine is of the pressure foot type and as it operates an apparel supported on the laterally moving carriage, it forces the carriage to move. The sewing machine and carriage are adapted to sew continuous stitches on the apparel and driving means are provided cooperating with the sewing machine to move the carriage longitudinally to the next row to be stitched in accordance with a pattern being followed.

3,599,584
AUTOMATICALLY CONTROLLED SEWING AND CUTTING APPARATUS
 R. Earl Fowler, Binghamton, N.Y., assignor to Fred A. Smith & Co., Inc., Binghamton, N.Y.
 Filed Dec. 18, 1968, Ser. No. 784,621
 Int. Cl. D05b 37/04

U.S. Cl. 112-130

4 Claims

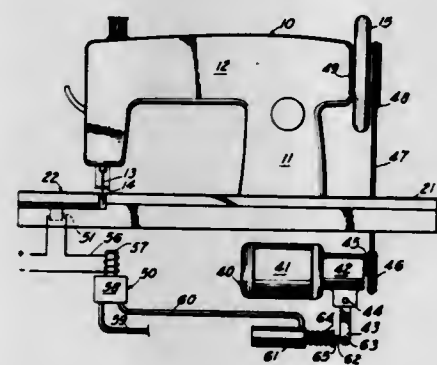


This disclosure describes an automatically controlled sewing, cutting and handling apparatus, which automatically produces individual and completed workpieces, such as belts, shoulder straps, etc., from a continuous medium or fabric web and includes means for longitudinal hemming, transverse cutting and removing of a fabric.

3,599,585
AUTOMATIC CONTROLS FOR SEWING MACHINES
 Glen H. Myrick, P.O. Box 233, Villa Rica, Ga.
 Filed Dec. 22, 1969, Ser. No. 886,976
 Int. Cl. D05b 69/00

U.S. Cl. 112-217.3

14 Claims



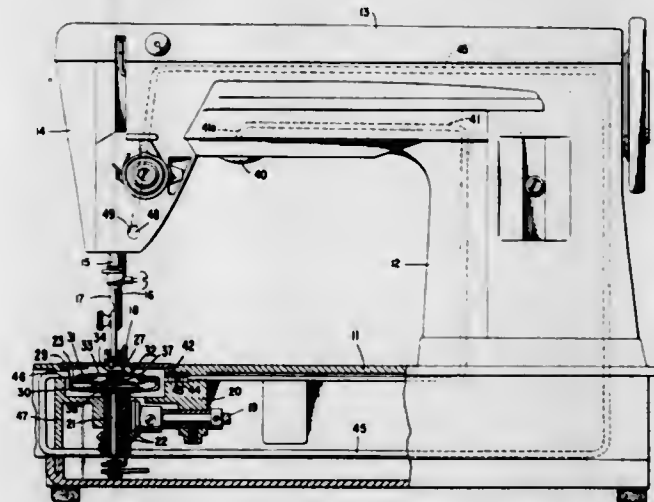
An automatic control means for use in a sewing machine having at least one needle operating to form a line of stitching in response to a workpiece being placed in the position for a stitching operation. More particular, this invention includes a workpiece support plate pivotally mounted on said sewing machine for movement between an upward retracted position and a depressed position. A sensing means is operatively associated with said workpiece support plate for sensing movement of the workpiece support plate to the depressed position. A power drive motor is operatively associated with the sewing machine for effecting operation of the stitching needle. The power drive motor includes a clutch means for moving the power drive means between a nondriving condition and a driving condition. A pneumatic power control cylinder is operatively associated with the clutch means. The pneumatic power control cylinder includes an air supply line operatively connected therewith. An electromagnetic valve means is positioned within said air supply line. The electromagnetic valve means is operatively connected to the workpiece sensing switch whereby operation of the sensing

switch will effect energization of the electromagnetic valve means to allow air under pressure to energize the pneumatic control cylinder which will in turn effect operation of the power drive means.

3,599,586
BOBBIN THREAD DEPLETION DETECTOR FOR SEWING MACHINES
 Albert L. Newman, Cleveland Heights, Ohio, assignor to The Singer Company, New York, N.Y.
 Filed June 10, 1970, Ser. No. 45,148
 Int. Cl. B65d 63/00

U.S. Cl. 112-218 R

11 Claims

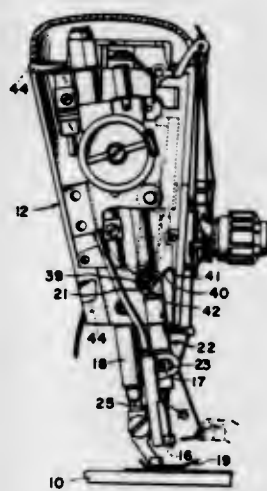


A beam from a light source is transmitted through a fiber optic bundle and is directed into the root region of a lockstitch sewing machine bobbin by a converging lens. A receiving fiber optic bundle receives the beam which passes through the root region of the bobbin when the thread on the bobbin is below a predetermined amount and directs the ray to a display screen in view of an operator to alert the operator that the thread remaining on the bobbin is near depletion.

3,599,587
SEWING MACHINE PNEUMATIC NEEDLE THREADER
 Robert G. Greulich, Cranford, N.J., assignor to The Singer Company, New York, N.Y.
 Filed Nov. 18, 1969, Ser. No. 877,709
 Int. Cl. D05b 87/00

U.S. Cl. 112-225

5 Claims



This disclosure relates to a pneumatic needle threader adapted for use in a sewing machine. The needle threader includes structure which permits a needle thread suction conduit to be manually swung from an inoperative storage position within the head of the sewing machine into a cooperative spring-biased engagement with the sewing needle-eye extremity and is utilized to thread the sewing needle.

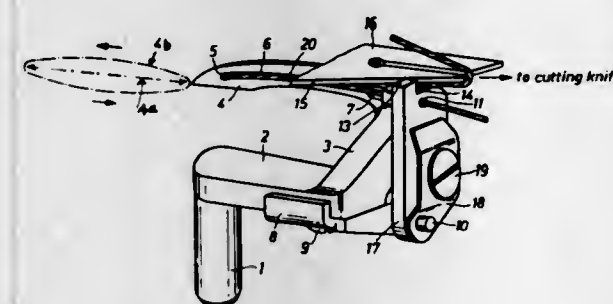
3,599,588
THREAD-CARRYING LOOPTAKER FOR CHAIN STITCH SEWING MACHINES WITH THREAD CATCHER AND CLAMPING DEVICE

Eugen Angele, Kaiserslautern/Upper Palatinate, Germany, assignor to GM Pfaff AG, Konigstrasse, Germany
 Filed Apr. 6, 1970, Ser. No. 25,680
 Claims priority, application Germany, Apr. 26, 1969, G 69 16 929

Int. Cl. D05b 65/00

U.S. Cl. 112-252

7 Claims

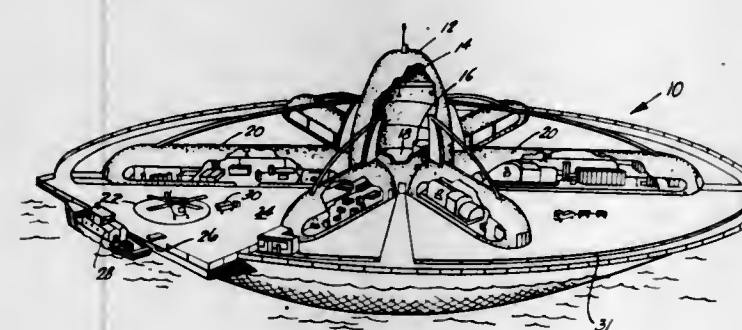


A combined thread-carrying looptaker and cutting device for chain stitch sewing machines including a thread catcher is fitted with means to clamp, during initiation of a sewing operation, the free cut length of the thread comprising a spring-loaded clamping plate rotatively mounted upon the looptaker body about a pivot axis spaced from and parallel to the axis of a guide bore in the looptaker through which is passed the looptaker thread. The clamping plate has a further guide bore normally registering with the guide bore in the looptaker body and is deflected from its normal position by an abutment thereof camming with the edge of a thread catcher during the latter's displacement from its rest position to the thread-cutting position, resulting in clamping of the thread between the plate and looptaker body. The pull on the thread upon formation of the initial stitches of a subsequent sewing operation causes the automatic return of the clamping plate to its normal operating position.

3,599,589
EARTHQUAKE-RESISTANT NUCLEAR REACTOR STATION
 Harold M. Busey, Kennewick, Wash., assignor to McDonnell Douglas Corporation
 Filed Dec. 29, 1967, Ser. No. 694,479
 Int. Cl. B63b 35/44

U.S. Cl. 114-0.5

2 Claims



A floating structure for the protection of nuclear reactors from damage during earthquake shock wherein the structure is designed to absorb shocks without rupture of critical nuclear reactor equipment.

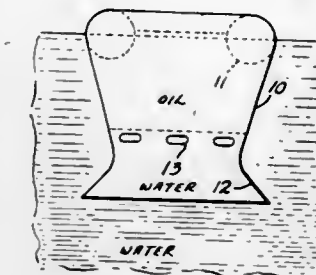
3,599,590
FLOATING OIL-RECOVERY SUMP
 Jose Dominguez Rego, 600 Broad St., Newark, N.J.
 Filed June 10, 1969, Ser. No. 831,959
 Int. Cl. B63b 35/00

U.S. Cl. 114-0.5

3 Claims

A floating vessel comprising a hull having an upper end lying above the surface of a body of water and an open lower

end lying below the water surface to admit and accumulate



upward flowing oil or gas from an underwater well.

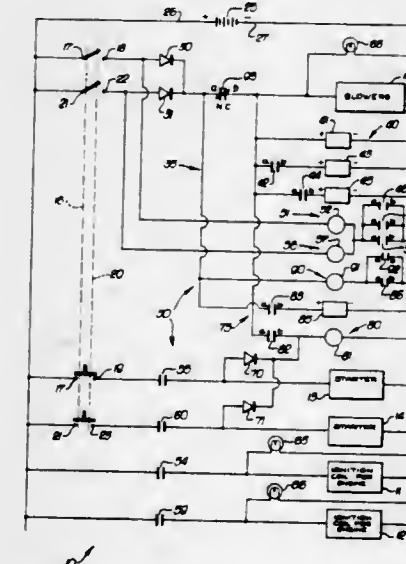
3,599,591
SAFETY LOCKOUT IGNITION SYSTEM
 Andrew C. Edelson, 10832 Charnock Road, Los Angeles, Calif.

Filed Oct. 9, 1969, Ser. No. 865,118

Int. Cl. B63j 2/06

U.S. Cl. 114-211

7 Claims



An ignition switch for a powerboat having an ignition terminal connected to blowers for exhausting the engine compartment of fumes and to time-delay relays in series, in turn connected to a latching relay between a battery and an engine, and between the start terminal of the ignition switch and a starter, to prevent the engine from being started until the blowers have operated a preselected time duration to clear the engine compartment of dangerous fumes which might have collected therein. A control latching relay energized by the starter energizes a shutoff time-delay relay after a second predetermined time duration from starting, to open the normally closed contacts of a shutoff latching relay halting the operation of the blowers after the blowers have cleared the engine compartment of any fumes that might have accumulated therein during the starting of the engine.

3,599,592
RELEASABLE MOORING ROPE
 Charles L. Welton, c/o Welton's Western Wear, Saratoga, Wyo.

Filed Oct. 27, 1969, Ser. No. 869,789

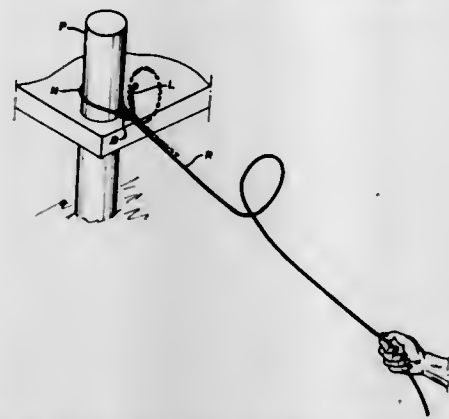
Int. Cl. B63b 21/00, 23/58; F16g 11/00

U.S. Cl. 114-230

9 Claims

A releasable mooring rope having one end formed as a noose by a throat block at the noose where through the bight of the noose slidably extends and wherein the end of the rope at the noose is fitted, in a socket. The end of the rope carries a ferrule having a circumferential groove adapted to be engaged by a locking cam within the throat block in normal use, but to be released by rotation of the cam to permit the end of the rope to separate from the throat block and break

the noose. A lever connected to the cam outstands from the throat block and is adapted to be engaged by the rope, by



throwing a loop in the rope which will fall about the lever. Once engaged, a pull of the rope will rotate the lever to shift the cam to its releasing position.

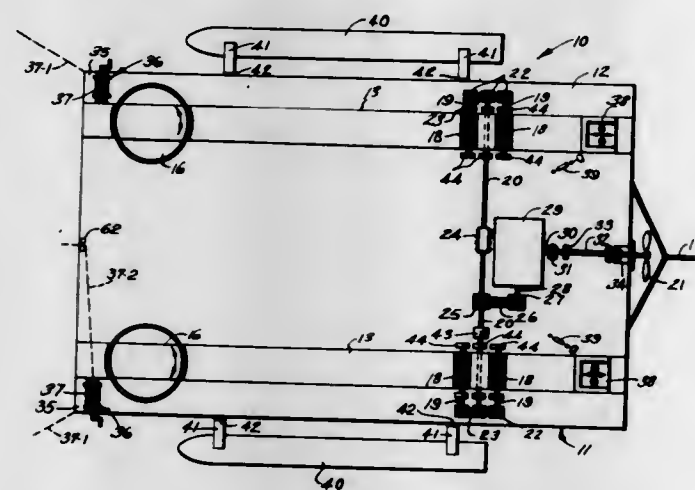
3,599,593

AUTOMOBILE FERRY

Edward Nelles George Fleming, 3931 Bradshaw Diversion, R. R. #2, Langely B.C., Canada
Filed June 4, 1969, Ser. No. 830,330
Int. Cl. B63f 3/00

U.S. Cl. 115-0.5

4 Claims



A combination ferry and trailer device for an automobile, to be towed behind the automobile on land and serving as an automobile ferry on water. When the device is waterborne with the automobile loaded, it is propelled by the automobile engine, rollers engaging rear wheels of the car transmit engine power to a propeller. The device also has a pair of outrigger pontoons for stabilization.

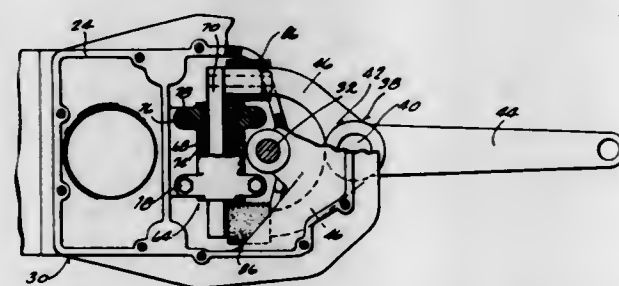
3,599,594

SOUND AND VIBRATION ISOLATING MOUNT FOR AN OUTBOARD MOTOR

Dale L. Tsipale, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed Sept. 11, 1969, Ser. No. 856,990
Int. Cl. B63h 21/26

U.S. Cl. 115-17

15 Claims



Disclosed herein is a sound and vibration isolating arrangement for an outboard motor having a marine propulsion unit

mounted rearwardly of the steering axis of the outboard motor. The mounting arrangement includes a pair of mounts secured to the propulsion unit in a vertically spaced relation approximately in alignment with the neutral or roll axis of the propulsion unit and rearwardly of or behind the drive shaft. Each mount includes a crossbar which is supported by a resilient bushing within a casing and which has ends extending outwardly from the casing transversely to the direction of motion of the propulsion unit.

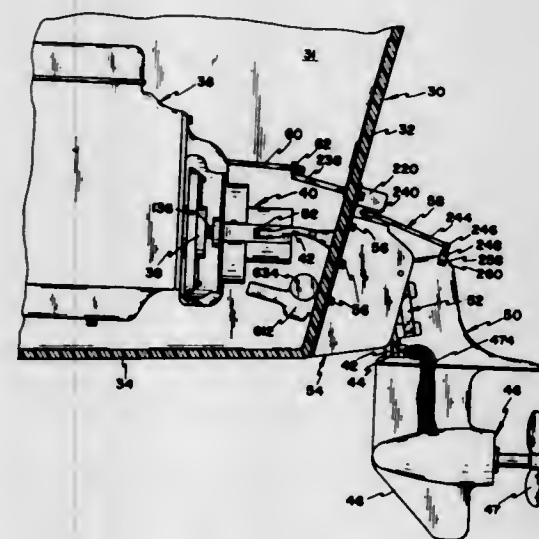
3,599,595

OUTDRIVE FOR BOATS

William P. James, 1730 21st St., Ogden, Utah
Filed July 17, 1969, Ser. No. 842,486
Int. Cl. B63h 5/06

U.S. Cl. 115-34

17 Claims



An outdrive for a boat having a hydraulic pump including an eccentric ring which is rotatable to change the path of fluid flow under pressure so that the direction of drive of the motor can be easily reversed. Hydraulic fluid may be subjected to pressure with structure prior to communication thereof to the hydraulic pump. A transom bracket and stern drive housing support are connected so as to provide pivotal movement of the stern drive housing along two mutually perpendicular axes so that the stern drive housing will remain in the water even when the boat negotiates a sharp turn, the transom bracket being provided with couplings to accommodate fluid flow therethrough and a fluid-restraining recess to allow recirculation of cooling water through a driving engine carried by the boat. The stern drive housing is of one-piece molded construction. Hydraulic motor structure in the foot of the stern drive housing drives a propeller shaft in either direction depending on the direction of the fluid flow from the hydraulic pump. The hydraulic motor has telescoped drive shafts and a central bearing flange which counteracts the force of propeller thrust in one direction with hydraulic fluid pressure in the opposite direction.

3,599,596

METALLIC TAPE FOR VERTICAL SCALE INSTRUMENTS

Casimer F. Remas, Tankhannock, and John Alan Moore, South Montrose, both of Pa., assignors to The Bendix Corporation

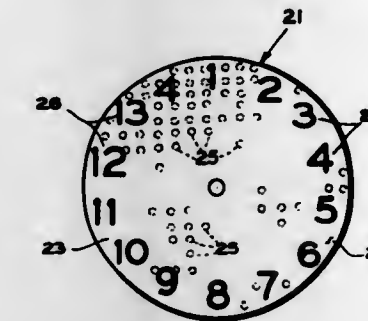
Filed Oct. 7, 1969, Ser. No. 864,476
Int. Cl. G01d 21/00

U.S. Cl. 116-114

9 Claims

An indicating member for an instrument comprising a thin perforated metallic element and a translucent film laminated to the metallic element and arranged to overlay the perforations so that light from a source behind the metallic element

transilluminates the translucent film through the perforations in the metallic element. The indicating member may be in



the form of an elongated tape for a vertical scale indicator or in the form of a dial for a pointer-type instrument.

3,599,597

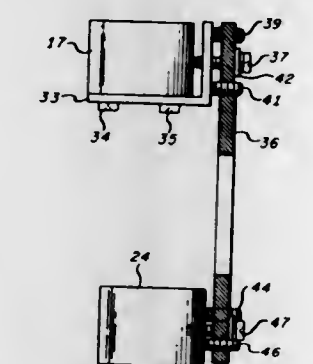
ADJUSTABLE METER MOUNTING

William F. Maday, Tempe, and Joseph L. Tyrrell, Phoenix, both of Ariz., assignors to Sperry Rand Corporation, Great Neck, N.Y.

Filed May 16, 1969, Ser. No. 825,199
Int. Cl. G09f 9/00

U.S. Cl. 116-129

6 Claims



Apparatus for aligning a meter pointer relative to a housing in which the meter is installed. Three set screws arranged in a triangular pattern and threaded through a support structure rigidly affixed to the housing are adjustable to orient the meter relative to the support structure so that the pointer can move along a prescribed path free from contact with other components incorporated in the housing.

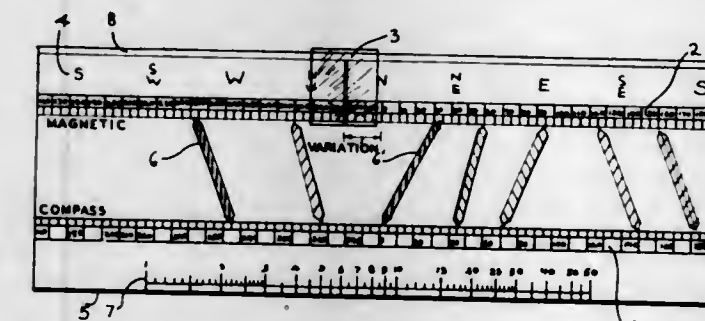
3,599,598

MAGNETIC BEARING INDICATOR

Philip M. Banner, 28 Oxford Road, Massapequa, N.Y.
Filed Mar. 12, 1970, Ser. No. 18,821
Int. Cl. G08c 5/00; G01c 17/38

U.S. Cl. 116-130

3 Claims



A navigational computer for obtaining true bearing from magnetic compass information. The device has a compass bearing scale and a magnetic bearing scale. Magnetic deviation pointers for a representative number of bearings for the particular craft are previously attached to correlate the two

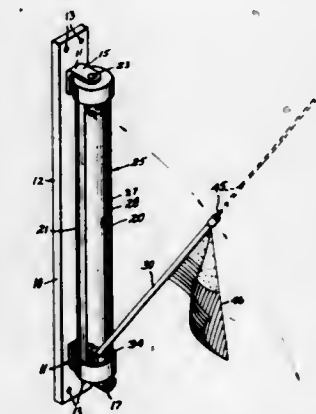
scales. In use the compass reading is easily translated to magnetic bearing. A movable cursor is then moved from the magnetic reading to set in magnetic variation for the locality. The final reading under the cursor hairline is True Bearing.

3,599,599

FLAG STORAGE AND DISPLAY HOUSING

Terry R. Jones, 1050 C St. S.W., Ephrata, Wash.
Filed May 22, 1969, Ser. No. 826,826
Int. Cl. G09f 17/00; A47b 67/02; B61l 21/00
U.S. Cl. 116-173

8 Claims



A flag storage and display housing having an enclosure for a flagstaff which is pivotally mounted therein for tilting movements in a vertical plane and the housing is adapted to be selectively opened to admit of tilting the staff to a selected angular position extending from the enclosure. Means are provided to frictionally secure the staff at the selected angle and other means facilitate axial rotation of the flagstaff to furl the flag thereabout preparatory to storage within the enclosure.

3,599,600

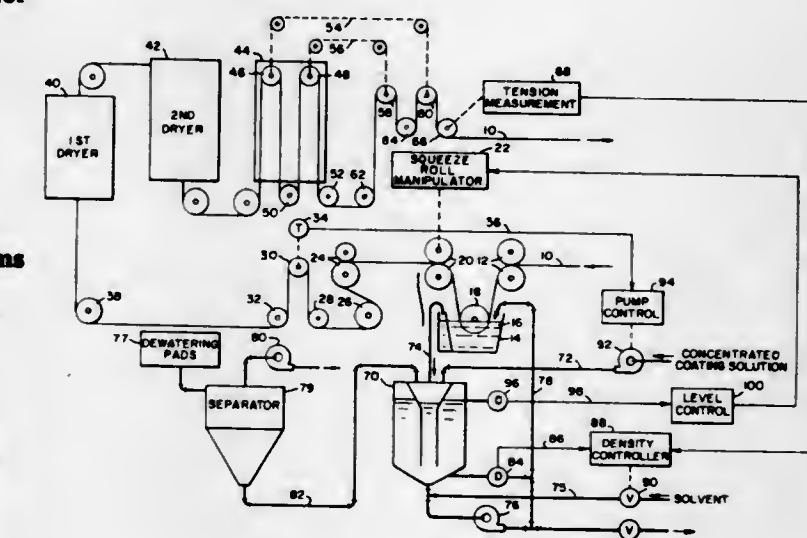
CONTROL SYSTEM FOR COATING CONTINUOUS WEBS

James T. Carleton, and Richard E. Putman, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 23, 1969, Ser. No. 887,499
Int. Cl. B05c 11/10

U.S. Cl. 118-8

9 Claims



Described is a system for controlling the amount of coating per unit of area applied to a continuous web which passes through a dip tank and thence through squeeze rolls and one or more drying chambers. The system also incorporates means for controlling tension in a dried web, which tension is a function of the amount of coating applied per unit of area. The foregoing is accomplished by controlling the amount of concentrated coating solution fed to a blending tank, which supplies the dip tank, as a function of web speed; by con-

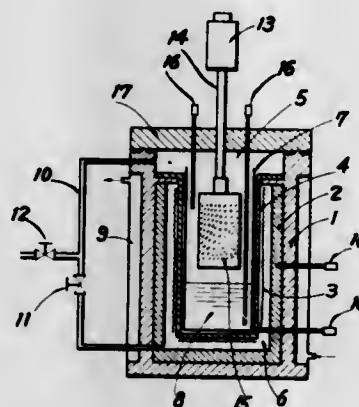
trolling the pressure exerted on the web by the squeeze rolls as a function of the liquid level in the blending tank to which excess solution from the squeeze rolls and dewatering pads is fed; and by controlling the amount of solvent for the concentrated coating solution fed to the blending tank as a function of the tension in the dried web. The invention additionally includes means for directly monitoring the density of the coating solution in the blending tank and for adjusting that density should it depart from a predetermined set value.

3,599,601
INTERNALLY HEATED AUTOCLAVE FOR METAL IMPREGNATION

Toshikatsu Ishikawa, Tokyo; Munenori Tomoeda, Tokyo, and Toyonosuke Kanemaru, Zushi, all of Japan, assignors to Nippon Carbon Company, Limited, Tokyo, Japan
Filed May 21, 1969, Ser. No. 826,322
Claims priority, application Japan, May 28, 1968, 43/35667
Int. Cl. C23c 1/00

U.S. Cl. 118—50

3 Claims



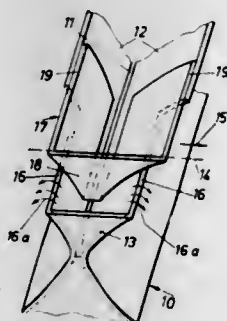
An internally heated autoclave includes an outer shell having therein two separate and isolated chambers. The first chamber is a heating chamber and has therein a heating means. The second chamber is an impregnating chamber and has therein an impregnating vessel adapted to contain molten metal. A dip cage containing a porous article to be impregnated by the molten metal is attached to the shaft of a lift means and is adapted to be raised and lowered in the impregnating chamber. Both of the chambers may be selectively connected to either a source of pressure or a source of vacuum. Means are provided to equalize the pressure within both chambers.

3,599,602
COATER HEAD

Franz Krautzberger, and Josef Geistbeck, both of Heidenheim, Germany, assignors to J. M. Voith GmbH, Heidenheim, (Brenz) Germany
Filed Feb. 2, 1970, Ser. No. 7,597
Claims priority, application Germany, Feb. 19, 1969, P 19 08 163.1
Int. Cl. B05c 3/18

U.S. Cl. 118—410

6 Claims



The specification discloses a coater head for depositing coating sidewalls on webs such as paper webs. The disclosed

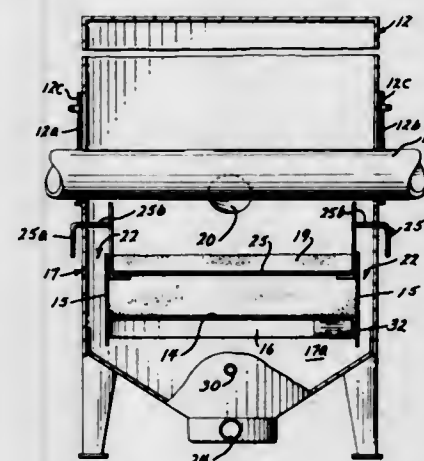
coater head comprises a pressure container beneath the web and having a nozzle on the top extending upwardly from the container and diverging toward the web in the direction in which the web travels. The nozzle has end walls extending between the diverging sidewalls and at least one slide is mounted in the nozzle and is movable transversely of the web to vary the effective opening of the nozzle. The slide has an end wall parallel to the nozzle end wall and has at least one blade engaging one of the sidewalls of the nozzle. The nozzle wall engaged by the blade is cut off or has openings therein which are uncovered when the slide moves inwardly of the nozzle so that the coating flows from the container along the full length of the nozzle but only rises to the web over the width thereof determined by the slide adjustment. Obstruction to the flow of coating material is thereby eliminated and the formation of deposits in the container or nozzle due to obstruction of flow is eliminated.

3,599,603
ELECTROSTATIC COATING SYSTEM
Robert L. Koch, II, Evansville, Ind., assignor to Ashdie, Evansville, Ind.

Filed Oct. 23, 1968, Ser. No. 769,913
Int. Cl. B05c 5/02

U.S. Cl. 118—629

3 Claims

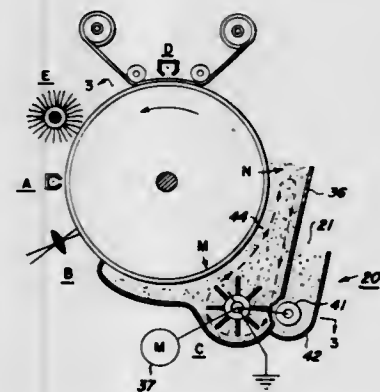


An electrostatic coating system characterized by a chamber containing a level of fluidized powder, an adjustable electrode for controlling the coating thickness on the part being coated and overflow weirs for controlling the level of fluidized powder with respect to such part.

3,599,604
XEROGRAPHIC DEVELOPMENT APPARATUS
Prabhul P. Chawda, Rochester; John P. Caldwell, Penfield, and William E. Kramer, Ontario, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed Jan. 11, 1968, Ser. No. 697,204
Int. Cl. B05b 5/04

U.S. Cl. 118—637

1 Claim



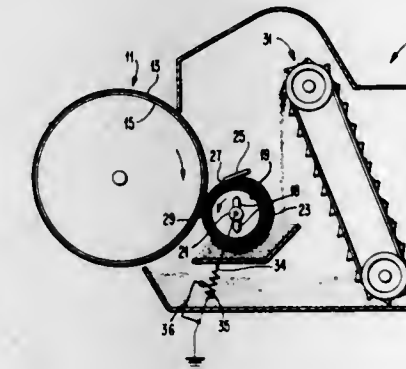
Apparatus for developing an electrostatic latent image on a moving photoconductive surface in which the surface is moved in contact with the two-component developer materi-

al so that an uphill flow of developer material is established chamber and connected to electrical counting circuitry. A therein, the apparatus having means associated therewith to separate portion of the interior of the chamber may be aid the flow of developer material through the system.

3,599,605
SELF-BIASING DEVELOPMENT ELECTRODE FOR ELECTROPHOTOGRAPHY
James C. Ralston; Robert T. Ritchie, and Bernard G. Thompson, all of Lexington, Ky., assignors to International Business Machine Corporation, Armonk, N.Y.
Filed Mar. 20, 1969, Ser. No. 808,823
Int. Cl. G03g 13/00

U.S. Cl. 118—637

5 Claims



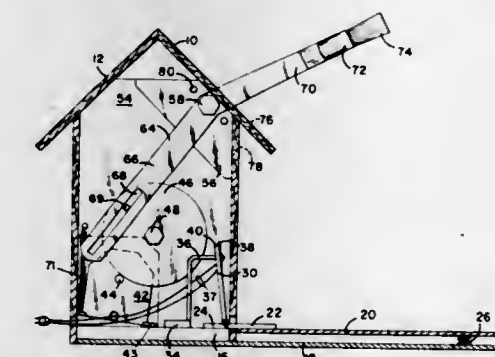
A self-biasing electrode system for the development of latent electrostatic images provides low background and good solid area image fill by positioning a conductive electrode adjacent to the image surface as the image is being developed by charged making particles. The electrostatic image induces a charge on the electrode whose magnitude is controlled by grounding the electrode through an electrical impedance, for example, either a resistor along or a resistor and capacitor arranged in parallel.

3,599,606
ANIMAL-SCRATCHING DEVICE
David W. Hayward, 6379 Budlong Lake Ave., San Diego, Calif.

Filed Aug. 20, 1969, Ser. No. 851,676
Int. Cl. A01k 13/00, 29/00

U.S. Cl. 119—1

9 Claims



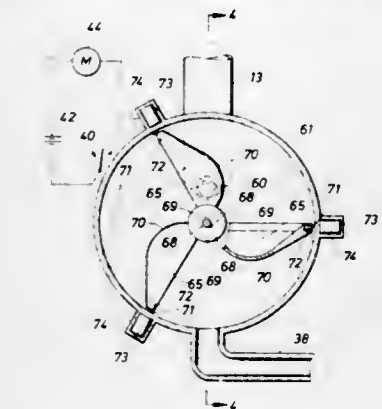
An animal-scratching device in which an animal steps on a platform energizing a power source that moves a scratching device positioned adjacent to the platform to scratch the animal, which power source is only energized while the animal is standing on or pressing down on the platform.

3,599,607
APPARATUS FOR METERING AND SAMPLING MILK
Sherwin Wallick, 5120 Del Monte #9, Houston, Tex.
Filed Dec. 15, 1969, Ser. No. 884,865
Int. Cl. A01j 07/00

U.S. Cl. 119—14.17

12 Claims

An improved metering and sampling apparatus for use with automatic milking machines. A chamber is provided with a paddle wheel which is arranged to be rotated by the flow of milk from the cow to the milking machine. Magnets may be disposed in the blades of the paddle wheel for actuating a detector or magnetically actuated switch located outside the

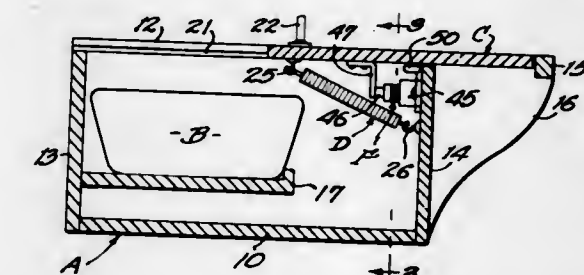


located to collect a sample of the milk being taken from the cow, and means is preferably provided for retrieving the sample without interrupting the milking and metering operation.

3,599,608
AUTOMATIC PET FEEDER
Raymond D. Esquivel, 11546 Rochester, Apt. #3, Los Angeles, Calif.
Filed Oct. 6, 1969, Ser. No. 863,798
Int. Cl. A01k 05/00

U.S. Cl. 119—51.12

8 Claims

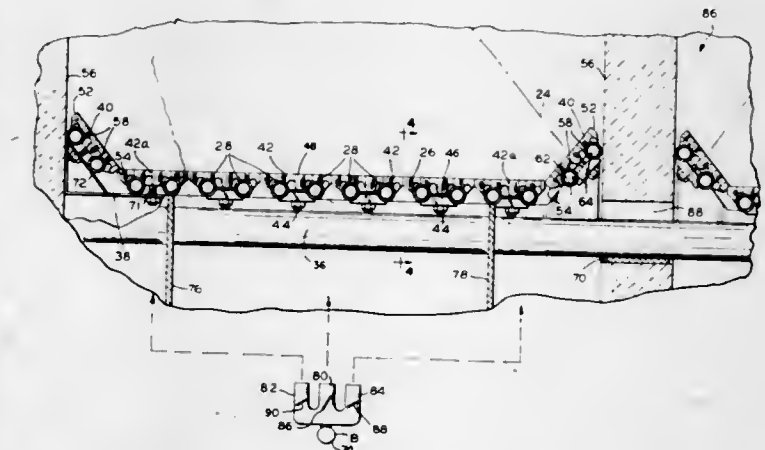


A container in which a dish of pet food can be placed, has a cover which can be manually closed to prevent access to the food until feeding time, when a time clock using household current 115 v. AC releases a latch holding the cover in closed position, whereupon a spring will retract the cover to give access to the food, and a limit switch will be opened by the cover to inactivate the latch-releasing circuit.

3,599,609
OVEN FOR BURNING WASTE WOOD PRODUCTS
Fred V. Sams, 2981 S.W. Fairview Blvd., Portland, Oreg.; Charles L. Wellons, 951 7th Ave., West Linn, Oreg., and Agnes M. Sams, executrix, of said Fred V. Sams, deceased
Filed Sept. 5, 1969, Ser. No. 855,691
Int. Cl. F22b 31/00

U.S. Cl. 122—2

12 Claims



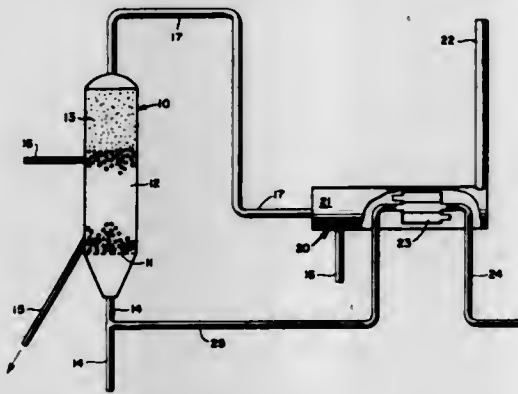
A Dutch oven for firing a boiler with waste wood products includes refractory walls with a grate structure disposed therebetween. The grate structure comprises a plurality of

bars mounted upon water-cooled pipes and includes a central portion for principally supporting the fuel, and inclined side portions. A forced draft from underneath the grate is directed into the fuel as well as above the fuel through the aforementioned inclined grate side portions for providing turbulence and ovenfire burning of combustion products.

3,599,610
COMBUSTION OF HIGH-SULFUR COAL WITH MINIMAL ECOLOGICAL TRAUMA
Marshall L. Spector, Princeton, N.J., assignor to Air Products and Chemicals, Inc., Philadelphia, Pa.
Filed Aug. 3, 1970, Ser. No. 60,379
Int. Cl. C10j 1/00

U.S. Cl. 122-5

10 Claims



Heating values are recovered from sulfur-containing coal in a two-stage process which minimizes pollution. In the first stage, sulfur-containing coal is reacted with CaO in a fluidized bed gasifier which operates adiabatically, under reducing conditions, to yield CaS and a gas rich in CO. The second stage is a conventional boiler to which the off-gas from the first stage and entrained desulfurized coal fines, are delivered as fuel. The flue gas from this boiler contains substantially no sulfur dioxide as a pollutant. CaS is withdrawn from the first stage as a valuable byproduct.

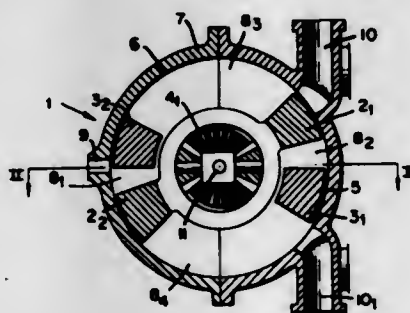
3,599,611
FLUID ROTARY MOTOR AND CLUTCH MECHANISM
Frederic Stant, 10, rue du General Bolger, 67 Bouxwiller, France

Filed Feb. 14, 1969, Ser. No. 799,307
Claims priority, application France, Feb. 23, 1968, 140,969

Int. Cl. F02b 53/00

U.S. Cl. 123-8.47

3 Claims



A fluid rotary motor comprises two pairs of rotary pistons, each pair being mounted on a separate rotor. Each rotor is geared to and coaxial with a common output shaft through a clutch mechanism which functions to ensure that the output shaft rotates in only one direction.

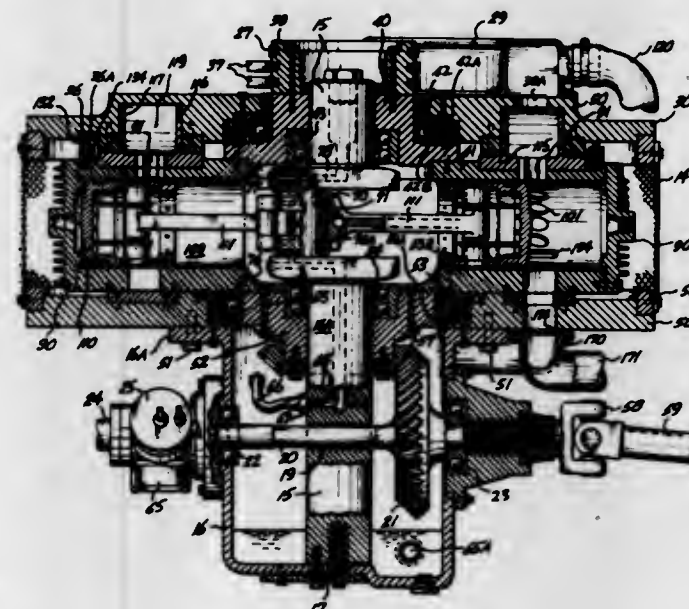
3,599,612
INTERNAL COMBUSTION ENGINE
Tony R. Vilella, 4701 Viewdrive, Everett, Wash.
Filed Aug. 4, 1969, Ser. No. 847,181
Int. Cl. F02b 57/00

U.S. Cl. 123-44 D

17 Claims

This application discloses a novel internal combustion engine incorporating the advantageous features of two-cycle

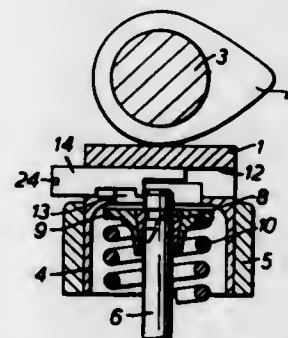
and four-cycle engines in a single simplified engine, and also discloses the novel engine in combination with a drive assembly for utilization of the engine in an automobile. A stationary vertical crankshaft and a cylinder block disposed for rotation about the crankshaft are disclosed. Cylinder sleeves disposed in the rotatable block assembly include intake and exhaust ports which are substantially diametrically opposed with the valve action being controlled by the position of the piston within the cylinder sleeve in combination with non-rotative upper and lower intake and exhaust control casings.



Fuel as well as air for combustion and scavenging of the combustion chamber is provided through the use of a blower system cooperating with a rotating blower ring attached to the block assembly. The engine includes not only a combustion chamber associated with each piston but also a secondary burning chamber which is opened at a predetermined point in the travel of each piston so that an additional charge of oxygen is applied to the combustion chamber after the main combustion has taken place. Construction details of the complete engine, the novel power transfer assembly for driving a vehicle, and a fuel injection system are disclosed.

3,599,613
ADJUSTABLE TAPPET FOR OVERHEAD-CAMSHAFT INTERNAL COMBUSTION ENGINES
Royston Gordon Freese, Upper Beeding, England, assignor to Ricardo & Co., Engineers, (1927) Limited
Filed July 16, 1969, Ser. No. 842,103
Claims priority, application Great Britain, July 22, 1968, 34771/68
Int. Cl. F011 1/14, 1/20
U.S. Cl. 123-90.27

5 Claims



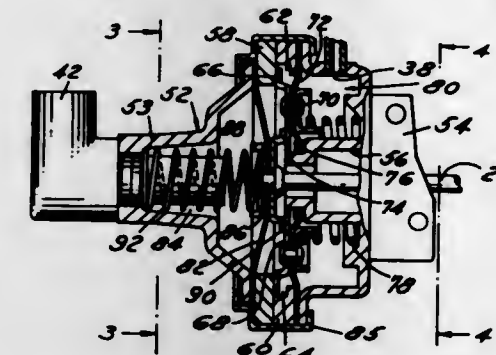
A valve tappet arrangement for an overhead camshaft internal-combustion engine including a tappet-setting member adapted to be inserted into an opening in the valve tappet for adjusting the effective thickness of the tappet, the tappet setting member being in the form of a self-locking pallet so that when it is fully inserted into position in the valve tappet it is locked against direct withdrawal from the valve tappet.

3,599,614
DUAL-DIAPHRAGM DISTRIBUTOR
Frank M. Kittredge, Temperance, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Continuation of application Ser. No. 687,519, Dec. 4, 1967, now abandoned. This application Sept. 11, 1969, Ser. No. 858,567

Int. Cl. F02p 5/04

U.S. Cl. 123-117 A

8 Claims



A vacuum motor having two independently mounted and movable flexible diaphragms mounted in a common housing and partitioning the housing into fluid chambers, one of the diaphragms having a limited movement and at times limiting the movement of the other diaphragm, the other being connected to a means to be actuated; and, of which the following is a specification.

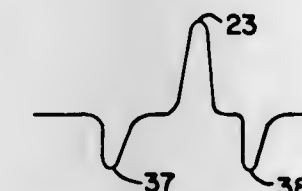
3,599,615
SPARK ADVANCE MECHANISM FOR SOLID STATE IGNITION SYSTEMS
Roland J. Foreman, Franklin Park, and William J. Warner, Schaumburg, both of, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 29, 1969, Ser. No. 828,990

Int. Cl. F02p 3/04

U.S. Cl. 123-148 E

6 Claims



A spark advance mechanism for an internal combustion engine is included in a variable reluctance voltage generator comprised of a magnet embedded in a member rotating in synchronism with the engine which moves the magnet past a sensor coil having a shaped core. When the voltage generated in the sensor coil by the rate of change of flux from the magnet rises to a given threshold amplitude it triggers an ignition circuit thereby producing a spark to ignite fuel in the engine. Spark advance is accomplished by varying the rate of change of flux through selectively shaping the portion of the core which is adjacent to the path of the magnet.

3,599,616
IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES
Kazuo Oishi, and Tokuhiko Kurebayashi, both of Kariya-shi, Japan, assignors to Nippon Denso Kabushiki Kaisha, Kariya-shi, Japan

Filed July 31, 1969, Ser. No. 846,371

Claims priority, application Japan, Aug. 22, 1968, 43/60151

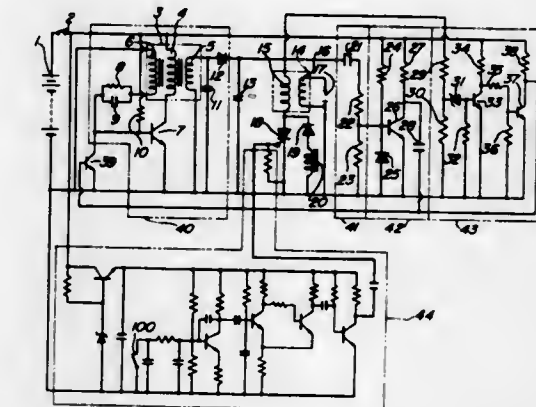
Int. Cl. F02p 3/06

U.S. Cl. 123-148 E

6 Claims

An ignition system of a capacitor discharging type for internal combustion engines having a DC-DC converter, a discharging capacitor, an ignition coil and a silicon-con-

trolled rectifier. In the system, a differentiation circuit, a waveform shaping circuit and a switching element are additionally provided so that the switching element interposed in the base-emitter circuit of an oscillation transistor in the DC-

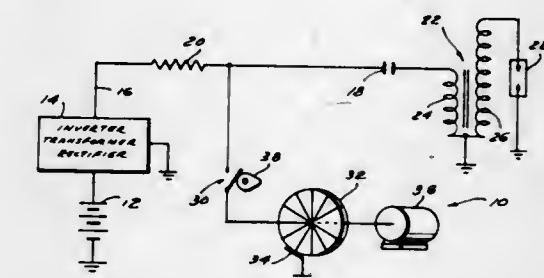


DC converter is actuated by the output pulse from the waveform shaping circuit to cease the operation of the DC-DC converter for a period of time corresponding to the duration of the pulse.

3,599,617
MULTIPLE SPARK SYSTEM OF IGNITION
Glenn B. Warren, 13601 Myron St., Schenectady, N.Y.
Filed July 8, 1969, Ser. No. 839,955
Int. Cl. F02p 3/06

U.S. Cl. 123-148 E

2 Claims



An improved ignition system for an internal combustion engine is adapted to provide a series of relatively short duration sparks for ignition purposes during each successive ignition period of the engine cycle. The system in one embodiment utilizes a high speed commutator wheel adapted to interrupt the discharge of the ignition system capacitor through the primary winding of the ignition coil, thereby inducing approximately 2,000 sparks per second in the spark plug connected to the secondary winding of the coil.

3,599,618
TRANSISTOR IGNITION SYSTEM WITH BALLAST COMPENSATION
Gunther Schuette, Addison, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 28, 1970, Ser. No. 41,489

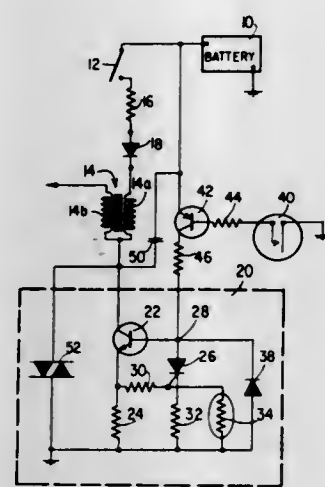
Int. Cl. H05b 37/02, 39/04; F02p 1/00

U.S. Cl. 123-148 E

8 Claims

An ignition system has a transistor connected in series with a primary winding of a conventional spark coil, and a sensing resistor is also connected in series with the transistor. A silicon-controlled rectifier has the anode thereof connected to the base electrode of the transistor and the cathode thereof coupled to the emitter of the transistor effectively to be in parallel with the base-emitter junction. The gate electrode of the silicon-controlled rectifier is coupled to the sensing resistor to be rendered conductive in response to a predetermined voltage level developed at the sensing resistor. The sil-

icon-controlled rectifier, when conductive, decreases the current flow through the transistor and the primary winding of



the spark coil and, when nonconductive, increases the current flow through the transistor and the primary winding of the spark coil.

3,599,619

VALVE, IN PARTICULAR EXHAUST VALVE FOR AN INTERNAL COMBUSTION ENGINE OR THE LIKE

Karl Kuhn, Saint-Germain-en-Laye, France, assignor to Societe D'Etudes De Machines Thermiques, Saint Denis (Seine Saint Denis), France

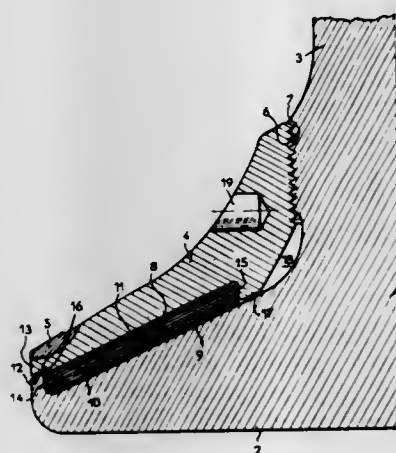
Filed Aug. 6, 1969, Ser. No. 847,900

Claims priority, application France, Sept. 16, 1968, 166,379

Int. Cl. F011 3/02, 3/20

U.S. Cl. 123—188 AA

12 Claims



An exhaust valve for an internal-combustion engine with a mushroom head comprising an inner heat-insulating layer of mineral material such as mica extending from a central area to the vicinity of the periphery of said head and interposed between the front end face of the head and the opposite side thereof which is provided with an annular bearing surface portion formed under said head, said heat-insulating layer having a compressive strength sufficient to transmit all the working load integrally to the valve body.

3,599,620

RESILIENT RESERVOIR ASSEMBLY

Jay Z. Ballin, Des Plaines, Ill., assignor to The Kendall Company, Boston, Mass.

Continuation of application Ser. No. 508,673, Nov. 19, 1965, now abandoned. This application Aug. 18, 1969, Ser. No. 852,974

Int. Cl. A61m 25/00

U.S. Cl. 128—349 B

6 Claims

An inflatable retention catheter's resilient inflated reser-

voir retaining a fluid under pressure is enclosed by a jacket



which reduces fluid loss through the reservoir wall during storage and does not inhibit deflation of the reservoir.

3,599,621

ARCHERY BOW WITH ROTATABLE HANDGRIP

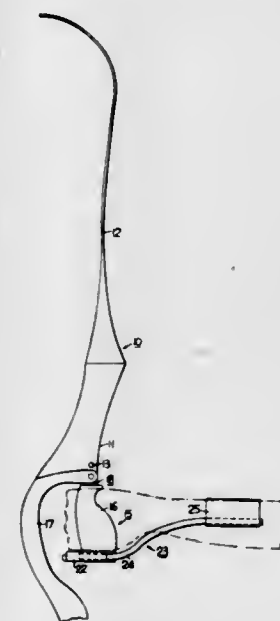
Delvin A. Scrobell, 3334 S. 63rd St., Milwaukee, Wis.

Filed Feb. 10, 1969, Ser. No. 797,898

Int. Cl. F41b 5/00

U.S. Cl. 124—23

4 Claims



An archer's bow having a handle connected to the bow to permit the handle to pivot around an axis perpendicular to the longitudinal axis of the bow and rotate about an axis substantially parallel to the longitudinal axis of the bow completely independently of the bow.

3,599,622

CIRCULAR SAW CONSTRUCTION

Frank C. Baron, 20302 Germann St., Chatsworth, Calif.

Filed July 18, 1969, Ser. No. 843,034

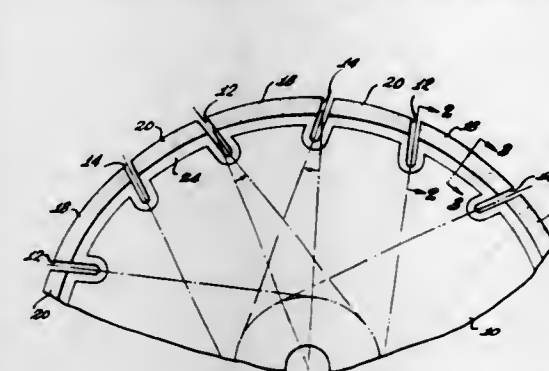
Int. Cl. B28d 1/04

U.S. Cl. 125—15

4 Claims

Slotted concrete saw blades are shown in which the edge and slot thicknesses are constituted of the combined thicknesses of layers of wear-resistant material and a core rim which is thinner than the main core body, and wherein the wear-resistant layers extend below the bottoms of the

slots. Cutting heads or segments are bonded to such composite peripheral edge surface. In various embodiments, the wear-resistant layers include portions intermediate adjacent slots which extend below the bottoms of the slots. Further, in



addition to radial slots, a saw blade is shown with slots formed along lines at substantial angles to the radii, and in one embodiment adjacent slots are along lines at respective positive and negative angles with respect to the radii.

3,599,623

CUTTING APPARATUS FOR MAKING FINELY CONTROLLED CUTS UTILIZING A TILTABLE WHEEL FOR REGULATING THE CUTTING BLADE MOVEMENT

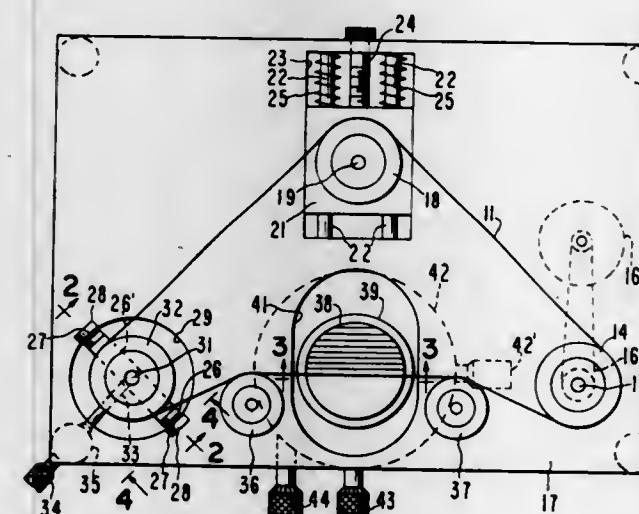
William S. Phy, Los Altos Hills, Calif., assignor to Fairchild Camera and Instruments Corporation, Mountain View, Calif.

Filed Sept. 2, 1969, Ser. No. 854,478

Int. Cl. B28d 1/08

U.S. Cl. 125—21

1 Claim



A cutting apparatus including a closed-loop saw blade extending around a portion of the periphery of a rotatable and tiltably mounted control wheel is disclosed. The blade is driven by a drive wheel and rotates the control wheel about its axis. The blade is moved in a cutting direction parallel to the plane of the blade by tilting the control wheel, the tilting motion providing very accurate control of the cutting depth of the blade. The blade is tensioned by a third wheel.

3,599,624

ROTATABLE BARBECUE GRILL

Emil Gehring, 114 S. Second Ave., Wausau, Wis.

Filed July 8, 1969, Ser. No. 839,987

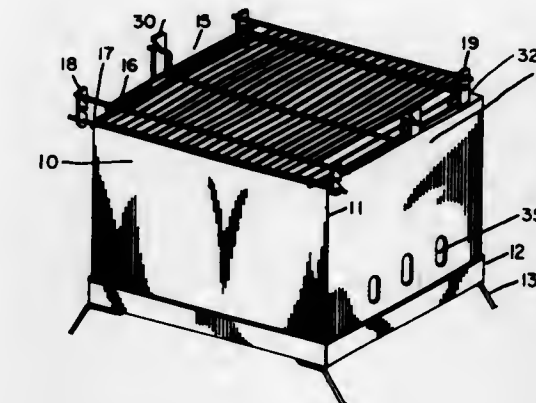
Int. Cl. A47j 37/00; F24b 3/00

U.S. Cl. 126—25 R

3 Claims

The invention described herein is a highly functional, portable barbecue grill having a grill mounted on a fire box in such a manner to be easily rotatable to readily expose the opposite sides of the grill to the barbecue fire. The invention described and illustrated herein is comprised of a base

member having supporting legs extending therefrom, collapsible plates to set on the base member and function as the slots which extend below the bottoms of the slots. Further, in



sidewalls of the fire box of the barbecue, and a grill mounted in receiving slots extending from the sidewalls.

3,599,625

DEEP SUBMERGENCE HEATING SYSTEM

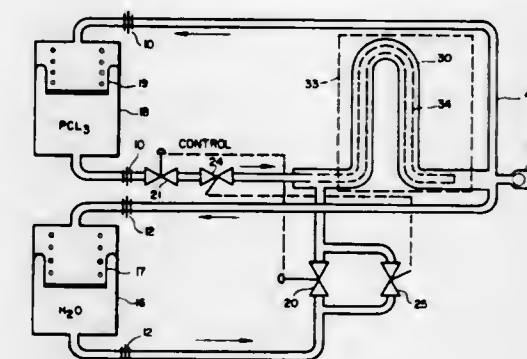
Daniel L. Curtis, Manhattan Beach, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed May 19, 1969, Ser. No. 825,813

Int. Cl. F24j 1/00

U.S. Cl. 126—204

7 Claims



An underwater heating system for a swimmer or diver operating at deep submergence in cold water for extended periods of time. Heat is provided to the swimmer by an exothermic chemical reaction of phosphorous trichloride and water reacting within a continuous heating tube located underneath a swimmer's diving suit or within an underwater chamber. The heat provided is controlled by regulating the amount of chemicals reacting and safety valves are provided to stop the reaction at any time.

3,599,626

SOLAR HEATER FOR SWIM POOLS

Clyde W. Bouse, Clearwater, Fla., assignor to Richard D. Wachtler, Clearwater, Fla., a part interest

Filed Nov. 12, 1969, Ser. No. 875,913

Int. Cl. F24j 3/02

U.S. Cl. 126—271

2 Claims

A closed circuit solar water heater in which a sun heated fluid is gravitationally circulated to and from a heat exchanger and control unit in the form of a tanklike receptacle for heating an independent water system circulating through a pipe coil within the said receptacle, the solar heater including coils of copper tubes leading from the bottom of the heat exchanger and control unit and disposed to be heated by sun rays, the said coils receiving the fluid to be heated and then returning the heated fluid into the heat exchanger and control unit near the top thereof for gravitational circulation therethrough, and pump means controlled

3,599,644

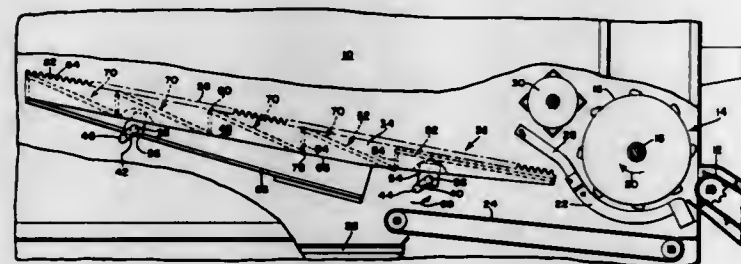
STRAW WALKER FOR A COMBINE

Darwin Bichel, and Robert L. Malcolm, both of East Moline, Ill., assignors to Deere & Company, Moline, Ill.
Continuation of application Ser. No. 470,807, July 9, 1965, now abandoned. This application June 25, 1968, Ser. No. 751,019

Int. Cl. A01f 12/30

U.S. Cl. 130—26

7 Claims



A straw walker mounted in a combine rearwardly of the threshing cylinder for receiving grain and straw therefrom. The straw walker oscillates in a fore-and-aft direction to agitate the material, moving the straw out the rear of the combine while permitting the grain to drop through. The walker has opposite fore-and-aft extending side panels with linear, saw-toothed upper edges, and a stepped bottom, each step having a large number of apertures through which the grain drops.

3,599,645

TREATMENT OF TOBACCO TO REDUCE POLYPHENOL CONTENT

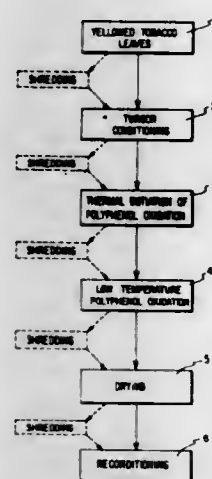
William H. Johnson, Raleigh, N.C., assignor to Research Corporation, New York, N.Y.

Filed Mar. 18, 1969, Ser. No. 808,146

Int. Cl. A24b 15/02

U.S. Cl. 131—140

8 Claims



The polyphenol content of tobacco is reduced with minimal effect F. the desired characteristics of the final tobacco which has been moistened by contact with water or water vapor so that the moisture content of the said tobacco is at least 70 percent and is product by subjecting tobacco which has been moistened by contact with water or water vapor so that the moisture content of the said tobacco is at least 70 percent and is in the yellowed state to a short term of heating between about 140° and about 180° F. to initiate oxidative browning and thereafter holding the tobacco at a temperature between about 70° and about 110° F. until a major portion of the polyphenol content thereof is enzymatically oxidized. The heating may be effected by infrared radiation or by contacting the tobacco with hot gases or hot water. The tobacco may be treated either in whole leaf or in shredded form.

3,599,646

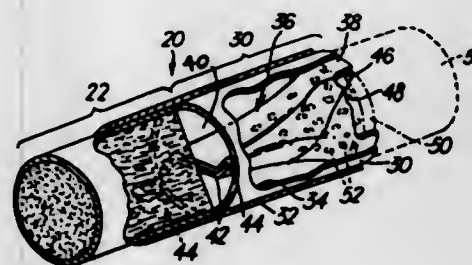
CIGARETTE FILTER

Richard M. Berger, Richmond, and Elwin W. Brooks, Mechanicsville, both of Va., assignors to American Filtrona Corporation, Richmond, Va.
Continuation-in-part of application Ser. No. 727,477, May 8, 1968, now Patent No. 3,533,416, dated Oct. 13, 1970. This application Apr. 30, 1969, Ser. No. 820,355

Int. Cl. A24f 07/04; A24d 01/04

U.S. Cl. 131—265

31 Claims



A cigarette filter means is constructed to provide a pair of elongated, high surface area, cavities defined on opposite sides of a relatively thin wall formed of filtering material. Preferably, only the ends of the filter means contact an over-wrapped outer tube which provides maximum available surface area to provide a filter element with a relatively high filtration efficiency and satisfying ordinary commercial standards regarding "taste," pressure drop and manufacturing cost. The filter comprises an outer elongated member in which an inner crimped filter is disposed. The latter has major portions of the outer surface spaced from the inner surface of the outer member to define cavity means therebetween into which the smoke is compelled to pass.

3,599,647

HAIR TREATING APPLIANCE

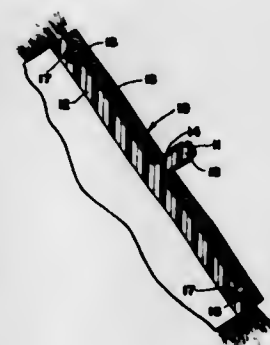
Vittorio Fabbri, 8411 Crystal Springs, Woodstock, Ill.

Filed Oct. 8, 1969, Ser. No. 864,645

Int. Cl. A45d 19/00

U.S. Cl. 132—9

6 Claims



An appliance to be used in the treatment of human or artificial hair to restrict the application of a treating composition such as a dye or bleach to a selected portion having a predetermined pattern while masking the remainder of the hair from contact with the composition.

3,599,648

COIN CHANGER HAVING DOWNWARDLY BIASED COIN TUBE

Wilson M. Stewart, 110 Isabella St., Ottawa, Ontario, Canada
Filed Aug. 21, 1969, Ser. No. 851,930

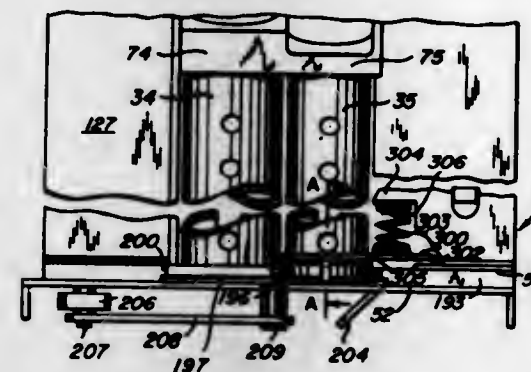
Int. Cl. G07d 1/00

U.S. Cl. 133—5

4 Claims

In a coin changer having a dime-storage tube and an apertured plate reciprocable below said tube to receive a dime in its aperture and deliver the dime to a change chute, a bush-

ing is provided around the lower end of the tube and the bushing is spring-urged down into contact with the upper sur-



3,599,649

APPARATUS FOR COOLING GRANULAR MATERIAL

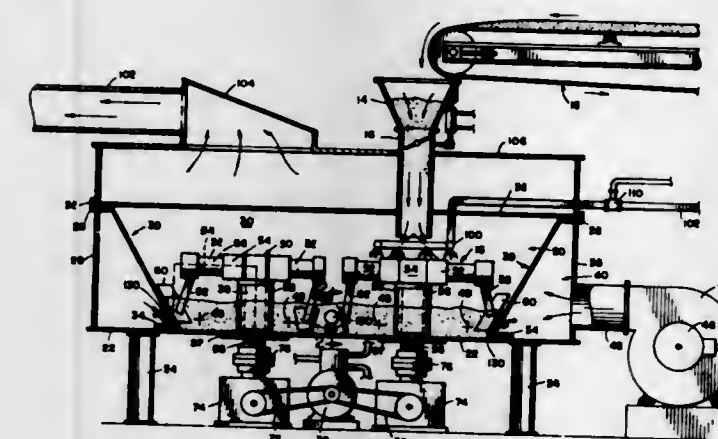
Elbert C. Troy, Highland Park, Ill., assignor to National Engineering Company, Chicago, Ill.

Filed Apr. 10, 1969, Ser. No. 815,008

Int. Cl. B08b 3/00

U.S. Cl. 134—57

5 Claims



A continuous system for cooling hot granular material comprising a treatment chamber having upwardly extended sidewalls formed of electrically insulating material and an inlet and outlet. Means is provided for moving the material from the inlet toward the outlet during the cooling process and water supply means is provided for adding moisture to the material in the chamber for evaporative cooling of the material. Means is provided for regulating the water supply means to control the rate of water added to the material in response to the condition of the incoming material, and the regulating apparatus includes at least one pair of sensing electrodes which are mounted on the insulating sidewall of the chamber for sensing the moisture condition of the granular material in the chamber. The addition of moisture from the water supply means is regulated in response to the detected moisture condition.

3,599,650

CAR WASH

James M. Abraham, Gahanna, Ohio, assignor to Auto Magic Car Wash Corporation, Columbus, Ohio

Filed Mar. 28, 1969, Ser. No. 811,428

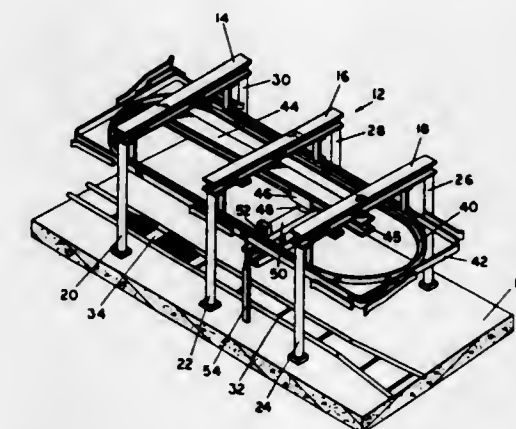
Int. Cl. B60s 3/04

U.S. Cl. 134—123

22 Claims

An automatic car wash apparatus of the type having a spray bar mounted on a movable carriage which is driven on an endless carriage track around a parked automobile and which as it is driven sprays cleaning fluids and rinse water on the automobile in a selected sequence is disclosed. The endless carriage track is positioned above and around the

parked automobile. The carriage is driven around the carriage track by a motor which is mounted on a motor dolly, the motor dolly being slidable along a substantially central linear track. An endless cam track surrounds the carriage track and is in cam relationship with the spray bar. The cam track serves to slide the spray bar inwardly and outwardly relative to the carriage track in order to position the spray bar the proper distance from the parked car. The vertical member of the spray bar is rotatable about its vertical axis and is rotated by another cam follower in cam relationship to



3,599,651

PORTABLE TENT APPARATUS

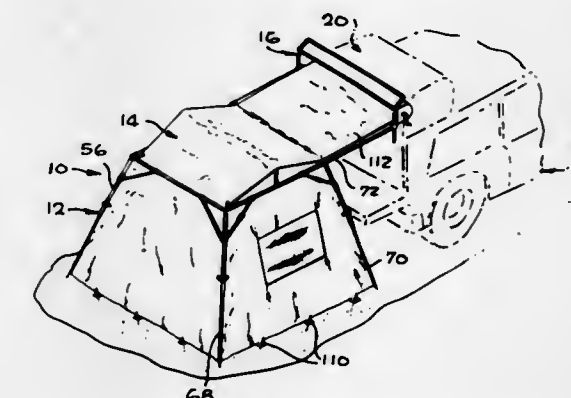
Sidney L. Perry, 5145 Kelvin Ave., Woodland Hills, Calif.

Filed June 17, 1969, Ser. No. 834,000

Int. Cl. A45f 1/00, 1/16

U.S. Cl. 135—1 A

11 Claims



Portable tent apparatus comprising tent fabric, tent poles and a canister. The tent fabric is permanently attached to a roller permanently mounted within the canister whereby the tent fabric is wound upon the roller for storage in the canister and is unwound therefrom for setting up the tent. The poles are collapsible for storage within the canister and rapidly extendable for setting up the tent. The poles and canister combine to form a unitary structure for support of the tent fabric. The canister is horizontally extendable from the poles for mounting attachment of the canister upon an external structure, such as a vehicle, to provide a tent fabric canopy in interconnecting covering relationship between the erected tent and the vehicle. Height adjustment means are provided for varying the vertical displacement of the canister relative to the erected tent poles to accommodate variations

in vehicle height or other location attachment of the canister to the vehicle or other external structure. The canister, with the poles and fabric stored therein, may be transported in attached relationship to the vehicle, and tent erection may be accomplished without removal of the canister from the vehicle.

3,599,652

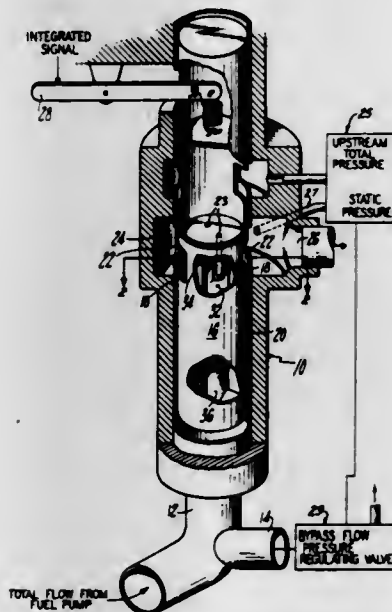
FLOW DIVIDER FOR THROTTLES

Meivin L. Perkins, Long Meadow, Mass., and Robert Sherman, West Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed July 9, 1969, Ser. No. 840,237
Int. Cl. G05d 11/00

U.S. Cl. 137-2

7 Claims



A device is disclosed for reducing flow distortion in a fuel control throttle valve consisting essentially of a flow guide disposed within a throttle valve. The flow guide reduces the effects of random turbulence and flow distortion associated with high fuel-flow velocities and small radius turns in the flow ducting in miniaturized housing controls. Practical design of the flow guide is critical. Most importantly, the guide must fall within about a 25° to 55° angle of the metering window.

3,599,653

NEGATIVE FEEDBACK FLUIDIC OSCILLATOR

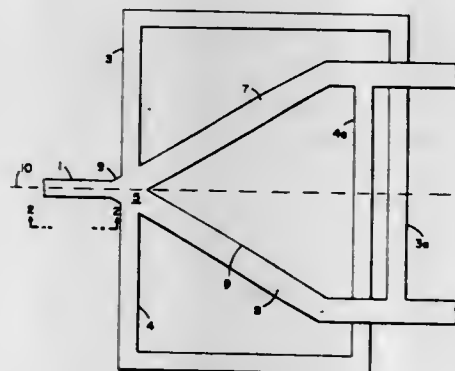
Bobby J. Clayton, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army

Filed Sept. 30, 1969, Ser. No. 862,209

Int. Cl. F15c 1/08

U.S. Cl. 137-81.5

2 Claims



A supersonic fluid power-jet flows into an overexpanded divergent nozzle. A control flow against one side of the jet splits, passes around, and impinges on the opposite side of

the jet. The jet therefore is deflected in the direction from whence the control flow came, rather than being deflected in the normal opposite direction. Two output passageways are provided, one on each side of a longitudinal axis of the power-jet, with a control flow taken from each output. Each control flow is applied to the power-jet on an opposite side of the axis from the output from which the control flow is taken.

3,599,654

ELECTROLYTIC FLUID RELEASE TIMER

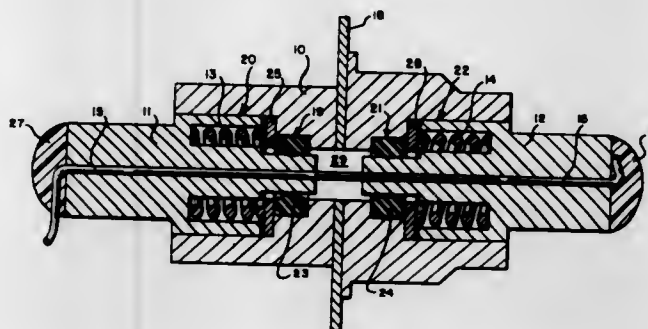
Curtis C. Beusman, Mount Kisco, N.Y., assignor to Curtis Instruments, Inc., Mount Kisco, N.Y.

Filed Jan. 28, 1970, Ser. No. 6,401

Int. Cl. F16k 31/00

U.S. Cl. 137-67

5 Claims



A fluid release timer is disclosed which comprises a hollow housing, including a fluid passage therethrough, and a pair of plug members, sealing the fluid passage, which are held together against expansive forces by an electrolytically erodable wire. An electrolyte is disposed within the housing in contact with the wire, and an electrode is placed in contact with the electrolyte for permitting control over the rate of erosion. In operation, the application of a negative voltage between the wire and the housing electrode gradually and controllably erodes the wire—eventually resulting in the ejection of the plugs from the fluid passage. A preferred embodiment is described which utilizes polyethylene for the housing and plugs, silver for the electrode and wire, and silver fluoroborate for the electrolyte. In order to increase reliability, the longitudinal thickness of the housing electrode is made small compared to the length of the wire.

3,599,655

AUTOMATIC REFILL DEVICE HAVING FLUIDICALLY OPERATED CONTROL

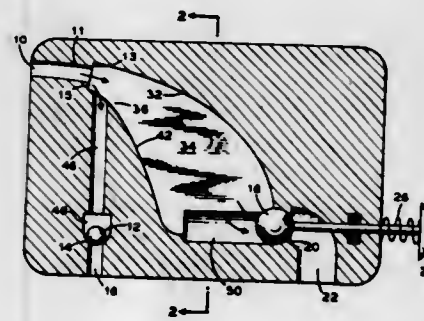
Theodore J. Fussell, Bound Brook, N.J., assignor to American Standard Inc., New York, N.Y.

Filed Oct. 28, 1968, Ser. No. 771,065

Int. Cl. F15c 3/06, 1/04

U.S. Cl. 137-81.5

23 Claims



A refill mechanism, for example, a water closet tank refill apparatus, having a valve which maintains itself in the "on" position once the fluid flow starts and switches to the "off" position in response to the attainment of a predetermined liquid level.

3,599,656

VARIABLE FLUID TRANSDUCER

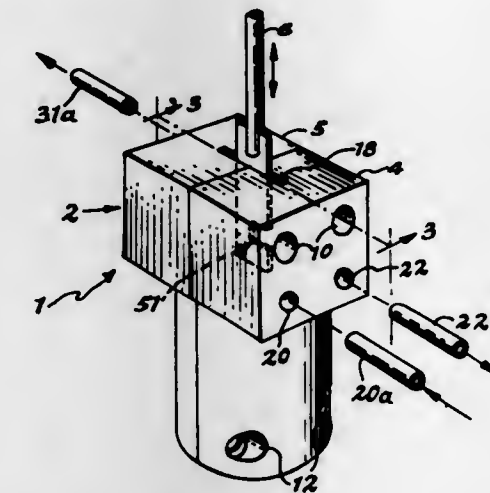
Charles R. Pettis, Jr., Ithaca, N.Y., assignor to Hi-Speed Checkweigher Co., Inc., Ithaca, N.Y.

Filed Nov. 19, 1968, Ser. No. 777,071

Int. Cl. F15b 5/00, 13/02; G05d 16/00

U.S. Cl. 137-83

9 Claims



A variable fluid transducer adapted to produce a fluid output signal which is variable with respect to the position of a core freely movable within the transducer.

3,599,657

DOUBLE DIAPHRAM CHECK VALVE

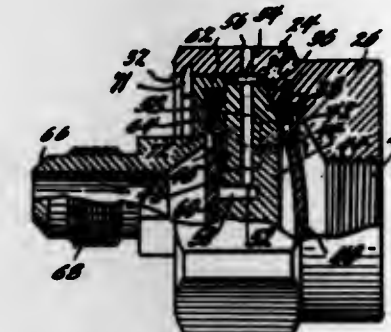
Ojars Maldavs, Lincoln, Nebr., assignor to Bruning Company, Lincoln, Nebr.

Filed Apr. 7, 1969, Ser. No. 822,811

Int. Cl. G05d 7/00

U.S. Cl. 137-102

5 Claims



A double elastic diaphragm check valve for dealing with a liquid on the upstream side and liquid and gas on the downstream side is provided. None of the metallic parts move, avoiding frictional wear nor are there metal parts subject to stress corrosion. The structure is free of internal threads and other crevices susceptible of retaining dirt or other foreign matter. In normal operating sequence and even simple abnormalities the valve vents only gas avoiding liquid spillage.

3,599,658

PRESSURE REGULATOR WITH INTERNAL RELIEF VALVE

Harold F. Kruzan, Yorba Linda, and Dwight N. Johnson, Anaheim, both of Calif., assignors to American Meter Company, Philadelphia, Pa.

Filed July 28, 1969, Ser. No. 845,281

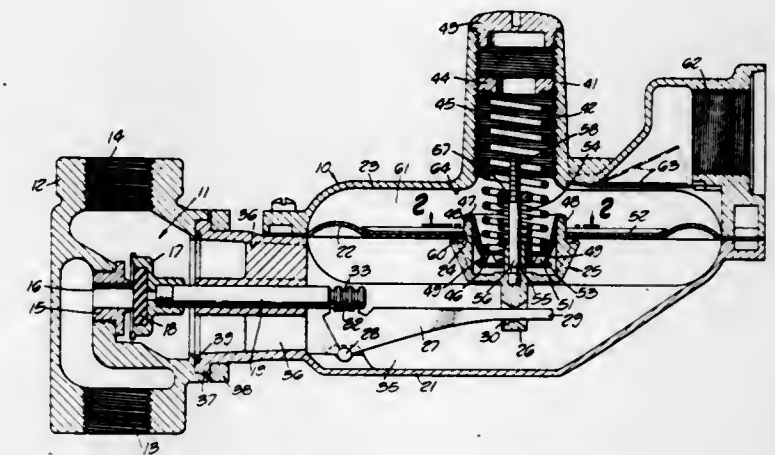
Int. Cl. G05d 11/00; F16k 31/12

U.S. Cl. 137-116.5

7 Claims

A pressure regulator has a flexible diaphragm connected through a pivoted lever to operate a main valve between an inlet and an outlet. The outlet communicates with a chamber below the diaphragm. The diaphragm has a central opening closed by a relief valve having a valve head engaging the

diaphragm. The valve head has a central stem and a plurality of posts circumferentially spaced about the stem all projecting through apertures in the central portion of a diaphragm stiffener. The main load spring acts through an annular cup to apply a downward force to the posts and relief valve head to cause the lever to open the main valve. The annular cup engages a bonnet to limit upward overtravel of the relief valve head in event of failure of the lever or its connections. A relief valve spring encircling the stem within the load spring acts against the diaphragm stiffener so that the



diaphragm moves upward away from the relief valve head against the force of the relief valve spring only, upon overpressure in the chamber when either the lever or the bonnet limits upward movement of the relief valve head. This construction separates the main load spring from the relief valve function, for closer control of relief pressure where higher outlet pressures are required. Adjustable means on the stem is provided to vary the force of the relief valve spring, and adjustable means in the bonnet is provided to vary the force of the load spring.

3,599,659

AIR RELEASE VALVE

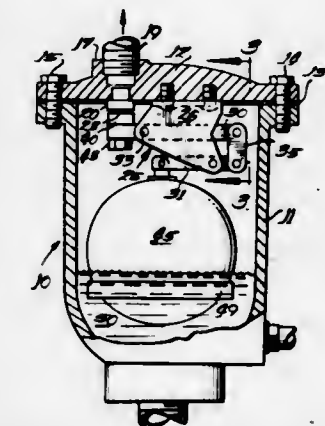
Andrew G. Nuter, 1055 N. Massachusett, Chicago, Ill., and Theodore Mackowan, 1522 N. 24th Ave., Melrose Park, Ill.

Filed Apr. 6, 1970, Ser. No. 25,912

Int. Cl. F16k 45/02, 31/24

U.S. Cl. 137-202

7 Claims



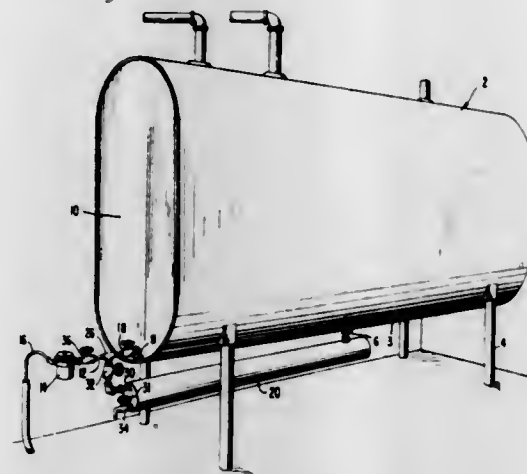
A valve casing includes a top plate which provides a release orifice and a lower inlet aperture communicating with pressurized liquid from which entrained air is to be released. A metallic float having a peripherally depending skirt is located over the inlet aperture; and the float is connected to a compound lever linkage, the other end of which supports a closure member adapted to seal the release orifice when the liquid level in the housing exceeds a predetermined level or when the inrush of water engages the peripheral skirt of the float to force it upward. The compound lever linkage includes upper and lower lever arms pivotally mounted in a cradle bracket secured to the top plate within the chamber. The closure member is adjustably mounted to the upper lever arm to insure proper sealing. The same arrangement may be used for a wide range of fluid pressure; and it permits fabri-

cation using all stainless steel parts except for the housing valve seat ring wherein the radial passages leading from these and closure member without the need of castings.

3,599,660
CONDENSATION TRAP FOR TANKS
Paul L. Stickney, R.F.D. #1, Bridgton, Maine
Filed Oct. 1, 1968, Ser. No. 764,163
Int. Cl. B65d 25/00

U.S. Cl. 137-203

1 Claim

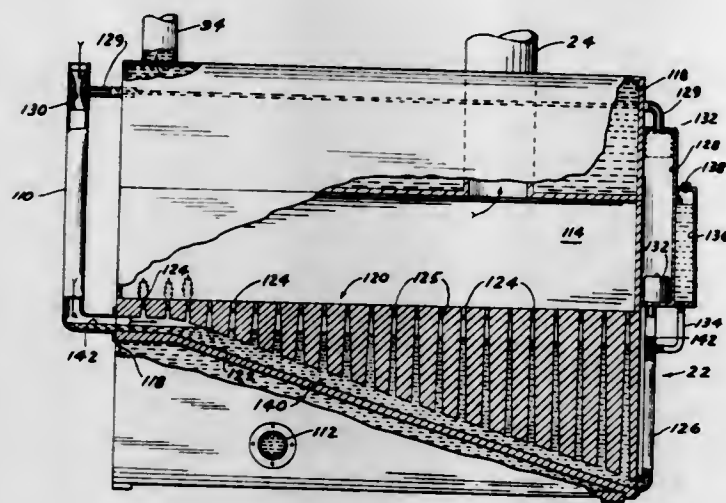


Attached by a fitting beneath a drain outlet in the bottom of a fuel storage tank is an elongate cylindrical condensation trap. The trap is also attached by a fitting to a standard fuel outlet pipe. The fittings include shutoff valves, and a drain cock is mounted in the front end of the trap.

3,599,661
SELF-MODULATING GAS BURNER
Walton W. Cushman, 36483 Gloucester Drive, Fraser, Mich.
Division of Ser. No. 714,649, Mar. 20, 1968, Pat. No. 3,514,034. Filed Feb. 5, 1970, Ser. No. 8,901
Int. Cl. F16k 9/00

U.S. Cl. 137-252

6 Claims



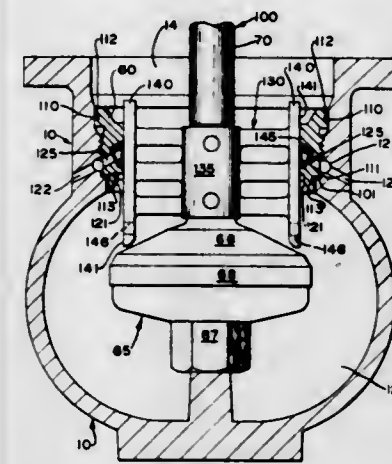
An automatic, self-modulating, gas-fired, gas-powered, forced-circulation residential or other hot water heating system, which is fully and efficiently operable without electricity or any other form of externally supplied power, other than the natural or other gas used for combustion, and includes a zone temperature-responsive control system which likewise requires no electricity or other external source of power.

3,599,662
HYDRANT DRAIN VALVE SEAL
James William Dushner, Elmira, N.Y., assignor to Kennedy Valve Mfg. Co., Inc., Elmira, N.Y.
Filed July 18, 1969, Ser. No. 842,923
Int. Cl. E03b 9/14

U.S. Cl. 137-307

2 Claims

A sealing arrangement for the drain openings in a hydrant

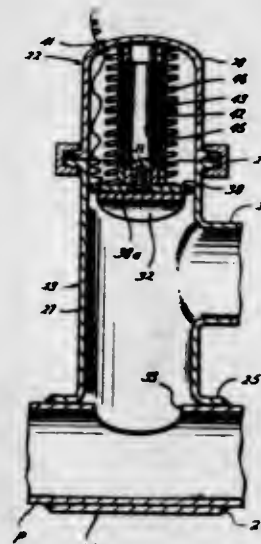


the ring axis and have their inner ends enlarged to receive hollow resilient sleeves cut on the bias.

3,599,663
HOT TAPPING APPARATUS
Burton Ver Nooy, Broken Arrow, Okla., assignor to T. D. Williamson Inc., Tulsa, Okla.
Filed Nov. 18, 1968, Ser. No. 776,353
Int. Cl. F16l 41/04

U.S. Cl. 137-318

22 Claims



Apparatus comprising a housing adapted to be connected to a pipeline for surrounding in fluidtight relation an area of the pipeline to be tapped and having an opening therein adapted to be connected with the opening to be formed in the pipeline. Each of one or more shaped charges is carried by a holder for disposal over the periphery of the area to be removed, and a fuse connecting with each charge extends exteriorly of the housing to permit the charge to be detonated in response to a signal from a remote location in order to cut the coupon from such area. A means is disposed entirely within the housing to withdraw the holder and the coupon into a portion of the housing removed from the path between the opening in the housing and the opening cut in the pipeline.

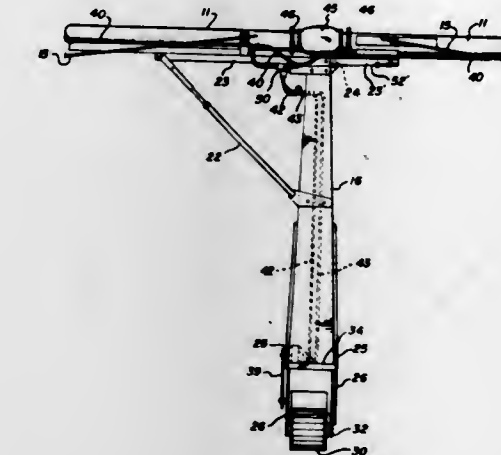
3,599,664
SELF-PROPELLED IRRIGATING APPARATUS
Kenneth W. Hotchkiss, Golden; John F. Schunk, Arvada, Colo., and Le Roy Thom, Hastings, Nebr., assignors to T-L Irrigation Company, Hastings, Nebr.
Filed Aug. 15, 1969, Ser. No. 850,425
Int. Cl. A01g 25/02; F16m 13/22

U.S. Cl. 137-344

10 Claims

Self-propelled irrigating apparatus comprising a water distributing pipe made of relatively rigid sections and flexible

joints between and connected to the sections, spaced apart supports supporting the distributing pipe, drive means for moving the supports in annular paths around a center, a hydraulic motor on each support, and hydraulic conduits extending along the outside of the distributing pipe for controlling the motors including a hydraulic valve and pressurized hydraulic fluid and return lines to and from each

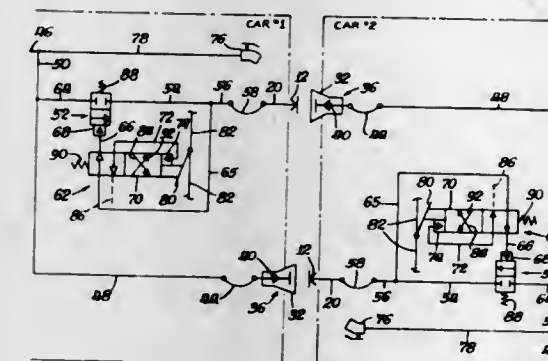


motor through said valve. The system is controlled entirely by the hydraulic means and mechanism responsive to bending of the flexible joints, without any electrical wiring or switches. Each flexible joint is mounted on a pivotal platform on a support; the platform responds to bending of the flexible joint and actuates the spool of the hydraulic valve to control flow of hydraulic fluid to the motor.

3,599,665
AUTOMATIC AIR LINE CONNECTION SYSTEM
Howard I. Dwyer, Jr., Glen Ellyn, Ill., assignor to Armsted Industries Incorporated, Chicago, Ill.
Filed Sept. 24, 1969, Ser. No. 860,658
Int. Cl. B61g 5/06; B60t 7/20

U.S. Cl. 137-349

8 Claims

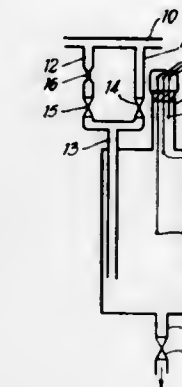


An automatic system for connecting and disconnecting the brake pipe air lines between two adjacent cars is disclosed. The system requires no manual operation other than that required for operating the automatic car coupler and comprises a plurality of probe members and probe receiving members being mounted at the coupler of each car to provide parallel flow paths for the brake pipe air between each car. Included in the system is control circuitry contained on each car for utilizing the parallel flow paths for feedback from one circuit to another to permit conventional operation of the air brake equipment while providing additional features such as automatic serial charging of the car brakes upon coupling, manual retention of air in brake pipe in either car at uncoupling and automatic reset of the control circuitry after an uncoupling operation to permit conventional use of air brake equipment.

3,599,666
MEASURING DEVICE
Peter Edward Curtis, and Peter Alfred Robert Wills, both of Ilford, England, assignors to Ilford Limited, Ilford, England
Filed Apr. 8, 1970, Ser. No. 26,505
Claims priority, application Great Britain, Apr. 8, 1969, 17827/69
Int. Cl. G05d 9/12

U.S. Cl. 137-391

9 Claims

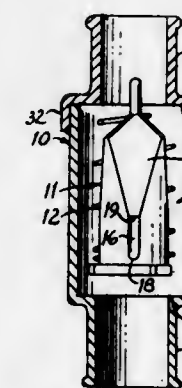


This application describes a liquid metering vessel which comprises two upper liquid contact probes the lower of which controls a fast-filling valve and the upper of which controls a slow-filling valve. The vessel is filled with liquid through the fast-filling valve until the lower contact probe is reached. The fast-filling valve is then shut off and liquid enters the vessel through the slow-filling valve until the upper probe is reached. The upper probe is placed in an extension to the vessel which has a considerably smaller diameter than the rest of the vessel. The fast-filling valve is then shut off. By means of this vessel the amount of liquid fed into the vessel may be very strictly controlled. Similar probes may be fitted in the lower part of the vessel to control the rate of outflow from the vessel.

3,599,667
VENTILATION CONTROL VALVE
Arthur M. Kaser, Plainfield, N.J., assignor to Filter Dynamics International Inc., Edison, N.J.
Filed Feb. 18, 1969, Ser. No. 800,145
Int. Cl. F16k 17/04

U.S. Cl. 137-480

5 Claims

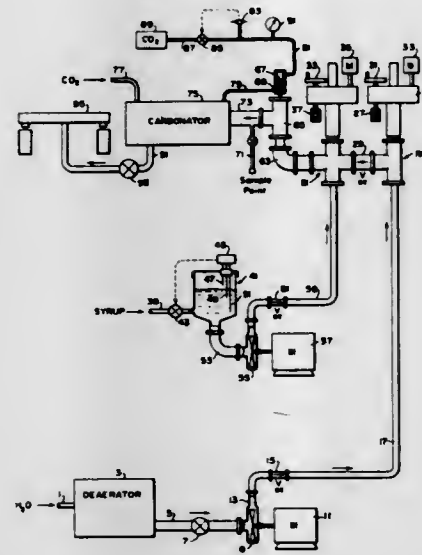


A valve houses a spring-biased poppet having tapered grooves accommodating airflow therethrough from an engine crankcase to the inlet manifold of the engine carburetor. The poppet responds to the vacuum created by engine turnover, thereby retracting the grooves when there is a high vacuum and projecting them when there is a low vacuum.

3,599,668

LIQUID BLENDING APPARATUS
 Roland P. Ricard, Natick, Mass., assignor to Spectra Analyzer Corporation, Holliston, Mass.
 Filed June 11, 1969, Ser. No. 832,302
 Int. Cl. F04d 13/14

U.S. Cl. 137-567

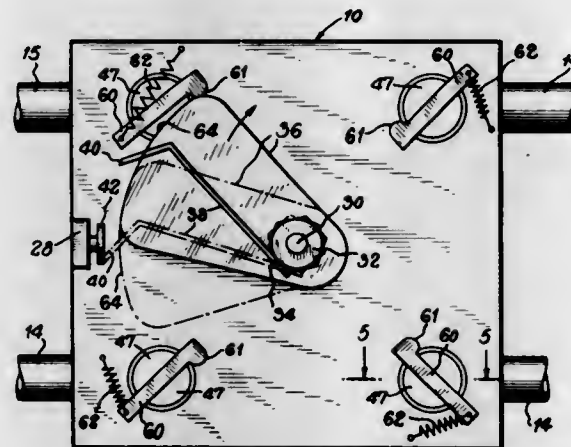


A liquid blender for mixing two fluid streams to form a stream of predetermined composition in which mixing is accomplished by feeding the streams at substantially constant pressure through a mixing valve in which flow control is achieved by uncovering a predetermined number of ports each representing a small portion of the total flow.

3,599,669

AUTOMATIC LAWN SPRINKLER CONTROL
 Allen F. Polzer, 108 Cadmus Ave., East Paterson, N.J.
 Filed May 1, 1970, Ser. No. 33,651
 Int. Cl. F16k 11/10

U.S. Cl. 137-608



A control-valve mechanism which may be used to control the flow of liquids from one inlet to a number of outlets, which includes a plurality of valves operated by a cam. The cam is operated through an electric motor having a control circuit which includes a timer and a timer bypass switch, the bypass switch being operated by a trip arm which is connected to the cam.

3,599,670

FLUID COUPLINGS

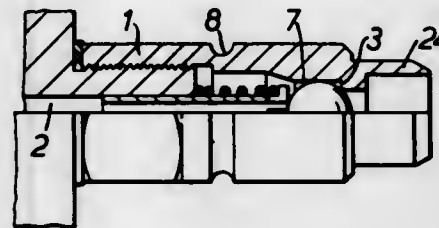
John Raymond Gurner, and Leslie Arthur Henman, both of Ilford, England, assignors to The Plessey Company Limited, Ilford, England

Filed Dec. 12, 1967, Ser. No. 689,898

Claims priority, application England, Dec. 14, 1966, 55947/66
 Int. Cl. F16l 29/00, 37/28

U.S. Cl. 137-614

5 Claims



A fluid coupling comprises two separable parts, one of the parts including normally closed valve means which may be opened by valve actuating means carried on the other part when the two parts are coupled together, the actuating means being controllable remotely from the coupling. The valve means may be actuated remotely via a flexible hose connected to the part including the valve actuating means, and the same hose may be used for passing fluid through the coupling at a maximum rate determined by the design of the coupling. If the maximum rate is exceeded for example by leakage from the hose the coupling valve will close and prevent further flow.

3,599,671

FLUIDIC SWITCH

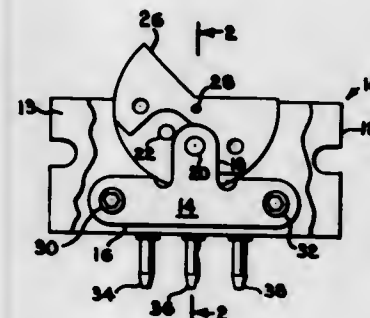
Stanley Leszczynski, Schenectady, N.Y., assignor to The Bendix Corporation

Filed May 21, 1969, Ser. No. 826,519

Int. Cl. F16k 11/02

U.S. Cl. 137-625.21

3 Claims



A four-way switch of particular utility in fluidic computation and control apparatus is disclosed herein. The switch comprises a pivotable switching and control member having a flat surface resiliently biased toward a plane surface of the housing. The plane surface of the housing is perforated in three locations with the perforations being communicated to three mutually independent fluid outlets. The pivotal member includes, on the surface opposed to the flat surface, a detent receiving means for holding the member in either of

two pivotal positions and on the flat surface, a channel adapted to intercommunicate the center perforation with either of the other perforations. The pivotal member is further perforated by two passages arranged to communicate the third of the housing member perforations through the valve to the ambient to vent the unused passage system.

3,599,672

PISTON VALVE

Ludovicus Hendrikus Baghuls, Vliedberg/Vlijmen, Netherlands, assignor to D. Stempel A.G., Frankfurt am Main, Germany

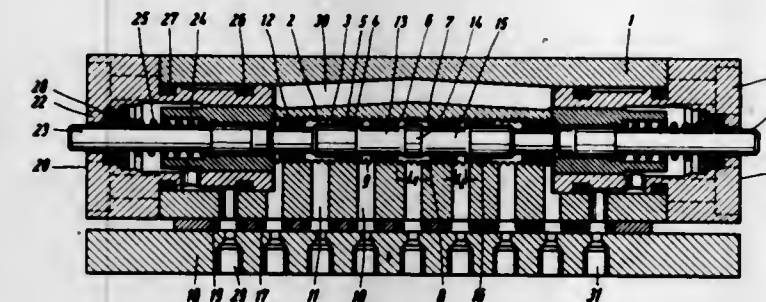
Filed Nov. 17, 1969, Ser. No. 877,382

Claims priority, application Germany, Nov. 16, 1968, P 18 09 319.1

Int. Cl. F16k 11/07

U.S. Cl. 137-625.48

5 Claims



This invention concerns a piston valve, preferably multipath valve, with a housing fitted with boreholes to add or withdraw a pressure fluid, and provided with a threaded bore therethrough into which at least two sleeves are threadedly received and cemented. The sleeves form guiding edges and pressure chambers, and are fitted with a sliding piston, axially slidable in the sleeve and having segments of different diameters.

3,599,673

ELECTRIC PRESSURE-REDUCING VALVE

Rene Lucien, Neuilly-sur-seine, France, assignor to Societe Anonyme dite: Messier, Paris, France

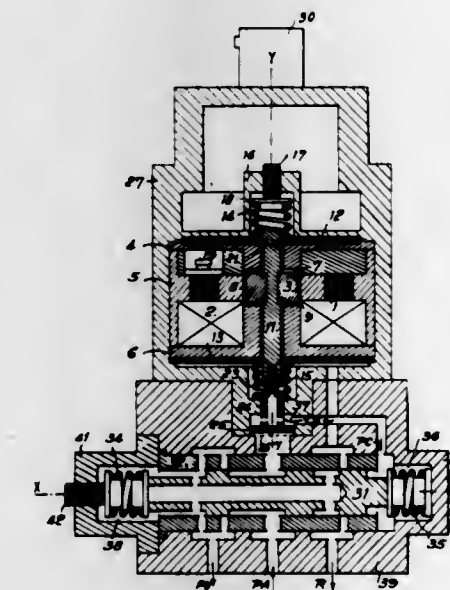
Filed Jan. 15, 1969, Ser. No. 800,323

Claims priority, application France, Jan. 15, 1968, Dec. 23, 1968, 135,940;179,987

Int. Cl. F16k 11/07, 31/08

U.S. Cl. 137-625.61

6 Claims



An electric pressure-reducing valve is provided for regulating a hydraulic utilization pressure by means of a low electric control current and comprises two stages, i.e., a primary stage constituted by a magnetic force motor and a stop-valve

and jet-nozzle system, and a secondary stage constituted by a hydraulic slide valve servo-controlled by the pressure regulated in the primary stage. The primary stage is wholly constructed along a single axis of revolution: the power developed by the magnetic force motor is directed along this axis, the movement of the stop-valve is a movement of translation along this axis, the jet-nozzle is mounted on this axis; the primary stage is mounted on the body of the electric pressure-reducing valve so as to form an independent unit which is readily removable along said axis without any risk of upsetting the adjustments.

3,599,674

VALVE MEANS FOR CONVERTING SUPERHEATED HIGH PRESSURE STEAM INTO STEAM OF LOWER PRESSURE AND TEMPERATURE

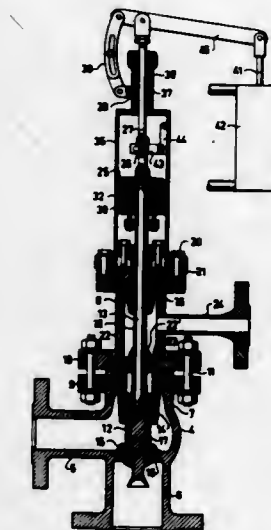
Berth Ulrik Gustafsson, Saffle, Sweden, assignor to A.B. Kalle-Regulatorer, Saffle, Sweden

Filed Oct. 6, 1969, Ser. No. 864,004

Claims priority, application Sweden, Nov. 29, 1968, 16325/68
 Int. Cl. F16k 19/00

U.S. Cl. 137-630.22

8 Claims



Valve means comprising a steam valve and a water supply valve proportioning water to a steam conduit downstream of the steam valve, said water valve being adapted to close a little before the steam valve is closed.

3,599,675

PROPORTIONAL VALVE

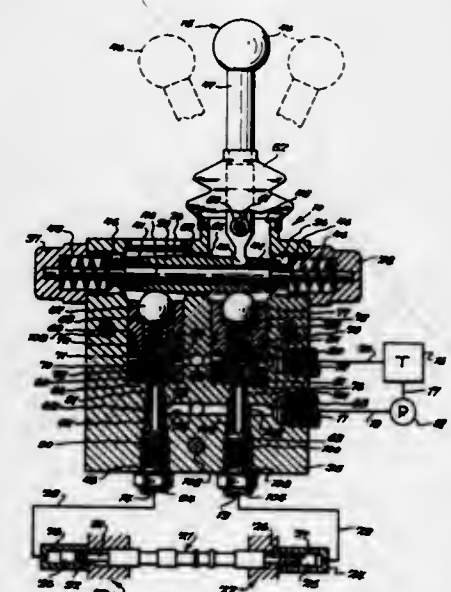
Donald A. Stevenpiper, Alden, N.Y., assignor to ATO Inc., Cleveland, Ohio

Filed Feb. 6, 1970, Ser. No. 9,201

Int. Cl. F16k 11/10

U.S. Cl. 137-636.1

18 Claims



A control valve adapted to be connected in an hydraulic circuit including two cylinders movable against correspond-

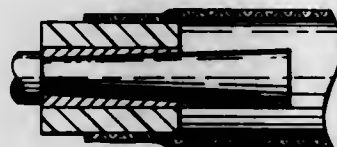
ing linear springs and connected to opposite ends of a mechanical load, such as the spool of a master valve in a relatively high-pressure circuit. Fluid from either of two chambers in the control valve connected to corresponding ones of the hydraulic cylinders is bled to a tank or reservoir in proportion to the movement of a control valve handle. The resulting pressure unbalance creates proportionate movement of the mechanical load. Flow controlling means in the form of a first poppet member and a second poppet carried in the first poppet and axially movable therein are in each of the valve chambers and moved from a seated to an unseated position allowing bleedoff of fluid. The poppets are spring-biased and operatively connected through a ball or roller-type follower to a tapered, elongated cam member axially movable and operatively connected to the valve handle. Two additional chambers and corresponding flow controlling means can be included and to which are transmitted additional movements of the valve handle whereby a single hydraulically movable load can be controlled in a plurality of directions or two loads controlled separately or interdependently.

3,599,676 FIREHOSE

John C. Fisher, Toronto, Ontario, Canada, assignor to George Angus (Canada) Limited, Toronto, Ontario, Canada
Filed July 19, 1968, Ser. No. 746,021
Int. Cl. F16I 57/00

U.S. Cl. 138—109

13 Claims



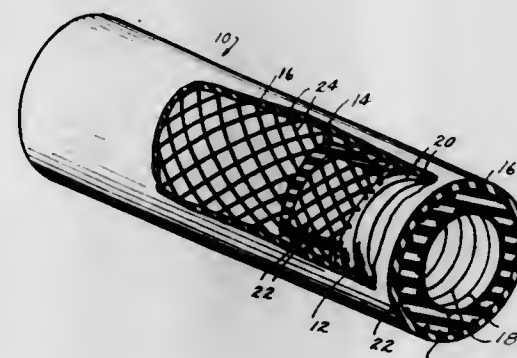
To enable a hose to be fitted to a coupling of smaller diameter, the terminal end portion of the hose is supported internally and pressure is applied circumferentially around the terminal end portion.

3,599,677 FLEXIBLE TUBING AND THE MANUFACTURE THEREOF

Patrick W. O'Brien, Springhead, near Oldham, England, assignor to Compoflex Company Limited, Lumb Hill, Deilph, near Oldham, Lancashire, England
Filed July 24, 1967, Ser. No. 655,303
Claims priority, application Great Britain, Sept. 28, 1966, 43,397/66

Int. Cl. F16I 11/04, 11/08
U.S. Cl. 138—122

22 Claims



A flexible hose for tubing is described which has a seamless plastic inner lining, a relatively thick rubber cover extruded about the outside of the inner lining and a relatively thin outer rubber cover surrounding the thick cover. The wall of the inner lining has inner and outer annular corruga-

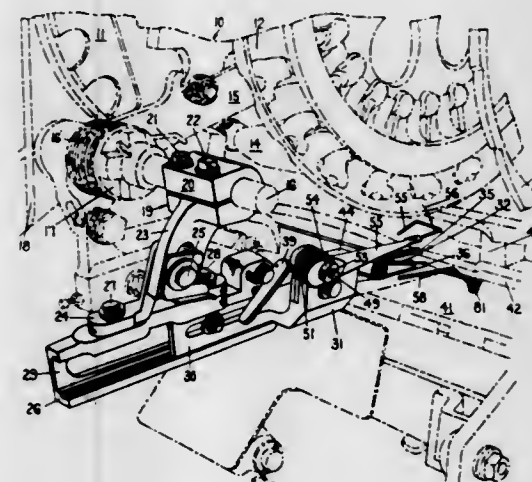
tions each of which extend around the lining and is parallel to the other corrugations. A layer of reinforcing filaments is spirally wound about the outside of the inner lining, and these filaments become partially embedded in the thick rubber cover when the latter is extruded over the inner lining. A second layer or spirally wound reinforcing filament may be placed between the thick cover and the thinner outer cover.

3,599,678 THREAD PARTING, CLAMPING AND DETECTING MECHANISM

William E. Turner, Spartanburg, S.C., and Albert R. Ferrier, Woonsocket, R.I., assignors to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Mar. 19, 1969, Ser. No. 808,464
Int. Cl. D03d 51/38

U.S. Cl. 139—336.4

5 Claims



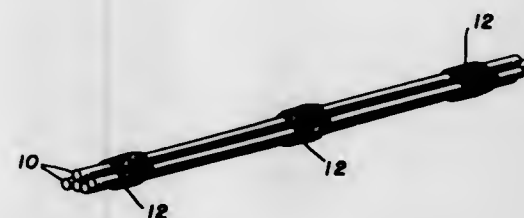
A filling yarn parting and clamping mechanism for automatic filling replenishing looms including means for sensing the presence of yarn held by said mechanism and for automatically stopping the loom upon indication of yarn absence.

3,599,679 INEXTENSIBLE FILAMENTARY STRUCTURE AND FABRICS WOVEN THEREFROM

Ernest P. Carter, Durham, N.C., assignor to Monsanto Company, Saint Louis, Mo.
Filed Oct. 22, 1968, Ser. No. 769,678
Int. Cl. D03d 15/00; D02g 3/12, 3/36

U.S. Cl. 139—420

5 Claims



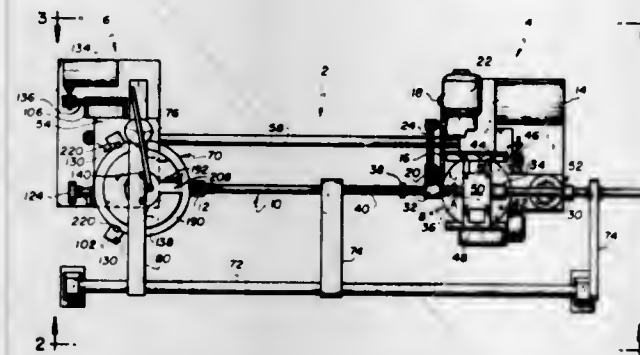
Strands of brittle, highly inextensible filamentary material are collimated into a bundle and spot bonded at regular intervals with an epoxy resin or the like, to form a composite yarn structure having sufficient flexibility and mechanical stability to permit the yarn to be woven as the warp of a fabric, the fill yarn being any conventional fibrous material. The inextensible filamentary materials include, among others, boron, boron carbide, silicon, silicon carbide, carbon, quartz, and similar inorganic refractory fibers which are characterized by high strength and modulus, brittleness, and inextensibility.

3,599,680 MACHINE FOR MAKING WIRE-WOUND DISC ARMATURES

Robert Page Burr, Huntington, N.Y., assignor to Photo-Circuits Corporation, Glen Cove, N.Y.
Filed Apr. 8, 1969, Ser. No. 814,421
Int. Cl. B21F 3/00

U.S. Cl. 140—92.2

31 Claims



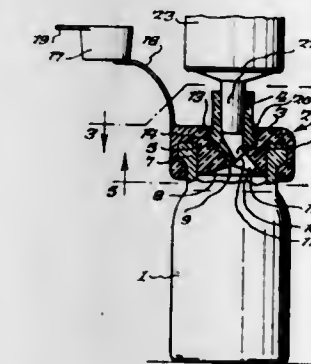
A machine for making wire-wound disc armatures. The machine is comprised of a spindle section and a turret section which operate in synchronization to wind insulated conductor wire into an armature for use in electric machines.

3,599,681 CONTAINER CLOSURE

Richard L. Hall, 8217 North Main St., Eden, N.Y.
Filed Feb. 2, 1970, Ser. No. 7,726
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141—18

7 Claims



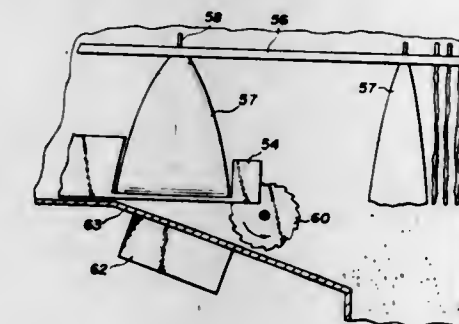
A two-part closure assembly having a sleeve part rotatable in a stopper part between open and closed positions. The two parts have mating conical sealing surfaces each with an opening therethrough, the openings being in registry in the open position. The sleeve part snugly receives the needle fitting of a hypodermic syringe and the stopper part has a dished under surface leading to the opening through its sealing surface. A removable cap closes the outer end of the sleeve, and rotation of the sleeve is limited by position-defining stop means.

3,599,682 LOADING MECHANISM

Conrad Altmann, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 30, 1968, Ser. No. 756,607
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141—106

4 Claims



A bag nest for use in an electrographic machine receives a bag, carrying toner. While vertical movement of the bag is

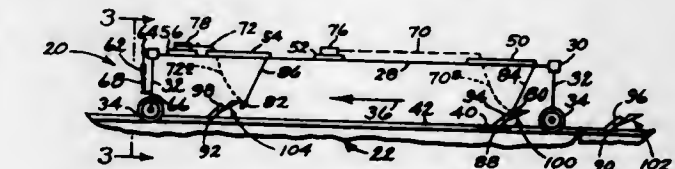
restricted, it is ruptured by a saw or knives, thereby emptying the toner into a dispensing mechanism below the bag. The bag is removed from the nest so that another bag may be inserted. In preferred embodiments, toner reluctant to leave the bag is dislodged as the bag is dragged over a rigid edge of the nest while being removed for disposal. Mechanisms, such as barbed spears, rails and jaw gripping devices are disclosed for performing at least part of the holding and/or bag disposing functions.

3,599,683 APPARATUS FOR GUIDING RELATIVELY MOVABLE INTERCONNECTABLE FITTINGS INTO AND OUT OF CONNECTED RELATION

Carl V. Von Linow, 2820 Julio Ave., San Jose, Calif.
Filed Sept. 19, 1969, Ser. No. 859,506
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141—232

7 Claims



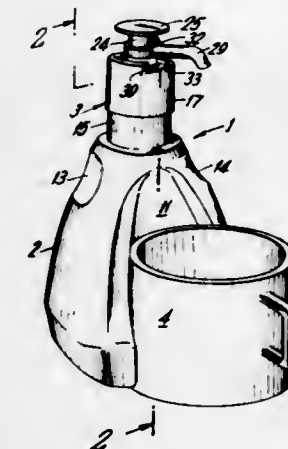
An irrigation system including a stationary water supply having a plurality of outlet couplings and a mobile irrigator adapted to travel adjacent and relative to the water supply, and to receive water therefrom, having a pair of movable inlet couplings. The inlet couplings are releasably interconnectable with the outlet couplings. Apparatus is provided in the system both for guiding an inlet coupling toward a position for enabling interconnection thereof with an outlet coupling, and for guiding an inlet coupling away from an outlet coupling after disconnection therebetween while the irrigator travels relative to the supply.

3,599,684 CONTAINER-DISPENSER UNIT

Albert J. Elias, Oakley Lane, Greenwich, Conn., assignor to Schering Corporation, Bloomfield, N.J.
Filed Sept. 26, 1969, Ser. No. 861,387
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141—369

2 Claims



A combined container-dispenser package for liquids, especially liquid concentrates, characterized by the storage container having recessed in its sidewall a vertically extending concavity adapted to nest a receptacle, and pump means mounted atop the container capable of metering a predetermined amount of the liquid into the so-nested receptacle.

3,599,685

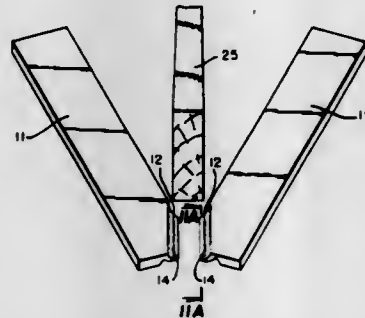
UNIT AND METHOD FOR WOODWORKING

Henry Westergren, and Bertil Larsson, both of Kallhall, Sweden, assignors to Kartholms Aktiebolag, Stockholm, Sweden

Filed Dec. 18, 1967, Ser. No. 691,389
Claims priority, application Sweden, Oct. 23, 1967, 14474/67
Int. Cl. B27c 9/00

U.S. Cl. 144—38

2 Claims



Apparatus for rounding or chamfering the edges of a multiply glued fiberboard material comprising a cutting tool and an associated means for heating the edge surface immediately after the edge has been processed by the cutting tool. The heating tool may be electrically heated or may comprise a roller rotating at high speed and adapted for frictional heating of the edge surface.

3,599,686

HOLDING MEANS FOR PICTURE SUPPORTS

David Meade Peebles, 325 Marcy Ave., Oxon Hill, Md.
Continuation-in-part of application Ser. No. 711,335, Mar. 7, 1968, now abandoned. This application Sept. 17, 1969, Ser. No. 858,611

U.S. Cl. 145—46

Int. Cl. A47h 1/16

2 Claims



A picture supporting hook or nail is equipped with a temporary holder which enables the user to position the hook or nail on the wall at a safe distance from the fingers while hammering. The temporary holder also prevents separation of the hook and nail accidentally prior to hammering and greatly facilitates the handling of these small parts. After hammering, the holder is stripped away and discarded.

3,599,687

AUTOMATIC MEAT MIXER AND GRINDER

William H. Tochantz, Kensington, Ohio, assignor to The Biro Manufacturing Company, Marblehead, Ohio

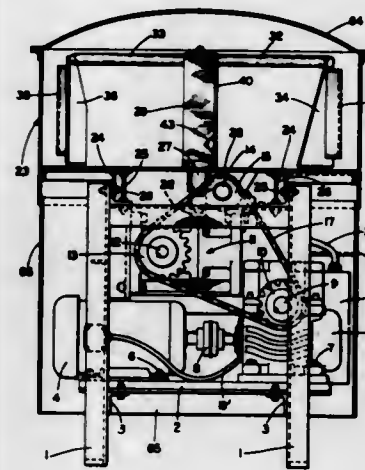
Filed Nov. 26, 1969, Ser. No. 880,048

U.S. Cl. 146—79

18 Claims

An automatic meat mixer and grinder including a tub into which chunks of fresh meat, suet or fat, chipped frozen meat and condiments or the like may be fed. Mixing blades or paddles in the tub include two inwardly disposed angular paddles of different lengths and at different angles, upon diametrically opposite ends of radial arms upon a central rotary shaft, and two offset oppositely disposed paddles or blades of dif-

ferent lengths upon said shaft. A feed screw at the bottom of the tub conveys the mixed meat to a conventional food



chopper including a perforate plate and rotary blade for grinding the mixed meat as desired.

3,599,688

LIVESTOCK FEED PROCESSING APPARATUS

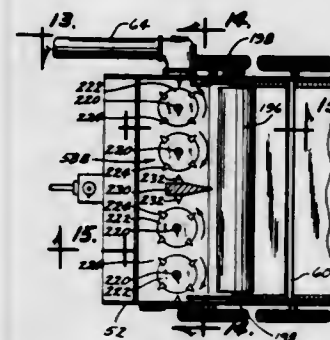
John N. Dodgen, and Paul C. Swigger, both of Humboldt, Iowa, assignors to Dodgen Industries, Inc., Humboldt, Iowa

Filed June 3, 1969, Ser. No. 830,074

Int. Cl. B02c 18/06

U.S. Cl. 146—124

2 Claims



Apparatus for processing animal feed involving a chopper unit in a wagon being fed hay by a conveyor wherein the hay is under compression from a powered roller coordinated in its speed with the speed of the chopper unit. The chopper unit involves one or more rotatable units having blades around its periphery which cooperate with stationary blades in cutting the feed material. One or more pairs of chopper rollers may be provided which turn towards the chopper unit inlet and cooperate with adjacent stationary blades. The material from the wagon may be fed from the chopper unit directly into an apparatus for producing livestock feed pellets having a hammer mill or the like. The chopper unit may also be placed on the machine for producing the pellets. The ground feed prior to being pelletized may be screened by a baffle plate having magnets associated with it for extracting metallic foreign material in the feed. The pellets produced by the pelletizer unit may be sorted by eccentrically operated shaker to separate out the fines. The forward lower end of the shaker being pivotally connected to the frame while the rear raised end is connected to the powered eccentric and may move in random directions.

3,599,689

APPARATUS FOR SLICING COMESTIBLE SLABS

Charles James Grant, 711 Torke Terrace, Plymouth, Wn.; Paul E. Cheney, 103 Apple Tree Hill, Fitchburg, Mass., and Kenneth J. Belotte, 370 Merriam Ave., Leominster, Mass.

Filed May 19, 1969, Ser. No. 825,498

Int. Cl. B26d 1/06, 4/42, 7/06

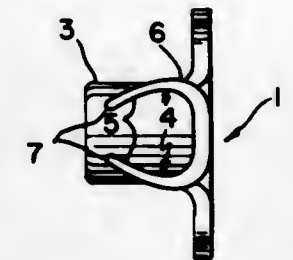
U.S. Cl. 146—158

3 Claims

This invention relates to an apparatus for producing equal numbers of slices from uniform cross section slabs, each of

which varies in length within a predetermined range comprising means for continuously slicing said slab, means for positioning the leading edge of each slab in alignment with the path of movement of said slicing means, means for displacing said slab predetermined distances beneath said slicing means to define the slice thicknesses, recording means for con-

cooperating pairs, the prongs of each pair are disposed in



face-to-face relationship and are curled inwardly toward each other and the threaded shank of the nut.

3,599,692

LOCK NUT ASSEMBLY AND METHOD OF MAKING THE SAME

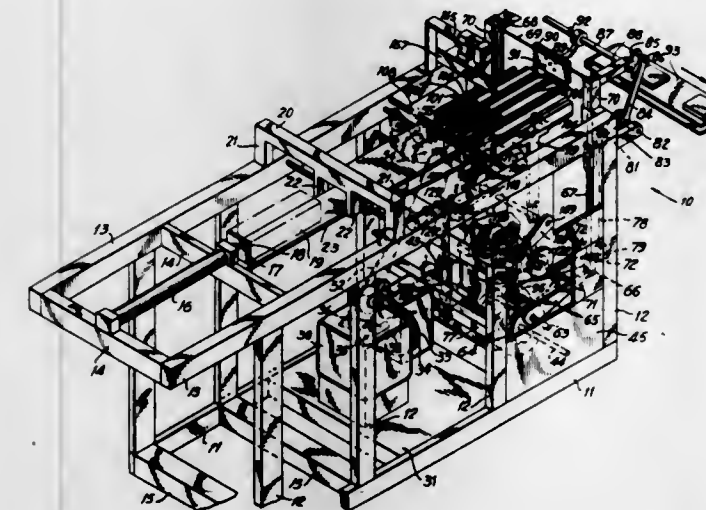
Horace D. Holmes, Birmingham, Mich., Assignor to Masco Corporation, Taylor, Mich.

Filed June 12, 1969, Ser. No. 832,611

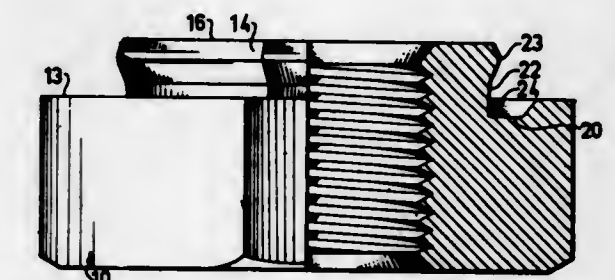
Int. Cl. F16b 39/02

U.S. Cl. 151—2 R

6 Claims



trolling said displacement means whereby the distances are programmed from known slab lengths, sensing means which measure said slab length within subdivisions of said range, said sensing means and said recording means being operatively associated whereby signals from said sensing means indicate the program for said slab.



3,599,690

CARRYING BAG

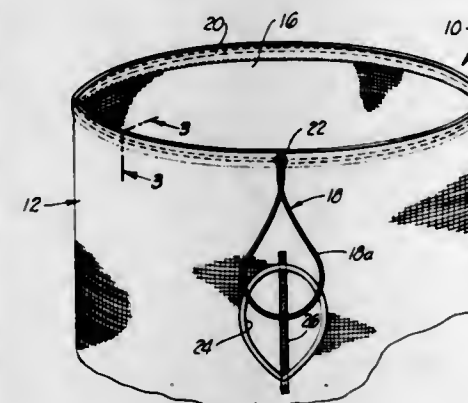
James Christie, 5656 Cedarglen Drive, Azusa, Calif.

Filed Sept. 22, 1969, Ser. No. 859,820

Int. Cl. A45c 13/26; B65d 33/28

U.S. Cl. 150—11

4 Claims



A general purpose carrying bag having a tubular body with open and closed ends and a sidewall opening containing a handgrip secured to the bag wall at opposite sides of the opening for holding and carrying the bag. A drawstring laced about the mouth of the bag has a free end which may be pulled to close the mouth and then stored within the bag by insertion through the handgrip opening. The free end of the drawstring may be secured to the handgrip to permit use of the drawstring as a carrying strap or shoulder strap.

3,599,691

FLANGED NUT WITH ATTACHING PRONGS

Norman J. Hughes, Melrose, Mass., assignor to TRW Inc., Cleveland, Ohio

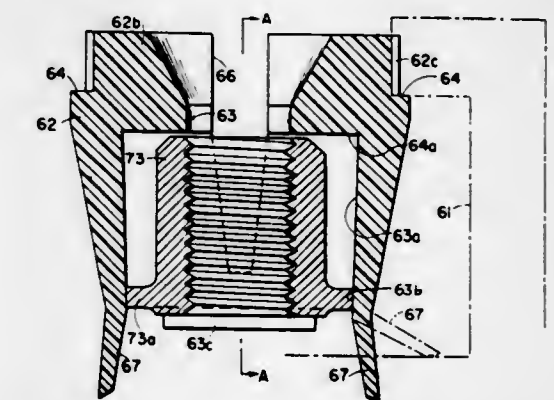
Filed June 30, 1969, Ser. No. 837,504

Int. Cl. F16b 39/282

U.S. Cl. 151—41.73

2 Claims

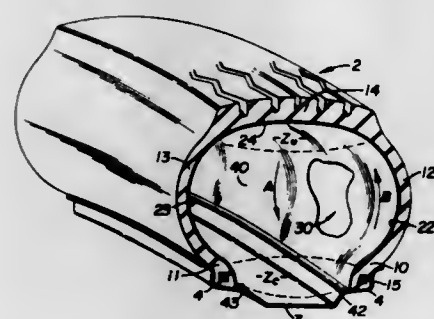
A flanged nut having attaching prongs disposed in



An anchoring device, for the disengageable securing of objects to a channel shape bar having turned lips on its flanges defining a slot, comprises a plastic shell having a rectangular cross section and a central bolt-receiving bore.

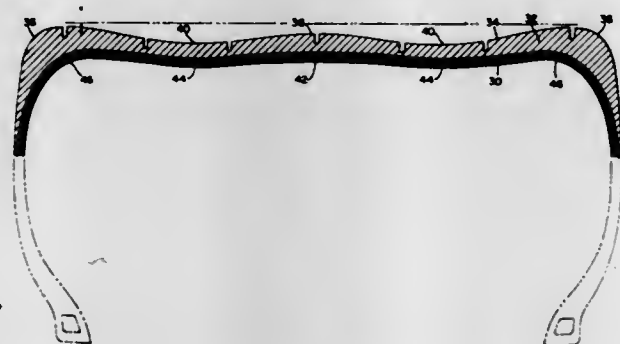
The shell has a neck portion with two opposite edges offset inwardly to an interspace substantially equal to the width of the bar slot. At least one slot extends parallel to the offset edges into the neck portion to provide compressibility of the nut for pressing of the shell into the bar with the offset edges parallel to the edges of the bar slot. The offset edges form respective shoulders engageable beneath the lips of the bar. The bore may receive an internally fitted sleeve to be anchored in the shell.

3,599,694
LIQUID COOLED PNEUMATIC TIRE
William Bezbatchenko, Jr., 323 Orville Ave., Cuyahoga Falls, Ohio, and Kenneth P. Kinas, Lakeview Drive, Greenlake, Wis.
Filed Oct. 15, 1969, Ser. No. 866,708
Int. Cl. B60c 19/06
U.S. Cl. 152-153 21 Claims



A pneumatic tire is provided with an internal cooling means comprising as a preferred embodiment a sheet of capillary material disposed across the inner surface of the tire from bead to bead. The sheet possesses capillarity for a selected liquid in order to transport that liquid from the bead areas to the tread zone where excess heat, which can develop in that zone during use, is absorbed through vaporization of the liquid. The vapor formed will thereafter condense adjacent the beads and release heat to the cooler rim and bead zone. The liquid resulting from the condensation is absorbed by the sheet and once again transported to the tread zone, thereby providing an effective and substantially continuous heat exchange cycle between the overheated tread zone and the cooler rim and bead area.

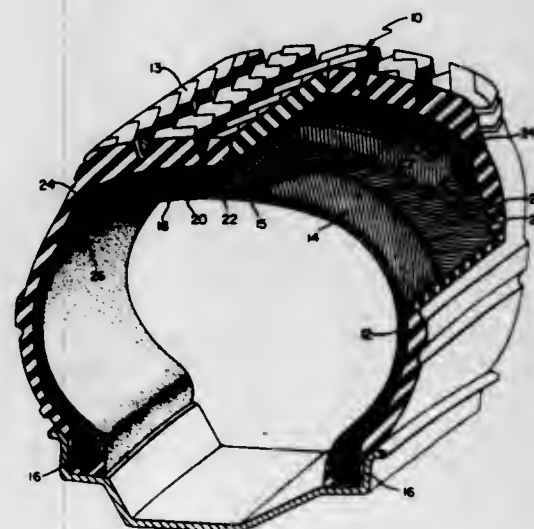
3,599,695
PNEUMATIC TIRE
Donald L. Knight, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 27, 1968, Ser. No. 732,206
Int. Cl. B60c 3/00
U.S. Cl. 152-352 10 Claims



A pneumatic tire having a carcass and a tread disposed about the carcass wherein the ground contact surface of the tread, when the tire is viewed in cross section, is generally sinuous in configuration to provide at the tread centerline a convex portion bounded at its opposite sides by a pair of reversely curved concave portions each of which is disposed between the tread centerline and the shoulder areas of the

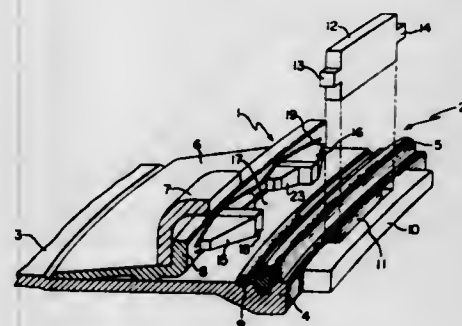
tire or lateral edges of the tread. The carcass underlying the tread has a cross-sectional contour in the crown area of the tire which generally approximates the sinuous configuration of the ground contacting surface of the tread. The tread may be thicker at the centerline than it is generally at the center of the two portions of the tread underlying the concave portions of the ground contacting surface of the tread.

3,599,696
PNEUMATIC TIRE
John J. Hartz, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Feb. 7, 1969, Ser. No. 797,475
Int. Cl. B60c 9/12
U.S. Cl. 152-361 28 Claims



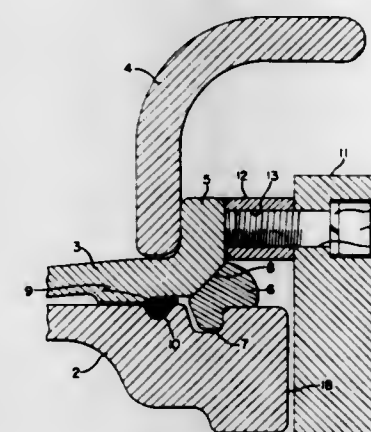
A bias-belted pneumatic tire, in particular one with a polyester cord carcass and a fiberglass belt, in which there is provided over the belt a layer of randomly oriented, discrete filaments, preferably wire, which are embedded in low hysteresis rubber. The filamentary layer is superposed at least substantially directly over the belt and is at least as wide as the belt.

3,599,697
WHEEL RIM AND DRIVER LUG ASSEMBLY THEREFOR
Gerhart L. Gerbeth, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Aug. 21, 1969, Ser. No. 851,942
Int. Cl. B60c 5/16
U.S. Cl. 152-410 12 Claims



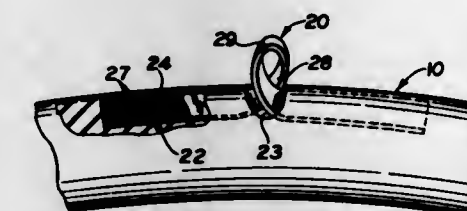
A multipiece wheel rim having a special driver lug assembly, having a pair of circumferentially spaced-apart lugs mounted on a bead seat ring to engage a member attached to the rim base of a wheel rim and prevent circumferential movement of the bead seat band on the rim base when the rim is used on a vehicle. The driver lugs are so designed and positioned that they permit substantially uniform radial flexing of the bead seat band thereby preventing undesirable stresses at any given location on the bead seat band.

3,599,698
RIM
Michael J. Skehan, Fairlawn Village; Gerhart L. Gerbeth, Akron; Gilbert J. Bozzell, Cuyahoga Falls, and Paul E. Milliken, Madison, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Sept. 8, 1969, Ser. No. 855,997
Int. Cl. B60c 5/16
U.S. Cl. 152-410 9 Claims



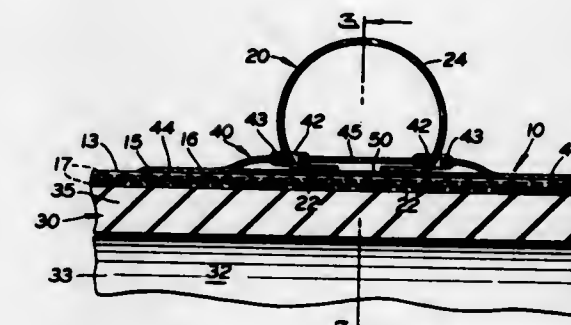
A multipiece rim for use on off-the-road type vehicles such as earthmovers and the like, particularly those vehicles using low-pressure tires. A thrust plate is bolted to a bracket on the bead seat band of the rim and extends over the axially outer edge of the rim base to prevent axially inward movement of the bead seat band which may break the seal between the bead seat band and the rim base and permit loss of air from a tire carried on the rim. In addition to engaging the rim base to prevent axial movement, the thrust plate may also engage one or more lugs on the rim base to prevent circumferential movement of the bead seat band with respect to the rim base.

3,599,699
VERTICALLY SUSPENDABLE MOUNT TUBE
Irvin E. Middleton, Jr., Akron, Ohio, assignor to The General Tire & Rubber Company
Filed Apr. 29, 1970, Ser. No. 32,798
Int. Cl. B60c 25/12
U.S. Cl. 157-1.21 10 Claims



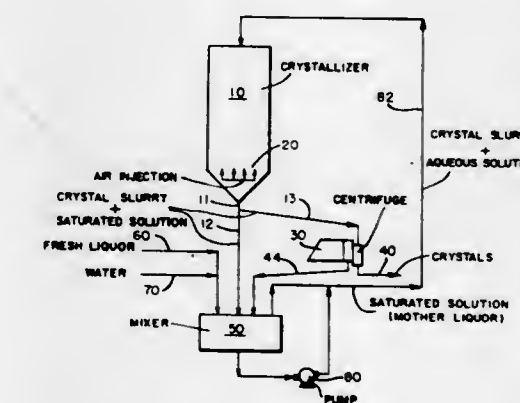
The difficult tasks of spreading the bead portions of pneumatic tire casings to mount the casings on rims, insert inner tubes, etc. are facilitated through use of a ringlike inflatable elastomeric diaphragm adapted to forcibly engage the periphery of the tire. Such a diaphragm is more conveniently operated while positioned along a vertical axis. For additional convenience and efficiency, it is desirable to suspend such diaphragm from overhead, for easy movement downwardly to an operating position, and upwardly to a storage position. In order to structurally adapt these diaphragms for vertical suspension, support means are built into or made a structural part of the diaphragm. The support means are preferably a plurality of spaced support loops disposed about the periphery of the diaphragm and anchored within the outer wall thereof.

3,599,700
SUSPENDABLE MOUNT TUBE
Adolfo O. Cutillo, Brecksville; Joe A. Gourley, Jr., Akron, and Ray A. Orlando, Alliance, all of Ohio, assignors to The General Tire & Rubber Company
Filed June 8, 1970, Ser. No. 44,504
Int. Cl. B60c 25/12
U.S. Cl. 157-1.21 12 Claims



An inflatable, ringlike, elastomeric diaphragm, or mount tube, used to spread pneumatic tire casings to facilitate mounting of the casing on rims, or to otherwise gain access to the interior of the casing, is provided with means for securing support loops or rings to the tube in the event the tube is to be handled and used while suspended. Such means are preferably a plurality of elastomeric pads cured to the exterior of the tube in the vicinity of the upper side or marginal portion thereof. The strips are each provided with a pair of openings through which a support or suspensory loop or ring may be passed. A suitable substance is placed between the exterior of the tube and a portion of the inner surface of the pad which includes the openings to prevent curing of that portion to the tube so as to allow passage of a support or suspensory loop therethrough.

3,599,701
CRYSTALLIZATION METHOD
Bengt Olof Pontus Mollerstedt, and Karl Gunnar Stig Johansson, both of Ljungaværk, Sweden, assignors to Kema Nord AB, Stockholm, Sweden
Filed July 30, 1968, Ser. No. 748,755
Int. Cl. B01d 1/100; F26b 7/100
U.S. Cl. 159-47 10 Claims



This invention generally relates to a method for continuous crystallization of water soluble compounds by means of which rounded or spherical crystals are obtained and good regulation of the size and the size distribution of the crystals is achieved. The method is particularly suitable for crystallization from aqueous solutions substantially free from impurities.

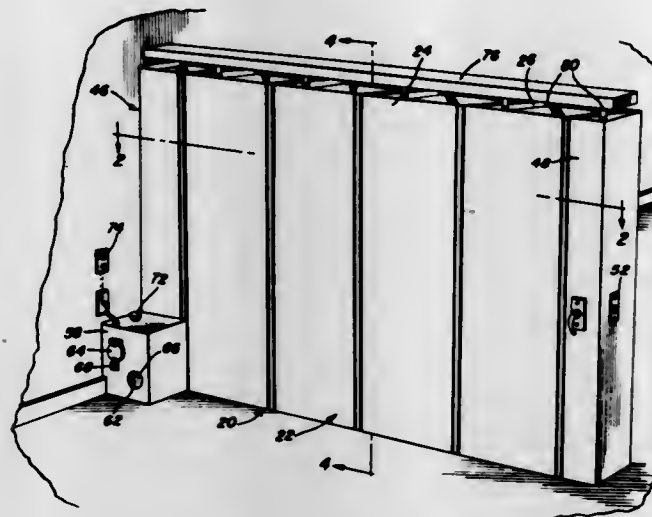
3,599,702

PNEUMATICALLY OPERATED COLLAPSIBLE UNIT

Norman M. Bedard, 5830 Red Road, Miami, Fla.
 Filed July 10, 1969, Ser. No. 840,726
 Int. Cl. E06b 3/94

U.S. Cl. 160-84

10 Claims



A collapsible unit selectively extensible so as to define an enlarged structural component usable as a door, cover, bridge, or the like. The unit is constructed of a series of adjacent cells communicating with each other and defining an airtight interior for the full length of the unit. The cells or sections are selectively expanded and collapsed utilizing the introduction and withdrawal of an appropriate fluid under pressure, such fluid normally being air. Any number of cells can be incorporated into the unit, and the overall length of any particular unit easily modified as required by the addition or removal of cells.

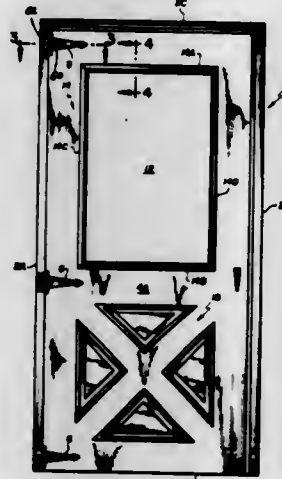
3,599,703

INSULATED STORM DOOR ASSEMBLY

Anthony R. Mennuto, 769 Pascack Road, Paramus, N.J., and Nicholas Popovich, Teaneck, N.J.
 Filed Mar. 17, 1969, Ser. No. 807,859
 Int. Cl. E06b 3/32

U.S. Cl. 160-90

3 Claims



A storm door assembly mounted to an installation structure and including an insulating core sandwiched between a pair of one-piece panels. An opening in the upper portion of the door assembly accepts a frame. The frame is adapted for receiving screen and glass inserts, and which inserts are adapted for retaining a decorative grill.

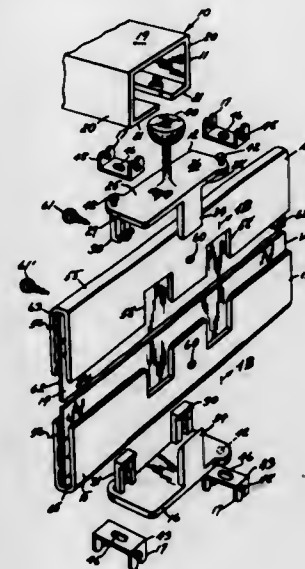
3,599,704

VERTICAL VENETIAN BLIND CONSTRUCTION

Allan S. Woodie, Mamaroneck, N.Y., assignor to Thru-Vu Vertical Blind Corporation, Mamaroneck, N.Y.
 Filed Oct. 2, 1969, Ser. No. 863,187
 Int. Cl. E06b 9/384

U.S. Cl. 160-172

4 Claims



An improved vertical blind construction including: a plurality of vanes, clamp elements detachably connected to the unhemmed ends of the vanes; horizontally oriented supporting track means, a plurality of clip elements detachably connected to said clamp elements, said clip elements having upwardly extending means engaging said track means.

3,599,705

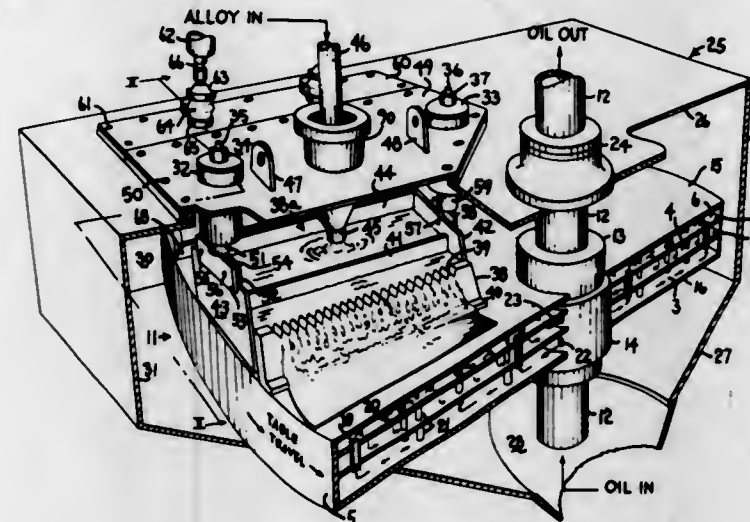
METHOD OF CONTINUOUSLY CASTING A UNIFORM METAL FILM

Harmon A. McDougal, and Erwin C. Whitney, both of Beaumont, Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 9, 1969, Ser. No. 883,444
 Int. Cl. B22d 11/06, 11/10

U.S. Cl. 164-87

2 Claims



A weir assembly suitable for use in conjunction with a rotary table is described for use in producing flakes of solid material from solutions or from molten metal baths. In particular the novel weir assembly of the instant invention is described with reference to the preparation of sodium-lead alloys. The assembly of the invention includes a tank, baffled to provide for the smoothing out of waves which might form during the filling of the tank with molten alloy. The weir plate is provided with a notched top portion to provide a uniform sheet of molten material flowing down the face

thereof. The molten metal is contacted with the cooling table surface off the surface of a spreading means positioned at the bottom of the plate.

3,599,706

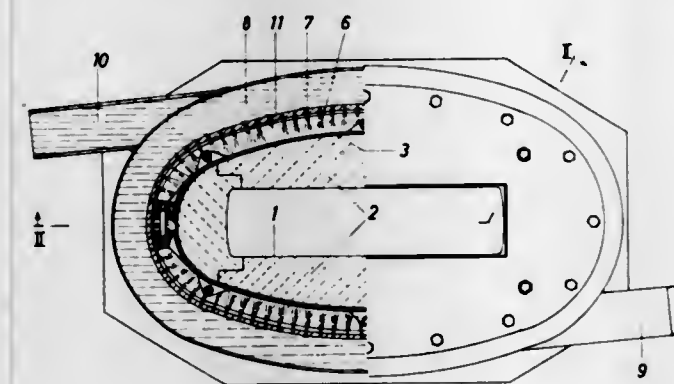
CONTINUOUS CASTING MOLD WITH COATED JACKET UNDER SPRING TENSIONING

Hans Wieland, Ulm, Germany, assignor to Wieland-Werke AG, Ulm, Germany
 Filed Apr. 4, 1969, Ser. No. 813,582
 Claims priority, application Germany, Apr., 1968, P 17 58 157.6

Int. Cl. B22d 11/02

U.S. Cl. 164-280

8 Claims



A mold for continuous casting of metal has a graphite body which surrounds an elongated mold cavity. A metallic jacket surrounds the graphite body in engagement with the circumferential outer surface thereof, and the jacket is subdivided circumferentially of the surface into at least two jacket sections. Pressure means is associated with the jacket sections and draws the same together circumferentially of the graphite body to thereby urge the jacket into intimate surface-to-surface contact with the circumferential surface of the graphite body and subject the latter to radially inwardly directed pressure over the entire area of the circumferential surface.

3,599,707

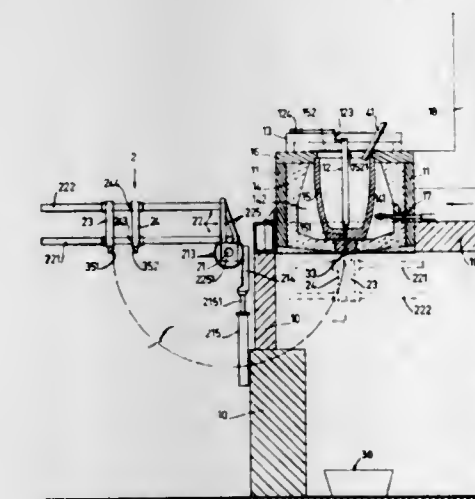
MACHINE FOR CHILL-CASTING UNDER HYDROSTATIC PRESSURE

Rene Lauzier, and Jean Gabillon, both of Ruy, France, assignors to Compagnie Pechiney, Paris and Etablissements Lauzier, Bourgoin, France, part interest to each
 Filed May 4, 1970, Ser. No. 34,018
 Claims priority, application France, May 6, 1969, 6,914,447

Int. Cl. B22d 33/02, 37/00

U.S. Cl. 164-337

4 Claims



A machine for chill casting under hydrostatic pressure which includes a holding furnace mounted on a supporting

frame including a crucible having a pouring opening in the bottom wall and a stopper mounted for movement between opening and closing positions with respect to said opening, a casting mold formed of at least two parts mounted on a rigid frame and a mold-pouring device in which the latter is formed of female and male injection nozzles one of which is mounted on the pouring jet and the other of which is fixed to the pouring hole of the furnace crucible with means for displacement of the mold to engage the male and female nozzle members.

3,599,708

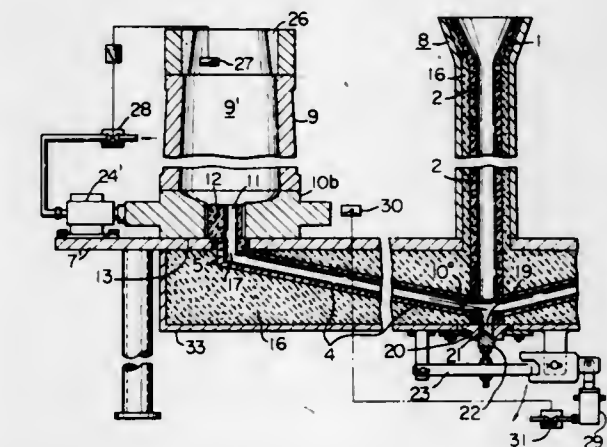
BOTTOM POURING APPARATUS FOR STEEL INGOTS

Kazuro Suzuki, Ibaragi-shi; Mitsuo Oda, Nishinomiya-shi, and Takao Suzuki, Nishinomiya-shi, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan
 Filed July 31, 1968, Ser. No. 749,173
 Claims priority, application Japan, Aug. 4, 1967, 42/50025

Int. Cl. B22d 41/08

U.S. Cl. 164-337

7 Claims



Making ingots in steel production, wherein casting molds filled with molten metal are moved on a board the surface of which blocks molten metal for steel ingots, but permits the flow of the metal, said molten metal runner routes being reusable.

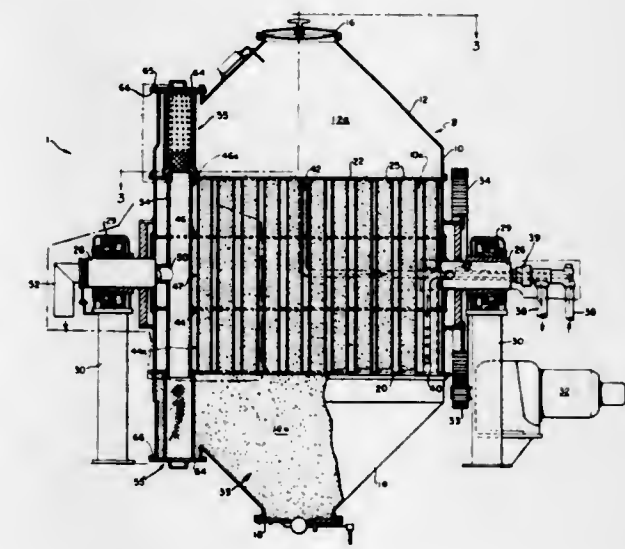
3,599,709

HEAT EXCHANGE MILL

John J. Fischer, East Stroudsburg, Pa., assignor to The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.
 Filed Apr. 2, 1970, Ser. No. 25,098
 Int. Cl. F28d 11/00; F28f 5/00

U.S. Cl. 165-86

9 Claims



In a heat exchange and blending device for heat exchange treatment of flowable materials, comprising a tumbling mill

including a normally closed casing having a pair of tube sheets disposed in parallel relation transversely of the said casing and subdividing the casing into a generally cylindrical tube section and generally conical mixing chamber end sections at opposite ends thereof; generally parallel tubes extending endwise between the tube sheets in open communication with the end sections; means to pass heat exchange fluid through the tube section for contact with the outer surfaces of tubes therein; and means mounting the casing for rotation of the tube and end sections in unison about an axis transverse to the lengthwise direction of the tubes to effect movement of a load of material alternately from one end section through the tubes into the other end section, the improvement including the provision of at least one apertured baffle plate arranged parallel to the tube sheets and cooperating therewith to divide the casing tube section into heat exchange fluid inlet and outlet reservoirs interconnected solely by a plurality of orifices defined by the baffle plate apertures and the outer surfaces of the tubes extending therethrough. Vapor pressure control within the mixing chambers is effected by a system including filtering units accessible from exteriorly of the mixing chambers.

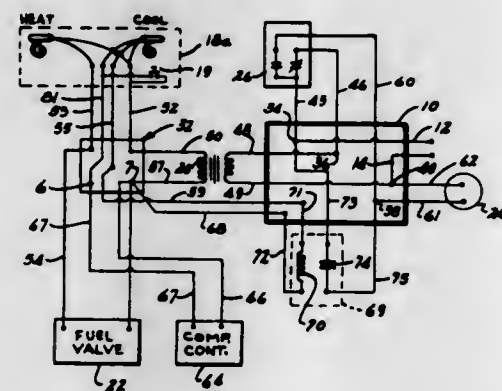
3,599,710

RELAY-TYPE CONTROL FOR AIR CONDITIONER
Donald N. Joslin, Elyria, Ohio, assignor to American Standard Inc., New York, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,302
Int. Cl. F25b 29/00

U.S. Cl. 165-26

8 Claims



An electric plugboard-relay assembly for converting a heating furnace into a combination heating and cooling air conditioner. The plug board is associated with a junction box in the furnace. The relay is provided with prong-type leads which plug into the board to enable the furnace to electrically connect with the compressor of a refrigerating system, thereby adapting the furnace for both heating and cooling.

3,599,711
DIVERTER

John H. Fowler, Glenshaw, Pa., assignor to Rockwell Manufacturing Co., Houston, Tex.

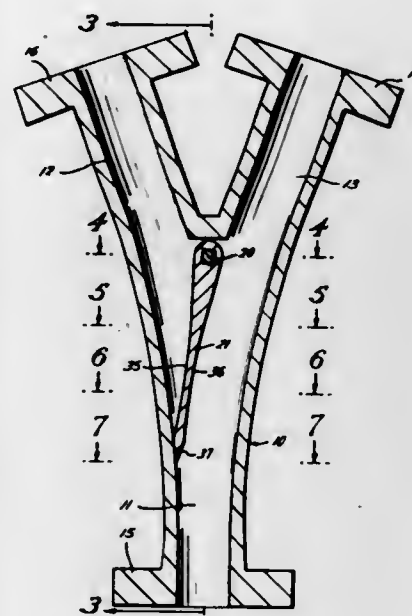
Filed July 7, 1969, Ser. No. 839,253
Int. Cl. F21b 33/035, 33/02

U.S. Cl. 166-5

24 Claims

In an underwater well for the production of petroleum, a tool diverter comprising: a wye-branched conduit having a master section and at least two diverging branch sections, a movable blocking member mounted at the confluence of the branch sections, and a remotely operable actuator for selectively positioning the blocking member to block passage of tools into one of the branches. The blocking member may be connected to a rotatable shaft for pivoting movement thereon. At least one fluid-operated piston may be mounted in a cylinder for movement perpendicular to the shaft and engageable with a mechanism connected to the shaft to translate reciprocal movement of the piston to rotational movement of the shaft. In a preferred embodiment of the invention the branch sections of the wye conduit may be symmetrical with respect to the master sections. The blocking member may be a depending flapper the free end of which is movable from one wall of the master section to an opposite

wall, each face of the flapper being symmetrically curved to provide a substantially continuous curving wall between the



master section and the branch section which is not being blocked.

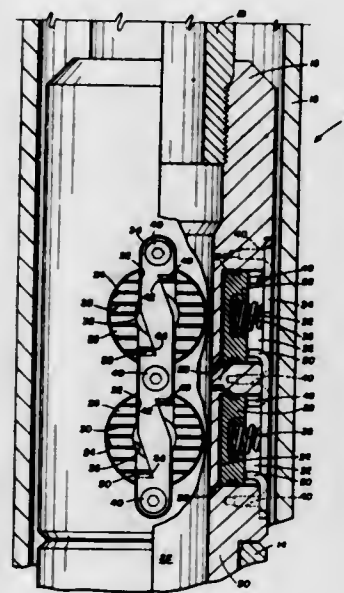
3,599,712

HYDRAULIC ANCHOR DEVICE
Charles W. Magill, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Sept. 30, 1969, Ser. No. 862,199
Int. Cl. E21b 23/04

U.S. Cl. 166-212

5 Claims



An anchoring device that is useful in well bores to retain tubing strings, packers or the like in a fixed position therein. The anchoring device includes several hydraulically actuated piston slips and is provided with a retaining member that includes one or more deformable tabs that engage the slips to prevent the slips from moving outwardly until the hydraulic force exceeds the deformation strength of the tabs. The arrangement is such that inadvertent expansion of the slips and, thus, dragging of the slips on the wall of the well bore in response to a differential pressure created by the movement of the tool through the well bore is prevented. The slips are positively restrained until a pressure sufficient to deform the tabs is deliberately applied whereupon the slips are moved into holding engagement.

3,599,713

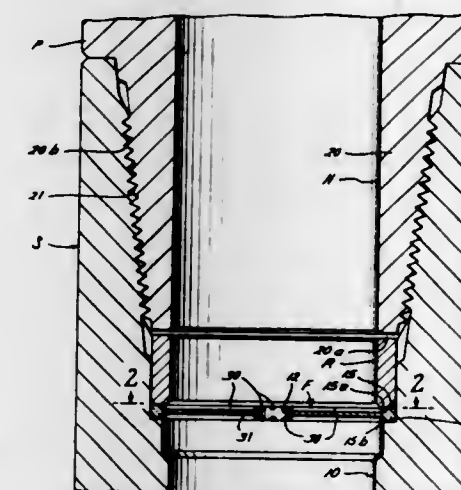
METHOD AND APPARATUS FOR CONTROLLING THE FILLING OF DRILL PIPE OR THE LIKE WITH MUD DURING LOWERING THEREOF

Thomas D. Jenkins, Harvey, La., assignor to Fishing Tools, Inc.

Filed Sept. 8, 1969, Ser. No. 856,116
Int. Cl. E21b 41/00

U.S. Cl. 166-224

6 Claims



A method and apparatus for controlling the filling of drill pipe or the like with mud or other liquid during the lowering thereof into a pipe or casing having the mud or other liquid therein so as to prevent or inhibit such mud or liquid from spilling onto the derrick floor, and for subsequently opening the drill pipe to a full inside diameter for performing well operations therethrough.

3,599,714

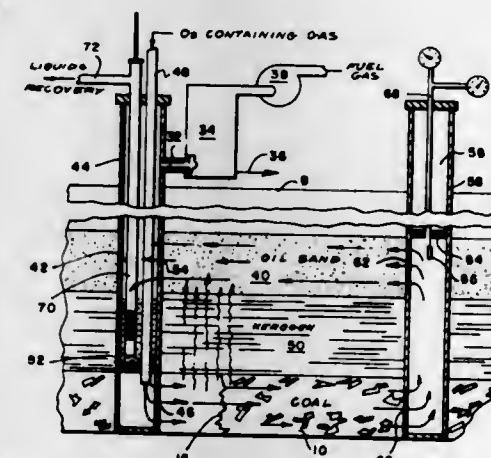
METHOD OF RECOVERING HYDROCARBONS BY IN SITU COMBUSTION

Roger L. Messman, 1432 Wichita Plaza Bldg., Wichita; Karl E. Becker, 419 First National Bank Bldg., Wichita, Kans., and Henry C. Messman, 31 Ellsworth Road, Larchmont, N.Y.

Filed Sept. 8, 1969, Ser. No. 862,617
Int. Cl. E21b 43/24

U.S. Cl. 166-258

12 Claims



The invention provides a method for recovering hydrocarbons from a geological formation having combustible organic

material. A passageway is established from a point in the formation, through same, and to the surface of the ground. The combustible organic material is ignited. Oxygen-containing gas is passed into the resulting combustion zone by establishing at lower than normal formation pressure, a pressure drop from the combustion zone to a point outside the formation through the passageway. The temperature of combustion is controlled to only partially volatilize the organic material. The gases resulting from the partial combustion are passed to the surface of the ground. The method is preferred to recover hydrocarbons and other chemicals from a coal stratum and/or from an oil sand. In the preferred specific embodiment, the method is applied to recovering hydrocarbons from a coal stratum and a separate oil sand stratum, separated by a stratum of kerogen. In the latter heat of combustion is by conduction passed from the coal stratum to the oil sand stratum.

3,599,715

USE OF SURFACTANT FOAM FOR RECOVERY OF PETROLEUM

Wayne O. Roszelle, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed Feb. 18, 1970, Ser. No. 12,457
Int. Cl. E21b 43/22

U.S. Cl. 116-273

16 Claims

Water-external micellar dispersions containing hydrocarbon, surfactant, and 50-95 percent by volume water are contacted with a gas (e.g. air or nitrogen) to form a stable foam which is then injected into and displaced through an oil-bearing reservoir to recover crude oil. The foam may be generated in situ as well as on the surface.

3,599,716

METHOD FOR SECONDARY OIL RECOVERY

James L. Thompson, Tulsa, Okla., assignor to Atlantic Richfield Company

Filed Apr. 9, 1969, Ser. No. 814,803
Int. Cl. E21b 43/22

U.S. Cl. 166-273

12 Claims

A secondary oil recovery method which comprises successively injecting into a subterranean oil-bearing formation air and water, e.g. as alternate slugs. The water has dissolved therein a surfactant and an acid or base to increase the efficiency of the surfactant.

3,599,717

ALTERNATE FLOOD PROCESS FOR RECOVERING PETROLEUM

James M. McMillen, Arlington, Tex., assignor to Mobil Oil Corporation

Filed Dec. 3, 1969, Ser. No. 881,871
Int. Cl. E21b 43/22

U.S. Cl. 166-273

7 Claims

The specification discloses a process for recovering petroleum from a subterranean reservoir. Gas is injected into the reservoir to establish a free-gas phase in at least a portion of the reservoir. Gas and water are then injected simultaneously into the reservoir and fluids are produced therefrom. The alternate gas and simultaneous gas-water injection steps are repeated until production drops below an economic level.

3,599,718

ELECTROLESS METAL BONDING OF UNCONSOLIDATED FORMATIONS

Edwin A. Richardson, and Robert S. Torrest, both of Houston, Tex., assignors to Shell Oil Company, New York, N.Y.

Filed June 20, 1969, Ser. No. 835,243
Int. Cl. E21b 33/138

U.S. Cl. 166-292

5 Claims

A method of consolidating an incompetent or unconsolidated earth formation, over a wide temperature range, by subjecting the formation to an electroless metal-plating process wherein prior to metal binding and consolidating the formation is activated with an activating colloidal metal forming solution having a pH within the range of from 4 to 5

and containing a viscosity-enhancing material capable of suspending the colloidal particles in solution.

3,599,719

METHOD AND APPARATUS FOR PROVIDING CLEAN PERFORATIONS IN A WELL BORE

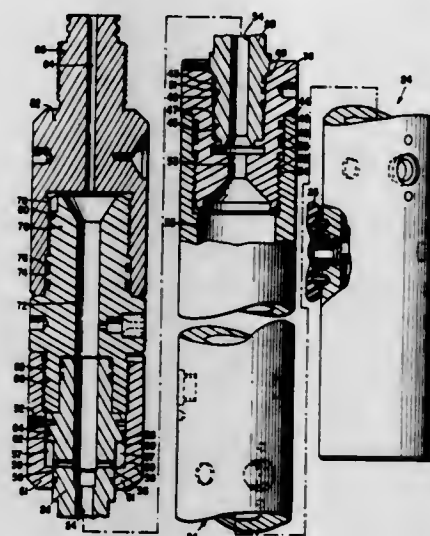
Jack E. Brown, Houston, Tex., assignor to Halliburton Company, Duncan, Okla.

Filed Jan. 9, 1970, Ser. No. 1,820

Int. Cl. E21b 43/116

U.S. Cl. 166-297

20 Claims



A method is provided for perforating the casing of a well and for sealing an isolated flow path from the formation adjacent the casing through the casing wall and into the perforating tool. The tool may be lowered by a cable into a well bore. The tool is permitted relatively free movement in the direction transverse to the axis of the bore. Formation-perforating guns are disposed within the tool and resilient elastomeric sealing pads are mounted on the outside of the tool generally coaxial with the barrel portions of the guns. As each gun is fired and the formation perforated, a pressure differential is applied across the sealing pad due to the pressure of the hydrostatic fluids surrounding the tool being substantially higher than the pressure of the fluids within the formation. The pressure differential immediately flexes the outer lips of the seal toward the casing wall adjacent the perforation site to form a seal therewith. The seal, in turn, pulls the tool transversely across the well bore toward the perforation. The pressure differential created by the perforation thereby secures the tool against the casing wall. To release the tool from the casing, a slide valve may be actuated by a vertically upward pull on the cable which actuation causes annular, high-pressure, hydrostatic fluids to enter the low-pressure space on the formation side of the seal so as to equalize the pressure and release the holding force produced thereby.

3,599,720

ADJUSTABLE SIZE HORSESHOE

Pierre Mathern, Paris, France, assignor to Samuel Lahmani, Paris, France

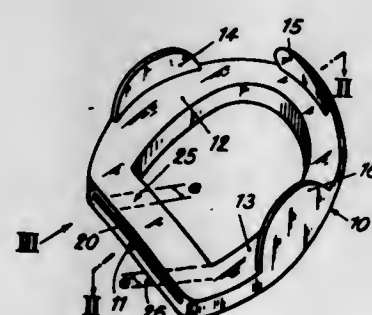
Filed July 1, 1969, Ser. No. 838,224

Claims priority, application France, July 5, 1968, 158,195

Int. Cl. A011 01/00, 03/00

U.S. Cl. 168-4

8 Claims



A horseshoe has a rear transverse portion made of at least two superimposed parts of a material that can be cut off for

width adjustment of the shoe and then secured in superimposed relation for providing a unitary plate bridging the rear ends of the side limbs of the horseshoe when adjustment of the shoe width has been made.

3,599,721

FLUID CONTROL SYSTEM

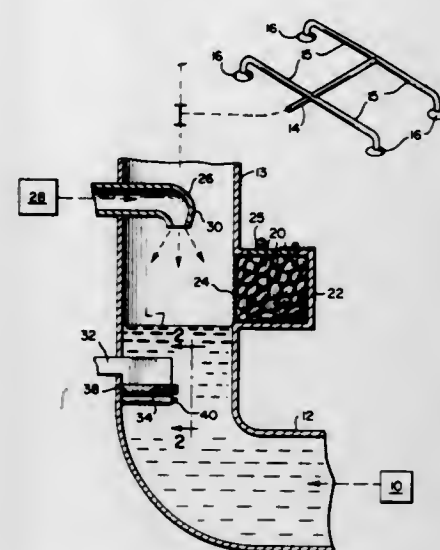
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation

Filed Aug. 11, 1969, Ser. No. 848,987

Int. Cl. A62c 35/00

U.S. Cl. 169-8

14 Claims



A fluid control system in which a predetermined level of fluid is maintained in a conduit by varying the pressure in the conduit in response to variations in the fluid level. When the fluid level exceeds the predetermined level a powder disposed in a fluid flow relationship with the conduit is wetted by the fluid to produce a gas which causes the pressure in the conduit to exceed the pressure of the fluid, and thus reduce the level of the fluid to the predetermined level. When the fluid level drops below a predetermined level as a result of an increased pressure in the conduit, the conduit is vented to atmosphere to reduce the pressure and raise the fluid level.

3,599,722

REMOTELY CONTROLLABLE FIRE FIGHTING APPARATUS

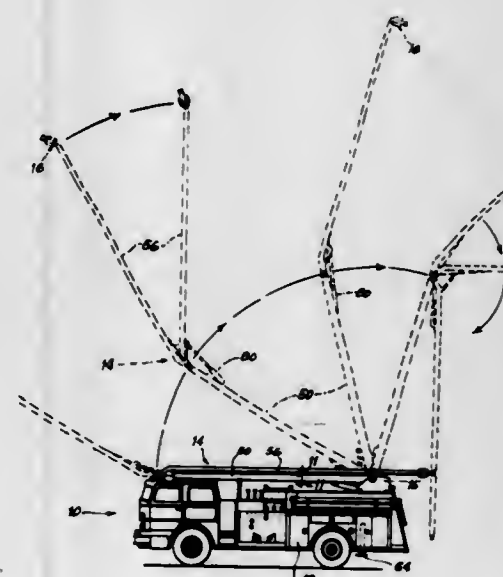
Kenneth H. Davidson, and Carrol V. Morris, both of Saint Joseph, Mo., assignors to Snorkel Fire Equipment Company

Filed Dec. 31, 1968, Ser. No. 788,200

Int. Cl. A62c 27/00

U.S. Cl. 169-24

12 Claims



A remotely controllable, boom-supported water delivery monitor and nozzle assembly particularly adapted for fire-

fighting apparatus, and having independently operable nozzle sweep and vertical travel functions, and remotely controllable flow rate adjustment and spray pattern adjustment, all hydraulically operable from a remote control panel.

3,599,723

FUSIBLE ELEMENT FOR CENTER STRUT SPRINKLERS

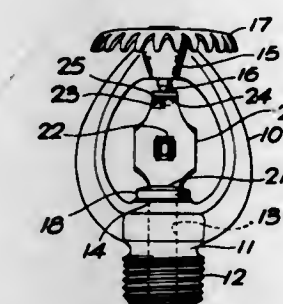
Theodore Vorkapich, Brunswick, Ohio, assignor to ATO Inc., Cleveland, Ohio

Continuation-in-part of application Ser. No. 690,957, Dec. 15, 1967, now Patent No. 3,498,383, and a continuation-in-part of 803,391, Feb. 28, 1969. This application Dec. 3, 1969, Ser. No. 881,713

Int. Cl. A62c 37/12

U.S. Cl. 169-39

4 Claims



An improved fusible element for a fire extinguishing sprinkler comprising a frame having a discharge orifice and a spaced oppositely disposed deflector and means positioned therebetween normally closing the discharge orifice and responsive in opening to predetermined heat conditions wherein opposed cylinders holding fusible material are spaced by a piston movable to displace the fusible material on said predetermined heat conditions occurring.

3,599,724

ROCK PICKER

Harry Friske, 1813 Pettigrew Road, and Alfred Friske, 260 Duncan Road, both of Estevan, Saskatchewan, Canada

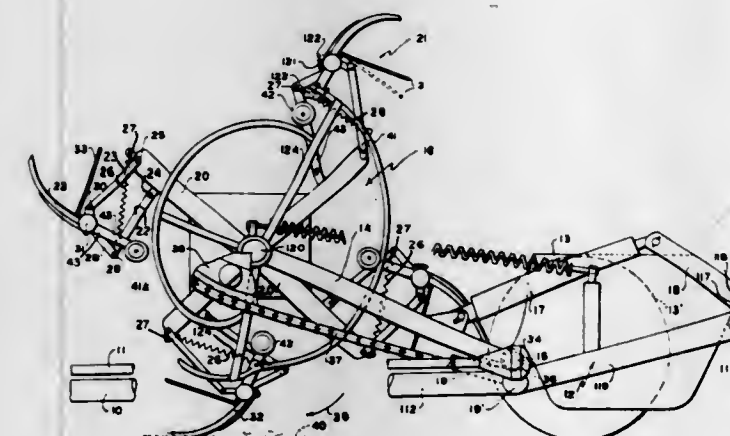
Filed Aug. 8, 1969, Ser. No. 848,589

Claims priority, application Great Britain, Aug. 26, 1968, 40765/68

Int. Cl. A01b 43/00

U.S. Cl. 171-63

8 Claims



A pickup reel has teeth and retainers which move upwardly when an obstruction is engaged. They are positioned by outer and inner cam tracks for optimum operational positioning. The reel is positioned by hydraulic piston and cylinder assemblies which also dump the stone bucket when

the lowermost position of the reel is reached and the piston and cylinder assemblies are further extended.

3,599,725

ROW-TYPE AGRICULTURAL APPARATUS FOR THINNING, HOENING OR SPRAYING OF PLANTS

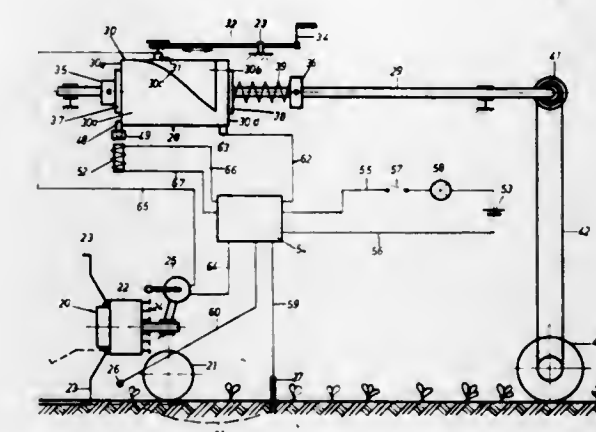
Arnold Gego, 67, Soerser Weg, Aachen, and Heinrich Gugenhan, 53, Schulstrasse, Duren, both of, Germany

Continuation-in-part of application Ser. No. 549,033, May 10, 1966, now Patent No. 3,452,822. This application June 19, 1969, Ser. No. 834,821

Int. Cl. A01b 41/04; H01h 1/00

U.S. Cl. 172-6

15 Claims



Control for a row cultivator having a selectively activatable cultivating tool for operation along specified portions of a row by activation of a rotary magnet with the magnet control including a rotary cylindrical control member driven through friction drive means by a ground-engaging means at a rate proportional to the speed of movement of the cultivator along the row with the control cylinder having conductive and nonconductive surfaces of varying length at different axial positions along the cylinder engageable with a contact for controlling the length of cultivation for a given revolution of the cylinder.

3,599,726

EDGING TOOL

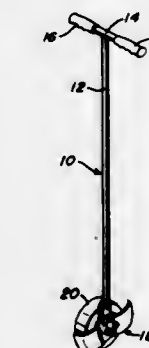
Leonard D. Iacurci, 3701 Wenzler Drive, Kettering, Ohio

Filed June 9, 1969, Ser. No. 831,454

Int. Cl. A01b 45/00, 1/00

U.S. Cl. 172-17

3 Claims



An edging tool for trimming a lawn along the edges of curbs, walks and areas adjacent walls, steps or the like. The edging tool includes an operating handle or stem, a cutting member secured thereto adjacent one end thereof, and a rotatable wheel for support of the stem and cutting member. The cutting member has a first cutting edge and a second cutting edge. The cutting edges are arranged so that one cutting edge is used when the edging tool is moved in one direction and the other cutting edge is used when the edging tool is moved in the opposite direction.

direction, and the other cutting edge is used when the edging tool is moved in the opposite direction. Thus, the trimming of lawns near abutments such as steps, walls, or the like may be accomplished easily and readily.

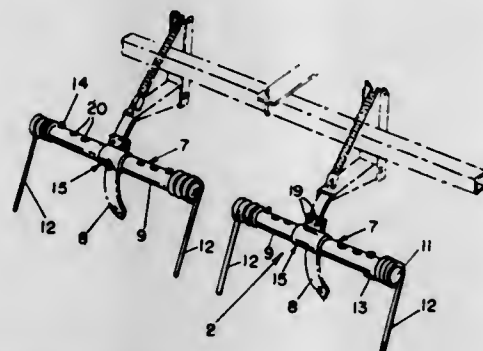
3,599,727

HARROW ATTACHMENT FOR CULTIVATORS

Robert B. Gates, Route 2, Lorraine, N. Dak.
Filed Nov. 4, 1968, Ser. No. 772,892
Int. Cl. A01b 33/02, 23/02

U.S. Cl. 172-142

1 Claim



This invention consists of a horizontally disposed steel tube having a plurality of spaced openings therein. A steel bar, that likewise has a plurality of matching spaced openings therein, is located in the just mentioned steel tube. A spring tooth is secured to each end of the steel tube by having its upper end wound around the tube and terminating in a loop on the bottom of the tube through which a bolt is located in one of the aforesaid openings. A steel fitting, which embodies a tube through which the first mentioned steel tube is slidably passed, provides a means of securement by two bolts to one of the spring tooth shanks of a cultivator, which may have any number of these inventions secured thereto.

3,599,728

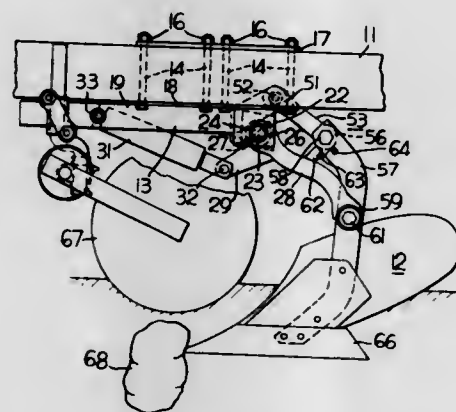
FLOW TRIP MECHANISM

Richard G. Moe, La Crosse; Gerald E. Sieren, Greendale, and Maynard E. Walberg, Waukesha, all of, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Sept. 25, 1968, Ser. No. 763,056

Int. Cl. A01b 61/04

U.S. Cl. 172-265

4 Claims



A safety trip mechanism for a plow which permits a plow to raise up, move rearwardly and pivot upon striking a buried object and which mechanism returns the plow to operative position after the object has been cleared.

3,599,729

CULTIVATOR SHANK AND DISC SETTER

Ralph J. Greemore, Route 5, Box 173, Vincennes, Ind.
Filed June 25, 1969, Ser. No. 836,301

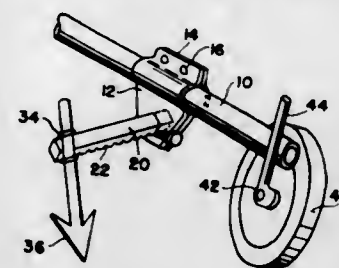
Int. Cl. A01b 23/00

U.S. Cl. 172-741

5 Claims

An apparatus for use on a cultivator comprises a support clamp mounting on elongated bar to which an earth working element is affixed. The support element also mounts a spring biased pin between a locked position wherein the pin engages an indentation in the bar to lock the latter in a fixed position

and a nonlocked position wherein said pin is free of said bar and the latter may be slid longitudinally relative to the support clamp to adjust the position of the earth-working element.



3,599,730

PRESSURE FLUID OPERATED PERCUSSION TOOL

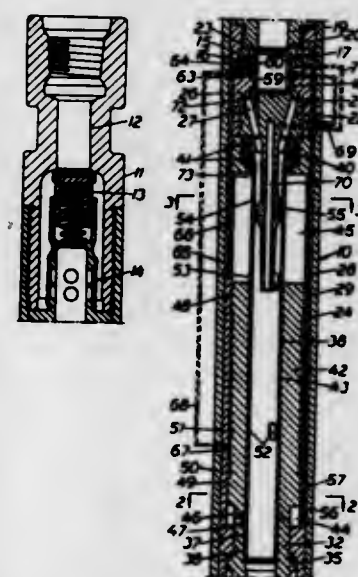
Per Janne Olov Luthman, Tyreso; Matti Juhani Koskimaki, Nacka; Karl August Valdemar Magnusson, Klinton; Robert Mauritz Sandblom, Alvaro, and Birger Zettergren, Nacka, all of, Sweden, assignors to Atlas Copco Aktienbolag, Nacka, Sweden

Filed Jan. 7, 1970, Ser. No. 1,207

Int. Cl. E21b 1/00, 5/00

U.S. Cl. 173-73

17 Claims



In a down-the-hole percussion drill, the exhaust power fluid is used as a flushing fluid during drilling. When the drill is suspended off bottom, the drill bit and with it the hammer piston drops into an exceptional forward position so that drilling ceases automatically and an uninterrupted blowing with fluid starts under full line pressure. The passages for supplying fluid for providing the power strokes of the hammer piston during drilling are used for conveying air for this blowing.

3,599,731

DRILLING APPARATUS

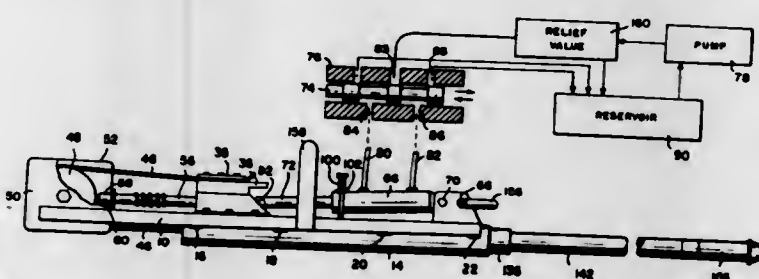
Donald E. Lawlis, Buckley, Wash., assignor to Del-Guy Inc., Buckley, Wash.

Filed Dec. 1, 1969, Ser. No. 881,027

Int. Cl. E21b 1/04

U.S. Cl. 173-88

5 Claims



Drilling apparatus adapted for setting electrical conduits in place under roadways comprises a bit mounted in a subassembly

sembly for movement along the axis of drilling as well as for rotational movement, a spring-operated hammer within the subassembly adapted to impart a blow to the bit in the direction of drilling, a cable attached to the hammer and extending through conduit sections being set in place to a hydraulically operated mechanism for withdrawing the cable against the force of the spring and suddenly releasing the cable.

3,599,732

METHOD FOR PROVIDING A HOLE IN THE SOIL AS WELL AS A DEVICE FOR APPLYING SAID METHOD

Jacob Kroon, Gouda, Netherlands, assignor to N.V. Tot Aan-neming Van Werken Voorheen H.J. Nederhorst, Gouda, Netherlands

Filed Sept. 5, 1969, Ser. No. 855,528

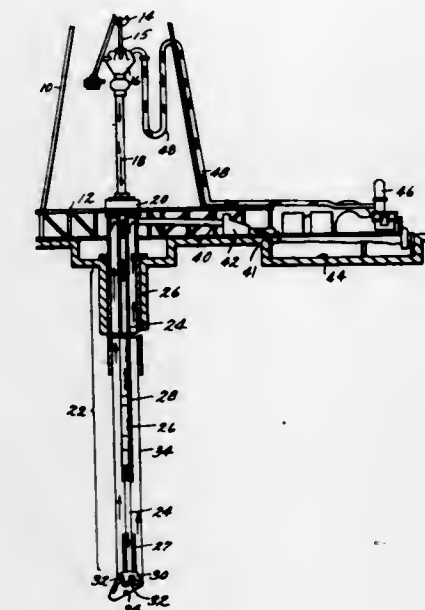
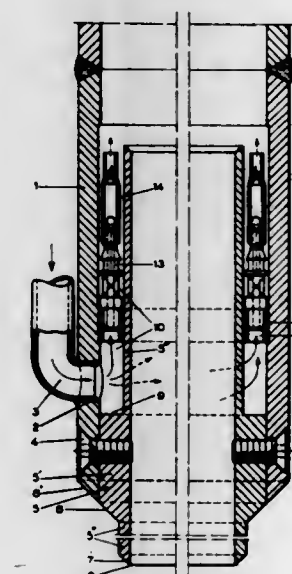
Claims priority, application Netherlands, Sept. 5, 1968,

6,812,692

Int. Cl. E21b 11/02, 49/00

U.S. Cl. 175-20

20 Claims



vertical reciprocation of the drill string to open and close the slip joint will result in highly accelerated jetting velocities through the outlet orifices in the drill bit.

3,599,734

NOTCHING TOOL

Nathandale Farris, 1500 North Woodland Road, and Tibor O. Edmond, 304 North Sixth St, both of Ponca City, Okla.
Filed Aug. 6, 1969, Ser. No. 847,913

Int. Cl. E21b 9/26

U.S. Cl. 175-173

3 Claims

A method and a device for providing a hole in the soil, for example for forming a foundation element, an earth-retaining wall or a water-retaining wall or the like in the soil, wherein a hollow pipe open at the lower end is introduced into the soil and the earth penetrated into the pipe is removed from the pipe.

According to the invention the removal of the earth from the pipe is effected by a pressure fluid which is supplied to the pipe near the lower end of the pipe, and which forces the earth in the pipe upwards as a column.

3,599,733

METHOD FOR DIRECTIONAL DRILLING WITH A JETTING BIT

Robert F. Varley, Metairie, La., assignor to R. F. Varley Co., Inc.

Filed Dec. 15, 1969, Ser. No. 884,804

Int. Cl. E21b 7/08, 7/18, 17/046

U.S. Cl. 175-61

8 Claims

Method and apparatus are described for changing the direction taken by a bore hole. A drill bit having at least one outlet orifice or nozzle for drilling fluid e.g., mud, is oriented so that the orifice is adjacent the portion of the interior lateral surface of the bore hole into which it is desired for the drill bit to proceed. The drilling fluid is pumped into the interior of a hollow drill string in the bore hole and out through the orifice in the drill bit. A portion of the drill string adjacent the bit is adapted to be closed in a fluidtight manner by means of a back pressure ball valve, and the portion of the drill string between the valve and the outlet orifice includes a slip joint adapted to be decreased in volume by an inward telescoping motion with vertical reciprocation of the drill string. Decreasing the volume of the drill beneath the above-mentioned valve will serve to compress the fluid therein forcing

An apparatus for forming a biconical notch by moving a symmetrical extendable cutter out of a rotating drill casing into the formation. Once the biconical notch is completed, the extending device can be retracted back into the drill casing and the casing removed.



3,599,735 BUMPER SUB AND CLOSED FLUID CIRCULATION ASSEMBLY

Damon T. Slator, Houston, Tex.; William T. Lee, Harvey, La., and Archie W. Pell, Houston, Tex., assignors to Bowen Tools, Inc.

Filed Jan. 22, 1970, Ser. No. 5,008
Int. Cl. E21b 1/10

U.S. Cl. 175-293

10 Claims



A bumper sub and closed fluid circulation assembly wherein the assembly is adapted to be connected in a pipe string having means for closed fluid circulation to provide for limited telescoping movement within the pipe string, and for bumping action as desired.

3,599,736 ROTARY DRILL BIT

Charles T. Thompson, Dallas, Tex., assignor to American Coldset Corporation, Dallas, Tex.

Filed May 18, 1970, Ser. No. 38,112
Int. Cl. E21b 9/36

U.S. Cl. 175-329

16 Claims



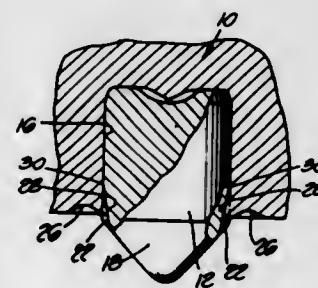
A rotary bit for drilling earth formations of the type having an elongated cylindrical body and an enlarged head having wear-resistant abrasive particles embedded therein to form a cutting surface. An improved cutting surface comprises a concave face, a convex annular tapered crown faired into the face at its inner limit and a cylindrical skirt extending a substantial axial distance from the outer limit of the crown. Wear-resistant abrasive particles are embedded in substantially parallel rows upon the surfaces of an odd number of

cutting lands substantially equally spaced about the skirt and crown and terminating asymmetrically in the face region. Drilling fluid is conveyed by an inner passageway through the body of the bit to a Y-shaped outlet on the face and thence uniformly to the cutting surfaces through primary waterways between the lands and secondary waterways between the rows of wear-resistant particles.

3,599,737 ANCHORED HARDENED CUTTER INSERTS

John F. Fischer, Los Alamitos, Calif., assignor to Smith International, Inc., Newport Beach, Calif.
Filed Mar. 2, 1970, Ser. No. 15,682
Int. Cl. E21b 9/36; E21c 13/01
U.S. Cl. 175-374

6 Claims

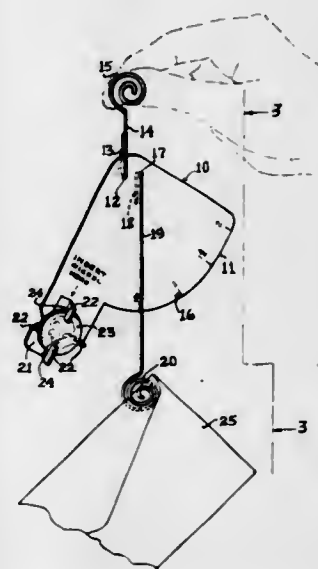


A drilling tool or the like with hardened metal inserts of molded sintered metal turned to cylindrical shape by centerless grinding and provided, prior to centerless grinding, with out-of-round abutment portions, the inserts being press fitted into cavities in the cutter and the material of the cutter being staked to displace metal into engagement with the out-of-round abutment portions of the inserts to prevent axial and rotational displacement.

3,599,738 PORTABLE LETTER POSTAGE SCALE

Chester H. Wickenburg, 164 Division, Elgin, Ill.
Filed Mar. 12, 1970, Ser. No. 18,836
Int. Cl. G01g 21/00
U.S. Cl. 177-126

6 Claims



An economical portable letter postage scale having a support for a counterweight, the support being formed from a relatively flat sheet of material suspended from a handle at one corner thereof and relative to which handle the sheet pivots under action of the counterweight to dispose an envelope holder pivotally carried by the sheet, to a position of registration with a scale calibration on the sheet to designate the weight of such envelope and its contents and thereby determine the required postage.

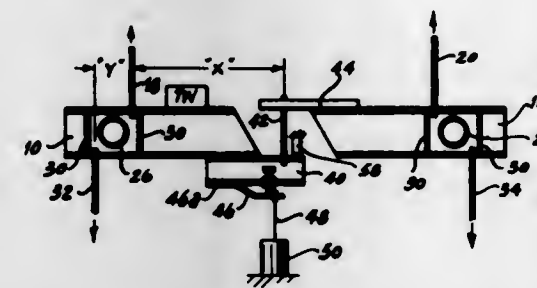
3,599,739 OVERLOAD PROTECTION FOR STRAIN GAUGE LOAD CELLS USED IN WEIGH SCALE LOAD MEASUREMENT

Frank S. Hyer, Duxbury, Mass., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

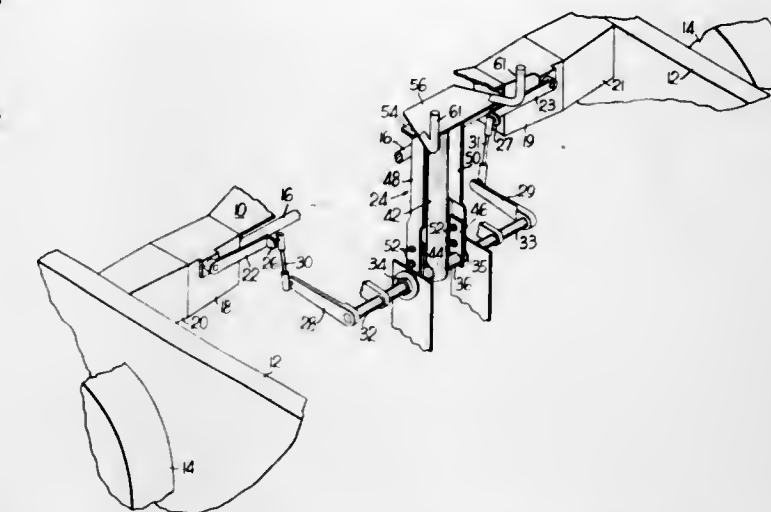
Filed May 6, 1970, Ser. No. 35,113
Int. Cl. G01g 3/14

U.S. Cl. 177-211

5 Claims



An overload protective arrangement for strain gauge type load cells used in weigh scale force measurement. Calibrated springs are interposed in the tension coupling between the load cell and the weigh scale load resolving lever to provide an inextensible link in the coupling until the designed load limit of the scale is reached and as a progressively extensible link when the scale load limit is exceeded. Another embodiment uses a piston moving in a fluid pressure cylinder as part of such coupling in place of springs.



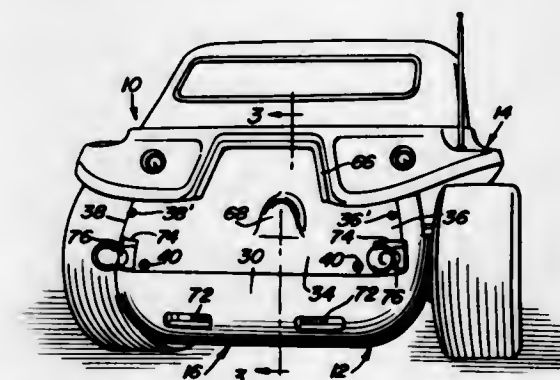
of lateral displacement while applying differential displacement to the transmission control linkage.

3,599,742 ENGINE SHROUD FOR DUNE BUGGIES

Jimmie L. Lowery, 4005 W. Madison St., Bellwood, Ill.
Filed July 29, 1969, Ser. No. 845,732
Int. Cl. B62d 25/10

U.S. Cl. 180-69 R

8 Claims



A vehicle body rear closure for a rear engine "Dune Buggy" of the type provided with a chassis mounted abbreviated body structure and serving not only as a protective closure for the rear mounted engine of a "Dune Buggy," but also as a structure operative to control the flow of cooling air about the air-cooled engine of the vehicle whereby adequate cooling on hot days as well as heat retention on cold days is afforded. Further, the closure may also function as an engine skid plate. The closure includes first and second sections. The first section is constructed to be semipermanently attached to the associated "Dune Buggy" and includes opposite sidewalls interconnected at their bottom and lower rear marginal rear edge portions by means of integral bottom and partial lower rear walls, respectively. The second section defines an upper rear wall portion and includes opposite side and lower edge portions readily removably supported from the rear marginal edge portions of the sidewalls and the upper marginal edge portion of the partial lower rear walls, respectively, of the first section for ease in servicing the engine of the vehicle.

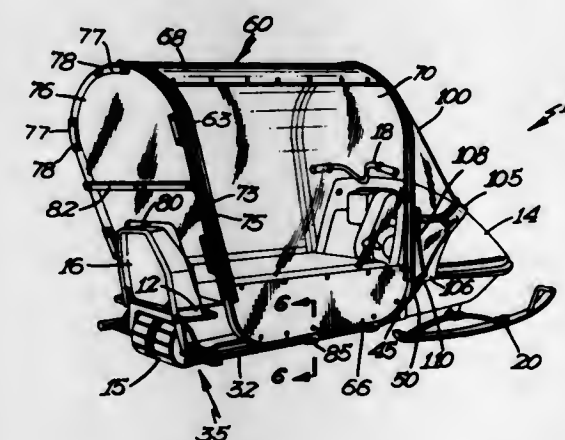
3,599,740 SNOWMOBILE CAB ASSEMBLY

Werner W. Martinmaas, 835 Tenth Ave. N.W., Watertown, S. Dak.

Filed Apr. 29, 1969, Ser. No. 820,125
Int. Cl. B62m 27/02; B62d 33/06

U.S. Cl. 180-5 R

17 Claims



A snowmobile cab assembly adapted to be used universally on all snowmobile models. The cab assembly includes a slidable cab mounted on a frame attached to the snowmobile with the cab frame and the mounting frame providing a roll bar structure for safety purposes in snowmobile operation. The cab assembly is demountable and may mount the windshield for the snowmobile if desired.

3,599,741 DRIVE AND STEERING MECHANISM FOR WHEELED VEHICLES

LeRoy Langford, La Porte, Ind., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Aug. 11, 1969, Ser. No. 848,859
Int. Cl. B62d 11/04

U.S. Cl. 180-6.48

5 Claims

A swather having two drive wheels which are hydraulically operated by individual variable displacement pumps and motors and wherein such pumps are controlled by a movable steering column rotatably mounting a manual steering control member which is operatively connected to the transmis-

3,599,743 CLOSURE HOLDDOWN ARRANGEMENT

Nell A. Hull, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 20, 1969, Ser. No. 867,447
Int. Cl. B62d 25/10

U.S. Cl. 180-69 C

3 Claims

A vehicle including a hood member mounted thereon for swinging movement relative thereto about a forward axis between raised and lowered position has a striker mounted on the hood member, a retaining lever pivotally mounted on the vehicle and a frangible pin connection between the vehi-

cle and retaining lever maintaining the latter in a fixed orientation relative to the former. In the normal lowered position of the hood member, rearward longitudinal movement thereof relative to the vehicle as during a collision initiates



fracture of the frangible pin which fracture is followed by movement of the retaining lever into a position wherein it is engageable with the striker to prevent movement of the hood member toward the raised position thereof.

3,599,744

VEHICLE SAFETY DEVICE

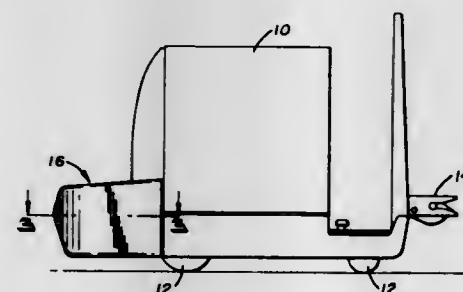
Rigsby C. Satterfield, Jenkintown, and Thomas J. Ballantyne, Chalfont, both of, Pa., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed May 2, 1969, Ser. No. 821,205

Int. Cl. B60k 27/08; B60i 3/04

U.S. Cl. 180-96

9 Claims



A safety device for a vehicle includes an energy-absorbing portion for preventing human injury in a collision and means responsive to an impact on the safety device for controlling operation of the vehicle.

3,599,745

GRAVITY SAFETY SWITCH

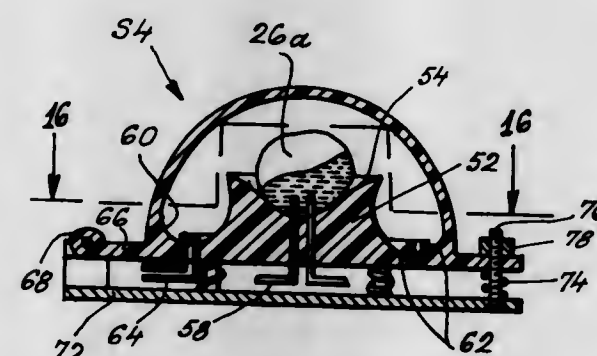
Benjamin F. Hughes, Route 1, Box 120, Morris, Ala.

Filed July 28, 1969, Ser. No. 845,278

Int. Cl. H01h 35/02; B60k 15/00

U.S. Cl. 180-104

10 Claims



A gravity operated switch includes a movable electrically conductive member in a housing. The conductive member bridges a pair of fixed spaced electrical contacts. When the housing is tilted the movable conductive member moves off or out of contact with the electrical contacts to open an associated electric circuit. The switch has particular utility in tractors and other machines to stop operation when the

machine is tilted to an unsafe operating position. The switches control flow of fuel to the engines of the machines, ignition, or other engine control components.

3,599,746

GAS CUSHION VEHICLES

Raymond Leslie Davis, Southampton; Daniel Cecil Edward Fish, Brockenhurst, and Ronald Christopher Fishlock, Southampton, all of, England, assignors to Hovermarine Limited, Southampton, England

Filed July 7, 1969, Ser. No. 839,501

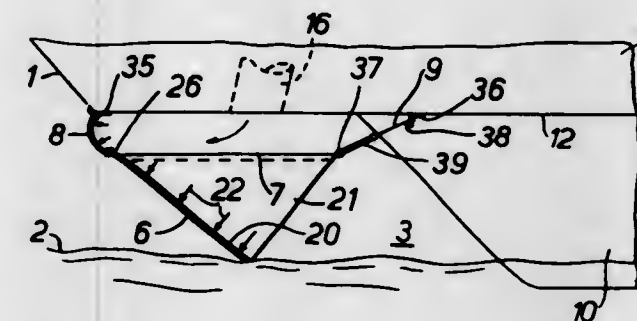
Claims priority, application Great Britain, July 5, 1968,

32086/68

Int. Cl. B60v 1/16

U.S. Cl. 180-127

4 Claims



An air cushion vehicle is provided with a flexible skirt for containing at least part of the vehicle-supporting cushion. The skirt comprises a succession of contiguous skirt members flexibly suspended beneath the vehicle body by a series of flexible straps attached to the upper areas of the skirt members, a flexible wall extending between the straps and an outer part of the vehicle body and a series of tie cords extending between the straps and an inner part of the vehicle body.

The arrangement results in operating loads applied to the skirt members being transferred to the vehicle body by way of the flexible wall straps and tie cords.

3,599,747

SPHERICAL REFLECTOR

Palle G. Hansen, and William E. Batzler, both of San Diego, Calif.

Filed Dec. 16, 1968, Ser. No. 783,881

Int. Cl. G01k 11/00

U.S. Cl. 181-5 A

3 Claims



A dish-shaped acoustic reflector for use with a sound source, the reflector having a spherical surface for reflecting the desired echoes back toward the sound source in a narrow beam enhancing the strength, stability, and concentration of the received signal, said reflector accepting signals from sound sources over a predetermined angular range and wide frequency range.

3,599,748

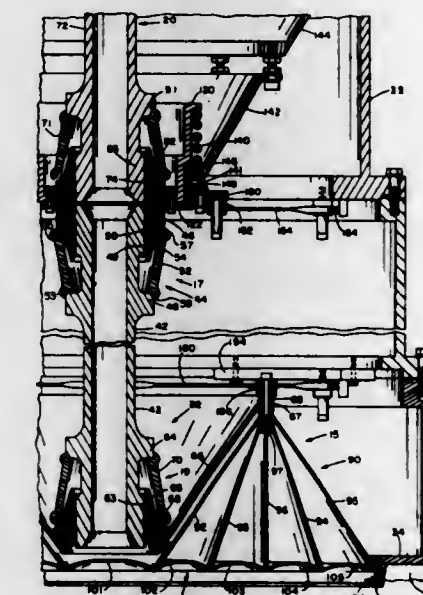
COUPLING

Caperton B. Horaley, East Walpole, Mass., assignor to Braxton Corporation, Medfield, Mass.

Filed Nov. 13, 1969, Ser. No. 876,322

Int. Cl. G01v 1/00

U.S. Cl. 181-5 EM



A coupling comprising a first threaded member bearing external threads and providing a first bearing surface adapted to deliver a force substantially parallel to the axis of the threads, a second threaded member bearing internal threads threadedly engaged to the first threaded member, the second threaded member providing a second bearing surface adapted to deliver a force substantially parallel to the axis and directed in the direction opposite to the force delivered by the first bearing surface, and a stress member providing a third bearing surface engaging the first bearing surface and an opposed fourth bearing surface engaging the second bearing surface, the stress member being maintained in a state of stress by the forces applied to the third and fourth bearing surfaces by the first and second bearing surfaces, respectively; the coupling having a cross section perpendicular to the axis wherein mutually engaged portions of the external threads and the internal threads are radially spaced from the stress member.

3,599,749

JET NOISE CONTROL SYSTEM

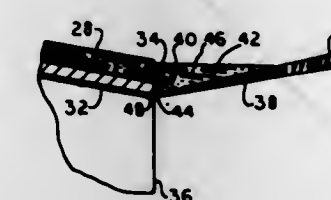
Victor Millman, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed July 28, 1969, Ser. No. 845,229

Int. Cl. F01n 1/14; B64d 33/06

U.S. Cl. 181-33 HC

18 Claims



Jet engine exhaust nozzle is surrounded at its exit margin with multiplicity of small jet discharge ducts which direct discrete small jets of gas rearwardly in a ring surrounding the jetstream. These jets intercept the expanding boundary of the jetstream immediately behind the nozzle and produce small eddy turbulence with lower sound energy level and higher frequency level. Gas is supplied by bleed from compressor or turbine through shell surrounding nozzle. In form shown, tail-pipe boundary layer is drawn off to improve engine efficiency. Gas jets travel at velocity between those of jetstream and

free air, reducing shearing forces and consequent sound energy and producing two mixing zones.

3,599,750

SIT AND STEP STOOL

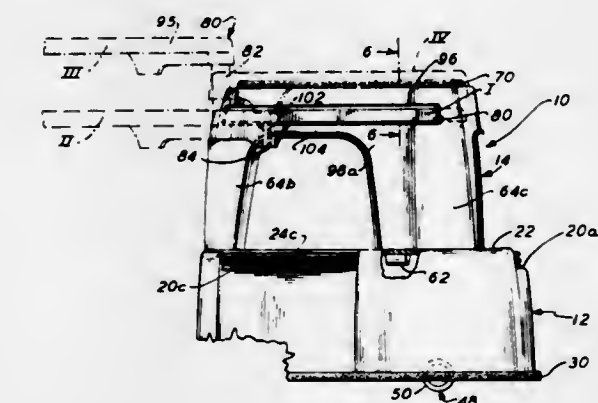
Arthur Serwer, Jerico, N.Y., assignor to Litton Business Systems, Inc.

Filed Dec. 24, 1968, Ser. No. 786,691

Int. Cl. A47c 9/02

U.S. Cl. 182-15

20 Claims



A two-step stool, with a base having three-step areas and mounting a top formed with a single step area and three substantially vertical legs spaced one from the other to provide feet-receiving apertures aligned with the step area on the base. A seat is carried by the top for movement between a position housed just beneath the single step and a position covering the single step area to permit the user to sit on the stool without getting dirty from the single step area. Three wheels, which facilitate movement of the stool about the floor, retract into the base when weight is applied to the stool to permit a bumper disposed about the lower edge of the base to rest upon the floor and minimize slippage when the stool is in use.

3,599,751

COLLAPSIBLE SAWHORSE AND TRAY

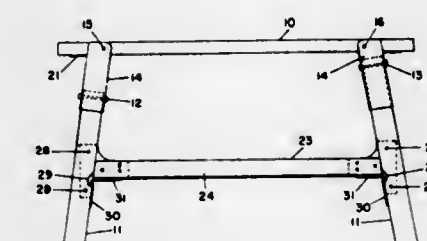
Bert A. Mueller, 1821 W. Oakdale Ave., Chicago, Ill.

Filed June 22, 1970, Ser. No. 48,112

Int. Cl. E04g 1/32; F16m 11/00

U.S. Cl. 182-129

4 Claims

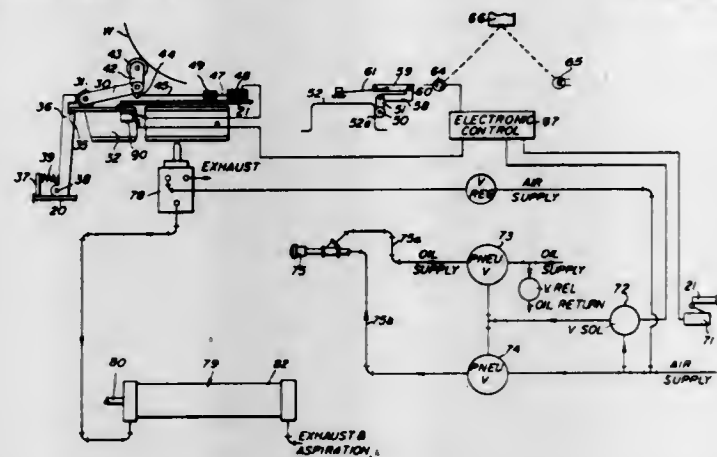


A collapsible sawhorse comprising a beam, leg-supporting brackets having downwardly diverging sides, said sides defining leg receiving channels, legs mounted pivotally in said channels for movement lateral to the beam, the brackets being pivotally mounted on the beam so that each bracket and the legs attached to it are movable in conjunction from a folded position contiguous and parallel to the beam to an extended position at substantially right angles to the beam. The legs of the sawhorse may be adapted to support a tray about their vertical midpoints.

3,599,752

AUTOMATIC RAILWAY CAR JOURNAL OILER
William Bowler, Pierrefonds, and Raymond E. Kalita, Dollard des Ormeaux, both of Quebec, Canada, assignors to Canadian National Railway Company, Montreal, Quebec, Canada

Filed Mar. 17, 1969, Ser. No. 807,880
Claims priority, application Canada, Feb. 12, 1969, 042,763
Int. Cl. B61k 3/00; F16n 1/00
U.S. Cl. 184-3 R 8 Claims



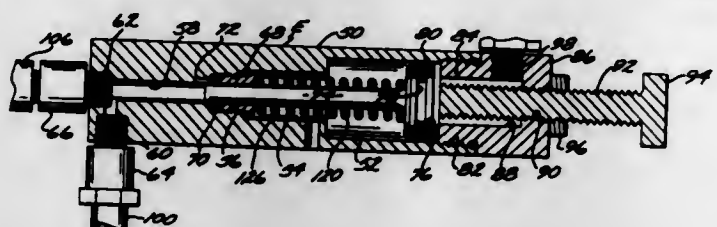
A railway car journal box oiler has a vertically retractable nozzle mounted on a horizontally reciprocable platform, movement of which with the car is caused by engagement of a car wheel with a vertically retractable roller moved to an upper position by a solenoid when the approach of an open journal box is sensed by a photocell. The roller and nozzle automatically retract after a predetermined amount of movement of the platform with the car. The nozzle is automatically moved to an upper, operative position as the platform starts to move and ejection of oil from the nozzle is in timed relationship with nozzle movement.

3,599,753

CONVEYOR ROLLER LUBRICATING DEVICE

Warren J. Walsh, 1856 E St., Long Beach, Calif.

Filed July 14, 1969, Ser. No. 841,220
Int. Cl. F16n 7/00, 13/16
U.S. Cl. 184-15 A 3 Claims



A conveyor rail-supported device provided with an air-operated reciprocating pump and a multiposition air valve which cooperatively discharge a metered quantity of a liquid lubricant on each roller of the conveyor as said roller moves past a predetermined position on said rail, which device by a simple manual operation is rendered inoperative whereby maintenance work may be performed thereon, even though said conveyor continues to operate.

3,599,754

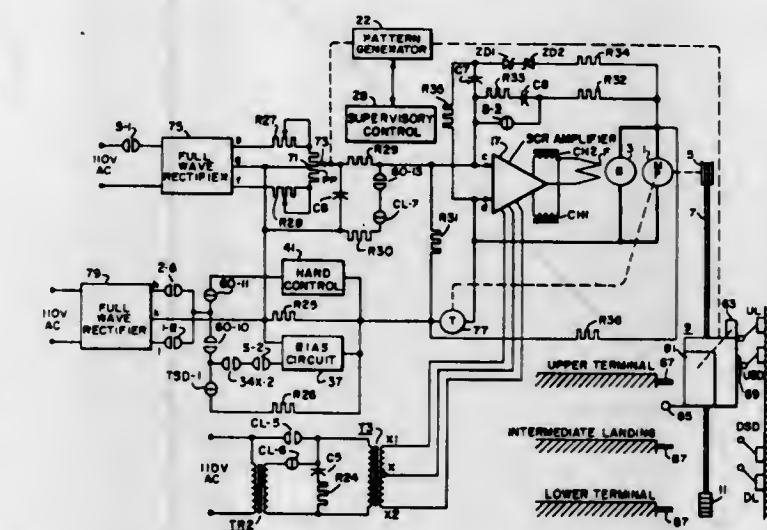
MOTOR CONTROL SYSTEM

William R. Caputo, Wyckoff, and William M. Ostrander, Hackensack, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 30, 1969, Ser. No. 845,604
Int. Cl. B66b 1/30
U.S. Cl. 187-29 R 12 Claims

In a direct current drive system for an elevator, a high-gain amplifier controls the speed of the motor through variable energization of the generator field in accordance with an error signal developed as a function of the difference between a signal developed by a pattern generator and a signal developed by a tachometer. Switchless feedback circuits are provided to bring the car smoothly to a creep speed

should the pattern generator or tachometer generator fail as an open circuit. A noncontinuous feedback circuit and variable damping on the pattern generator minimize jerk on one floor runs but do not interfere with leveling. Should the pat-



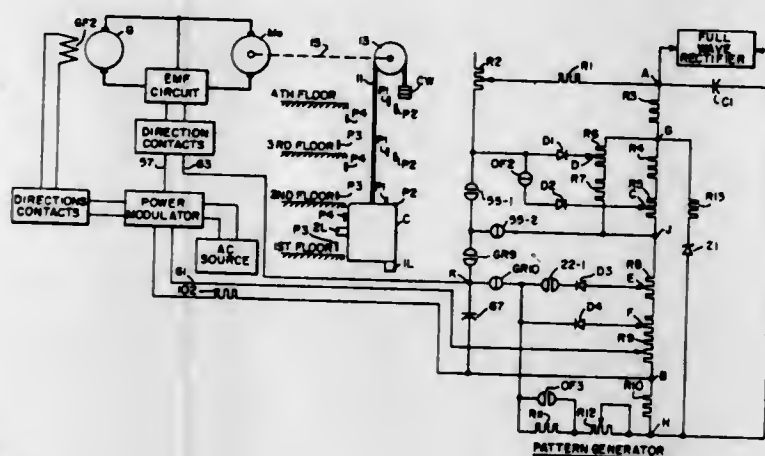
tern generator fail to initiate deceleration by a predetermined point as the car approaches a terminal, a fixed low speed signal brings the car to the landing. When the car is operating on reduced pattern signals, normal door preopening is discontinued.

3,599,755

ELECTRONIC ELEVATOR SPEED CONTROL

Alvin O. Lund, Little Falls; Milton Flank, Rochelle Park, N.J., and Stephen J. Greenfield, Rochester, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 25, 1969, Ser. No. 879,727
Int. Cl. B66b 1/28
U.S. Cl. 187-29 R 6 Claims



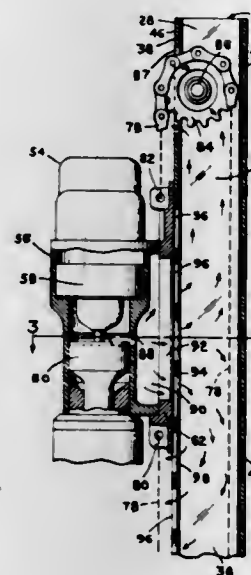
An improved electronic elevator speed control of the type which controls the deceleration of the car as a function of time from a fixed point short of each landing, accommodates for short runs under high-speed operation where full speed is not obtained before deceleration must be initiated. If a timer, which begins timing a fixed interval when the car is started, does not time out before a stop signal is generated, the speed of the car is limited and the RC time constant of the circuit which controls the deceleration of the car from the fixed point short of the landing is adjusted to provide a slower rate of deceleration. A substantially constant rate of acceleration is achieved regardless of the speed to which the car is being accelerated by charging a pattern-generating capacitor toward a voltage in excess of the maximum speed desired and then limiting the charge on the capacitor by connecting clamping diodes between the capacitor and taps on a voltage divider having a potential proportional to the desired speed. A resistor in series with a Zener diode shunting the pattern generator power supply accommodates for changes in the motor field current caused by fluctuations in line voltage.

3,599,756

ROCK DRILL FEED MAST WITH INTEGRAL MUFFLER AND OIL SEPARATOR

Linwood A. Pickle, South Hadley, Mass., assignor to Worthington Compressor and Engine International Division of Worthington Corporation, Holyoke, Mass.

Continuation-in-part of application Ser. No. 854,551, Sept. 2, 1969. This application Apr. 30, 1970, Ser. No. 33,475
Int. Cl. F01n 1/08, 7/08; B25d 17/12
U.S. Cl. 181-36 A 8 Claims



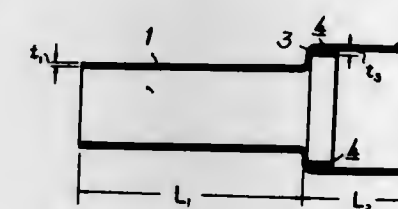
A compressed air drill mounted and movable on a guide mast is presented wherein the guide mast is a boxlike structure having a plurality of openings to receive the exhaust from the drill. The guide mast forms part of a muffer and separator system wherein the drill exhaust is muffled and the oil is separated from the air to lubricate drill guides and a drive chain within the guide mast. A muffer element having two spaced plates is located in an expansion chamber between the exhaust ports on the drill and the guide mast. One of these plates is solid and acts as a baffle; the other of these plates is perforated and is placed adjacent to the openings in the guide mast whereby exhaust gases are deflected by the muffer structure and flow around the muffer structure and through the perforated plate.

3,599,757

ENERGY ABSORBER BY MEAN OF PLASTIC DEFORMATION

Masanobu Takamatsu, and Hiroshi Tominaga, both of Yokohama-shi, Japan, assignors to Tokyu Sharyo Seizo Kabushiki Kaisha, Yokohama-shi, Kanagawa-ken, Japan

Filed June 9, 1969, Ser. No. 831,571
Claims priority, application Japan, June 25, 1968, Nov. 14, 1968, Nov. 15, 1968, 43/44115; 43/83416; 43/83602
Int. Cl. F16f 7/12; B62d 1/18
U.S. Cl. 188-1 C 3 Claims



This invention relates to a device for absorbing energy by means of plastic deformation which, when compressed by an external force or forces, exhibits a certain deformative resistance and, without being fractured, reduces the shock due to the external impact force through continuous and permanent plastic deformation, and more particularly to a machine element buffer as an energy absorber in which a

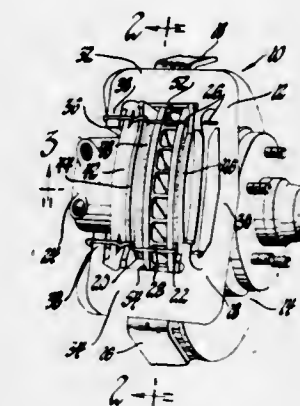
predetermined amount of energy may be absorbed under a certain load with at least possible reduction of length and with no danger of springback after the deformation.

3,599,758

DISC BRAKE CALIPER

Gary E. Bishop, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 12, 1969, Ser. No. 884,453
Int. Cl. F16d 55/224
U.S. Cl. 188-73.4 3 Claims

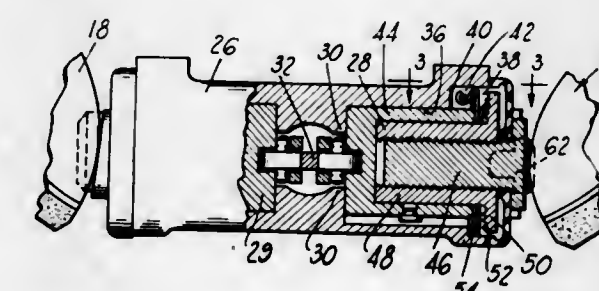


A disc brake having a caliper assembly formed of a generally C-shaped member slidably mounted by a tongue-and-groove arrangement on a support bracket, a separate hydraulic cylinder assembly, and a pair of friction pad assemblies mounted on the C-shaped member by means of spring clips which require no close tolerances. One C-shaped member is provided for a series of brakes of different capacities, with different capacity hydraulic cylinder units being provided to fit the one C-shaped housing.

3,599,759

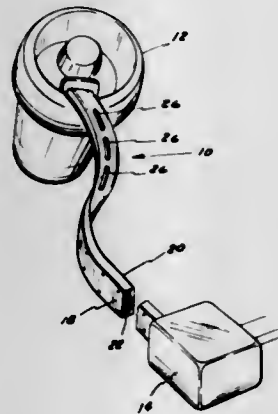
SIMPLIFIED ADJUSTING MEANS FOR WEDGE BRAKES
Robert R. Hager, South Bend, Ind., assignor to The Bendix Corporation

Filed June 30, 1969, Ser. No. 837,525
Int. Cl. F16d 65/56, 51/52
U.S. Cl. 188-79.5 GE 3 Claims



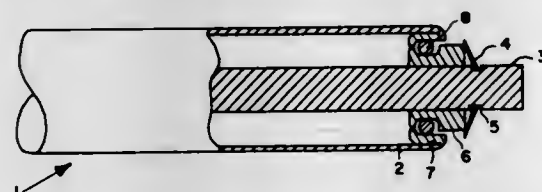
An adjuster mechanism for wedge brakes includes a plunger assembly that carries an adjuster nut coaxially receiving an adjuster screw. The adjuster nut includes a flange having ratchet teeth thereon that engage an upturned pawl integral with a circular spring that is mounted in the housing coaxially with the plunger assembly. The pawl follows the axial movement of the plunger to rotate the adjuster nut to extend the screw from the nut, thereby effecting adjustment of the brakes. However, when "kickback" forces (hereinafter defined) lock the nut and screw against relative rotation, the spring deforms in a radial direction to prevent destruction of the brake. Upon release of the "kickback" forces, the spring releases its radial deformation, rotating the adjuster nut in the normal manner.

3,599,768
COMPOSITE TRACK AND METHOD OF MAKING SAME
 Patrick W. Connolly, Detroit, Mich., assignor to Visi-Trol Engineering Company, Detroit, Mich.
 Filed Dec. 11, 1968, Ser. No. 782,917
 Int. Cl. B65g 11/10
 U.S. Cl. 193—25 FT



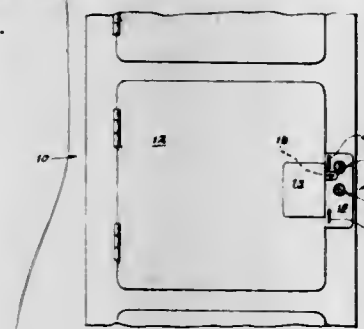
A method for fabricating a composite track defining an irregular path for transferring a series of similarly shaped, oriented articles between a pair of stations. The composite track comprises a nonresilient strip formed into the desired irregular path and retaining the shape of the irregular path, and a resilient, elongated and generally U-shaped member attached to the nonresilient strip thereby defining a channel between the nonresilient strip and the resilient member for guiding preoriented objects along the irregular path.

3,599,769
ROLLER CONVEYOR
 Frederick J. Gardella, Salem, Mass., assignor to W. R. Grace & Co., Duncan, S.C.
 Filed Sept. 6, 1968, Ser. No. 758,029
 Int. Cl. B65g 13/00, 39/09
 U.S. Cl. 193—35 R



A roller conveyor comprising two parallel, slotted side rails and a plurality of rollers having pushnut retained bearing assemblies carried by extended shafts, the ends of said shafts being held in said slots and being easily removable therefrom.

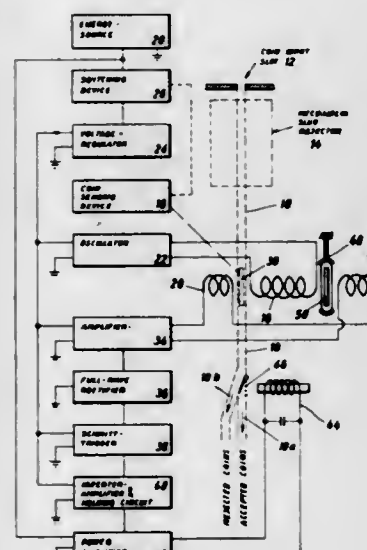
3,599,770
COIN OPERATED LOCK
 Wells F. Stackhouse, Ashville, and Douglas A. Barth, Bemus Point, both of N.Y., assignors to American Locker Company, Inc., Jamestown, N.Y.
 Filed July 22, 1969, Ser. No. 843,299
 Int. Cl. G071 5/00
 U.S. Cl. 194—92



In a coin-operated lock unit of the type including a control or custodian key controlled lock and a coin-operated patron

key lock, wherein the control lock is adapted to removably secure the unit to a cabinet in position adjacent a door thereof, and the patron lock is adapted to effect locking of the cabinet door, the improvement including control means operated externally of the lock unit for selectively converting the patron lock from coin operated to free status. The control means may include as an integral part thereof means to selectively release the patron key operated lock cylinder from the lock unit to facilitate replacement thereof without the necessity of removing the lock unit from the cabinet. A further improvement includes novel means interconnecting a lock operation counter with a coin release mechanism via the patron lock, so as to accurately record each paid actuating cycle of the patron lock.

3,599,771
COIN TESTING DEVICE FOR COMPARING COIN TO BE TESTED WITH A STANDARD COIN
 Adolf Hinterstocker, Hirschbergstrasse 28, Roggerdorf, near Holzkirchen, Germany
 Filed Aug. 25, 1969, Ser. No. 852,531
 Claims priority, application Germany, Aug. 28, 1968, P 17 74 754.5
 Int. Cl. G071 3/02
 U.S. Cl. 194—100 A

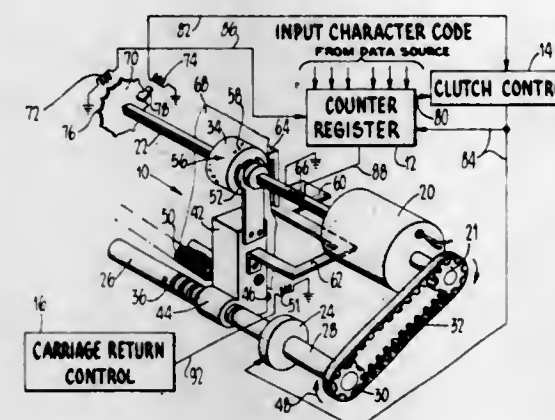


The genuineness of a coin is determined by comparison of the "test" coin with a "standard" coin which are interposed between a primary coil and first and second secondary coils respectively of a transformer, the primary coil being supplied with an AC signal while the secondary coils are connected in series so that the voltages induced by said primary coil are subtracted, and said series connection being coupled to a circuit arrangement which controls a coin gate which allows the test coin to pass into a channel for accepted coins only if the signal delivered by the series connection of the secondary coils does not exceed a threshold value during a test period in which the test coin is in a test position range between the primary and said first secondary coil.

3,599,772
SINUOUS FONT ARRANGEMENT FOR A PRINTING MEANS
 George E. Comstock, Danville, Calif., assignor to The Singer Company
 Filed Apr. 30, 1969, Ser. No. 820,408
 Int. Cl. B41j 1/32
 U.S. Cl. 197—49

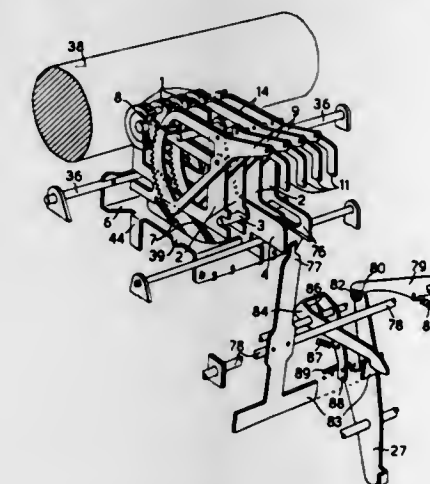
A font wheel having a plurality of character types arranged in a sinuous pattern is mounted for continuous rotation about its axis and for intermittent translation along its axis adjacent a sheet of paper on which selected characters are to be printed in a row along the axial direction of translation. A one-revolution selectively operated clutch connects a motive power source to a drive screw for intermittently translating the font wheel along its rotation axis. A print hammer

disposed behind the paper travels axially with the font wheel and is driven toward the paper and font wheel at selective cyclic cam so as to disengage the clutch at a precise time just after line spacing has occurred and just prior to the time the



times to cause printing of selected characters in response to input data and font wheel position signals.

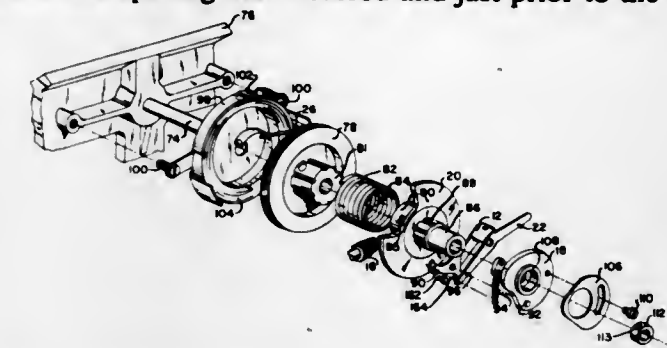
3,599,773
DEVICE FOR SELECTIVELY POSITIONING A MEMBER IN A SERIES OF OPERATIVE POSITIONS
 Francesco Serracchioli, and Nicola Giolitti, both of Ivrea, Turin, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, (Turin), Italy
 Filed Apr. 17, 1969, Ser. No. 817,117
 Claims priority, application Italy, Apr. 23, 1968, 51396-A/68
 Int. Cl. B41j 1/26
 U.S. Cl. 197—55



In a mechanism, suitable for operating the type-carrier of a printing assembly, a device for selectively positioning a member positionable from an inoperative position to a series of operative positions in accordance with a combination code. The code combination corresponding to the operative position to be selected is temporarily stored in a binary pulse-counter which is set to store in binary code the complement of a number representing the number of steps which the member must perform. The member is actuated by resilient means under the control of a cyclically rotating main shaft and is brought back to its inoperative position by the shaft at the end of the cycle.

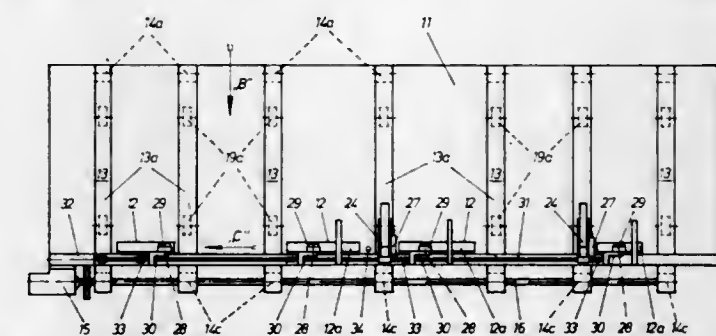
3,599,774
PLATEN LINE-SPACING MECHANISM
 Carl P. Anderson, Homer, N.Y., assignor to SCM Corporation
 Continuation of application Ser. No. 669,032, Sept. 20, 1967, now abandoned. This application Nov. 10, 1969, Ser. No. 871,623
 Int. Cl. B41j 19/76
 U.S. Cl. 197—114

A mechanism for line spacing the platen of a business machine carriage in the rotational direction when in the left margin position without causing any movement of the carriage in the lateral direction. The mechanism includes a drum and cord arrangement which is momentarily clutched to the machine power supply for line spacing the platen through a crank device wherein the clutching time is controlled by a



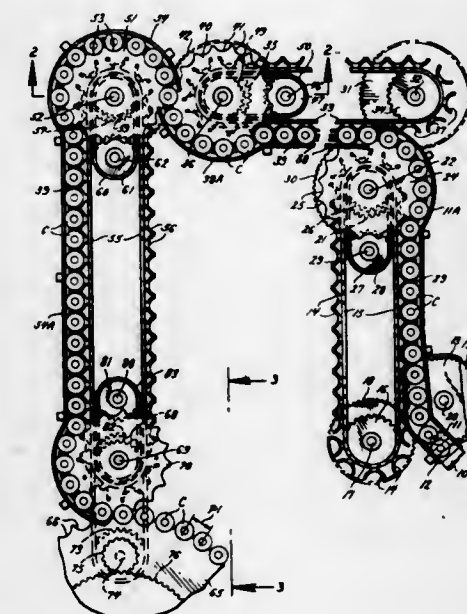
crank mechanism would reach its abutment and move the carriage laterally.

3,599,775
CONVEYOR SYSTEM FOR PLATELIKE WORKPIECES
 Helmut Torwegge, Bad Oeynhausen, Germany, assignor to Franz Torwegge Maschinenfabrik
 Filed May 21, 1969, Ser. No. 826,619
 Claims priority, application Germany, June 1, 1968, P 17 56 534.3
 Int. Cl. B65g 47/42
 U.S. Cl. 198—21



A conveyor system for platelike workpieces such as veneers, comprising a unilateral longitudinal conveyor located in the plane of movement of said workpieces, a plurality of transverse conveyors associated with said longitudinal conveyor, and means for controlling the longitudinal and transverse conveyor movements alternately, said means including a scanning device located in the vicinity of said longitudinal conveyor.

3,599,776
CONTAINER TRANSFER APPARATUS
 Momir Babunovic, Des Peres, Mo., assignor to Barry-Weh-miller Company, St. Louis, Mo.
 Filed May 21, 1969, Ser. No. 826,520
 Int. Cl. B65g 47/32, 47/84
 U.S. Cl. 198—25

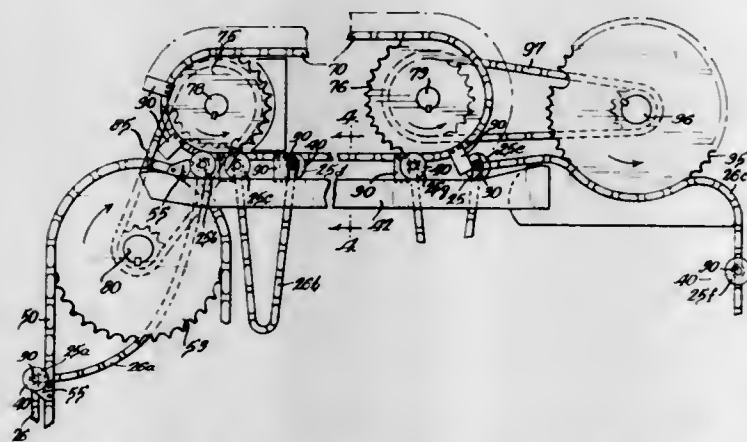


Apparatus for transferring containers between conveyor runs and for feeding production machines such as container

fillers in which the transfer apparatus is adapted to move containers at high speed around corners, where a change of direction is essential and where synchronized feed to production machines is critical to the full utilization of the capacity of such machines without loss of time or product being put into containers.

3,599,777
HIGH-SPEED GROUPING CONVEYOR
Fred I. Johnson, 369 Montrose Ave., Elmhurst, Ill.
Filed Nov. 4, 1969, Ser. No. 873,879
Int. Cl. B65g 21/12
U.S. Cl. 198-110

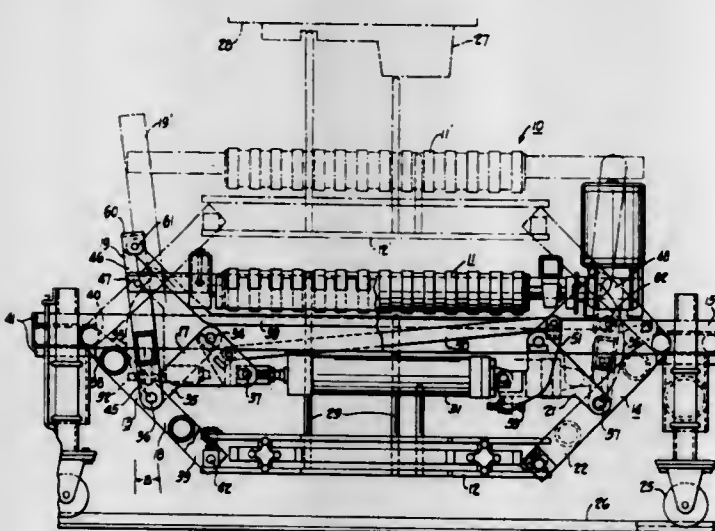
12 Claims



A high-speed grouping conveyor having a plurality of workholders movable sequentially through a treating area at a slow speed and at a higher speed through the remainder of the travel path including a flexible element connecting each adjacent pair of workholders to form an endless chain or the like and each element being of a length to form a maximum spacing distance between adjacent workholders, the workholders are advanced by mechanism at a relatively high speed with maximum spacing between the workholders in the portions of the travel path outside the treating area and drive means within the treating area engage each of the workholders to maintain uniform spacing therebetween at a lesser distance apart to provide grouping in the treating area as permitted by the flexible element connecting the workholders and with advance of the workholders at the slow speed for the desired treatment interval.

3,599,778
CORE RECEIVER ASSEMBLY
Hugh A. Bourassa, University Heights; Arthur H. Emser, Mentor, and Edward J. Ptak, Cleveland, all of Ohio, assignors to Acme-Cleveland Corporation
Division of Ser. No. 735,867, June 10, 1968, Pat. No. 3,540,608.
Filed Nov. 21, 1969, Ser. No. 877,559
Int. Cl. B65g 41/00
U.S. Cl. 198-126

9 Claims



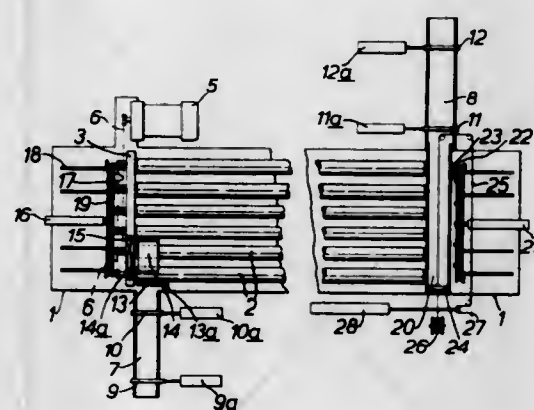
The disclosure relates to an assembly to receive a core or mold from a foundry machine and to move it gently onto a

conveyor. The core may be dropped by gravity onto a series of fingers held in a core-receiving table and then this table drops downwardly to gently place the core on a ribbon-type conveyor. The table moves downwardly about twice as far as the conveyor to achieve this gentle transfer and to get both the conveyor and the table with its fingers out of the way of the foundry machine and its succeeding cycles of operation. Both the core-receiving table and the conveyor move along a vertical path with a common motive means for the two.

The foregoing abstract is merely a resume of one general application and is not a complete discussion of all principles of operation, applications or methods and is not to be construed as a limitation on the scope of the claimed subject matter.

3,599,779
APPARATUS FOR MECHANICALLY HANDLING CYLINDRICAL ARTICLES
Peter F. Coe, Bedford, England, assignor to Lever Brothers Company, New York, N.Y.
Filed May 29, 1969, Ser. No. 828,924
Int. Cl. B65g 13/071
U.S. Cl. 198-127

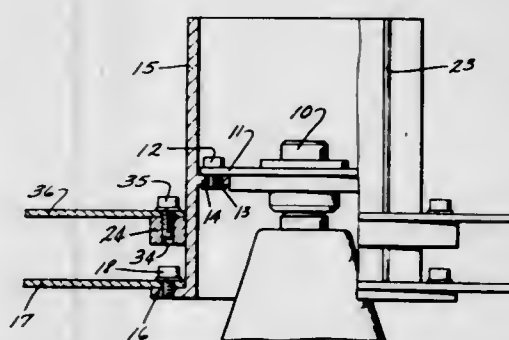
1 Claim



Apparatus for mechanically handling cylindrical articles which are supported and rotated in valleys between a series of rotors, having a pressure pad which is operable to engage cylindrical articles in one valley to as to effect transfer of the articles to the next valley.

3,599,780
CONTAINER-HANDLING APPARATUS
Thomas B. Sorble, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed Jan. 30, 1970, Ser. No. 7,136
Int. Cl. B65g 29/00
U.S. Cl. 198-209

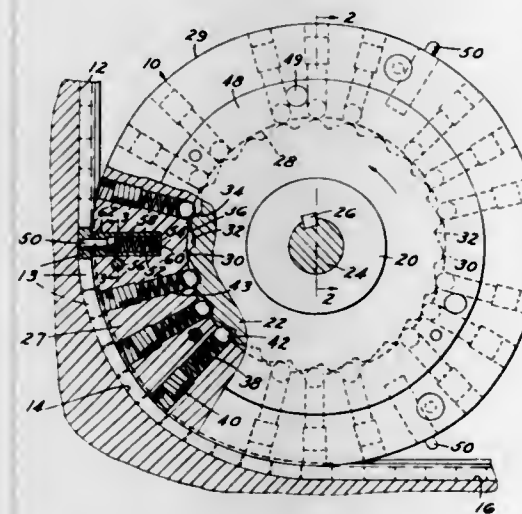
10 Claims



Indexing mechanism for multiple-station, glassware inspection machines in which two or more pocketed star wheels are used. The mounting of the plural star wheels, which are selected as to size of pockets depending on the height and width of the ware being inspected, is simplified by the use of a universal hub to which the lower star wheel is fixed. Additional star wheels are mounted on the hub at adjustable heights by the use of split, clamping rings that are keyed to the hub to maintain vertical orientation of the pockets of all star wheels.

3,599,781
FEED WHEEL FOR FEEDING INTERMITTENTLY MOVABLE PARTS
Claude R. Hoadley, Detroit, Mich., assignor to Feedmatic-Detroit, Inc., Southfield, Mich.
Filed July 2, 1969, Ser. No. 838,436
Int. Cl. B65g 29/00
U.S. Cl. 198-212

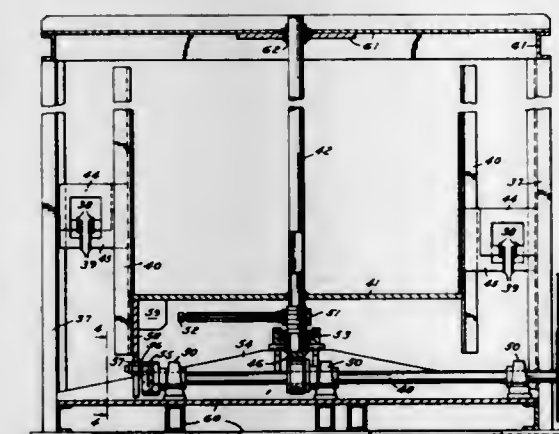
10 Claims



The disclosure is of a feed wheel assembly for applying a continuous motive force to a train of intermittently movable parts. The feed wheel assembly has a feed ring mounted on a continuously driven clutch ratchet wheel, the latter having alternate crests and recesses along its periphery. Spring-pressed followers on the ring engage the crests and recesses of the clutch ratchet wheel to provide a yieldable drive to the feed ring. The followers are spaced apart different distances than the crests so that when the drive slips, the followers pass over the crests successively rather than simultaneously.

3,599,782
SPIRAL STORAGE FEEDER UNIT
Homer G. Whitfield, Northville, Mich., assignor to Condeco Automation, Inc.
Filed Nov. 15, 1968, Ser. No. 776,154
Int. Cl. B65g 25/04
U.S. Cl. 198-219

17 Claims

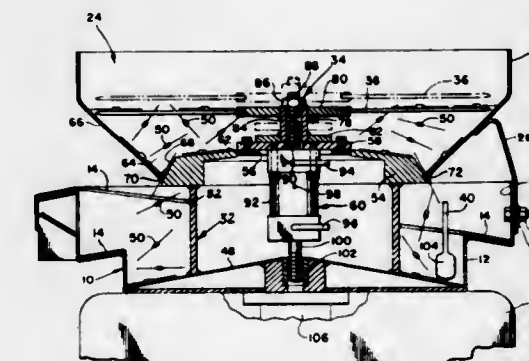


The invention pertains to a spiral storage feeder unit primarily intended to receive parts from a prior manufacturing operation and pass them to a subsequent operation. The

invention provides for pass through during normal operation; for accumulation to allow the prior operation to continue if a subsequent operation ceases; and for delivery of stored parts if a prior operation ceases so that the subsequent operation may continue. The invention is suitable for multiple and automatic use in a manufacturing production line.

3,599,783
DISENTANGLING DEVICE FOR SEPARATING ENTANGLED PARTS
Warren C. Burgess, Jr., Avon Lake, Ohio, assignor to Burgess & Associates, Inc., Lakewood, Ohio
Filed June 20, 1969, Ser. No. 835,096
Int. Cl. B65g 27/16, 47/24
U.S. Cl. 198-220

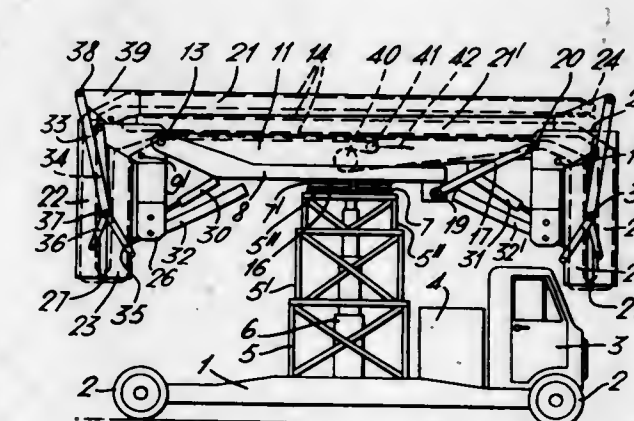
30 Claims



There is provided a support for an entangled mass of parts characterized by openings therein of insufficient size to pass a tangled mass of parts, but sufficient to pass parts separated therefrom, and means for vibrating the support.

3,599,784
AUTOMOTIVE CONTINUOUS CONVEYOR OF AN ARTICULATED TYPE
Lionello Rossi, Via Tiburtina, Km. 16,500, Rome, Italy
Filed Dec. 10, 1969, Ser. No. 883,796
Claims priority, application Italy, Dec. 16, 1968, 42000/68
Int. Cl. B65g 21/12, 41/00
U.S. Cl. 198-233

5 Claims

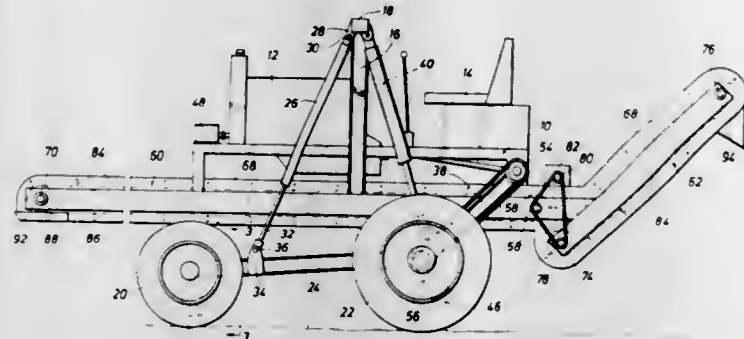


The invention relates to a mobile conveyor wherein an endless conveyor means is mounted on a vertically telescopic framework so that the conveyor means may be raised or lowered to different heights. Further, the conveyor means is itself rotatable about a vertical axis. Respective sections of the conveyor means are articulated to each other whereby they may assume a mutually coplanar orientation when in use, or a compact folded orientation when being transported.

3,599,785
MACHINE FOR REMOVING LITTER FROM POULTRY HOUSES
 Jack S. Stuart, Rt. 3, Nashville, Ark., and Jerry D. Pennington, Rt. 2, Murfreesboro, Ark.
 Filed July 17, 1969, Ser. No. 842,643
 Int. Cl. B65g 41/00

U.S. Cl. 198—233

1 Claim

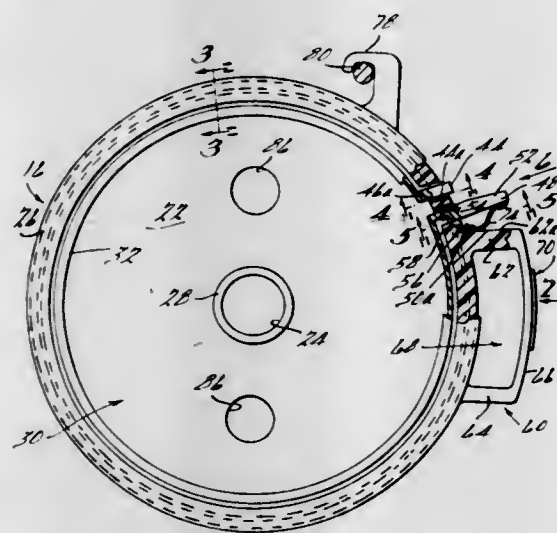


A machine for removing litter from poultry houses of the type having mesh floors elevated above the ground level and from similar locations. The machine includes a wheeled vehicle which carries an elongated conveyor or chute or duct which may be extended beneath the elevated floor of the poultry house by maneuvering of the vehicle and operated to collect the litter from the ground there beneath and convey the same to a location rearwardly of the vehicle for disposal. The vehicle has front and rear wheels mounted for vertical adjustment by pressure fluid mechanism to elevate and lower the conveyor chute and which may also be adjusted to regulate the angular position of the chute relative to the horizontal independently of the elevation of the chute to enable the machine to be used on sloping ground while maintaining the chute with its forward end positioned to be extended into the poultry house at a location to collect litter therefrom.

3,599,786
TAPE CANNISTER
 Boris M. Osajnak, Birmingham, Mich., assignor to Engineered Data Products, Inc., Ferndale, Mich.
 Continuation of application Ser. No. 768,023, Oct. 16, 1968, now abandoned. This application Jan. 12, 1970, Ser. No. 2,446
 Int. Cl. B65d 45/02, 85/67

U.S. Cl. 206—52

23 Claims



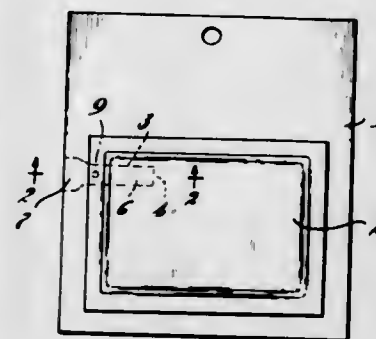
A canister for storing a tape reel, comprising a base or shell member of generally cup-shaped configuration and a split sealing ring positioned on the inner periphery of the rim portion of the shell member and having a handle portion at one end projecting outwardly through the rim portion for manipulation by an operator so that the ring may be expanded to allow passage of the flange of a tape reel and thereafter contracted to trap the reel within the canister in

an alternate form, the sealing ring is replaced by a strip of flexible material positioned around the inner periphery of the shell rim portion and carrying a flocking of resilient bristles which deflect to allow insertion of the reel and thereafter coact with the outer reel flange to seal the reel within the canister.

3,599,787
BLISTER PACKAGE
 Walter C. Webster, Jr., Northboro, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.
 Filed Nov. 4, 1969, Ser. No. 873,849
 Int. Cl. B65d 73/00, 5/70

U.S. Cl. 206—78 B

1 Claim

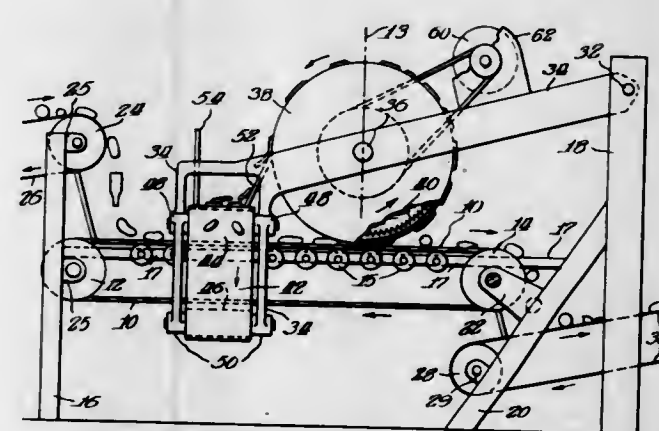


A package comprising a back and a blister adhered thereto around its periphery, the back having a margin extending beyond the blister and a tab formed in the back by weakened lines, the tab extending to the edge of said margin and being integrally connected to the backing along a hinge line inside said periphery so as to swing downwardly when the weakened lines are broken thereby to form an opening in the back, the tab flaring outwardly from a location outside said periphery so as to hold the opening closed when the flaring portion is bent upwardly at said location.

3,599,788
METHOD OF WASTE THERMOPLASTIC REMOVAL
 Robert D. Fyfe, Wheaton, and Victor Brown, Elmhurst, both of, Ill., assignors to Metropolitan Waste Conversion Corporation, Wheaton, Ill.
 Filed Oct. 4, 1968, Ser. No. 765,247
 Int. Cl. B07b 13/00

U.S. Cl. 209—11

3 Claims

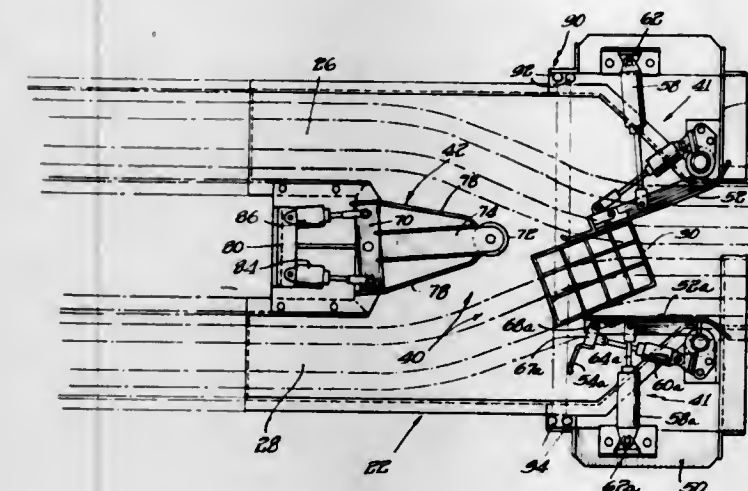


Method of removing waste thermoplastic materials from an assortment of waste materials being conveyed past a thermoplastic removal station and consisting of a rotatable cylinder contacting the material due to its own weight and either driven by the movement of the conveying means or in synchronism therewith from an independent power source. The cylinder has a surface of contact with the materials, and means is provided to heat it to a temperature which softens the thermoplastic materials to a sufficient extent that they adhere to the heated surface and are carried away from the conveying means. To remove the softened and adhered ther-

3,599,789
HIGH-SPEED CASE-SORTING APPARATUS
 Walter J. Kurczak, Chicago, Ill., assignor to Mojonner Bros. Co., Chicago, Ill.
 Filed Aug. 5, 1969, Ser. No. 847,580
 Int. Cl. B07c 3/02

U.S. Cl. 209—74

15 Claims

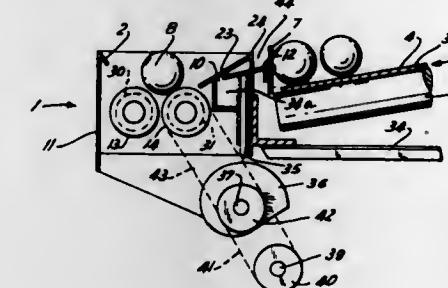


Apparatus for the automatic sorting of stacks of cases being transported by a conveyor system having a junction including two or more outlet branches. The stacks to be sorted are of two varieties, in that they contain either full or empty cases. The apparatus includes diverting means positioned proximate the juncture of the respective conveyor branches, and operable to direct cases entering the junction to a selected one of the outlet branches depending on the type of cases in the stack. Direction of the stacks to the outlet branches is achieved by a sensing arrangement which functions in conjunction with various control elements for the diverting means. The sensing arrangement produces a control signal dependent upon the nature of the stack entering the conveyor junction, which signal is operable through the various control elements to effect indexing of the diverting means to the position for directing the stacks to the proper conveyor outlet branch.

3,599,790
APPARATUS FOR THE SELECTION OF FRUITS
 Mariano G. Morey, Valencia, Spain, assignor to Manufacturas De Precision, S.A., Valencia, Spain
 Filed Dec. 22, 1969, Ser. No. 887,148
 Int. Cl. B07c 5/36

U.S. Cl. 209—124

12 Claims

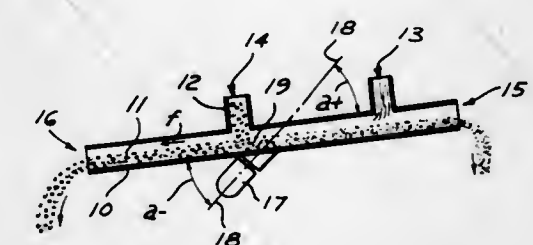


An open-topped elongated housing comprises an inlet for intermittently admitting articles of fruit from an endless belt onto two adjacent equidirectionally rotating roller members extending longitudinally in the housing. One of the roller members comprises a helical endless channel which accommodates the articles of fruit and, in association with the

3,599,791
HYDRAULIC SORTING APPARATUS
 Elle Condolios, Grenoble, France, assignor to Societe Grenobloise d'Etudes et d'Applications, Grenoble, France
 Filed Dec. 26, 1968, Ser. No. 787,088
 Claims priority, application France, Dec. 28, 1967, 5207
 Int. Cl. B03b 3/12

U.S. Cl. 209—157

5 Claims

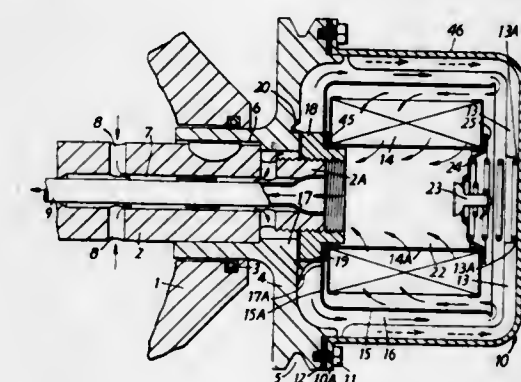


The particulate-sorting apparatus herein comprises a flume sloping at a shallow angle and containing a free-surface flow of liquid at a given rate and being provided with means for generating vibratory motion on the flume along an axis at an acute angle to the flow and contained in a vertical plane passing through the flow axis.

3,599,792
CENTRIFUGAL FILTER ASSEMBLY WITH RELIEF VALVE
 Peter William Stripp, Crownhill, Plymouth, Devon, England, assignor to Tecalemit (Engineering) Limited, Plymouth, Devon, England
 Filed May 24, 1968, Ser. No. 731,935
 Claims priority, application Great Britain, June 5, 1967, 25,854/67
 Int. Cl. B01d 35/02

U.S. Cl. 210—130

11 Claims

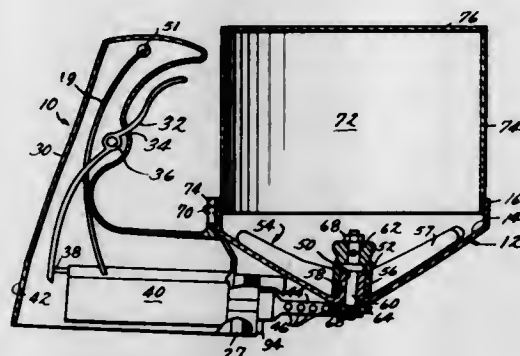


An improved fluid filter in which the casing is rotatable so that the filtering action is improved due to the rotational forces acting on the contaminant particles in the fluid. The rotational forces also remove contaminant on the filter element so as to effect a cleaning action on the element and give more efficient filtering. Preferably, the lubricant flow is directed past the contaminant retaining portion so that a primary coarse filtering action is obtained before the lubricant passes to the filter element.

3,599,793
DISPENSER FOR CHOPPED VEGETABLES HAVING
ROTARY BLADE AGITATOR
 Anthony J. Arbini, Novato, Calif., assignor to McCormick & Company, Inc., Cockeysville, Md.
 Filed Mar. 27, 1970, Ser. No. 23,427
 Int. Cl. C02c 1/00

U.S. Cl. 210-152

9 Claims

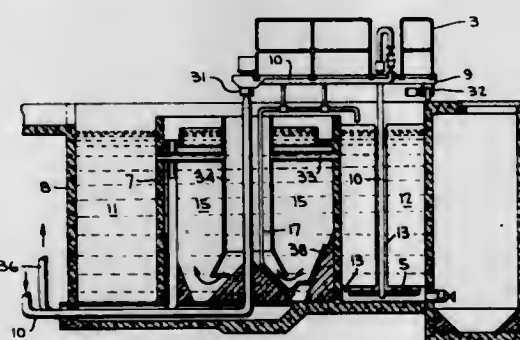


The dispenser includes a base having an inclined bottom wall provided with at least one array of vaned slots circumscribed by a chute, the base further includes a handle whose reciprocating element drives a blade unit disposed on the upper surface of the bottom wall. A canister mounted on the base supplies batches of chopped succulent vegetable material, such as reconstituted chopped onions, to the base. The device is especially useful, when provided with a plurality of dispensing chutes, for accurately and rapidly applying controlled amount of chopped, succulent vegetable material to portion controlled meals in meal preparation assembly lines at limited menu, fast service restaurants.

3,599,794
PURIFICATION PLANT FOR AERATION OF SEWAGE
 August Schreiber, Bahnhofstrasse 45 A, Vinnhorst, and Martin Danjes, Hermannstrasse 3, Denmold, both of, Germany
 Filed Aug. 11, 1969, Ser. No. 849,098
 Claims priority, application Germany, Aug. 12, 1968, P 17 84 469.8
 Int. Cl. C02c 1/12

U.S. Cl. 210-195

8 Claims



A process and a purification plant for the aeration of sewage in an aeration tank with displaceable aeration means arranged close to the bottom of the tank.

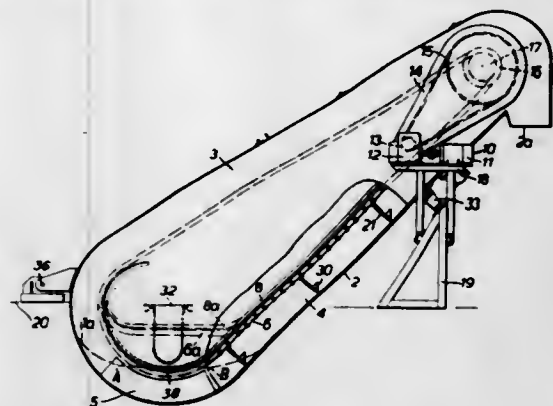
3,599,795
APPARATUS FOR SEPARATING SOLIDS FROM LIQUIDS
 Ronald Frederick Worledge, "High Ridge," 9 Durlston Road, Parkstone, Poole, Dorset, England
 Filed Jan. 29, 1970, Ser. No. 6,759
 Claims priority, application Great Britain, Jan. 30, 1969, 5,129/69
 Int. Cl. B01d 35/16

U.S. Cl. 210-413

11 Claims

A filtration apparatus comprising a receptacle means into which liquid containing solids may be passed, drainage apertures in a lower region of said receptacle means to permit the passage therethrough under gravity of the liquid and such solids as are capable of filtering through said drainage apertures, and an endless conveyor means operable within said

receptacle means and carrying a plurality of spaced apart scraper elements adapted to engage the unfiltered solids in said lower region of said receptacle means and convey such solids to an upper region thereof for discharge from said receptacle means.

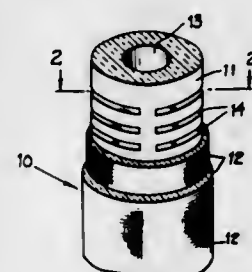


receptacle means and carrying a plurality of spaced apart scraper elements adapted to engage the unfiltered solids in said lower region of said receptacle means and convey such solids to an upper region thereof for discharge from said receptacle means.

3,599,796
FILTER CONSTRUCTION
 John Elliott Wilhelm, Maumee, Ohio, assignor to Johns-Manville Corporation, New York, N.Y.
 Filed June 6, 1969, Ser. No. 831,147
 Int. Cl. B01d 29/26

U.S. Cl. 210-457

10 Claims

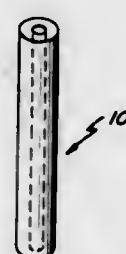


A composite filter construction adapted for filtering flow directed from the interior of the filter body outwardly therethrough towards the exterior thereof, comprising an outer section of filtering fluid permeable mass surrounding an inner section also of filtering fluid permeable mass with said inner section having an internal fluid distributing channel therein and a multiplicity of openings passing through its mass extending and increasing in area from the internal fluid distributing channel to the surrounding outer filtering section for secondary fluid distribution.

3,599,797
FILTER AND METHOD OF MAKING SAME
 Henry M. Mikulski, Churchville, and Harold F. Bixler, Schwenksville, both of, Pa., assignors to Met-Pro Water Treatment Corporation, Lansdale, Pa.
 Filed Feb. 12, 1970, Ser. No. 10,972
 Int. Cl. B01d 29/32

U.S. Cl. 210-496

7 Claims



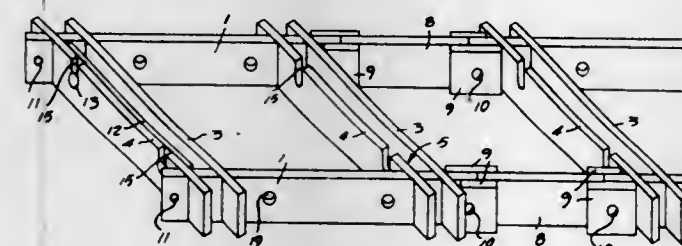
A filter mass is comprised of fibers coated with a polymer. The polymer coatings are bonded to each other. The fibers

lie in approximately parallel planes with the net angle of the fibers being zero with respect to the direction of flow. The fibers are generally parallel to the direction of flow. The method includes compacting or pressurizing the polymer encapsulated coated fibers in a direction generally perpendicular to the intended direction of flow and then heating the thusly pressurized fibers by steam generated in a vessel. Selective control of porosity in different portions of the filter may be attained by varying the amount of pressure applied to the portions of the filter mass.

3,599,798
BICYCLE RACK
 George M. Osborn, 275 Center St., San Rafael, Calif.
 Filed Sept. 22, 1969, Ser. No. 859,981
 Int. Cl. A47H 7/00

U.S. Cl. 211-20

5 Claims

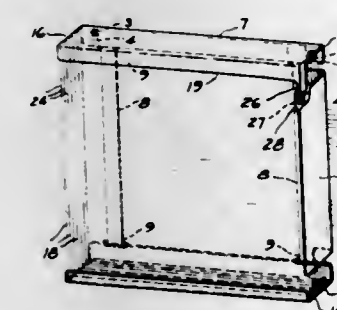


A pair of parallel base boards, at least two sets of parallel cross boards interlocked with the base boards at about 45° included angle with the base boards; the parallel cross boards in each set being spaced apart to form a space to hold a bicycle wheel; the base boards being spaced apart to form the ends of said space and also obstructions or risers for the bicycle wheel, and to hold several bicycles longitudinally staggered thereby preventing abutting of the handle bars of any bicycle with the handle bars or seats of adjacent bicycles parked in the rack, means being provided to interlock several racks in longitudinal series. Each rack unit is invertible to slant in either direction.

3,599,799
RACK FOR PHONOGRAPH ALBUMS
 Hans Herrli, Bellvueweg 15, Bellmund 3271, and Peter Herrli, Neumattstrasse 19, Port 6, Bienne/BE, both of, Switzerland
 Filed Oct. 4, 1968, Ser. No. 765,244
 Int. Cl. A47B 81/06

U.S. Cl. 211-40

2 Claims

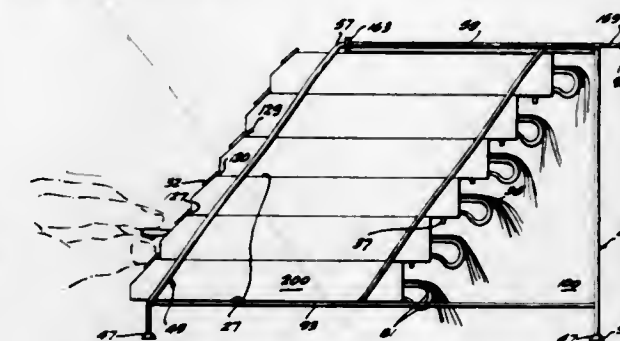


This disclosure teaches a rack for storage of phonograph records in jackets, which jackets can be mounted conveniently on a wall or like vertical surface for display. A lower channel projects outward from the wall and receives edge-mounted record jackets therein. A hinged upper channel retains the record jackets in the lower channel. To keep records from rolling out of their jackets a side member is provided. The upper channel can be connected hingedly by means of a reduced section and a clasp serves to retain the upper channel in its closed position.

3,599,800
STATION AND METHOD TO STORE AND DISPENSE
WIRING COMPONENTS
 Bernard J. Durante, Playa Del Rey, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
 Filed Dec. 9, 1968, Ser. No. 782,145
 Int. Cl. A47H 3/14, 7/00

U.S. Cl. 211-128

10 Claims

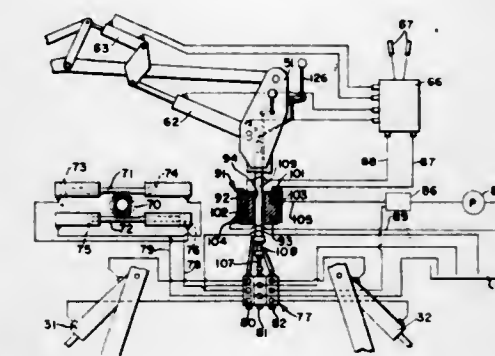


A rack stacks rearwardly upward stepped rows of elongated open-ended rectangular boxes. A slidably removable divider partitions each box. From the removed divider rear along its undersurface, then around a front groove and then rearwardly over the divider is drawn a group of prepared wires. The loaded divider is inserted in the box for assembly of wires into equipment. One embodiment divider is rearwardly looped downwards to support one dangling end of long wires. The box row stepping enables separation of rows of overhanging wires into different planes. Another divider embodiment for shorter wires terminates with a box rear closure.

3,599,801
CONTROLS FOR HYDRAULICALLY OPERATED
ROTARY CRANE
 John MacDougall Roll, Fonthill, and William Roderick MacGregor, Welland, Ontario, both of, Canada, assignors to Deere & Company, Moline, Ill.
 Filed Aug. 19, 1969, Ser. No. 851,259
 Int. Cl. B66c 23/54

U.S. Cl. 212-35

12 Claims



A rotary crane in which the operator's station is carried on the boom support and the boom support is mounted for lateral swinging on an upright axis. The hydraulic motors for raising and lowering stabilizer legs and for swiveling the boom support are controlled by a valve bank fixed against rotation. Control rods for the valve bank are carried on the swivel axis of the boom support and have their upper ends connected to control levers at the operator's station and their lower ends connected to the valve bank.

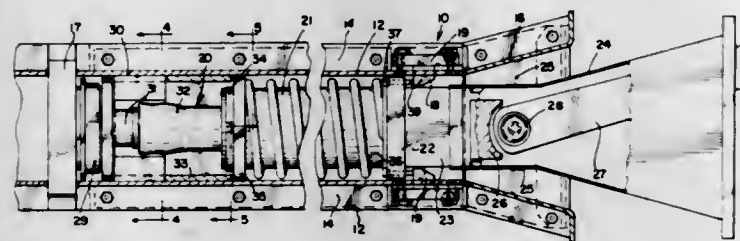
3,599,802
CUSHIONING ARRANGEMENT FOR RAILWAY CAR
 Willis H. Knipple, Palos Park, Ill., assignor to Pullman Incorporated, Chicago, Ill.
 Filed Dec. 8, 1969, Ser. No. 882,941
 Int. Cl. B61g 9/12, 11/12

U.S. Cl. 213-8

5 Claims

A railway car underframe is provided at opposite ends thereof with end-of-car cushions which are disposed in a

cushion pocket. Each end-of-car cushion includes a piston which is rigidly connected against longitudinal movement within the pocket and is provided with a cylinder having at its other end a connector plate engageable with stops provided at the forward end of the cushion pocket. The connector plate is also provided with a yoke having a coupler shank pivotally connected thereto and the yoke in turn is connected to a bellmouth housing to reciprocate relative to the end of the underframe. A spring is held captive between the end



connector plate and a sliding collar encircling the cylinder. The end connector is provided with upper and lower pairs of bores within which slidable thrust elements are provided which normally are in engagement with the forward stops. During a draft impact the connector plate moves into engagement with the stops and upon cessation of the draft impact the connector plate is restored to its neutral position by the force of the coil spring which is in engagement with the thrust elements.

3,599,803

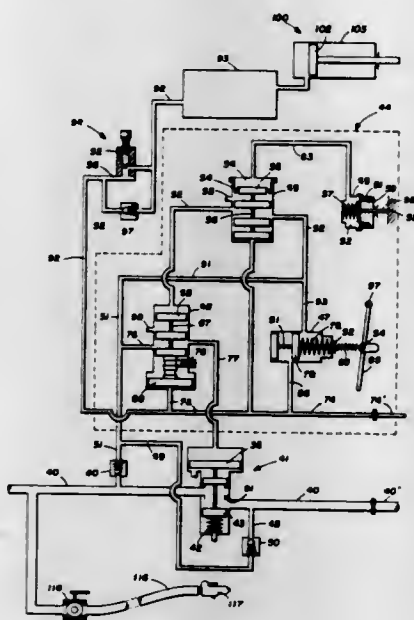
AUTOMATIC PNEUMATIC COUPLING SYSTEM
Geoffrey Wilton Cope, Williamsville, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Oct. 2, 1969, Ser. No. 863,262

Int. Cl. B61g 5/08

U.S. Cl. 213-76

14 Claims



An improvement in an automatic coupling system for a railway car which is equipped with a mechanical knuckle-type coupler, a main air line adapted to be connected to a corresponding air line of another railway car, a main valve interposed in the main air line, and means for actuating the main valve responsive to intentional uncoupling of the railway car. The improvement, in its preferred form, takes the form of an extensible pneumatic piston and cylinder assembly, one part of which is attached to the main body of mechanical coupler and the other part of which is operably connected to the operating mechanism of the coupler for opening of the knuckle of the coupler. The piston and cylinder assembly is operatively associated with the means for actuating the main valve so that upon actuation of the main valve during intentional uncoupling of the railway car,

air will be admitted to the piston and cylinder assembly. Upon separation of the railway cars, air is bled from the system allowing piston and cylinder assembly to retract leaving the coupler open and ready for coupling. The bleeding of the cylinder and piston assembly is preferably effected through a pneumatic time delay circuit to assure that the assembly has been fully extended upon uncoupling of the railway car before operating pressure is lost in the cylinder and ram assembly.

3,599,804
MAGNETIC CAN HANDLING APPARATUS WITH SURGE AND HOLD CONTROL

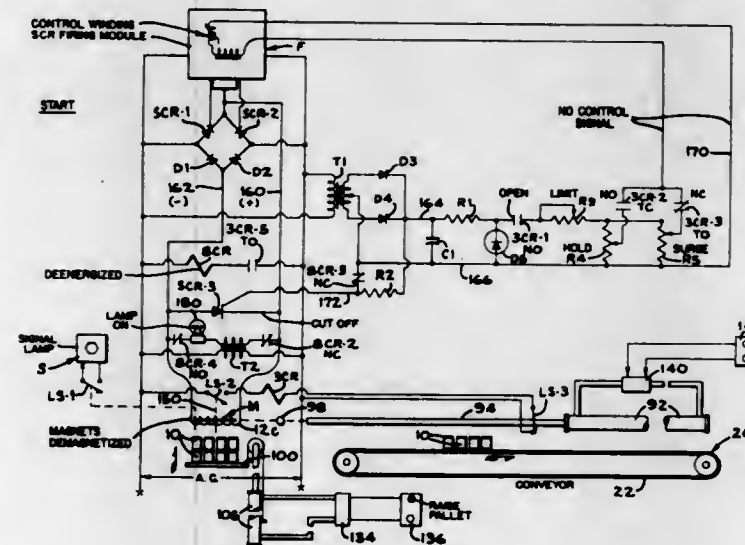
Peter L. Chorney, Hoopston, Ill., assignor to FMC Corporation, San Jose, Calif.

Filed July 28, 1969, Ser. No. 845,371

Int. Cl. B66c 1/04

U.S. Cl. 214-1 BT

5 Claims



Apparatus for transferring patterns of cans from a pallet to a conveyor includes a carriage having can lifting electromagnets. The magnets are powered from a silicon controlled rectifier bridge and successive control signals are sent to the bridge upon magnet energization. First a relatively high current "surge" signal is provided for initially gripping the cans, after which a timer relay circuit replaces the surge signal with a lower current "hold" signal.

3,599,805

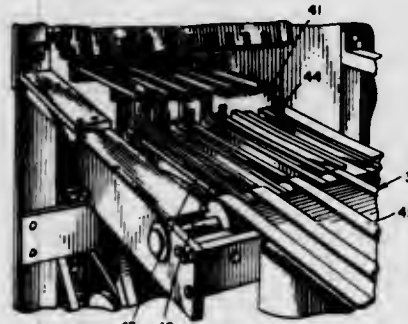
UNIT-HANDLING APPARATUS
Harvey J. Spencer, and Ernst Daniel Nystrand, both of Green Bay, Wis., assignors to Paper Converting Machine Company, Inc., Green Bay, Wis.

Filed June 3, 1969, Ser. No. 829,873

Int. Cl. B65g 57/00

U.S. Cl. 214-6 H

2 Claims



Unit-handling apparatus for "unit sets" which are multiple-web packets useful in computer technology wherein separator fingers, elevator fingers and pushers all cooperate in assembling the unit sets into precise stacks both dimensionally and as to number.

3,599,806

BALE WAGON

Raymond C. Fischer, Hinsdale, Ill., assignor to International Harvester Company, Chicago, Ill.

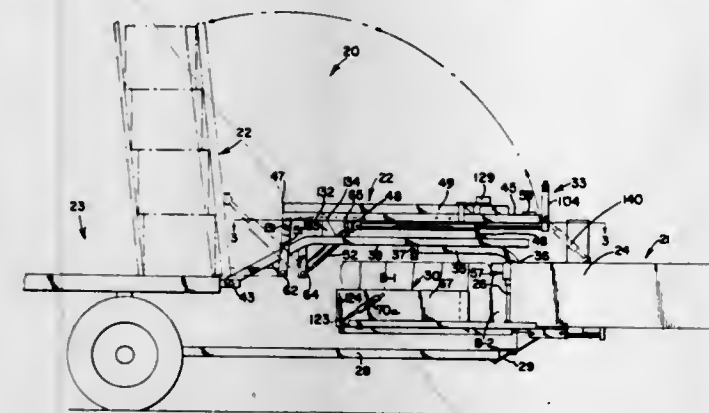
Division of Ser. No. 710,284, Mar. 4, 1968, Pat. No. 3,528,564.

Filed Dec. 4, 1969, Ser. No. 882,728

Int. Cl. B65g 57/32

U.S. Cl. 214-6 B

8 Claims



A bale wagon adapted for use in combination with a baler and having three platforms cooperatively arranged for (1) receiving bales discharged from the baler, (2) accumulating and rearranging the bales to form a horizontal layer, and (3) accumulating a series of layers to form a load of bales. The bale wagon includes a bale pusher assembly which may be selectively actuated to form a layer having bales arranged in an interlocked relation with bales of an adjacent layer.

3,599,807

ARTICLE COUNTER-STACKER HAVING MECHANICALLY OPERATED GATES ON THE STACK-RECEIVING TABLE

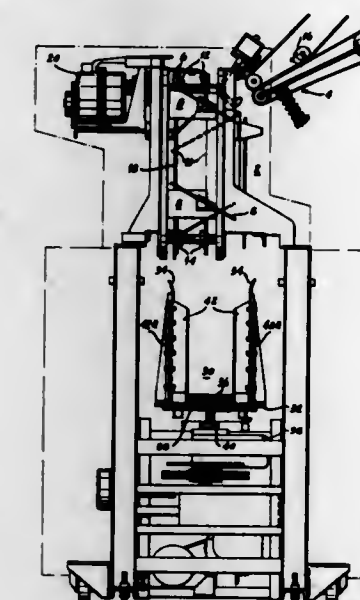
Robert R. Hedrick, Brookfield, and Robert W. Wischer, Delafield, both of Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Feb. 2, 1970, Ser. No. 7,642

Int. Cl. B65g 57/06

U.S. Cl. 214-6.5

4 Claims



A plurality of aligned pairs of stacking blades are indexed downward past the output end of a lapped stream newspaper conveyor. The blades are pivotally mounted to respective sets of link chains and spring biased to a normal position. A latch member interferes with a pair of blades just above the input conveyor to restrain those blades against the spring bias and releases them coincident with the beginning of an indexing cycle to cleanly intercept the stream and index those blades to a stacking position. A subsequent indexing cycle moves those blades apart to drop the stack to a table which may be indexed in one-half revolution intervals to permit a second stack to be dropped upon the first, forming a double batch stack with the folded edges on opposite sides. The table has high side walls and mechanically operated gates closing off the ends between the sidewalls to restrain the stack on the table during indexing. A gate actuating

mechanism on the frame of the machine is spring biased to normally engage the gate linkage to cause the gates to be opened, but the mechanism is held retracted at all times except during the operation of a pusher mechanism which travels over the table to eject the stack.

3,599,808

MOVING APPARATUS FOR BUILDINGS AND OTHER LOADS

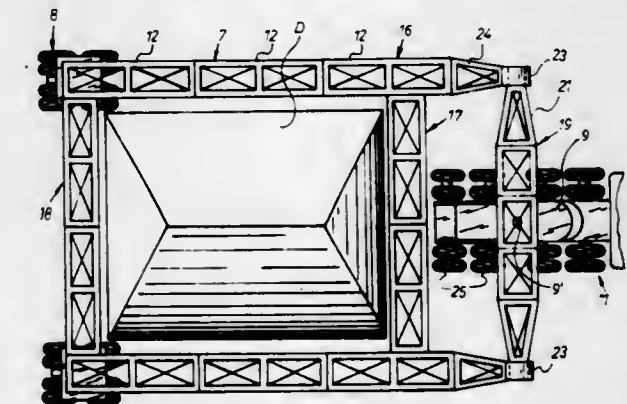
Roger Bisson, 1825 Delorimer Street, Ville Jacques, Cartier, Quebec, Canada

Filed Mar. 17, 1969, Ser. No. 807,661

Int. Cl. B65g 67/02

U.S. Cl. 214-1 H

17 Claims



An apparatus for moving buildings such as houses and the like heavy loads of various shapes and sizes, comprising a frame made of a plurality of rigidly interconnectable modular frame sections, to form a frame surrounding a house, power-driven and power-steered wheel assemblies supporting said frame above ground and power-operated load-lifting means mounted on said frame to lift the house for its transport by the wheeled frame, and frame-lifting means to lift the frame in order to rotate the wheels, the system so arranged that the frame can be modified in accordance with the shape and size of the load to be transported in order to closely surround the same, and also the load-lifting means can be operated from a remote point in a controlled manner so as to lift the house uniformly and wherein the vehicle can be displaced in any direction so that the house may be lowered in the exact spot and at the right orientation; also, the vehicle may be disassembled and made narrower for an empty to suit road regulations.

3,599,809

SELF SERVICE MULTISTORIED ROTATABLE AIRPLANE HANGAR AND OPERATING MEANS THEREFOR

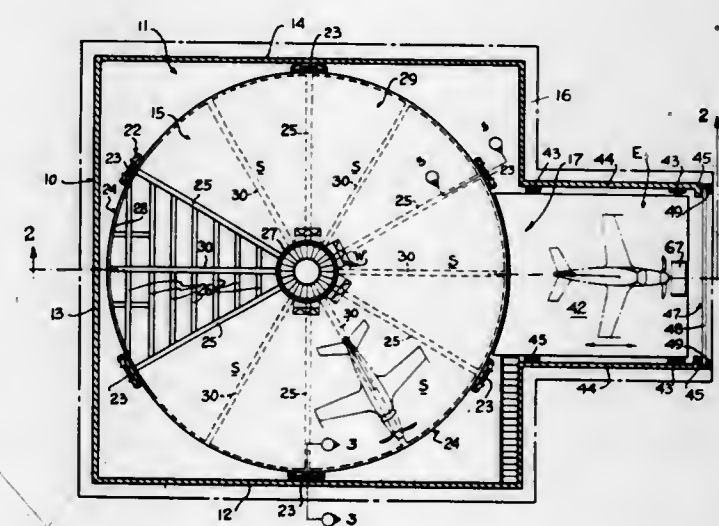
Conrad W. Gresham, 4919 Elmwood Drive, San Jose, Calif.

Filed Mar. 20, 1969, Ser. No. 808,759

Int. Cl. E04h 6/06

U.S. Cl. 214-16.1 A

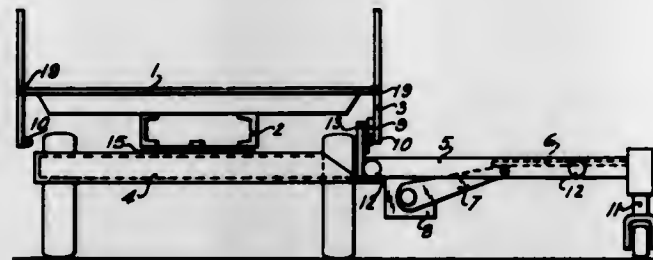
3 Claims



Independently rotatable storage platforms sectorized into numbered spaces and having their peripheries arranged for

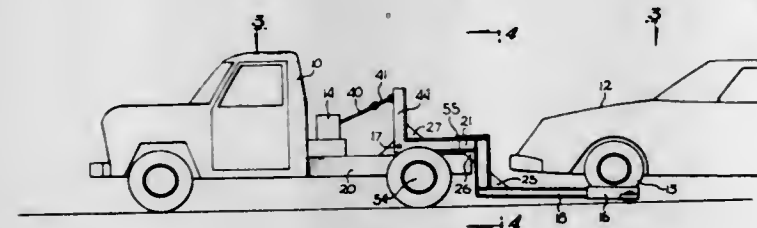
contiguous disposition adjacent an elevator platformed and controlled for operation by an indexer operable upon insertion of a coded card to position a particular storage space for receipt or discharge of an airplane and the like from or to such elevator.

3,599,810
LOAD-CARRYING VEHICLE
Heinrich Wanko, Pingsheim, Germany, assignor to Rationorm AG, Zug, Switzerland
Filed Dec. 17, 1969, Ser. No. 885,729
Claims priority, application Germany, Dec. 18, 1968, P 18 15 357.6
Int. Cl. B60p 1/44
U.S. Cl. 214-77 R 15 Claims



A load-carrying vehicle has a load-carrying bed opposite sides of which extend lengthwise of the vehicle. At least one support rail extends along one of the sides at the underside of the bed at least when in use. A supporting frame is mounted on the bed below the same and has an open side. Loading platform means is provided including a slidable frame mounted in the supporting frame for movement relative to the same between an extended and a withdrawn position in the first of which it respectively is withdrawn from the supporting frame through the open side thereof and extends at least in part laterally beyond the one side, and in the second of which it is withdrawn in its entirety inwardly of said one side. Connecting means connects the slidable frame with the support rail for movement lengthwise of the same when the slidable frame is in the extended position. Ground support means supports the part of the slidable frame which extends beyond said one side, on the ground when the slidable frame is in the extended position.

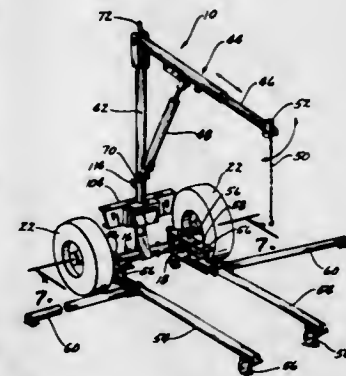
3,599,811
VEHICLE-TOWING APPARATUS
Wilson F. Watkins, 7263 Oakdale Ave., Canoga Park, Calif.
Filed June 26, 1969, Ser. No. 836,745
Int. Cl. B60p 3/12
U.S. Cl. 214-86 A 5 Claims



A vehicle-towing apparatus which is particularly suitable for towing an automobile, is disclosed. The apparatus engages the rear wheels of the automobile and lifts them above the ground when the automobile is towed. No cabling or hooks are coupled to the automobile when it is being towed.

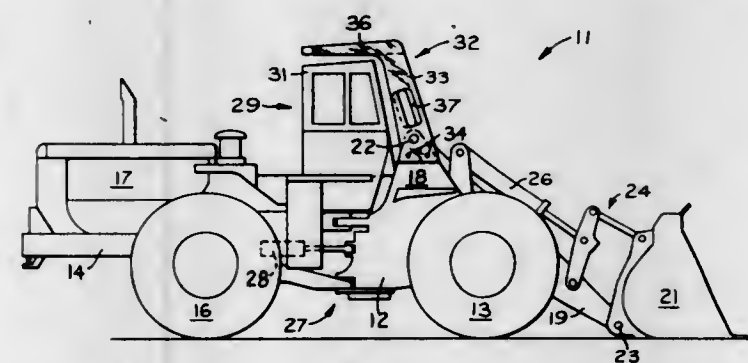
The apparatus is adaptable for towing a vehicle without entering the vehicle and thus may be used for towing locked vehicles.

3,599,812
CRANE AND TOW UNIT
Roger D. Hasstedt, 4041 Hubbell Blvd., Des Moines, Iowa, and Kenneth L. Hasstedt, 723 Washington, Des Moines, Iowa
Filed Dec. 15, 1969, Ser. No. 885,015
Int. Cl. B60p 3/12
U.S. Cl. 214-86 A 10 Claims



A unit in one position on caster wheels for use as a crane for lifting engines while in another position of operation being carried on a second set of wheels only for transport or towing other vehicles. The boom is extendable, pivotal and rotatable and when the unit is used as a towing device it will lift a towed vehicle through a cable arrangement on the opposite side from the boom while the boom is being raised. When the unit is in a crane position a pair of outwardly extending members having casters thereon extend below the boom and stabilize the unit while these same members in the towing position are interconnected by a hitch assembly for attachment to a towing vehicle.

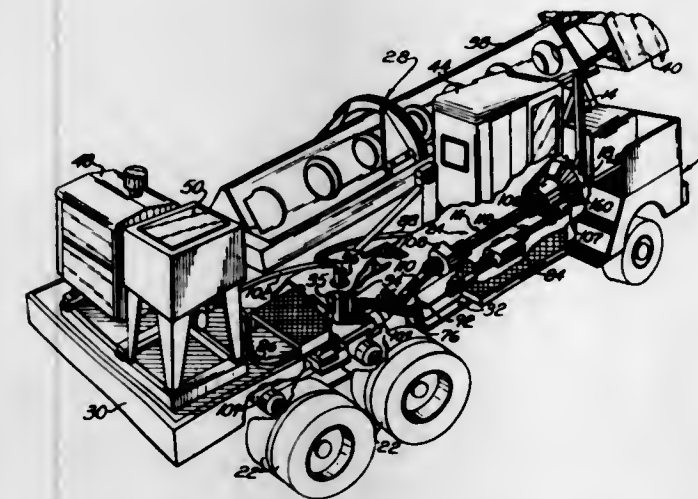
3,599,813
ROLLOVER SAFETY STRUCTURE FOR ARTICULATED LOADERS
Clayton J. Totz, Geneva, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 13, 1970, Ser. No. 27,902
Int. Cl. B66f 9/00
U.S. Cl. 214-140 6 Claims



In an articulated loader vehicle having a rear frame carrying the engine and operator's station and having a front frame with spaced upright towers supporting lift arms and a bucket and having means for pivoting one frame relative to the other for steering purposes, rollover protection for the operator is provided by a post extending upwardly from each loader tower to a rectangular top member which is cantilevered back over the operator's station. This disposition of

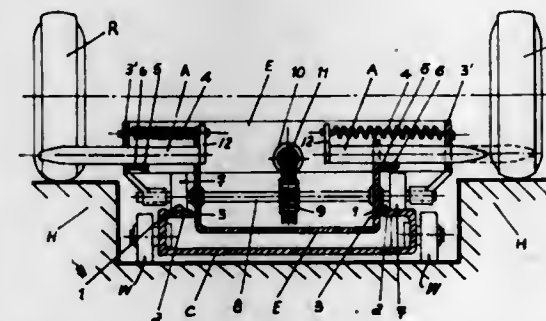
the rollover structure on the front frame towers maximizes strength without interfering with other loader components and avoids interference with the operator's view of the direction of travel of the vehicle and the bucket during turning.

3,599,814
MATERIAL-HANDLING VEHICLE
Keith E. Brownfield, Lansing, Mich., assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed June 17, 1969, Ser. No. 834,028
Int. Cl. E02f 3/00
U.S. Cl. 214-141 4 Claims



An improved vehicle includes a truck mounted material-handling mechanism having a main cab or operator's station from which the vehicle is driven over a road or highway and a second cab or operator's station from which the material-handling mechanism is operated. When the vehicle is being driven over the road, power is transmitted to the driving wheels of the vehicle from a main engine by a main drive line which includes a main transmission assembly. When the material handling mechanism is being operated, a control means in the second cab or operator's station is selectively operable to drive the vehicle with power transmitted from an auxiliary engine to the main transmission assembly in the main drive line by an auxiliary drive line. The auxiliary drive line includes a pump which is driven by the auxiliary engine to provide fluid under pressure to operate a fluid motor which is drivingly connected with the main transmission assembly.

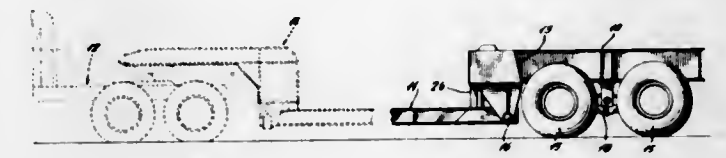
3,599,815
CHARIOT FOR THE TRANSPORT OF VEHICLES MAINLY FOR PARKING ON DIFFERENT FLOOR LEVELS
Italo Bianchi, Nice, France, assignor to S. A. R. L. Bianchi Freres & Co. "BOXDAD", Nice, France
Continuation of application Ser. No. 671,049, June 27, 1967, now abandoned. This application July 18, 1969, Ser. No. 846,645
Int. Cl. E04 6/06
U.S. Cl. 214-331 7 Claims



The present invention concerns a carriage for parking vehicles such as automobiles in multilevel parking garages.

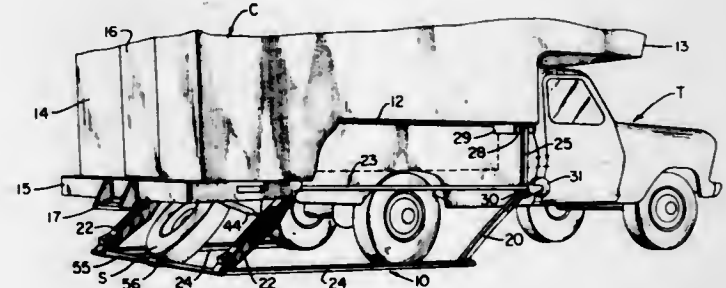
The carriage consists of a lower, wheeled carrier and an upper frame assembly which rests upon the carrier. The frame assembly includes at each wheel a plurality of horizontal, spring-loaded rods or pins which are normally biased toward the outside. Before the automobile is set on the carriage, the rods are drawn inwardly. When the tires or wheels are opposite their respective sets of inwardly drawn shafts, the rods are moved outwardly. Some of the rods will engage the tire or wheel, others will move even further out, just in front of and in back of each tire so that forward or backward motion of the car is prevented. The rods also support the car when it is lifted from the lower carrier assembly.

3,599,816
DETACHABLE GOOSENECK TRAILERS
Maurice Molriat, Montreal, Quebec, Canada, assignor to Gaymor Trailers Limited, St. Hubert, Quebec, Canada
Filed July 7, 1969, Ser. No. 839,226
Int. Cl. B60p 1/28
U.S. Cl. 214-506 6 Claims



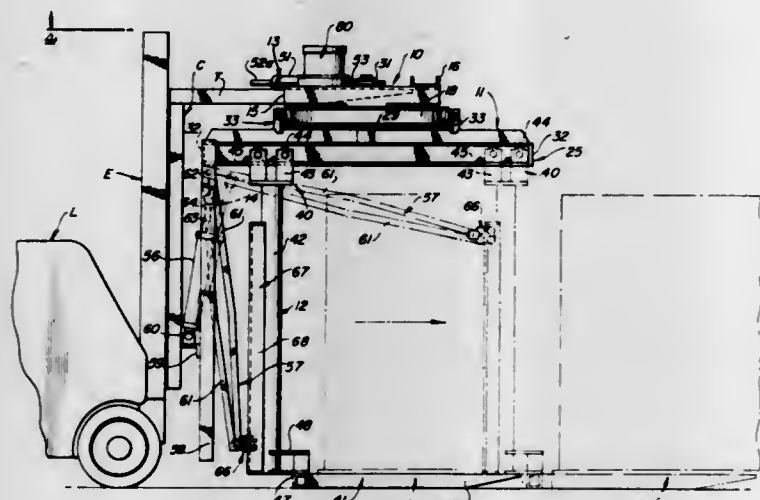
A load carrying bed has its rear end pivotally connected to a bracket arm extending below a rear wheel assembly. The rear wheel assembly is pivotally mounted so that the load carry bed may touch the ground at the rear end, the said bed being free at the front end so that it may lie flat on the ground. A device for raising the rear end and holding it in a raised position is combined with rear wheel assembly.

3,599,817
APPARATUS FOR LOADING AND UNLOADING CAMPER BODIES
Dale L. Bargman, Jr., Broomfield, Colo., assignor to Colorado Leisure Products, Inc., Broomfield, Colo.
Filed June 16, 1969, Ser. No. 833,391
Int. Cl. B60p 1/64
U.S. Cl. 214-515 14 Claims



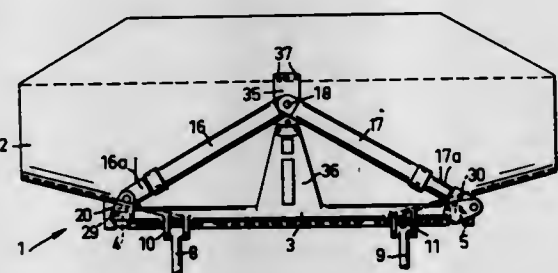
Parallelogram linkage assemblies are releasably attachable to opposite sides of a camper body and the like, a drive mechanism being selectively activated to advance the linkage between a position supporting the camper in a raised position for placement on the bed of a platform, such as, the flatbed of a vehicle and a lowered position at rest on the ground. In one lowered position of the camper, supporting wheels are engageable with the ground surface to facilitate movement of the camper from place to place.

3,599,818
LOAD SUPPORT ATTACHMENT FOR VERTICAL LIFT TRUCKS PROVIDING HORIZONTAL AND ROTATIONAL DISPLACEMENT OF A LOAD
 George E. Stanton, 7945 Hoover Road, Orient, Ohio
 Filed Aug. 13, 1969, Ser. No. 849,784
 Int. Cl. B66f 9/14
 U.S. Cl. 214-620 5 Claims



An attachment is provided for lift trucks permitting narrow-aisle stacking operations. The attachment includes a load carrier adapted to be mounted on the vertically elevatable carriage of a lift truck and capable of selective rotational displacement and horizontal displacement of a load relative to the lift truck in accomplishing stacking of loads in laterally offset relationship to the lift truck and its line of travel. The load carrier is mounted on a support structure for horizontal displacement which is effected by a selectively operable lever arm mechanism and the support structure is mounted on a support frame for rotational movement about a vertical axis by selectively operable motive means.

3,599,819
TRACTOR VEHICLE IMPLEMENT HOLDER FOR INTERCHANGEABLE MOUNTING OF IMPLEMENTS
 Tage Nils Wilhelm Leijon, Sturevagen 18, Stocksund, Sweden
 Filed Jan. 10, 1969, Ser. No. 790,391
 Claims priority, application Sweden, Feb. 28, 1969, 2,566/1968
 Int. Cl. E02f 3/70
 U.S. Cl. 214-768 1 Claim

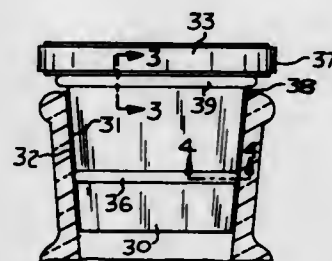


A tractor vehicle implement holder is adapted for interchangeable mounting of working implements which may have fixed or movable relationship to the holder.

The implement comprises, for example, a front dump bucket, a front and side dump bucket, or a lumber fork lift. The holder comprises a drive means such as a hydraulic jack for pivoting such interchangeable implement which is movable relative to the holder. The drive means is operatively connected to a locking means so as to turn or displace it between its locking and releasing positions.

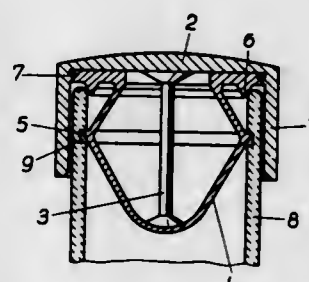
The locking means is either a part of a turnable pivot shaft for the implement, said pivot shaft being positioned on the holder, or a displaceable locking element, in the locking position engaging a pivot shaft attached to the implement.

3,599,820
HIGH VACUUM-SEALING CLOSURE
 Kenneth P. Lee, Lexington, Ky., assignor to The University of Kentucky Research Foundation, Lexington, Ky.
 Filed July 22, 1969, Ser. No. 843,704
 Int. Cl. B65d 39/00
 U.S. Cl. 215-48 3 Claims



A means for sealing receptacles under a vacuum in the order of 10^{16} mmHg includes dual O-rings mounted on a closure in spaced relation to each other and arranged for easy application of the closure to and removal from the receptacle. A stopper providing a sealed ground glass fit illustrates a use of the invention.

3,599,821
CLOSURE DEVICE OF PLASTIC FOR TUBES AND CONTAINERS
 Geinrich Eggert, and Hans Schwartz, both of Biberach, Germany, assignors to Walter Linder, Plochingen, Germany
 Filed Feb. 17, 1970, Ser. No. 12,085
 Claims priority, application Germany, Feb. 21, 1969, P 19 08 821.2
 Int. Cl. B65d 39/12
 U.S. Cl. 215-48 7 Claims

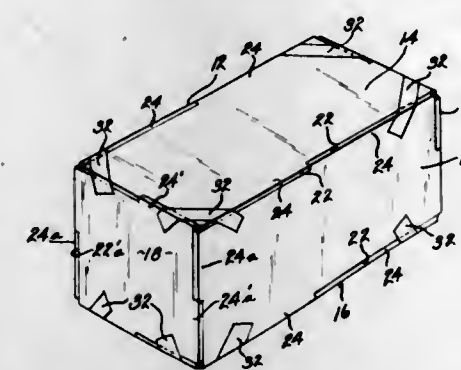


A closure device of plastic which comprises a cap which is to be fitted over and pressed upon the open end of a container and carries on the inside of its top a resilient hollow plug which is inserted into the open end of the container and has one or more locking projections which snap into an inner annular groove in the container wall or over an annular projection on this wall when the cap seals the container tightly. For unlocking the plug from the container wall to permit the cap to be withdrawn, a central part of the top is depressed, whereby a central stem at the inside of the plug effects a deformation of the plug so that the locking projection of projections of the plug are retracted from the annular groove or projection of the container wall.

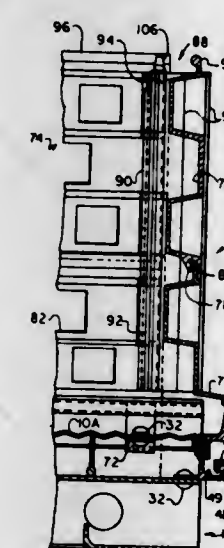
3,599,822
KNOCKDOWN CONTAINER
 George R. Johnson, Chagrin Falls, Ohio, assignor to The Arpac Company, Chagrin Falls, Ohio
 Filed Nov. 27, 1968, Ser. No. 779,425
 Int. Cl. B65d 9/34
 U.S. Cl. 217-12 13 Claims

An economical knockdown reusable container for use as a shipping and/or storage container which is rigid in assembled form and when disassembled can be collapsed into a flat return package, comprising separable end, side, bottom and top wall panels formed of low cost materials. The wall panels are uniformly recessed along predetermined portions of their peripheries for forming an interlocking relationship between

the panels to aid in maintaining a rigid assembly. In certain embodiments high strength pressure sensitive tape sections are used for positively holding the wall panels of the assembly together, and in some embodiments, certain of the panels have bracket means thereon for aiding in the assembly of the panels and for maintenance of the assembled container.

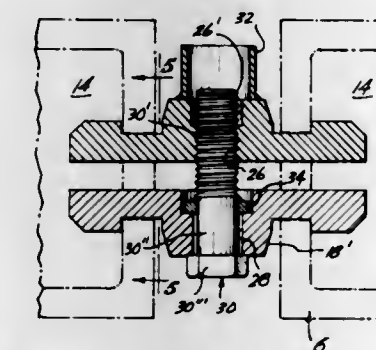


3,599,823
COMBINATION PALLET AND BOX ASSEMBLY
 Robert T. Morris, El Cajon; Jack M. Palmer, El Cajon; George F. Riley, Chula Vista, and Derek F. Smith, Bonita, all of, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
 Filed Dec. 26, 1968, Ser. No. 787,114
 Int. Cl. B65d 7/32, 19/12
 U.S. Cl. 220-4 R 3 Claims



A pallet is formed of runners having a generally U-shaped cross section and a plurality of floor members which are interlocked to one another and connected to said runners. The runners and floor members are arranged so that side panels and panel corner locking members can conveniently be attached thereto as accessories to form a storage box of variable height.

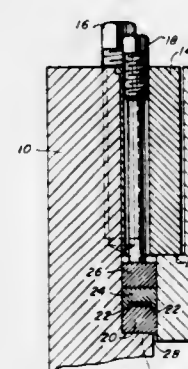
3,599,824
COUPLING DEVICE FOR CARGO CONTAINERS
 Frederick C. Pneuman, Bellevue, Wash., and Charles Y. Hale, Mountlake Terrace, both of, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.
 Filed May 19, 1969, Ser. No. 825,634
 Int. Cl. B65d 21/02
 U.S. Cl. 220-23.4 7 Claims



A coupling device is disclosed for interconnecting cargo containers having pairs of spaced oppositely disposed lugs

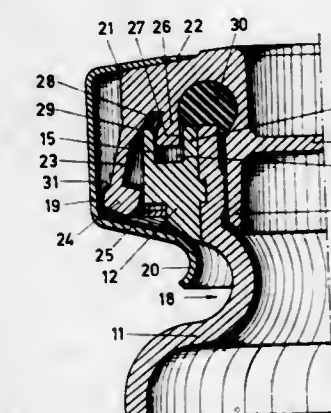
thereon. The coupling device is interengaged with and between the lugs of the containers, and is particularly adapted for rigidly interconnecting a pair of spaced mutually aligned modular USASI/ISO or similar cargo containers having standard hollow slotted fittings in the opposing corners thereof, in which case of such device is interposed between each pair of opposing corner fittings and interengaged with and between opposing edge portions of the slotted end openings in the fittings.

3,599,825
PRESSURE VESSEL WITH SEAL RING CONSTRUCTION
 Svend M. Jorgensen, Tenafly, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.
 Filed July 15, 1969, Ser. No. 841,826
 Int. Cl. B65d 53/00
 U.S. Cl. 220-46 19 Claims



A pressure vessel including an open-ended first vessel member, and a second vessel member having at least a portion thereof extending into the open end of the first member and defining a circular space with the inner wall of the first member. A plurality of sealing rings are disposed in the space and are compressed to provide a seal between the members.

3,599,826
CONTAINER SEALED AGAINST LIQUIDS
 Heinz Rocher, 23 Stahlenstrasse, 5211 Lulsdorf, Germany
 Filed June 16, 1969, Ser. No. 888,171
 Claims priority, application Germany, June 15, 1968, P 17 61 614.7
 Int. Cl. B65d 53/00
 U.S. Cl. 220-46 8 Claims



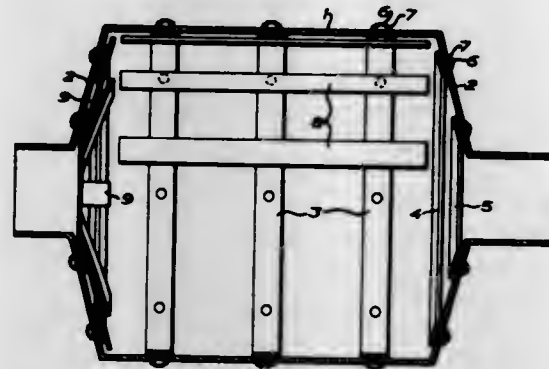
A liquid sealed container and lid made of synthetic material of the type wherein the lid is sealed with respect to the container opening by means of matching annular sealing ribs and grooves and is held in position by a clamping ring characterized by the provision of at least one sealing rib having a sidewall conically expanding toward the free end of the rib and a groove engaged by the rib has its sidewall adjacent the conical rib sidewall pressed onto the latter when the lid is in position.

3,599,827

METHODS OF PROVIDING WALLS WITH WEAR-RESISTANT LININGS

BO K. G. Persson, Trollhättan, Sweden, assignor to Trollhättans Gummifabriks Aktiebolag, Trollhättan, Sweden
Filed Nov. 25, 1968, Ser. No. 778,555

Claims priority, application Sweden, Dec. 19, 1967, 17401/67
Int. Cl. B23k 1/16; B23p 19/00
U.S. Cl. 220-63 8 Claims



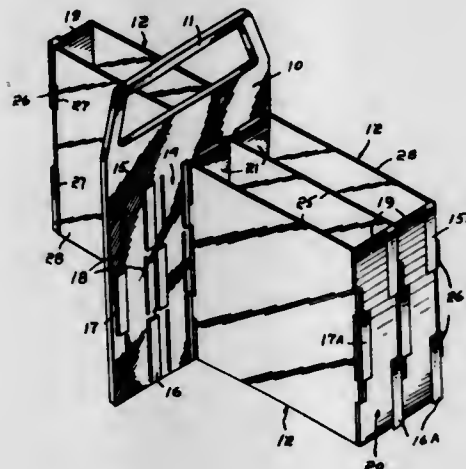
A method and apparatus for providing a wall having holes in it at a first predetermined spacing with lining elements having fastening means positioned at a second predetermined spacing. Anchoring strips are bolted to the holes in the wall and connecting strips are attached to the anchoring strips. The connecting strips are mounted so that adjacent connecting strips are spaced from each other at the second predetermined spacing. The lining elements are attached to the connecting strips by means of the fastening means.

3,599,828

MODULAR CARRIER FOR SUCH ARTICLES AS TAPE REELS

Charles T. Conway, 733 E. 5th St., South Boston, Mass., and John J. Campbell, 61 Plymouth St., Cambridge, Mass.
Filed July 17, 1969, Ser. No. 842,561

Int. Cl. B65d 75/00
U.S. Cl. 220-102 4 Claims



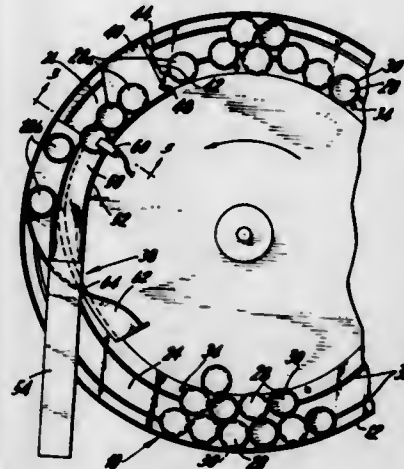
A modular carrier is disclosed that consists of a plurality of identical holders, and a support, the support and one end wall of each holder having attaching means by which attaching means on the other end walls of the holder may be detachably connected thereto and supported thereby. The holders are open at the front and have means by which they may be assembled in a side-by-side relationship with their open fronts either closed by the rear wall of another holder or by a front wall.

3,599,829

HOPPER-TYPE APPARATUS FOR ORIENTING AND FEEDING BOTTLE AND JAR CAPS, OR THE LIKE

Samuel A. Aldin, 214 Bonavent St., and Stephen H. Aldin, 3855 Shore Parkway, both of Brooklyn, N.Y.
Filed Dec. 1, 1969, Ser. No. 881,237

Int. Cl. B23g 7/12
U.S. Cl. 221-160 8 Claims



A hopper-type device for orienting and feeding relatively flat articles having a relatively smooth surface on one side and a broken surface, resistant to a jet of air under pressure, on the other side, including a hopper, a rotating feed disc within the hopper and an outlet ramp positioned to receive articles from the disc, and a nozzle for directing a jet of compressed air against a portion of the ramp to dislodge therefrom articles disposed with broken surface upward thereon for returning into the hopper. In a preferred form of the device, inverted means are provided on which the dislodged articles are landed to return them back into the hopper with broken surface down.

3,599,830

ARTICLE DISPENSER OPERABLE WITHOUT THE USE OF HANDS

James R. Gilchrist, Clarence, and Peter F. Gannon, Lakeview, both of N.Y., assignors to Truly-Magic Products, Inc., Buffalo, N.Y.

Filed June 23, 1969, Ser. No. 835,371
Int. Cl. A24f 15/04
U.S. Cl. 221-188 3 Claims



An article dispenser is disclosed, particularly suited for dispensing sterile scrubber sponges, comprising a vertically elongated container housing a plurality of superimposed articles hinged at its upper end to a wall and extending downwardly and outwardly away from the wall so that its

lower end is spaced from the wall, being yieldingly biased into that ready position, and an article projector interposed between the wall and an article in the container arranged opposite a doorway in the front of the container closed by spring loaded doors, whereby pushing the container toward the wall as by the elbow of the user causes an article to be partially projected through the doorway where it is yieldingly held by the doors in an exposed condition accessible to be manually grasped and completely removed from the container whereupon the doors automatically close, release of the pushing force returning the container to its ready position.

one valve to increase the supply of gas to the conduit and another valve to restrict the flow of material in the conduit. Any increase in the amount of material will increase the pressure and add more gas and reduce the flow of material into the conduit to maintain continuous flow of fluidized material.

When used in a rockdusting system, the fluidized material is discharged from a nozzle at the end of the conduit under control of a manually actuated valve. Closing the valve causes pressure in the conduit closure of the valve restricting flow of the material. The air supply to the conduit will be increased and the supply of material reduced with decrease in the discharge of material at the nozzle.

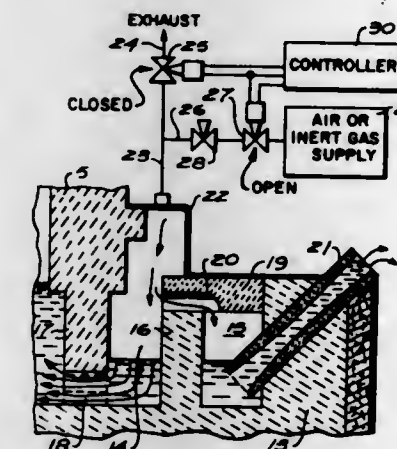
3,599,831

METHOD OF AGITATING MOLTEN METAL IN A METAL-DISPENSING FURNACE

Henry L. Harvill, Riverside, Calif., and John I. Harvill, P.O. Box 777, Corona, Calif.

Division of Ser. No. 664,372, Aug. 30, 1967, Pat. No. 3,510,116.
Filed Nov. 3, 1969, Ser. No. 873,235
Int. Cl. G01f 11/28 3 Claims

U.S. Cl. 222-1



A method of agitating molten metal, utilizing a metal-dispensing furnace having a molten metal reservoir, a surge chamber joined to the reservoir by a submerged opening, and a dispensing chamber having a discharge spout and intermittently connected with the surge chamber over a baffle wall separating the surge and dispensing chambers.

The surge and dispensing chambers being intermittently exposed to a common source of air or inert gas under pressure, and to a common exhaust so that the molten metal in the dispensing chamber is periodically discharged, while simultaneously molten metal in the surge chamber is caused to backflow into the reservoir, agitating the metal therein, particularly at the bottom of the reservoir; then, alternately, is permitted to refill the surge and dispensing chambers causing further agitation of the molten metal in the reservoir.

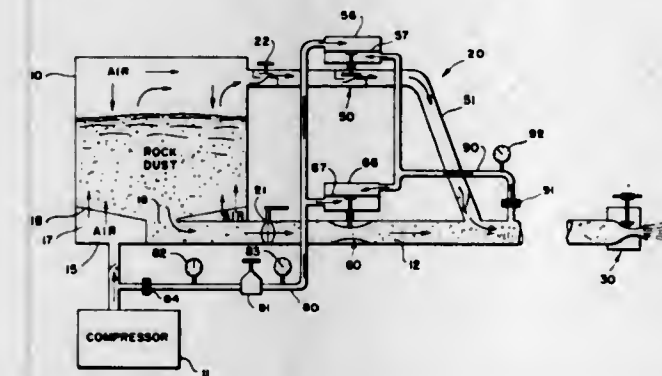
3,599,832

FLOW CONTROL OF FLUIDIZED MATERIAL

Carl Owen Smith, Pittsburgh, Pa., assignor to Industrial Pneumatic Systems, Inc., Fairmont, W. Va.

Filed Dec. 23, 1969, Ser. No. 887,572
Int. Cl. B67b 7/00 9 Claims

U.S. Cl. 222-1



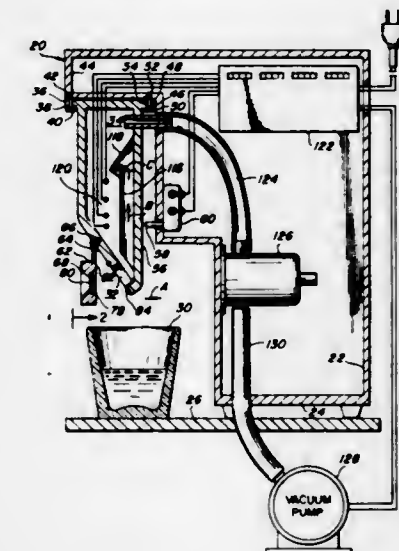
This apparatus controls the flow of fluidized granular material by utilizing the pressure in the conduit to actuate

3,599,833

LIQUID DISPENSER AND RECORDER MEANS

Arthur Reichenberger, 1916 N. 21st Place, Phoenix, Ariz.
Filed Aug. 7, 1969, Ser. No. 858,234

Int. Cl. B67d 5/08 26 Claims



A liquor dispenser and recorder means particularly adapted for use in dispensing liquors in public barrooms, wherein a plurality of containers holding various priced liquors are provided with outlet fixtures cooperable with a stationary fixture engaging means, such that each outlet fixture of each container is physically distinctively cooperable with the engaging fixture so as to individually energize means for dispensing liquor from the respective container and for energizing a counter with respect to the value of the liquor in the respective container.

3,599,834

PRINTER-CONTROLLED INTERLOCK

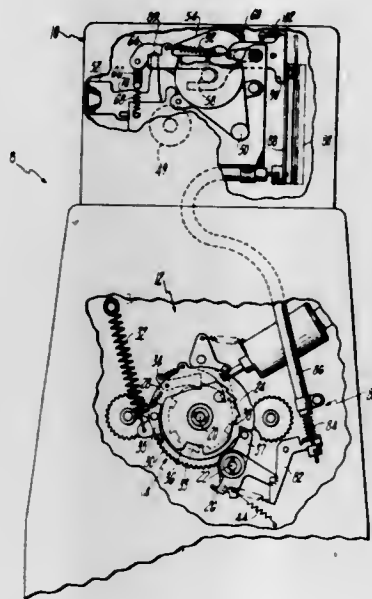
Silvio Conte, East Hartford, and Thomas W. Evans, Newington, both of Conn., assignors to Veeder Industries Inc., Hartford, Conn.

Filed May 7, 1969, Ser. No. 822,666
Int. Cl. B67d 5/22 5 Claims

U.S. Cl. 222-30

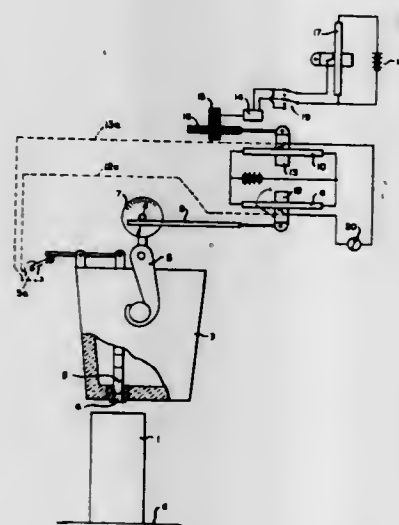
A fuel pump having a manually operable printer for recording each delivery of fuel and a printer-controlled interlock for preventing manually resetting the pump register for a succeeding delivery until the printer has been manually operated to record the prior delivery. After the register is reset the printer may be manually operated through a first phase of operation to provide an initial printout whereupon the register reset mechanism is locked to prevent resetting the register again until after the printer is manually operated through a second phase of operation to provide a final printout of the fuel delivery. A printer ticket tray is reciprocated in conjunction with the operation of the printer and a reciprocable slide is connected to latch the register reset mechanism when the ticket tray and slide are actuated to a forward position by the printer operating handle during its first phase of operation. The slide is releasably latched in its

forward position and the slide latch is released by a printer platen as it moves to provide the final printout to provide for



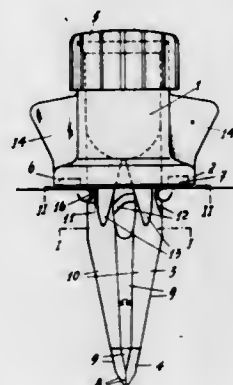
spring retraction of the slide for unlocking the register reset mechanism.

3,599,835
DISPENSING APPARATUS FOR AND METHODS OF CASTING
Friedrich Kocks, Freilgrathstrasse 1, 4 Dusseldorf, Germany
Filed Nov. 3, 1968, Ser. No. 775,337
Claims priority, application Germany, Sept. 20, 1968, P 15 83 658.5
Int. Cl. B65h 1/08
U.S. Cl. 222-58



A method and apparatus are provided for maintaining a constant casting speed in casting molds by the steps of weighing the molten metal before casting, weighing the molten metal at least at spaced time intervals during casting and adjusting the flow of steel into said casting mold at said spaced time intervals to discharge a substantially identical weight amount in each time interval. An apparatus for maintaining a constant speed in casting provides a pouring ladle, discharge means on the ladle, weighing means supporting said ladle, a voltage transmitter sensitive to weight change connected to the weighing means and transmitting a voltage proportional to a change in weight, a voltage comparator receiving the transmitted voltage, comparing the same with a standard voltage representing a desired casting speed and transmitting a signal indicating a deviation from the standard.

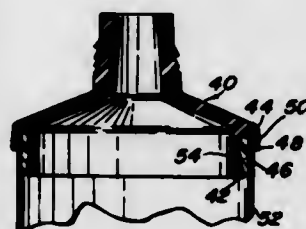
3,599,836
POURER TUBE FOR FLUID CONTAINERS
Robert Hegl, 8113 Boppelen, Zurich, Switzerland
Filed Apr. 8, 1969, Ser. No. 814,238
Claims priority, application Switzerland, Apr. 23, 1968, 6398/68
Int. Cl. B67b 7/26
U.S. Cl. 222-90



1 Claim

A pourer tube for cans and the like fluid containers including a body having a tubular discharge portion at one end and a container-piercing means at the other end. A radial flange having a sealing ring thereon is provided intermediate the two ends, and the body between the flange and the container-piercing means is tapered toward the container-piercing means. The tapered body portion includes cam surfaces whereby upon inserting the pourer tube into a container and turning the tube, the cam surfaces and the container opening thus formed cooperate so as to draw said flange and said sealing ring into sealing relationship with the container.

3,599,837
PLASTIC DISPENSING CONTAINER AND CLOSURE THEREFOR
Douglas W. Anderson, Palatine, Ill., assignor to Dave Chapman, Goldsmith & Yamasaki, Inc., Chicago, Ill.
Filed June 6, 1969, Ser. No. 831,140
Int. Cl. B65d 35/08
U.S. Cl. 222-107



10 Claims

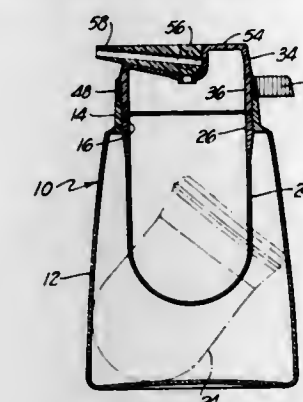
A squeezable-type collapsible container and a method of making it includes a molded nylon nozzle and shoulder part having an ethyl vinyl acetate plastic band injection molded directly onto and around a skirt portion thereof. A tube having a polyethylene inner surface is fitted over the band and a heat seal is effected between the band and the adjoining wall of the tube to fixedly secure the tube to the nylon part.

3,599,838
MIXING CONTAINER STRUCTURE
Donald H. LaVange, East Douglas, Mass., assignor to Polytop Corporation, Slatersville, R.I.
Filed June 2, 1969, Ser. No. 829,599
Int. Cl. B67d 5/56
U.S. Cl. 222-129

A mixing container structure is disclosed for use in shipping two materials such as two fluids so that these two materials are separated from one another. This structure includes an outer container for one of these materials and an inner container for the other of these materials located within the outer container. The top of the inner container fits closely within so as to form a seal with the interior of the

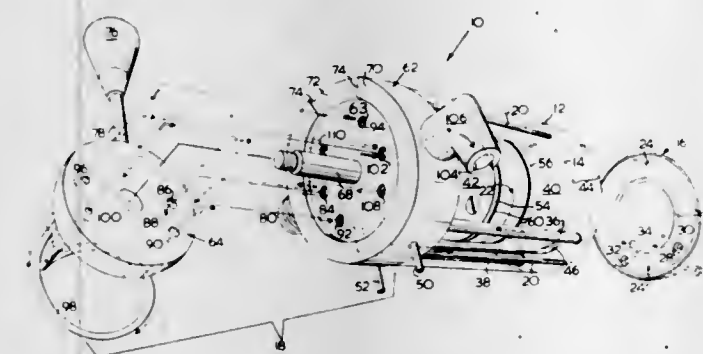
10 Claims

neck of the outer container. A closure member is located on the outer container so that the skirt on this closure member fits closely within and forms a seal against the interior of the



3,599,839
VOLUMETRIC METER
William A. Hansen, 95 Ashland, Winnipeg 13, Manitoba, Canada
Filed Aug. 4, 1969, Ser. No. 847,152
Int. Cl. B67d 5/62
U.S. Cl. 222-146 C

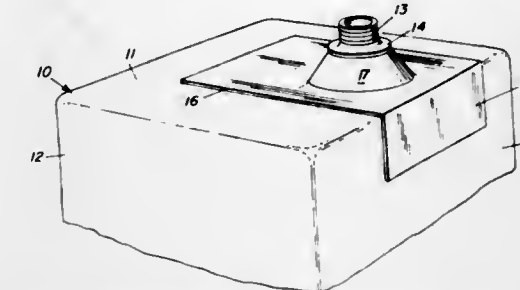
6 Claims



A volumetric meter is described which can be connected to a supply of liquid and is useful for dispensing predetermined quantities of the same. This liquid can be a carbonated beverage such as a soft drink or beer, or the liquid can be tea, coffee, soup or other hot liquid. The present volumetric meter comprises, in a broad sense, a tubular cylinder having two open ends that are closed by an end cap and a head cap, respectively. An axially movable piston is mounted within this cylinder and preferably is in sealed engagement peripherally therewith. This piston divides the cylinder into two chambers. The head cap includes a stationary portion, and a movable portion positionable between a first and a second position. Each portion is provided with liquid conducting channels, of which certain channels are in alignment in each of said positions. Depending upon which channels are in alignment, one of the chambers is in communication with a supply of the liquid for filling, while the other chamber is brought into communication with a discharge outlet and is simultaneously emptied. In one form, the head cap is provided with a choke coil which serves to control the discharge flow of the liquid as it is being dispensed. Preferably, the present volumetric meter is provided with two concentric cylinders one within the other for defining an annular interspace therebetween. This interspace is connected by suitable conduit means to a supply of coolant or heating fluid, depending upon whether the liquid being dispensed is cold or hot. The supply of liquid is under pressure. This pressure serves as the driving force causing movement of the piston to either end of the cylinder to dispense the predetermined quantity or volume of liquid from the chamber ahead of it.

3,599,840
DEVICE FOR POSITIONING FILM BAG LINERS IN OUTER CONTAINERS
Charles A. Speas, Towson, Md., assignor to Hedwin Corporation, New York, N.Y.
Filed Aug. 25, 1969, Ser. No. 852,573
Int. Cl. B67d 5/06
U.S. Cl. 222-183

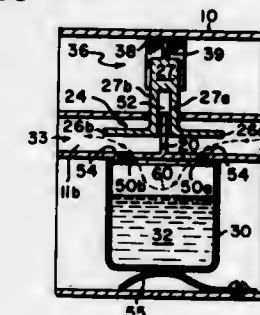
12 Claims



A device for positioning film bag liners in outer containers so as to prevent the collapse of the bag liner and retain its pouring spout in position for ready access through an accommodating opening in an outer container. A positioning sheet, preferably consisting of semirigid material, is secured to the liner at the base of the pouring spout and extends radially from the latter. By anchoring the extended portion or portions of the positioning sheet to the outer container, the pouring spout and the area of the liner immediately surrounding the same are maintained in position for ready access through an opening in the outer container, thus preventing displacement of the liner and its pouring spout and providing torque resistance for pouring spouts having screw-threaded or twist-off closures.

3,599,841
ODOR CONTROL APPARATUS, assignor to Honeywell Inc., Minneapolis, Minn.
Filed Aug. 6, 1969, Ser. No. 847,981
Int. Cl. B67d 5/54
U.S. Cl. 222-193

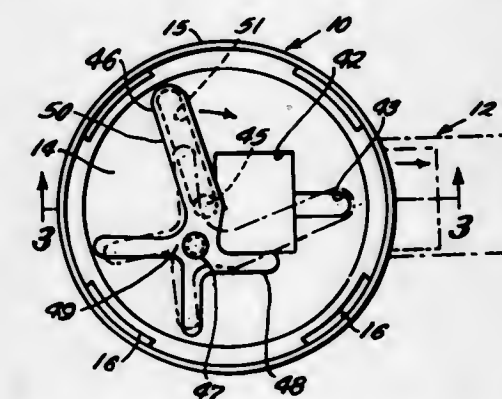
7 Claims



Apparatus for dispensing vaporizable air treating material having a remotely controllable air valve for regulating air flow through a vaporizing chamber containing the air treating material.

3,599,842
MEASURING DISPENSER WITH AGITATOR FOR COMMUNUTED MATERIAL
Samuel B. Boster, 7304 Reading Road, Cincinnati, Ohio
Filed Oct. 16, 1968, Ser. No. 768,031
Int. Cl. G01f 11/14
U.S. Cl. 222-245

4 Claims



This disclosure describes a dispenser for comminuted material, such as "instant" coffee contained in a jar, the

dispenser including a reciprocated slide having a measuring dispenser opening that is movable between a jar discharge opening and a dispensing opening, and an agitator pivotally mounted above the jar discharge opening and having a drive connection with the reciprocated slide to preclude buildup of comminuted material around said discharge opening and insure the delivery of an accurate amount of material to the measuring dispenser opening of the slide.

3,599,843

KEG TAPPING DEVICE

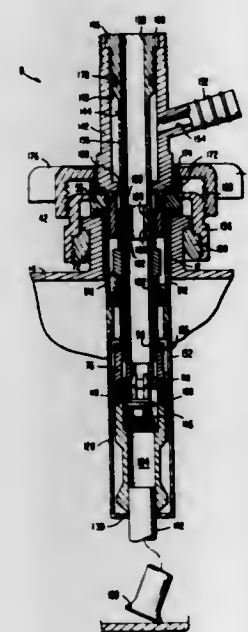
Mack S. Johnston, Rolling Hills, Calif., assignor to Republic Corporation, Beverly Hills, Calif.

Continuation-in-part of application Ser. No. 814,833, Mar. 26, 1969, now abandoned, Continuation-in-part of application Ser. No. 676,291, Oct. 18, 1967, which is a continuation-in-part of application Ser. No. 611,610, Jan. 25, 1967, now Patent No. 3,410,458, which is a continuation-in-part of application Ser. No. 587,627, Oct. 18, 1966, now Patent No. 3,442,448, which is a continuation of application Ser. No. 406,682, Oct. 27, 1964, now abandoned, which is a continuation-in-part of application Ser. No. 502,092, Oct. 25, 1965, now Patent No. 3,439,844, Continuation-in-part of application Ser. No. 395,084, Jan. 25, 1966, now Patent No. 3,231,154, which is a continuation of application Ser. No. 150,982, Nov. 8, 1961, now abandoned. This application Apr. 14, 1969, Ser. No. 815,542

Int. Cl. B65d 83/00, 83/14

U.S. Cl. 222-399

26 Claims



Disclosed is a tapping device for beer kegs and the like including a keg adapter semipermanently secured within the keg opening and a coupler releasably secured to the adapter. The adapter includes an axially movable subassembly containing gas and liquid passages and gas and liquid valves in the respective passages. The coupler includes liquid and gas passages and a depending probe for displacing the subassembly and thereby opening the liquid and gas valves whereby gas under pressure is communicated into the keg and liquid is withdrawn therefrom.

3,599,844

STRAW AND CHAFF SAVER OR BUNCHER

Benjamin H. Dickson, P.O. Box 43, Yuma, Colo.

Filed July 22, 1969, Ser. No. 843,542

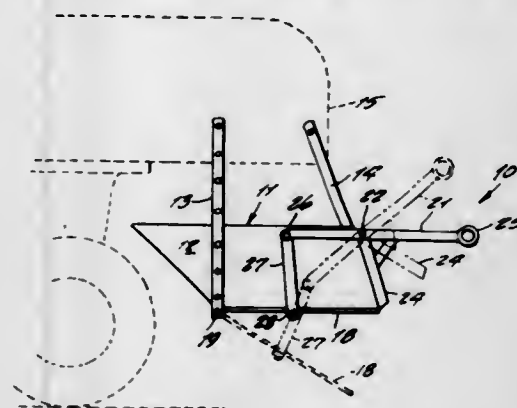
Int. Cl. G01g 13/06

U.S. Cl. 222-508

4 Claims

An attachment for a harvester combine, the attachment

comprising a basket having a downwardly pivotable floor attached to counter weighed linkages for the purpose of



dispensing bunches of straw and chaff collected within the basket.

3,599,845

CONTAINER CLOSURE

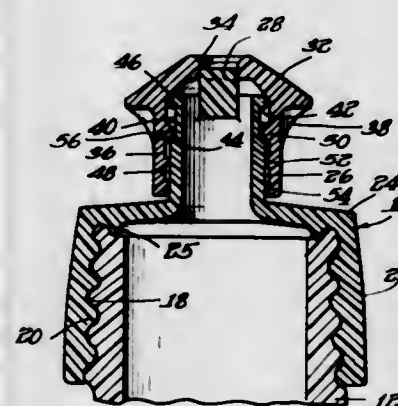
Christian F. Miller, Palos Park, Ill., assignor to VCA Corporation (formerly k/a Valve Corporation of America), Greenwich, Conn.

Filed July 23, 1969, Ser. No. 844,066

Int. Cl. B67d 3/00

U.S. Cl. 222-521

7 Claims



A valved closure and dispensing assembly for containers, such as bottles, jars and the like, including a main closure body of relatively hard plastic material and having a neck portion with a closure pin or stopper of reduced cross section fixed centrally at the outer end of the neck opening; and a sliding closure cap member of relatively softer plastic material having a depending skirt externally interfitting and interlocking with the outer surface of the neck portion for limited sliding movement relative thereto and having a central opening through the top clearing the closure pin or stopper for dispensing purposes and snugly receiving the pin or stopper therein for closing the neck opening against dispensing.

3,599,846

MECHANICAL CARAFE

Colon M. Stephenson, Olathe, Kans., assignor to Alprod Corporation, Chicago, Ill.

Filed Aug. 13, 1969, Ser. No. 849,855

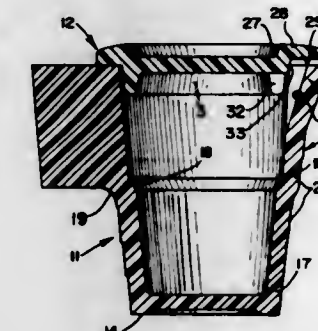
Int. Cl. B67d 3/00

U.S. Cl. 222-553

4 Claims

An expanded foam polystyrene carafe including a body having a pouring spout. A lid is frictionally seated for rota-

tion within the open end of the body and has a nose formed with a groove on the underside thereof. The groove provides a pouring passage when the lid nose is aligned with the



3,599,847

BELT-SUSPENDED HAMMER HOLDER

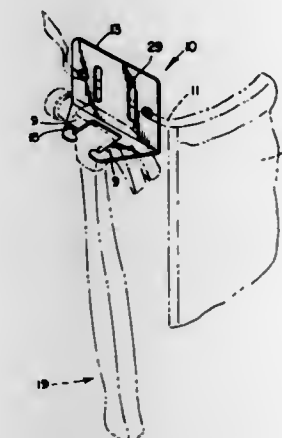
Gideon R. Danielson, 35 Sandholm St., Geneva, Ill.

Filed July 30, 1969, Ser. No. 846,083

Int. Cl. A45f 5/00

U.S. Cl. 224-5 A

9 Claims



The hammer holder is an L-shaped bracket having a vertical portion and a horizontal portion. Holes in the vertical portion permit it to be suspended from a belt or apron string. The horizontal portion has a U-shaped opening for receiving the shank of a hammer head. Lugs at the entrance of the opening prevent sideways removal of the hammer head. The external edges of the horizontal portion are diagonal, causing the hammer handle to rock against the leg of the user.

3,599,848

METHOD AND MEANS FOR STRAND DISTRIBUTION

J. Randall Thumm; George E. Smock, and Richard E. Pitt, all of Newark, Ohio, assignors to Owens-Corning Fiberglass Corporation

Continuation of application Ser. No. 847,520, July 22, 1969, now abandoned, which is a continuation of application Ser. No. 530,518, Feb. 28, 1966, now abandoned. This application May 14, 1970, Ser. No. 37,437

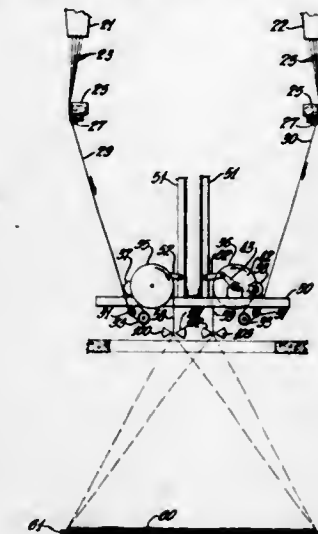
Int. Cl. C03b 37/02

U.S. Cl. 226-7

32 Claims

Method and apparatus for distributing strands on a collecting surface aerodynamically. Embodiments of fluid nozzle and air foil members divert the strands after the strands have had a linear velocity imparted thereto to selected deposition points without touching the strands. A sweeping distribution

of strands back and forth across a collection surface can be obtained by controlling the flow of fluid through the nozzle,



3,599,849

WEB REGISTRY CONTROL APPARATUS

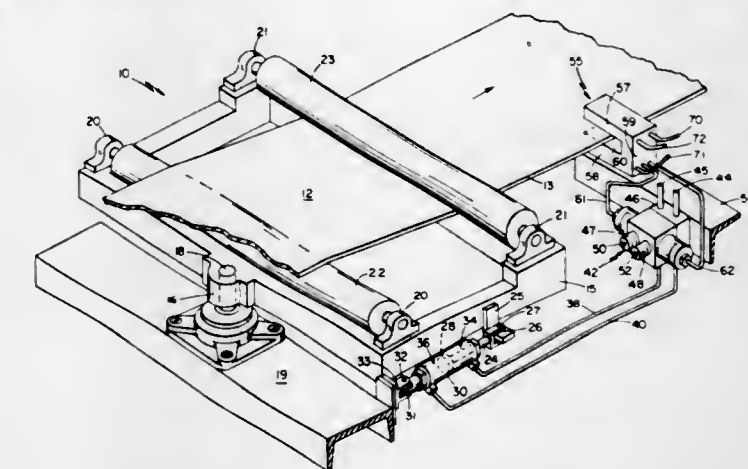
John G. Callan, Sharon, Mass., assignor to Knox, Inc., South Walpole, Mass.

Filed July 24, 1969, Ser. No. 844,260

Int. Cl. B65h 25/26

U.S. Cl. 226-22

7 Claims



A detector (including, e.g., a U-shaped sensing head) for sensing departures of a portion of a travelling web, such as its edge, and initiating corrective action by adjusting equipment, wherein presence of the web within a detector nul zone indicative of a desired web edge position deflects a fluid jet at the web side of the nul zone which would otherwise operate adjusting equipment in one direction (e.g., which in turn operates the adjusting equipment), by being received in a passage on the opposite side of a web to produce a fluid jet therein for operating the adjusting equipment; and wandering of the web edge beyond the far side of the nul zone interrupts a jet deflecting means (e.g., another jet) which, unless interrupted, prevents a jet at the far side of the nul zone from operating adjusting equipment in the opposite direction. Sensing jets are used to operate directly fluid-operated valves controlling the web-adjustment equipment.

3,599,850

MOTION PICTURE FILM-ADVANCING MECHANISM

Ernest M. Whitley, Palo Alto, Calif., assignor to Red Lake Laboratories, Santa Clara, Calif.

Filed Dec. 9, 1968, Ser. No. 782,132

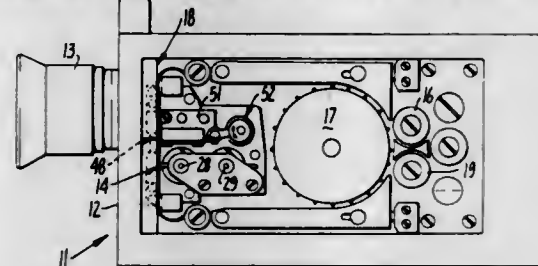
Int. Cl. G03b 1/22

U.S. Cl. 226-56

12 Claims

A motion picture film-advancing mechanism for advancing film having sprocket holes therein in stop-and-go fashion through a film gate for exposure or projection comprising a film-advancing finger means carried on spaced cranks for movement in a circular path for engaging the film and ad-

vancing it intermittently in a cyclic action, and a register pin carried for axial movement in a mounting block and having an eccentric drive for moving the register pin intermittently into engagement with the film sprocket holes for holding the film when the finger is retracted, said register pin drive and finger drive mechanism being synchronized through a common gear train and forming for a high-speed operation; the improvements including pivotally carrying the register pin



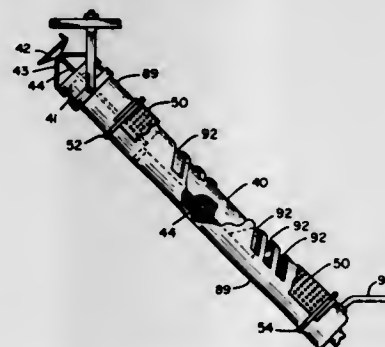
mounting block and providing an eccentric adjustment screw for adjusting the pivot of the block and providing fine adjustment of the register pin to obtain accurate adjustment of the spacing between the register pin and finger, providing a lost motion drive for the register pin whereby the register pin may be retracted while the finger is in a retracted position, and providing means for eliminating play and backlash including a pressure bearing member on a ball bearing mounting for the retractable fingers.

3,599,851

HYDRODYNAMIC TURNOVER MECHANISMS
Harland R. Hedlund, St. Paul; Harry K. Wethe, Minneapolis, and Vernon L. Turner, Lindstrom, all of, Minn., assignors to Buckbee-Mears Company, St. Paul, Minn.
Filed May 8, 1970, Ser. No. 35,850
Int. Cl. B65h 17/32

U.S. Cl. 226-97

8 Claims



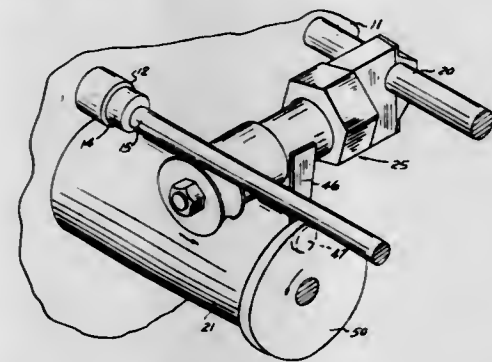
A member for hydrodynamically supporting and changing the orientation of a continuously moving flexible sheet of material. The material floats on a cushion of air forced out of slots in the member which member is covered with a plastic coated diffusing screen. Inside the member a movable sleeve controls how many slots are open to the passage of air.

3,599,852

AUTOMATIC BAR FEEDER ATTACHMENT FOR MULTIPLE SPINDLE SCREW MACHINES
Josef Eichenhofer, 120 Oakdale Road, Downview 479, Ontario, Canada
Filed Dec. 12, 1969, Ser. No. 884,653
Int. Cl. B65h 17/22

U.S. Cl. 226-155

6 Claims



In a spindle bar machine having a hollow spindle through which a workpiece bar is cyclically advanced, a feeder

formed of an elongated housing arranged transversely to the bar and rockingly mounted upon a machine shaft by a journal formed upon one end of the housing, with a motor arranged within the housing, and having a constantly rotating drive shaft extending out of the opposite end of the housing and carrying a roller arranged to periodically peripherally engage and longitudinally thrust the bar for advancing it. The housing is rocked about its journal towards and away from the bar by a housing cam follower engaging a machine rotated cam.

3,599,853

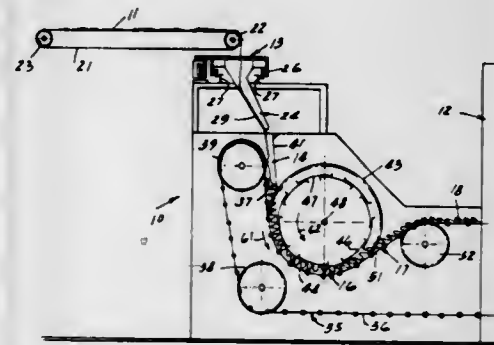
DEVICE FOR CONTINUOUSLY LOADING STRIP-FORM MATERIAL ONTO A CONVEYOR BELT OF A DRYER OR THE LIKE

Walter Munch, Berliner-Strasse, and Wilhelm Bachmann, Friedhofstrasse, both of, Germany, assignors to Schld's Aktiengesellschaft, Bad Hersfeld, Germany
Filed July 8, 1969, Ser. No. 839,976
Claims priority, application Germany, July 17, 1968, P 17 60 902.8

Int. Cl. B65h 29/16

U.S. Cl. 226-171

8 Claims



A device for continuously loading strip-form material onto a substantially horizontally disposed conveying surface of a dryer or the like comprises an upstanding chute having strip-form material deposited therein in overlapping longitudinally pleated layers, means forming an arcuately extending shaft receiving layers from the chute with opposite edges of the layers abutting radially spaced, arcuately shaped inner and outer wall portions defining the shaft, and transfer means directing layers of the strip-form material to a substantially horizontally disposed conveying surface. A drum or wheel member having a cylindrical peripheral surface forms the shaft inner wall and is rotated to impart a desired circumferential velocity thereto, and an arcuately extending run or path of a continuous conveyor belt forms the radially spaced outer wall and is driven in a manner to impart a circumferential velocity thereto in excess of that of the inner wall, thereby turning or flipping the overlapped layers of the strip-form material so that leading layers overlap or overlaid adjacent trailing layers as the material is transferred onto the conveying surface.

3,599,854

PRESSURE-FLUID-OPERATED TOOL
Neville Barry Pearson, Horncchurch, England, assignor to Samuel Montague Rose, Glasgow, Great Britain, a part interest

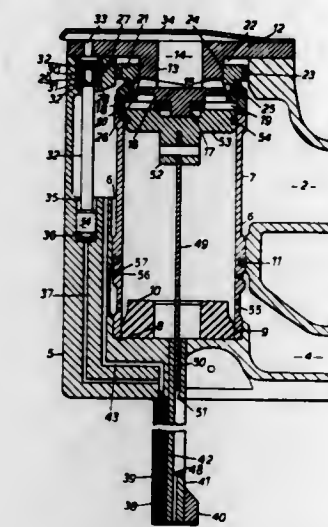
Filed Jan. 13, 1969, Ser. No. 790,589
Claims priority, application Great Britain, Apr. 9, 1968, Jan. 18, 1969, 289/68; 16,901/68
Int. Cl. B27l 7/06

U.S. Cl. 227-7

2 Claims

A pressure-fluid-operated tool has between a pressure source and a pressure-operated valve for releasing pressure

to operate a driver, communication via a chamber which is formed within a gastight seal on the tool and between the



elongated angulated extension on its forward end whose free end terminates in a reversely angulated elongated guide structure generally paralleling the cylinder body. A reciprocal follower is supported from the guide structure for guided movement therealong and includes a rearwardly facing abutment surface while the piston includes a forwardly facing abutment surface. An elongated impact member is reciprocally supported from the extension for longitudinal reciprocation relative thereto and its opposite ends are disposed for contact with the forwardly facing abutment surface of the piston and the rearwardly facing abutment surface of the follower whereby forward impact of the piston with the impact member will cause forward shifting of the follower.

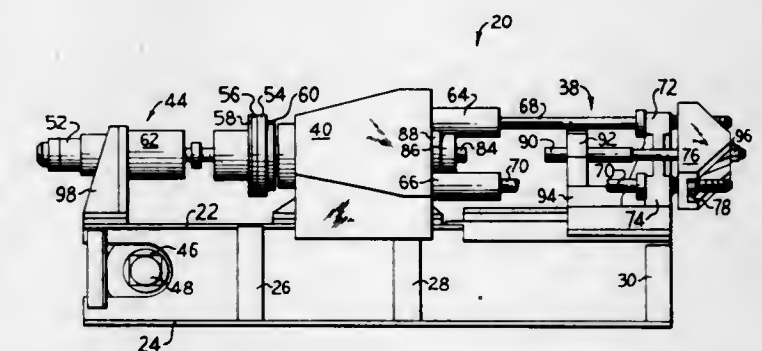
3,599,857

WIDE RANGE FRICTION WELDER

Calvin D. Loyd, Peoria; Theodore L. Oberle, Washington; Ira H. Sage, Peoria, and Ronald L. Satzler, Metamora, all of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 25, 1969, Ser. No. 819,291
Int. Cl. B23k 27/00

U.S. Cl. 228-2

14 Claims



A friction welding machine is adapted to weld workpieces having a wide range of diameters by utilizing a unidirectional drive means, such as a one-way overrunning clutch, which is disposed between rotatable components of the machine and a rotatable workpiece holding spindle. The unidirectional drive means provides a driving connection between the rotatable components and the spindle when relative motion therebetween is in one direction and prevents a driving connection when relative motion therebetween is in an opposite direction. One embodiment of the invention has a dual-spindle arrangement in which the spindles may be operated independently or together to provide a machine which is capable of friction welding workpieces having a large range of diameters. The dual-spindle arrangement also permits workpieces of relatively large diameter to be loaded and unloaded from the machine while the input energy components of the machine are being accelerated to welding velocity.

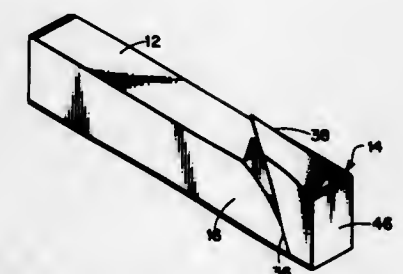
3,599,858

PINCH-OPENING CONTAINER

Rolf A. Samsing, Braintree, Mass., assignor to The Gillette Company, Boston, Mass.
Filed June 11, 1969, Ser. No. 832,312
Int. Cl. B65d 5/54, 17/04

U.S. Cl. 229-51 R

8 Claims



A container formed from a unitary blank and adapted to be opened by pressure applied to the container in a pinching manner.

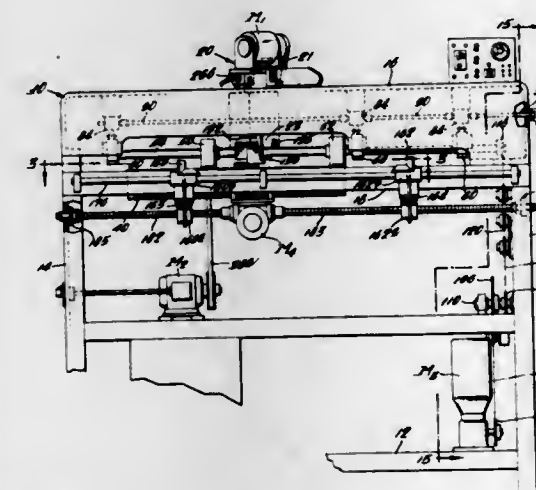
3,599,855

BOX-STITCHING APPARATUS

Edward V. Henc, 302 Netherington Drive, Broomall, Pa.
Filed Mar. 13, 1969, Ser. No. 806,817
Int. Cl. B27l 7/06

U.S. Cl. 227-7

30 Claims



Stitching apparatus comprising a main frame, a stitching head assembly mounted on the frame at a stitching station operable to apply stitches to the overlapping portions of sheet material, actuating means operating at a predetermined continuous rate of speed for advancing the sheet material through the stitching station and means for selectively varying the spacing between adjacent stitches.

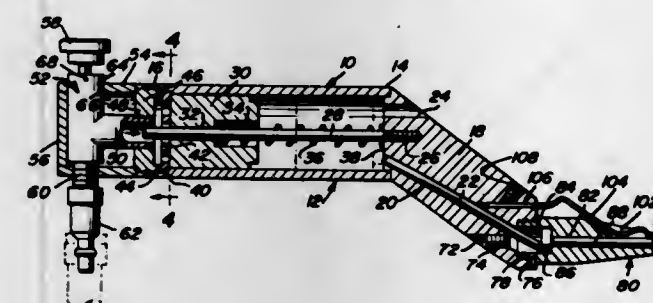
3,599,856

OFFSET HEAD RIVETING GUN

James E. Eads, 1000 W. Allen, Bloomington, Ind.
Filed Feb. 25, 1970, Ser. No. 14,006
Int. Cl. B25d 9/12

U.S. Cl. 227-149

9 Claims



An elongated cylinder body including front and rear ends and having a piston reciprocally disposed therein and an

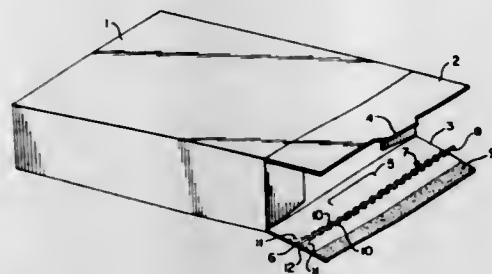
3,599,859

ARTICLES AND METHOD

Theodore Materson, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
 Filed Nov. 24, 1969, Ser. No. 879,039
 Int. Cl. B65d 5/54, 27/38

U.S. Cl. 229—51 AS

12 Claims



This disclosure is directed to container opening structures comprising a container wall member, such as a closure, e.g., a lid, to which there is attached at least one flexible closure tearing means accessible from the exterior of the container and a plurality of pressure-rupturable capsules, each of which contains a volatilizable core material, e.g., perfume or other fragrance, located between the container wall or lid and the tearing means. Preferably, the tearing means is a flexible tape composed of a plurality of parallel arranged monofilaments. The operation of the tearing means serves to rupture at least some of the capsules during opening of the container.

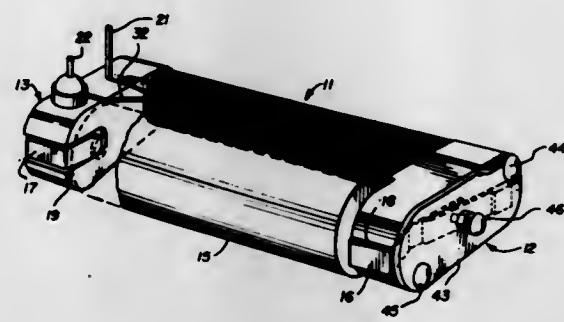
3,599,860

BATTERY-POWERED SHOCK DEVICE

James E. Huwaldt, 14470 E. 13th Ave. C-46, Aurora, Colo.
 Filed June 16, 1969, Ser. No. 833,481
 Int. Cl. B65b 11/00

U.S. Cl. 231—2

12 Claims



An electric shock device with a yoke-shaped support member conformable to fit within the palm of the hand is arranged to releasably hold a dry cell battery between the spaced arms thereof. A pair of electrodes project from the support member which are operatively associated in a circuit with the battery to selectively short circuit electric energy provided by the battery by pressing the electrodes against the body of an animal which results in a shock. An elongated magnetic core having a primary and secondary winding is connected in the circuit to step up the electric voltage from the battery with the core forming a structural part of the support member for the supporting of the battery in place. One of a pair of vibrator contacts connected in the circuit is magnetically associated with the core to alternately open and close the circuit to induce the electric energy from the primary winding into the secondary winding.

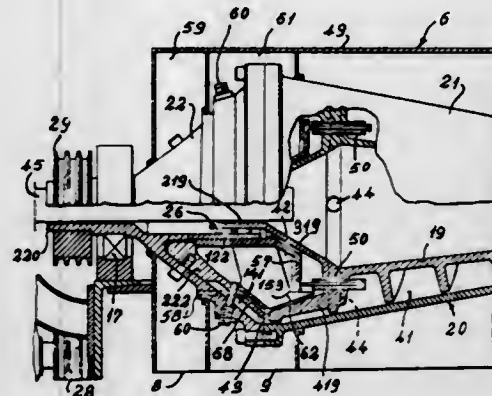
3,599,861

CENTRIFUGE FOR SEPARATION OF MIXTURES OF SOLIDS AND LIQUIDS OF DIFFERENT WEIGHT

Mario DeMartini, 9, Via Coraica, Genoa, Italy
 Filed Apr. 23, 1969, Ser. No. 818,550
 Claims priority, application Italy, May 3, 1968, May 7, 1968, May 14, 1968, 6996;7004;7025
 Int. Cl. B04b 3/00, 1/00, 11/00

U.S. Cl. 233—2

17 Claims



A centrifuge for separating mixtures consisting of solids and at least one liquid comprises a rotatable drum formed by two opposed hollow cones in one of which a hollow worm is coaxial and rotatable relative to the drum. The worm forms with the conical portions of the drum a precentrifuging chamber which communicates with a postcentrifuging chamber and mixture fed into the worm passes into the precentrifuging chamber so that solids sludge is fed out through an outlet remote from the postcentrifuging chamber. Liquids separated from the sludge pass into the postcentrifuging chamber and are centrifugally separated to pass, according to weight, out of the chamber through ducts arranged at different distances from the axis of rotation and through outlets appropriate thereto.

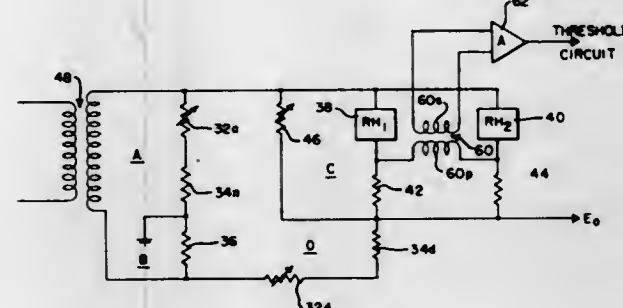
3,599,862

APPARATUS FOR CONTROLLING TEMPERATURE RELATIVE TO HUMIDITY

William John Hogan, Glen Cove, and Vito Michael Liantonio, Douglaston, both of N.Y., assignors to Fairchild Hiller Corporation, Hagerstown, Md.
 Filed Apr. 17, 1969, Ser. No. 816,978
 Int. Cl. G05d 22/02; F24f 3/14

U.S. Cl. 236—44 C

7 Claims



Dewpoint control apparatus for maintaining the temperature of a gas within a predetermined zone above the dewpoint of the gas over a preselected temperature range, comprising a relative humidity sensing device, a control means, and a means for heating the gas. A relative humidity value of the gas is selected at which the temperature of the gas will always be within a small predetermined zone above dewpoint over the temperature range of interest. The control means is responsive to the relative humidity sensing device and causes the heating means to vary the temperature of the gas to maintain its relative humidity constant at said preselected value. The impedance of the preferred relative humidity sensing device changes as a function of temperature as well as relative humidity. Accordingly, a bridge circuit incorporating a plurality of thermistors is provided to compen-

sate for such impedance changes by nulling the effect of temperature on the impedance of said relative humidity sensing device.

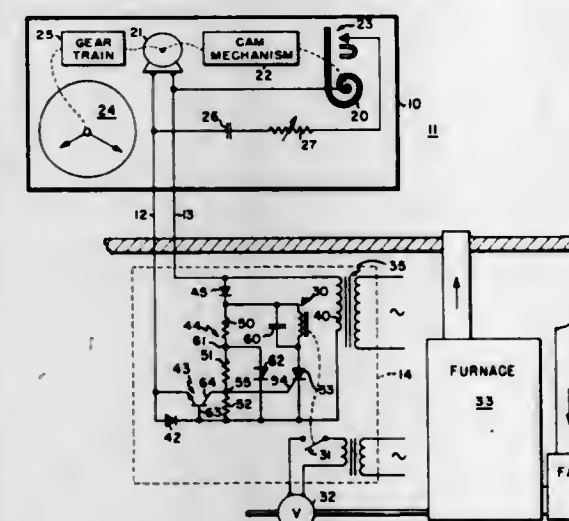
3,599,863

ELECTRIC CLOCK THERMOSTAT HAVING PHASE RESPONSIVE CONTROL APPARATUS

Balthasar H. Pinckaers, Edina, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
 Filed Sept. 8, 1969, Ser. No. 856,062
 Int. Cl. G05d 23/275; G04c 23/00

U.S. Cl. 236—46

4 Claims



A power supply and phase-responsive apparatus connected by two wires to a remote electric clock thermostat for supplying power to the clock motor and connecting a temperature-responsive switch apparatus in the thermostat over the same two wires to a relay associated with the phase-responsive apparatus for controlling temperature-conditioning apparatus furnishing heated air from a furnace to the space containing the clock thermostat. The phase-responsive apparatus responding to the phase of the voltage and current supplied to the clock thermostat whereby normally with only the clock operating, the current lags the voltage, but upon the temperature-responsive switch apparatus closing an additional capacitive circuit, the current is either in phase or leads the voltage to result in the energization of the relay and thus the conditioning apparatus.

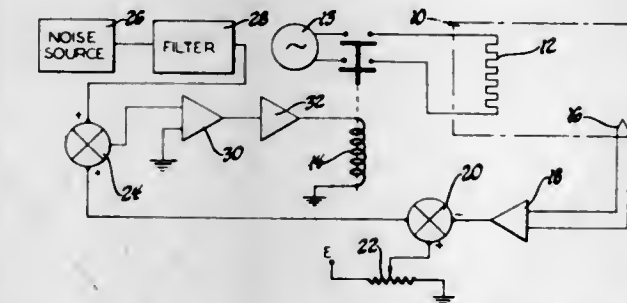
3,599,864

CONTROL SYSTEM WITH VARIABLE PULSE RATE

David E. Liddle, Toledo, Ohio, assignor to Permaglass Inc., Millbury, Ohio
 Filed Sept. 29, 1969, Ser. No. 861,803
 Int. Cl. G05b 11/30; G05d 23/22

U.S. Cl. 236—78

10 Claims



A feedback control system of the proportional type is disclosed wherein a pulse width modulator is employed which exhibits both variable gain and variable pulse rate characteristics. The system includes means for producing an error voltage corresponding to the deviation of the variable quantity from a desired value and means for developing a carrier voltage which in combination with the error voltage effectively produces a modulator output pulse rate which increases as the error voltage decreases. The carrier voltage may be derived from a gaussian random noise source or may be developed by a variable frequency oscillator. The system

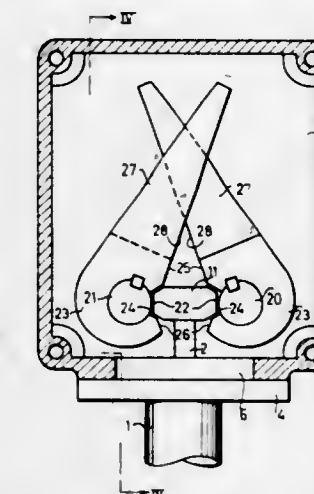
3,599,865

THERMOHYDRAULIC CONTROL DEVICE

Svend Helge Kristiansen, Naestved, Denmark, assignor to Nordisk Ventilator Co./A/S, Naestved, Denmark
 Filed Aug. 8, 1969, Ser. No. 848,455
 Claims priority, application Denmark, Aug. 14, 1968, Mar. 6, 1969, 3,923/68;1,254/69
 Int. Cl. F24f 13/08

U.S. Cl. 236—99

7 Claims



A thermohydraulic control device for a ventilation or air supply damper consisting of a hydraulic motor, comprising a cylinder in which a plunger piston is movably disposed, the volume of the cylinder being of such a size relative to its cross-sectional area that the cylinder can at the same time act as a temperature-responsive element, the piston pin of the plunger piston being coupled to the damper shaft by means of a single-toothed rack and pinion wheel connection having engagement surfaces which lock the damper in the open or the closed position, respectively, when the tooth of the rack is out of engagement with the single tooth-space of the tooth wheel.

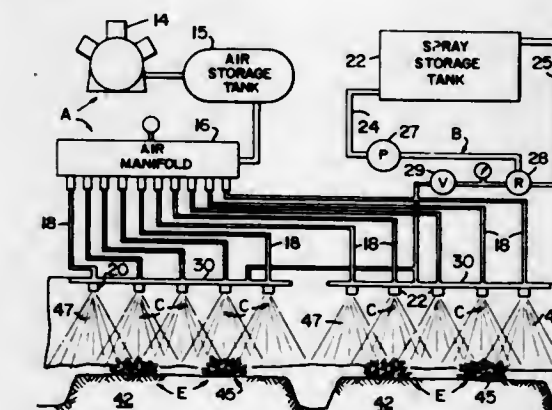
3,599,866

ATOMIZING SPRAY PROCESS AND APPARATUS

Jack C. Bolton, Salinas, Calif., assignor to Solserve, Inc., Salinas, Calif.
 Filed Aug. 21, 1968, Ser. No. 754,436
 Int. Cl. A01n 17/02

U.S. Cl. 239—8

5 Claims



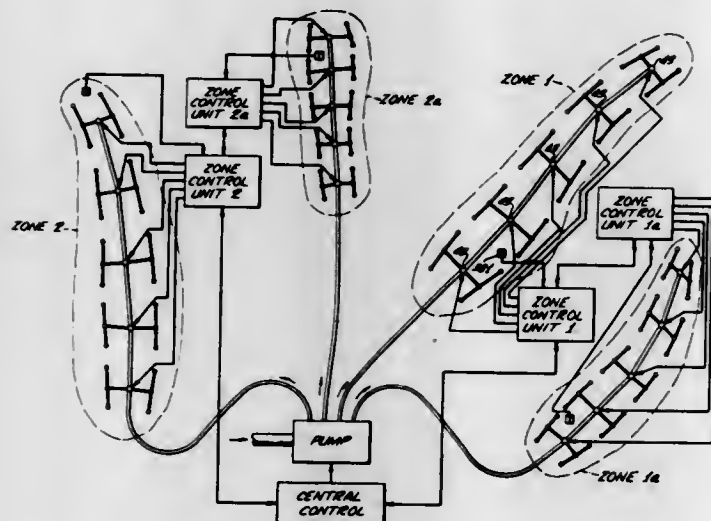
An apparatus and process for spraying crops with atomized liquid spray. A supported nozzle system is passed over a crop. The nozzle system is supplied with liquid spray preparation and atomizing air at high pressures and is oriented to discharge atomized spray downwardly. The high-pressure atomizing air produces a turbulent cloud which displaces the ambient atmosphere adjacent the sprayed crop, effects dilution of the spray preparation without diminishing spray effectiveness, and penetrates the foliage undersides to coat the entire plant with spray.

3,599,867
MODULAR IRRIGATION CONTROL SYSTEM
 David E. Griswold, Corona Del Mar, and Jonathan D. Likins, Costa Mesa, both of, Calif., assignors to Griswold Controls, Santa Ana, Calif.

Filed Nov. 12, 1969, Ser. No. 875,658
 Int. Cl. A01g 25/00

U.S. Cl. 239-63

16 Claims



A central control unit generates starting signals which are distributed to a number of remote zone control units, each of which is programmed successively to actuate selected ones of a respective set of valves in accordance with a preselected schedule. A chain of zone control units may be triggered in succession, each by a signal from the preceding such unit, to carry out its assigned schedule when the schedule assigned to the preceding zone control unit has been completed.

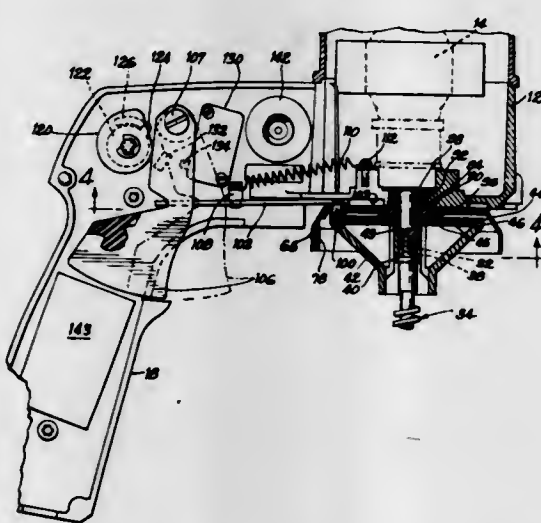
Both the central and the zone control units are made to respond automatically and positively to various events such as a power failure, rain, excessive ground moisture, and the actuation of the valves. A simple method of sending signals in both directions between a central control unit and a zone control unit over a single pair of wires is also provided to actuate the system components remotely.

3,599,868
ROTARY SPRAY GUN
 Ernest C. Rangus, Lombard, and Suppayan M. Krishnakumar, Chicago, both of, Ill., assignors to Electro Engineering Products Co., Inc.

Filed Dec. 29, 1969, Ser. No. 888,616
 Int. Cl. B05b 3/02

U.S. Cl. 239-218.5

10 Claims



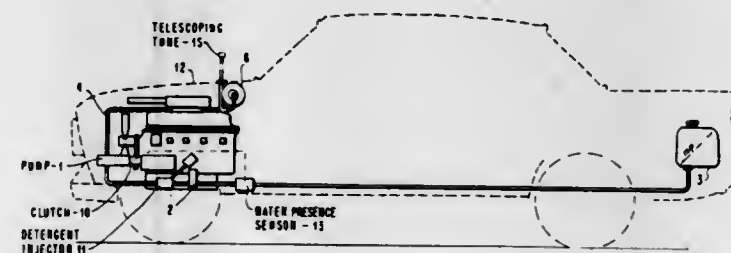
A rotary spray gun having a trigger operated motor and gating mechanism, the motor being energized prior to opening of the gating mechanism, the gating mechanism thereafter being automatically opened to a preselected

amount, thereby to discharge a predetermined width of spray pattern with minimal formation of droplets.

3,599,869
CAR WASHING APPARATUS ADAPTED FOR MOUNTING ON THE VEHICLE TO BE WASHED
 Guido Oberdorfer, Werkstrasse 22, Bellenberg, Germany
 Filed Mar. 3, 1969, Ser. No. 803,787
 Int. Cl. E01c 19/16

U.S. Cl. 239-172

5 Claims



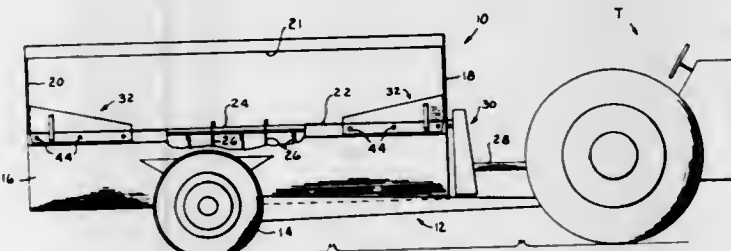
A high pressure pump, such as a gear pump or small piston pump, is connected by means of a clutch to be driven by the engine; a collapsible water bag, of thermoplastic material and capable of holding in the order of 8 to 10 gallons of water, is located in the car, for example in the trunk space; a thin flexible tubing is spooled on a reel, located in the car (for example under the hood), and hydraulic interconnections are provided to take water from the water bag through the pump and to the tubing, so that a self-contained car washing system is provided capable of applying a water stream under pressure. When not in use, the plastic water bag is collapsed, and can fold flat against the inner wall of the trunk.

3,599,870
LIQUID MANURE RETAINER
 Warren H. Brackbill, Paradise, and Ernest E. Buck, New Holland, both of, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Oct. 3, 1969, Ser. No. 863,458
 Int. Cl. F23d 11/04

U.S. Cl. 239-220

8 Claims



A material-retaining device for a tank-type manure spreader for preventing fluid or semifluid material from slopping over the edges of the tank during transport.

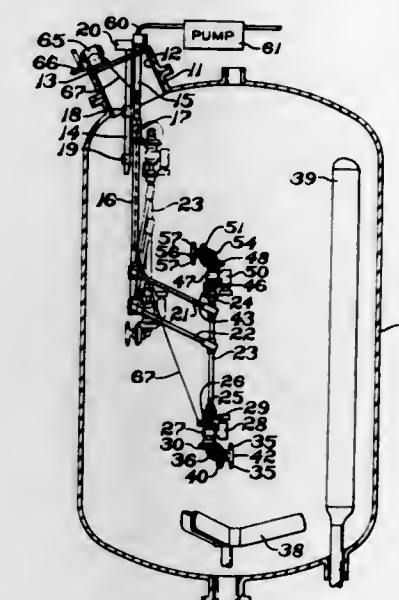
3,599,871
JET SPRAY TANK CLEANER
 Donald B. Ruppel, Cuyahoga Falls; Norman E. Reinhart, Cuyahoga Falls, Ohio, and Lee F. Stalker, Louisville, Ky., assignors to The B. F. Goodrich Company, New York, N.Y.
 Filed July 8, 1969, Ser. No. 839,896
 Int. Cl. B05b 3/10

U.S. Cl. 239-227

9 Claims

A portable high-pressure jet spray cleaning apparatus with collapsible features for use in cleaning the agitator blades

and the interior surfaces of tanks and vessels utilizing a plurality of rotatable high-pressure spray nozzles which rotate in compressively to prevent and avoid any subsequent area changes in the exhaust nozzle.



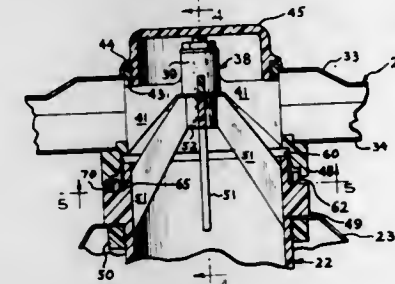
a changing geometrical pattern for directing a high-pressure stream of fluid against the interior wall surfaces of tanks and vessels.

3,599,872
SEALING MEANS IN A ROTATING SPRAY DEVICE
 Lauren W. Guth, Louisville, Ky., assignor to General Electric Company

Filed Aug. 14, 1969, Ser. No. 850,069
 Int. Cl. F16j 15/34, 15/54

U.S. Cl. 239-261

10 Claims



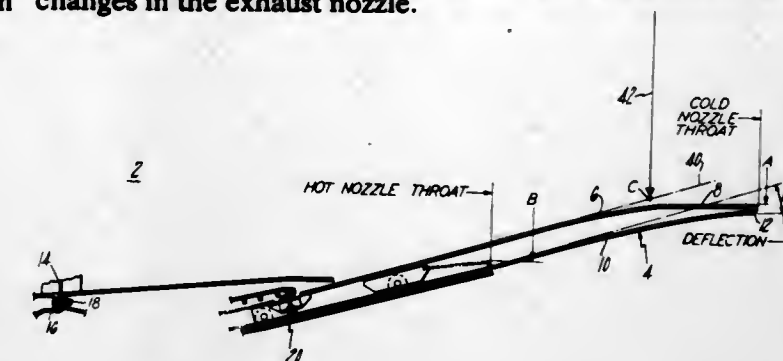
A ribbonlike flexible strip or tape formed from a highly durable abrasion-resistant material having a low surface friction characteristic, such as is obtainable from nylon or fluorocarbon resin, is used to obtain a seal between a stationary tubular pedestal and a spray arm mounted for rotation thereon. The seal obtained therewith serves the purpose of substantially eliminating leakage of pressurized liquid passing through the hollow pedestal and into the body of the spray arm, and may, in one embodiment of the invention, be also utilized as a bearing in the assembly. The tape is supported by annular retaining portions extended from the tubular pedestal and the spray arm hub, and the ends of the tape loosely overlap each other. The tape is adapted to be radially outwardly enlarged against the annular retaining portions in response to liquid pressure whereby a sealing effect is obtained.

3,599,873
VARIABLE AREA EXHAUST NOZZLE CONSTRUCTION
 Norman A. Williams, Stafford Springs, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
 Filed Sept. 15, 1969, Ser. No. 857,976
 Int. Cl. B64c 9/38

U.S. Cl. 239-265.39

2 Claims

A variable area exhaust nozzle for a gas turbine engine, in particular, an iris-type flap nozzle for use with a gas turbine engine, wherein the flap tips of the iris nozzle are preloaded

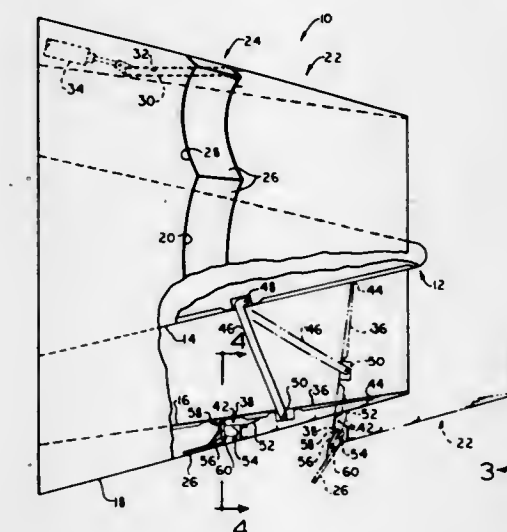


This application is reported as a Subject Invention under Government contract F-33657-67-C-1402.

3,599,874
THRUST-REVERSING APPARATUS
 Felix Hom, La Mesa, and Earl B. Potter, El Cajon, both of, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
 Filed Mar. 23, 1970, Ser. No. 21,881
 Int. Cl. B64c 15/04

U.S. Cl. 239-265.29

8 Claims



Apparatus comprises elongate shell coaxial with engine, extending rearwardly and open at aft end, to surround and control jet stream. Aft portion of shell is a sleeve slidably mounted to main body of shell for fore and aft translation. In forward position it is a streamline continuation of the shell. In aft position it opens a peripheral outflow gap between rear edge of main body and forward edge of sleeve. Blocker doors around inside of sleeve are pivoted at their leading edges to leading edge of sleeve. Drag links pivotally connected to center body and doors cause them to swing in toward axis of shell on rearward movement of sleeve to block rearward flow of jet stream and force it through outflow gap for reverse thrust. Deflector doors pivotally mounted at the forward end of the sleeve are linked to blocker doors to swing to forwardly divergent attitude when sleeve is moved to rearward position to increase the forward vector of the jet stream issuing through the outflow gap. The shell may be a shroud surrounding the engine or it may be the primary jet nozzle.

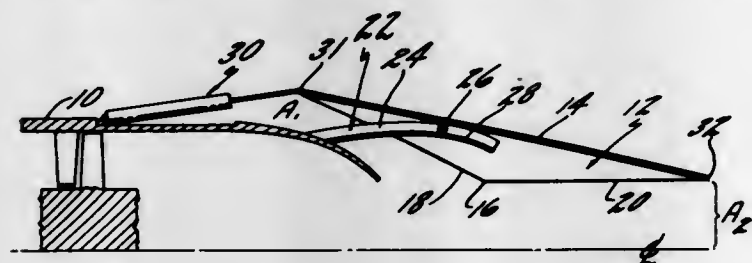
3,599,875
TRANSLATING AIR SCOOP EJECTOR NOZZLE
 Thomas A. Wynosky, Hazardville, and Walter L. Blackmore, Wethersfield, both of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
 Filed Feb. 10, 1969, Ser. No. 797,807
 Int. Cl. B64c 15/06

U.S. Cl. 239-265.41

10 Claims

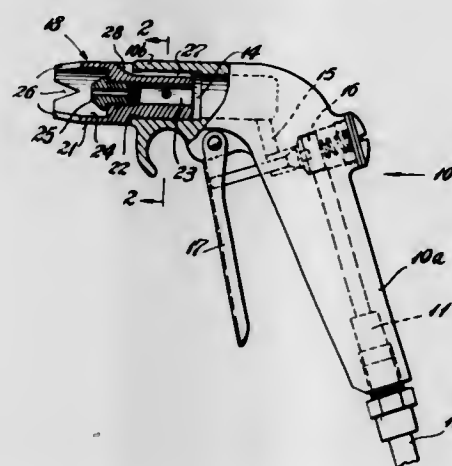
An exhaust nozzle of the ejector type which operates over the entire flight regime of a gas turbine powered aircraft to

provide optimum performance at each and every point over the flight regime. The exhaust nozzle construction is also



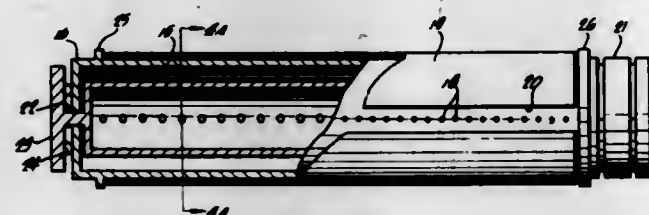
capable of function as a thrust reverser while providing improved noise suppression characteristics.

3,599,876
SAFETY AIR GUN
Henry E. Kyburg, 526 Beach Road, Fairfield, Conn.
Filed June 17, 1969, Ser. No. 834,128
Int. Cl. B05b 1/28
U.S. Cl. 239-291



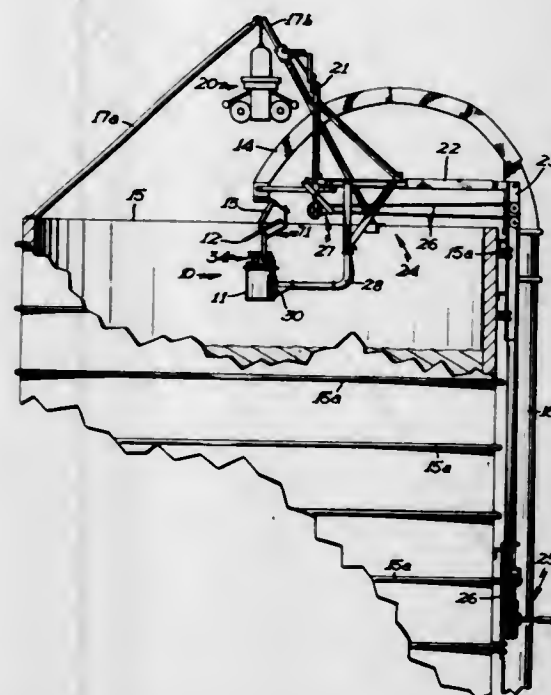
A safety air gun having a nozzle unit which protects the nozzle tip against direct contact, has pressure-reducing vents in its end surface to produce a safe pressure thereat and provides a protective air curtain or screen extending therefrom to protect against flyback.

3,599,877
NOZZLE ARRANGEMENT FOR FORMING FLUID WAVE
Sander Goldschmidt, Anaheim, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Division of Ser. No. 595,137, Nov. 17, 1966, Pat. No. 3,500,536.
Filed July 2, 1969, Ser. No. 870,822
Int. Cl. B05b 1/20
U.S. Cl. 239-562



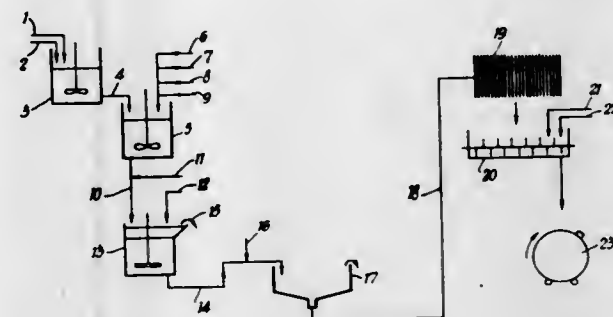
A nozzle arrangement comprising concentric inner and outer cylinders and a jacket fitting tightly around the outer cylinder. The inner and outer cylinders have longitudinal fluid exits and are relatively rotatable. A knob located outside the outer cylinder is connected by a shaft to the inner cylinder to permit it to be rotatably adjusted relative to the outer cylinder. The jacket has an elongated slot that serves to regulate the flow through the exit of the outer cylinder.

3,599,878
DISTRIBUTOR APPARATUS
Floyd E. Buschbaum, Long Lake, and Glen D. Hansen, Maple Plain, both of, Minn., assignors to Van Dale Corporation, Long Lake, Minn.
Filed June 10, 1969, Ser. No. 831,862
Int. Cl. A01c 17/00
U.S. Cl. 239-665



A distributor apparatus for distributing particulate material such as ensilage in a storage container such as a silo. The distributor is movable toward and away from the center of the silo on a fixed track. The distributor includes a distributor disc which is inclined with respect to the horizontal and rotates about an axis forming an acute angle with the vertical while simultaneously orbiting in a generally circular path in a horizontal plane about the fixed motor which drives the distributor disc. A nonrotating baffle or guide member orbits with the disc and is disposed so as to receive material from a gooseneck substantially at the center of the silo and to direct it onto the distributor disc. This guide means forms an acute angle with both the vertical and with the distributor disc.

3,599,879
GRINDING TREATMENT OF CLAY
Norman Owen Clark, Cornwall, England, assignor to English Clays Lovering Pochin & Company Limited, Cornwall, England
Continuation-in-part of application Ser. No. 732,386, May 27, 1968, now abandoned. This application Feb. 17, 1970, Ser. No. 12,139
Int. Cl. B02c 17/04, 21/00, 23/06
U.S. Cl. 241-4



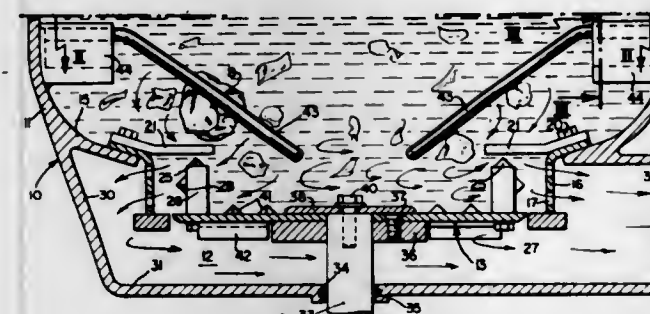
A forth flotation process for the removal of mineral impurities from a crude clay wherein the flotation reagents are removed from the purified clay particles by agitation of a slurry of the clay with a particulate grinding material consisting of particles of a size in the range from one-half inch to 100 mesh B. S. sieve. The weight ratio of particulate grinding

material to clay is in the range 2:1 to 5:1, and the agitation is continued for a time sufficient to dissipate in the slurry at least 100 horsepower hours of energy per long ton of clay.

3,599,880
LEAD-CHROMATE-BASED PIGMENT
Alexander M. Janowski, Colonia, N.J., assignor to E. I. du Pont, de Nemours and Company, Wilmington, Del.
Filed Mar. 24, 1969, Ser. No. 809,959
Int. Cl. B02c 13/24, 13/00; C09c 1/20
U.S. Cl. 241-19

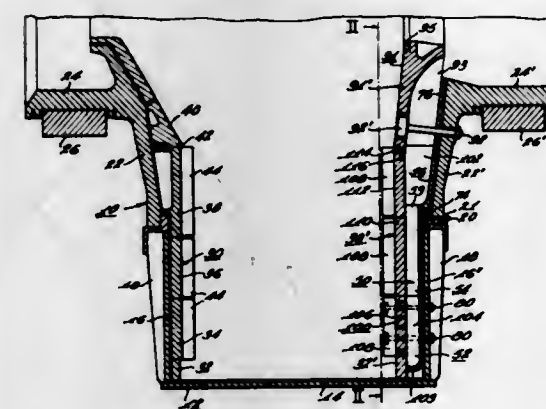
Method of preparing improved lead-chromate-based pigments, for particular application in printing inks and paints, in which lead chromate is first impact ground to pulverize it, the oversize particles are selectively removed from the product and recirculated, and the pulverized output is further subjected to disintegration and discharged through a classification means to result in improved pigment.

3,599,881
PULPING APPARATUS WITH SOLIDS DEFLECTOR
Sam N. Craig, Devon; Ellis R. Warner, Jr., West Chester, and Wayne T. Buckman, Pipersville, all of, Pa., assignors to Wascon Systems, Incorporated, Hatboro, Pa.
Filed Sept. 30, 1968, Ser. No. 763,620
Int. Cl. B02c 18/12
U.S. Cl. 241-46.06



A pulping apparatus is provided, comprising a tank having a rotatable impeller therein, the impeller carrying vanes for providing a desired pulsing action across a screen or sizing ring at the bottom of the tank, the tank also having cutting means disposed therein, components of which are carried respectively on fixed portions of the tank and on the rotatable impeller, and wherein structure is provided for deflecting large solid particles toward the cutting means.

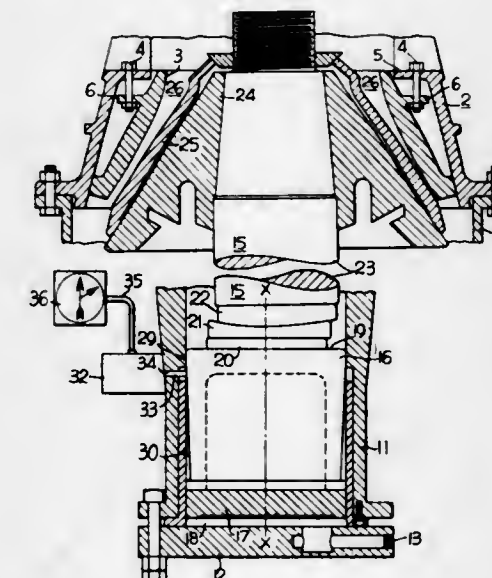
3,599,882
DISCHARGE DIAPHRAGM ASSEMBLY FOR GRINDING MILL OR THE LIKE
Richard E. Sabaski, Hales Corners, and Roger A. Heins, Milwaukee, both of, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Jan. 8, 1970, Ser. No. 1,442
Int. Cl. B02c 17/18
U.S. Cl. 241-70



A discharge diaphragm assembly for a rotary grinding mill or the like comprising a discharge casting subassembly

adapted to be mounted inside the discharge end of a rotary grinding mill or the like, the discharge casting subassembly including a plurality of radially superposed circumferentially extending tiers of discharge castings. A wedge means is positioned between contiguous castings in a given tier to hold said castings in assembled relation within the respective tier. The discharge diaphragm assembly also includes a grate and wear plate subassembly which is axially spaced from the main body portions of the castings of the discharge casting subassembly to define a discharge passage for the material being processed in the grinding mill or the like. The grate and wear plate subassembly is tightened axially against the flange portions of the discharge casting subassembly to provide a supplemental force which aids in retaining the discharge casting subassembly properly positioned.

3,599,883
GYRATORY CRUSHER WITH SETTING INDICATOR
Robert J. Pollak, Milwaukee, Wis., assignor to Allis-Chalmers, Milwaukee, Wis.
Filed Nov. 19, 1969, Ser. No. 877,966
Int. Cl. B02c 2/06
U.S. Cl. 241-213

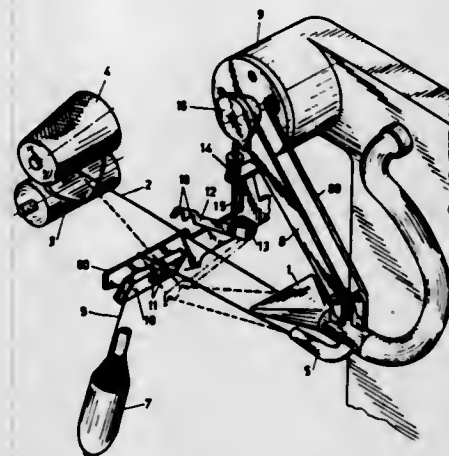
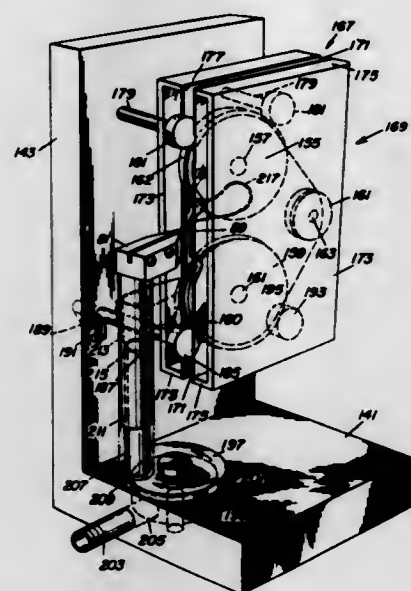


A gyratory crusher is disclosed having a vertical post assembly with a crushing head mounted on top, and the post assembly is slidably supported in a lower frame. An overhanging concave ring is supported in a fixed position around the crushing head by an upper frame. The post assembly includes a hydraulically operated piston for raising and lowering the crushing head relative to the concave ring and the lower frame includes a cylinder supporting the piston. The piston has a downwardly pointed taper defining a cam surface. A linear variable differential transformer is connected to the cylinder and has a movable core which is slidably biased to horizontally project through the cylinder and engage the cam surface of the piston to move inwardly upon upward movement of the piston and be pushed outwardly by the cam surface upon downward movement of the piston. The movement of the core provides an electrical output signal that indicates the position of the crushing head carried by the piston, relative to the concave ring.

3,599,884
COIL WINDER
John E. Tillman, Albuquerque, N. Mex., assignor to Leesona Corporation, Warwick, R.I.
Filed Dec. 31, 1968, Ser. No. 788,134
Int. Cl. H01f 41/08; B65h 81/02
U.S. Cl. 242-4

Apparatus for winding a strand about a core. A pair of spaced rotatable elements are provided on which sufficient strand is wound to completely wind the core. Mechanism is provided for driving the rotatable elements to deliver the strand to be wound on a suitably supported core. Means is

provided for sequentially and automatically picking off the wraps of strand wound off the rotatable elements, each into the yarn defect correcting mechanism. According to an important aspect of the invention mechanism is provided for



determining that the broken yarn ends are capable of being properly fed to the yarn defect correcting mechanism.

3,599,887

HOLDER FOR FLEXIBLE CONDUCTORS FOR DENTIST'S TOOLS

Emilio Marverna, Monticello Brianza, Como, Italy
Filed Aug. 6, 1969, Ser. No. 847,993

Claims priority, application Italy, Aug. 28, 1968, 20495
Int. Cl. B65h 51/20

U.S. Cl. 242-47.5

9 Claims

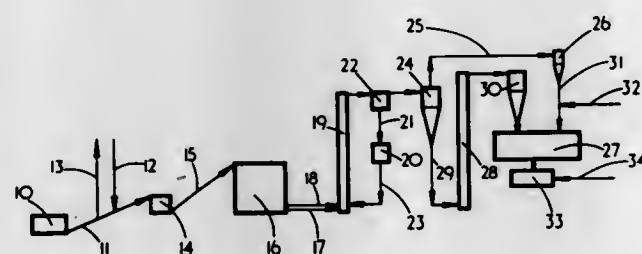
3,599,885
PROCESS FOR THE TREATMENT OF COAL TO RENDER IT SUITABLE FOR USE IN COKE OVEN
Lewis Alderman, Romiley, Stockport, England, assignor to Simon-Carves Limited, Cheshire, England
Filed Oct. 30, 1968, Ser. No. 771,934

Claims priority, application Great Britain, Oct. 31, 1969, 49383/67

Int. Cl. B02c 21/00

U.S. Cl. 241-17

4 Claims



The treatment of coal which is of a size, or which is crushed to a size not greater than 1 inch by drying and heating the coal and separating the relatively fine coal dust therefrom before delivering the coal and the coal dust mixed with oil to a surge bin.

3,599,886

AUTOMATIC WINDER

Emil Koller, Wädenswil, Switzerland, assignor to Maschinenfabrik Schwegler AG., Horgen, Switzerland
Filed July 9, 1969, Ser. No. 840,383

Claims priority, application Switzerland, July 18, 1968, 10741/68

Int. Cl. B65h 54/22

U.S. Cl. 242-35.5 R

13 Claims

A winding machine for yarn or thread is disclosed which senses a break in the yarn, juxtaposes the broken ends of the yarn and insures that the broken ends are properly presented to a suitable yarn defect correcting mechanism. A reciprocating suction head means draws the broken ends of the yarn

A device is disclosed comprising a swinging arm presenting at its fix and movable end two pulleys onto which winds, with greater or smaller amplitude, a flexible conductor connecting the considered tool to the energy source and thus varying the distance of said tool from the energy source.

3,599,888

METHOD OF AND MEANS FOR SEVERING WEB STRIP MATERIAL UPON COMPLETION OF WINDING A ROLL AND INITIATING WINDING OF A NEW ROLL

Edward A. Condriet; Roy G. Dodd, and George W. Keeler, all of Richmond, Va., assignors to Inta-Roto, Incorporated, Richmond, Va.

Continuation-in-part of application Ser. No. 768,252, Oct. 17, 1968, now abandoned. This application Sept. 8, 1969, Ser. No. 871,516

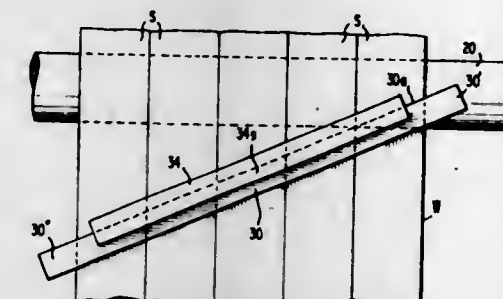
Int. Cl. B65h 19/26, 19/28

U.S. Cl. 242-64

22 Claims

A strip of adhesive tape is applied across the full width of elongated web material at an angle to the transverse thereof, and the leading end of said tape is adhered to a new winding mandrel. As the web is moved past the mandrel, it is torn along the leading edge of the tape to finish a wound roll, and

the tape-adhered-severed edge is wound on the new mandrel to initiate a new roll. A second tape may be applied to the web in overlapping relation to the leading edge of the first-mentioned tape so that an adhesive portion of said second



tape is exposed as the web is severed and serves to secure the trailing end of the severed web on the completed wound roll. For very wide web material, tapes may be applied to the mandrel at both sides of the web and meet at an apex at the center of the web.

3,599,889

ELECTRONIC RIDER ROLL CONTROL SYSTEM

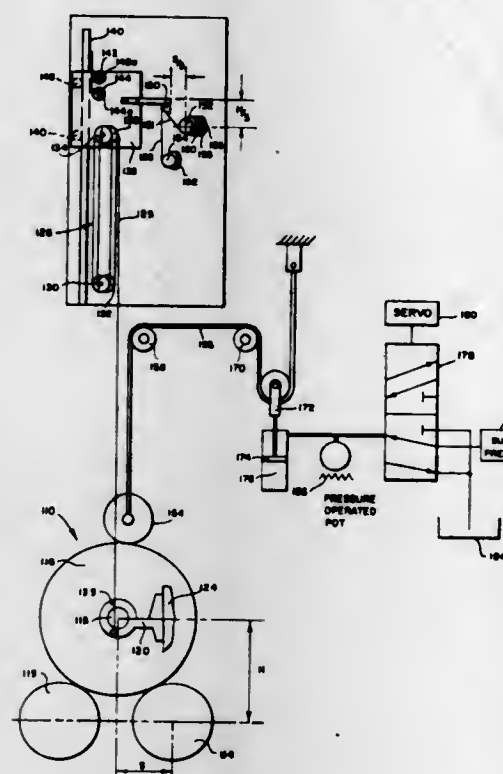
John David Pfaffler, Downingtown, Pa., assignor to Beloit Corporation, Beloit, Wis.

Filed Dec. 16, 1969, Ser. No. 885,504

Int. Cl. B65h 17/08

U.S. Cl. 242-66

26 Claims



An electronic rider roll control system for controlling the nip forces between a paper-winding roll and the winder drums solves for the actual nip by electrical analog as a function of winding roll diameter, the geometry of the winding roll and winder drums, the density, of the paper, the width of the roll being wound, and the relieving pressure applied by the rider roll counterbalancing system. The actual nip is compared with the desired nip as determined by a nip set point controller and is controlled accordingly. The starting nip and nip slope may also be simply controlled.

3,599,890

METHOD OF AND APPARATUS FOR SELECTIVELY SORTING EMPTY AND PARTLY WOUND REELS

James Atherton, Wrexham, Wales, and David Sydney Goodfellow, Shrewsbury, England, assignors to British Insulated Callender's Cables Limited, London, England

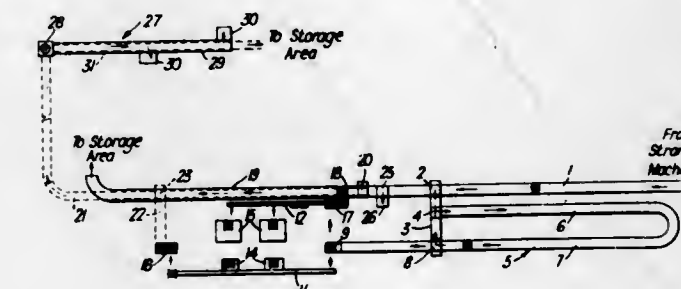
Filed Aug. 5, 1969, Ser. No. 847,614

Claims priority, application Great Britain, Aug. 7, 1968, 37710/68

Int. Cl. B21c 47/24; B65h 54/00

U.S. Cl. 242-79

11 Claims



Reels that have been unloaded from utilization stations, some of which reels are partly wound with wires of different kinds and some of which reels are empty, are selectively sorted by causing the reels to travel from the utilization stations in succession along a common return path to plant at which empty reels are rewound with wire. In turn each partly wound reel is diverted from the common return path and is circulated around and stored temporarily in an endless storage path. Two reels partly wound with wire of the same kind are removed from the storage path and the exposed end of the wire on one of the two reels is welded to the exposed end of the wire on the other reel. The wire from the second reel is then wound on the first reel. The second reel when empty travels along a path to the rewinding plant. As necessary further reels partly wound with wire of the same kind as that of the first two reels are removed from the storage path and the latter two steps repeated until the first reel is fully wound with wire. The fully wound reel travels along a path to a storage area.

3,599,891

COILER

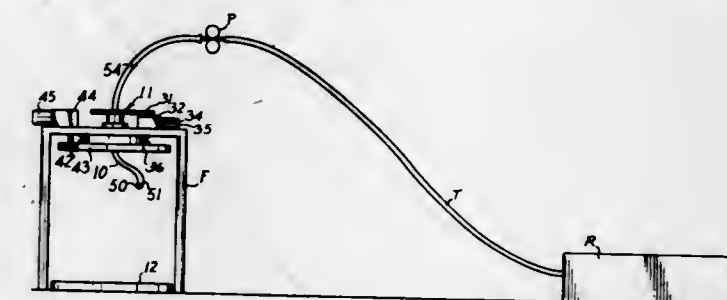
Kenneth Ray Stone, Newnan, Ga., assignor to Southwire Company, Carrollton, Ga.

Filed Nov. 6, 1968, Ser. No. 773,792

Int. Cl. B21c 47/02; B21f 3/08

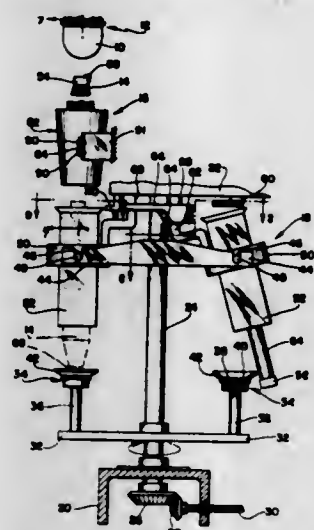
U.S. Cl. 242-82

12 Claims



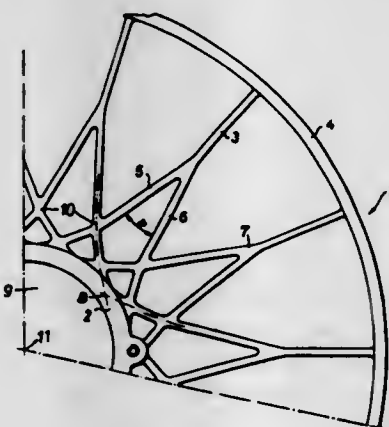
A coiler for coiling a metal rod or the like and that includes a flyer tube and a motion control means which includes a first driving means for rotating the flyer tube about an axis of rotation along which the metal rod to be coiled is fed into the flyer tube and about which the discharge end of the flyer tube moves in a circle and a second driving means for moving the axis of rotation of the flyer tube in a conical plane of motion about a substantially vertical line of reference which becomes the centerline of the coil of metal rod formed by the coiler.

3,599,892
BOBBIN SEATING AND REMOVING APPARATUS AND METHOD
 Charles W. Bruewer, East Greenwich; Larry C. Cowan, Jamestown, and Robert Horton, Warwick, all of, R.I., assignors to Lonsam Corporation, Warwick, R.I.
 Filed June 30, 1969, Ser. No. 837,429
 Int. Cl. B65h 49/02; D03j 5/08
 U.S. Cl. 242-130



Apparatus for delivering filled bobbins to an indexing creel of a winding machine and removing empty bobbins from the creel. A bobbin is dropped through a device which slows the descent of the bobbin while effectively preventing any substantial scuffing of the yarn on the bobbin. The bobbin drops vertically into a creel tube and onto a magnetic seat. An iron or steel ring on the end of the bobbin core magnetically couples the bobbin and the seat. The creel tube is pivotally mounted to swing outwardly for ejecting an empty bobbin during subsequent indexing of the creel. However during receipt of the bobbin the tube is prevented from such pivotal movement to prevent improper seating or ejection of the bobbin. When the creel indexes to eject an empty bobbin the top end of the bobbin core is displaced laterally so that the iron ring is tilted on the magnetic seat for at least partially breaking the magnetic coupling, and then the creel tube is swung outwardly to slide the ring across the magnetic seat and eject the bobbin from the creel.

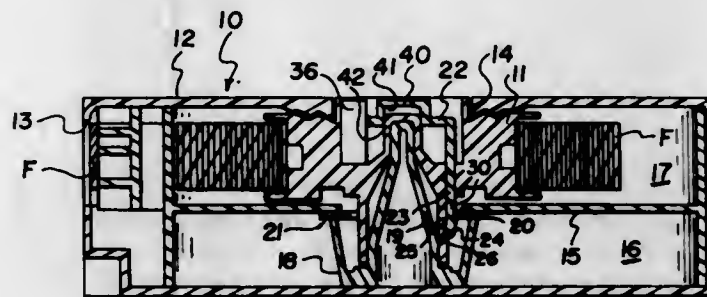
3,599,893
WARP BEAM FLANGE
 Martin Landolf, Lucerne; Rudolf Roth, Reinach; Paul Beuchi, Gontenschwil, and Peter Weber, Menziken, all of, Switzerland, assignors to Aluminium AG Menziken, Menziken, Switzerland
 Filed Aug. 29, 1969, Ser. No. 854,116
 Claims priority, application Switzerland, Sept. 2, 1968, 13167/68
 Int. Cl. B65h 75/14
 U.S. Cl. 242-118.7



A novel warp beam flange is disclosed which is suitable for a substantially greater axial stressing when a warp beam is

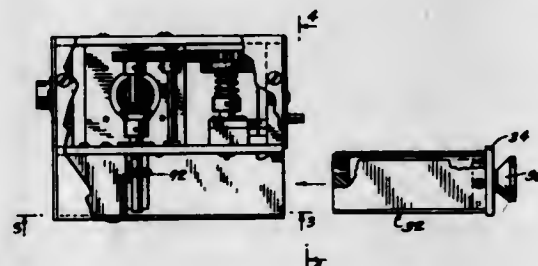
filled with yarn. This is possible by ribs extending radially in the outer region and tangentially in the vicinity of the hub and the ribs form branches.

3,599,894
ANTIBACKUP MECHANISM IN A FILM CARTRIDGE, AND MEANS IN A CAMERA FOR DISABLING THE MECHANISM
 Evan A. Edwards, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed July 1, 1969, Ser. No. 838,275
 Int. Cl. G03b 1/04
 U.S. Cl. 242-194



An antibackup mechanism for preventing reverse rotation of the takeup spool in a movie film cartridge, and means for disabling the antibackup mechanism in a camera adapted for driving the film in reverse for photographing "fade, lap and dissolve" sequences. In a preferred embodiment the mechanism is a ratchet coupling between the spool and the cartridge housing, comprising a first member mounted in the cartridge for movement transverse to the axis of rotation of the spool, and a second member slidably mounted on the spool for rotation therewith and for axial movement between a first position in which the members cooperate to prevent rotation of the spool in one direction and permit rotation of the spool in the opposite direction for winding up film, and a second position in which the members are disabled. The second member slidably mounted on the spool has a cup-shaped portion defining a cylindrical bore that slidably fits over a cylindrical projection on the spool to assure correct alignment of the slide member with respect to the spool, particularly when the slide member is being moved axially. The antibackup mechanism includes means for biasing the slide member toward the first position, and the camera according to the preferred embodiment of the invention is provided with a projecting member that engages the cup-shaped portion of the slide member to depress it against the bias to its disabled position.

3,599,895
TAPE CARTRIDGE LATCHING MECHANISM
 Gustav Janecka, Jackson Heights, N.Y., assignor to Neptune Meter Company, New York, N.Y.
 Filed Feb. 10, 1969, Ser. No. 798,037
 Int. Cl. G11b 23/10
 U.S. Cl. 242-198

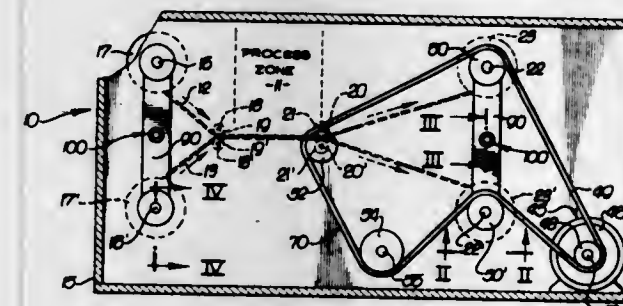


A tape recorder, particularly for purposes of recording data, comprising a tape cartridge which is adapted to fit, in the manner of a drawer, into a compartment in a recorder housing. The recorder housing contains the required elements for magnetically recording the data. The tape cartridge

is latched into operating position within the compartment by a latching mechanism which includes the provision of spring loading for the brake and drive shafts of the recorder so that they may be readily retracted upon insertion and removal of the tape cartridge. The shafts are placed into driving relationship with the tape reels upon full insertion of the cartridge into its compartment.

Also provided is a spring mechanism contained within the cartridge casing which is operative to perform a number of functions. The spring mechanism is effective to operate a brake against the tape reels when the cartridge is out of its compartment, and to release the brake when the cartridge is inserted. The spring mechanism is also effective to bias a pressure roller such that it holds the recording tape against the capstan in the recorder housing. The spring mechanism also acts when the latching mechanism is released to force the pressure roller against the capstan, thereby to kick out the cartridge a short distance from its compartment.

3,599,896
DUPLICATION APPARATUS FOR CONTINUOUS STRIPS
 Sam Schwartz, Los Angeles, Calif., assignor to Extel Microsystems, Inc., Van Nuys, Calif.
 Filed Jan. 8, 1970, Ser. No. 1,356
 Int. Cl. B11b 15/32; G03b 1/04
 U.S. Cl. 242-208



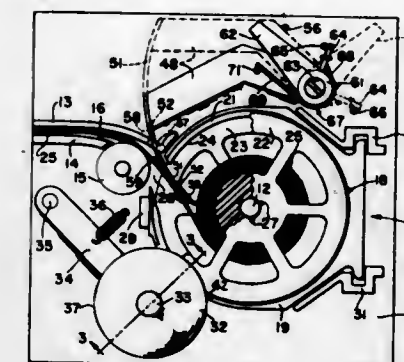
In the preferred embodiment, a supply balance bar equalizes clutch pad engagement pressure, between each of a pair of housing supported supply spools, initially mounting a master and a second continuous strip to be pulled therefrom, between a pair of housing carried entry rollers into surface engagement with each other and through a process zone in precise registry where a transfer of information occurs, by a driven pair of housing carried exit rollers, and then separated to be wound on respective housing supported takeup reels, driven by respective driven rotating sprockets, through clutch pads pressurized for slipping engagement by a takeup balance bar to insure proper tensioning of the strips. The balance bar also mounts indicating means engaged by the clutch pads to indicate the tension in the strips.

An alternative preferred embodiment includes a pair of supply reels from which the continuous strips are pulled, into engagement with each other by driven entry rollers to be pulled through the process zone by exit rollers driven by a faster rotating driven sprocket through slipping clutch pads, which tension the strips in the process zone in response to adjustment of a control spring, and after the exit rollers the strips are separated to be wound on respective driven takeup reels. The alternative preferred embodiment also includes overruning clutches for the exit rollers for straightening a bight in either strip in the process zone.

3,599,897
FILM-THREADING SYSTEM
 Elmer O. Wangerin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 Continuation of application Ser. No. 730,345, May 20, 1968, now abandoned. This application Dec. 22, 1969, Ser. No. 883,662
 Int. Cl. B11b 15/32; G03b 1/04
 U.S. Cl. 242-208

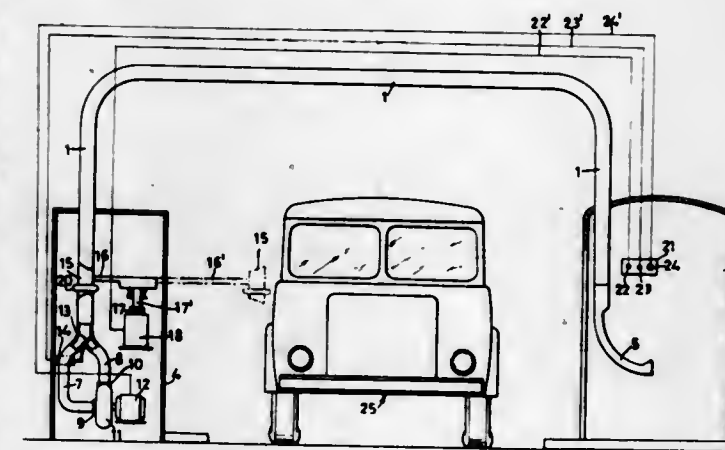
An auxiliary film-threading device is incorporated in an automatic film-threading system of the type in which the leading end of a film strip is caused to separate from the film roll

wound on a supply reel and to enter a guide channel by rotating the reel in an unwinding direction while successive portions of the reel are flexed toward each other into transverse squeezing engagement with the outer convolution of the film roll. In the event of failure of the automatic system to per-



form properly, a threading member of the auxiliary film-threading device is movable manually into peripheral contact with the rotating film roll to separate the leading end of the film from the reel and to direct it into the same guide channel.

3,599,898
DEVICE FOR DISTRIBUTING TICKETS AND COLLECTING TOLL AT HIGHWAY TOLLGATES AND THE LIKE
 Enrico Bontempelli, Viale Lazio 7, Milan, Italy
 Filed May 12, 1969, Ser. No. 823,649
 Claims priority, application Italy, May 28, 1968, 17036 A/68
 Int. Cl. B65g 51/32, 51/34
 U.S. Cl. 243-19

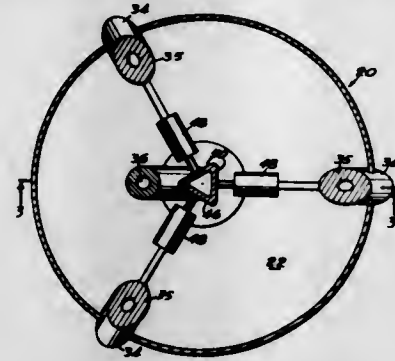


A device for distributing tickets and collecting tolls at highways and the like includes a pneumatic conveyor duct for transporting a container from the cabin of the ticket-collector to a position within reach of the driver, a portion of said duct being displaceable under the control of means actuated from the collector's cabin.

3,599,899
ROCKET CONTROL
 Edward E. McCullough, Brigham City, Utah, assignor to Thiokol Chemical Corporation, Bristol, Pa.
 Filed June 20, 1969, Ser. No. 839,783
 Int. Cl. F42b 15/18

A special upper stage for a plural-stage rocket includes apparatus for steering the entire rocket or any part thereof, and for igniting an extinguishable rocket motor as needed. It in-

cludes a gas generator from which gases may be proportionately metered to steering nozzles and/or to an ignition



duct by valves responsive to movements of a central cam body, such that pressure within the gas generator always remains constant.

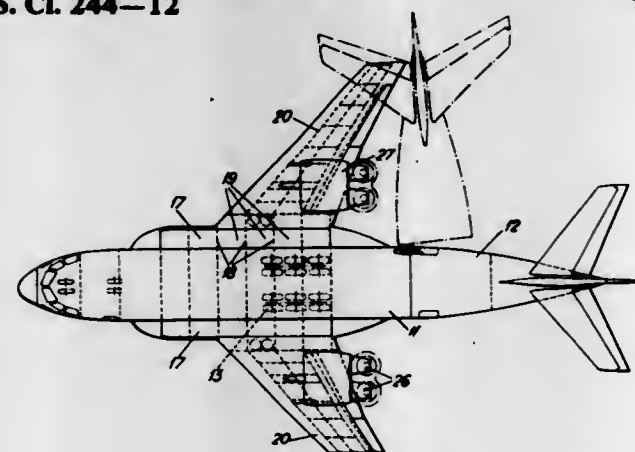
3,599,900 AIRCRAFT

Tadeusz Karol Szlenkier, Hatfield, England, assignor to Hawker Siddeley Aviation Limited, Surrey, England
Filed Mar. 12, 1969, Ser. No. 806,466
Claims priority, application Great Britain, Mar. 15, 1968, 12831/68

Int. Cl. B64c 29/00

U.S. Cl. 244-12

7 Claims



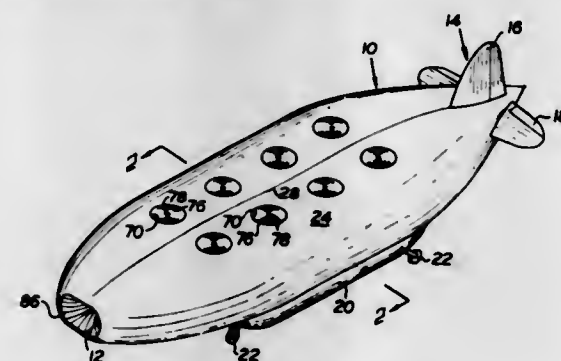
A civil aircraft with a short takeoff and landing capability derived from the provision of a multiplicity of direct jet lift engines mounted in sponson pods along each side of the fuselage. The wings are united to the fuselage through these sponson pods which each comprise a cellular structure of spars designed both for transmitting and lift loads and to accommodate the lift engines.

3,599,901

VEHICLE ADAPTED TO LAND AND AIR TRAVEL
Allan J. Reikin, 279 4th Ave., East Orange, N.J.
Filed Apr. 25, 1969, Ser. No. 819,384
Int. Cl. B64c 29/00

U.S. Cl. 244-12 B

21 Claims



A vehicle adapted for land and air travel comprising, a fuselage having a longitudinal duct therein, means within said

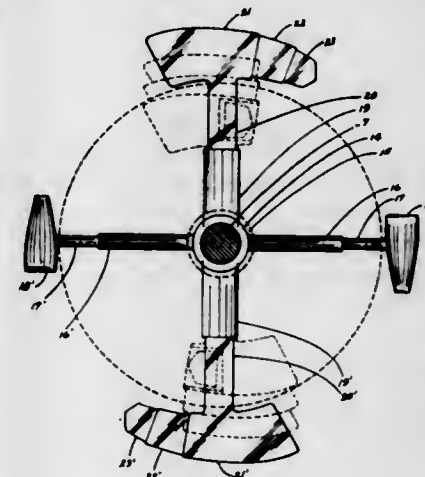
longitudinal duct for creating an airstream therethrough, a vertical duct extending about said first duct and fan means mounted within the vertical duct having actuating means located within said longitudinal duct and operable by said airstream therein for causing a flow of air from the upper surface of said fuselage through said vertical duct to be expelled from an exit in the lower surface of the fuselage.

3,599,902 AIRCRAFT

John W. Thomley, 3050 N. Brett Ave., Decatur, Ill.
Filed Aug. 13, 1969, Ser. No. 849,685
Int. Cl. B64c 29/00

U.S. Cl. 244-12

2 Claims



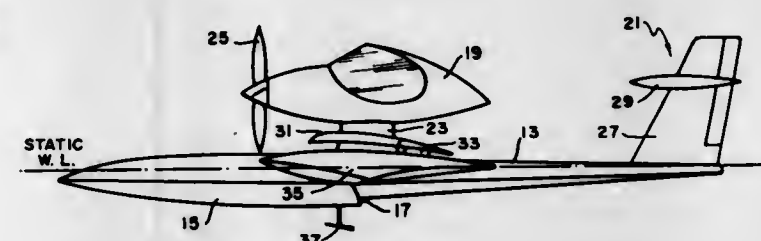
An aircraft having a fuselage of generally saucerlike character comprising upper and lower disc components separated by a transverse spacing; said upper component being contoured to provide an aerodynamic surface and merging into an upwardly projecting dome which comprises a portion of the pilot compartment. The maximum diameter of said upper component being substantially equivalent to three times the linear distance between the lower face of said spacing and the uppermost point of said dome. Depending from the lower fuselage section is a motor with a swivelly mounted afterburner for controlling the direction of horizontal flight. Provided within said spacing for rotation about an axis normal to the vertical axis of said aircraft are jet motors and airfoils for controlling vertical flight.

3,599,903

HIGH PERFORMANCE SEAPLANE OR AMPHIBIAN
Eugene H. Handler, 4217 Brookfield Drive, Kensington, Md.
Filed July 7, 1969, Ser. No. 839,466
Int. Cl. B64c 35/00

U.S. Cl. 244-13

4 Claims



A high performance, low drag, high density seaplane having low reserve buoyancy and a low wing with a central hull supporting passenger cockpit unit thereabove, said hull carrying a hydrofoil beneath for quick takeoff, the central hull also acting as a main fuselage supporting the tail assembly. The power plant may be located in the cockpit unit or in the tail unit.

3,599,904

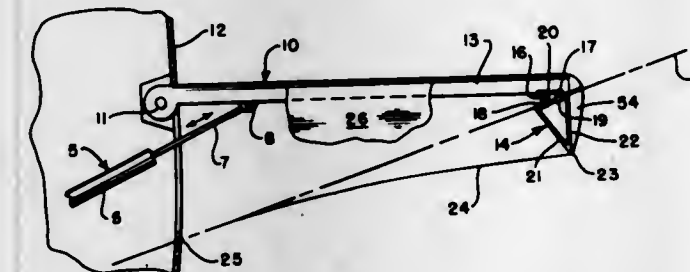
SEMI-RIGID AIRFOIL FOR AIRBORNE VEHICLES
Philip M. Condit, 7529 S.E. 40th St., Mercer Island, King County, Wash.; Robert A. Ormiston, 151 Calderon Ave., Mountain View, Calif.; Walter Barry Nixon, 30 Merritt Drive, Trenton, N.J., and Thomas E. Sweeney, 61 Overbrook Drive, Princeton, N.J.

Filed June 28, 1968, Ser. No. 740,895

Int. Cl. B64c 1/26, 3/52, 3/56

U.S. Cl. 244-38

15 Claims



The present invention relates to a semi-rigid airfoil for use with airborne vehicles and capable of being folded and/or warped. The airfoil includes a rigid spar defining a leading edge and a cable defining the trailing edge with the root end thereof secured to the fuselage of the vehicle and the other end to a tip truss structure, with a flexible material forming top and bottom airfoil surfaces. Means are also provided for twisting portions of the airfoil about an axis extending through the root end, and means for pivoting the spar to fold against the fuselage.

3,599,905

SERVOCONTROLLED LAUNCHED OR RECOVERY SYSTEM FOR AIRCRAFT

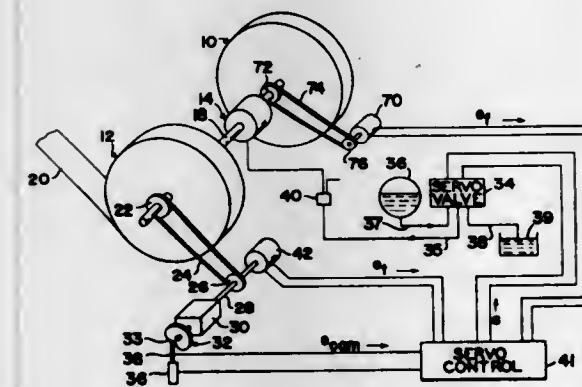
John Sherman Strance, Davenport, Iowa, assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Continuation-in-part of application Ser. No. 652,518, July 11, 1967, now abandoned. This application June 19, 1969, Ser. No. 840,118

Int. Cl. B64f 1/04

U.S. Cl. 244-63

6 Claims



The disclosure relates to a system for servicing aircraft during launch or recovery operations in which a servocontrol is provided to compare the actual rate of launch or recovery with a predetermined optimum rate which is programmed in accordance with the energy requirements of the particular cycle and continuously adjusts the actual rate to minimize any error between the actual and programmed rates.

3,599,906

ADJUSTABLE ROTARY HYDRAULIC BRAKE

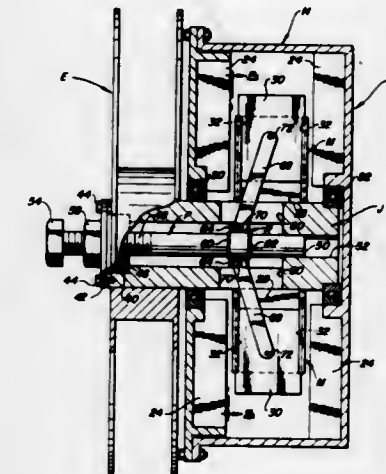
George Horst Reinemuth, Secane, Pa., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed July 29, 1969, Ser. No. 845,730

Int. Cl. B64f 1/02

U.S. Cl. 244-110

11 Claims



A rotary hydraulic brake includes a rotor having vanes. The vanes are adjustable radially outward to increase their effective length. An adjustment means is provided to position the rotor vanes at a desirable length and vary the retarding torque produced by the absorber. A programming device may be included for progressively increasing the effective length of the rotor vanes during rotation of the rotor.

3,599,907

RETRACTABLE IN-FLIGHT REFUELLING PROBE

Stephen Ransom, Annes-on-Sea, and William N. Bainbridge, Lytham, both of, England, assignors to British Aircraft Corporation Limited, London, England

Filed July 29, 1969, Ser. No. 845,825

Claims priority, application Great Britain, July 29, 1968, 36090/68

Int. Cl. B64d 39/00

U.S. Cl. 244-135

5 Claims



A fueling probe pivotally mounted on an aircraft has two telescoping fuel pipes. The probe is designed to pivot from a flushed position with the contours of the aircraft adjacent the pilot. One of the fuel pipes forms part of a hydraulic jack for telescoping the probe into position. The probe cover has rollers for permitting the relative movement of the fuel pipes. Means are provided for evacuating any leaking hydraulic oil to the atmosphere so that it does not mix with the fuel.

3,599,908

PARACHUTE APPARATUS

James Martin, Southlands Manor, Southlands Road, Denham, near Uxbridge, Middlesex, England

Filed Dec. 17, 1969, Ser. No. 885,712

Claims priority, application Great Britain, Jan. 2, 1969, 281/69

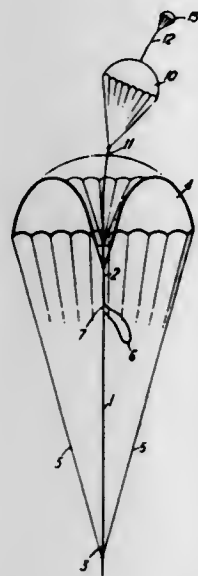
Int. Cl. B64d 17/36

U.S. Cl. 244-152

5 Claims

Parachute apparatus comprising a main parachute and a drogue parachute connected to the crown of the main

parachute, the main parachute having at least one antisquid line connected between the crown thereof and the shrouds or parts connected thereto, such line having a length sufficient to enable the parachute to squid under a drogue drag load, two spaced-apart portions of the line being interconnected by disconnectable means forming a loop in the line, the overall length of the antisquid line being insufficient to permit the parachute to squid, when the loop is present, the arrange-



ment being such that the parachute may be deployed without squidding when the drogue drag load on the crown thereof is below a predetermined value whereas, when said drogue drag load exceeds said predetermined value, the means interconnecting the spaced-apart line portions is disconnected by said drag load to separate the portions and to increase the overall length of the antisquid line by the length of the loop so as to permit squidding of the parachute.

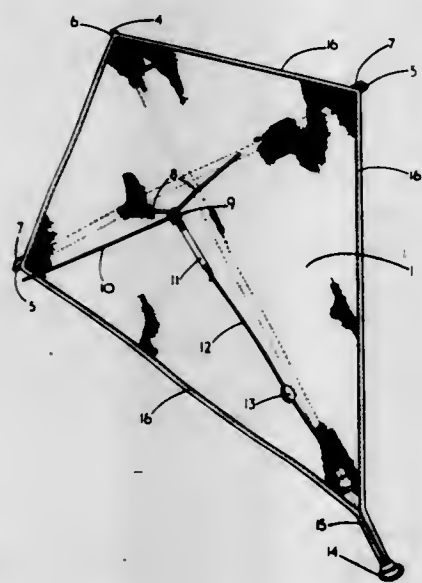
3,599,909 KITES

Walter Young, 5 Montague Street, Salford 7, Lancashire, England

Filed Dec. 9, 1968, Ser. No. 782,033
Int. Cl. B64c 31/06

U.S. Cl. 244-153

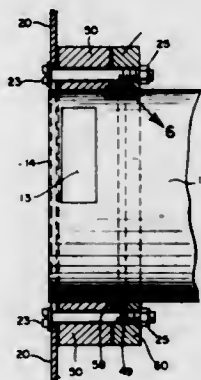
1 Claim



A kite which is provided with a ring for connection to control line, said ring being attached to the kite by a pair of transverse strings and a third string incorporating a spring attached to the kite toward the tail thereof.

**3,599,910
MOUNTING COLLAR FOR PANEL MOUNTED INSTRUMENT**
Frank P. Wipfl, Prescott, Ariz., assignor to Narco Scientific Industries, Inc., Ft. Washington, Pa.
Filed Feb. 10, 1969, Ser. No. 797,840
Int. Cl. G12b 9/10; F16l 15/04
U.S. Cl. 248-27

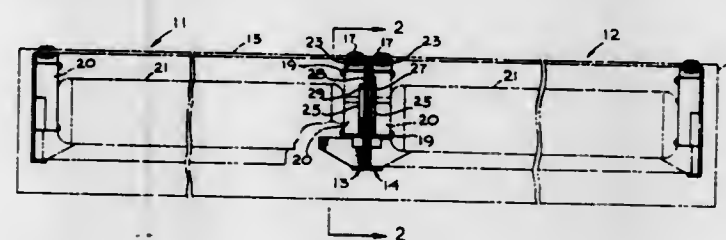
4 Claims



A mounting collar is disclosed for use with panel-mounted instruments. The mounting collar is mounted on the instrument behind the instrument panel. By tightening a few screws, the heads of which appear at the front of the panel, the mounting collar is caused to tightly embrace the instrument housing, holding it tightly in place. The instrument may be easily removed without access to the rear of the panel by merely loosening screws at the front of the panel, thereby to release the tight embrace of the mounting collar. The instrument may, of course, also be removed from the back of the panel, in the usual prior art manner.

**3,599,911
MEANS FOR END-TO-END ASSEMBLY OF ELONGATED FLUORESCENT LAMP CEILING FIXTURES**
Ernest Monte, Los Angeles, Calif., assignor to Sunbeam Lighting Co., Inc., Los Angeles, Calif.
Filed Nov. 6, 1969, Ser. No. 874,482
Int. Cl. F16l 3/00
U.S. Cl. 248-50

4 Claims



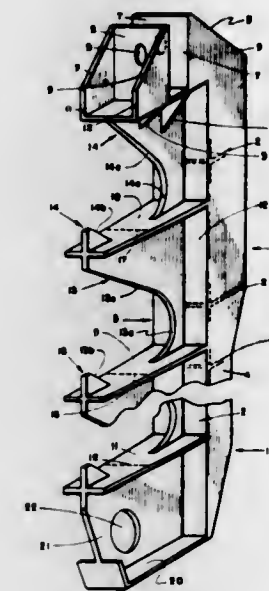
This invention covers latch means for interlocking and aligning of sectional elongated fluorescent lamp fixtures into an assembled long row of ceiling lights. Adjoining fixture sections are aligned and latched together by slight lateral movement of juxtaposed flush endplates which are provided with interengaging projecting loop members and recessed locking tabs.

**3,599,912
CENTER HUNG RADIANT TUBE SUPPORTS**
Roger C. Stephens, Hamburg, N.Y., assignor to Ferro Frontiers, Inc., Buffalo, N.Y.
Filed May 28, 1970, Ser. No. 41,469
Int. Cl. F16l 3/02
U.S. Cl. 248-58

3 Claims

A unitary cast bracket for supporting radiant heating tubes

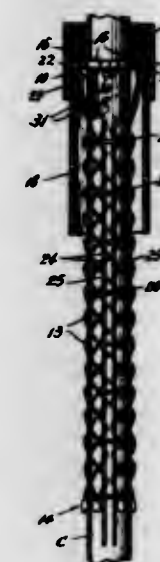
centrally within indirectly heated furnaces comprising a



channel and a plurality of flanges and webs arranged to support the tubes along a tangential seat.

**3,599,913
CABLE GRIP**
Joseph DiPalma, Merritt St., South Norwalk, Conn.
Filed Oct. 1, 1969, Ser. No. 862,895
Int. Cl. F16l 3/00
U.S. Cl. 248-60

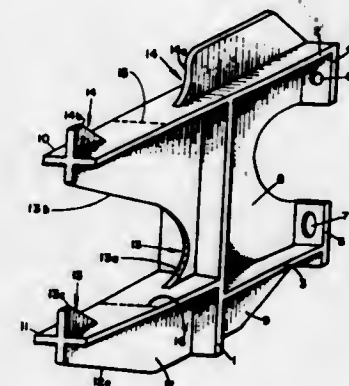
6 Claims



A contractable cable grip of the split or nonsplit type adapted to grip and support a cable in a conduit riser has an elongate body of diagonally interwoven wires depending from a load-supporting annulus adapted to fit in and engage the vertical conduit riser to support a cable therein, each wire having a strand extending up through a hole in said annulus and a strand extending down through an adjacent hole when a loop portion engages the upper surface of the annulus, the pair of strands immediately below the annulus being secured tightly together to prevent the strands from pushing back through the holes when pressure is applied to the annulus while the cable grip is forced over the cable into the conduit riser. The annulus of the split grip consists of two semicircular pieces detachably held together by an aligning pin on each piece extending into a hole in the other piece, the annulus having depending lugs to locate it centralized in the conduit.

**3,599,914
RADIANT TUBE SIDEWALL SUPPORTS**
Roger C. Stephens, Hamburg, N.Y., assignor to Ferro Frontiers, Inc., Buffalo, N.Y.
Filed May 28, 1970, Ser. No. 41,443
Int. Cl. F16l 3/02
U.S. Cl. 248-68

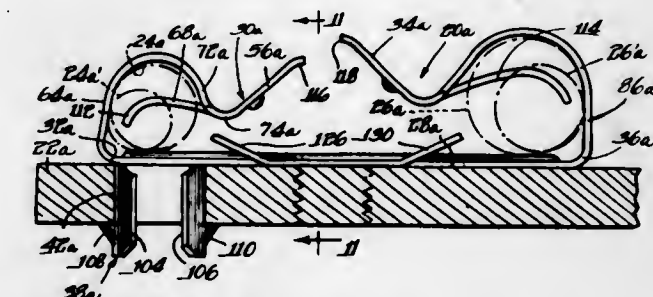
5 Claims



A unitary cast bracket for securing radiant heating tubes to the sidewalls of indirectly heated furnaces comprising a plurality of flanges and webs arranged to support the tubes along a tangential seat.

**3,599,915
PIPE CLIP**
Edmund J. Soltysik, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Dec. 10, 1969, Ser. No. 883,981
Int. Cl. F16l 3/08
U.S. Cl. 248-68

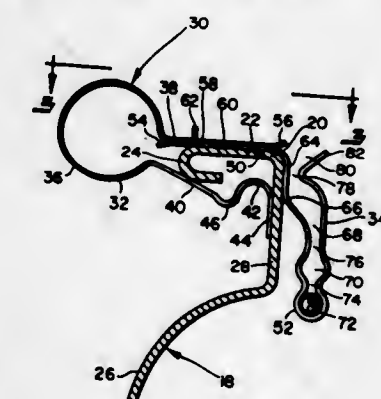
5 Claims



A sheet material clip for securing pipes, tubing and the like to a support and having a portion formed for extending around pipes of different diameters and provided with an element adapted to engage and to be deformed by pipes of different diameters for securely retaining such pipes.

**3,599,916
GUTTER CLIP FOR LIGHT STRINGS AND THE LIKE**
Ferdinand W. Szabo, 17253 McCracken Road, Maple Heights, Ohio
Filed July 24, 1969, Ser. No. 844,452
Int. Cl. F16l 3/08
U.S. Cl. 248-73

9 Claims



A removable clip adapted to be fastened to the front upper edge of a metal gutter, the gutter being of the type having an

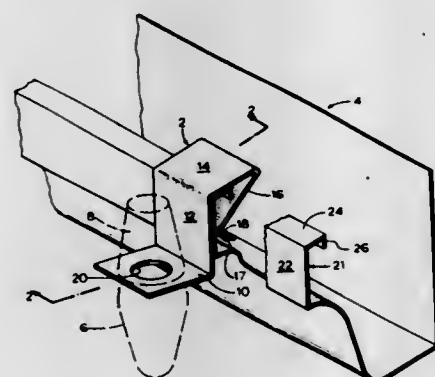
upstanding front side or lip which defines the gutter edge and an inwardly directed flange along the edge. The clip is particularly suitable for supporting light bulb strings or the like, and is in two pieces, both pieces being formed from strips of spring metal. One piece is in the form of a C-shaped clamp having upper and lower arms which embrace the gutter flange from the inside of the gutter, the second piece locking onto the clamp upper arm and having an overhanging portion on the outside of the gutter adapted to engage the light bulb string. The length of the clamp lower arm is such that it bears against the inside of the gutter lip pressing the overhanging portion against the outside or front of the lip.

3,599,917
HOSE NOZZLE SUPPORT STANDARD
Ben Schwartz, 901 Bennington Ave. N.E., Massillon, Ohio
Filed Dec. 23, 1969, Ser. No. 887,634
Int. Cl. B05b 17/00
U.S. Cl. 248-87



An upright standard whose lower end includes a structure for anchoring in the ground and whose upper end includes a support member mounted on the standard for angular adjustment relative thereto about an upstanding axis. The support member includes a mount portion from which the nozzle end of a water hose may be removably supported.

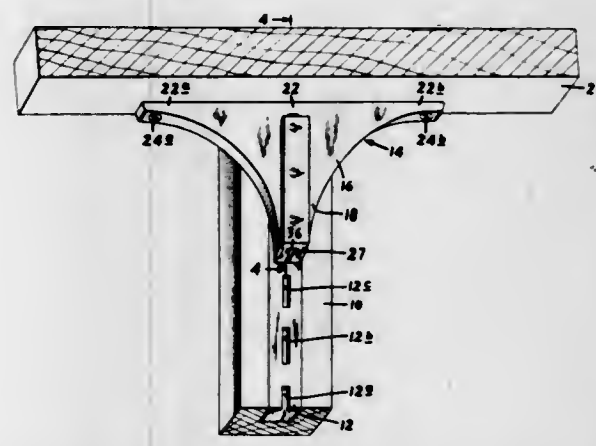
3,599,918
CLIP FOR DECORATIVE LIGHTS AND THE LIKE
Charles B. Patchett, 6 Kenewen Court, Toronto 16, Ontario, Canada
Filed Dec. 15, 1969, Ser. No. 885,230
Int. Cl. A47g 33/16
U.S. Cl. 248-215



A thin flexible plastic clip for attaching Christmas lights to eavestroughs, having a first slightly upwardly slanted section

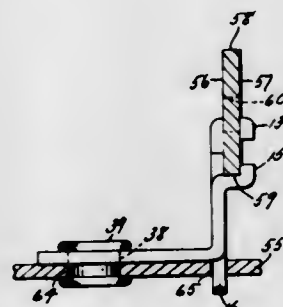
with a hole therein. A light bulb is inserted from one side of the hole into a bulb socket on the other side of the hole, and the two are secured together to clamp them to the first section. The clip also includes a second section extending upwardly from the rear edge of the first section; a third section extending rearwardly from the upper edge of the second section; a fourth section slanting downwardly and forwardly from the rear edge of the third section, and a short fifth section extending downwardly and rearwardly from the forward edge of the fourth section. The clip is placed on an eavestrough with the rim of the eavestrough gripped between the second and fourth sections.

3,599,919
SHELF BRACKET ASSEMBLY
Louis G. Bobrowski, Berlin, Conn., assignor to The Stanley Works, New Britain, Conn.
Filed Dec. 5, 1969, Ser. No. 882,443
Int. Cl. A47g 29/02
U.S. Cl. 248-243



A shelf bracket assembly separable into two parts, the shelf-supporting bracket and the hook plate assembly upon which the shelf bracket is mounted. The hook plate assembly is generally "I"-shaped and includes a main body portion having at least one transversely projecting lug and is adapted for engagement with an anchor means, the lug including a locking portion for engaging the anchor means. The shelf-supporting bracket is generally "T"-shaped and is arranged with an integral stem for engagement with the hook plate assembly, being retained thereby against tilting and downwardly directed vertical motion.

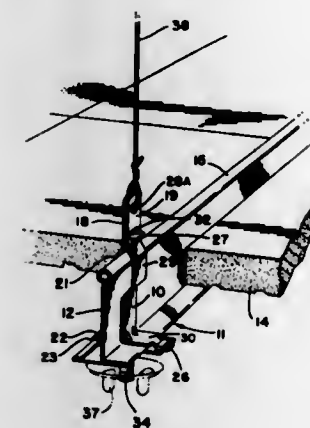
3,599,920
ELECTRIC TERMINAL BOARD MOUNTING STRUCTURE
Otto Hoegerl, Saegertown, Pa., assignor to National Tel-Tronics Corp., Yonkers, N.Y.
Filed Aug. 18, 1969, Ser. No. 850,825
Int. Cl. H05k 1/02, 7/08
U.S. Cl. 248-300



A clip-type mounting bracket structure for supporting a planar electric terminal board at an angle with respect to a

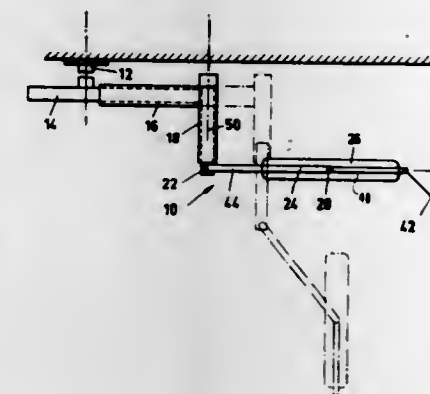
supporting chassis. The structure includes a first member having a plurality of bendable tabs adapted to penetrate corresponding openings in the terminal board, and a second member disposed at an angle with respect to the first member engageable with said chassis. In an alternate form of the embodiment, wire-lug-engaging means is formed integrally with the first member.

3,599,921
INDEPENDENT SUPPORT CLIPS
William J. Cumber, Chardon, Ohio, assignor to Erico Products Inc., Cleveland, Ohio
Filed Jan. 14, 1970, Ser. No. 2,725
Int. Cl. E04b 5/52
U.S. Cl. 248-317



This invention relates to a ceiling hanger or support clip for suspending fixtures and similar devices below a false or subceiling, independently of the latter, which includes a gridlike framework supporting ceiling panel members. The clip includes a pair of complementary cooperating members which when assembled encompasses the beam of the framework, one end thereof being attached to a supporting means extending from the ceiling and the other end receiving the fixture.

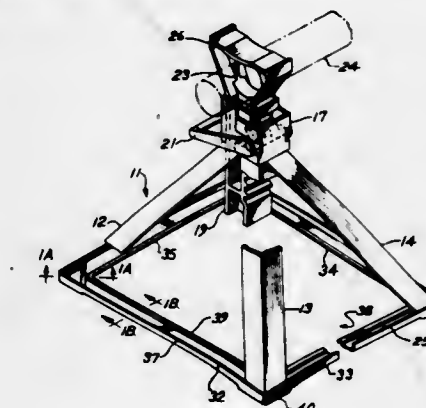
3,599,922
SUSPENSION FOR OPERATING ROOM OVERHEAD LIGHTS
Klaus Junginger, Niederrodenbach, Ober, Hanau, Germany, assignor to Original Hanau Guarlampen GmbH, Hanau, Germany
Filed July 29, 1969, Ser. No. 845,854
Claims priority, application Germany, Aug. 7, 1968, P 17 97 040.0
Int. Cl. F21v 33/00
U.S. Cl. 248-333



A horizontal, telescoping arm and a vertical, telescoping arm are interconnected, one of the arms being fixed to the ceiling and the other supporting an operating light fixture. A

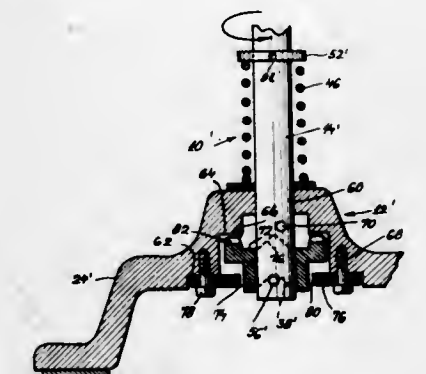
motor is connected to the vertical telescoping arm to move the light in a vertical direction, by moving one of the telescoping arm members with respect to the other, the motor being controlled by a sensing element sensing vertical force components applied to the light fixture. The motor may be electric, or a fluid motor (hydraulic or pneumatic), the motor power being controlled over a servoamplifier (or servo valve) which, in turn, is controlled from a bridge circuit of which the sensing element forms a part. The light fixture, itself, is suspended to swing about a horizontal axis, and limit switches are provided to disable operation of the motor when the fixture is deflected about an angle exceeding a predetermined limit.

3,599,923
LOAD-SUPPORTING STAND
Wayne E. Hunnicutt, Big Bend, and Peter G. Rossbach, Waukesha, both of Wis., assignors to Applied Power Industries, Inc., Milwaukee, Wis.
Filed July 15, 1968, Ser. No. 744,747
Int. Cl. B60s 9/02
U.S. Cl. 248-352



A load-supporting stand is disclosed including an extensible post which is apertured to receive a load-supporting rod and having a load-supporting saddle. The stand includes depending legs with the ends of the legs being affixed to a base having upstanding flanges which retain the ends of the legs from lateral movement.

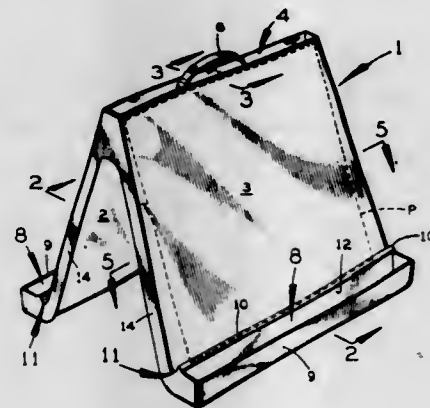
3,599,924
STAND FOR SUPPORTING A STREET SIGN
Carl H. Schmidgall, Foot of Leland St., Peoria, Ill.
Filed Aug. 1, 1969, Ser. No. 846,784
Int. Cl. F16m 11/08
U.S. Cl. 248-403



A portable knockdown stand for supporting a street sign having a circular base with socket and a staff removably mounted in the socket. A sign is removably mounted on the top end of the staff. The stand is easily assembled and disassembled and is provided with a substantial joint massive gear ring between the staff and base. The staff is slidably mounted and is spring loaded. Spaced pins on the staff alternately engage the gear ring. In elevated position of the staff with

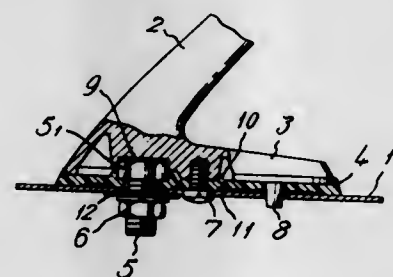
spring expanded, the staff is nonrotatable with respect to the base. In lowered position, the staff can be rotated with respect to the base.

3,599,925
PORTABLE DUAL EASEL
Dorothea L. Dubler, Coral Gables, Fla., assignor to Josephine A. L. Sende, Coral Gables, Fla., a part interest
Filed May 25, 1970, Ser. No. 22,533
Int. Cl. A47b 97/04; B43i 5/02
U.S. Cl. 248—452



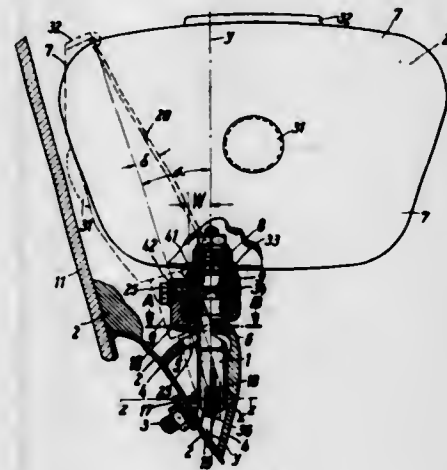
A one-piece dual easel molded from plastic material shaped in the form of an elongated inverted "V" and having a panel on opposite sides to retain a sheet of material for receiving drawings or paintings from two oppositely positioned users. An integral compartment extending from the base of each panel is provided for holding a plurality of paint containers and a handle means provided at the top junction of the panels for transport purposes. Each of the easels is tapered for nesting a plurality one above the other in a vertical stack.

3,599,926
REARVIEW-MIRROR ATTACHING APPARATUS FOR VEHICLE
Yukio Takahashi, Yokohama-shi, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 24, 1969, Ser. No. 868,767
Claims priority, application Japan, Sept. 24, 1968, 43/82887
Int. Cl. B60r 1/06; E04b 1/00
U.S. Cl. 248—475 A



A breakoff rearview mirror attachment including an attaching base connected by a bolt to a breakable or frangible plate which is in turn connected to a vehicle body by a further and separate connecting member. The attaching base has a pin extending through the plate and body. The plate is provided with a groove encircling the connecting member.

3,599,927
REARVIEW MIRROR
Yorck Joachim Talbot, 7 Ballenstedterstrasse, 1000 Berlin, Germany
Filed Feb. 20, 1969, Ser. No. 801,031
Claims priority, application Germany, July 5, 1968, P 17 55 899.5
Int. Cl. B60m 1/06
U.S. Cl. 248—484



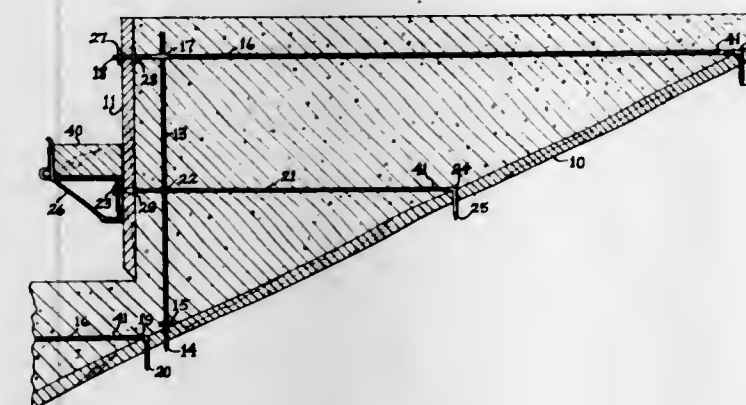
An external rearview mirror for motor vehicles includes a base mountable on the coachwork of the vehicle. An arm is mounted on the base projecting therefrom and is tiltable about an axis which at least substantially parallels the longitudinal axis of the vehicle so as to be movable from an operating position in which it projects laterally beyond the coachwork to a retracted position. A mirror-head is associated with the arm and means is provided which mounts the mirror-head on the arm for turning movement about an upright axis normal to the longitudinal axis of the vehicle, and this means is operative for effecting tilting of the arm about the axis paralleling the longitudinal axis of the vehicle in direction towards the coachwork in response to turning movement of the mirror-head initiated by an impact on the same acting in direction of the longitudinal vehicle axis.

3,599,928
DISCARDABLE MOLD FORM
Gardner H. Strong, 22 Olive Ave., Piedmont, Calif.
Filed Nov. 6, 1968, Ser. No. 773,890
Int. Cl. B28b 7/24; B65d 85/00
U.S. Cl. 249—119



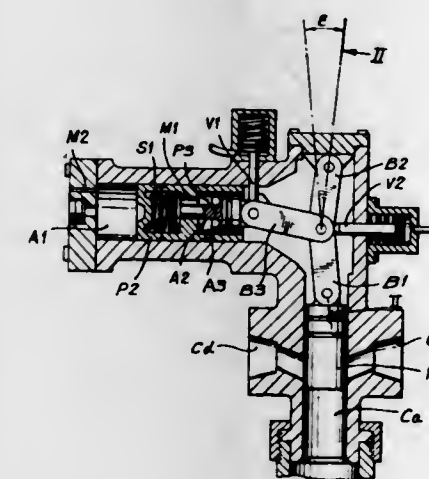
A package comprising a container defined by a discardable mold form and a product constituting a plurality of concrete plugs of the type used to fill surface openings or recesses left along a poured concrete wall by form retainers that pass therethrough. The container-defining mold form has a plurality of mold pockets therealong in each of which a concrete plug is confined; and the plugs are molded, stored and shipped in the form which is constituted of a peelable or tearable material enabling each pocket to be opened to release the concrete plug therewithin as such plug is needed for use.

3,599,929
BRACKET FOR ASSEMBLING CONCRETE FORMS
William G. Holley, Sr., and John E. Lester, both of P.O. Box F, Williamsburg, Va.
Filed Dec. 8, 1969, Ser. No. 883,217
Int. Cl. B28b 7/22
U.S. Cl. 249—213



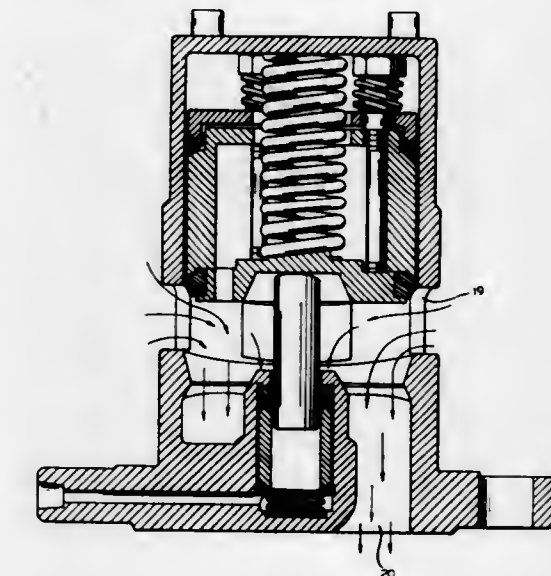
A bracket comprised of a plurality of rodlike members for assembling sloping slab-type stair and riser forms that receive poured concrete, with the rods of the bracket providing protruding extremities to which may be removably mounted the soffit portion of the form and riser waler supports that strengthen and align the assembled form structure during the pouring and curing of the concrete.

3,599,930
RAPID OPENING HIGH PRESSURE HYDRAULIC VALVE
Michel Philippe Lucien Bourgeot, and Guy Ferrand, both of Bourges, France, assignors to Etat Francais Delegation Ministerielle pour l'Armement, Paris, France
Filed Mar. 4, 1970, Ser. No. 16,299
Claims priority, application France, Mar. 4, 1969, 6905755
Int. Cl. F16k 31/44
U.S. Cl. 251—73



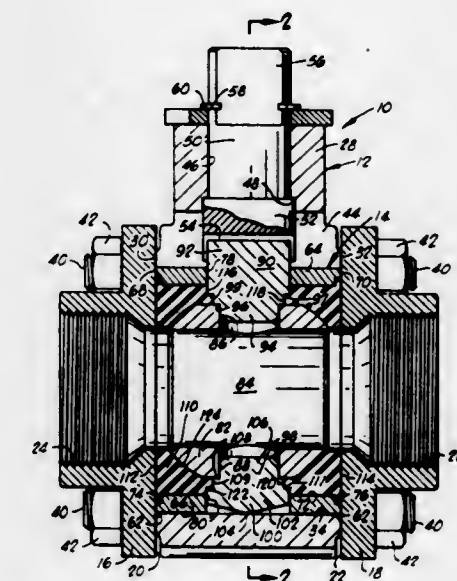
A high-pressure hydraulic valve includes a piston in a supply cylinder to control feed of a high-pressure liquid via outlets in the cylinder. The piston is connected via a toggle linkage to a resistance arrangement including a further piston acting on an air cushion in a respective cylinder. The toggle linkage substantially diminishes the stress from the supply piston to the resistance arrangement and makes possible rapid opening of the outlets in extremely short time for high flows at high pressure.

3,599,931
INTERNAL SAFETY SHUTOFF AND OPERATING VALVE
Herbert G. Hanson, Arlington Heights, Ill., assignor to G P E Controls, Inc., Morton Grove, Ill.
Filed Sept. 11, 1969, Ser. No. 857,006
Int. Cl. F16k 31/143; F16j 15/00
U.S. Cl. 251—144



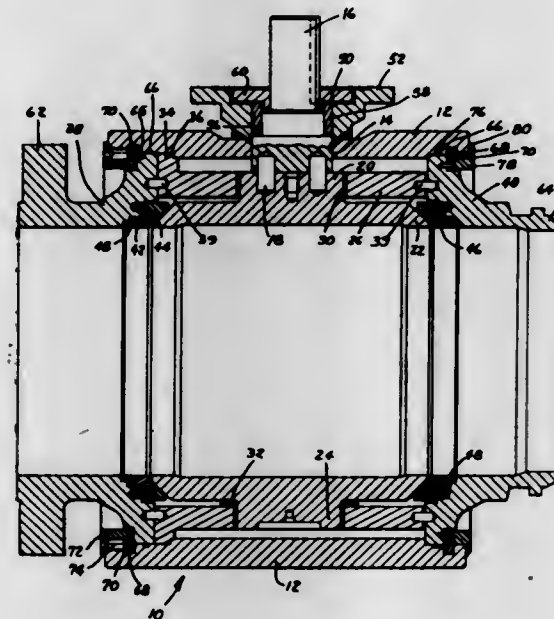
A valve operable to open in response to an operating pressure being supplied to an operating plunger assembly and to close the check close in either direction when the operating pressure is removed. Dynamic seal rings in the valve are spring loaded to compensate for wear and/or thermal contracting conditions, and a seat ring is mounted to likewise compensate for wear and/or thermal contracting conditions.

3,599,932
BETWEEN FLANGE JOURNALED BALL VALVE ASSEMBLY
Domer Scaramucci, 3245 S. Hatle, Oklahoma City, Okla.
Continuation-in-part of application Ser. No. 763,644, Sept. 30, 1968. This application Apr. 18, 1969, Ser. No. 817,435
Int. Cl. F16k 5/06
U.S. Cl. 251—151



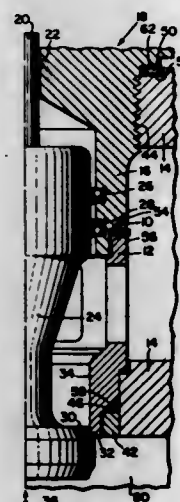
A valve assembly, particularly useful between flanges, which utilizes a housing unit and a separate valve unit. The housing unit provides a supporting housing adapted to be supported between the flanges, and includes a valve operator and a first valve stem. The valve unit is sized to be removable lengthwise from the housing unit, and includes a valve member which is journaled in the valve body.

3,599,933
ROTARY VALVE BEARING ASSEMBLY
 Jack E. Picardo, Oakland, Calif., assignor to Grove Valve and Regulator Company, Oakland, Calif.
 Filed Feb. 5, 1970, Ser. No. 8,840
 Int. Cl. F16k 5/06
 U.S. Cl. 251-309 10 Claims



A valve structure comprising a rotatable valve member with a pair of coaxial trunnions extending therefrom. Bearing blocks are received on the trunnions and the entire assembly may be inserted into a tubular valve body. A radial flange extends from one end of each bearing block to be clamped firmly between an internal shoulder in the body tube and the adjacent valve end closure.

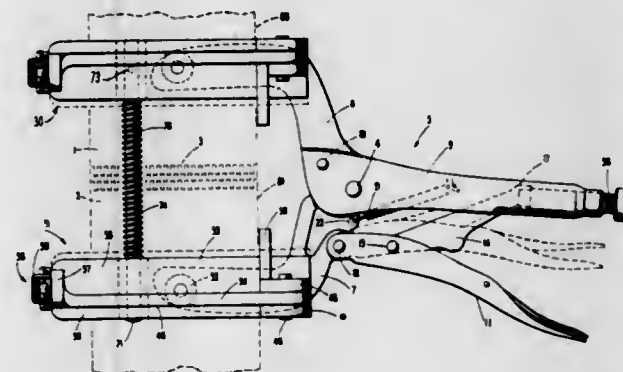
3,599,934
MULTIPURPOSE FORCE RING
 Wayne D. Reed, Philadelphia, Pa., assignor to Honeywell, Inc., Minneapolis, Minn.
 Filed Jan. 28, 1970, Ser. No. 6,598
 Int. Cl. F16k 25/00
 U.S. Cl. 251-363 10 Claims



A truncated cone-shaped ring member for inserting between two encased relatively movable parts, such as a bonnet and a cage located within a valve body, so that the adjustment of these parts towards one another will cause the ring to be moved toward an inverted truncated cone-shaped configuration and thereby provide a means that will take up not only the differences in manufacturing tolerances of these parts and their undesired changes in size that occur due to ambient temperature of the atmosphere surrounding these

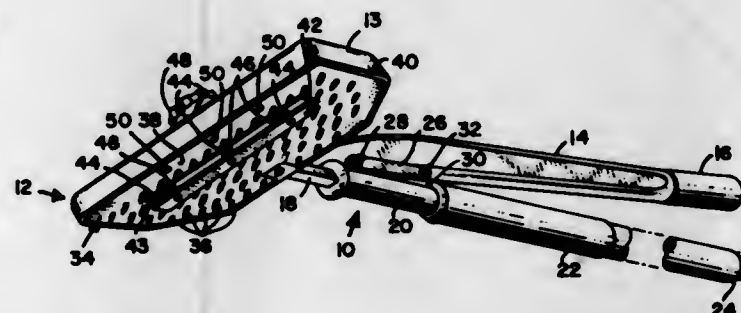
parts but also provide a means to maintain a seal that is in contact with at least one of these parts in fixed fluid tight engagement with the encasement surrounding these parts before, during and after the occurrence of the aforementioned ambient temperature changes.

3,599,935
BELT PULLER
 Dana Walker, Delray Beach, Fla., assignor to Kay Sjestrom, Boca Raton, Fla.
 Filed June 12, 1969, Ser. No. 832,802
 Int. Cl. F16g 11/00
 U.S. Cl. 254-52 4 Claims



A belt puller for clamping together for interengagement adjacent free ends of elongated objects, such as industrial belting. A pair of clamps supported on movable arms engage these free ends and draw them together upon the squeezing of an interconnected hand clamp.

3,599,936
CARPET STRETCHER PLATE
 Millard Crain, Jr., San Jose, Calif., assignor to Crain Cutter Company, Inc., Santa Clara, Calif.
 Filed Sept. 5, 1969, Ser. No. 855,673
 Int. Cl. A47g 27/04
 U.S. Cl. 254-62 6 Claims

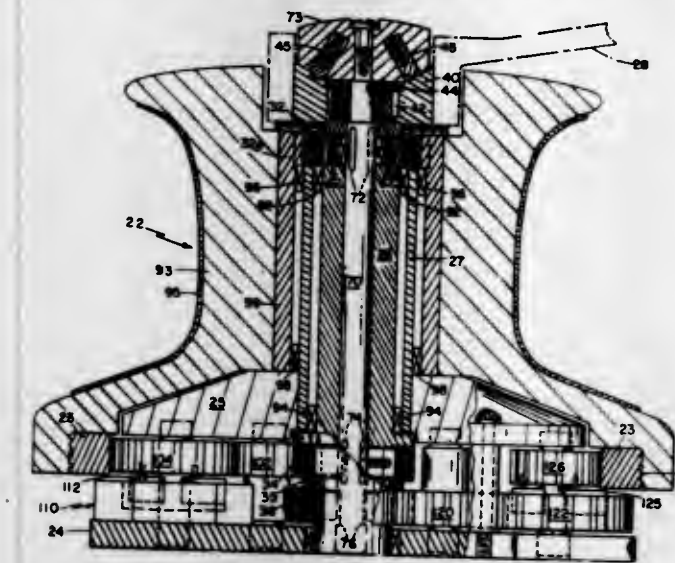


A carpet stretcher with a plate having a plurality of protruding prongs or carpet-engaging pins adapted to engage a carpet, the plate being comprised of a moldable, resilient material with the prongs or carpet-engaging pins set in position within the plate.

3,599,937
WINCH
 John Henry Carter, Weston, Mass., assignor to Aeromarine Corporation, Weston, Mass.
 Filed Feb. 17, 1969, Ser. No. 799,802
 Int. Cl. B66d 1/30
 U.S. Cl. 254-150 6 Claims

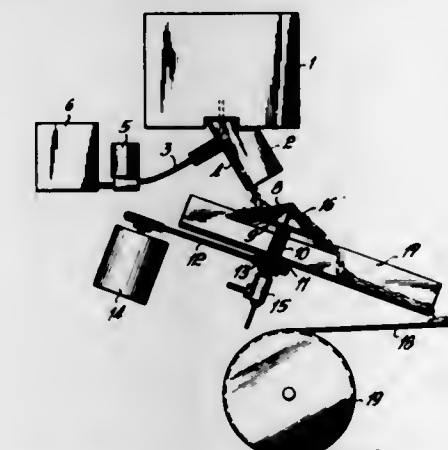
A multiple-speed winch having a plurality of independently rotatable pinions coaxial with a drive shaft, drive linkages of varying mechanical advantage connecting these pinions to the winch drum and a shaft engager for engaging a selected pinion to the drive shaft. The shaft engager includes drive cams associated with the pinions and mounted for movement

between an extended position which prevents relative rotation of pinion and shaft a retracted position which permits



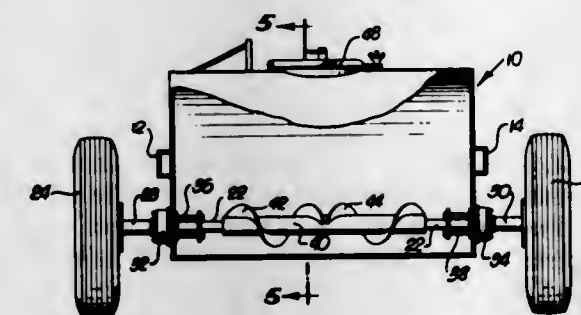
rotation; selective extension of the drive cams causes the shaft to drive selected pinions.

3,599,938
METHOD OF AND APPARATUS FOR MIXING LIQUID TO A VISCOUS MASS
 Gerhard Anders, Viersen, and Werner Jung, Monchengladbach, both of Germany, assignors to Hamac-Hansella GmbH, Viersen, Germany
 Filed Mar. 17, 1970, Ser. No. 20,178
 Claims priority, application Germany, Mar. 27, 1969, P 19 15 712.1
 Int. Cl. B01f 7/02, 15/02
 U.S. Cl. 259-7 7 Claims



In order to ensure a uniform mixing of a liquid with a viscous mass, the liquid is injected into the flowing viscous mass and is embedded therein; thereupon said mass is deposited on an inclined rotary cone on which it is wound in a spindlelike shape and then, by its own weight, flows downwardly onto a chute and a conveyor belt.

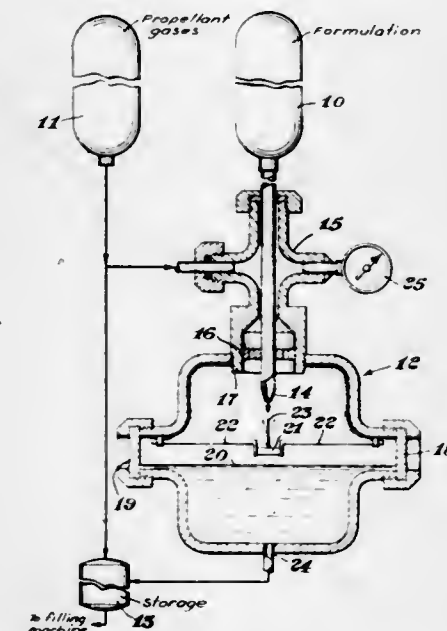
3,599,939
TRAILER-TYPE LIQUID CARRIER AND MIXER
 Louis M. O'Brien, 1033 S. 2nd St., Alhambra, Calif.
 Filed Mar. 26, 1969, Ser. No. 810,627
 Int. Cl. B01f 7/02
 U.S. Cl. 259-10 10 Claims



A trailer-type liquid carrier supported by wheels including an airtight tank for receiving liquid within which an axle en-

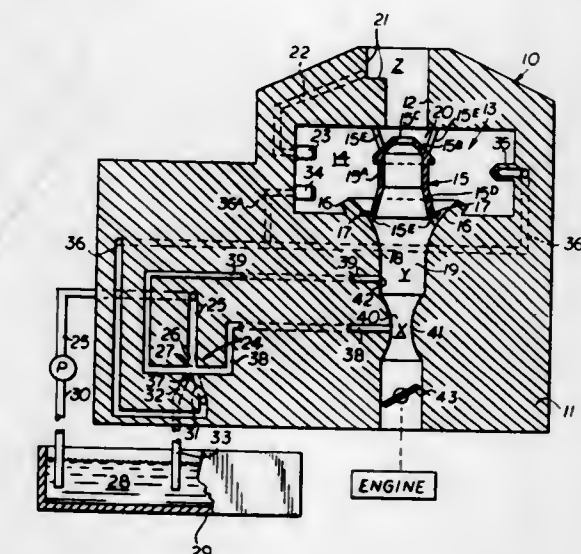
compassed by spiral vanes is contained and connected with one of the wheels so that as the wheel rotates the axle and spiral vanes correspondingly rotate.

3,599,940
METHOD FOR SATURATED LIQUID AEROSOL FORMULATIONS
 Lawrence Peoples, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 Filed Dec. 1, 1969, Ser. No. 881,087
 Int. Cl. B01f 5/00
 U.S. Cl. 259-18 3 Claims



A method for saturating liquid formulations prior to loading into aerosol containers comprising introducing the liquid formulation into a pressurized chamber in such a manner to impinge onto the edge of a rapidly vibrating blade, withdrawing the gas-saturated liquid from the pressurized chamber into a storage chamber maintained under a similar pressure thereby to maintain the gas-saturated liquid intact, said pressurization of the chamber being maintained by introduction of the saturating gas.

3,599,941
FLUIDIC-FUEL-METERING SYSTEM
 Bruce H. Becker, Downers Grove, Ill., assignor to International Harvester Company, Chicago, Ill.
 Filed Oct. 30, 1969, Ser. No. 872,623
 Int. Cl. F02m 69/04
 U.S. Cl. 261-36 A 9 Claims



A novel carburetor arrangement for metering fuel to form a fuel-air mixture for delivery to a spark ignition engine

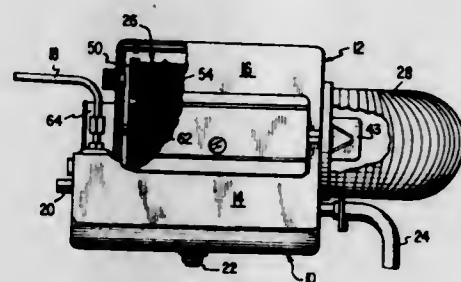
which provides a single fuel-metering system for all engine operating conditions including idling as well as full load conditions. The preferred system features a unique combination of a fluid amplifier with a vortex amplifier for metering liquid fuel and discharging same into the airflow thereby converting an airstream into a uniform fuel-air mixture of substantially constant ratio of fuel-to-air for delivery to the engine.

3,599,942 HUMIDIFIER

Paul A. Herr, 1518 Country Club Drive, Lancaster, Pa.
Filed Sept. 27, 1968, Ser. No. 763,299
Int. Cl. F24f 3/14

U.S. Cl. 261-92

7 Claims

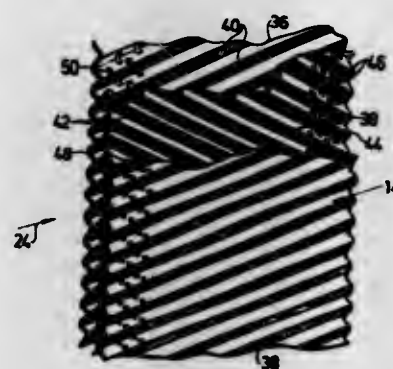


A humidifier for use in a warm-air heating system is disclosed. In one embodiment the humidifier includes a bleedoff drain for removing heavy mineral deposits resulting from hard water. A double-acting float valve which is responsive to the action of an airflow vane controls inlet water. The case of the humidifier has interchangeable panels so that the inlet duct can be installed on either side without necessitating any modifications. The rotating evaporator drum has removable end caps for ease in cleaning or replacing the evaporator pad enclosed therewithin.

3,599,943
LIQUID AND GAS CONTACT APPARATUS
Carl Georg Munter, 1 Bengt farjares vag, Stocksund, Sweden
Filed Mar. 20, 1969, Ser. No. 808,882
Claims priority, application Sweden, Apr. 4, 1968, 4,506/68
Int. Cl. B01f 3/04

U.S. Cl. 261-95

6 Claims



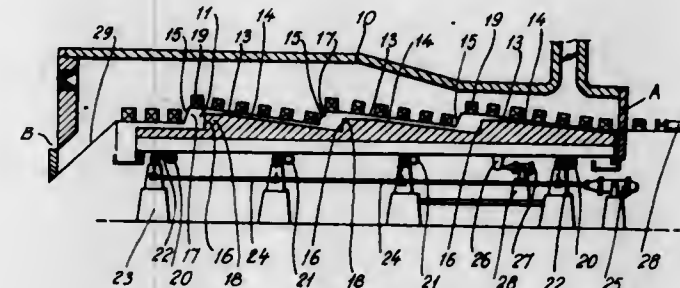
Gas and liquid contact apparatus employing a contact fill composed of layers having downwardly inclined folds or pleats crossing one another and bearing against one another in adjacent layers, the folds having vertical cuts near the lowermost edge thereof or being cut off short of the adjacent layer edge so that liquid flowing along the folds changes its direction of flow prior to the liquid reaching the edge.

3,599,944 ARRANGEMENT IN HEATING FURNACES OR HEAT TREATMENT FURNACES OF THE WALKING BEAM TYPE FOR ROTATING THE OBJECTS TO BE HEATED THEREIN, SO AS TO OBTAIN UNIFORM HEATING OF SAID OBJECTS

John Erlend Eriksson, Vasteras, Sweden, assignor to Svenska Metallverken Ugn Aktiebolag, Vasteras, Sweden
Filed Aug. 27, 1969, Ser. No. 853,433
Claims priority, application Sweden, Sept. 2, 1968, 11,781/68
Int. Cl. B65g 25/04; F27b 9/14

U.S. Cl. 263-6 A

5 Claims

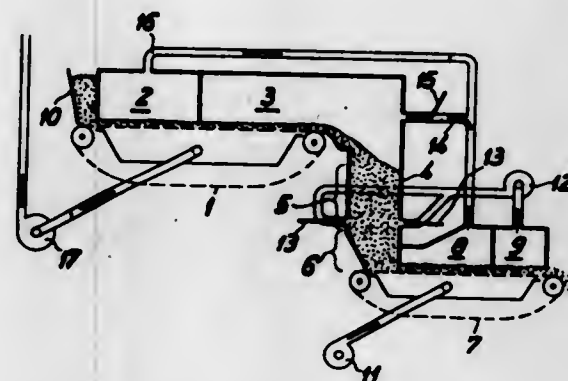


An arrangement in heating furnaces or heat treatment furnaces of the walking beam type for rotating the objects to be heated therein so as to obtain uniform heating of said objects. The hearth of the furnace includes at least one movable walking beam, the stationary portion of the hearth presents one or more support surfaces which are terminated by a relatively steep, downwardly sloping portion. The walking beam presents upright members for engaging behind the billets and rolling said billets by pushing them over the lip of the steep, downwardly sloping portion.

3,599,945
METHOD AND APPARATUS FOR HEAT TREATMENT OF MATERIALS
Bernd Helming, Neubeckum, Germany, assignor to Polysius AG, Neubeckum, Germany
Filed Sept. 5, 1969, Ser. No. 855,644
Int. Cl. F27b 1/04

U.S. Cl. 263-36

8 Claims



A continuous method and apparatus for heat treating granular and pelleted materials, in which the material is dried and then heated on a traveling grate, and is then discharged into a stationary vertical kiln, in which it is fired. The heating of the material on the traveling grate is sufficient to dry the material and to preheat it to such a degree that a uniform temperature is maintained throughout the horizontal cross section of the kiln.

3,599,946 VACUUM FURNACE WITH ELEVATOR OIL QUENCH

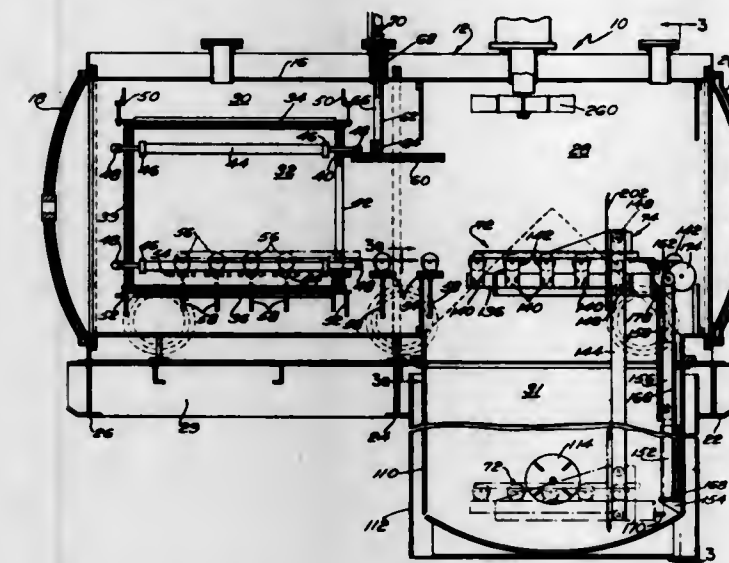
Herbert W. Western, Barrington; William H. Kimball, Providence; Vincent Scotto, Warwick, and Wallace S. Vanderford, Jr., Coventry, all of R.I., assignors to C. I. Hayes Inc., Cranston, R.I.

Filed Oct. 25, 1968, Ser. No. 770,779

Int. Cl. C21d 1/66

U.S. Cl. 266-4 A

13 Claims

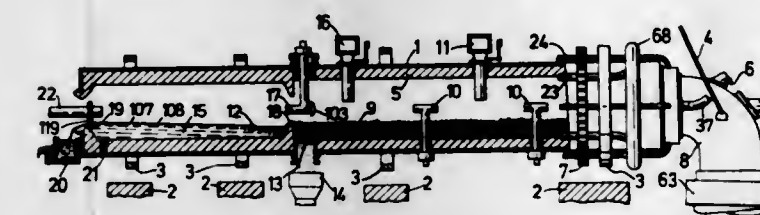


A high-vacuum electric furnace for heat treating metallic articles in an evacuated heating chamber and including an elevator to which the articles are transferred after the heat-treating cycle for transferring the articles to a quench zone for the quick quenching thereof, the quenching zone communicating with the housing in which the heating zone is located and being maintained under vacuum during the quenching operation.

3,599,947
APPARATUS FOR DIRECT IRON AND STEEL MAKING
William Lyon Sherwood, P.O. Box 2161, Vancouver 3, British Columbia, Canada
Division of Ser. No. 398,625, Pat. No. 3,503,736.
Filed Feb. 2, 1970, Ser. No. 7,553
Int. Cl. C21b 11/06

U.S. Cl. 266-9

13 Claims



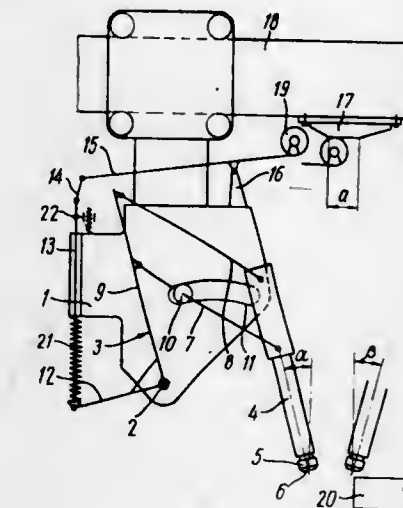
The apparatus comprises a single, elongated rotary furnace reactor, including a gas-solid reaction zone, a gas-solid-liquid reaction zone and a gas-liquid reaction zone extending in this sequence from the charge end to the discharge end. A feeding device is provided at the charge end of the reactor for introducing a charge of iron ore pellets in admixture with solid reductant and sulphur-absorbent material into the gas-solid reaction zone. There are burners at intervals along the furnace for introducing oxygen-containing gas and fuel, as required, for reaction and heating of the charge. At the termination of the gas-solid reaction zone is a screening device forming a portion of the reactor wall for removing fine-sized materials including excess reductant, ash and sulphur-absorbent material just prior to passing the retained iron pellets into the gas-solid-liquid reaction zone. This zone is also provided with a burner for melting, and there is another burner at the reactor discharge end for heating and temperature control in the gas-liquid reaction zone prior to discharge of the liquid iron and steel in preparation for casting. The reactor is fired countercurrently to the general movement of charge, whereby waste heat from each reaction zone is utilized as supplementary heat for preceding zones.

The invention is a process and apparatus for the production of liquid iron and steel directly from iron ore or ore concentrates.

3,599,948
APPARATUS FOR FLAME-CUTTING OF METAL
Leonid Alexandrovich Bykov, ul. Mashinostroitelei, 59, kv.30; Evgeny Jukhimovich Gelfenbein, ul. 40 Let Oktyabrya, 28, kv.51, and Anatoly Ivanovich Litvinov, ul. Kirovogradskaya, 11, kv.18, all of Sverdlovsk, U.S.S.R.
Filed July 15, 1968, Ser. No. 744,814
Int. Cl. B23k 7/10

U.S. Cl. 266-23 D

1 Claim

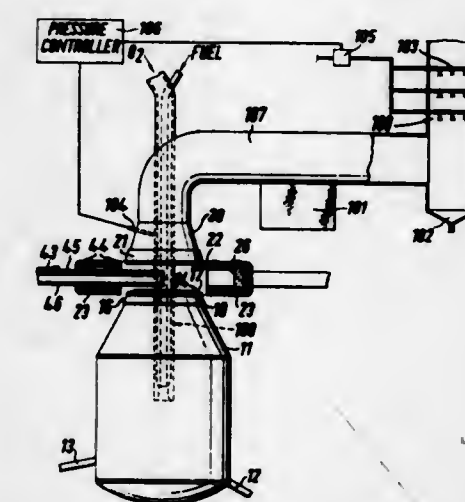


An apparatus for the flame cutting of a metal component and more particularly thick metal such as slabs produced on continuous metal-casting installations including a carriage movable along a main frame across the metal component being cut, a cutting torch provided with a nozzle having an end and an articulated multilink appliance for suspending the torch on the carriage. The multilink appliance is defined by a parallelogram so designed that the cutting torch turns about the center of its nozzle end whereby the nozzle end turns and moves along a straight line parallel to the surface of the metal component being cut and the distance between the nozzle end and the surface of the metal component remains constant over the entire width of the metal component.

3,599,949
MANUFACTURE OF STEEL
Hugh Willmott Grenfell, Glamorgan, Wales, assignor to The Steel Company of Wales Limited, Glamorgan, Wales
Filed Feb. 23, 1968, Ser. No. 707,623
Claims priority, application Great Britain, Feb. 23, 1967, 8737/67
Int. Cl. C21c 5/42

U.S. Cl. 266-35

10 Claims



A method for refining a molten metal particularly steel which includes the steps of placing a hood in the closed position.

tion over and in contact with a refining vessel, introducing a stream of oxygen/carbonaceous fuel such as fuel oil into the space below the hood and above the molten metal, igniting the oxygen/carbonaceous fuel stream with the hood located in said closed position over the refining vessel and the drawing off of resulting gases through the hood to a gas washer.

3,599,950

HOT-BLAST CUPOLA FURNACE

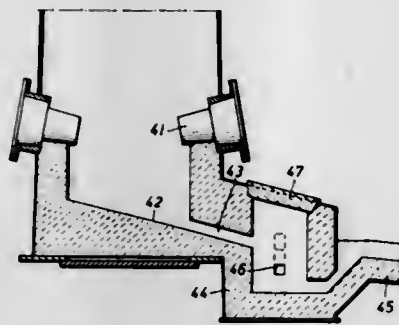
Siegfried Tander, Düsseldorf, Germany, assignor to Gesellschaft für Huttenwerkstätten m.b.H., Düsseldorf, Germany

Filed July 19, 1968, Ser. No. 746,047
Claims priority, application Germany, Dec. 6, 1967, P 15 83 452.3

U.S. Cl. 266—25

Int. Cl. C21b 7/00

9 Claims



A hot-blast cupola furnace with a liningless stack having a water-cooled jacket and a hearth with a refractory lining below the level of the tuyeres of the furnace is provided with an inclined hearth bottom which is connected through separate channels to at least two pressure siphons at a lower level than the hearth bottom and the tuyeres are provided with cooling means which are arranged to cool the upper parts of the tuyeres more vigorously than the lower parts. This furnace is operated with an acid slag and at such a rate that from 8 to 15 metric tons of melt is produced per hour per square meter of hearth area. Both the iron and the slag produced are continuously tapped from the hearth and are run into one of the pressure siphons where they are allowed to react together.

3,599,951

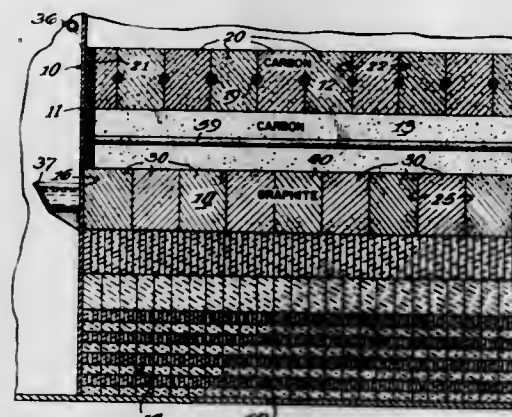
BLAST FURNACE HEARTH

Lawrence G. Maloney, Munster, Ind., assignor to Inland Steel Company, Chicago, Ill.

Filed Nov. 27, 1968, Ser. No. 779,492
Int. Cl. C21b 7/10

U.S. Cl. 266—32

9 Claims



A blast furnace hearth composed of a plurality of horizontally disposed layers of carbonaceous material enclosed within a metallic peripheral cooling member. Lowermost layer is preferably graphite and outermost extremities thereof

are in heat-conducting abutment with inner surface of cooling member. Construction joints, if any, are composed of carbon paste and are diametrical, not peripheral, and can contain thermocouples.

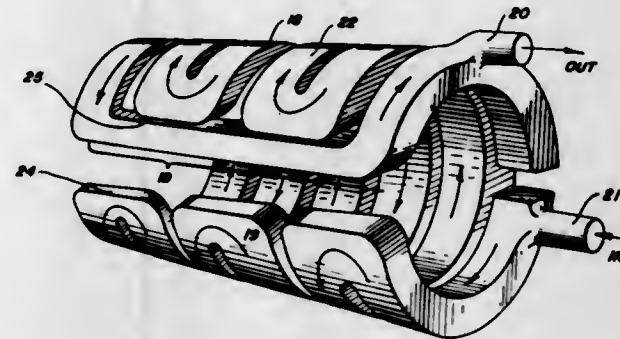
3,599,952
HIGH-VELOCITY TUYERE WITH VARIABLE SIZE COOLING MEDIUM PASSAGE

William E. Slagley, Crown Point, and Lawrence G. Maloney, Munster, both of Ind., assignors to Inland Steel Company, Chicago, Ill.

Filed May 7, 1969, Ser. No. 822,372
Int. Cl. C21b 7/16

U.S. Cl. 266—41

7 Claims



A blast furnace tuyere having a graduated convolute-shaped cooling passage for a cooling medium. The cooling medium travels at a high velocity in a substantially helical movement as it moves along the tuyere.

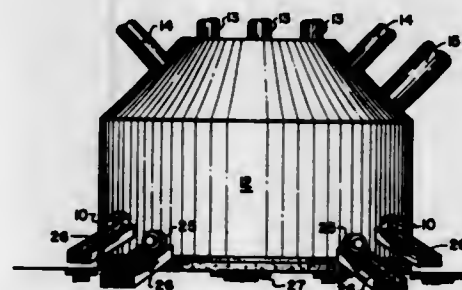
3,599,953

METHOD AND APPARATUS FOR PLUGGING FURNACE TAPS

Elwin L. Smith, 720 Balsam, Pocatello, Idaho
Filed May 21, 1969, Ser. No. 826,477
Int. Cl. C21b 7/12

U.S. Cl. 266—42

7 Claims



A method of using wooden plugs to plug tapholes through which slag and metal are periodically removed from phosphorous furnaces and the like. In accordance with the method, green, wooden plugs are inserted into drilled tapholes and the hot material discharging from the furnace burns all or part of the plugs to form a charcoal plug. The hot material most remote from the center of the furnace cools and solidifies to form even more permanent plugs as it moves into the tapholes and as the wooden plugs are burned and charred.

3,599,954

COMPOUND VACUUM SPRING

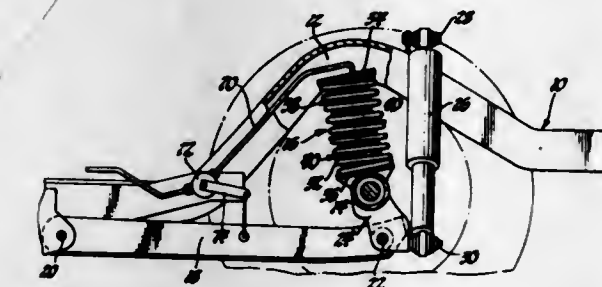
Ming-chih Yew, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 8, 1969, Ser. No. 864,599
Int. Cl. B60g 11/58

U.S. Cl. 267—34

7 Claims

A vehicle suspension system in which a pair of vacuum energized auxiliary spring bellows are nested within the confines of the primary coil suspension spring between the

sprung and unsprung masses of the vehicle, each such spring bellows providing a load simulating force on the coil spring



3,599,955

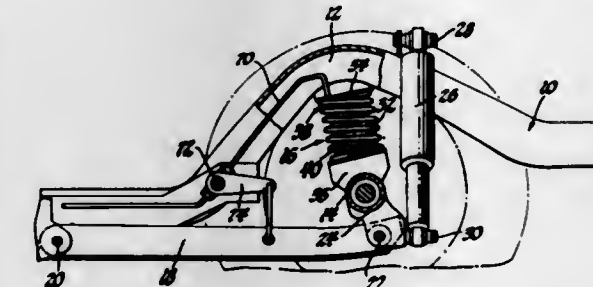
NESTED COMPOSITE SPRING ASSEMBLY WITH MULTIPLE AUXILIARY SPRING UNITS

Ming-chih Yew, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 8, 1969, Ser. No. 864,600
Int. Cl. B60g 11/58

U.S. Cl. 267—34

4 Claims



A vehicle suspension system in which a plurality of vacuum energized auxiliary spring bellows are nested within the confines of the primary coil suspension spring between the sprung and unsprung masses of the vehicle, each of the auxiliary spring bellows being connected in direct force transferring relation between the sprung and unsprung masses to provide a load-simulating force on the coil spring acting in parallel with the other auxiliary spring bellows to alter the static height of the sprung mass.

3,599,956

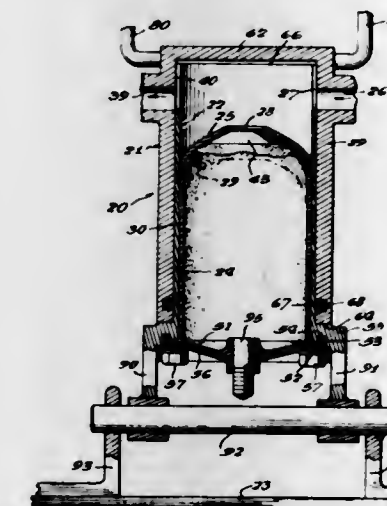
FLUID CUSHIONING ASSEMBLY

Arthur J. Harder, Jr., Franklin Park, Ill., assignor to Coach and Car Equipment Corporation, Elk Grove Village, Ill.

Filed Aug. 22, 1969, Ser. No. 852,433
Int. Cl. F16g 5/00

U.S. Cl. 267—120

22 Claims



A fluid cushioning assembly for absorbing the shock of, for example, a seat on a vehicle traveling rough terrain. The as-

sembly includes a cylinder connected to the seat and slidably mounted on the outside of an inner housing connected to a base. The cylinder contains hydraulic fluid and moves in and out (up and down) on the housing in response to the respective application and removal of an external load. Valve means restricts the velocity of outward movement of the cylinder to substantially less than the velocity of the immediately preceding inward movement.

The housing contains a flexible bladder within which is confined a compressible fluid. The bladder is readily removable from the assembly without substantial removal of the housing.

A second hydraulic cylinder is slidably mounted outside the first cylinder and can be raised or lowered to adjust the elevation of the seat.

3,599,957

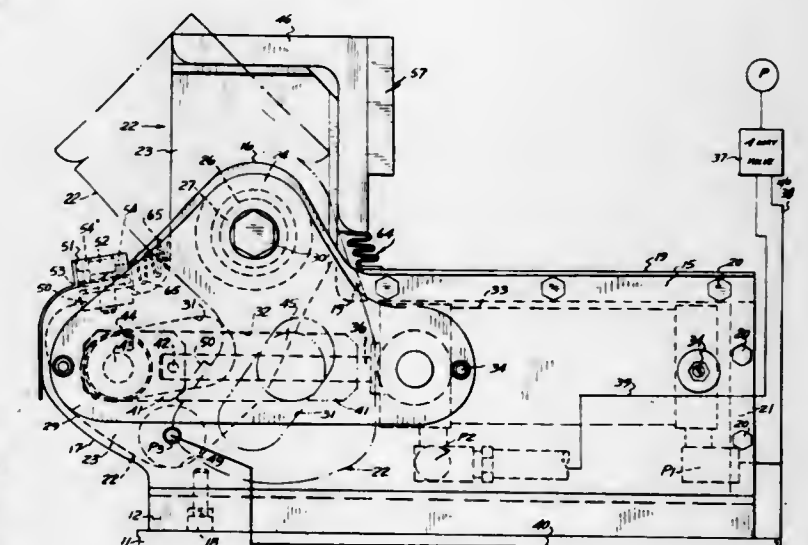
CAM WEDGE POWER SWING AWAY WITH GUIDED ARM

Leland F. Blatt, 24121 Mound Road, Grosse Pointe, Mich.
Filed Apr. 28, 1969, Ser. No. 819,546

Int. Cl. B23q 3/08

U.S. Cl. 269—32

7 Claims



In a power clamp having within its housing a cylinder and piston rod and a swing arm pivoted on the housing and cam rollers connected to the rod and movable in angular slots in said arm to pivot the arm from "swing away release" to "work-locating position," the improvement which consists of stop means on the housing to adjustably limit the movement of the arm to locating position, together with lateral thrust means on the arm pivot between the housing and arm on its opposite sides and additional power operated lateral thrust means on the housing remote from the arm pivot operatively and slidably engageable with said arm upon its opposite sides as it pivots to workpiece-locating position said arm including a swing away clamping means for retainingly engaging one or more workpieces.

3,599,958

ACTUATOR FOR EXPANSIVE COLLET SLEEVE DEVICE ADAPTED FOR SECURING MACHINE TOOL TO WORKPIECE OR ANCHORAGE MEMBER

Rudolf R. Schindler, Los Angeles, Calif., assignor to Omark-Winslow Aerospace Tool Co., Portland, Oreg.

Filed Dec. 11, 1968, Ser. No. 782,985

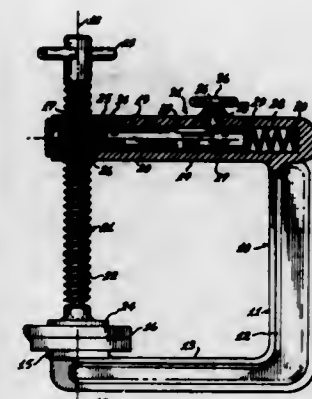
Int. Cl. B23b 45/14; B23q 3/14

U.S. Cl. 269—48.1

8 Claims

A device for securing a machine tool, such as a power drill, to a workpiece or a jig, using a pilot hole in the workpiece or jig, and a radially expansive collet sleeve which is thrust from the machine tool into the pilot hole, and then expanded therein by a mandrel running through the collet sleeve and acting through a cam to expand the collet. The expansive collet sleeve is mounted in and projects from a holder sleeve which is reciprocable through a guide bore in a workpiece-engaging member on the drill. The holder sleeve is advanced

through this guide bore to project the collet sleeve through the pilot hole in the workpiece, and the mandrel is then spindle provided with a quick-release segmental nut device



for rapid coarse adjustment with respect to a workpiece.

3,599,961

MEANS PROVIDING A HOLDING DEVICE
Lester A. Morgan, 28 W. Main St., New Palestine, Ind.
Filed May 19, 1969, Ser. No. 825,669
Int. Cl. B25b 1/02, 1/24

U.S. Cl. 269—275

12 Claims

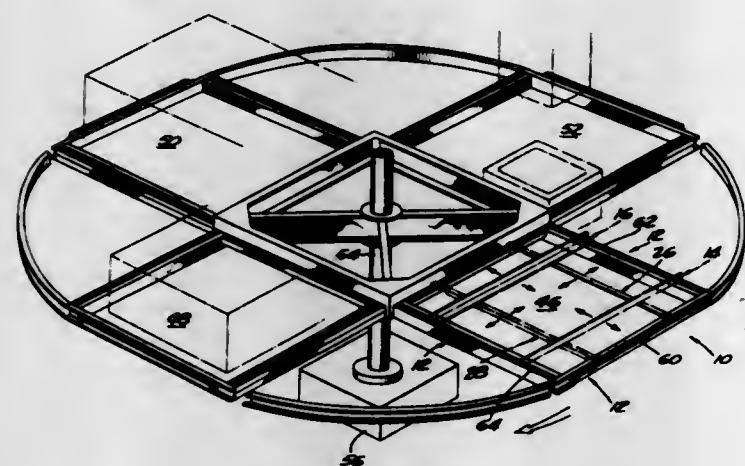
operated to expand the collet sleeve into locking relationship with the pilot hole.

3,599,959

ADJUSTABLE CLAMPING FRAME
Donald J. Asenbauer, 13820 Close St., Whittier, Calif.
Filed June 16, 1969, Ser. No. 833,332
Int. Cl. B23q 7/02; B25b 5/02

U.S. Cl. 269—57

7 Claims



The illustrated adjustable clamping frame is mounted at one station of a rotary platform thermoforming press. The clamping frame is rectangular and its dimensions are altered by choosing one parallel set of frame sides and giving them uniform properties throughout their entire length up to the maximum capacity of the frame, adjustment being accomplished by changing the length of and spacing between the second set of parallel sides, with the length being precisely determined by a removable gripping bar. A mating jaw for the gripping bar is supported on a carriage from which it is readily removable.

3,599,960

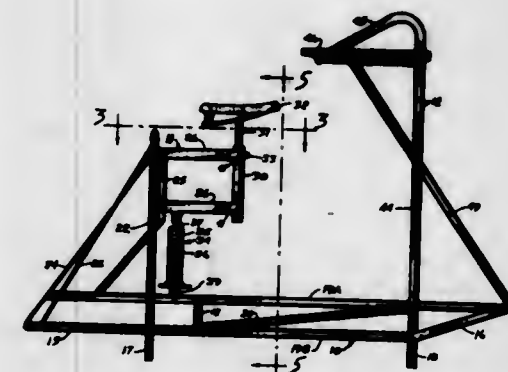
SCREW CLAMP
John R. Phillips, 12219 S. 71st St., Tempe, Ariz.
Filed June 12, 1969, Ser. No. 832,574
Int. Cl. B25b 1/12, 5/10

U.S. Cl. 269—182

A screw clamp having a threadably mounted clamping

2 Claims

An orthopedic support apparatus of an adjustable chair type to aid in maintaining a person in appropriate position to allow bandaging and casting of various parts of the body and particularly of the lower extremities and torso. A seat adjustably positionable on a supporting frame maintains the patient in a sitting position with legs suspended and trunk substantially upright and without support members adjacent the lower extremities so that they may be freely operated upon.



3,599,962

ORTHOPEDIC'S CAST CHAIR
John P. Henry, Route 1 Lahoma Road, Enid, Okla.
Filed Sept. 11, 1968, Ser. No. 759,883
Int. Cl. A61g 15/00

U.S. Cl. 269—322

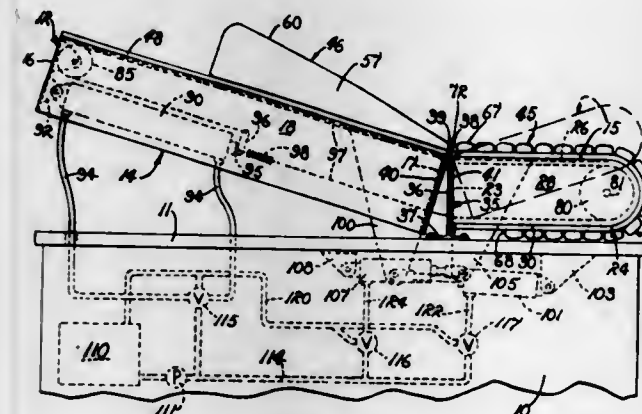
2 Claims

3,599,963

EXAMINATION TABLE
Jacquelyne A. Grover, 153 E. Shaw Ave., Fresno, Calif.
Continuation-in-part of application Ser. No. 447,657, Apr. 13, 1965, now abandoned. This application Aug. 6, 1968, Ser. No. 750,697
Int. Cl. A61g 13/00

U.S. Cl. 269—325

17 Claims



A patient examination table having a support frame comprising two sections which are mounted on a base and are actuated by hydraulic mechanisms. A longitudinally movable carriage means consisting of a rigid portion and a flexible portion formed from hinged slatlike members is mounted for movement on the tracks on the support frame sections. Hydraulic mechanisms are also provided to move the carriage means. A removable section is provided in the flexible portion to further facilitate examinations and provide greater access to examining areas.

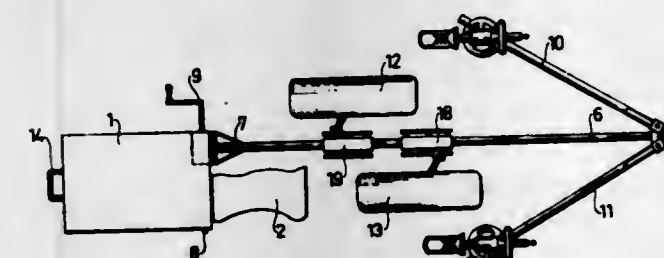
A second form is provided which is driven by electric motors and gearing. The flexible portion of the movable carriage is replaced by a telescopic structure whereby the movable carriage passes over a fixed carriage portion.

3,599,964

OPERATING TABLE
Gustav Albert Magal, Lidingo, Sweden, assignor to Jarnhs Elektriska Aktiebolag
Filed June 26, 1969, Ser. No. 836,876
Claims priority, application Sweden, July 17, 1968, 9770/68
Int. Cl. A61g 13/00

U.S. Cl. 269—328

4 Claims



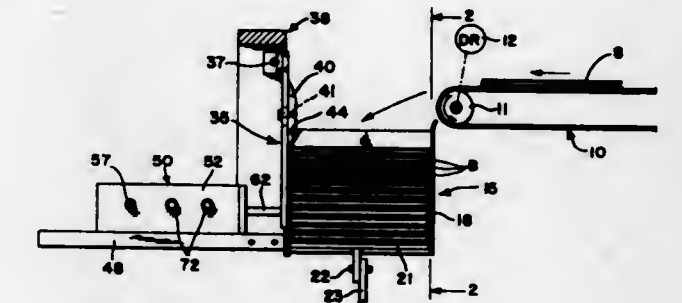
An operating table for lower portions of the human body comprises a single bar that extends lengthwise from the table and carries supports for the legs and feet on either side of the bar. The supports are adjustable, those for the feet being universally mounted at the ends of a pair of arms that extend swingably from both sides of the bar on a holder that is movable lengthwise of the bar. The bar itself is movable transversely of its length, from side-to-side of the table, by means of a crank-operated slide.

3,599,965

CONTROL APPARATUS FOR BOOK HOPPER
Paul G. Humphrey, and Charles W. Bunting, both of Dayton, Ohio, assignors to The McCall Printing Company, Dayton, Ohio
Filed Aug. 7, 1969, Ser. No. 848,207
Int. Cl. B65h 3/24

U.S. Cl. 271—3

5 Claims



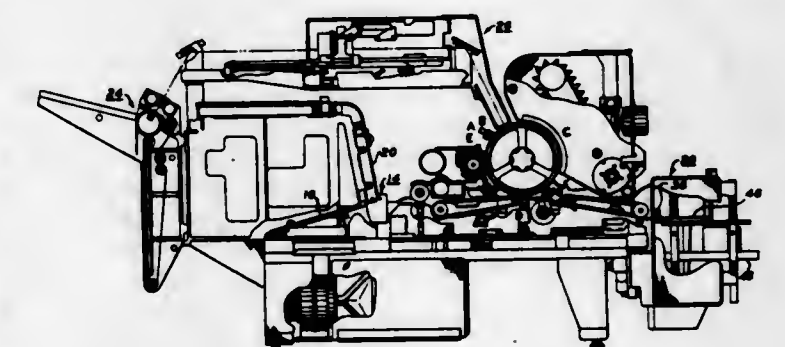
Magazines are delivered to a hopper and are successively fed from the hopper onto a conveyor by an oscillating shuttle and a pair of driven pinch rolls. The shuttle is operated in timed relation with the conveyor through a clutch controlled by a pneumatic valve including a pistonlike valve member. A paddle senses the stack height of the magazine within the hopper and actuates the valve member. Air is continuously exhausted from the valve, and the flow rate of the exhausting air is adjustable to vary the stack height of the magazines within the hopper.

3,599,966

SHEET-HANDLING APPARATUS
George D. Del Vecchio, Briarcliff Cove, North Rose, and Larry H. Warren, East Rochester, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed June 2, 1969, Ser. No. 829,607
Int. Cl. B65h 1/28

U.S. Cl. 271—9

8 Claims



An assembly for supporting two stacks of copy sheet material in a xerographic reproducing machine. The assembly includes an upper tray for supporting sheets of a first characteristic and a lower tray for supporting sheets of a second characteristic. The trays are movable together in a vertical plane while the upper tray is also movable in a horizontal plane to thereby permit the positioning of either stack beneath sheet-forwarding elements of the machine.

3,599,967

DEVICE FOR SEPARATING FLAT ITEMS SUCH AS MAIL FROM A STACK

Hans Rappaport, and Werner Frank, both of Constance, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany
Filed Dec. 24, 1969, Ser. No. 887,932
Claims priority, application Germany, Dec. 27, 1968, P 18 17 101.2

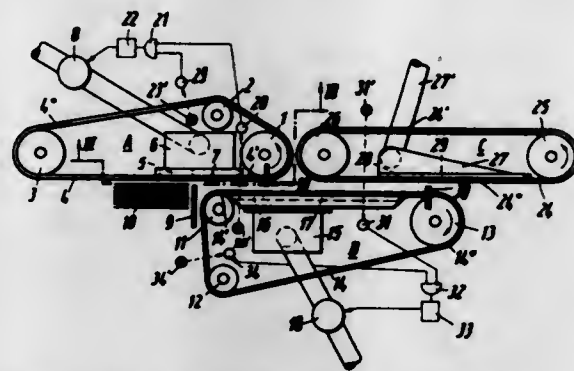
U.S. Cl. 271—12

Int. Cl. B65h 5/02, 7/12

6 Claims

A flat item separator composed of three alternately disposed, consecutive synchronized suction belts and an

abutment at the output of each of the first two belts, and means for causing the occurrence of a multiple removal by



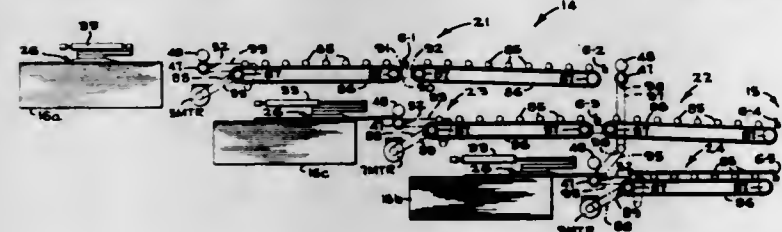
any separator stage to stop that separator stage during the next item removal phase.

3,599,968
VENEER-SHEET-FEEDING APPARATUS
Ronald J. Billett, Sunnyvale, and Terence H. West, San Jose, both of, Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Dec. 24, 1969, Ser. No. 887,876
Int. Cl. B65h 5/10

U.S. Cl. 271-14

6 Claims



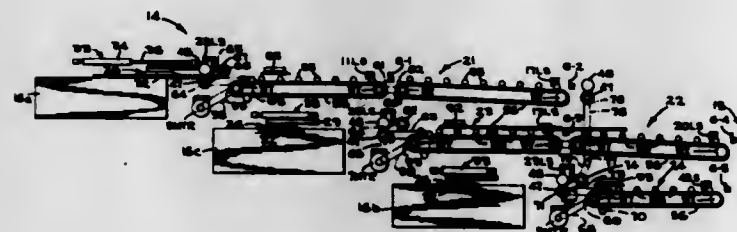
In plywood layup apparatus, veneer sheets are fed from a vertical stack onto a horizontal conveyor by a movable vacuum head that grips the uppermost veneer sheet in the stack and shifts it towards the conveyor. A pair of pinch rollers are positioned between the vacuum head and conveyor to separate a veneer sheet from the vacuum head by gripping and driving the veneer sheet forward onto the conveyor. Sometimes two veneer sheets, one superposed upon another, are fed between the pinch rollers by the vacuum head. This condition is detected automatically by sensing means which activate controls for lifting the upper pinch roller and holding the vacuum head in a sheet-feeding position. Friction force of the lower pinch roller acts on the lower veneer sheet only. The lower veneer sheet is driven forward onto the conveyor but the upper veneer sheet is held stationary by the vacuum head. After the lower veneer sheet has been separated and spaced from the upper veneer sheet, the upper pinch roller is lowered, forcing the upper veneer sheet into driving contact with the lower pinch roller. Thus, the upper veneer sheet is separated from the vacuum head and driven forward onto the conveyor.

3,599,969
VENEER SHEET SEPARATOR
Terence H. West, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Dec. 24, 1969, Ser. No. 887,877
Int. Cl. B65h 5/10

U.S. Cl. 271-14

7 Claims



Conveyors feed veneer sheets to a plywood assembly station in sequence for assembly. Sometimes two veneer sheets,

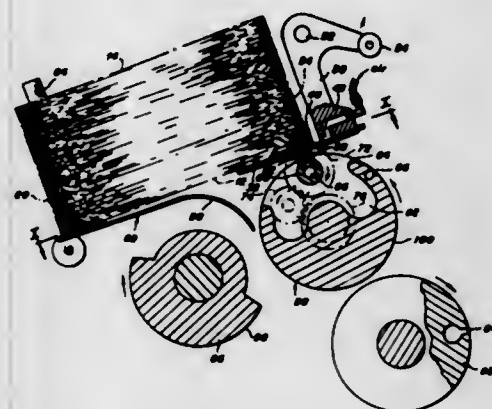
one superposed upon another, are fed on one conveyor. Such a condition is automatically remedied by a veneer sheet separator formed by the conveyor and appurtenant equipment. The condition is detected automatically by sensing means which activate control means that are subsequently operated by a veneer sheet reaching a position on the conveyor and when operated actuate a vacuum head. One veneer sheet is gripped by the vacuum head while the other veneer sheet is forced downstream by the conveyor causing separation by shearing action between the veneer sheets.

3,599,970
APPARATUS FOR FEEDING BLANKS FROM THE BOTTOM OF A STACK
Elliot S. Smithe, New York, N.Y., and Herbert M. Helm, Hollidaysburg, Pa., assignors to F. L. Smithe Machine Company, Inc., Duncansville, Pa.

Filed May 23, 1969, Ser. No. 827,424
Int. Cl. B65h 3/10

U.S. Cl. 271-29

14 Claims



A feeder mechanism is provided to feed envelope blanks having rectangular or triangular bottom flap portions from the bottom of a stack while maintaining register. A sucker shaft is rotatably mounted within a hollow feed cylinder that has an elongated longitudinal opening. The sucker shaft has radially extending protuberances that extend through the cylinder opening and beyond the periphery of the feed cylinder. The protuberances extend upwardly through the cutout segments of the feeder disc to a position adjacent the front edge of the bottom blank. The protuberances, by suction, engage the entire front end portion of the bottom blank while the front edge portion of the stack is supported by a support device. By rotation of both the feed cylinder and the sucker shaft at different peripheral speeds and in opposite directions, the front edge of the bottom blank is bent downwardly into the feed cylinder. An edge of the cylinder opening engages the blank upper surface and continues to bend the front end portion of the blank downwardly. A cylindrical pressure segment urges the blank against the peripheral surface of the feed cylinder to separate the bottom blank from the stack and feed the blank to an impression cylinder. The peripheral surface of the feed cylinder adjacent the longitudinal opening has suction ports therein to engage the blank to the peripheral portion of the feed cylinder.

3,599,971
DEVICE FOR AUTOMATICALLY FEEDING PHOTORESENSITIVE PAPER IN A COPYING MACHINE
Yukihiro Morioka, Higashiosaka, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

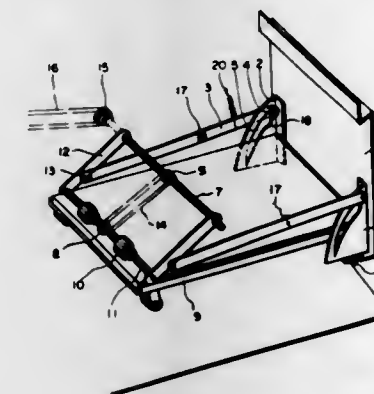
Filed June 19, 1969, Ser. No. 834,708
Claims priority, application Japan, July 10, 1968, 43/58766
Int. Cl. B65h 3/06

U.S. Cl. 271-36

4 Claims

A mechanism facilitating the loading of a copying machine with a stack of paper includes a lid hinged to the machine wall and swingable between a vertical position exposing the opening. A feed roller is fixed to a first shaft rotatably supported at a point remote from the opening between sidearms which are swingable about an upper drive shaft which is belt coupled to the first shaft so that the feed roller is movable with the sidearms between a raised retracted position and a normally lowered advanced position. Cam members are mounted on the lid and levers pivoted between their ends for

swinging about a transverse horizontal axis have their inner ends engaging the underfaces of the sidearms and their outer ends provided with cam followers engaging the cams



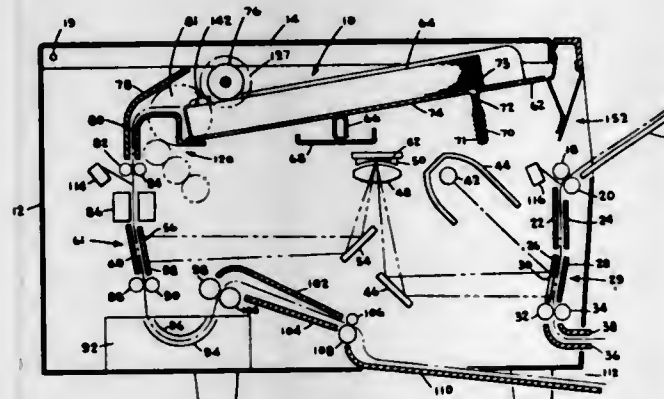
whereby the opening of the lid raises the feed roller to permit the insertion of a paper stack and the closing of the lid releases the sidearms to permit the lowering of the feed roller into engagement with the top sheet.

3,599,972
PAPER TRAY FOR PHOTOCOPY MACHINE
Joseph F. Miclukiewicz, Trumbull, Conn., assignor to Pitney Bowes, Inc., Stamford, Conn.

Filed July 23, 1969, Ser. No. 844,094
Int. Cl. B65h 1/12

U.S. Cl. 271-39

9 Claims



In a photocopy machine, a floating feed tray accommodates a stack of copy sheets from which individual sheets are fed successively into the machine. A pair of feed rollers are stationed above the forward end portion of the tray and are mounted on a drive shaft whose axis is fixedly positioned. The rearward end of the tray is biased downwardly to pivot the tray about a fulcrum, urging the forward end upwardly to maintain the uppermost sheet of the stack in feeding engagement with the feed rollers. A latch releasably retains the tray with its forward end spaced from the feed rollers and sheet separator-edge alignment elements elevated to facilitate loading.

3,599,973
PLAYGROUND SWING APPARATUS
Claude Wesley Ahrens, Grinnell, Iowa

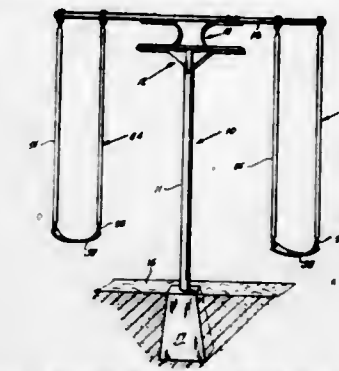
Filed Apr. 16, 1969, Ser. No. 816,560
Int. Cl. A63g 1/32

U.S. Cl. 272-30

3 Claims

The swing apparatus has a hub assembly supported at the upper end of an upright column for rotation about a vertical axis. A horizontal beam member extended diametrically of

the column and yieldably mounted on the hub assembly for rotational and horizontal tilting movement relative to the



column pendently carries an occupant supporting swing unit at each end thereof.

3,599,974
FRICTION-TYPE EXERCISING DEVICE
David D. Price, 3400 Harvey Parkway, Oklahoma City, Okla.

Filed Dec. 11, 1968, Ser. No. 783,037
Int. Cl. A63b 21/00, 21/20

U.S. Cl. 272-79 R

11 Claims



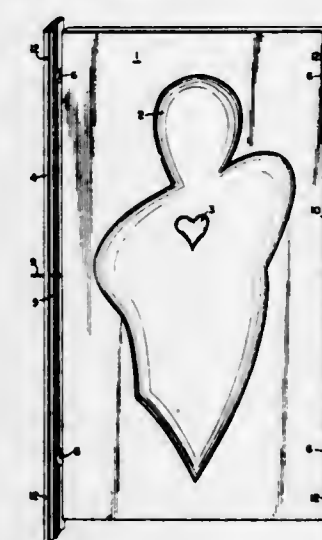
An improved exercising device whereby the person exercises by pulling a rope means extended generally over and between upper and lower pulley wheels. The exercising device is provided with an adjustable friction brake, whereby the amount of pulling force required to overcome the friction may be varied, as well as guide means, whereby the rope means is retained in contact with the pulley wheels and in the proper operational path throughout the use of the exercising device. The operations of lifting and pulling may be aided by an adjustable, pivoted hand grip member movably disposed along the rope means for selected affixture.

3,599,975
SILHOUETTE FENCING TARGET
Emil Stanley Pellicer, 6317 Clayton Road, St. Louis, Mo.

Filed May 17, 1968, Ser. No. 730,205
Int. Cl. A63b 69/02

U.S. Cl. 273-1 R

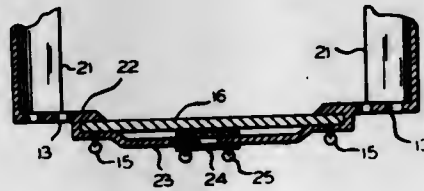
4 Claims



A silhouette fencing target being shaped to present the form of a human being including a heart shaped area, is pro-

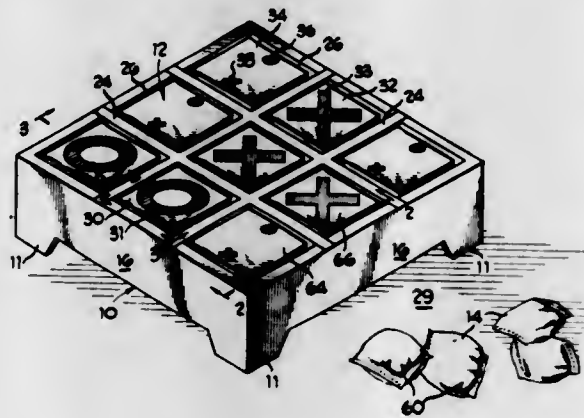
vided on a target base. The target has the shape of a human and consists of foam material secured to the target base and covered with a vinyl material. The target base is vertically movable by means of rollers received in tracks on a support frame and the target base may be adjustably secured by means of locking pins at a plurality of vertical positions on the support frame without removing the target base from the frame.

3,599,976
GAME BOARDS WITH CLAMPING MEANS
Paul S. Krajac, Jr., N-98, W-15844 Shagbard Road, Germantown, Wis.
Filed Oct. 13, 1969, Ser. No. 865,612
Int. Cl. A63b 63/00
U.S. Cl. 273-85 R 6 Claims



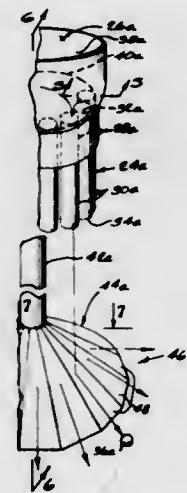
This invention relates to a pair of devices for use on a table top or game board. They consist of bottom plates to be positioned on a table top, vertical boards extending from the bottom plates, clamping means to attach the boards to the table top and baskets supported by the vertical boards. The clamping means are such as to allow no relative movement between the pair of devices positioned opposite each other mounted on a table top. These devices may be used in play with balls, darts, or the like.

3,599,977
ROTARY BLOCK TIC-TAC-TOE BOARD AND PROJECTILES
Marvin I. Glass, and Burton C. Meyer, both of Chicago, Ill., assignors to Marvin Glass and Associates, Chicago, Ill.
Filed Mar. 17, 1969, Ser. No. 807,526
Int. Cl. A63b 63/04
U.S. Cl. 273-95 R 3 Claims



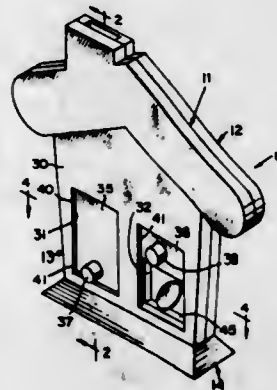
Game apparatus for playing a variant of tic-tac-toe including a frame member supporting a plurality of triangularly shaped blocks having scoring indicia on at least one face thereof. The blocks are pivotally supported in the frame in a manner such that in a rest position, only one face of each block is exposed to view. Projectile means are provided for throwing at any one of the blocks for turning the block and exposing a different block face to view.

3,599,978
UNPREDICTABLE-RETURN BALL-FEEDING DEVICE
Jorgen R. Sondergaard, 11032 Magnolia Blvd., North Hollywood, Calif.
Filed Jan. 13, 1969, Ser. No. 790,556
Int. Cl. A63b 71/00
U.S. Cl. 273-95 R 7 Claims



A device for feeding one or more balls out of the device in an unpredictable manner so that one or more persons may attempt to catch or strike with the palm of the hand, a racket, a bat, or the like, the ball as it flies through the air in a manner which the player could not have predicted. In other words, the device develops a great deal of speed, coordination, and timing on the part of the person using it because of the unpredictable return nature of the ball-feeding device. The device may be used by a single person for improving his speed, timing, and coordination or may be used by two or more persons as a game with appropriate scoring of various types being provided, based upon a successful or unsuccessful return of the ball emitted by the device in an unpredictable manner. The device has a common receptacle communicating with a plurality of differently positioned and, in certain cases, differently directed ball-emitting egress hole-defining means and, in certain forms of the invention the ball-emitting egress hole-defining means may direct the ball onto direction-changing bounce-producing impact means, causing a different type of bounce return of a ball in each case.

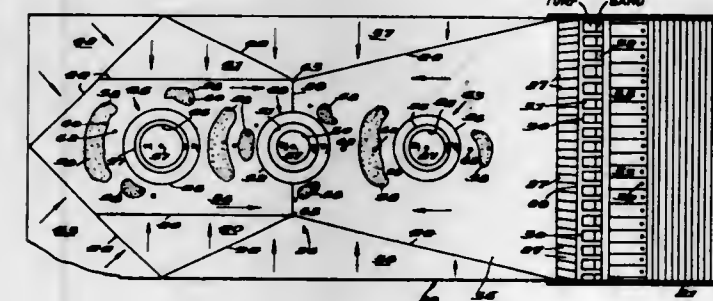
3,599,979
FREE-CHOICE GAME
Joseph A. Weisbecker, 1220 Wayne Ave., Eriton, Cherry Hill, N.J.
Filed Sept. 17, 1969, Ser. No. 858,586
Int. Cl. A63t 7/02
U.S. Cl. 273-138 R 5 Claims



A game wherein a pellet is dropped into an upper opening in a housing for movement through a passageway into one of

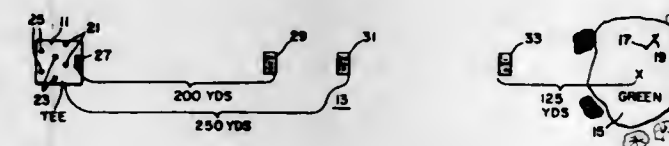
a plurality of lower openings. Each lower opening has a closure or door to initially conceal the pellet and the floor of the opening slopes downwardly away from the closure. This sloping, by biasing the pellet away from the door, helps to prevent detection of the particular door concealing the pellet. The pellet, by being disc shaped, saves overall depth in the housing and further aids in preventing detection.

3,599,980
CONCENTRATED GOLF GAME
Jesse E. Hammond, 925 Witham Drive, Corvallis, Oreg., and Jack O. Smith, 1059 Shamrock Drive SE, Salem, Oreg.
Filed Nov. 22, 1968, Ser. No. 778,106
Int. Cl. A63b 67/02
U.S. Cl. 273-176 A 5 Claims



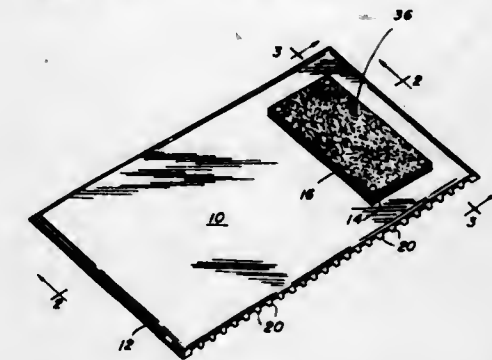
A golf course including an enclosed area at one end of an elongated fairway. The enclosed area includes driving tees, ball dispensers, turf for chipping shots, sand traps, putting greens and bleachers for spectators. The fairway is generally dish-shaped and includes a plurality of target greens. Balls are returned to the dispensers at the tees by a pneumatic system connected to the cups in the putting greens, the cups in the target greens and an opening at a low point of the dish-shaped fairway. Electrical indicators are provided to indicate when a hole-in-one is scored.

3,599,981
GOLF COURSE
Joseph Zausmer, 9126 Dale Road, Philadelphia, Pa.
Filed Apr. 21, 1969, Ser. No. 817,855
Int. Cl. A63b 67/02
U.S. Cl. 273-176 A 10 Claims



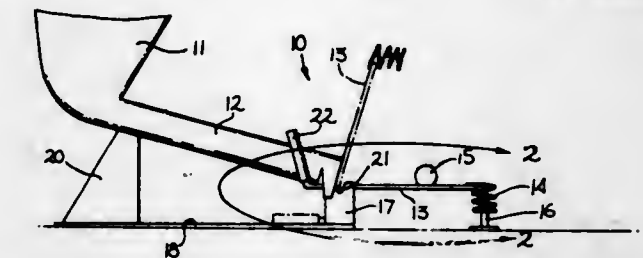
A system for accurately determining the distance a golf ball has traveled from a tee comprising a zero base marker mounted on the tee, and at least one fairway marker mounted in the fairway with the distance from the base marker appearing on the fairway marker, said markers being mounted flush with the ground and including a base plate, a plurality of pins extending downwardly from the base plate and having a cone-shaped barb on the end for anchoring the base plate in the ground, numerals extending upwardly from the base plate to indicate distance, a top plate, a pair of bosses extending upwardly from the bottom plate and having outwardly projecting sidewalls, a pair of recesses formed in the upper plate and having inwardly flaring sidewalls, said recesses being adapted to receive said bosses to hold the plates together, and a window formed in the top plate and adapted to frame the numerals in the bottom plate. A second fairway marker may be mounted in the fairway and may have the distance from the middle of the green appearing thereon.

3,599,982
GOLF-PRACTICE MAT
Joseph Elesh, Skokie, Ill., assignor to International Recreation Products, Inc., Skokie, Ill.
Filed Apr. 8, 1969, Ser. No. 814,286
Int. Cl. A63b 69/36
U.S. Cl. 273-195 A 2 Claims



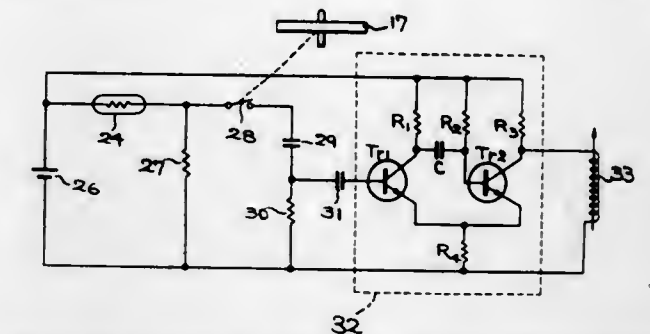
A practice mat for golfers of rubber of substantial length and width, containing no metal parts and having a cavity in one end of the face of the mat containing a brush removably secured in said cavity and to said mat and the brush having an upstanding rubber tube extending from the lower portion of the rubber mat upwardly through the brush and extending upwardly above the brush surface, whereby golf iron shots may be practiced from the brush surface and golf wood shots may be practiced using the rubber tube.

3,599,983
GOLF BALL DISPENSER
Raymond L. Melton, 8556 Newcastle Ave., Los Angeles, Calif.
Filed July 11, 1969, Ser. No. 841,049
Int. Cl. A63b 57/00
U.S. Cl. 273-201 10 Claims



A golf ball dispenser disclosed herein having a hopper for storing a quantity of balls and a pivoting ramp mounted on a fulcrum base for receiving a ball from the hopper for delivering to a playing tee. The device includes a selector means for introducing one ball at a time to the ramp and the end of the ramp mounts a helical guide for placing the selected ball directly onto the tee. Counterweights are carried on the ramp on one side of the fulcrum base so as to pivot the ramp to an upright position out of the club-swinging path.

3,599,984
AUTOMATIC CONTROL DEVICE FOR RECORD PLAYERS
Tatsuo Kondo, Tokyo, Japan, assignor to Victor Company of Japan, Limited, Kanagawa-ku, Japan
Filed Jan. 12, 1968, Ser. No. 697,520
Claims priority, application Japan, Jan. 16, 1967, 42/2678
Int. Cl. G11b 17/06
U.S. Cl. 274-1 L 7 Claims



An automatic control device for record players which is operatively connected to a pickup arm for converting a varia-

tion in the rate of movement of the pickup arm into a change in voltage to thereby detect the position of the leadout groove of a record. The device operates in response to the detected output voltage change to restore the pickup arm to its original position.

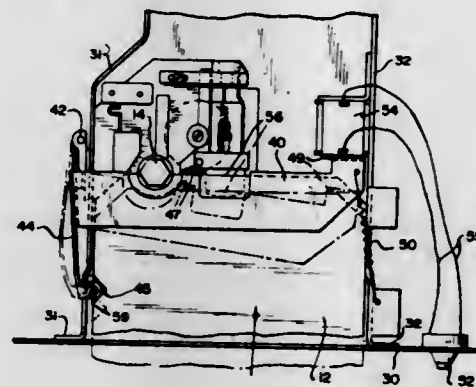
3,599,985
CARTRIDGE LOCKING AND EJECTOR MECHANISM
William B. Huber, Park Forest, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 5, 1969, Ser. No. 804,504

Int. Cl. G11b 5/00

U.S. Cl. 274-4 B

10 Claims



A tape locking and ejector mechanism for cartridge-tape players comprises a lever carrying intermediate the ends a first projection which extends into the path of movement of a cartridge when inserted into the apparatus. The lever is pivoted at one end; so that when the cartridge engages the projection, the lever is pivoted from a first position to which it is spring biased to a second position. A holding solenoid is located adjacent the other end of the lever when it is at the second position; and when a second projection on this other end of the lever moves into the magnetic field of the solenoid, it is held thereby so that the lever remains in the second position as long as the solenoid is energized. The pivoted end of the lever carries a cantilever leaf spring having a roller at its unsupported end, with the roller engaging a notch in the tape cartridge when the lever is pivoted to its second position to hold the cartridge in playing position. Upon deenergization of the solenoid, the biasing spring connected to the lever operating in conjunction with the leaf spring, pulls the lever back to its first position, causing the tape cartridge to be ejected and causing the spring-biased roller to be disengaged from the notch in the cartridge.

3,599,986
TAPE PLAYER UTILIZING PLURALITY OF ENDLESS MAGNETIC TAPE CARTRIDGES
Itsuki Ban, 829, Higashi-Ozumimachi, Nerima-ku, Tokyo-to, Japan

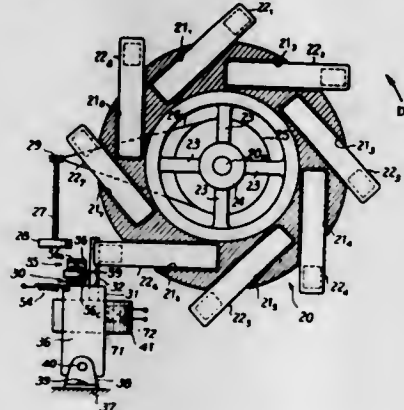
Filed Oct. 30, 1968, Ser. No. 771,720

Claims priority, application Japan, Oct. 28, 1967, 42/69004

Int. Cl. G11b 5/00, 23/06

U.S. Cl. 274-4 F

10 Claims



A tape player utilizing a plurality of endless magnetic tape cartridges comprising a container housing a plurality of endless magnetic tape cartridges therein, means for indexing

the cartridge housed in the container and the sound track by depressing pushbutton rods whereby rotation of the container is controlled by said means to bring the preindexed cartridge into the play position while a magnetic head is caused to be moved to the preindexed soundtrack for its reproducing as desired so that the indexed cartridge and track are played in succession according to the programs.

3,599,987
SELECTOR AND REPRODUCER FOR A PLURALITY OF ENDLESS TAPE CARTRIDGES
Itsuki Ban, 829 Higashi-Ozumimachi, Nerima-ku, Tokyo-to, Japan

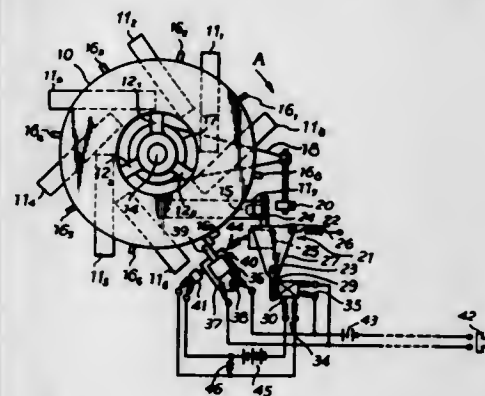
Filed May 28, 1968, Ser. No. 732,678

Claims priority, application Japan, May 29, 1967, 42/44713

Int. Cl. B65h 19/00; G11b 15/66; G03b 21/04

U.S. Cl. 274-4

11 Claims



An endless tape player comprising a housing storing therein a plurality of cartridges each receiving an endless tape therewithin, capstan means engageable and disengageable with a pinch roller stored in each cartridge for controlling a tape feed, cartridge-selecting means for controlling rotation of said housing to bring the cartridge to be reproduced into a position opposite to said capstan, an indicator for making sure of the presence of the cartridge during reproducing, whereby one of the plurality of cartridges is selectively taken out of each cartridge for tape reproduction.

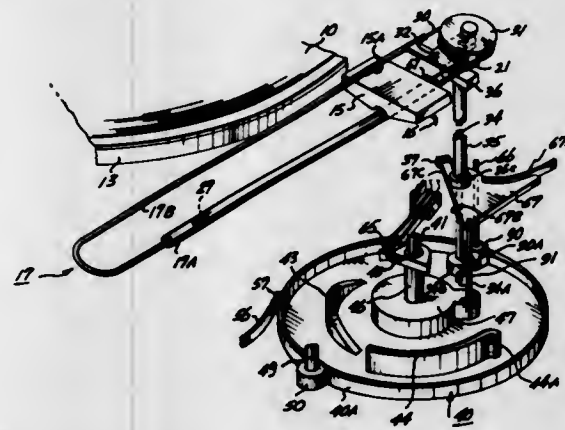
3,599,988
SEMI-AUTOMATIC PHONOGRAPH WITH RADIAL ARM
Elwood G. Norris, Seattle, Wash., assignor to Elwood G. Norris

Continuation-in-part of application Ser. No. 785,555, Dec. 20, 1968, which is a continuation-in-part of application Ser. No. 600,338, Nov. 15, 1966, now Patent No. 3,418,435, which was a continuation-in-part of Ser. No. 389,838, Aug. 17, 1964. This application Dec. 15, 1969, Ser. No. 884,883.

Int. Cl. G11b 17/06, 3/10

U.S. Cl. 274-9 R

13 Claims



A phonograph record-playing mechanism having a pickup head supported for relative movement on a tone arm which remains fixed during record play in combination with selectively operable mechanism for moving the arm and head into and out of record-playing position. A cam and lever system causes all of the necessary movements to rotate the arm into and away from record-playing position as well as for tilting the head assembly into and away from record-playing position relative to the arm. A pause control lever serves to disengage the needle from a record so that a person can inter-

rupt the playing of a record at one instant in time and then at a later time reengage the needle with the exact groove from which it was previously disengaged. A single pushbutton switch controls an electric circuit in a manner which initiates the playing of a record and also serves to control a reject cycle. The apparatus is usable for playing records of different diameters.

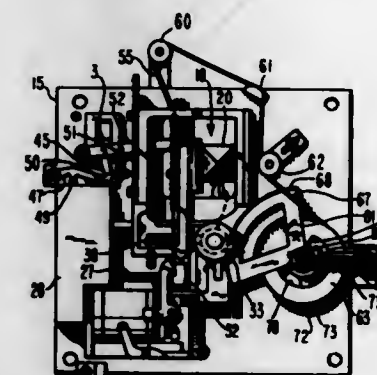
3,599,989
MEASURED REVIEW FOR DISC-TYPE DICTATION APPARATUS
Henry R. Kraspe, and Norwood Kenneth Perkins, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 17, 1969, Ser. No. 877,313

Int. Cl. G11b 25/04

U.S. Cl. 274-14

10 Claims



The invention concerns dictation apparatus making use of disc-type record media for the recording and reproducing of audio signals and particularly concerns mechanisms for effecting a desired standard amount of review of previously dictated material irrespective of the relative location of a sound transducer with respect to the disc. Customarily, in a disc-type apparatus, means are provided for relatively moving a transducer with respect to the disc media to trace a spiral sound track from the outer portion of the disc toward the inner portion. This may result in a variance in the amount of material that is reviewed during each operation of an associated review or backspace mechanism, and the present invention concerns itself with establishing a standardized increment of review in such apparatus.

3,599,990
SHAFT SEAL
Harold Frederic Greiner, and Walter William Meyer, both of Warwick, R.I., assignors to Sealol, Inc., Warwick, R.I.

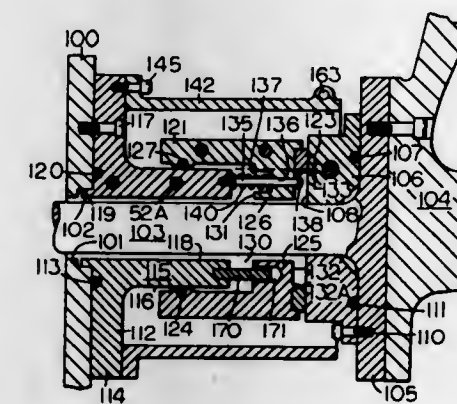
Division of Ser. No. 688,140, Dec. 5, 1967, Pat. No. 3,529,839.

Filed Oct. 13, 1969, Ser. No. 865,623

Int. Cl. F16j 15/54; B63n 1/00

U.S. Cl. 277-4

2 Claims



This invention relates to split-type face seals for use with oil-lubricated surface vessel stern tube bearings.

The present invention relates to mechanical rotary-type fluid seals and more particularly to an interface-type rotary fluid seal having a rotating mating ring and a stationary sealing thrust ring for use with oceangoing surface vessels.

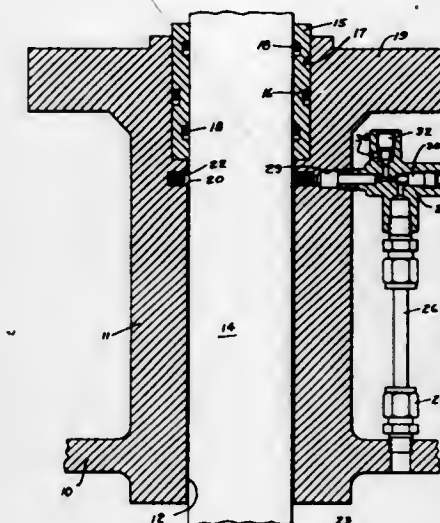
3,599,991
AUXILIARY VALVE STEM SEAL
Marvin G. Combes, Castro Valley, and Roger L. Ripert, Concord, both of Calif., assignors to Grove Valve and Regulator Company, Oakland, Calif.

Filed Oct. 31, 1969, Ser. No. 873,034

Int. Cl. F16j 9/00; F02i 11/00

U.S. Cl. 277-9

5 Claims



An auxiliary valve stem seal which permits removal and replacement of the main stem packing. An elastomeric ring around the stem inward of the main packing is normally of an inner diameter larger than the stem so that it is ineffective as a seal. A pressure fluid is selectively introduced around the seal ring, causing it to deform to a smaller diameter and seal around the stem. When the main stem packing is repaired and replaced, the sealing pressure fluid is relieved to render the auxiliary seal ineffective.

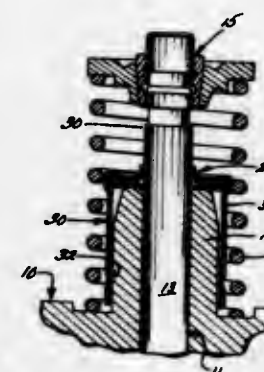
3,599,992
VALVE SEAL
John H. Kammeraad, Holland, Mich., assignor to K-Line Tool Co., Holland, Mich.

Continuation of application Ser. No. 675,586, Oct. 16, 1967, now abandoned. This application May 7, 1970, Ser. No. 37,385

Int. Cl. F16j 15/00; F16k 41/00

U.S. Cl. 277-48

7 Claims



A valve seal particularly adapted for utilization in conjunction with an overhead valve engine having a preformed seal member of filled polytetrafluoroethylene embossed or extruded to a generally a frustoconical shape and embodying an aperture through which the valve stem is adapted to slide. The seal is retained in position above the valve guide by means of a pair of washers which sandwich the edge of the seal together and are in turn retained by a boot having a deformable indent adapted to telescopically engage the exposed shoulder of the valve guide.

3,599,993

DEVICE FOR SEALING OF A ROTARY SHAFT

Bror Allan Eriksson, Karlstad, Sweden, assignor to Skega Aktiebolag, Skelleftea, Sweden

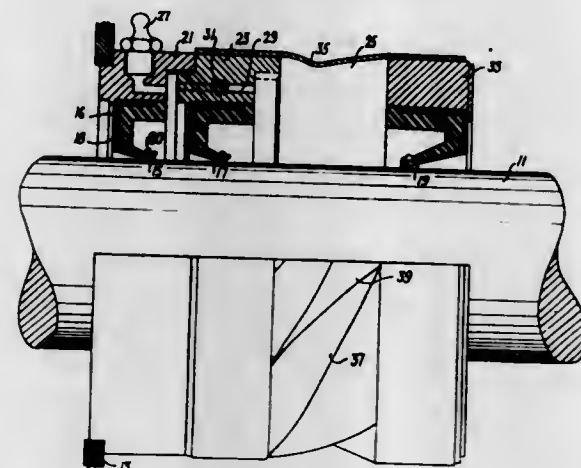
Filed Jan. 28, 1970, Ser. No. 6,391

Claims priority, application Sweden, Jan. 29, 1969, 1150/69

Int. Cl. F16j 108

U.S. Cl. 277-59

10 Claims



A sealing device is disclosed, wherein a rotary shaft is sealed to a stationary housing or similar. A sealing means engaging the shaft is somewhat movable with the shaft in the peripheral direction. Said sealing means is held by a flexible sleeve which is shortened when twisted. The sleeve encloses a supply of lubricant that is put under raised pressure when the sleeve is twisted, thereby preventing undesired passage of particles or fluids past the sealing means.

3,599,994

SHAFT SEAL FOR ROTATING SHAFT

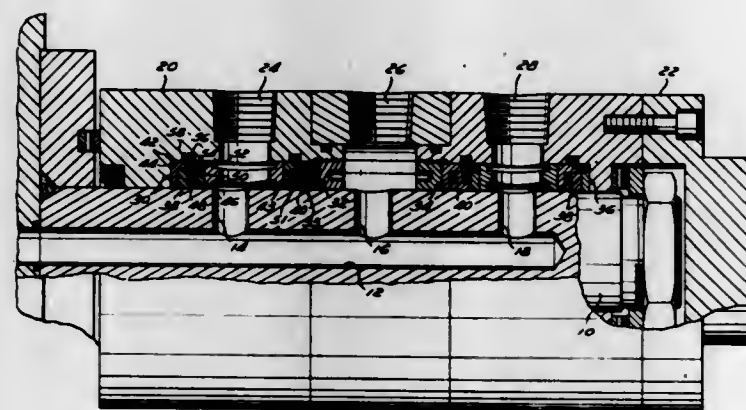
William L. Komph, Sr., Port Huron, Mich., assignor to McDowell-Wellman Engineering Company, Cleveland, Ohio

Filed Jan. 21, 1970, Ser. No. 4,559

Int. Cl. F16j 15/16

U.S. Cl. 277-136

12 Claims



There is provided an improved shaft seal especially adapted for use on a rotating shaft, and characterized by a seal ring, a channel-form circular seal member disposed between the channel-form retainer and the seal ring, and locking means coacting between the seal ring and the channel-form seal retainer.

A toolholder for machine tools such as boring mills and the like to enable quick and ready interchange of tool implements therefor while the machine tool is in operation. The holder includes a rotatable spindle adapted to be continu-

In a specific embodiment, the seal ring is provided with a key member or plurality thereof, and the seal retainer is provided with keyways which coact in assembly to prevent relative rotation of the seal ring with respect to the seal retainer. In addition, the seal ring is structured at its outer radial extremities to closely about the channel-form seal retainer so as to provide an antitipping configuration.

3,599,995

SEALING GASKET AND PIPE REPAIR CLAMP

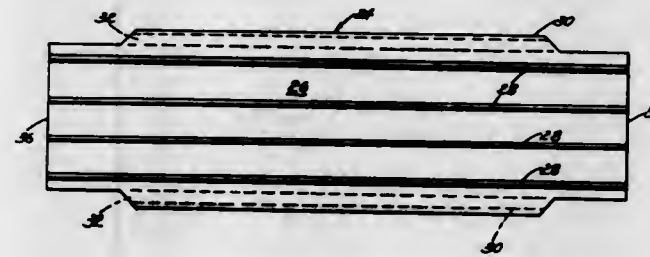
Michael J. Rafalski, Jr., 602 S. Falcon St., and Blase G. Celmer, 506 Kosciuszko St., both of South Bend, Ind.

Filed June 26, 1969, Ser. No. 836,800

Int. Cl. F16j 15/06

U.S. Cl. 277-208

3 Claims



A band clamp and sealing gasket for use in repairing a pipe is provided which has a plurality of beads extending circumferentially about the inner surface of the gasket. The beads perform the sealing function to seal the leak in the pipe. The gasket is also provided with a lip extending around each side thereof, having a groove which engages the band clamp to maintain the gasket in position during transportation and application, but which will allow the gasket to flow during the clamping operation to repair a leak.

3,599,996

TOOLHOLDER FOR A MACHINE TOOL

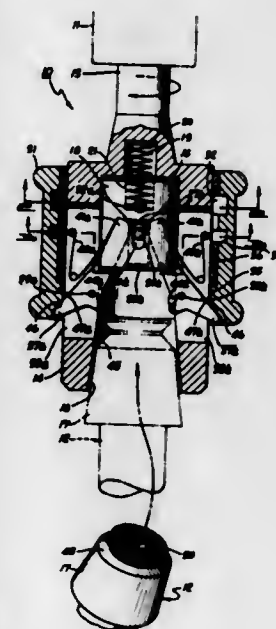
Donald G. Holt, 500 29th Ave., Oakland, Calif.

Filed June 25, 1969, Ser. No. 836,668

Int. Cl. B23b 31/10

U.S. Cl. 279-1 B

19 Claims



ously driven by such machine tool, and it is provided with an axially extending passage open at one end for receipt of a tool implement therein. Retainer structure selectively movable between tool-confining and tool-release positions is controlled by an operator element rotatably mounted upon the spindle and slidably displaceable relative thereto to control the position of the retainer structure. A driver mounted within the spindle passage is forced to rotate with the spindle but is selectively movable relative thereto under the control of the operator between an operative position in which it drivingly engages the tool implement and an inoperative position released therefrom. The operator element thereby controls both the retainer structure and driver, and it can be moved between its open and closed positions to permit removal and replacement of tool implements with the machine tool in operation.

3,599,997

COLLET STOP

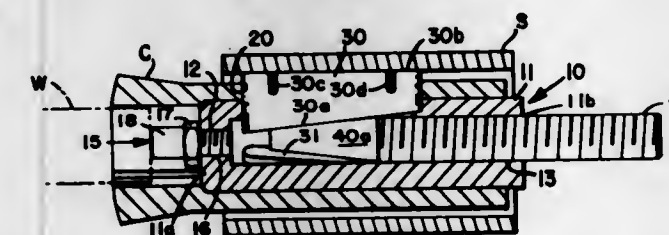
Clark E. Oliver, 10849 W. Estates Drive, Cupertino, Calif.

Filed Mar. 3, 1969, Ser. No. 803,607

Int. Cl. B23b 31/20, 31/40

U.S. Cl. 279-1 S

12 Claims



The collet stop comprises a cylindrical body, which is received by a conventional collet. One end of the body is formed with an internally threaded bore for receiving in threaded engagement a solid work stop. Formed in the body are a plurality of axially extending slots. Disposed within the slots are detachable, axially extending, spindle-engaging members. A plurality of O-rings received in peripheral grooves on the body and in the detachable members yieldably hold the spindle-engaging members in position on the body. The spindle-engaging members extend inwardly into the body and project outwardly from the body. The surfaces of the spindle-engaging members disposed within the body are tapered in the axial direction so as to be inclined inwardly as the spindle-engaging members progress toward the work stop end of the body. The surfaces of the spindle-engaging members projecting outwardly from the body, which engage the inner cylindrical wall of a spindle, project equidistant from the outer cylindrical wall of the body. When the collet stop is disposed within the collet that is received by a spindle of a lathe or other machine, the spindle-engaging members project through axially extending slots formed in the collet and engage the inner cylindrical wall of the spindle. A locking screw with a tapered end is received by the other end of the collet stop, which tapered end engages the tapered surfaces of the spindle-engaging members to press the spindle-engaging members into locking engagement with the inner cylindrical wall of the spindle to secure the collet in locking engagement with the spindle. The spindle-engaging members are made of aluminum and the locking screw is made of steel to provide an improved self-locking engagement therebetween.

3,599,998

SPRING-ACTUATED CHUCK ASSEMBLY

Jozef Kiwalke, Peoria, Ill., and Frederick M. Lamb, South Bend, Ind., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed July 16, 1969, Ser. No. 842,240

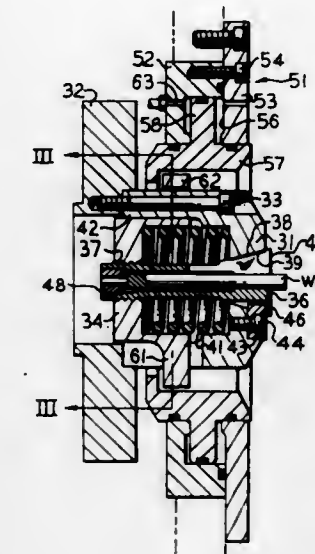
Int. Cl. B23b 31/20

U.S. Cl. 279-51

10 Claims

A chuck assembly including a first ring element secured to a base structure such as a spindle with a second ring element being movable relative to the first element. A chucking element or collet sleeve is associated with one element and arranged for interaction with the other element so that the chucking member is actuated for engaging a workpiece by spring means acting between the two elements. The chucking

member is preferably designed with a backup plate permitting axial forces applied to the chucking member through



the workpiece to cooperate with the spring for further tightening the chucking member upon the workpiece.

3,599,999

CHUCK

Albrecht Schnitzler, Nürtingen-Württemberg, and Hermann Kleser, Nürtingen-Oberensingen, both of, Germany, assignors to Metabowerke KG Closs, Rauch & Schnitzler, Nürtingen/Württemberg, Germany

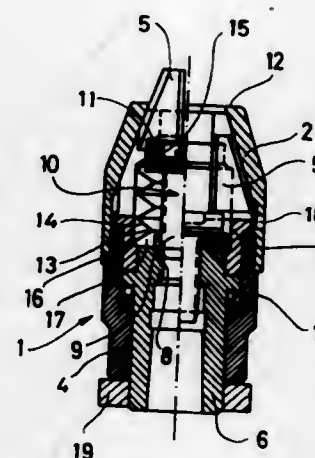
Filed Nov. 21, 1969, Ser. No. 878,652

Claims priority, application Germany, Nov. 23, 1968, P 18 10 614.4

Int. Cl. B23b 31/12

U.S. Cl. 279-60

10 Claims



A tubular outer body has an open end and an inner body is threadedly received in the outer body for movement in opposite directions towards and away from the open end. A plurality of jaws are provided in the outer body adjacent the open end and movable between a tool-engaging and a tool-releasing position in response to movement of the inner body in the respective opposite directions. Elastic sealing means in the outer body intermediate the inner body and the jaws protect the inner body against entry of contaminants.

3,600,000

SECURITY DEVICE FOR SLED

Kjell Bergstrom, Döbelnsgränd 22B, and Hakan Jorulf, Murklevagen 29, both of Uppsala, Sweden

Filed Mar. 20, 1969, Ser. No. 808,741

Claims priority, application Sweden, Mar. 21, 1968, 3792/68

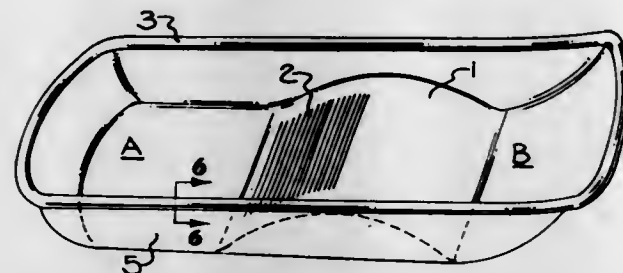
Int. Cl. B62b 13/04

U.S. Cl. 280-18

3 Claims

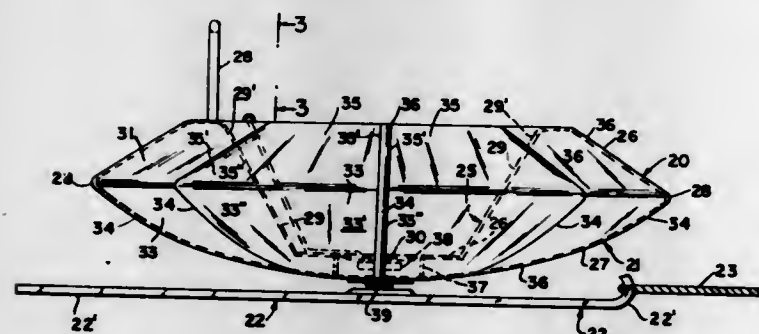
A security arrangement in and for a sled of the type to be used by small children, comprising an integral or attached

hump portion forcing the occupant of the sled to sit with the



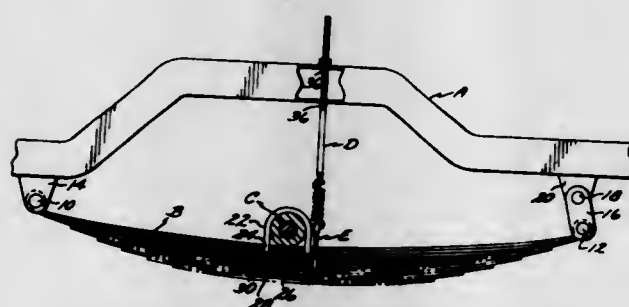
legs flexed thereby to eliminate the risk of fractures due to longitudinal thrusts.

3,600,001
ROTARY SKI SLED
Patrick W. Fisher, Grand Forks, N. Dak., and James A. Fisher, Larimore, N. Dak.
Filed June 18, 1969, Ser. No. 834,354
Int. Cl. B62b 13/00
U.S. Cl. 280-24 3 Claims



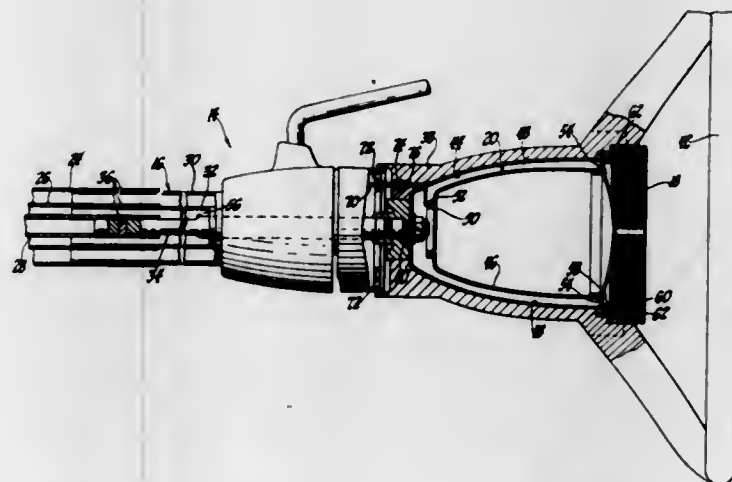
The invention comprises a ski sled having a dishlike body member for a passenger to ride in which is rotatably mounted centrally upon a ski. The ski sled, adapted to be towed behind either a boat or snowmobile on water or snow respectively and has a brake mechanism to releasably lock the dishlike member to the ski, whereby when the brake mechanism is released as the sled is being towed the engagement of the dishlike body member with the towing surface will cause the dish member to rotate relative to the ski.

3,600,002
AUTOMOTIVE REAR END LOWERING DEVICE
Dale D. Benwell, 4325 Cerritos, Long Beach, Calif.
Filed Dec. 8, 1969, Ser. No. 883,110
Int. Cl. B60g 11/36
U.S. Cl. 280-124 6 Claims



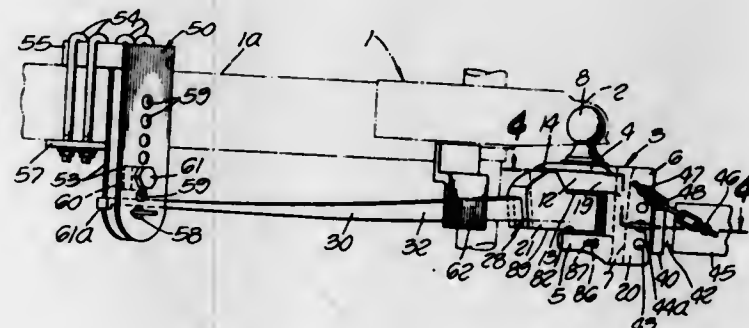
A pair of spring-loaded devices that may be removably mounted in laterally spaced relationship on an automotive vehicle having a semielliptic leaf spring supported rear axle housing to lower the rear end portion of said vehicle relative to the rear wheels thereof and impart a desired customized appearance to said vehicle, as well as improving the cornering ability and riding qualities of the vehicle.

3,600,003
VEHICLE SAFETY SYSTEM
William R. Carey, Farmington, Mich., assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio
Continuation of application Ser. No. 625,518, Mar. 23, 1967, now abandoned. This application Mar. 19, 1969, Ser. No. 808,704
Int. Cl. B60r 21/08
U.S. Cl. 280-150 AB 12 Claims



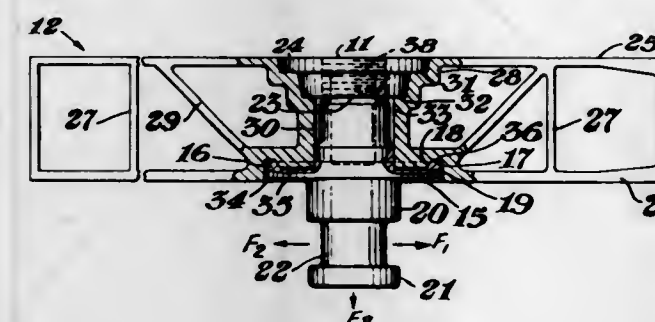
A steering column assembly for a vehicle to protect the operator thereof. An inflatable bag and a container for storing fluid for inflating the bag removably disposed as a unit within a recess in the assembly. The bag includes means comprising a rupturable patch for dissipating the energy resulting from movement of an operator against the inflated bag, thereby minimizing rebound of the operator. The steering column includes multiple overlapping components which are interconnected by shearpins and the container is disposed in the recess so that as fluid flows from the container to inflate the bag, a thrust is created on the column to shear the shearpins and collapse the column as the bag is being inflated.

3,600,004
TRAILER COUPLING DEVICE
Clarence E. Newkirk, 2265 S.E. Main St., Santa Ana, Calif.
Filed Nov. 3, 1969, Ser. No. 873,210
Int. Cl. B62d 53/00
U.S. Cl. 280-406 A 18 Claims



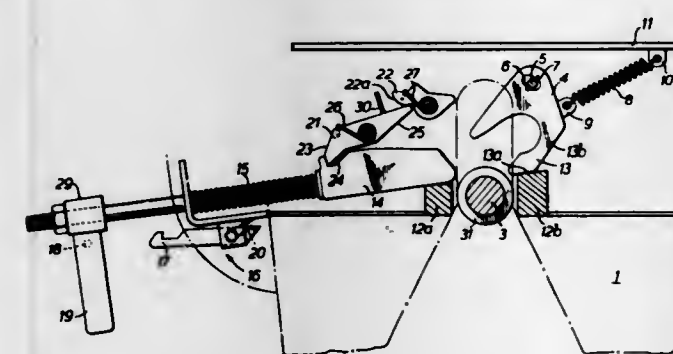
A coupling device for connecting a trailer to a towing vehicle by means of a ball and socket connection, employs first and second pivotally connected control elements, one secured relative to the towing vehicle and the other connected by diverging spring bars to elements of the trailer frame. A shank carrying the ball serves as a pivot pin connecting the control elements, the latter having cooperating contacting surfaces shaped to permit relative pivoting movement about the shank axis. Cam means on the contacting surfaces are shaped to cause relative tilting movement between the control elements upon relative pivotal movement about said axis. The contacting surfaces may be conical or otherwise shaped as a part of a surface of revolution about said axis.

3,600,005
KINGPIN AND SUPPORT MEMBER FOR A SEMITRAILER RIG
Gordon K. Glaza, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Dec. 19, 1969, Ser. No. 886,659
Int. Cl. B62d 53/08
U.S. Cl. 280-433 9 Claims



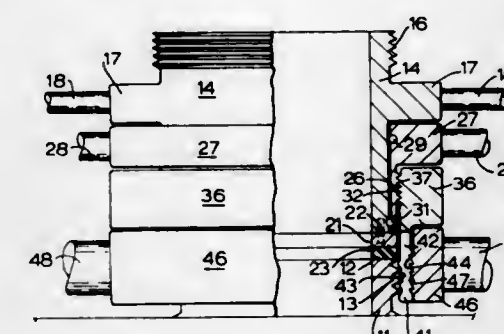
A kingpin assembly and support member is provided, as part of a semitrailer underframe, for coupling the trailer to a tractor or other towing vehicle. The kingpin assembly includes a round steel pin with a threaded upper end and an internally threaded screwcap for engaging the threaded end of the pin. The pin body is a one-piece unit having an annular transverse plate positioned below the threaded end and spaced apart collar members positioned below the plate. The support member, which is a light metal alloy extrusion, such as aluminum or magnesium, is generally defined by spaced apart transverse deck sections joined by upstanding struts positioned between the decks. A heavy-duty strut in the support member has a vertical opening therein conforming to the shape of the kingpin and screwcap, to enable the kingpin to be removably fastened into the support member with the screwcap.

3,600,006
COUPLINGS FOR TRAILERS
John Greenwood Slaven, 17 Queen Victoria Avenue, Toronto 6, Ontario, Canada
Filed June 12, 1969, Ser. No. 832,726
Claims priority, application Great Britain, June 12, 1968, 27,858/68
Int. Cl. B62d 53/08
U.S. Cl. 280-434 4 Claims



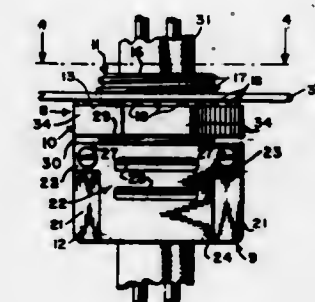
A coupling for mounting on one vehicle for receiving the coupling pin of another vehicle, the coupling including a hook which is pivotally mounted on one side of an entrance slot in the coupling through which the coupling pin will pass and a locking member which is held in a withdrawn position to one side of the entrance slot by a separate latch member the locking member is arranged to move into an engaged position in which it holds the hook firmly around the pin which has passed through the entrance slot when a pin moves into the entrance slot and rotates the hook. The rotation of the hook moves the latch and releases the locking member which moves under the action of a bias into the locking position.

3,600,007
FIREHOSE CONNECTOR
Charles O. Morris, 5613 Layton Drive, North Highlands, Calif.
Filed Nov. 19, 1969, Ser. No. 878,139
Int. Cl. F16l 37/10
U.S. Cl. 285-35 7 Claims



A rapidly assembled and disassembled, pressure tight connection of a firehose to a hydrant or the like is made even if the threads of the outlet pipe of the latter are damaged or do not exist. A slotted, clamping sleeve receives a clamping nut on its external threads, and when the nut is tightened the slotted end of the clamping sleeve engages the outlet pipe. A hose connector carries an enlarged external diameter collar faced with a gasket which bears against the end of the outlet pipe and the gasket is forced thereagainst by a threaded body which engages internal threads on the clamping sleeve. The hose connector swivels inside the body until the collar is tightened against the end of the outlet pipe.

3,600,008
SELF-LOCKING OUTLET BOX CONNECTOR
Robert L. Barry, 2916 E. Randolph Road, Silver Spring, Md.
Filed July 25, 1969, Ser. No. 844,802
Int. Cl. F16l 35/00
U.S. Cl. 285-39 8 Claims

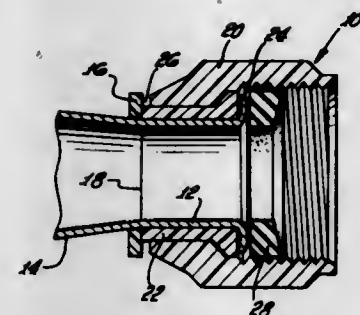


A connector for securing various types of electrical conduit to various types of electrical fixtures, such as, outlet boxes, which is capable of being applied manually to an opening of a wall of the box or fixture without the use of any tool, and which requires no separate fastening for securing the connector in the wall opening. The connector is secured in the box wall opening by a twisting force exerted thereon, is advanced through the opening by threadlike elements of the connector, and includes teeth or prongs which are brought into engagement with a surface of the wall, surrounding the opening, to retain the connector against detachment from the box opening by a normal twisting force exerted in the opposite direction.

3,600,009
FLEXIBLE CONNECTOR HAVING UNION NUTS
Samuel Shupper, North Hollywood, Calif., assignor to Jerome Feig, Trustee d/b/a Great American Manufacturing and Sales Co., Pacoima, Calif.
Filed Aug. 28, 1969, Ser. No. 853,700
Int. Cl. F16l 19/02, 59/00
U.S. Cl. 285-52 3 Claims

Seal washers frictionally received within the threads of

union nuts are kept in place and prevented from being

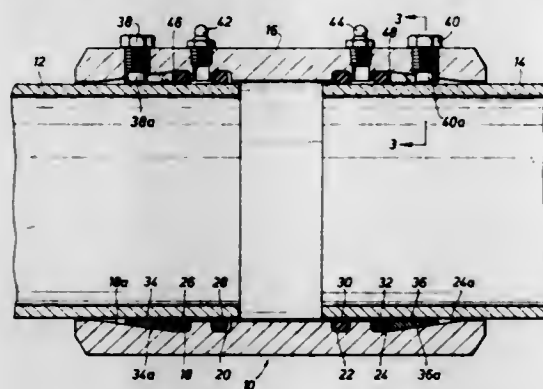


dislodged by the stop rings that limit axial movement of the union nuts.

3,600,010
PIPE COUPLING
George F. Downs, III, San Antonio, Tex.; Burton Ver Nooy, Tulsa, Okla., and William R. Gwartney, Jr., Houston, Tex., assignors to T. D. Williamson Inc., Tulsa, Okla.
Filed Apr. 1, 1969, Ser. No. 811,762
Int. Cl. F16I 17/00

U.S. Cl. 285-96

2 Claims

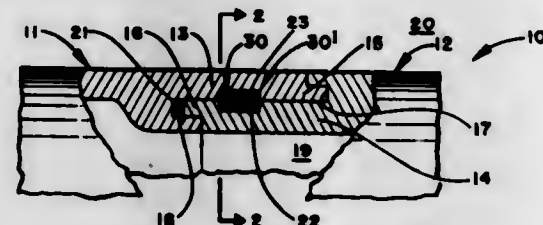


The coupling disclosed includes a tubular housing for sliding over the adjacent ends of two pipe sections to be connected together. Two spaced annular portions of the inner surface of the housing are tapered to form two facing conically shaped cam surfaces. Gripping means are positioned between the inner surface of the housing and the pipe sections. The gripping means are moved inwardly into holding engagement with the pipe when they are moved axially along the cam surfaces. The gripping means are so moved by seal members, which in turn are operatively moved axially by pressure from the line or an external source.

3,600,011
JOINT UTILIZING WEDGE-SHAPED RECTANGULAR LOCKING SHAFTS
Robert L. Alvis, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 19, 1969, Ser. No. 859,469
Int. Cl. F16I 37/00

U.S. Cl. 285-305

5 Claims



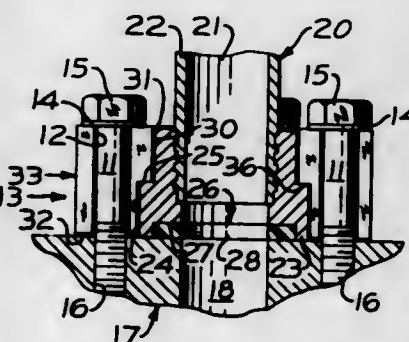
A lightweight locking joint between two annularly or cylindrically shaped members in which at least one interfitting

tongue and groove joint between the respective members is held in mating relationship by at least one set of two wedge-shaped rectangular shafts inserted into a common rectangular channel between the members through tangential access holes thereto, the common channel being formed by the telescopic juxtaposition of a partial channel in each member, each locking shaft wedging against the other of its set after sequential insertion of the shafts in oppositely disposed relationship in the channel filling the channel with the wedged shafts to insure a tight joint.

3,600,012
HOLE BISECTED FOUR-BOLT SPLIT FLANGE CONNECTOR
Warren J. Stafford, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 8, 1969, Ser. No. 855,868
Int. Cl. F16I 23/00

U.S. Cl. 285-413

1 Claim

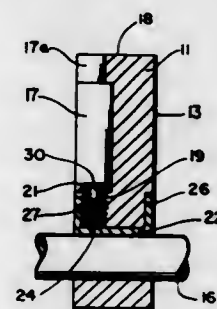


A four-bolt split flange connector for assembling fluid couplings to associated structures is diagonally bisected through two of its four bolt holes and its center so that each of the identical arcuate flange sectors includes a centrally disposed bolt hole and two half holes at its ends which join with those of the other sector to form four bolt holes. Thus, each of the sectors is secured with three bolts of the four attaching bolts when, for securing a coupling to associated structures, operating at high pressures.

3,600,013
ROTOR ASSEMBLY
John P. Doering, Jr., Santa Ana, Calif., assignor to Beckman Instruments, Inc.
Filed Mar. 16, 1970, Ser. No. 19,618
Int. Cl. F16D 1/00

U.S. Cl. 287-52.08

7 Claims

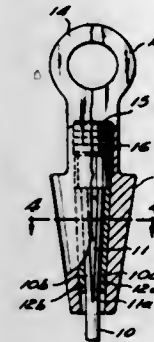


A rotor assembly for attaching a rotor member to a rotatable shaft including a shaft opening through which is positioned a rotary shaft. A U-shaped retainer is also positioned through the shaft opening between the shaft and the sidewall of the opening with one leg of the U-shaped retainer positioned against a rear surface of the rotor block and the other leg of the retainer positioned within a slot formed in the front face of the rotor block. Within the slot, between the leg of the retainer and the sidewall of the slot is positioned a setscrew which engages threads formed in the sidewall of the slot, the setscrew bears against the base of the retainer forcing it against the shaft thereby locking the rotor into place against the shaft.

3,600,014
MECHANICAL END FITTINGS FOR TENSION RODS
Thomas Harris, Chesterland, Ohio, assignor to The Glastic Corporation, South Euclid, Ohio
Filed July 28, 1969, Ser. No. 845,178
Int. Cl. F16G 11/00

U.S. Cl. 287-83

9 Claims

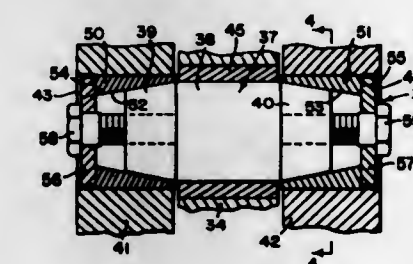


An end fitting and method for tensioning a plastic rod having longitudinal reinforcing fibers; an end portion of the rod being split, and the split end portions being separated by a wedge to form a first subassembly; slightly separated halves of a frustoconical split ferrule being applied to embrace the first subassembly from opposite sides thereof to form a second subassembly; the second subassembly being forcibly seated in a frustoconical bore of an outer fitting body adapted to be connected to a tension load; and a plug being threaded into said body to engage the parts of the second subassembly adjacent the large end of the bore of said body for driving them together into mutually wedged relationship in said body and developing high frictional pressures between mating tapered surfaces of the parts of the final assembly and for holding those parts against reverse movement.

3,600,015
PIVOT PIN STRUCTURE
Larry Gene McMullen, East Moline, Ill., assignor to Deere & Company, Moline, Ill.
Continuation of application Ser. No. 625,197, Mar. 22, 1967, now abandoned. This application Aug. 26, 1968, Ser. No. 766,660
Int. Cl. F16C 11/00

U.S. Cl. 287-100

4 Claims



A pivot pin structure that includes a pivot pin having a central journal portion and opposite and integral tapered ends; split sleeves having internal frustoconical-shaped surfaces that engage the tapered ends; and a pair of plates threadedly attached to opposite ends of the pin and bearing against the ends of the sleeves for moving the sleeves axially inwardly relative to the tapered ends of the pin.

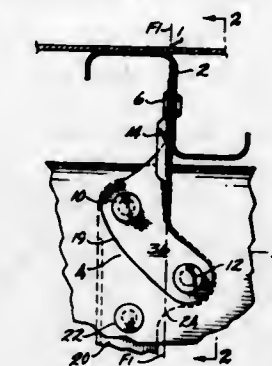
3,600,016
FRAME STRINGER TIE
Donald R. Dilley, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Mar. 23, 1970, Ser. No. 21,642
Int. Cl. F16B 1/00

U.S. Cl. 287-189.35

9 Claims

An aircraft axial force tie member for load transfer between first and second major structural elements; for example, between fuselage frame and skin stringer members acted upon by internal pressurization loadings. The tie member is economically constructed of lightweight flat sheet stock to provide a balanced load path having a high resistance to structural fatigue by virtue of a member shaping concept characterized by the use of a flat pattern having

bend or mold lines which are curved, in contradistinction to the straight mold lines of conventional ties. The curved mold lines as disclosed will cause a wiping action during forming to thereby generate member flanges which extend in a balanced

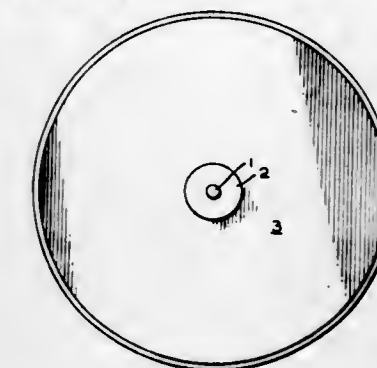


fashion on either side of the centerline of the axial force carried by the member. Embodiments suitable for forming from titanium sheet are shown for use with zee-section and with hat-section stringers.

3,600,017
HERMETIC METAL-TO-GLASS SEALS
Jeremy D. Scherer, South Dartmouth, Mass., assignor to Isotronics, Inc., New Bedford, Mass.
Continuation-in-part of application Ser. No. 612,590, Jan. 30, 1967, now abandoned. This application Feb. 26, 1968, Ser. No. 708,100
Int. Cl. F16B 11/00

U.S. Cl. 287-189.365

11 Claims

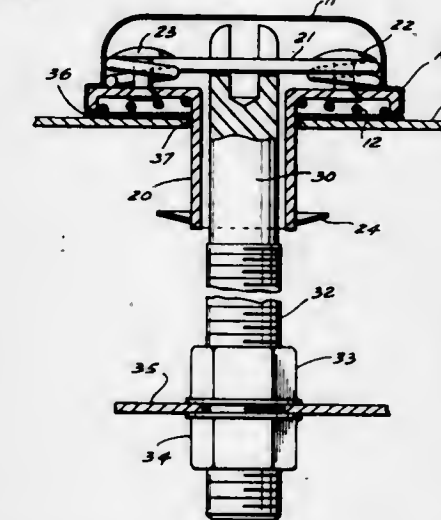


A hermetic metal-to-glass seal with a steel aperture-containing member clad with a ductile, corrosion-resistant metal and at least one corrosion-resistant terminal sealed in said aperture by said glass and electrical devices employing such seals.

3,600,018
AUTOMOBILE HOOD LATCH
Theodore Dzus, and Peter Schenk, both of West Islip, N.Y., assignors to Dzus Fastener Co., Inc., West Islip, N.Y.
Filed Sept. 17, 1969, Ser. No. 858,744
Int. Cl. E05C 3/04

U.S. Cl. 292-59

6 Claims

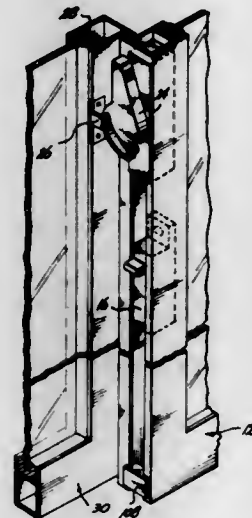


An automobile hood latch is described which includes a stud shank supported beneath the hood and provided with a

cam slot. A housing, a resilient pin supported by the housing, and a spring are carried by the automobile hood. The hood is secured by rotatively coupling the pin in the cam slot.

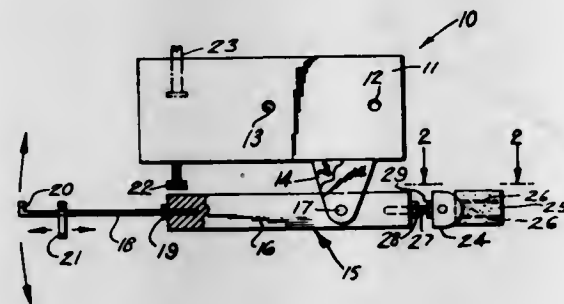
3,600,019
LOCKABLE LATCH MECHANISM FOR SLIDABLE SASHES

Takao Toyota, and Kiyoyasu Wake, both of Tokyo, Japan, assignors to Fujisash Industries, Ltd., Kawasaki, Japan
Filed Apr. 11, 1969, Ser. No. 815,417
Claims priority, application Japan, Apr. 17, 1968, Dec. 20, 1968, 43/25,267; 43/98,083
Int. Cl. E05b 47/00; 65/08; E05c 3/14
U.S. Cl. 292-106 13 Claims



The mechanism comprises a latch which is mounted to be manually reciprocated in a plane for engagement with a keeper, and a catch which is mounted to reciprocate in a path transverse to the plane, and yieldably biased to interengage with the latch when the latch is engaged with the keeper. It also comprises a catch release member which is mounted to reciprocate in a rectilinear path parallel to the plane, and rotatably mounted means which are operative to retract the catch from the latch, against the bias thereon, in response to reciprocation of the catch release member in one direction thereof.

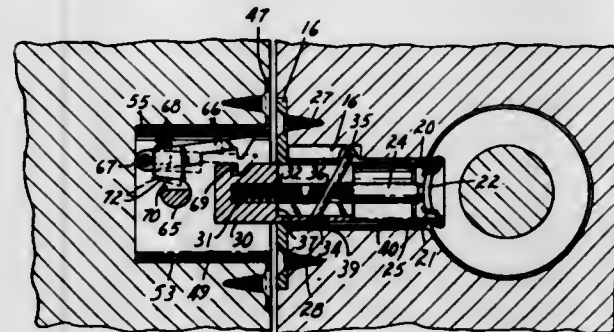
3,600,020
SAFETY LOCK FOR FURNITURE-STRIPPING MACHINE
Andrew E. Shutt, 305 S. Oak St., Normal, Ill.
Filed Aug. 7, 1970, Ser. No. 62,113
Int. Cl. E05b 43/00; E05c 19/12
U.S. Cl. 292-131 3 Claims



A safety lock for stripping machines using chemicals having a flash point in the danger zone. This device consists of a balanced mechanism holding the door closed until the furniture to be stripped has had time to dry out, the device including a balancing weight upon the threaded rod supported

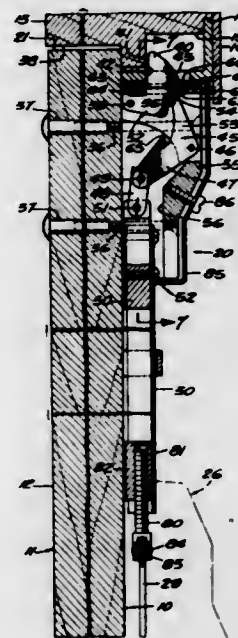
within a balance bar pivotally carried by a casting secured to the machine, the other end of the balancing device having a sponge which when saturated during the spraying will allow the door to remain closed until the drying process is completed.

3,600,021
LOCK STRUCTURE
Paul Maddison Hawkins, Afton, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Sept. 15, 1969, Ser. No. 858,048
Int. Cl. E05b 15/02; 63/20; E05c 1/12
U.S. Cl. 292-167 7 Claims



An improved latchbolt structure for a self-releasing and projecting lock structure and lock means in the strike for securing the latchbolt in projected position.

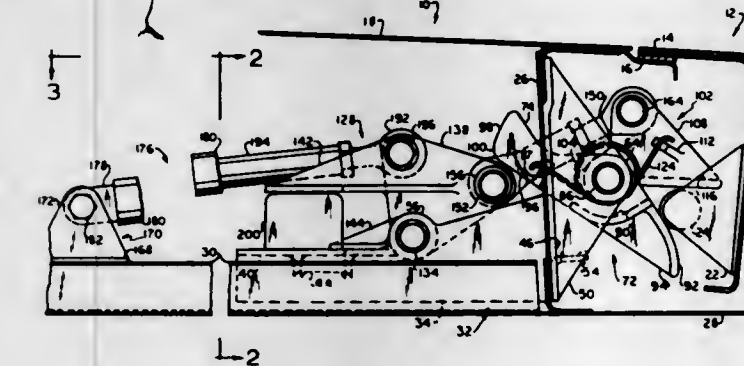
3,600,022
EXIT DEVICE VERTICAL ROD UPPER LATCHING AND HOLDDOWN MECHANISM
Richard L. Armstrong, Santa Fe Springs, Calif., assignor to Norris Industries, Inc., Los Angeles, Calif.
Filed Aug. 22, 1968, Ser. No. 754,614
Int. Cl. E05c 9/18
U.S. Cl. 292-237 7 Claims



An exit device consisting of a crossbar adapted to be pushed to raise upper and lower vertical actuating rods which in turn release respective upper and lower latchbolts so that the door can be opened. The upper latchbolt is pivoted near its outside end so that when released, it will fall into a

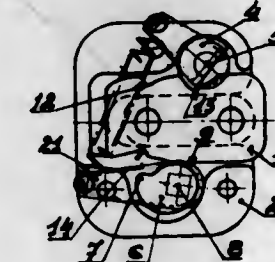
withdrawn position by gravity, assisted by a wiping of a front face of the latchbolt by a retaining plate on the doorframe. A blocker, pivoted on the inner side of the housing, holds the latchbolt in extended locked position by engagement with a downwardly facing shoulder on the inner side of the latchbolt. The upper actuating rod is linked to the blocker in such fashion that the blocker is swung out of blocking position when the actuating rod is lifted. When the actuating rod is released, the weight of the rod serves to urge the blocker toward blocking position. The upper latchbolt is returned from retracted position to extended position by a slide which is shifted transversely toward the latchbolt when the slide strikes a strike face, the slide then serving to push upon a projection on the upper latchbolt which tilts the latchbolt into the extended position, where it is blocked by the blocker until released. A lower latchbolt is also pulled to released position by upward movement of the lower actuating rod and held in released position as long as the upper latchbolt is held in released position. Also, the lower latchbolt is held in latched position as long as the upper latchbolt is held in latched position by the blocker.

3,600,023
LOCKING SYSTEM
Robert L. Gudde, Santee, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Feb. 9, 1970, Ser. No. 9,543
Int. Cl. E05c 3/22
U.S. Cl. 292-201 8 Claims



A rotatable drive crank is connected to an actuator and to a link which in turn is connected to a rotatable latch, the latter holding a movable member in a stowed position when the actuator moves the drive crank to a first position and permitting said movable member to move away from said stowed position when said actuator moves the drive crank to a second position. A rotatable retaining lever is coaxial with the latch and one end thereof is biased into engagement with rollers mounted on the drive crank and locks the latter in said second position thereof until the other end of the lever is contacted by the movable member as it returns to its stowed position.

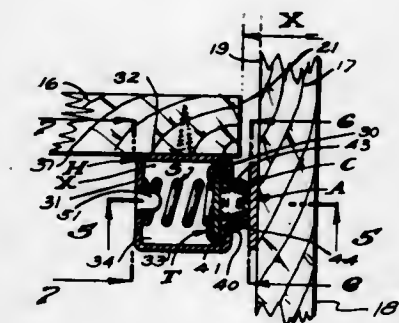
3,600,024
DOOR LOCK
Paul Boyriven, Paris, France, assignor to Compagnie Industrielle de Mecanismes, Courbevoie, France
Filed Jan. 14, 1969, Ser. No. 790,912
Claims priority, application France, Apr. 1, 1968, 146,650
Int. Cl. E05c 3/22
U.S. Cl. 292-226 5 Claims



A door lock having a self-cocking mechanism in which the catching of the bolt in the locked position is obtained by the

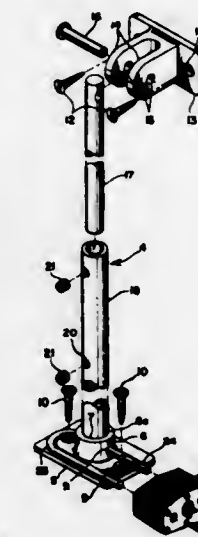
previous rocking of the bolt combined with the simultaneous rocking, but in a reverse direction, of a tightening element interacting together by a common spring whose tension increases proportionally with the closing of the door.

3,600,025
RELEASEABLE MAGNETIC LATCH
Maurice W. Brainard, 9339 Newcomb Ave., Whittier, Calif.
Filed Jan. 27, 1969, Ser. No. 794,316
Int. Cl. E05c 19/16; H01f 7/04
U.S. Cl. 292-251.5 10 Claims



A magnetic latch especially suitable for cabinet doors and the like having spring means to be biased upon manual engagement and urging of the cabinet door inwardly from its normal closed position and to urge and door outwardly to an open position and past the range of the magnetic latching effect when the door is suddenly released from said manual engagement.

3,600,026
WINDOW SAFETY LOCK
Carl T. Savio, and Margaret M. Savio, both of 2000 Creston Ave., Bronx, N.Y.
Filed Apr. 3, 1970, Ser. No. 25,511
Int. Cl. E05c 17/30; E05b 65/08
U.S. Cl. 292-276 5 Claims

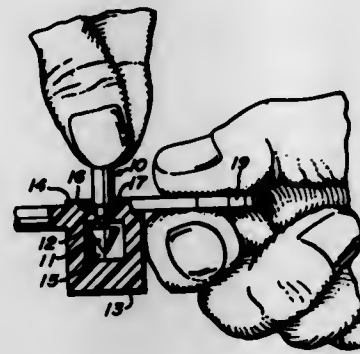


An upright lock assembly for sliding windows comprises a rod member slidably received in a sleeve member and held in adjustable relation relative to the same by means of set-screws. The rod member has a free upper end pivotally mounted about a horizontal axis to the upper sash of an upper window and the sleeve member has a free lower end removably accommodated in a socket mounted to the upper sash of a lower window. A padlock serves to further secure the lower end of the sleeve in the socket member.

3,600,027
TAMPER PROOF SEAL
William P. Noland, 402 Helke Road, Vandalia, Ohio, and
Glenn W. Layman, 1030 Bookwalter Drive, New Carlisle,
Ohio

Filed Nov. 27, 1968, Ser. No. 779,527
Int. Cl. B65d 55/06, 63/10
U.S. Cl. 292-322

7 Claims

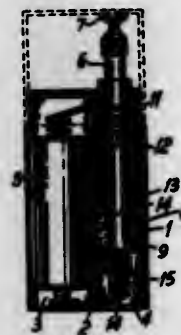


A tamper proof seal for the doors of box cars or like applications comprised of a single elongate plastic strip the ends of which interlock.

3,600,028
DEVICE FOR INSERTING AND REMOVING CONTACT LENSES
Wilhelm Henning, 64 Hepperstrasse, 432 Hattingen, Germany
Filed Mar. 12, 1970, Ser. No. 19,036
Claims priority, application Germany, Mar. 12, 1969, P 19
12 421.1

Int. Cl. G02c 11/00
U.S. Cl. 294-1 CA

6 Claims



An apparatus for inserting and removing contact lenses, which includes a suction head for a contact lens which is mounted at one end of a tube and permits the eye to view through the lens supporting member, and which also includes focusing light means adapted to be viewed through said tubular means, said tubular means being displaceable in a sleeve while the apparatus is equipped with a closing contact which in response to a pull out of the tubular means automatically turns on a fixation light, whereas when moving the tube inwardly the light is extinguished, said apparatus being equipped with suction creating means operable in response to a slight movement of the supporting means in the direction toward the sleeve means and becoming effective when the contact lens engages the supporting means so that said lens will be firmly drawn to and held by said lens supporting means.

3,600,029
PECAN RETRIEVER
Rudolph Nagel, 1305 Alsworth St., Gonzales, Tex.
Filed Sept. 25, 1969, Ser. No. 860,926
Int. Cl. A01d 11/02

U.S. Cl. 294-19 A

4 Claims

This specification discloses a device intended to be used in retrieving pecans from the ground with a pickup action. The device comprises an elongate rod having an out-turned handle at its upper free end and a retrieving receptacle detachably secured to its lower end. The lower end of the rod

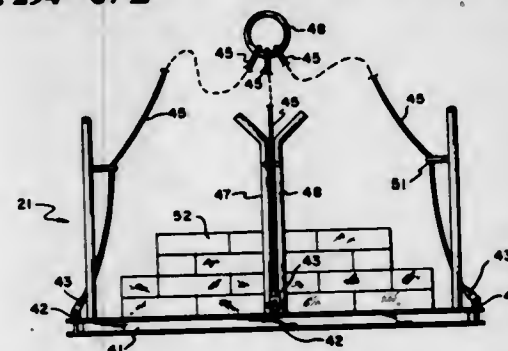
is formed with two recesses spaced 180° apart and the receptacle carries a spring latch which cooperates with one of these recesses to mount the receptacle on the rod in either



one of two diametrically opposed positions to adapt the device for use by either a right-handed or a left-handed person.

3,600,030
MATERIALS HANDLING DEVICE WITH GUIDES
Joseph Varon, Savannah, Ga., assignor to Shell Oil Company, New York, N.Y.
Filed July 22, 1969, Ser. No. 843,367
U.S. Cl. 294-67 E

3 Claims

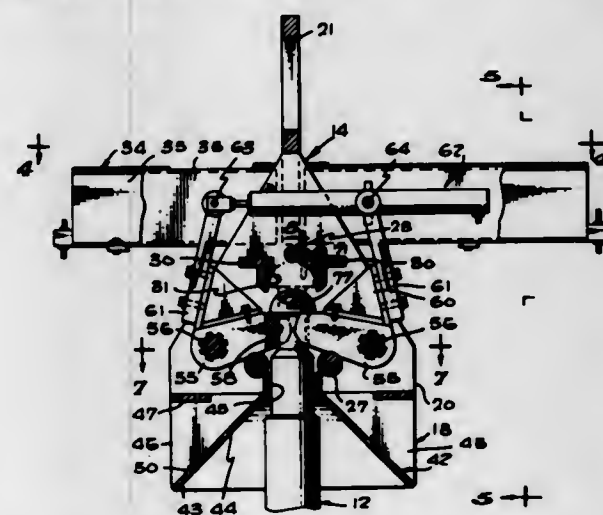


A device for the transport of materials from one location to another including a platform for supporting said materials, padeyes positioned on said platform, shackles secured to said padeyes and connected to lift lines and guide means secured to said platform and adapted to maintain said shackles and said lines out of contact with said transported materials.

3,600,031
HOISTING COUPLER
Fred K. Coleman, Los Alamitos, and Robert B. Schmid, South Gate, both of, Calif., assignors to Ameron, Inc., Monterey Park, Calif.
Filed Dec. 23, 1968, Ser. No. 786,156
Int. Cl. B66c 1/66

U.S. Cl. 294-88

5 Claims

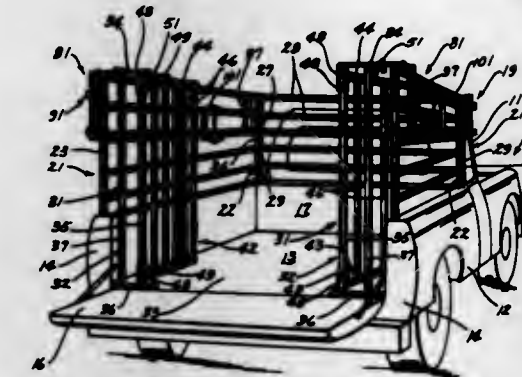


The application discloses a coupling device adapted to be suspended from a hoisting line for coupling to an object to be

lifted having an upright headed pin. The device receives the pin and has fluid-powered jaws for grasping the pin together with safety means to prevent premature opening or closing of the jaws including a valve means operable by the pin.

3,600,032
LIVESTOCK RACK FOR A VEHICLE BODY
Roland C. Gross, 118 S.E. Jackson, Greenfield, Iowa
Filed Nov. 6, 1969, Ser. No. 874,481
Int. Cl. B60p 3/04
U.S. Cl. 296-13

1 Claim

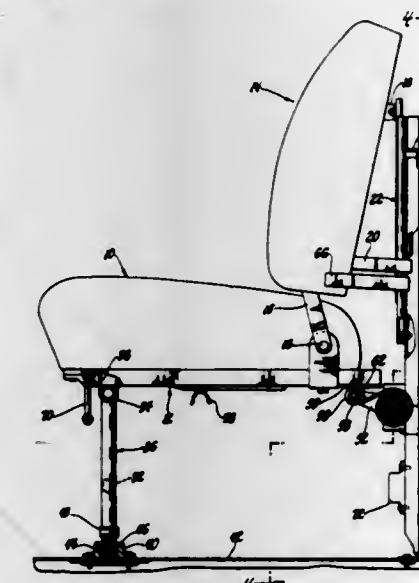


The livestock rack is intended for use with a pickup truck and includes sidewall structures secured to the side panels of the truck body. A rear wall structure has spaced end sections that define a rear gate opening which is closed by a pair of gate structures each of which is pivoted on a corresponding end section. The gate structures are movable into a coplanar relation to close the gate opening; into a forwardly diverged relation when the truck is to be used for hauling materials, and into a rearwardly diverged relation to load and unload the livestock into and from the rack, and are releasably locked in all moved positions. Upright extensions are provided for the sidewall structures and for the front and rear or end wall structures. When the extensions are not used, an end extension is foldable against one of the sidewall extensions, and each sidewall extension is then foldable against a corresponding sidewall structure.

3,600,033
FOLD-UP SEAT
Carl J. Holdampf, Southfield, and Randal T. Murphy, Royal Oak, both of, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.
Filed Nov. 5, 1969, Ser. No. 874,323
Int. Cl. A47c 4/00

U.S. Cl. 297-16

9 Claims

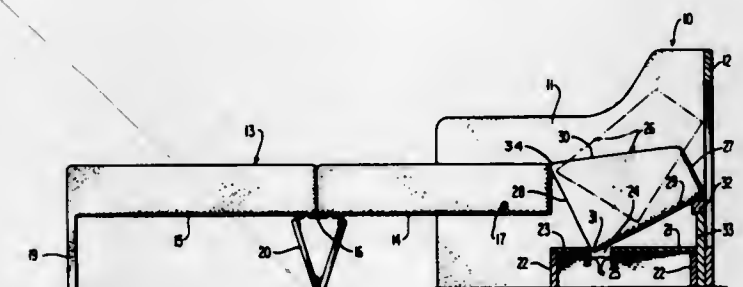


A collapsible unison acting spring suspended seat comprising a seat having a pivotal front leg assembly, a spring biased arm resiliently supporting the back of the seat when in the occupiable condition, a backrest pivotally connected to the rear of the seat and a vertical track for permitting the

backrest to displace vertically in unison with the rear of the seat. The backrest may be latched in a raised position which permits the seat to pivot into a collapsed position wherein it hangs beneath the backrest and between the backrest and the floor.

3,600,034
CONVERTIBLE FURNITURE
Melvin R. Jones, Baltimore; Victor M. Peruzzi, Forestville, and Joseph G. Peruzzi, Forestville, all of, Md., assignors to Victor Stanley, Inc., Dunkirk, Md.
Filed July 30, 1969, Ser. No. 846,190
Int. Cl. A47c 13/00
U.S. Cl. 297-105

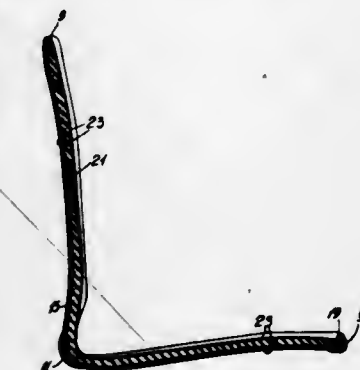
4 Claims



A readily convertible chair and bed structure which is characterized by extreme simplicity of construction and operation. A simple folding mode enables quick conversion from chair to bed or lounge. A unique head bolster is positively positioned for sleep at a desirable angle by an underlying support contained in the chair frame.

3,600,035
AUTONOMOUS SEAT FOR CHAIR
Georges Vondreja, 953 Cherrier Street, Montreal 132, Quebec, Canada
Filed Sept. 8, 1969, Ser. No. 855,882
Claims priority, application Canada, Sept. 20, 1968, 305,55
Int. Cl. A47c 7/02
U.S. Cl. 297-230

2 Claims

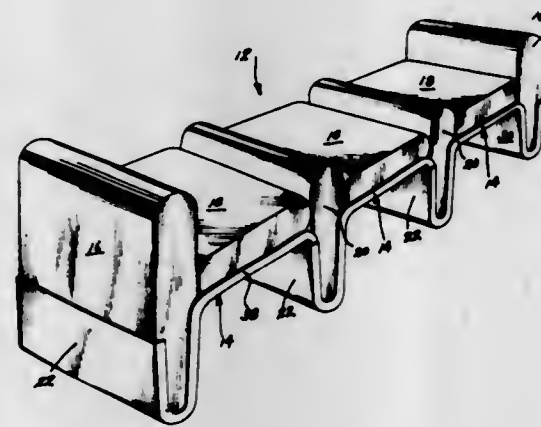


Seats intended for use on sundry supports. They are formed with a rigid frame having a back portion and a seat portion. The frame defines a continuous closed outline having two lateral sides and two transversal sides and these sides are spread by a constant and predetermined distance. A removable bar is transversely fixed to the two lateral sides of the frame at the junction between the frame and maintaining said predetermined distance constant. Finally, the seats having covering means solid over the frame and means for securing the covering means over the frame, the covering means forming a rigid and nonextensible stretched body to receive the weight of a person.

3,600,036

COMPONENT SEATING

Farid A. Iskander, Brooklyn, N.Y., assignor to Herman Miller, Inc., Zeeland, Mich.
 Filed July 9, 1969, Ser. No. 840,166
 Int. Cl. A47c 3/04, 1/08, 7/54
 U.S. Cl. 297-239

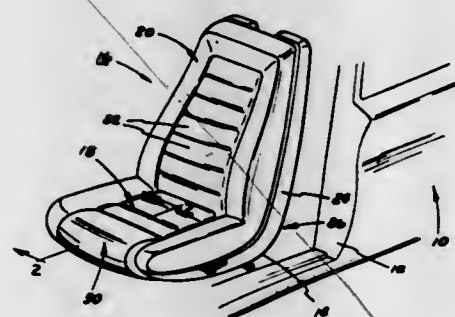


This disclosure relates to a seating construction in which base units can be interlocked in tandem arrangement for benches and the like. Cushion receiving pockets are formed between base units and cushions are positioned in the pockets as well as on seat portions of the base units. The base units are formed with U-shaped leg members on either side to facilitate the interlocking relationship and to permit vertical stacking of the units in nested position with the cushions between the nested base members.

3,600,037

VEHICLE SEAT WITH INDIVIDUALLY PIVOTAL BOLSTER SECTION

Thomas E. Lohr, Warren, Mich., assignor to Allied Chemical Corporation, New York, N.Y.
 Filed June 5, 1969, Ser. No. 830,736
 Int. Cl. A47c 7/50; B60n 1/06
 U.S. Cl. 297-312

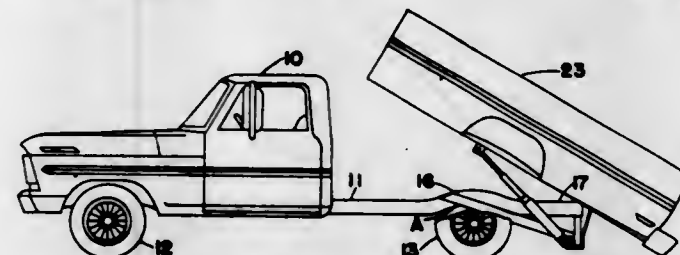


A vehicle seat having a seat portion and a back rest portion and an independently adjustable bolster pivotally supported in the front section of the seat portion.

3,600,038

DUMPING ATTACHMENT FOR PANEL TRUCKS

Marcus J. Jones, and William Michalak, both of Winnipeg, Manitoba, Canada, assignors to C. & S. Jones Limited, Winnipeg, Manitoba, Canada
 Filed Oct. 24, 1969, Ser. No. 869,134
 Int. Cl. B60p 1/16



A pair of downwardly depending rear hangers one at each rear end of the chassis members, carry hydraulic piston and cylinder assemblies which extend forwardly to a subframe upon which the panel truck body is mounted. The subframe is pivoted to the chassis at the rear end thereof and lies flush with the chassis when down because the longitudinal members of the subframe lie on the outside of the two chassis longitudinal members.

3,600,039

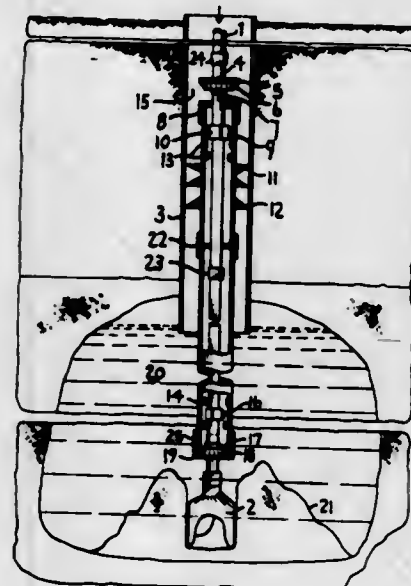
METHOD OF MINING SUBTERRANEAN RUBBLE PILES

Selby W. Porter, Calgary, Alberta, Canada, assignor to Kallum Chemicals Limited, Regina, Saskatchewan, Canada
 Continuation-in-part of application Ser. No. 790,581, Jan. 13, 1969, now abandoned. This application June 25, 1970, Ser. No. 49,894

Int. Cl. E21b 43/28

U.S. Cl. 299-5

8 Claims



A method is described for setting a liner in a rubble pile located on the floor of a subterranean cavity which is being solution mined. The invention involves the placing of a liner in a rubble pile on a subterranean cavity floor by introducing the liner with the drilling string. The liner is carried to the bottom of a subterranean cavity and inserted in the rubble pile located on the cavity floor by thrust bearings positioned on the tubing string and spaced apart from each other a distance greater than the distance encountered by the liner associated with the drilling string. Provision is made for insertion of the liner into the rubble pile once the drill has entered the pile a desired distance and means are provided for cutting the drill bit from the assembly. Specific provisions are made in the liner assembly for the introduction of fluid to the rubble pile and the removal of fluid therefrom.

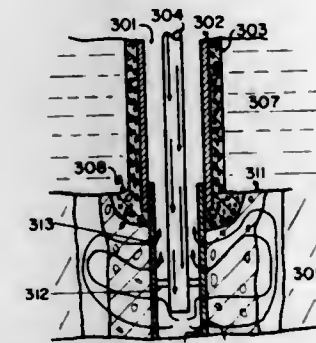
3,600,040

ROOF BOLTING AND COLUMN BUILDING FOR SOLUTION MINING

Donald W. Darsing, Fayetteville, Ark., assignor to Cities Service Oil Company
 Filed Oct. 16, 1969, Ser. No. 866,873
 Int. Cl. E21b 43/28

U.S. Cl. 299-5

10 Claims



A well is drilled down to the mineral deposit to be mined. The mineral deposit is penetrated by the drill bit so that about 10 percent of the total thickness of the mineral deposit is exposed to the wellbore. A given volume, the size of a required cap for the roof bolt, is washed out about the wellbore and hanging wall of the mineral deposit. The cap and bolt are formed by introducing casing and cementing it and the washed out area to the roof of the soluble material. After the bolt has been set, the cap is drilled through and solution mining progressed. The mineral is washed away from the cement cap leaving a capped roof bolt to inhibit roof slouching. Columns may be formed by washing a cylindrical area to the foot wall by progressive lowering of the washing tube into the mineral deposit and sealing a perforated liner to the footwall. A permeable cement or an impermeable cement which is subsequently perforated may be used as the sealant so that fluid may flow freely from the wellbore to the mineral deposit. The mineral is then washed by introduction of washing fluid through the perforated liner and permeable column into the mineral formation.

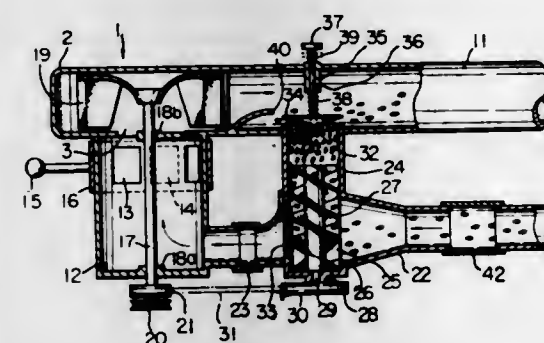
3,600,041

SUCTION CONVEYER

Shuichi Hirano, 19, Kamichimachi Mikkachi, Nakanikawagun, Toyama-ken, and Seichi Noda, 2-54, Nanazukamachi, Kizu, Kahoku-gun, Ishikawa-ken, both of Japan
 Filed Nov. 5, 1968, Ser. No. 773,604
 Int. Cl. B65g 53/04

U.S. Cl. 302-23

5 Claims



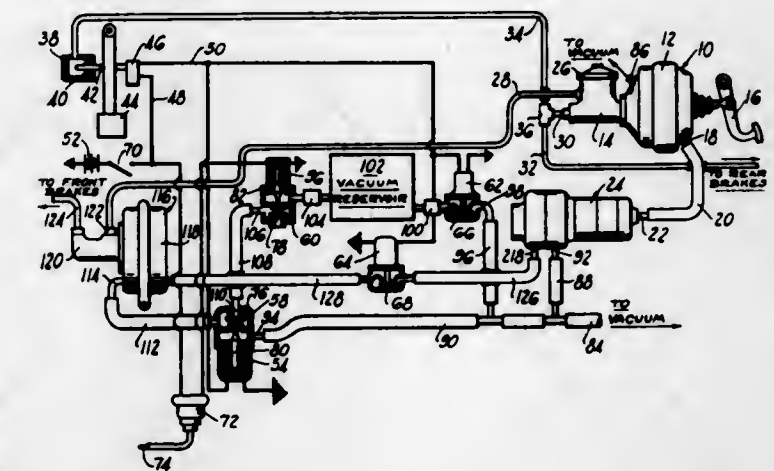
A suction conveyor for conveying material such as rice, wheat, barley, beans and maize. The suction conveyor of the invention comprises a conveying mechanism having a suction fan by suction air and particular mechanical separating means for separating air from the conveying material disposed in a suction passage at a preceding position before the suction fan. The material separated from the suction air by the mechanical separating means is discharged from the suction conveyor by means of air blowing.

3,600,042

BRAKE SYSTEM CONTROL MEANS

Maxwell L. Cripe, South Bend, Ind., assignor to The Bendix Corporation
 Filed Dec. 27, 1968, Ser. No. 828,796
 Int. Cl. B60t 8/14, 13/60
 U.S. Cl. 303-21 F

4 Claims



A relay control valve operatable by a control pressure to monitor a slave servomotor which valve has additive pressure responsive elements adapted to be effective at progressively different values of the control pressure whereby the ratio of the control pressure for the valve with respect to a control pressure from the valve to the slave servomotor is variable. In addition, the valve can be linked with an antiskid control system to maximize effectiveness of the slave servomotor on at least a portion of a vehicle's brake system in which incorporated.

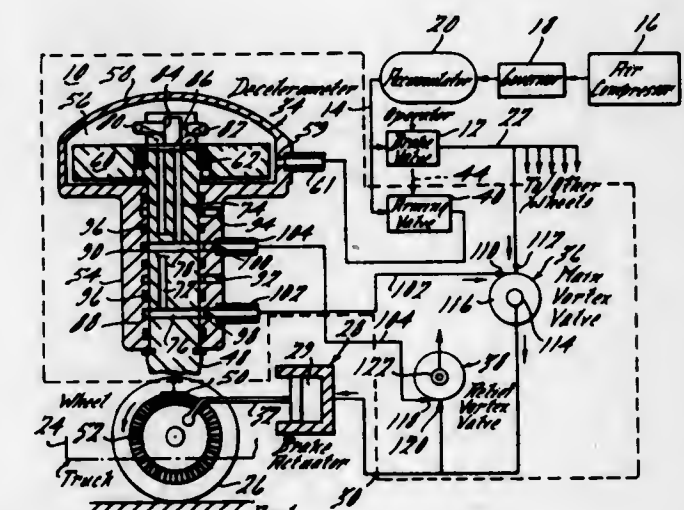
3,600,043

ANTISKID BRAKE SYSTEM UTILIZING A PAIR OF VORTEX VALVES

John T. Kasselmann, Southfield, Mich., assignor to The Bendix Corporation
 Filed July 7, 1969, Ser. No. 839,467
 Int. Cl. B60t 8/12, 13/36

U.S. Cl. 303-21 F

17 Claims



An antiskid brake system particularly suited for use with existing pneumatic brake systems having a wheel decelerometer to detect above normal wheel deceleration rates in combination with a pair of vortex valves, a first vortex valve for restricting the flow of air to the brake and a second vortex valve for relieving air pressure at the brake when above normal wheel decelerations occur.

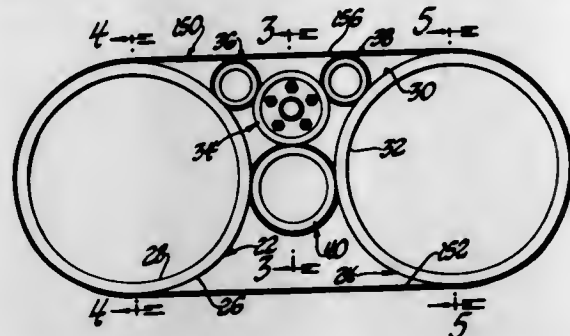
3,600,044

ADAPTIVE WHEELED TRACTION DEVICE

Walton W. Cushman, Fraser, Mich., assignor to Martin Tucker, trustee, New York, N.Y.
Filed July 7, 1969, Ser. No. 846,626
Int. Cl. B62d 55/12

U.S. Cl. 305-20

19 Claims



A wheeled traction device has a pair of hubless wheels or rollers for effectively engaging a surface along which the wheels propel the device; a first rotatable wheel or roller placed intermediate of the hubless wheels is operatively connected to such hubless wheels by means of a load belt which also encircles a substantial portion of the periphery of each of the hubless wheels; a rotatable power input member, adapted for connection to a power output shaft of an associated vehicle, is also operatively connected to said belt means and the first intermediate wheel or roller; the first intermediate wheel or roller functions to reverse the effective direction of rotation of the power input member when it is rotated by said vehicle power output shaft thereby causing the hubless wheels to rotate in the same direction as the power input member.

3,600,045

PISTON AND RIDER RING COMBINATION FOR HORIZONTAL RECIPROCATING COMPRESSORS

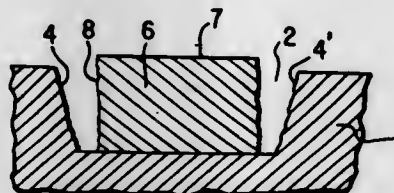
Kazuo Inoue, Tokyo, Japan, assignor to Nippon Piston Ring Co. Ltd., Chiyoda-ku, Tokyo, Japan

Filed Aug. 19, 1968, Ser. No. 753,347

Claims priority, application Japan, Aug. 24, 1967, 42/72203
Int. Cl. F16c 29/00, 17/00

U.S. Cl. 308-4

3 Claims



A piston having an annular groove with a radially extending projection. A rider ring carried in the groove and having an annular radially extending recess into which the projection fits. The clearance between either the rider ring and the groove or the projection and the recess is zero under normal temperatures to prevent hammering before the ring has expanded at operating temperatures.

3,600,046

AIR BEARING ASSEMBLY FOR CURVED SURFACES

John W. Redmon, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 10, 1969, Ser. No. 865,298

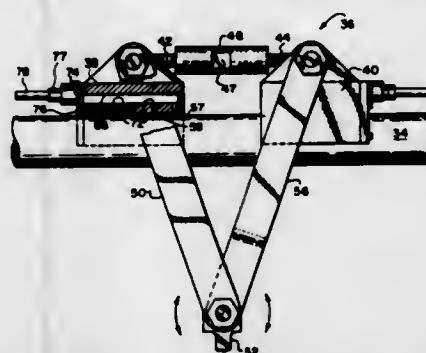
Int. Cl. F16c 17/00

U.S. Cl. 308-5

4 Claims

The invention is a journal type air bearing wherein a cylindrical bearing member or cup is designed to ride or float on a shaft. The bearing is split into two parts or halves that each have a round groove cut therein that conforms to the shape of the shaft and are connected by an adjustment mechanism that maintains a particular spacing between the two bearing halves. Each bearing half has an air manifold connected to a source of pressurized air so that an air film or gap can be maintained between the surface of the round groove in the

bearing half and the surface of the shaft. Two pairs of elongated links are pivotally connected at one of their ends to the



bearing, one pair to each bearing half. The other end of the links are connected to a load bearing support member.

3,600,047

PRECOMPRESSED SIDE BEARING

Robert W. MacDonnell, Crete, Ill., assignor to Unity Railway Supply Co., Inc.

Continuation-in-part of application Ser. No. 760,019, Sept. 16, 1968, and a continuation-in-part of 676,259, Oct. 18, 1967, now Patent No. 3,401,991, dated Sept. 17, 1968. This application Mar. 11, 1970, Ser. No. 18,604

Int. Cl. F16c 25/04

U.S. Cl. 308-138

17 Claims



Side bearing units are provided with a precompression arrangement that limits upward expansion so that contact of the side bearing with the car body is precluded during level ride conditions and during high roll conditions. A rugged retainer pin projects through a floating upper wedge and through the main housing to limit upward travel of the wedge. Compression springs acting on sliding wedge blocks that engage the floating wedge are held compressed by the retainer pin.

The wedge blocks have serrations to define accurately wear teeth on their top faces to indicate the amount of wear and the size of shim required to compensate for wear.

A high energy compression spring nest requiring minimum travel is utilized to achieve a compact unit.

3,600,048

PRESSURE BALANCED SEGMENTED SEAL

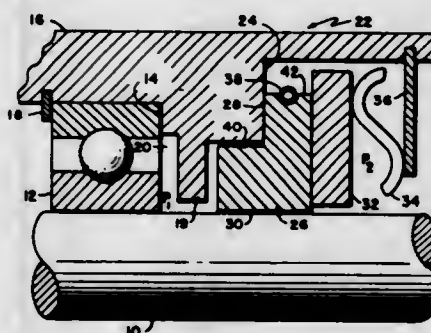
Mark Makhobey, Phoenix, Ariz., assignor to Avco Corporation, Stratford, Conn.

Filed Aug. 22, 1969, Ser. No. 852,294

Int. Cl. F16c 33/26; F16j 15/34

U.S. Cl. 308-187.1

2 Claims



The disclosure shows a seal assembly for use with a rotating shaft. A fixed radially extending annular sealing face is

positioned around the shaft. A segmented radial-type seal element also surrounds the shaft and has an outer radial face which is urged against the fixed annular face by a suitable spring. A garter spring surrounds the seal element to urge the inner surface of the seal element in sealing engagement with the rotatable shaft. The outer radial face is at the axial midpoint of the seal element so that the resultant radial pressure forces on the periphery and the inner sides of the seal element are substantially constant irrespective of variations in the external pressure differential across the seal.

3,600,049

SHEET MATERIAL DISPENSING CABINET, CONVERSION UNIT AND METHOD

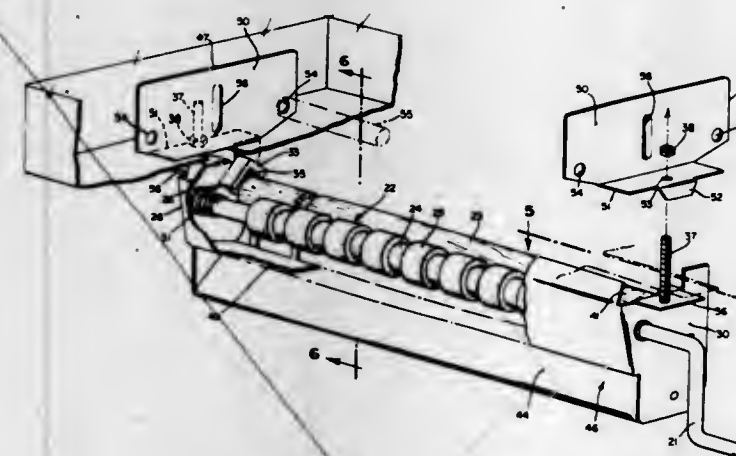
Lehman J. Bastian, Media, Pa., assignor to Scott Paper Company, Delaware County, Pa.

Filed Nov. 20, 1969, Ser. No. 878,359

Int. Cl. B65h 19/00

U.S. Cl. 312-37

18 Claims



A method and apparatus for converting a cabinet normally adapted to dispense sheet material from a stack of folded sheet material into a cabinet capable of dispensing sheet material from a roll of wound sheet material, involving the attachment of feed means beneath an elongate dispensing opening in the bottom wall of the cabinet through the use of fastener means operating through spaced-apart portions of the dispensing opening, the opposite ends of the fastener means serving to hold guide plates disposed inside of the cabinet in an upright position so as to control the position of the roll from which the sheet material is being unwound.

3,600,050

DIVISIBLE LEG TYPE DESK

Kokichi Kunishima, Osaka, Japan, assignor to Kabushikikaisha Ithoki Kousakusho, Osaka, Japan

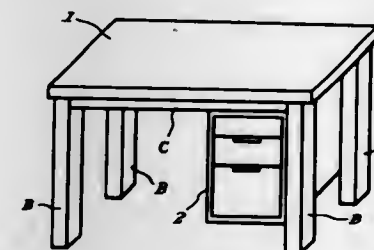
Filed Sept. 23, 1969, Ser. No. 860,305

Claims priority, application Japan, Dec. 26, 1968, 43/114180

Int. Cl. A47b 17/00

U.S. Cl. 312-194

9 Claims



Each leg of a desk includes a long rodlike pipe made of iron sheet to the upper end of which a crossing member is

welded at its front portion. The leg is screwed at a rear portion of said crossing member to each corner of a frame mounted on the back of a top board of the desk. A stack drawer on one side of the desk or stack drawers on two sides are mounted on the desk between the frame and the leg.

3,600,051

ASH RECEPTACLE FOR AUTOMOBILES

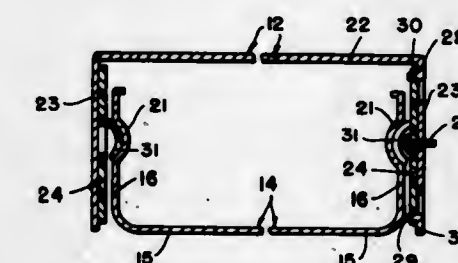
Henry De Boer, Lowell, Mich., assignor to F. L. Jacobs, Inc., Detroit, Mich.

Filed July 14, 1969, Ser. No. 841,470

Int. Cl. A47b 67/02; A47f 5/08; B60n 3/08

U.S. Cl. 312-246

5 Claims



The receptacle structure comprises a fixed, sheet metal stamped mounting member of inverted channel-shaped rectangular section, whose depending flanges are flat substantially throughout. Each flange has a rigid rectangular and nonmetallic frictional guide plate, for example of a thermosetting plastic, fixedly applied to its inner surface, as by a single screw and coacting flange tabs, the plates also being generally flat in character. Each guide plate has a pair of horizontally aligned, integral and inwardly molded, flexible guide lug or skid formations of quasicircular outline, which formations mate under sliding friction in longitudinal grooves of the ash box or receptacle member of the structure.

3,600,052

KNOCKDOWN ARTICLE OF FURNITURE AND FITTINGS THEREFOR

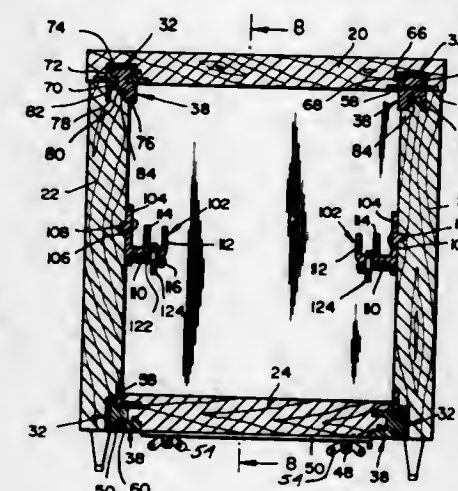
Jack M. Marateck, 785 Mace Ave., Bronx, N.Y.

Filed Sept. 19, 1969, Ser. No. 859,335

Int. Cl. A47b 47/00

U.S. Cl. 312-263

16 Claims



A knockdown article of furniture formed of a plurality of panels. A number of the panels are interengaged by slidably interengaging male and female extruded fittings secured on edges and surfaces of the panels. A further panel is slidably interengaged in the slidably interengaged panels and is secured to one of the number of slidably interengaged panels, to lock all of the panels into unitary structure.

3,600,053

SINGLE-ENDED FILAMENT LAMPS

Victor Mark Smith, London, England, assignor to Thorn Lighting Limited, London, England

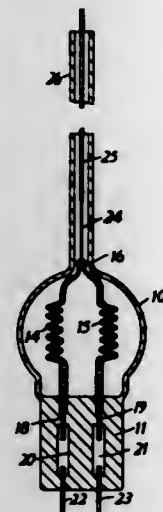
Filed Dec. 29, 1969, Ser. No. 888,719

Claims priority, application Great Britain, Feb. 13, 1969, 7959/69

Int. Cl. H01J 9/18

U.S. Cl. 316-19

1 Claim



A single-ended tungsten halogen lamp having an envelope, a press seal closing one end of the envelope, two filament sections each having one end separately supported in said press seal, a common electrically conductive support for the other ends of said filament sections, and a tip in the wall of said envelope, said common support being embedded in said tip and said filament sections being secured in electrically conductive relation to said support. During manufacture the filament assembly is supported by a fine wire attached to the support and extending through the exhaust tube. On closure of the exhaust tube the tip is formed around the support and the fine wire is burnt through.

3,600,054

HOLOGRAPHIC ASSOCIATIVE MEMORY PERMITTING CONVERSION OF A PATTERN TO A MACHINE-READABLE FORM

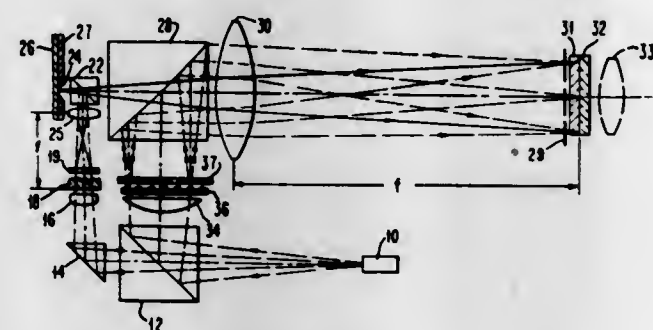
Dennis Gabor, London, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 565,519, July 15, 1966, now abandoned. This application June 11, 1970, Ser. No. 48,842

Int. Cl. G02b 27/00; G06k 9/00

U.S. Cl. 350-3.5

7 Claims



A holographic device for producing output image patterns in response to different input pattern wave fronts is described. A novel hologram is formed by the interference of a first pattern of electromagnetic waves and a second pattern of electromagnetic waves. The resultant hologram may be irradiated with a pattern of electromagnetic waves corresponding to the first pattern to reconstruct the second pattern of

electromagnetic waves, and vice versa. To form the hologram a coherent light beam, such as from a laser, is directed on an object such as a transparency having a pattern thereon. The light from the object is directed onto a photographic emulsion. A coherent light beam also illuminates a second pattern, such as a coded apertured plate, and the light passing through the apertures is directed onto the photographic emulsion where it forms an interference pattern with the light from the first pattern. A hologram is thereby formed which, when illuminated by a pattern similar to one of the original patterns will reconstruct an image of the other original pattern.

3,600,055

HOLOGRAPHIC FLIGHT SIMULATOR

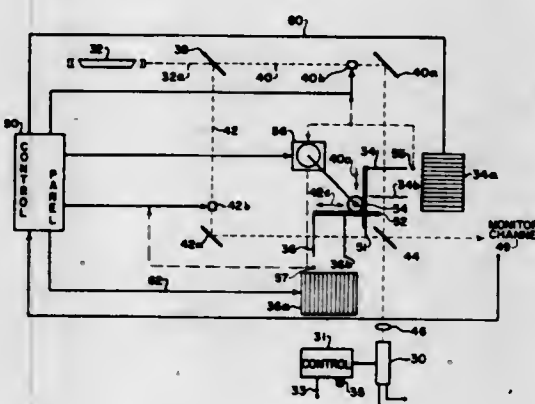
Robert M. Emerick, El Segundo, Calif., and James A. Horton, Munroe Falls, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Nov. 17, 1969, Ser. No. 877,315

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

3 Claims



The invention provides real time simulation techniques based on the use of holographic data storage. It possesses all of the advantages of a three-dimensional model optical pickup simulator and almost none of the disadvantages. The use of holograms eliminate the need for large models and associated structures. Coherent light and a plurality of channels, each channel controllable, and each channel adapted to receive separate holograms arranged in appropriate sequence to give simulation of motion in any of 6° of movement comprise the structural embodiment.

3,600,056

RECORDING AND REPLICATION OF ARRAYS OF HOLOGRAMS

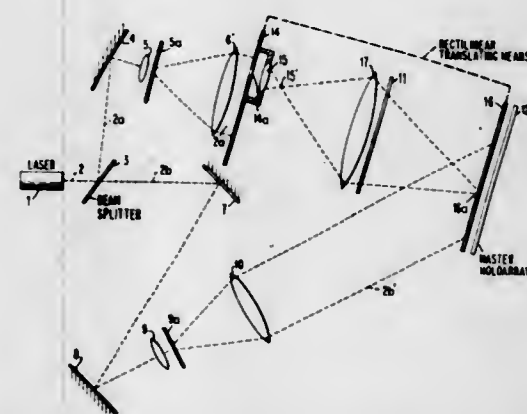
John H. King, Jr., Eastwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 24, 1969, Ser. No. 879,481

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

1 Claim



High fidelity holograms can be replicated in quantity from a master hologram constructed by side band techniques in

which spatial filters are employed in both reference and object beams. A collimating lens provides a plane wave reference beam which interferes with a convergent object beam produced by a focusing lens at an image plane occupied by the master hologram, the object function being located either before or after the focusing lens. In the replication process, the master hologram containing a plurality of discrete holograms and the hologram plate on which replicas of the master are to be recorded are placed one on either side of the focusing lens and separated from the latter by equal distances. A reference beam is directed through the master, which yields a diffracted beam constituting the master image that passes through the focusing lens and interferes with a component reference beam to form interference patterns, characterized as different from those on the master hologram, on the emulsion side of the plate, which when developed forms the replicated hologram.

3,600,057

SINGLE SLIDE MICROSCOPY APPARATUS

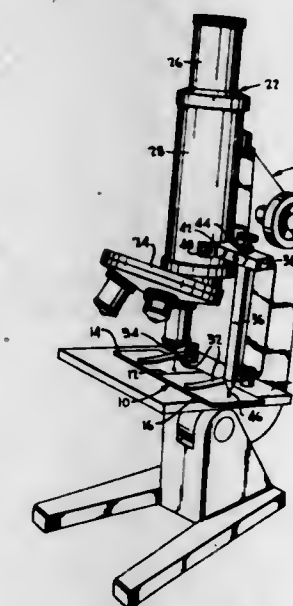
Raymond J. Leffler, Rte. 1, Rockford, Tenn.

Filed Apr. 17, 1969, Ser. No. 817,108

Int. Cl. G02b 7/00, 21/34

U.S. Cl. 350-81

4 Claims



A process of microscopy and apparatus therefor wherein a slide divided into a specimen area and a reference area is positioned on a microscope stage for visual selection of object points within the specimen area, reference marks are applied to such reference area by a marking device to identify each selected object point, and the reference marks are subsequently aligned adjacent an indicator device to readily relocate such object points for further examination.

3,600,058

OPTICAL FIBER DISPLAY DEVICE

Kensuke Kato, Tokyo-to, Japan, assignor to Research Institute of Technometrics Co., Ltd., Chiyoda-ku, Tokyo, Japan

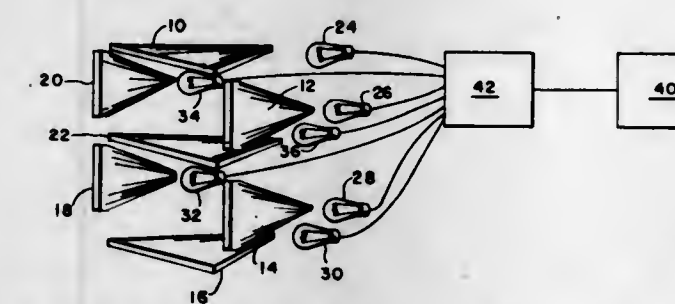
Filed Sept. 5, 1969, Ser. No. 855,572

Claims priority, application Japan, Sept. 11, 1968, 43/64,905

Int. Cl. G02b 5/16

U.S. Cl. 350-96 B

1 Claim



Bundles of optical fibers, in which the output ends of the optical fibers are arranged to form line segments, are

grouped together so that the line segments, in combination, are capable of representing alpha-numeric symbols to be displayed. By selectively illuminating light sources adjacent the input end of the optical fiber bundles the display device can be used to display a variety of symbols.

3,600,059

COLLAPSIBLE, EMERGENCY TRAFFIC SIGNAL DEVICE

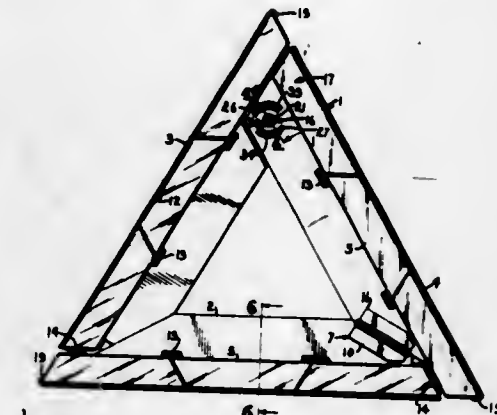
Robert V. Evans, Jackson, Mo., assignor to Rupert Manufacturing Company, Inc., Blue Springs, Mo.

Filed Dec. 10, 1969, Ser. No. 883,858

Int. Cl. G02b 5/12

U.S. Cl. 350-97

7 Claims



A collapsible, emergency traffic signal device has a planar base leg and a pair of planar side legs forming an equilateral triangle with reflective material retained on at least one side of the triangle. One side leg is connected to one end of the base leg and the other side leg is connected to the other end of the base leg whereby the side legs are foldable over the base leg for storage. A latch is mounted on certain legs for holding the three legs in the triangular forming position.

3,600,060

DISPLAY DEVICE CONTAINING MINUTE DROPLETS OF CHOLESTERIC LIQUID CRYSTALS IN A SUBSTANTIALLY CONTINUOUS POLYMERIC MATRIX

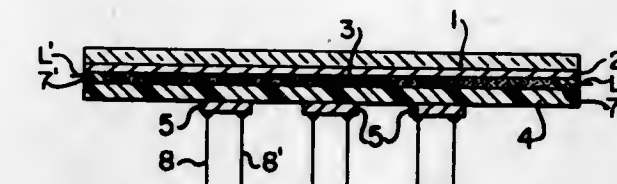
Donald Churchill, Kettering, and James V. Cartmell, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Feb. 23, 1968, Ser. No. 707,706

Int. Cl. G02f 1/28; H01J 29/10

U.S. Cl. 350-160

17 Claims



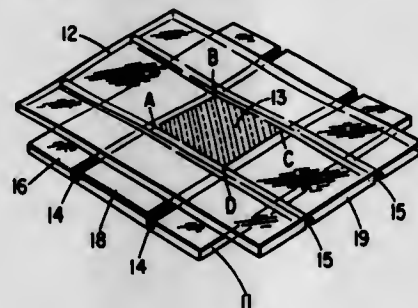
This disclosure is directed to articles of manufacture, chiefly display devices, containing minute "naked" droplets or inclusions of cholesteric liquid crystal material in a substantially continuous polymeric matrix, said liquid crystal material changing color or shade of color not only upon application of an electric potential but also upon removal of the field. The image produced has a comparable outline to that of the path of the electric field. Three chromatic states are evident, the normal color (before the electric potential is applied), the color given off when the electric field is applied, and the color observed when the electric field is removed. All three chromatic states are readily discernible from one another. The polymer matrix protects the cholesteric liquid crystal droplets from aging and enhances electric field behavior because the third chromatic state (electric potential

removed) has a greater longevity with the matrix-bound material versus unprotected material of identical composition but no polymeric matrix. Other advantages are also discussed.

3,600,061
ELECTRO-OPTIC DEVICE HAVING GROOVES IN THE SUPPORT PLATES TO CONFINE A LIQUID CRYSTAL BY MEANS OF SURFACE TENSION
George Harry Helmsler, Philadelphia, Pa., and Louis A. Zanol, Mercer, N.J., assignors to RCA Corporation
Filed Mar. 21, 1969, Ser. No. 809,131
Int. Cl. G021 1/16

U.S. Cl. 350-160

4 Claims

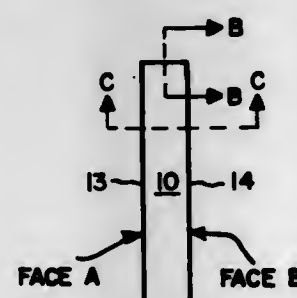


A liquid crystal device comprises a liquid crystal composition sandwiched between conductive support plates wherein the liquid crystal composition is restricted to a specific area between the support plates by means of grooves in the support plates. The grooves which can be formed in many ways can be on one or both support plates and define a closed area into which the liquid is confined.

3,600,062
WIDE ANGLE NARROW BAND OPTICAL FILTER
Eugene R. Schmeier, Huntington Station, N.Y., and Donald W. Whitmot, Nashua, N.H., assignors to Hazeltine Research, Inc.
Filed Feb. 14, 1967, Ser. No. 616,034
Int. Cl. G02b 5/28

U.S. Cl. 350-166

8 Claims



An optical filter including a plurality of waveguides which are either designed to operate only in a single mode or have their transmission limited to a single mode by an external means. Semitransparent mirrors are placed within, or at the ends of each waveguide to provide interference type filtering in each waveguide. Since the propagation characteristics of each waveguide are independent of the angle of the incident wave, the filter provides narrow band transmission of an incident plane wave or image over a wide field of view.

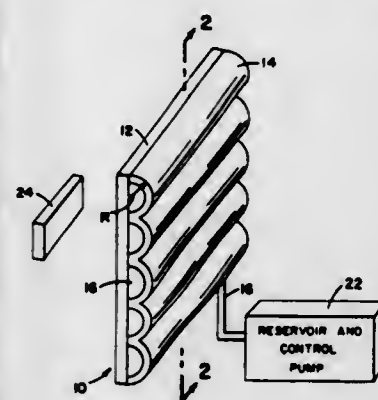
3,600,063
VARIFOCAL BEAM SPREADER
Thomas R. Bowen, 3911 Shamrock Drive N.W., Huntsville, Ala.
Filed Apr. 28, 1969, Ser. No. 819,870
Int. Cl. G02b 27/02, 1/06, 3/12

U.S. Cl. 350-167

5 Claims

A varifocal beam spreader that permits a rapid variation in the beam divergence angle while maintaining a uniform in-

tensity across an illuminated field. The uniform intensity feature is especially significant when used in conjunction with a laser where the Gaussian intensity distribution and the erratic local fluctuations of the laser beam result in nonuniform intensity distribution. Beam divergence can be varied to allow a maximum amount of energy to be concentrated into the area of interest very rapidly. A lenticular plate comprising a

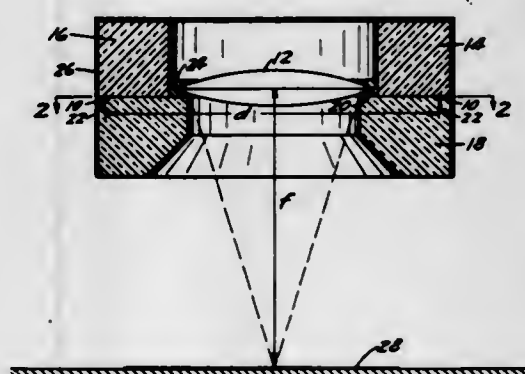


series of elongated lenslets forms a series of parallel semicircular tubes. The tubes are filled with a transparent fluid having an index of refraction close to that of the tubes. The plate is placed in the light beam path to spread the beam. Applying pressure to the transparent fluid changes the plate surface, allowing the beam angle to be increased. Similarly, reducing the pressure, reduces the beam angle.

3,600,064
PORTABLE MAGNIFIER WITH A RADIOLUMINOUS LIGHT SOURCE
Richard N. Walz, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed Sept. 16, 1968, Ser. No. 759,907
Int. Cl. G02b 27/02

U.S. Cl. 350-236

5 Claims



Self-luminous portable magnifier comprising a radioluminous light source to illuminate and a lens to magnify visually recorded data to be read. The combination provides substantially uniform illumination of the magnified portion of the matter to be read.

3,600,065
OPTICAL PROJECTION HEAD
Stanley James Law, and Ian Hugh MacKenzie, both of Anniesland, England, assignors to Barr and Stroud Limited, Anniesland, Glasgow, Great Britain
Filed Oct. 24, 1969, Ser. No. 869,154
Claims priority, application United Kingdom, Nov. 1, 1968, 51875/68
Int. Cl. G02b 7/02

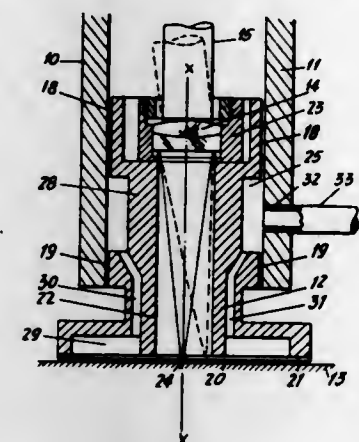
U.S. Cl. 350-247

6 Claims

An optical projection head adapted to maintain a lens system at a constant distance from a focal surface, including a support member in the form of a hollow elongated sleeve, a lens mounting member coaxially located within the support member and supporting a lens system defining an optical axis which is perpendicular to the focal surface, bearing formations spaced along the optical axis for slidably supporting the lens mounting member for movement in a direction parallel

to the axis, and the lens mounting member having an end portion projecting from the sleeve which defines a gas bear-

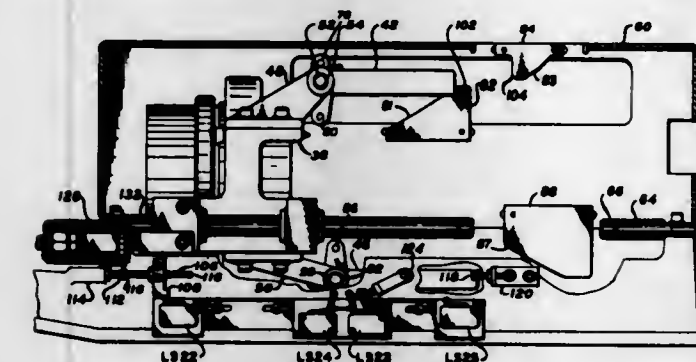
ing for supporting the lens system at a predetermined distance from the focal surface.



3,600,066
OPTICAL ASSEMBLY WITH SUPPLEMENTAL LENS MEANS
George D. Del Vecchio, Briarcliff Cove, North Rose, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed June 2, 1969, Ser. No. 829,605
Int. Cl. G02b 7/04, 15/02

U.S. Cl. 350-183

8 Claims



An optical assembly capable of being used in a machine for reproducing documents at one of a plurality of optical reduction rates. The optical assembly includes a first lens movable along the optical path and second and third lenses selectively movable into and out of the optical path. The first, second and third lenses are operatively coupled so that movement of the first lens along the optical path will cause the camming in of the second or third lens into the optical path at the proper positioning of the first lens to thus achieve the various optical reduction rates.

3,600,067
HAND-HELD OPHTHALMOSCOPES
Helmut A. Heine, Herrsching, Upper Bavaria, Germany, assignor to Optotechnik G.m.b.H. and Propper Manufacturing Company, Inc.
Filed Oct. 8, 1969, Ser. No. 864,786
Claims priority, application Germany, Nov. 23, 1968, P 18 10 536.7
Int. Cl. A61b 3/12

U.S. Cl. 351-12

12 Claims

A hand-held ophthalmoscope of exceedingly small dimensions capable of performing functions carried out by conventional ophthalmoscopes of much larger size. The ophthalmoscope includes a housing which carries an optical illuminating system. This latter system includes a light source as well as a light-deflecting reflector or prism which directs the light toward the eye which is to be examined. A rotary lens wheel is carried by the housing for situating a selected one of a plurality of lenses along an observation path of the system so that when the operator looks through the selected lens he will see the background of the eye which is to be examined. The rotary lens wheel is transparent and has an inner surface directed toward the interior of the housing and an outer surface carrying indicia which identifies several lenses and is

directed toward the operator. A light-conducting structure is situated in the interior of the housing to direct light from the light source to the rear of the transparent lens wheel so that

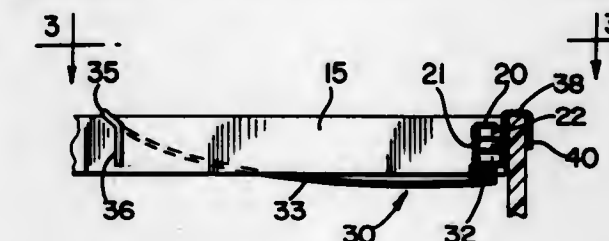


this wheel will be illuminated even in the dark in order to render the indicia visible to the operator so that the operator will know which of the lenses is located at the observation path.

3,600,068
SPRING ATTACHMENT FOR EYEGLASS FRAMES
Charles R. Jolicoeur, Jr., Rte. 1 Nugent Ave., Addison, Ill., and James R. Dempsey, 1433 S. Mohawk, Roselle, Ill.
Filed Apr. 14, 1969, Ser. No. 815,823
Int. Cl. G02c 5/16; F161 1/10

U.S. Cl. 351-113

2 Claims

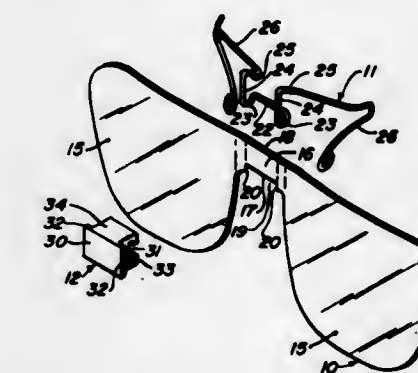


A spring attachment for the hinge ends of the temples of eyeglass frames which serve to urge the temples toward the folded position when the eyeglasses are in use so as to apply sufficient pressure against the head of the wearer to prevent movement of the eyeglasses out of proper position when the wearer moves his head out of normal upright position in leaning over or the like.

3,600,069
AUXILIARY CLIP-ON SPECTACLE
Albert G. McNeill, Maple Glen, Pa., assignor to Bachmann Bros., Inc., Philadelphia, Pa.
Filed Sept. 24, 1969, Ser. No. 860,486
Int. Cl. G02c 9/04

U.S. Cl. 351-47

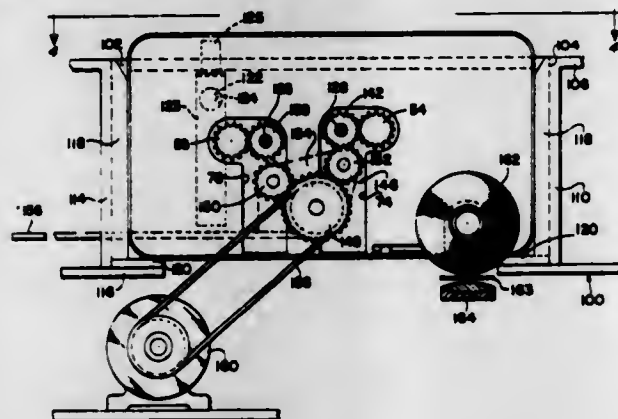
4 Claims



A lens structure having a pair of lens parts and a connecting bridge, and a resilient wire structure specifically con-

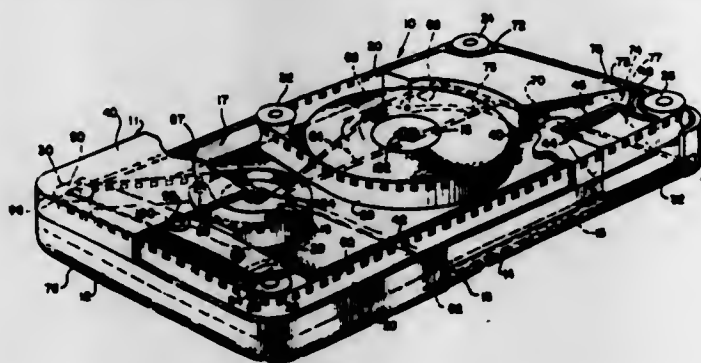
figured for conforming engagement about the bridge and hooked engagement over primary spectacles.

3,600,070
CASSETTE MOTION PICTURE SYSTEM WITH UNIQUE GEAR ENGAGEMENT ARRANGEMENT
Rogers B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Nov. 3, 1969, Ser. No. 873,279
Int. Cl. G03b 23/02, 21/44
U.S. Cl. 352-72 15 Claims



A motion picture system employing a cassette having a pair of coplanar spools to which the opposite ends of a strip of photographic material are connected. To facilitate reversible transport of the film strip between the aforementioned spools and across a film gate of the cassette, a spur gear is axially connected to each spool and positioned in one extremity of a specially configured recessed portion of the generally flat exterior surface of one cassette sidewall. Photographic apparatus adapted to receive such cassette and to alternately reversibly drive its spools includes a pair of coplanar fixedly positioned driving spur gears which respectively slide along the aforementioned recessed portions of the cassette into automatic engagement with the cassette's spur gears as the cassette is inserted thereto.

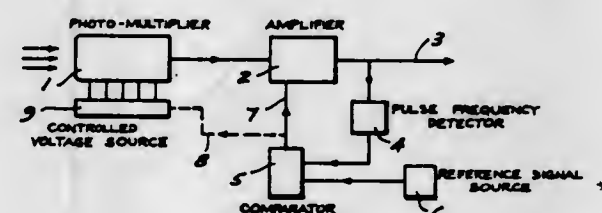
3,600,071
COMPACT MOTION PICTURE FILM HANDLING CASSETTE AND CAMERA
Rogers B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Apr. 4, 1969, Ser. No. 813,427
Int. Cl. G03b 23/04; G03c 5/28
U.S. Cl. 352-78 11 Claims



A compact multipurpose motion picture film handling cassette useful during exposure, processing and projection operations. An exposure station is located adjacent a corner of the cassette. This arrangement permits the cassette to be mounted in the handle section of a uniquely compact camera and, then subsequently, in a uniquely compact processor-projector unit. The cassette may also include a normally inoperative film processing station. A resilient member of the cassette extends in spaced relationship to idlers intermediate of the exposure station and the cassette's takeup reel and the cassette includes means to receive a force applying member into operative relationship with this resilient member. This

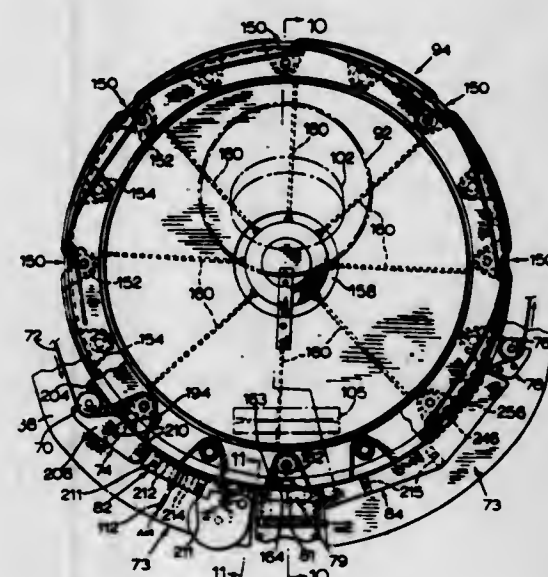
resilient member automatically snubs the adjacent idlers when mounted in the camera and is adapted to selectively snub these same idlers when the cassette is in the processor-projector unit.

3,600,072
SENSITIVITY CONTROL DEVICE IN RECEIVERS FOR OPTICAL SIGNALS
Lars-Erik Skagerlund, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed Apr. 10, 1969, Ser. No. 814,897
Claims priority, application Sweden, Apr. 17, 1962, 5,145
Int. Cl. G01c 3/08
U.S. Cl. 356-4 2 Claims



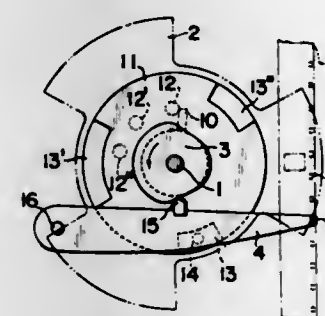
A photomultiplier for generating electric pulses in response to impinging light has been connected to its output a signal transmission device including threshold means so that pulses generated by the photomultiplier are passed through the transmission device only if their amplitude exceeds a threshold value. A pulse frequency detector is connected to the output of the transmission device to produce an output signal depending on the pulse repetition frequency of the pulses passed by the transmission device. This output signal is applied to control the relation between the threshold value and the amplitude of the pulses generated by the photomultiplier.

3,600,073
ROLLING LOOP FILM TRANSPORT MECHANISM
William Chester Shaw, Streetsville, Ontario, Canada, assignor to Multiscreen Corporation Limited, Galt, Ontario, Canada
Filed Nov. 24, 1969, Ser. No. 879,464
Int. Cl. G03b 1/20
U.S. Cl. 352-184 25 Claims



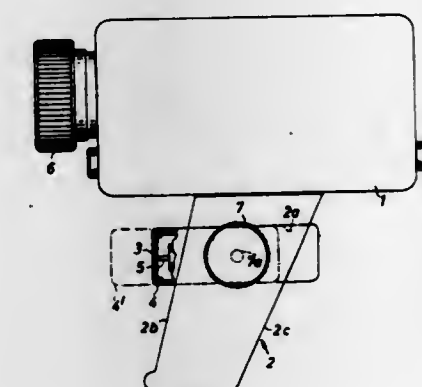
A rolling loop mechanism for transporting photographic film through a motion picture apparatus. The mechanism includes a rotor having gaps for receiving and forming loops to transport the film, and a stator which guides the film between a film inlet and a film outlet. Fixed locating pins are provided for locating the film relative to an aperture and a decelerating mechanism is adapted to engage and decelerate the film to locate the film on the fixed pins. Each gap in the rotor is fed from a pressurized gas source for cushioning the blow caused by the rotor striking a growing loop as the film is fed in from the inlet.

3,600,074
FILM FEEDING DEVICE IN MOTION-PICTURE PROJECTORS
Yasuo Ueno, Ohmiya-shi, Japan, assignor to Fuji Shashin Koki Kabushiki Kaisha, Ohmiya-shi, Japan
Filed Sept. 8, 1969, Ser. No. 856,074
Int. Cl. G03b 1/22
U.S. Cl. 352-194 2 Claims



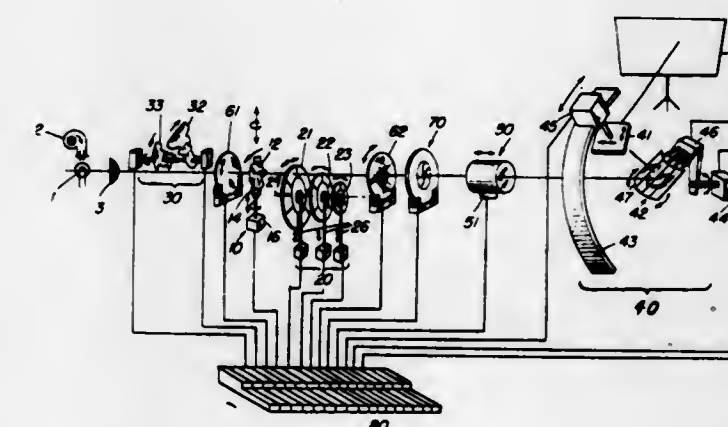
A claw member having a claw for feeding a film by engagement with the film perforation is pivotally connected to the frame of a projector. A cam is fixedly mounted on a power-driven main shaft for causing a film feeding motion of the claw member, whereas a disc cam is rotatably mounted on the main shaft for bringing the claw into or out of engagement with the film perforation. The phase relation between the cam and the cam disc can be selected by selectively engaging a pin on a gear which is rotatably and axially slidably mounted on a main shaft and driven from said main shaft through a reduction gearing, with one of pins mounted on the disc cam, whereby the speed of the film is changed stepwise without changing the speed of a sector.

3,600,075
PHOTOGRAPHIC APPARATUS WITH DIAPHRAGM-ACTUATED RELEASE
Alfred Winkler, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Feb. 19, 1970, Ser. No. 12,205
Claims priority, application Germany, Feb. 21, 1969, G 69 06 842
Int. Cl. G03b 17/00; H01h 3/12
U.S. Cl. 352-244 14 Claims



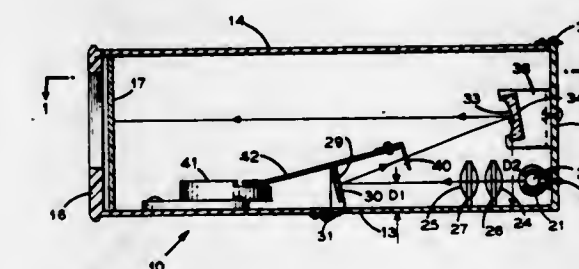
A motion picture camera wherein the body or the pistol grip handle supports an adjustable carrier for a deformable diaphragm which acts as a trigger to close a switch or to transmit motion to a mechanical camera release. The carrier is reciprocable with reference to the body or handle in parallelism with the optical axis of the objective or is mounted on a universal joint so that the diaphragm is movable to a position in which it is readily accessible to a finger on the hand which grips the handle.

3,600,076
LIGHT BRUSH
Edward Carlton Synder, 127 W. 96th St., New York, N.Y.
Filed Oct. 29, 1969, Ser. No. 872,189
Int. Cl. G03b 21/28, 21/00
U.S. Cl. 353-20 9 Claims



An optical projection device is provided with means to create and vary a light image. The image can be varied in form, number, color, attitude, focus, and illumination intensity. The image can be caused to move about and caused to vibrate in intensity. Each of the image variables is controlled by a keyboard such that a particular image status can be recalled by proper key manipulation. The resulting image variations are useful as a form of artistic expression.

3,600,077
ELECTRICAL INDICATING INSTRUMENTS
Antonio S. Paiva, Newark, and Justin V. Paulauskas, Elizabeth, both of N.J., assignors to Weston Instruments, Inc., Newark, N.J.
Filed Aug. 9, 1968, Ser. No. 751,436
Int. Cl. G03b 21/10
U.S. Cl. 353-40 6 Claims



An indicating instrument is described which displays the value of some driving or control signal on a viewing screen as a sharp, bright image which is devoid of noticeable light-dispersion effects, such as image shadowing or rainbowing. This result is accomplished by focusing a concentrated light beam onto the path of movement of the image-forming element which takes the more specific form of a movable transparent vane. The diverging vane image is focused onto the viewing screen by means of a concave mirror having its concave reflecting surface spaced from, and facing, the back surface of the viewing screen. The vane is caused to move in the prescribed path in response to the signal applied to the instrument. The concave mirror is preferably of spherical or aspheric shape and serves as an efficient collector and reflector of incident light rays. Also disclosed is a panel-mountable indicating instrument of overall rectangular shape and a flat and relatively thin edgewise appearance made possible by an optical system which provides vane images having the above-described characteristics.

3,600,078

SLIDE FEEDING APPARATUS

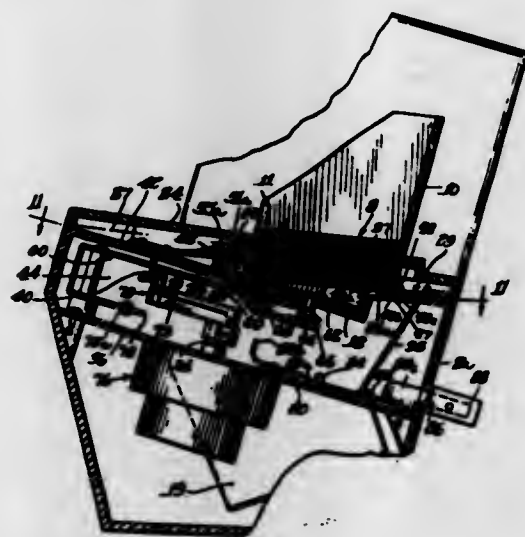
Edward J. Michalewicz, Niles, Ill., assignor to Argus Incorporated, Chicago, Ill.
Continuation-in-part of Ser. No. 660,737, Aug. 15, 1967,
Pat. No. 3,495,902

Filed Feb. 16, 1970, Ser. No. 11,421

Int. Cl. G03b 23/02

U.S. Cl. 353-112

3 Claims



A slide feeding member is mounted for reciprocating movement along a raised ledge to push a bottommost slide of a stack of slides resting on said ledge onto a slide receiving track therebelow, the slide feeding member having a slide engaging portion for engaging the rear edge of a slide to push the same off the ledge, and a catcher lip-forming portion below and immediately in front of the slide engaging portion for supporting a slide pushed off the ledge and leaving contact with said slide engaging portion, so the slide continues to be moved forwardly after clearing the ledge.

3,600,079

TRANSPARENCY HOLDER AND VIEWING DEVICE

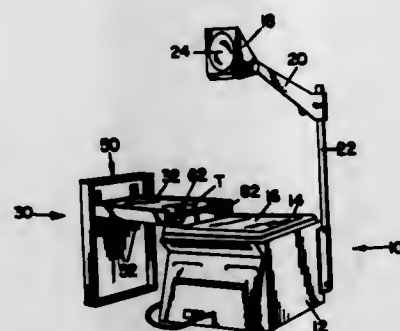
Luke J. Smith, Jr., East Longmeadow, and Alvin R. Pottern, Longmeadow, both of Mass., assignors to Milton Bradley Company, Springfield, Mass.

Filed May 19, 1969, Ser. No. 825,697

Int. Cl. G03b 21/00

U.S. Cl. 353-120

1 Claim



The combination with a projector for displaying transparencies of a device for the storage, selection and display of transparencies contained therein and comprising, a traylike container for the transparencies and having an open end, a cover adapted to enclose the container when the device is not in viewing use and adapted to support the container relative to the projector when the device is in viewing use, and guide means in the form of one or more wire rods for guiding the transparencies between stored and ready-to-view positions within the container and viewing positions on the projector.

3,600,080

HINGED CHAIN DRIVE ASSEMBLY

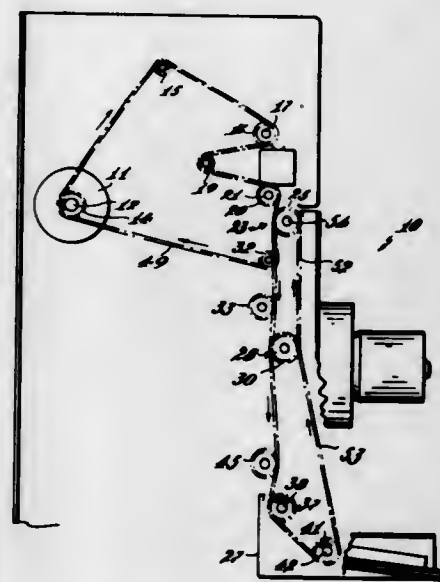
Thaddeus W. Czernik, Greenville, R.I.; Robert E. Kasubala, North Grafton, Mass., and Lionel G. Gagnon, Millbury, Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.

Filed Apr. 30, 1969, Ser. No. 820,536

Int. Cl. G03g 15/22

U.S. Cl. 355-3

8 Claims



A hinged chain drive assembly for driving a plurality of elements mounted within an apparatus from a single driving motor source, some of such elements being mounted on a fixed portion of the apparatus and others of such elements being mounted on a movable hinged door for providing access to the interior of the apparatus. Chain drive subassemblies are arranged to allow the access door to be moved from a closed to an opened position without disturbing the operation of the apparatus and without requiring the removal of the endless chain elements used in the chain drive subassemblies.

3,600,081

IMAGING APPARATUS

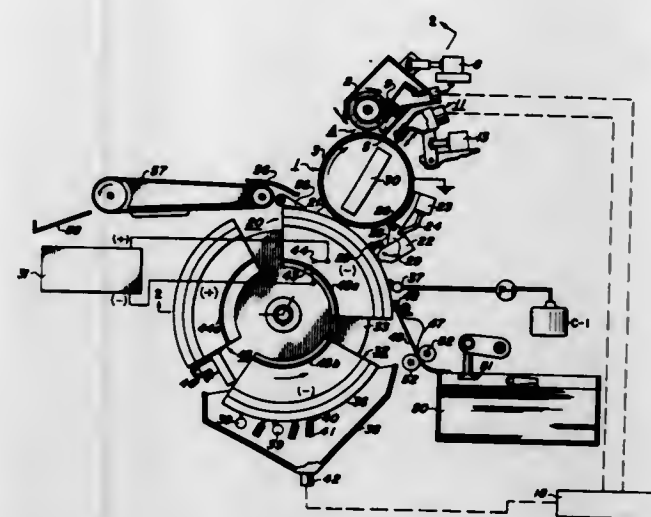
Raymond K. Egnaszak, Williamson, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Nov. 14, 1969, Ser. No. 876,642

Int. Cl. G03g 15/00

U.S. Cl. 355-3

15 Claims



A machine for automatically producing images from photoelectrophoretic suspensions including a cylindrical transparent electrode which produces images by a slit scanning optical system internal to the cylindrical electrode and accomplishes processing by an arrangement having a plurality of imaging electrodes and a transfer electrode mechanism interface with the surface of the cylindrical trans-

parent electrode at a single position where the scanning optical image is projected. The imaging electrodes are supplied with suspension or solvent, as is required by the process, prior to their interfacing with the cylindrical transparent electrode and a sheet of support material is interjected on the transfer electrode prior its interfacing with the cylindrical electrode. Each of the interfacing electrodes are cleaned before reinterfacing and the transparent cylindrical electrode is cleaned after interaction with the transfer electrode.

3,600,082

COPYING APPARATUS

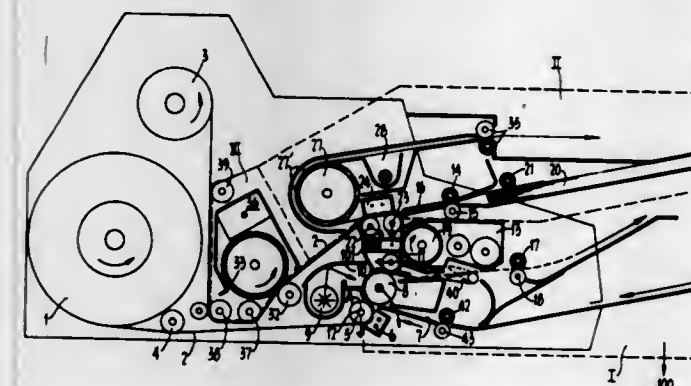
Wilhelm Knechtel, Rodheim-Bieber, Germany, assignor to The Singer Company

Filed Apr. 30, 1969, Ser. No. 820,531

Int. Cl. G03g 15/00

U.S. Cl. 355-8

3 Claims



An electrostatic copying machine in which a charge carrier in the form of a web or tape having a photoconductive surface is conducted from a supply reel through the apparatus by means of guide rollers past a plurality of component elements for the production of an electrostatic intermediate image for transfer, when developed, onto ordinary paper for the final copy, thence onto a takeup reel. Such component elements include a charging station, an exposure station for forming a latent image on the web, a developing station, an image transfer station where the developed image is transferred onto ordinary paper and a fusing station wherein the transferred image is fixed on the copy paper. In such a machine certain functional units of the device are removable to enable the initial threading of the photoconductive web through the various stations.

3,600,083

ELECTROSTATIC PRINTING SYSTEM EMPLOYING A REPLACEABLE CARTRIDGE TO PROVIDE A SUPPLY OF A RECORDING ELEMENT AND PROCESSING MEANS THEREFOR

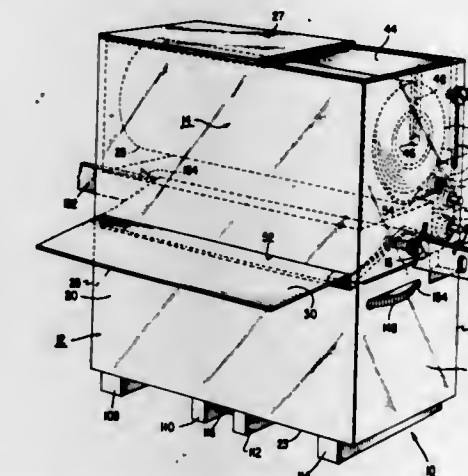
Marvin A. Leedom, Warminster, Pa., assignor to RCA Corporation

Filed Feb. 14, 1969, Ser. No. 799,391

Int. Cl. G03g 13/10

U.S. Cl. 355-10

8 Claims



A replaceable cartridge, adapted to be removably installed in an electrostatic printing system, provides a supply of a

recording element and charging, developing, and cutting means therefor. Means are provided to convey and to guide the recording element through the cartridge along a path including charging, image exposing, developing, and cutting stations.

3,600,084

DUPLICATING MACHINE OF REFLEX TYPE

Tetzo Kushima, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

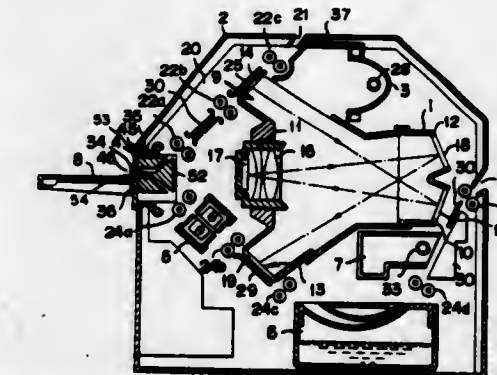
Filed May 24, 1968, Ser. No. 731,854

Claims priority, application Japan, May 26, 1967, 42/44321

Int. Cl. G03g 15/04

U.S. Cl. 355-11

6 Claims



A duplicating machine of a reflex type, such as a duplicating machine or an electrostatic duplicating machine of such type, comprises passage means constituting separated passages for originals and for photosensitive paper both of which are to be brought into an integral machine body through said passage means, a mirror-lens optical means having lens elements and a mirror, a photographing opening in the original passage, an image forming port in the photosensitive paper passage, a mirror reflecting the light from the original at the photographing opening onto the mirror-lens optical means, and a further mirror directing the light from the mirror-lens optical means to the image forming port. The above components are positioned to form three intersections of the light in the light path.

3,600,085

COUNTER FOR PHOTOCOPY MACHINE

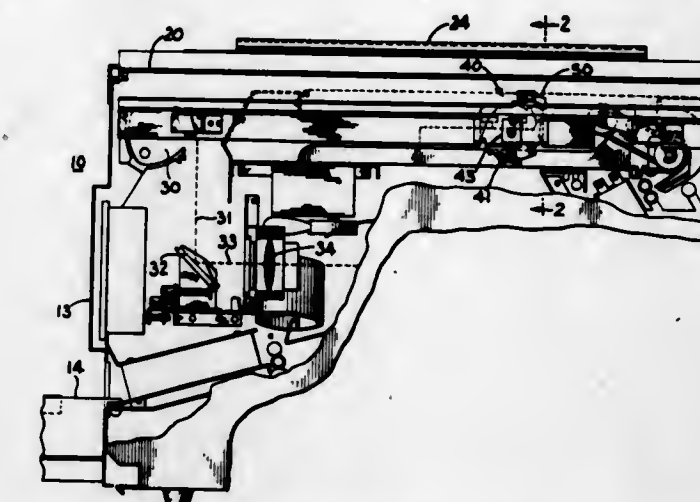
Donald R. Altergott, Highland Park, Ill., assignor to American Photocopy Equipment Company, Evanston, Ill.

Filed Jan. 9, 1970, Ser. No. 1,679

Int. Cl. G03g 15/00

U.S. Cl. 355-14

5 Claims



A counter mechanism for a photocopy machine of the type having a reciprocating table or carrier, the mechanism including a dial, which is set to show the desired number of copies, directly coupled to a ratchet wheel. The ratchet wheel is indexed by a pawl on the table during each copy-making stroke so that the setting of the dial is successively reduced to a reference setting at which point a switch is operated to terminate further cycling of the table.

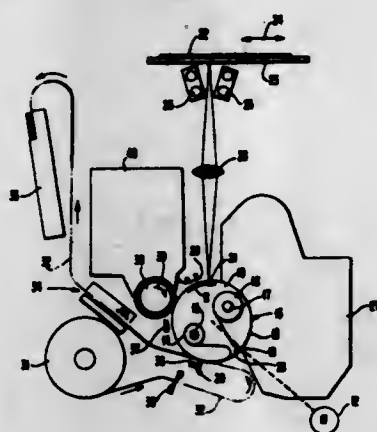
3,600,086 AUTOMATIC PHOTOCONDUCTOR ADVANCE MECHANISM FOR A XEROGRAPHIC COPYING MACHINE

Joseph A. Cates, and William H. Sebastian, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1969, Ser. No. 791,412
Int. Cl. G03g 15/00

U.S. Cl. 355-16

5 Claims



Apparatus automatically advances or replaces a reusable photoconductor element in a xerographic or similar copying machine is disclosed. The photoconductor element is stored in flexible strip form on supply and takeup rolls located within the interior of a copy drum. A counter is actuated each time a copy is produced. When a preset number of copies has been made the copy machine is automatically cycled into a photoconductor advance mode which causes a new length of photoconductor element to be drawn from the supply roll and disposed in operative relation about the outer periphery of the copy drum. A second counter records the number of times the photoconductor element is advanced and provides an indication to the operator when the supply of photoconductor element has been exhausted. Various electrical interlock and sequencing circuits are incorporated to prevent damage to the apparatus during a photoconductor advance cycle.

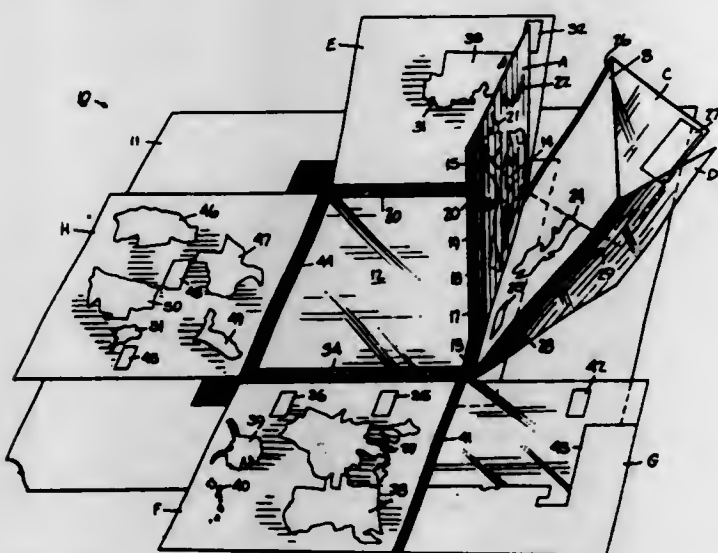
3,600,087 METHOD OF MAKING A MULTICOLOR SLIDE TRANSPARENCY AND THE PRODUCED SLIDE TRANSPARENCY

Jack L. Goodman, Chappaqua; Lynne P. Brown, Tarrytown, and Dorothy A. Podesta, Bronx, all of N.Y., assignors to Harcourt, Brace & World, New York, N.Y.

Filed June 6, 1968, Ser. No. 735,059
Int. Cl. G03b 27/76

U.S. Cl. 355-32

17 Claims



The slide transparencies are made for projection in daylight without the use of screens. The slide transparencies

are prepared by sequentially exposing a film to different combinations of registered overlays. The overlays include transparent and opaque areas with preselected portions of the transparent areas covered by transparent colored gels. Each exposure of a film forms an image on the film corresponding to the color and pattern of light passing through the registered overlays. The film is then used to make the slide transparencies.

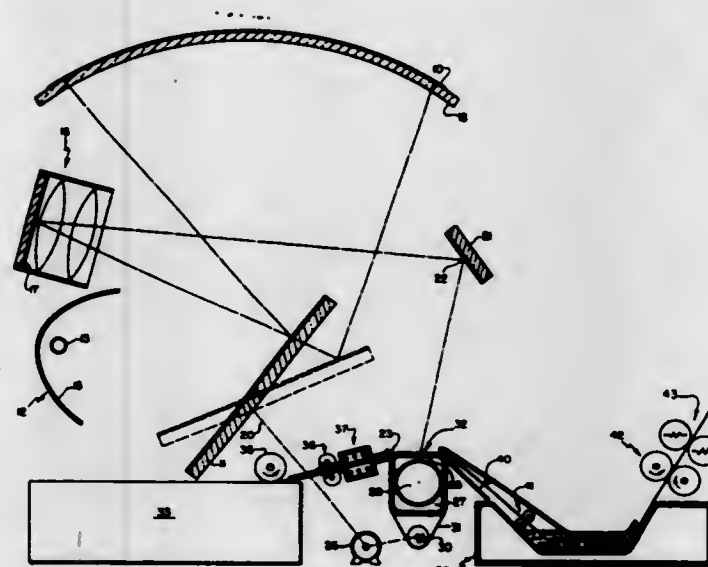
3,600,088 SCANNING OPTICAL SYSTEM

Henry G. Joel, New York, N.Y., assignor to Ing. C. Olivetti & C.S.p.A., Ivrea, Italy

Filed Dec. 22, 1969, Ser. No. 887,177
Int. Cl. G03b 27/50

U.S. Cl. 355-47

10 Claims



An optical system is provided for projecting an image of a fixed original onto a moving receiving surface comprising a rotating mirror which combines the two processes of directing a scanning beam of light against the original from a fixed source and directing the image modulated reflected light to a fixed objective lens.

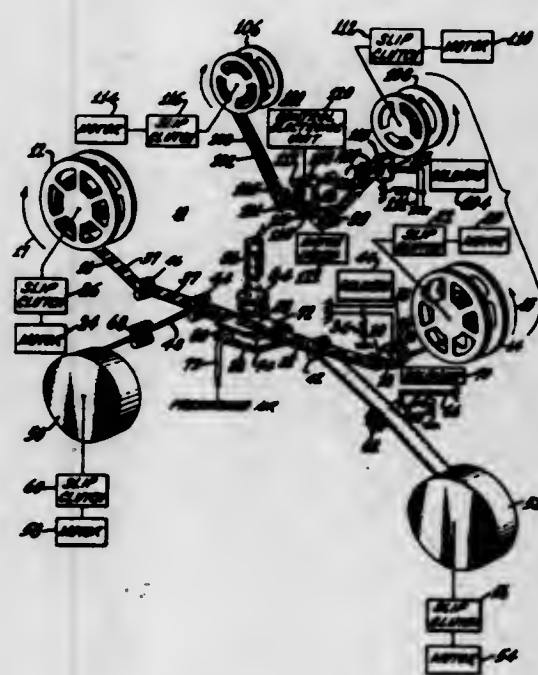
3,600,089 FILM MERGING UNIT

Gerard O. Walter, Skillman, N.J., assignor to RCA Corporation

Filed Jan. 10, 1969, Ser. No. 790,349
Int. Cl. G03b 27/04, 27/52

U.S. Cl. 355-99

6 Claims



A film merging unit that automatically updates an old master film with data contained on an updating film by

producing a new film with the old and the new data correctly merged thereon. A control device is present for reading a control strip containing coded marks and producing control signals to activate selected drive mechanism to sequence the relative positionings of the films with respect to the printing station.

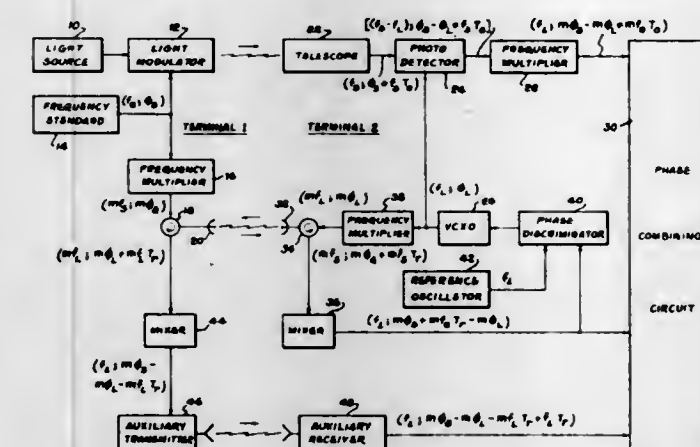
3,600,090 EXTENDED RANGE OPTICAL DISTANCE MEASURING INSTRUMENT

Lockett E. Wood, and Moody C. Thompson, Jr., both of Boulder, Colo., assignors to The United States of America as represented by the Secretary of Commerce

Filed Sept. 26, 1969, Ser. No. 861,303
Int. Cl. G01c 3/08

U.S. Cl. 356-5

7 Claims



A pair of terminals disposed at opposite ends of a path whose distance is to be measured. The first terminal includes an oscillator for generating a stable frequency signal which is transmitted to the second terminal as modulation on a light beam and as a frequency multiplied radio signal. The second terminal includes a local oscillator whose signal is frequency multiplied and then phase-locked a small interval from the received radio signal. The local oscillator signal (before multiplication) is used to heterodyne the modulation on the received light beam. The multiplied local oscillator signal is radiated to the first terminal where it is mixed with the frequency multiplied stable frequency signal to obtain an intermediate frequency signal that is transmitted back to the second terminal via an auxiliary radio link. The received intermediate frequency signal and the intermediate frequency signals from the phase locking loop and the light heterodyning circuit (after frequency multiplication) are then combined to yield a signal whose phase is proportional to the optical range.

3,600,091 BRIGHT-LINE EMISSION SOURCE FOR ABSORPTION SPECTROSCOPY

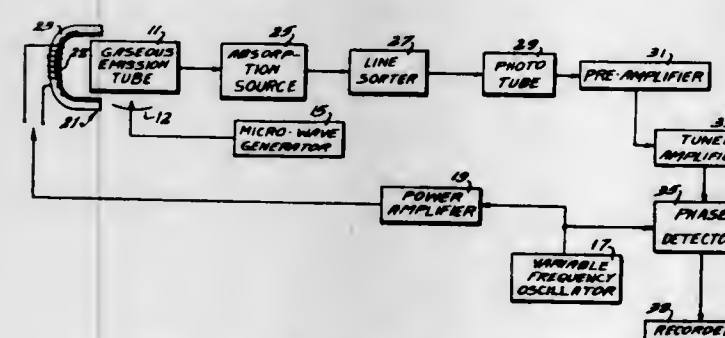
Joseph A. Goleb, Naperville; James P. Bobbs, Downers Grove, and Forrest R. George, Plainfield, all of Ill., assignors to The United States of America as represented by the United States Atomic Energy Commission

Continuation-in-part of application Ser. No. 639,254, May 12, 1967, now abandoned. This application May 13, 1970, Ser. No. 36,723

Int. Cl. G03b 27/04; H01j 1/50

U.S. Cl. 356-85

3 Claims



An improved light source for atomic absorption spectroscopy consisting of a gas discharge tube containing, as a

gas, the element to be analyzed. The gas-filled tube is subjected to high-frequency electromagnetic radiation which excites the atoms of the gas, causing them to emit a constant-intensity light. By subjecting the gas-filled tube to a relatively low-frequency time-varying magnetic field, the light emitted therefrom is intensity or amplitude modulated to the frequency of the field.

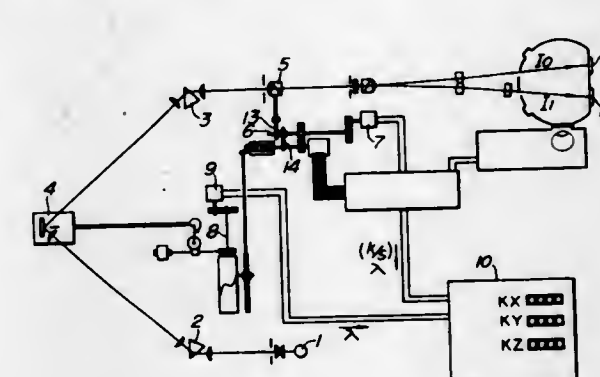
3,600,092 APPARATUS FOR MEASURING DENSITY STIMULUS VALUES OF THREE PRIMARY COLORS

Murata, Yukio, Takarazuka-shi, Japan, assignor to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed July 17, 1967, Ser. No. 653,887
Claims priority, application Japan, July 20, 1966, 41/47884
Int. Cl. G01j 3/46, 3/50

U.S. Cl. 356-92

3 Claims



A recording spectrophotometer for measuring the color density of a colored surface necessary for calculating a recipe of color matching based on a colorimetric method, characterized by an integrator capable of calculating density stimulus values of the three primary colors, and an output converter capable of converting the reflectance measured by a photometer to a physical value which is in proportion to the optical density.

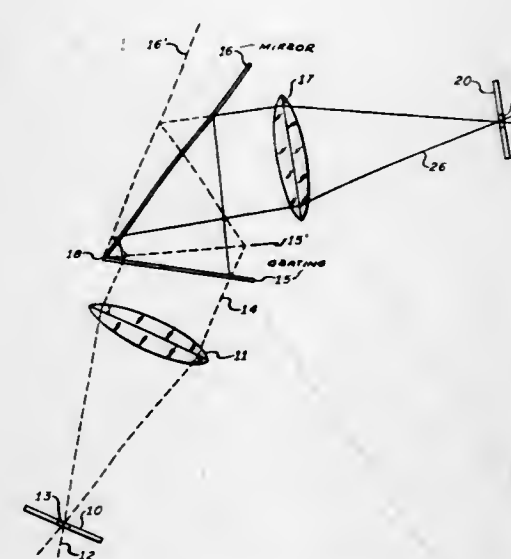
3,600,093 CONTINUOUSLY BLAZED OPTICAL MONOCHROMATOR

Donald H. McMahon, Carle, Mass., assignor to Sperry Rand Corporation

Filed Nov. 10, 1969, Ser. No. 875,138
Int. Cl. G01j 3/18; G02b 5/18

U.S. Cl. 356-100

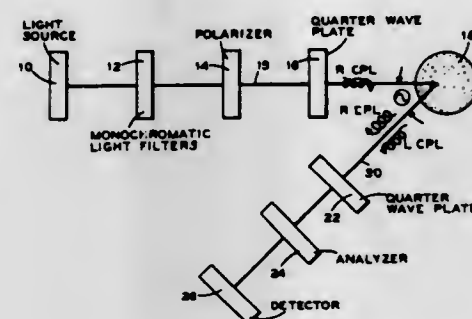
11 Claims



A monochromator comprising a plane mirror and a substantially planar grating which operates at the blaze angle throughout a predetermined range of input wavelengths. The mirror and grating are disposed in vertically oriented intersecting planes and rigidly affixed to one another for common rotation about the vertical axis of intersection. Light passing through the entrance aperture of the instrument and imping-

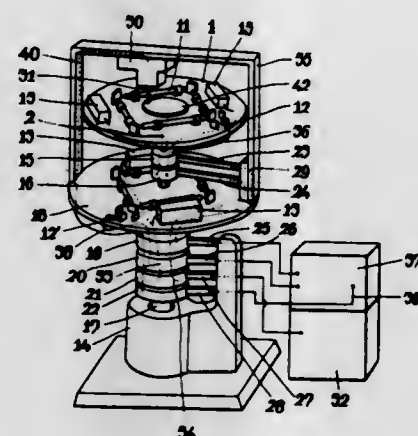
ing on the grating is diffracted thereby onto the mirror from which it is then reflected toward an exit aperture, the wave length selected for transmission through the exit aperture being determined in accordance with the angular position of the grating-mirror combination about its rotational axis.

3,600,094
SUSPENDED SOLIDS CONCENTRATION MEASUREMENT USING CIRCULAR POLARIZED LIGHT
John W. Linkowitz, Belle Meade, N.J., assignor to American Standard Inc., New York, N.Y.
Continuation-in-part of application Ser. No. 629,568, Apr. 10, 1967. This application Nov. 12, 1968, Ser. No. 774,895
Int. Cl. G01n 15/02, 21/00, 21/40
U.S. Cl. 356-102



A device for optically measuring the amount of particulates in a fluid. Circularly polarized light is directed at a fluid to be analyzed and light which is scattered preferably in a backward direction, that is more than 90° from the direction of the incident beam is analyzed and the ratio of the intensity of light resulting from multiple scattering to the intensity of light resulting from both multiple and primary scattering is determined.

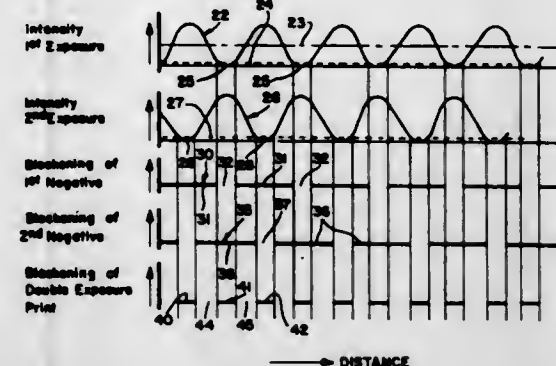
3,600,095
DIFFERENTIAL RING LASER
Keiichi Tanaka, Tokyo, Japan, assignor to Agency of Industrial Science & Technology, Tokyo, Japan
Filed Apr. 2, 1969, Ser. No. 812,674
Claims priority, application Japan, May 9, 1968, 43/30535
Int. Cl. G01b 9/02, 11/26
U.S. Cl. 356-106 LR



A differential ring laser comprising a disc on which a ring laser, an interferometer and a phototube are fixed. A second disc is arranged coaxially with the disc, under the same and provided with the same ring laser, interferometer and phototube as the disc. Means are provided for independently rotating the two discs and there is a counter for counting the difference between the number of beat waves detected by the phototubes on the two discs.

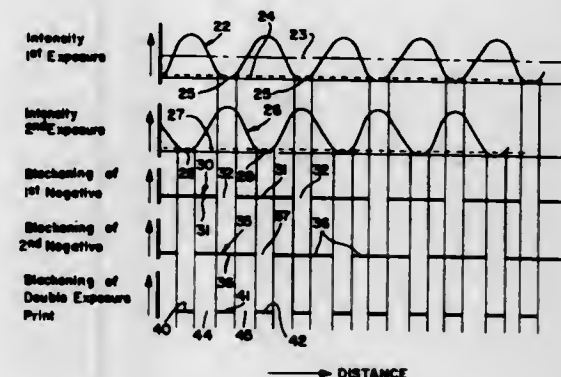
3,600,096
HOLOGRAPHIC INTERFEROGRAMS WITH INCREASED LIGHT INTENSITY
Lee O. Hefflinger, Torrance, and Robert E. Brooks, Redondo Beach, both of, Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed July 31, 1969, Ser. No. 846,358
Int. Cl. G01b 9/02; G02b

U.S. Cl. 356-106 5 Claims



A holographic interferogram which permits viewing of an object at very high orders of diffraction for increasing the phase sensitivity as well as the light intensity. A double-exposure holographic technique is used whereby a first hologram is made on a first recording material of the setup without an object and a second hologram is made on a second recording material with the object to be recorded. The recording materials are heavily exposed so that the fringe lines corresponding to minimum light intensity are narrow compared to the fringe spacing. They are reproduced on a third recording material by successively exposing the first recording material and displacing it by a predetermined fraction of the fringe spacing $1/n$ where n is the number of exposures. The second recording material is similarly reproduced on the same third recording material. The thus obtained new hologram may be reconstructed by viewing it in the light diffracted into a very high order. In this manner not only is the phase sensitivity multiplied by the order by which the object is viewed, but also the light intensity is much increased.

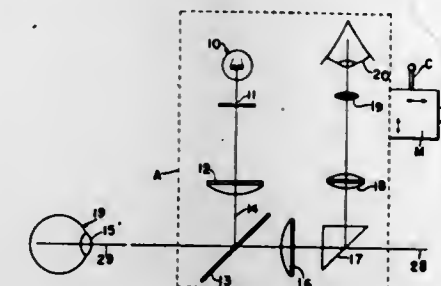
3,600,097
HOLOGRAMS HAVING INCREASED PHASE SENSITIVITY
Lee O. Hefflinger, Torrance, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed July 31, 1969, Ser. No. 846,463
Int. Cl. G01b 9/02; G02b
U.S. Cl. 356-106 5 Claims



A holographic interferogram which permits viewing of the object at higher orders of diffraction for increasing the phase sensitivity. A double exposure holographic technique is used whereby a first hologram is made of the setup without an object and a second hologram is made with the object to be recorded. The two holograms are heavily exposed so that the fringe lines corresponding to minimum light intensity are narrow compared to the fringe spacing. The clear and dark areas

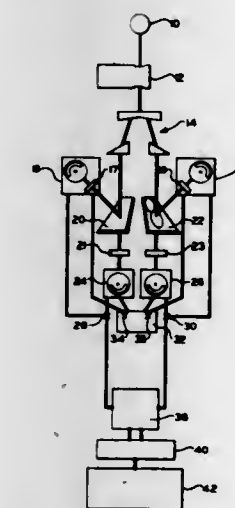
of the two holograms are then reversed and combined, for example, by contact printing. This new hologram may now be reconstructed by viewing it in the light diffracted into a predetermined higher order. As a result, the phase sensitivity is multiplied by the order by which the object is viewed.

3,600,098
OPTICAL ALIGNMENT METHOD AND APPARATUS
Richard C. Mohrman, Irondequoit, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Dec. 29, 1969, Ser. No. 888,641
Int. Cl. G01b 11/27
U.S. Cl. 356-153 5 Claims



Rays emanating from a point light source are incident, respectively, upon peripheral, intermediate, and paracentral zones of a lens chosen for a high degree of spherical aberration. A small aperture stop, which may be the pupil of an observer's eye, is placed substantially in the focal plane of said peripheral rays, thereby blocking out the intermediate rays and passing both the peripheral rays, which subsequently form an annular image, and the paracentral rays, which subsequently form an image of the point source. Between the aberrating lens and the aperture stop, the rays are reflected from a specular surface which is known to have a perpendicular relationship to an optical axis sought to be aligned. For example, the corneal surface of an ophthalmic patient's eye might be the specular surface, where the optical axis of said eye is sought to be aligned to the optical axis of an analytical instrument. By arranging the light source, the aberrating lens and the aperture stop in fixed relationship to an optical axis and maintaining the fixed unity of the source, lens, stop and axis while varying their position relative to that of the specular surface until the point image is brought to the center of the annular image, the two optical axes are aligned to one another.

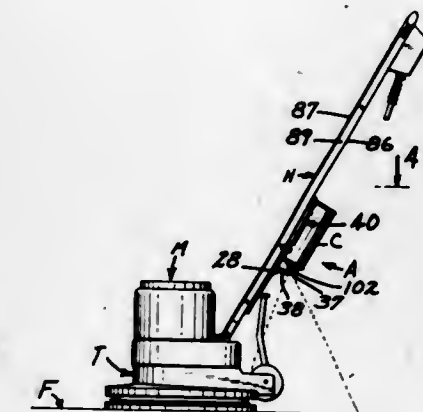
3,600,099
THIN LAYER CHROMATOGRAPHIC APPARATUS FOR COMPARING A SAMPLE AND A REFERENCE
Dietmar M. Schoeffel, Hillsdale, N.J., assignor to Schoeffel Instrument Corp., Westwood, N.J.
Continuation-in-part of application Ser. No. 710,151, Mar. 4, 1968, now abandoned. This application Apr. 7, 1970, Ser. No. 26,309
Int. Cl. G01n 21/22, 21/30
U.S. Cl. 356-206 13 Claims



Apparatus for the optical comparison of a moving reference and sample applied to a moving, thin layer, chrom.

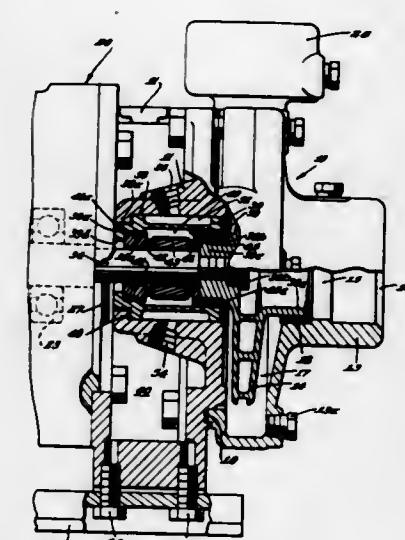
matographic plate having a light source, a monochromator, means for splitting the beam from the light source which is transmitted through the monochromator, means for applying the split beam to the closely adjacent reference and sample, means for detecting the ratio between the optical characteristics of the reference and the sample, and means for displaying the ratio.

3,600,100
DEVICE FOR DISPENSING A LIQUID FROM A PRESSURIZED CAN ON A FLOOR TREATING MACHINE
Daniel A. Arones, Wayzata, Minn., assignor to Advance Machine Company, Spring Park, Minn.
Filed Mar. 4, 1969, Ser. No. 804,161
Int. Cl. A46b 11/08; A46b 11/00
U.S. Cl. 401-138 3 Claims



A floor machine having a floor treating head for engaging a floor and a handle connected to the head, the combination of a support, means for mounting the support on the extension together with means for mounting a pressurized can having a release nozzle thereon in the support and a lever mechanism mounted in the handle contactably with the nozzle for actuating the same to dispense the contents of the can upon the floor when the lever means is actuated.

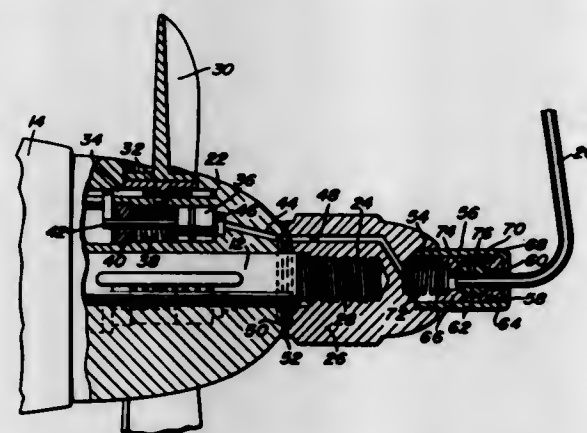
3,600,101
COMPACT HIGH TEMPERATURE PUMP
Paul L. Oglesby, Moweaqua; Richard E. Reeves, Decatur, and William K. Haeblich, Decatur, all of, Ill., assignors to Decatur Pump Company, Decatur, Ill.
Continuation-in-part of application Ser. No. 785,556, Dec. 20, 1968. This application Dec. 22, 1969, Ser. No. 887,209
Int. Cl. F01d 11/00; F16j 15/00
U.S. Cl. 415-111 10 Claims



A compact, inexpensive, high temperature pump includes a shaft seal cavity area separated from an impeller cavity area by a film-thin passageway whereby a small portion of a first high temperature fluid may flow from the impeller cavity

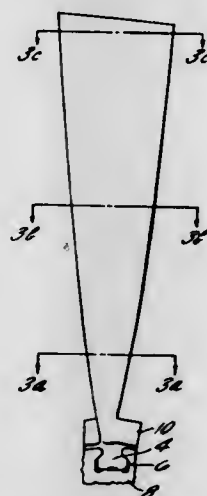
to the seal cavity through the passageway. A press-fit throttle bushing having a recess in its outer surface is press-fit into a bore to provide a separate passageway for a second low temperature fluid. The throttle bushing or fluid jacket extends around the outside and in heat transfer relationship to the seal cavity and the passageway so that the portion of the first fluid is greatly cooled thereby allowing the use of conventional and inexpensive shaft seals for the high temperature pump.

3,600,102
CONTROL ASSEMBLY FOR CONTROLLABLE PITCH PROPELLER
Paul P. Dirlik, 4847-A South 28th St., Arlington, Va.
Filed July 14, 1969, Ser. No. 841,503
Int. Cl. B63h 3/08
U.S. Cl. 416-157



A rotatable nut and hub assembly having fluid passages therein communicating with a piston and cylinder assembly to control the pitch of propeller blades attached to the hub and a connector at the outer end of the nut connected to a supply conduit for fluid with the connector including a ball with passageways incorporated therein received in a seat having one portion thereof movably engaged with the ball and held in position by a spring device whereby the fluid will lubricate the connector and the movable seat serves to enable bleeding of air from the control system.

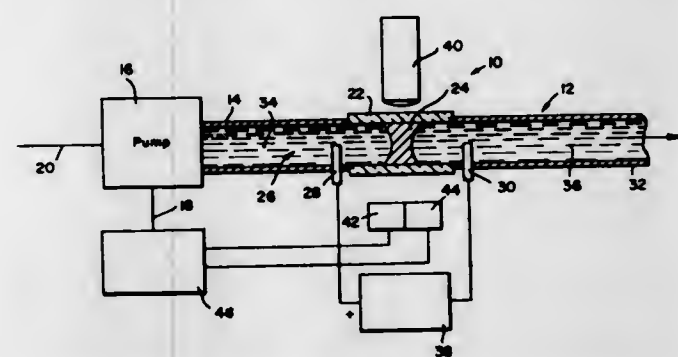
3,600,103
COMPOSITE BLADE
David F. Gray, Wapping; Charles E. Doughty, Guilford, and Frank B. Pinney, East Granby, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Oct. 6, 1969, Ser. No. 864,021
Int. Cl. F01d 5/14
U.S. Cl. 416-224



A compressor or fan blade is made up of layers of high modulus fibers extending in parallel relation, and embedded in a metallic matrix, the successive layers of fibers varying in length and dimension so that, when stacked and compacted together, the desired blade configuration will be obtained. The blade may be made by a process including stacking the

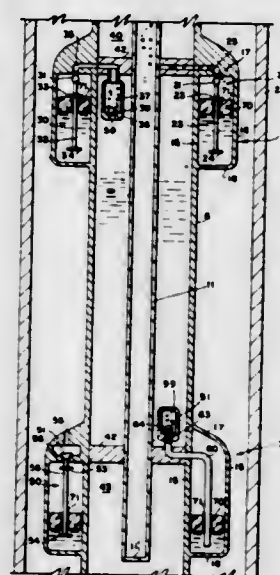
layers of fibers which are secured to a metallic supporting sheet, in the proper sequence, and then compacting the assemblage in dies under pressure and high temperature to cause the material of the several backing sheets to fill the voids among the fibers and form the matrix within which the fibers are embedded.

3,600,104
METHOD AND APPARATUS FOR CONTROLLED PUMPING OF LIQUID MERCURY
Harry J. King, Camoga Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Nov. 30, 1967, Ser. No. 687,020
Int. Cl. G01n 27/42; F17d 1/00
U.S. Cl. 417-48



A controllable flow of liquid mercury is discharged into a delivery conduit. First and second electrodes are positioned in the conduit in the liquid mercury therein. The conduit between the electrodes is electrically insulative. A bubble of electrolyte is positioned between the electrodes. An electrolysis current source is connected to the electrodes and regulated in accordance with the amount of mercury desired to be delivered by this delivery conduit. This electrolysis current electrolyzes mercury across the electrolyte from the mercury source toward the discharge end of the delivery conduit. Detection means detect the position of the electrolyte bubble and regulates the controllable flow of liquid mercury to maintain the electrolyte bubble in a substantially fixed position in the delivery conduit. Thus, the amount of mercury delivered out of the delivery conduit is equal to the amount of mercury electrolyzed across the electrolyte.

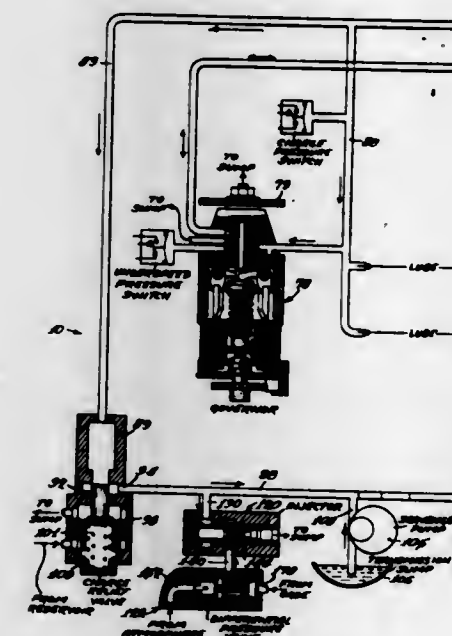
3,600,105
GAS LIFT SYSTEM
Robert F. Berry, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed May 7, 1969, Ser. No. 823,252
Int. Cl. F04f 1/06, 3/00
U.S. Cl. 417-132



A gas lift system that operates on a substantially nonvarying casing pressure and employs at least one gas lift device

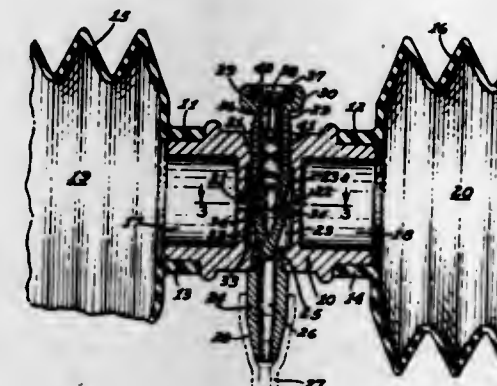
which has a housing for accumulating liquid being displaced to the surface of the well and valve means associated with the housing for admitting liquid to the housing and removing liquid therefrom by way of casing pressure, the valve means associated with the housing being operable by a float means.

3,600,106
SELF-PRESSURIZING SCHEME
Stephen S. Balts, and Kenneth I. Brenner, both of Rockford, Ill., assignors to Sundstrand Corporation
Filed Aug. 13, 1969, Ser. No. 849,830
Int. Cl. F04f 5/48; F16h 47/04
U.S. Cl. 417-190



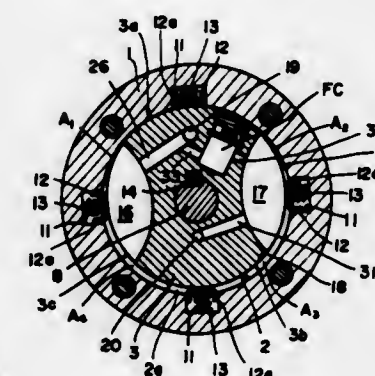
A case pressurization system for aircraft constant speed drives and certain other aircraft components employing housings with sumps including a venturi injector within the housing supplied fluid under pressure from a suitable source with a differential pressure valve for selectively supplying atmospheric air to the venturi injector when sump pressure falls to a predetermined value relative to atmospheric pressure with the injector directing air entrained fluid into the sump providing adequate inlet pressure for a scavenge pump withdrawing fluid from the sump.

3,600,107
BELLOWS EXERCISER AND PUMP
Austin E. Elmore, 8519 E. Pasadena Ave., Scottsdale, Ariz., and Ernest A. Uhlmann, 5202 N. Saddle Rock Road, Phoenix, Ariz.
Filed Nov. 18, 1969, Ser. No. 877,736
Int. Cl. F04b 41/00, 39/10
U.S. Cl. 417-236



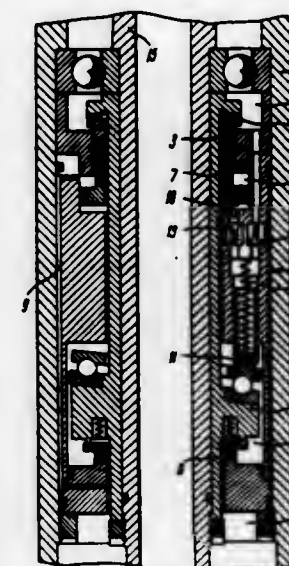
A pair of interconnected syphon bellows or the like and a control valve adjustable to regulate discharge from the common passageway interconnecting the bellows, which discharge may be connected through a discharge line to actuate a device or pump up a container.

3,600,108
ROTARY PUMP
Tamaki Tomita; Sadamu Kato, and Hideo Mizoguchi, all of Kariya, Aichi, Japan, assignors to Toyoda Koki Kabushiki, trading as Toyoda Machine Works, Ltd., Kariya, Aichi Prefecture, Japan
Filed Aug. 25, 1969, Ser. No. 852,706
Claims priority, application Japan, Aug. 26, 1968, 43/61093
Int. Cl. F04c 1/00, 3/00
U.S. Cl. 417-294



A rotary pump comprises cam surfaces formed on the outer periphery of a pump rotor rotatably mounted in a cylindrical bore in a pump housing, abutments slidably contacting the cam surfaces and spaced at equal intervals about the circumference of the cylindrical bore, and separating a plurality of pump chambers formed within the cylindrical bore, and a flow control valve actuated by the centrifugal force imparted thereto by rotation of the pump rotor to maintain the pump discharge approximately constant.

3,600,109
ARRANGEMENT TO SEAL THE SHAFT OF A DRILLING FACE ENGINE
Alexander Andreevich Pavlichenko, Kvartal 37, Korpus 11, kv. 5, and Andrei Yakovlevich Frolov, 11 Parkovaya 44, Korpus 3, kv. 119, both of Moscow, U.S.S.R.
Filed May 1, 1969, Ser. No. 820,910
Claims priority, application U.S.S.R., July 9, 1968, 1251349
Int. Cl. F04b 49/04, 1/12
U.S. Cl. 417-297.5



The present invention relates to sealing of shafts of mining face engines. The principal object of the invention is to eliminate the disadvantages of the known apparatus of this kind. To achieve this object it has a floating piston which compresses the face seal pair that opened under the effect of vibration, thereby restoring normal functioning of the seal.

3,600,110 HERMETICALLY ENCLOSED REFRIGERATING MACHINE

Bendt Wegge Romer, Augustenborg; Lars Melisinget, Nordborg; Knud V. Valbjørn, Nordborg, and Jørgen Dahlman Knudsen, Gjesing pr. Ebbjerg, all of, Denmark, assignors to Danfoss A/S, Nordborg, Denmark

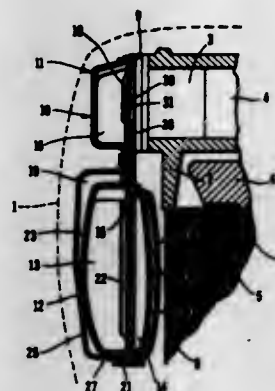
Filed June 3, 1969, Ser. No. 23,083

Claims priority, application Germany, Mar. 16, 1968, P 16 01 859.0

Int. Cl. F04b 39/00

U.S. Cl. 417-312

11 Claims



The invention relates to a hermetically enclosed refrigeration compressor unit. The unit includes two sheet metal chambers for reducing the sound due to pressure effects. The sound reducing chambers are shallow in construction and have a common interior wall which extends upwardly between the cylinder and head of the compressor where it forms a part of the valving. Another wall of the sound reducing chambers also extends upwardly and forms a part of the cylinder head.

3,600,111 HERMETIC COMPRESSOR

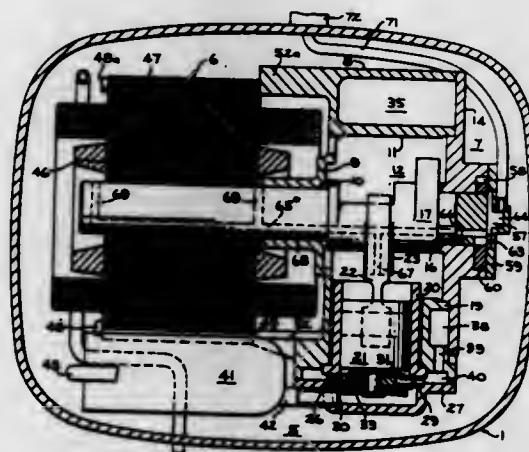
Robert E. Rogers, Sidney, Ohio, assignor to General Electric Company

Filed Aug. 19, 1969, Ser. No. 851,280

Int. Cl. F04b 39/00, 35/04

U.S. Cl. 417-312

7 Claims



A hermetic compressor comprising a horizontal motor-compressor unit in which the motor component and a reciprocal compressor component are of substantially the same transverse configuration and are so arranged relative to one another as to provide a compact unit which can be housed in a symmetrical casing with all major portions of the unit spaced about the same distance from the casing walls.

3,600,112 SOLID-PROPELLANT-ACTUATED HYDRAULIC POWER UNIT

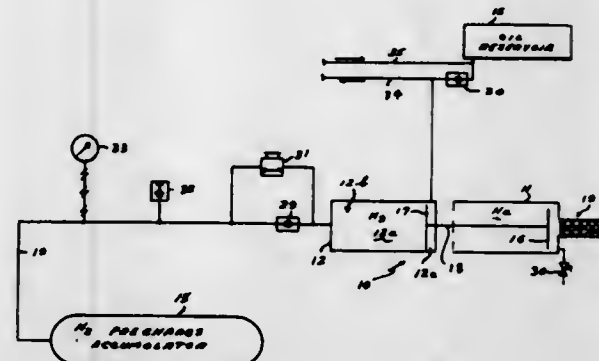
Robert Lehner, Baltimore, and David Sylvester, Phoenix, both of, Md., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Mar. 17, 1970, Ser. No. 20,279

Int. Cl. F04b 17/00, 35/02

U.S. Cl. 417-364

8 Claims



A hydraulic power unit including a solid propellant-hot-gas energy source, a gas accumulator communicating with the exhaust from the source, hydraulic oil accumulator, and a precharge gas accumulator supplying nitrogen gas under pressure to one side of the oil accumulator. Pressure formed by the firing of the hot-gas energy source-propellant acts against, and operates a double-piston mechanism consisting of a pair of separated pistons respectively arranged between the gas and oil accumulators to thereby compress the nitrogen gas in the oil accumulator by one side of the piston positioned therein. Hydraulic oil is simultaneously drawn from an oil reservoir into the oil accumulator on the other side of the said piston where it becomes pressurized by the precharged nitrogen gas for its later use in a hydraulically operated lift system.

3,600,113 ROTARY PUMP OR MOTOR WITH AN AXIALLY ROTATING ROTOR

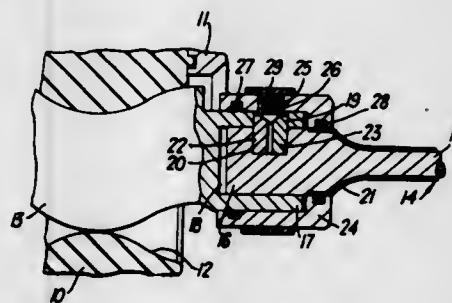
Hans Gunther Pahl, Brentwood, and Stanley George Woods, London, both of, England, assignors to Mono Pumps Limited, London, England

Filed Oct. 20, 1969, Ser. No. 867,666

Int. Cl. F01c 1/10, 5/00

U.S. Cl. 418-48

8 Claims



A rotary pump or motor, e.g. a helical gear pump, comprising a stator having a rotor eccentrically rotatable with respect thereto, a flexible drive shaft having an end portion located in a recess in the rotor, key means located in transversely aligned apertures formed in the recess and the end portion of the shaft, to key the drive shaft to the rotor, to drive the rotor or receive drive therefrom, the flexible drive shaft being coated with a nonpermeable and nonporous layer.

3,600,114 INVOLUTE PUMP

Miloslav Dvorak, and Arnost Lepel, both of Velešín, Czechoslovakia, assignors to Leybold-Heraeus-Verwaltung GmbH, Cologne-Bayenthal, Germany

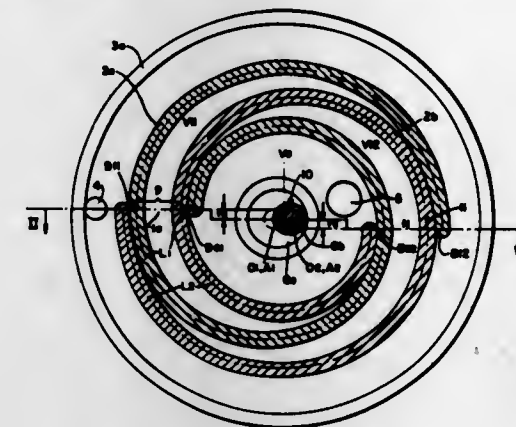
Filed July 18, 1969, Ser. No. 843,069

Claims priority, application Czechoslovakia, July 22, 1968, Sept. 11, 1968, 5354-68; 6370-68

Int. Cl. F01c 1/02; F04c 1/02, 17/02

U.S. Cl. 418-55

15 Claims



A fluid pump or motor is formed of two disks which are mounted parallel to each other and for rotation relative to each other. The opposed surfaces of the disks include substantially plane portions and projections extending from the substantially plane portions and interengaging with each other. These projections have the form of involutes of a circle of the same radius. Closed chambers are formed between the inside of one projection and the outside of another. These chambers constantly change in size during the circular movement of the disk relative to each other. By driving the disks and connecting the closed chambers to a source of fluid the device can be used as a pump; by supplying a fluid under pressure to the chambers the device can be used as a fluid motor.

3,600,115 FLUIDIC STEPPING MOTOR

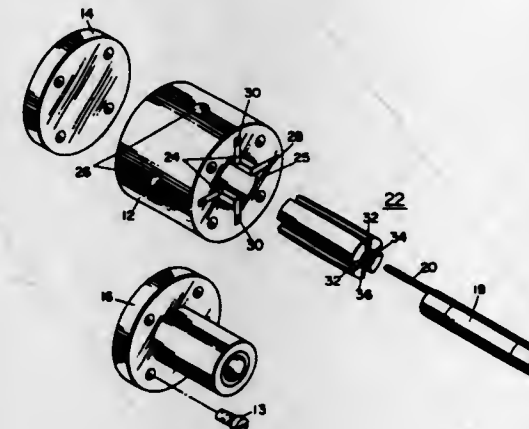
John M. Rhodes, Waynesboro, Va., assignor to General Electric Company

Filed Feb. 27, 1969, Ser. No. 802,859

Int. Cl. F01c 1/04

U.S. Cl. 418-61

8 Claims



A pneumatically operated motor which yields discrete steps of rotation. The motor comprises a stator, a fluidically or pneumatically energized nutator which drives a pin located therewithin and which, in turn, is eccentrically coupled to an output shaft. A plurality of ports are located in the stator which surrounds the nutator, and an equal number of sliding vanes serve to provide a plurality of expansible chambers surrounding the nutator. Air pressure is vented into one port and vented from the opposite port. This difference in pressure across the nutator produces a force on the pin ec-

centrically attached to the output shaft and causes the output shaft to rotate until the forces on the pin balance. By applying pressure at successive ports, the motor can be stepped along in finite degrees of rotation, with the extent of the step depending solely upon the number of ports and the spacing thereof. Fluidic circuitry is also provided for controlling the fluidic energization of the nutator in accordance with command information supplied to the motor.

3,600,116 AIR-CONTROL SYSTEM FOR APPARATUS DISPLACING MATERIAL BY COMBUSTIVE EXPLOSIONS

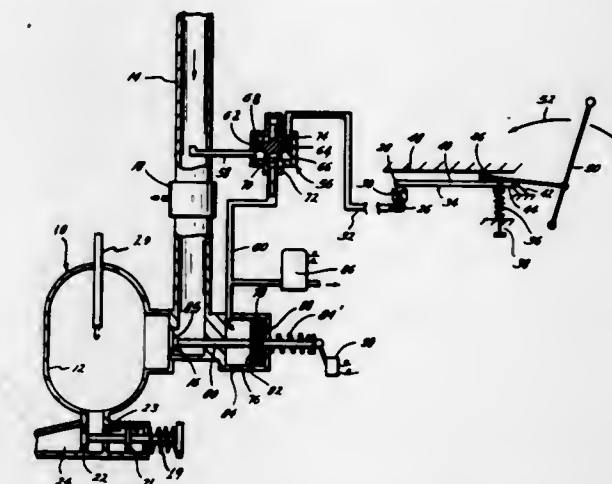
John M. Clark, Jr.; Allan R. Nye, and Charles D. Wood, all of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Aug. 1, 1969, Ser. No. 846,682

Int. Cl. F23r 1/12

U.S. Cl. 431-1

9 Claims



An air control system for an apparatus displacing material by combustive explosions insuring that the air valve leading to the combustion chamber is closed during combustion. An air supply system for a combustive apparatus for displacing material in which the charging pressure of the air in the combustion chamber may be selected and controlled. An air control system for controlling the air inlet valve to the combustion chamber of an explosive material displacing apparatus having a relief valve with means for adjusting the pressure at which the relief valve opens with a control valve connected to and responsive to the relief valve and an air control line connected to the air supply in which the flow of air therethrough is controlled by the control valve, and a piston connected to the air inlet valve and exposed on one side to the pressure in the air control line whereby pressure passing through the control line acts on the piston in a direction to close the valve, and air bleed means connected to the air control line for relieving the air control line to allow the air inlet valve to be actuated. The air control system controlling the air supply valve to allow the full air supply pressure to be built up before charging the combustion chamber with air thereby allowing the air supply system to charge air to the combustion chamber at a higher charging rate.

3,600,117 FURNACE FUEL VALVE ENERGIZING CIRCUIT

Hans G. Hirsbrunner, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed May 8, 1969, Ser. No. 822,903

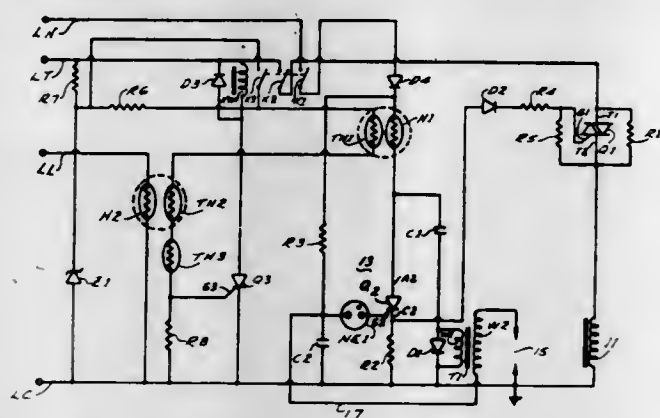
Int. Cl. F23a 5/12

U.S. Cl. 431-66

4 Claims

In an electrothermal furnace control, means for energizing the fuel valve, the fuel valve being an electrically energizable type requiring a higher level of energization for initially supplying fuel and a lesser level for continuing to supply fuel. A triggerable semiconductor current-switching device includes main terminals connected in a circuit with the main fuel valve to an AC power source. Means is provided for supplying triggering current to cause triggering of the switching

device for initially energizing the fuel valve at the higher level but ceases to supply the triggering current after ignition of the fuel. Means connect the fuel valve to the power source to supply energization at the lower level such that the valve is

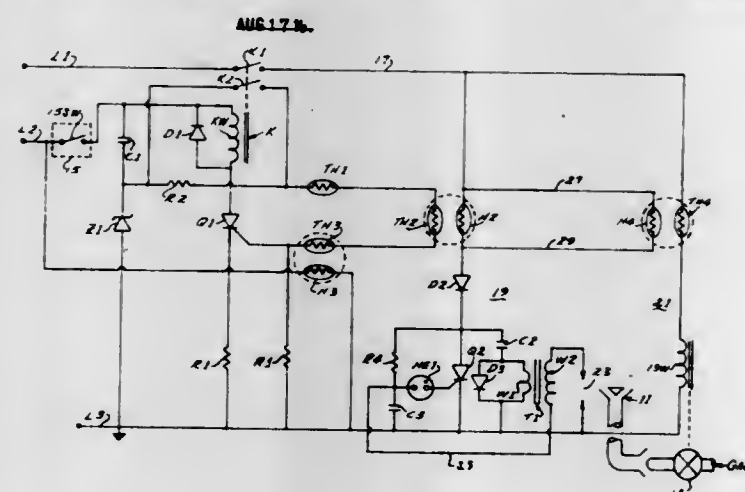


insufficiently energized to initially supply fuel to the burner, but after triggering of the switching device remains energized for continuing to supply fuel to the burner until disconnected from the source of power.

3,600,118
FURNACE CONTROL APPARATUS
Hans G. Hirsbrunner, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed July 23, 1969, Ser. No. 844,110
Int. Cl. G05d 23/24

U.S. Cl. 431-66

10 Claims



In furnace control apparatus, circuitry for energizing an electrically energizable fuel valve of the furnace. A thermistor is connected for bistable operation in either an unheated first state or a self-heating second state, the thermistor being shifted from the first to the second state when momentarily heated above a predetermined threshold temperature. In the second state, the thermistor causes energization of the fuel valve for supplying fuel to the furnace burner. A heater for the thermistor is energized by a fuel demand signal and momentarily heats the thermistor above its threshold temperature, thereby causing fuel to be supplied to the burner in response to a demand for fuel.

This invention relates to apparatus for controlling operation of a furnace, and more particularly to such furnace control apparatus including improved circuitry for energizing an electrically energizable fuel valve of the furnace.

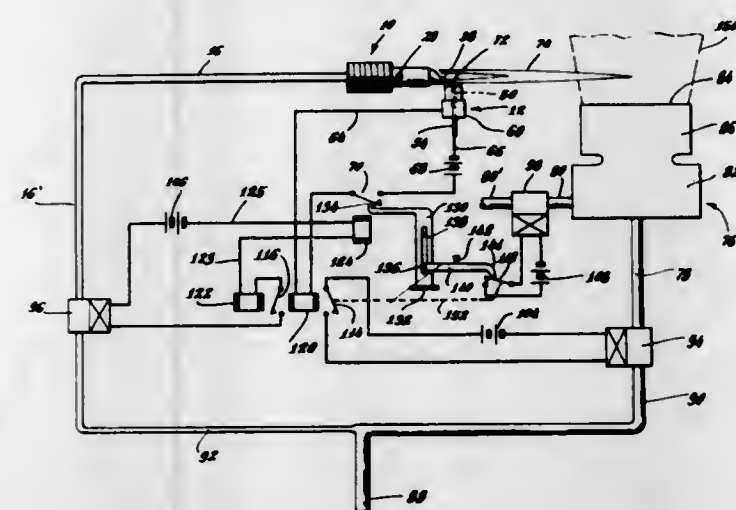
3,600,119
IGNITOR APPARATUS
Howard M. Abbott, Jr., Southport, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed Sept. 24, 1969, Ser. No. 860,641
Int. Cl. F23a 5/00

U.S. Cl. 431-67

10 Claims

An ignition assembly for lighting another device, such as a main burner (for example, the sampling burner of an atomic

absorption spectrophotometer). An electrically heated igniter coil is placed at the edge of the gaseous (fuel and oxidant) stream of the auxiliary igniter burner, and a deflector causes a small part of this gaseous stream to contact the igniter coil. The igniter coil thus remains substantially outside the auxiliary flame thereby avoiding subjecting it to the in-

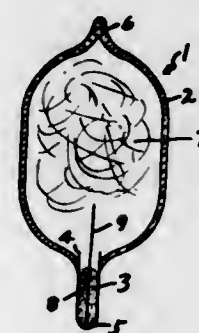


tense heat of the full auxiliary flame. In operation, the coil is first energized to cause it to heat up, the auxiliary (igniter) burner is then supplied fuel, to cause the deflected part of the gaseous stream and therefore the whole stream to be ignited, which in turn lights the main device (e.g., sampling burner). The system may also be readily automated, so as to minimize manual operations by the user.

3,600,120
FLASHLAMP
Bernard Kopelman, Salem, Mass., assignor to Sylvania Electric Products Inc.
Filed Sept. 12, 1967, Ser. No. 667,195
Int. Cl. F21k 5/02

U.S. Cl. 431-93

6 Claims



A percussively triggered flashlamp is made of a light-transmitting envelope, such as glass, with a metal tube extending therefrom and holding the percussive material, and a loose fitting of a combustible material such as shredded zirconium, in an atmosphere of combustion-supporting gas, such as oxygen. The percussive material has particles of a metal such as zirconium mixed therewith to incandesce and ignite the zirconium shreds. The percussive material can be detonated by striking or squeezing the metal tube containing it, as with a firing pin. A wire can extend into the metal tube to act as an anvil against which the percussive material is forced by the firing pin, and can also serve as a means of fitting the tube with percussive material during manufacture of the lamp. The lamp can be used in a flashcube, preferably by modifying the base to insure the presence of a firm background behind the metal tube and against which the firing pin can force it especially if there is no wire or other anvil present in the tube. To facilitate miniaturization of the camera with which the flashlamp can be used, and to permit interchangeability of different size cubes, the metal tube can be offset from the axis of the envelope and the envelope positioned so the tube is set nearer to the axis of the flashcube.

CHEMICAL

3,600,121
METHOD FOR OBTAINING LEVEL DYEING ON CELLULOSIC FIBERS USING POLYETHYLENE GLYCOL CARBOXYLIC ACID ESTERS AS UNSTABLE RETARDING AGENT

Paul Feldmann, Danville, Va., assignor to Dan River Inc., Danville, Va.
No Drawing. Filed Nov. 27, 1967, Ser. No. 696,961
Int. Cl. C09b 9/00

U.S. Cl. 8-34

17 Claims

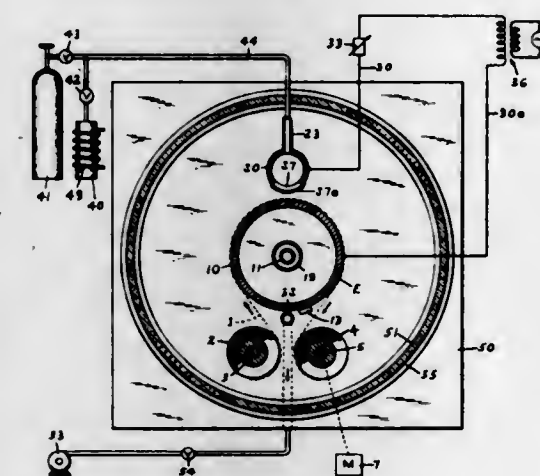
Dyeing methods employing polyethylene glycol carboxylic acid esters as unstable retarding agents in alkaline dyebaths containing vat or sulfur dyestuffs provide level dyeing and permit substantial exhaustion of dyebath and close control over the dyeing process.

3,600,122
METHOD OF GRAFTING ETHYLENICALLY UNSATURATED MONOMER TO A POLYMERIC SUBSTRATE

John H. Coleman, Old Westbury, N.Y., assignor to Surface Aviation Corporation, Westbury, N.Y.
Filed July 1, 1966, Ser. No. 563,931
Int. Cl. D06m 9/00; B44d 1/092, 1/52

U.S. Cl. 8-115.7

12 Claims



1. The method of free radical initiation of a polymer graft to an organic polymeric substrate which comprises subjecting a substrate selected from the group consisting of polyolefins, polyesters, polyamides, and cellulosic and proteinaceous products to a spark discharge in a zone of free radical initiating gas selected from the group consisting of argon, hydrogen, helium, a mixture of argon and hydrogen, and a mixture of helium and hydrogen to generate free radical sites on the surface of said substrate, and subsequently exposing said substrate to an ethylenically unsaturated monomer.

3,600,123
MODIFICATION OF CELLULOSIC TEXTILE MATERIALS WITH FORMALDEHYDE AND CYANAMIDE USING AMMONIUM SALT CATALYSTS
Hugh J. E. Campbell, Clarkson, Ontario, Canada, assignor to Ontario Research Foundation, Toronto, Ontario, Canada

No Drawing. Filed Mar. 24, 1967, Ser. No. 625,602
Claims priority, application Great Britain, Mar. 30, 1966, 14,185/66, 14,186/66

Int. Cl. D06m 13/14, 13/36

U.S. Cl. 8-116.3

8 Claims

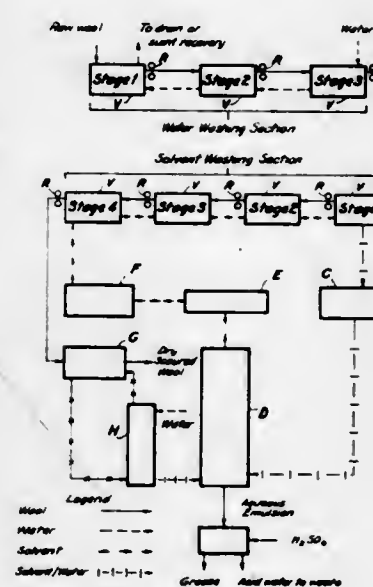
A process for treating a cellulosic textile material to improve the dimensional stability and crease resistance

thereof wherein formaldehyde and cyanamide are reacted at an elevated temperature in the presence of a catalyst and water, and in contact with the material is improved by employing as the catalyst, a salt selected from the group consisting of ammonium dihydrogen phosphate, diammonium hydrogen phosphate, triammonium phosphate, diammonium sulfate, diammonium sulfite, ammonium sulfamate, and mixtures thereof.

3,600,124
WOOL SCOURING PROCESS
Raymond Arthur Couche, 168 Adelaide Terrace, Perth, Western Australia, Australia
Filed Aug. 8, 1968, Ser. No. 751,250
Int. Cl. D01c 3/00; C11b 11/00

U.S. Cl. 8-139.1

12 Claims



The invention relates to a process of scouring wool using a hydrophilic solvent or mixture of solvents after the raw wool has been first washed with water at a temperature below the temperature at which wool wax melts and preferably at or below ambient temperature. The solvent/water ratio in the solvent stage into which the water wet wool passes is controlled to ensure that substantially all the wool wax dissolved in the solvent remains in solution.

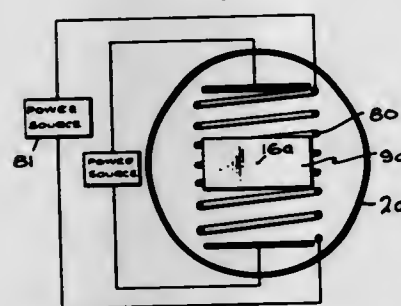
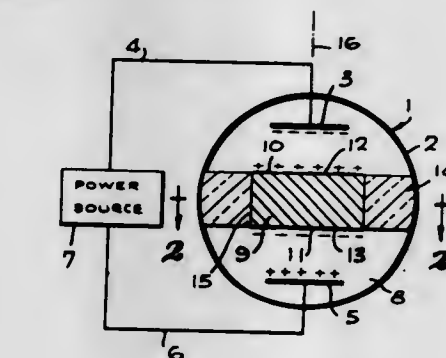
3,600,125
METHOD OF UTILIZING PIPERIDINE AS A CONDENSATE CORROSION INHIBITOR
Kenneth G. Phillips, River Forest, Ill., assignor to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed May 16, 1969, Ser. No. 825,395
Int. Cl. C23f 11/04, 11/08

U.S. Cl. 21-2.7

4 Claims

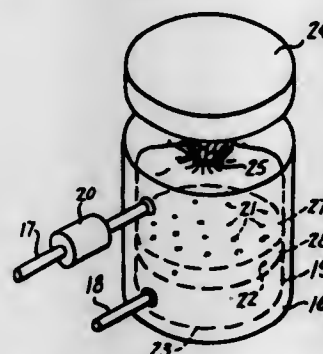
A method of and dosage concentration for inhibiting CO₂ and O₂ corrosion in boiler steam condensate systems comprising adding piperidine in condensate concentrations of from about 1.0 to 10.0 p.p.m. to achieve a pH of about 8.8 to 9.5 This method provides adequate protection especially for the ferrous metal pipes normally utilized in condensate systems and utilizes a reagent with a favorable distribution ratio between vapor and initially formed condensate.

3,600,126
ASEPSIS PROCESS AND APPARATUS
 Emil J. Hellund, 31281 Holly Drive,
 South Laguna, Calif. 92677
 Continuation-in-part of abandoned application Ser. No.
 533,767, Feb. 21, 1966. This application Feb. 5, 1968,
 Ser. No. 702,929
 Int. Cl. A61I 1/00, 3/00
 U.S. Cl. 21—54



A process and apparatus for rendering aseptic a contaminated surface or surfaces of an object being treated, by establishing an electric field through the object and through a gas which contacts the object, in a relation producing a glow discharge in the gas, with the contamination on the object (for example bacteria, viruses or other microorganisms) serving as a secondary anode and/or a secondary cathode to the glow. By virtue of this functioning of the contamination itself as a secondary electrode to the glow, the contaminants are bombarded by electrons and/or ions which impact against and thereby kill or otherwise disable the contaminants. The impedance to by-passing of current past the object being treated is maintained high enough to force the contamination to serve its intended function as an anode or cathode to the glow.

3,600,127
FLUIDIZED BED STERILIZING PROCESS
 Karl Kereluk, Fairview, and Robert S. Lloyd, Erie, Pa.,
 assignors to American Sterilizer Company, Erie, Pa.
 Filed Oct. 7, 1969, Ser. No. 864,312
 Int. Cl. A61I 1/00
 U.S. Cl. 21—58



A method and apparatus for sterilizing powder in sealed bags comprising placing finely divided material, such as powder, sealed in semi-permeable bags in containers with a side having an inlet and outlet for gas. The bags have partitions and have openings which may regis-

ter the gas inlets and outlets. The bags are specially designed of semi-permeable material which allows the gas to flow through the material and out the outlet of the container. The apparatus functions as a fluid bed and the powder in the bag becomes fluidized.

3,600,128
PROCESS FOR IRON REMOVAL FROM ZINC CHLORIDE SOLUTIONS
 William A. Schulze, Cleveland, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Filed Feb. 18, 1969, Ser. No. 800,278
 Int. Cl. C01g 9/04

U.S. Cl. 23—97
 This specification discloses a process for removing iron compounds from a zinc chloride solution containing dissolved therein small quantities of organic matter by first contacting the solution with activated carbon and thereafter adding an oxidizer to precipitate the iron out of solution. The activated carbon and iron solids are removed either by filtration or by other conventional techniques such as settling or centrifuging. The process improves the filtration rate.

3,600,129
MANUFACTURE OF LOW BULK DENSITY HIGH STRENGTH SPHERICAL ALUMINA PARTICLES
 Kenneth D. Vesely, Arlington Heights, and Laurence R. Steenberg, Glenview, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 579,193, Sept. 14, 1966. This application June 17, 1969, Ser. No. 834,153
 Int. Cl. C01f 7/42; B01J 11/44, 11/40

U.S. Cl. 23—143
 Low density alumina spheres of improved crushing strength are prepared by the oil-drop method utilizing a dropping mixture comprising an alumina sol and hexamethylenetetramine, said dropping mixture having an Al/Cl weight ratio of 1:1 to 1.5:1, a hexamethylenetetramine/Cl mol ratio of 1/4-1.25/4 and an Al content of 6-10 wt. percent. After dropping, the spheres are pressure aged at a temperature of 240°-500° F. for 1-5 hours, and are then washed, dried and calcined.

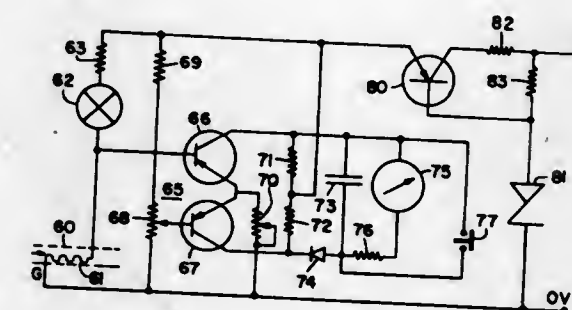
3,600,130
DESULFURIZATION OF FLUID PETROLEUM COKE
 Clyde L. Aldridge and Robert H. Waghorne, Baton Rouge, La., assignors to Esso Research and Engineering Company
 No Drawing. Filed Mar. 24, 1969, Ser. No. 809,937
 Int. Cl. C01b 31/02

U.S. Cl. 23—209.9
 A method for removing metals and sulfur from petroleum coke by partial gasification of the coke with steam at elevated pressures and temperatures. Gasification of less than approximately fifty percent of the coke with steam at pressures ranging from about 100 to 3,000 p.s.i.g. results in selective desulfurization of the unconverted coke. Temperatures range from about 800 up to about 2500° F. The extent of gasification ranges from about 5 to 50% of the coke.

3,600,131
REMOVAL OF SULFUR DIOXIDE FROM WASTE GASES
 Indravadan S. Shah, Forest Hills, N.Y., assignor to Chemical Construction Corporation, New York, N.Y.
 Filed Jan. 27, 1969, Ser. No. 794,200
 Int. Cl. C01b 17/00, 17/48

U.S. Cl. 23—224
 A process is provided to efficiently and economically absorb and recover the sulfur dioxide content of waste

gas streams, and thus eliminate air pollution and produce a useful sulfur-containing product. Sulfur dioxide is recovered from a waste gas stream, such as the flue gas from a steam power boiler which burns a sulfur-containing fuel such as coal, by scrubbing the waste gas stream with an aqueous solution containing sodium sulfite and sodium bisulfite. Sulfur dioxide is absorbed into the aqueous scrubbing solution and reacts with sodium sulfite to form further sodium bisulfite in aqueous solution. The resulting solution is divided into a first portion and a second portion. Magnesium oxide or hydroxide is added to the first portion to convert sodium bisulfite to sodium sulfite and precipitate solid magnesium sulfite, which is filtered or otherwise separated from the solution and processed to recover a valuable sulfur-containing product, such as by calcining to produce a gas stream rich in sulfur dioxide or elements sulfur vapor, or by oxidizing to magnesium sulfate product. The residual solution is combined with the second scrubbing solution portion, and the combined solution is recycled for further waste gas scrubbing.



the catalyst, e.g., temperature and resistance, which are dependent on the concentration of oxidizable compounds contained in the gas, are measured to provide an indication of the concentration of the oxidizable compounds.

3,600,132
PROCESS FOR THE DETERMINATION OF THE HYDROXYPROLINE CONTENT OF BIOLOGICAL FLUIDS, AND DIAGNOSTIC PACKS FOR THIS DETERMINATION
 Bastiaan Cornelis Goverde, Oss, Netherlands, assignor to Organon Inc., West Orange, N.J.
 No Drawing. Filed Dec. 4, 1968, Ser. No. 781,243
 Claims priority, application Netherlands, Dec. 11, 1967, 6716836

U.S. Cl. 23—230
 Process for the determination of hydroxyproline in biological fluids, such as serum, urine, lumbar fluid and interarticular fluid. It comprises treating a sample with a strong acidic cation exchange resin, which adsorbs the free and peptide-bound hydroxyproline and hydrolyzing the adsorbed peptide-bound hydroxyproline by heating, whereafter the hydroxyproline is eluted and determined by means of a color reaction. Besides, the invention comprises a diagnostic pack chiefly comprising a bottle with said resin, a tube for the performance of the adsorption and hydrolysis, a bottle with a standard quantity of hydroxyproline and a reagent for the performance of a color reaction. In this way tracing of deviations in collagen metabolism can easily be performed.

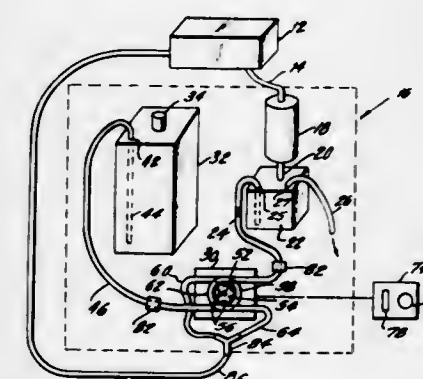
3,600,133
METHOD FOR DETERMINING THE STRENGTH OF EMULSIONS
 Gareth G. Price, Bernard Wheelahan, and Simon D. E. Stafford-Gaffney, Melbourne, Victoria, Australia, assignors to Shell Oil Company, New York, N.Y.
 No Drawing. Filed Apr. 17, 1969, Ser. No. 817,146
 Claims priority, application Australia, Apr. 22, 1968, 36,696/68

U.S. Cl. 23—230
 A method for determining the emulsion strength of an aqueous emulsion using a novel marking agent and indicator and comparing it against a standard emulsion.

3,600,134
METHOD FOR THE DETERMINATION OF ALCOHOL AND OTHER OXIDIZABLE ORGANIC COMPOUNDS IN RESPIRED AIR AND BODY FLUIDS
 Hans Gunter Nöller, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y.
 Filed Apr. 11, 1968, Ser. No. 720,736
 Int. Cl. G01n 25/22

U.S. Cl. 23—232E
 A method and apparatus for determining oxidizable organic compounds in human and animal body gases and

3,600,135
APPARATUS FOR REAGENT FORMATION
 Robert Davis, Far Rockaway, N.Y., assignor to Scientific Industries, Inc., New York, N.Y.
 Filed May 16, 1968, Ser. No. 729,814
 Int. Cl. G01n 31/00, 31/02
 U.S. Cl. 23—253

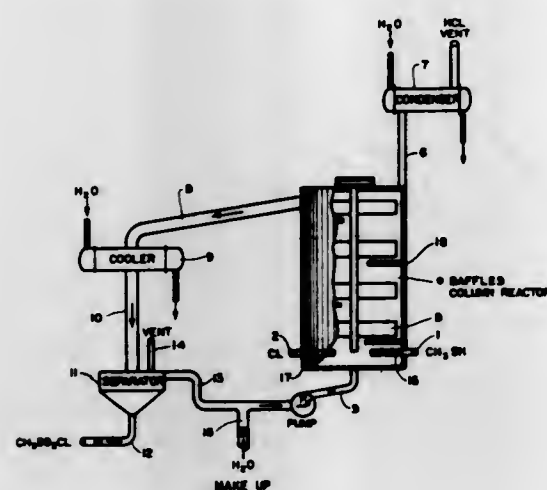


Reagent for use in an apparatus is formed from concentrated reagent mixed with an additional reagent component, e.g. a diluting medium, such as deionized and demineralized water; the newly formed reagent passes through an apparatus that uses and alters the reagent; the liquid from the apparatus passes through a treatment cartridge where certain components are removed and/or others are added, e.g. a deionizing and demineralizing cartridge where the ions and minerals are removed from the spent and altered reagent creating deionized and demineralized water; this treated liquid is newly reformed additional reagent component which is again mixed with concentrated reagent to form new reagent.

3,600,136
APPARATUS FOR PRODUCING METHANE SULFONYL CHLORIDE
 Silvio L. Giolito, Whitestone, and Harry O. Hofmann, Yonkers, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.
 Original application Jan. 3, 1966, Ser. No. 518,199.
 Divided and this application Aug. 26, 1968, Ser. No. 777,527

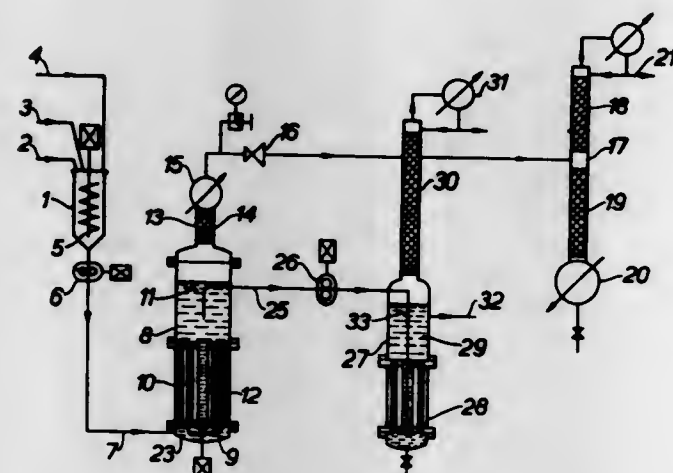
U.S. Cl. 23—260
 Apparatus for conducting a continuous chemical reaction comprising in combination: (A) a vertically dis-

posed baffled column reactor; (B) a cooler; (C) a separator; (D) a vented condenser; and (E) conduit means for feeding and dispersing reactants into the column reactor at a position near the bottom. The baffled column reactor, cooler and separator are connected by conduit



means to provide flow of the reaction matrix from the top of the column reactor first to the cooler, then to the separator and finally the lighter phase from the separator to the bottom of the column reactor. The condenser being mounted at an elevated position above the column reactor for gravity recycle of condensed liquids.

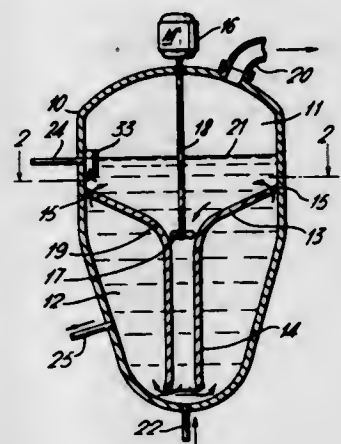
3,600,137
APPARATUS FOR THE CONTINUOUS PREPARATION OF PHTHALATE ESTERS OF GLYCOLS
Antoine Girantet, La Mulatiere, and Jean Roget and Philippe Turbouriech, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
Filed May 14, 1969, Ser. No. 824,585
Claims priority, application France, May 15, 1968, 151,929, Jan. 10, 1969, 6,900,301
Int. Cl. B01j 1/00; C07c 69/82
U.S. Cl. 23—263



Apparatus for the continuous esterification of glycols with phthalic acids comprising two reactors in series, 65 to 88% of the esterification being completed in the first reactor and the remainder in the second, each reactor providing for intimate mixing of the reactants and removal of volatile products. The reactors contain a plurality of reaction zones with at least one vertical tube bundle having at least one vertical pipeline associated therewith located in each reactor, the former providing vapor risers

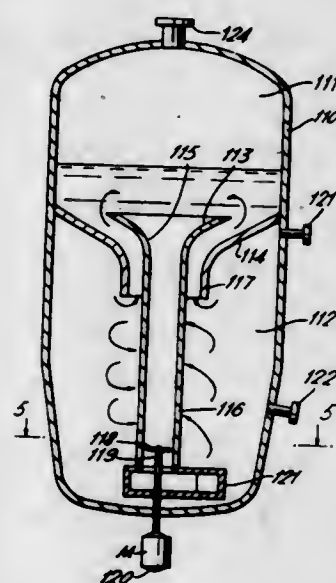
and the latter providing liquid downcomers, thereby facilitating intimate mixing and circulation of the phases within the reactors.

3,600,138
CRYSTALLIZER
Robert R. Voigt, Warren, Pa., assignor to Struthers Scientific and International Corporation
Filed Aug. 11, 1967, Ser. No. 659,953
Claims priority, application Great Britain, Aug. 23, 1966, 37,701/66
Int. Cl. B01d 9/02
U.S. Cl. 23—273



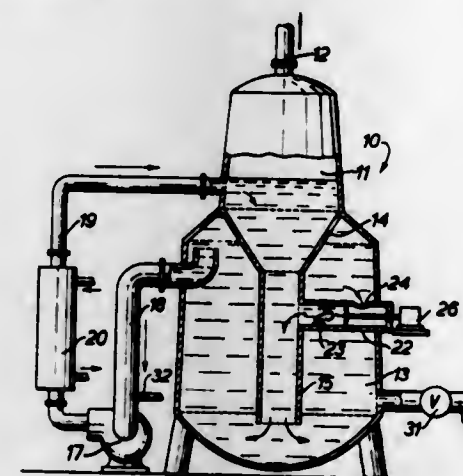
A vacuum evaporator within a single shell having a downwardly extending cone within the shell and having a tail pipe extending downward from the cone, and means within the tail pipe circulating a mother liquor downward in said tail pipe to flow upward about the cone, the upper chamber being a vacuum evaporating chamber and the lower chamber being a crystallization chamber.

3,600,139
CRYSTALLIZATION APPARATUS
Robert H. Hedrick, Warren, Pa., assignor to Struthers Scientific and International Corporation
Filed Aug. 14, 1967, Ser. No. 660,425
Claims priority, application Great Britain, Aug. 23, 1966, 37,650/66, 37,702/66
Int. Cl. B01d 9/02
U.S. Cl. 23—273



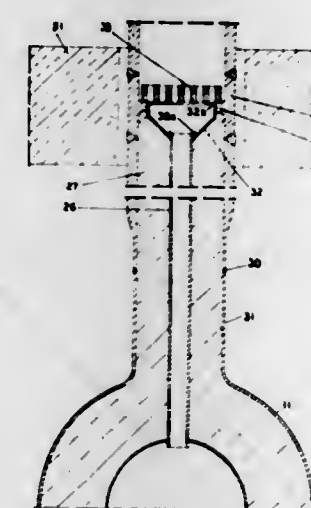
Crystals are grown in a rotating solution to increase the acceleration to which they are subjected and increase the growth rate of the crystals.

3,600,140
FLOW CRYSTALLIZER
Robert H. Hedrick, Warren, Pa., assignor to Struthers Scientific and International Corporation
Filed June 11, 1968, Ser. No. 736,224
Claims priority, application Great Britain, July 27, 1967, 34,607/67
Int. Cl. B01d 9/02
U.S. Cl. 23—273



In a crystallizer having a first recirculating loop between a vacuum evaporation chamber and a suspension chamber, there is added a second recirculation loop recirculating mother liquor in the lower portion of the suspension chamber to increase the upward velocity of fluid in the lower portion of the suspension chamber.

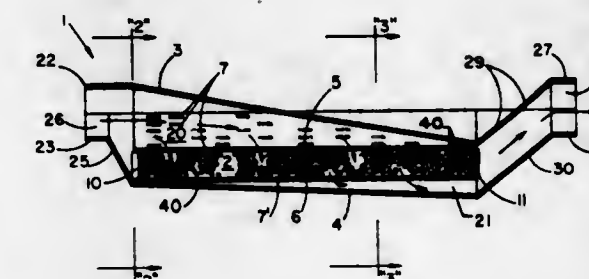
3,600,141
TUBE FURNACE FOR RECOVERY OF SYNTHESIS GASES FROM HYDROCARBON CRACKING
Paul Mevenkamp, Lichtendorf, and Hans-Dieter Marsch, Dortmund, Germany, assignors to Friedrich Uhde G.m.b.H., Dortmund, Germany
Filed Dec. 2, 1968, Ser. No. 780,539
Claims priority, application Germany, Dec. 4, 1967, P 16 67 324.8
Int. Cl. B01j 9/04
U.S. Cl. 23—288



A tube furnace for the recovery of synthesis gases from hydrocarbon cracking in which a reaction pipe extends through the furnace floor and is solely supported at its lower end beneath such floor by a collector pipe to which it is connected by a welded joint which can be broken for repairing the reaction pipe. Centrally of the reaction pipe

is a central pipe leading from the collector to the furnace floor. A sealing member is rigidly connected respectively to the upper end of the central pipe and the reaction pipe preventing reaction gases from passing to the space between the central and reaction pipes. Thermal insulation fills the space between the central pipe and the reaction and collector pipes, as well as between the sealing member and the reaction pipe.

3,600,142
CATALYTIC CONVERTER
Le Roy E. Fessler, Roselle, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Sept. 22, 1969, Ser. No. 859,906
Int. Cl. B01j 9/04; F01n 3/14
U.S. Cl. 23—280



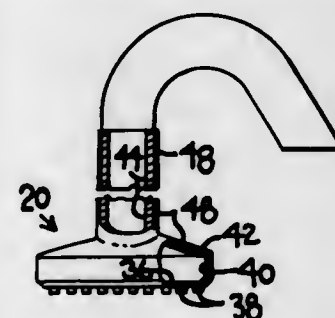
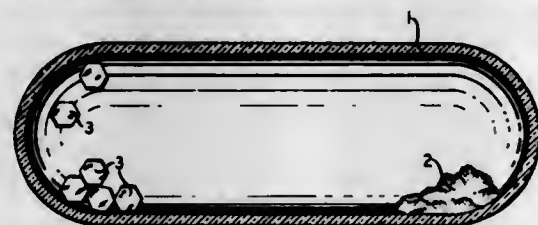
A catalytic converter for treating an engine exhaust stream which embodies a segment-cylinder-form catalyst retaining section supported by the outer housing in a slideable manner. In a preferred embodiment there is provided maximum catalyst volume with minimum inlet area. Also, in a preferred arrangement, the converter has a catalyst reservoir therein which serves as a storage for fresh catalyst particles that flow into the catalyst retaining section, replacing catalyst particles lost by attrition.

3,600,143
GROWTH OF CRYSTALLINE CHALCOGENIDE SPINELS
Friedel H. P. Wehmeier, Murray Hill, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Sept. 30, 1968, Ser. No. 763,626
Int. Cl. B01d 5/00
U.S. Cl. 23—294

Crystalline chalcogenide spinels, such as CdCr_2Se_4 , are grown by a vapor transport process using the spinel as a solid source. Growth at temperatures above the decompo-

6 Claims

sition temperature of the spinel is expedited by an over-pressure of selenium produced by the use of elemental selenium as an initial ingredient. Both closed and open tube procedures are described.



selenium as an initial ingredient. Both closed and open tube procedures are described.

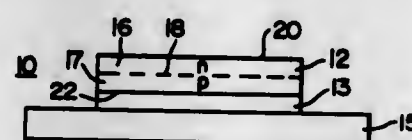
3,600,144

LOW MELTING POINT BRAZING ALLOY

Tibor Csakvary, Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 5, 1969, Ser. No. 830,669

Int. Cl. B32b 15/04

U.S. Cl. 29—195



This disclosure relates to a solder and a method for joining a wafer of semiconductor material to a metal electrical contact so that the joined structure has a minimum of deformation as a result of the difference in the coefficient of thermal expansion of the semiconductor material and the metal electrical contact.

3,600,145

PRODUCTION OF METHANE FROM CARBON MONOXIDE AND STEAM

Marvin M. Johnson and William T. Nelson, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed Apr. 9, 1968, Ser. No. 719,849

Int. Cl. C01b 2/10

U.S. Cl. 48—197

Carbon monoxide and steam are converted practically quantitatively to methane and carbon dioxide at a temperature of 400–2000° F., a pressure in the range of 0 to 1,000 pounds per square inch gage, gaseous hourly space rates for CO of 200–10,000 and at carbon monoxide to steam ratio (in moles) of from about 0.2 to about 20 over a nickel catalyst promoted with a barium salt of an organic acid, e.g., barium acetate, the catalyst being supported on an alumina-containing support material, e.g., alumina or calcium aluminate.

3,600,146

GLASS BUSHING WITH HIGH EMISSIVITY COATING

Thomas H. Jensen, Murrysville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed July 23, 1968, Ser. No. 746,800

Int. Cl. C03k 37/08

U.S. Cl. 65—11

Platinum and platinum alloys such as those used for bushings and bushing assemblies in the manufacture of glass fibers have relatively low emissivity values. In some processes parts of such bushings or assemblies are exposed to radiant energy and to increase radiant heat exchange, a coating of a material having a relatively high emissivity

extent and preferably have a coefficient of expansion compatible with the metal of the bushing or assembly.

3,600,147

METHOD OF MAKING A GLASS SEMI-PERMEABLE MEMBRANE

Charles L. McKinnis, 9 Mount Parnassus Drive, and Charles I. Cohen, Rte. 2, Chelsea Road, both of Granville, Ohio 43023

Continuation of application Ser. No. 726,297, May 3, 1968. This application Jan. 2, 1970, Ser. No. 492

Int. Cl. C03c 15/00; B01d 31/00

U.S. Cl. 65—31

10 Claims



A process of making a semipermeable membrane that includes leaching an inorganic glass film.

3,600,148

SAFETY DEVICES FOR FEED ROLLS OF GLASS BULB BLOWING APPARATUS

Junji Yamada, Odawara-shi, and Makoto Wada, Kawasaki-shi, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha (also known as Tokyo Shibaura Electric Co., Ltd.), Kawasaki-shi, Japan

Filed July 22, 1969, Ser. No. 843,392

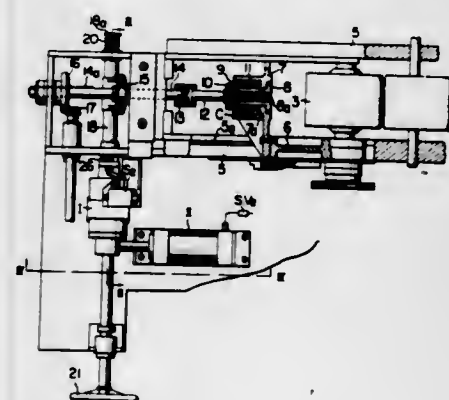
Claims priority, application Japan, July 23, 1968,

43/51,580

Int. Cl. F16p 7/00; C03b 9/13

U.S. Cl. 65—159

4 Claims



In a ribbon type glass bulb blowing apparatus, a safety device is provided for a pair of feed rolls adapted to form a stream of molten glass, into a glass ribbon and to

separate feed rolls from each other in response to the presence of solid contaminants in the stream of molten glass. One of the feed rolls is supported on a floating bracket which is connected through a coupling to a shifter. The bracket responds to a contaminant in the molten glass and actuates a piston-cylinder which unlocks a locking device. The unlocking actuates another piston-cylinder which rotates a shaft. The shifter is carried by the shaft and is moved by the rotation of the shaft. The movement of the shifter causes the floating bracket, and thus the feed roll, to move. Further, a hand wheel to manually separate feed rolls and to adjust the nip therebetween is also provided.

3,600,149

TEMPERATURE CONTROL SYSTEM FOR A GLASS TANK FOREHEARTH

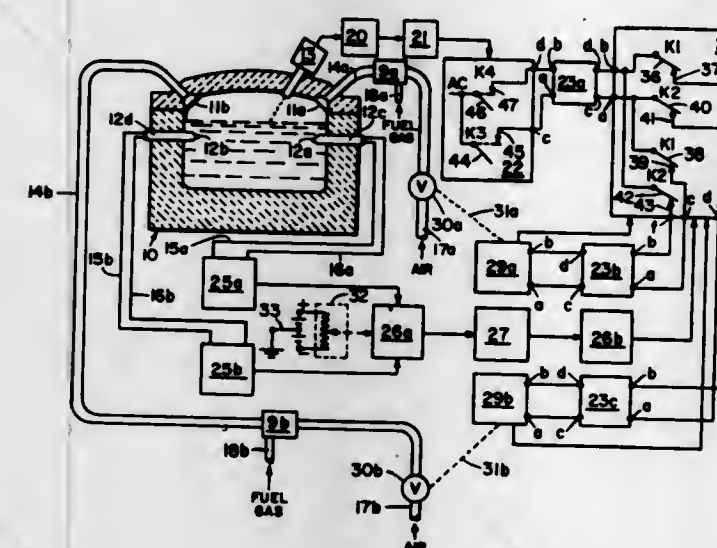
Tai-Seng Chen, Lafayette, Ind., and Kenneth A. Cook and Bernard P. McDonnell, Elmira, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Sept. 26, 1969, Ser. No. 861,246

Int. Cl. G12b 1/00

U.S. Cl. 65—162

12 Claims



A system for controlling the temperature of a bath or pool of molten glass in a forehearth so that the temperatures of such glass at first and second opposite sides of the forehearth are equal or differ from each other by a preselected amount. Such system may be employed in conjunction with prior known systems for maintaining the temperature of the molten glass, at a selected point between said sides of the forehearth, at a preselected temperature.

3,600,150

APPARATUS FOR TEMPERING AND BENDING GLASS SHEETS

André Rougeux, Colombes, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France

Filed July 10, 1968, Ser. No. 743,696

Claims priority, application France, July 13, 1967,

114,203; May 10, 1968, 151,472

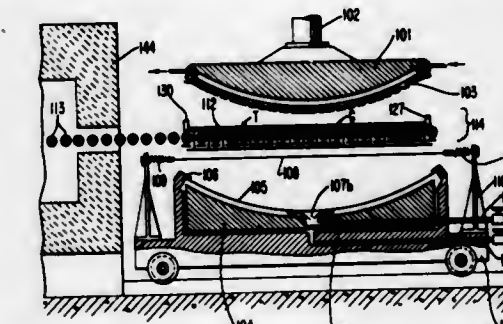
Int. Cl. C03b 23/02, 27/00

U.S. Cl. 65—268

11 Claims

Apparatus for bending and tempering glass sheets by contact with two refrigerated forms, one of which is rigid and the other of which is flexible. The flexible form comprises a flexible fabric membrane which is sealed to a fixed rim to form an enclosed pressure chamber. Conduits circulate a cooling fluid which contacts the faces of both forms and which applies pressure to the membrane. A sling of flexible refractory fibers supports the glass sheets between the forms when the forms are disposed in a vertical plane. When the forms are disposed

in a horizontal plane, a flexible fabric hammock supports the glass between them. A split carriage having two



sections moves the glass sheet and lays it upon the hammock by separation of the two sections.

3,600,151

APPARATUS FOR TEMPERING GLASS SHEETS

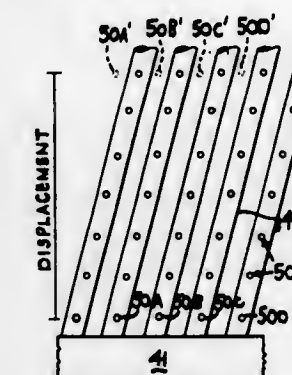
James H. Cypher, New Kensington, and George W. Stille, Freeport, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 806,803, Mar. 13, 1969, which is a continuation-in-part of application Ser. No. 572,043, Aug. 12, 1966. This application Aug. 5, 1969, Ser. No. 847,617

Int. Cl. C03b 27/00

U.S. Cl. 65—348

7 Claims



Tempering a heated glass sheet by imparting a pattern of moving blasts of tempering medium, such as air, against the major surfaces of the hot glass sheet from a pair of sets of spaced parallel pipes each having substantially equidistant apertures. All of the apertures are arranged in rows extending at an oblique angle to the axis of linear reciprocation of relative movement between the glass and the apertures and in rows approximately normal to said axis. The pipes are reciprocated in unison along an axis of reciprocation to provide an amplitude of reciprocation so related to the aperture spacing and said orientation of the oblique lines of apertures that each aperture occupying a first position at one end of its reciprocation path is displaced to a second position between corresponding first positions occupied by other apertures from the oblique lines of apertures and from the transverse rows of apertures. This arrangement provides a substantially equal application of tempering medium to each increment of glass sheet surface.

3,600,152

PHOSPHATE FERTILIZER PRODUCTS

Erhart K. Drechsel, Tucson, Ariz., and John B. Sardisco, Shreveport, La., assignors to Pennzoll United, Inc., Shreveport, La.

Filed Aug. 27, 1968, Ser. No. 755,699

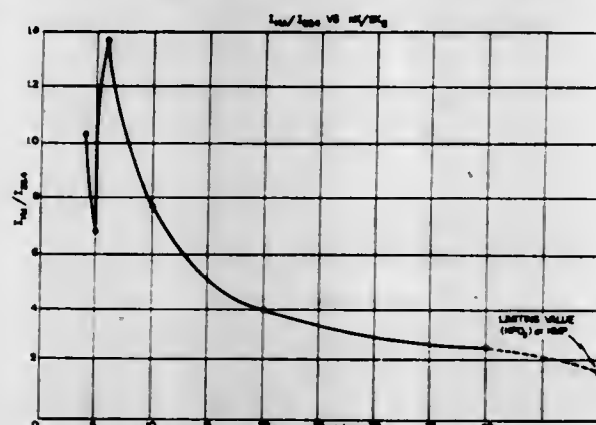
Int. Cl. C05b 7/00

U.S. Cl. 71—34

10 Claims

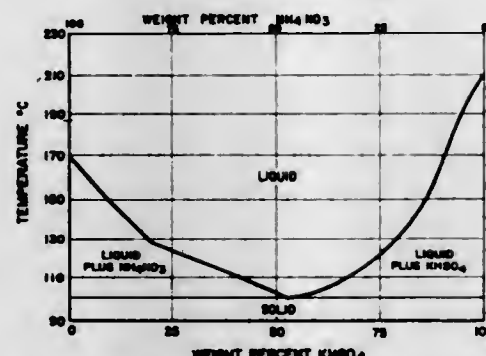
Fertilizer products having controlled water solubilities and molecular weights which comprise polymeric reaction products of potassium dihydrogen phosphate and potassium monohydrogen phosphate having molecular weights

of about 20,000 to 80,000, produced in the temperature range of 250 to 850° C. The products are unique in that the solubility in water can be predetermined and controlled by regulation of the reactant amounts and reaction conditions. The potassium dihydrogen phosphate and potassium monohydrogen phosphate mixtures are produced by mixing or the mixtures may be produced by a



reaction of phosphate rock and/or derivatives thereof with phosphoric acid or mixtures thereof with sulfuric acid and potassium bisulfate and/or potassium sulfate. There is also disclosed a potassium polyphosphate designated potassium anhydrophosphate of varying water solubility and molecular weight. These product mixtures exhibit excellent solubility properties for use as controlled-release fertilizer materials.

3,600,153
NH₄NO₃-KHSO₄ FERTILIZER COMPOSITION
James F. Rounsaville, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
Filed Aug. 19, 1968, Ser. No. 753,349
Int. Cl. C05c 1/00
U.S. Cl. 71-59 3 Claims

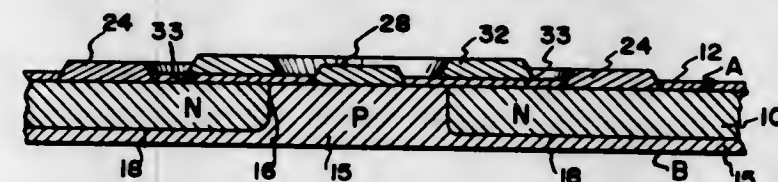


Melt fertilizer comprising potassium bisulfate and ammonium nitrate is prepared by acidulating KCl or K₂SO₄, removing by-product HCl if formed, admixing the resulting potassium bisulfate with ammonium nitrate in the molten state to obtain a eutectic mixture of NH₄NO₃ and KHSO₄, which is cooled to the solid product. While in the molten state, the eutectic mixture may be ammoniated and/or granulated. Likewise other salts may be added to the molten mixture prior to its solidifying.

3,600,154
PROCESS FOR THE CONTINUOUS PREPARATION OF NITROPHOSPHATE FERTILIZERS
Willem Slot, Heerlen, and Johan D. Logemann, Geleen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands
Filed Feb. 28, 1969, Ser. No. 803,261
Claims priority, application Netherlands, Feb. 29, 1968, 6802841
Int. Cl. C05b 11/06
U.S. Cl. 71-35 3 Claims

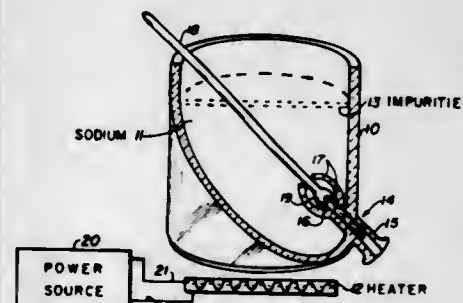
An improved process for the continuous preparation of a nitrophosphate fertilizer wherein phosphate rock

is decomposed in an aqueous solution containing sufficient nitric acid to dissolve the phosphate rock, sulfuric acid is then added to the solution in a sufficient amount to precipitate gypsum with the simultaneous reformation of nitric acid, additional phosphate rock is then added to the solution and dissolved by the reformed nitric acid, ammonium sulphate is then added to



the solution to react with the dissolved calcium ions obtained in dissolving the additional phosphate rock, thereby precipitating additional gypsum, the precipitated gypsum is then separated from the solution, and the gypsum-free solution is then neutralized with ammonia and evaporated to dryness to form a solid fertilizer composition.

3,600,155
SODIUM PURIFICATION PROCESS
Paul F. De Vries, Ruffsedale, Pa., and James M. Scarborough, Canoga Park, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 16, 1969, Ser. No. 858,338
Int. Cl. C22b 27/00
U.S. Cl. 75-66 5 Claims



A process for the purification of sodium wherein sodium is heated or cooled to a temperature just above its melting point such that impurities, such as sodium oxide, which are very nearly insoluble in sodium at this temperature, rise to the surface of the pool of sodium, whereafter the sodium below the surface, which is essentially free of impurities, is removed. This process is applicable for producing purified sodium for general use, but is particularly effective in a continuous operation as required in circulating systems such as nuclear reactors, heat exchangers, research loops, etc. where continuous removal of impurities is required.

3,600,156
RECOVERY OF MERCURY FROM CINNABAR
Jefferson M. Clapton, Denver, Colo., and Donald K. McCready, Riverton, Wyoming, assignors to Jefferson M. Clapton, Denver, Colo., and Donald K. McCready, Riverton, Wyoming, jointly
Filed Aug. 9, 1968, Ser. No. 751,427
Int. Cl. C32b 43/00
U.S. Cl. 75-101 10 Claims

The production of mercury from an ore containing cinnabar. The first portion consists in comminuting the ore and leaching the ore and by dissolving the cinnabar in a sodium sulphide solution in the presence of an hydroxyl ion, provided by calcium hydroxide. The pregnant solution subsequently obtained is removed from the ore and is thereafter treated by passing the same through one or more towers containing vertically disposed arrays of strands of aluminum wire, or other elongated structural

forms. The formation of hydrogen by reaction of the hydroxyl ion with aluminum and the reduction of the mercury to its metallic form, occurs with the mercury adhering to the vertical strands of wire to migrate downwardly therealong. A mercury, sufficiently pure as to require no further treatment will fall from the bottom ends of the strands as drops of substantial size. It was found that aluminum suitable for this purpose had to have less than 4 percent impurities to insure that the mercury will adhere.

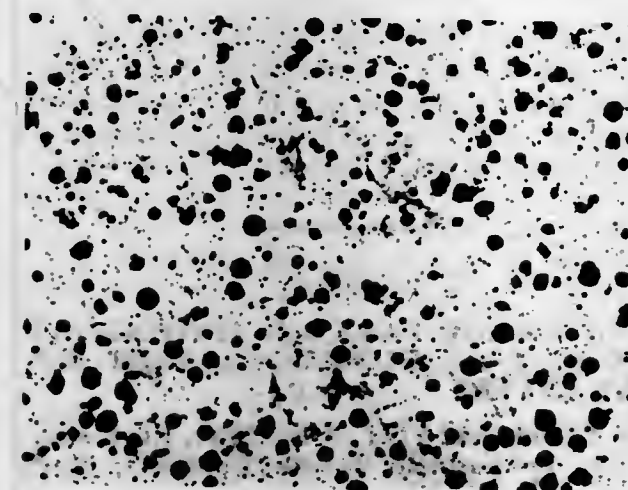
3,600,157
RARE EARTH ADDITIONS TO URANIUM AND URANIUM ALLOYS
George E. Jaynes, Los Alamos, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed May 7, 1969, Ser. No. 822,695
Int. Cl. C22c 27/00
U.S. Cl. 75-122.7 5 Claims

Yttrium or lanthanide rare earth metals are added to uranium and uranium alloys in the range of 0.1 to 0.3 weight percent. Nickel, cobalt, and rhodium are used as carrier metals for the rare earths.

3,600,158
HOT-WORKABLE STEEL WITH SULFUR AND VANADIUM
Louis Molnar, Hammond, Ind., and William E. Heilmann, Dolton, Ill., assignors to Inland Steel Company, Chicago, Ill.
No Drawing. Filed July 13, 1967, Ser. No. 653,039
Int. Cl. C22c 39/50
U.S. Cl. 75-123 4 Claims

Plain carbon or alloy steel, having sulfur in residual or resulfurized amounts and containing at least 0.01 wt. percent but less than 0.03 wt. percent vanadium, columbium, tantalum or combinations thereof as grain refiner. Austenitic grain size at least as fine as 7 on ASTM scale. Sulfur-containing inclusions also contain oxygen, iron and manganese, have a globular shape and are randomly dispersed throughout microstructure. No aluminum.

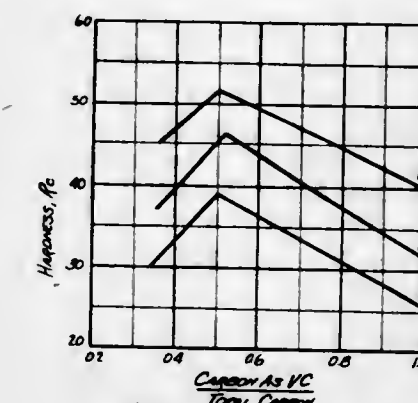
3,600,159
NODULAR CAST IRON CONTAINING SILICON AND VANADIUM
William H. Moore, Meadow Lane, Purchase, N.Y. 10577, and Walter E. Gruver, Jr., 7 Sundance Drive, Cos Cob, Conn. 06807
Filed Mar. 11, 1968, Ser. No. 712,188
Int. Cl. C22c 37/00, 39/00
U.S. Cl. 75-123 2 Claims



An improved cast iron particularly adapted for use in articles occupying a high temperature environment and

comprising about 3.50% to 5.00% silicon; about 0.70% to 2.00% vanadium; and about 2.80% to 3.80% carbon; the graphite is in the nodular form and the excess carbides are in the form of randomly distributed, generally cubical shapes, in a pearlitic matrix.

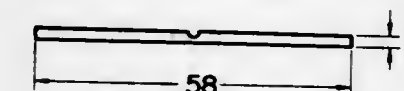
3,600,160
HEAT AND TEMPER RESISTANT ALLOY STEEL
Charles R. Simcoe and Alvin E. Nehrenberg, Lockport, N.Y., assignors to Wallace-Murray Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 402,295, Oct. 7, 1964. This application May 14, 1968, Ser. No. 729,096
Int. Cl. C22c 39/00, 39/121
U.S. Cl. 75-123J 3 Claims



HARDNESS AS A FUNCTION OF THE AMOUNT OF V IN THE CARBIDE PHASE AT INCREASING TEMPERATURES

Temper resistant alloy consisting essentially of about: 0.15 to 0.35% carbon, 0.25 to 1.0% vanadium, up to 2% each of manganese, silicon and nickel, up to 3% molybdenum, up to 2% chromium, up to 6% each of tungsten and cobalt, up to 0.5% of metal of the group of columbium, titanium and tantalum, said alloy containing at least 1% of metal of the group molybdenum and tungsten, and the vanadium content being about 1.8 to 3.0 times the carbon content, balance substantially iron.

3,600,161
LOW-ALLOYED HIGH STRENGTH STEEL HAVING RESISTANCE TO THE SULFIDE CORROSION CRACKING
Katsuya Inouye, Hideya Okada, and Yuzo Hosoi, Tokyo, and Kenichi Yukawa, Kawasaki, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
Filed July 5, 1966, Ser. No. 562,870
Claims priority, application Japan, July 9, 1965, 40/41,118
Int. Cl. C22c 39/14
U.S. Cl. 75-126F 1 Claim



A low-alloyed high strength steel having a low susceptibility to sulfide corrosion cracking containing

	Percent
C	0.10-0.20
Si	0.10-0.50
Mn	0.20-1.00
Cr	0.50-2.00
Mo, less than	0.60
V, Ti or Cb, less than	0.10
Al, less than	0.15
Either W and/or Ta,	0.02-1.00

and the balance being Fe and impurities.

3,600,162

COBALT IRON MAGNETIC ALLOYS
Asa Kaplan, Ballston Lake, and Robert F. Gill, Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed Aug. 29, 1968, Ser. No. 756,308

Int. Cl. C22c 39/14
U.S. Cl. 75—126C 6 Claims

The strength of cobalt-iron magnetic alloys is improved by the presence of secondary phase particles with retention of good magnetic properties.

3,600,163

PROCESS FOR PRODUCING AT LEAST ONE CONSTITUENT DISPERSED IN A METAL

Frank Arthur Badia, Ringwood, and Pradeep Kumar Rohatgi, Ridgewood, N.J., assignors to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 644,429, May 25, 1967, which is a continuation-in-part of application Ser. No. 585,097, Oct. 7, 1966. This application Mar. 25, 1968, Ser. No. 715,937

Int. Cl. C22c 1/10
U.S. Cl. 75—135 33 Claims



Alloys containing at least one constituent dispersed in metal in which the constituent is normally insoluble or incompatible when the metal is in the molten state (e.g., graphite in aluminum), are produced utilizing melt processing in which the constituent in particulate form and having a coating, particularly metal, is injected into a molten bath of incompatible metal and the melt is thereafter solidified.

3,600,164

HEAT TREATABLE CREEP RESISTANT SOLDER

Douglas J. Harvey, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,597

Int. Cl. C22c 11/00
U.S. Cl. 75—166C 2 Claims

A creep resistant, lead-based solder particularly useful in fabricating automobile radiators is disclosed. In a preferred embodiment, the solder comprises 2.5–5% tin, 10–20% bismuth and balance lead. Solder of this composition will withstand a stress of 400 p.s.i. at 220° F. for 50 hours or more and can be heat treated to withstand even higher stresses under the same conditions.

3,600,165

OPTICAL SENSITISATION OF INORGANIC PHOTOCONDUCTORS

Jozef Frans Willems and Albert Lucien Poot, Wilrijk-Antwerp, and Robert Joseph Noe, Mortsel-Antwerp, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Continuation of application Ser. No. 542,753, Apr. 14, 1966. This application Dec. 30, 1969, Ser. No. 888,131

Claims priority, application Great Britain, Apr. 15, 1965, 16,336/65

Int. Cl. G03g 5/08
U.S. Cl. 96—1.7 6 Claims

An improved photoconductive material for use in photoconductive recording elements is obtained by treating a conventional inorganic metallic photoconductive compound with a small amount of an organic chelating agent which is adapted to form with the metallic ions of the photoconductive compound a colored chelate of increased light-sensitivity relative to the untreated photoconductive compound. A preferred amount of the chelating compound is 0.001–0.5% by weight of the photoconductive compound. A variety of suitable organic chelating agents are disclosed.

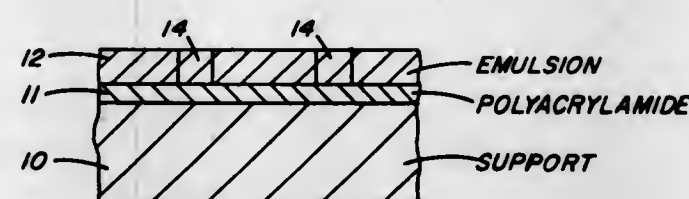
3,600,166

LITHOGRAPHIC PLATE AND PROCESS OF MAKING

Albert L. Sieg and Robert N. Woodward, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 3, 1967, Ser. No. 650,864

Int. Cl. G03f 7/02
U.S. Cl. 96—36.3 17 Claims



A photographic element comprising a support such as paper, aluminum, etc., a gelatin photographic silver halide emulsion layer having a melting point above about 180° F. and adjacent to said layer and between the emulsion layer and the support a non-porous hydrophilic layer such as polyacrylamide, etc., having a contact angle of less than about 65° is used to provide a lithographic printing plate by the etch-bleach process.

3,600,167

SILVER HALIDE LAYERED PHOTOGRAPHIC ELEMENT OF DIFFERENT LIGHT SENSITIVE LAYERS

Malcolm L. Judd and Fred W. Spangler, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Nov. 4, 1968, Ser. No. 773,328

Int. Cl. G03c 1/76
U.S. Cl. 96—67 16 Claims

This invention relates to a process for producing a photographic element comprising coating a silver halide

layer with a pAg of below about 8.6 and coating adjacent said layer a layer comprising a water-soluble halide containing sufficient halide ions such that the pAg of the final emulsion layers of the element is within the range of about 9.0 to 10.0. In one aspect, this invention relates to a means for coating a blended, fine grain, direct-positive emulsion to achieve improved photographic properties.

3,600,168

LIGHT SENSITIVE REPRODUCTION SHEET AND METHOD AND COATING COMPOSITION THEREFOR USING FREE RADICALS

William R. Lawton, Salem, N.H., assignor to Bard Laboratories, Inc., Amherst, N.H.

No Drawing. Filed Nov. 15, 1966, Ser. No. 594,375

Int. Cl. G03g 5/02
U.S. Cl. 96—89 27 Claims
Light sensitive copy sheet employing a light sensitive composition comprising an organic colored stable free radical and a precursor sensitive to light to be converted to transient free radicals reactive with the stable free radical to bleach out the color thereof and thereby form an image.

3,600,169

PHOTOCHEMICAL ELECTROSTATIC COPYING SHEET AND PROCESS USING FREE RADICALS

William R. Lawton, Salem, N.H., assignor to Bard Laboratories, Inc., Amherst, N.H.

No Drawing. Filed Nov. 25, 1966, Ser. No. 596,814

Int. Cl. G03g 5/02
U.S. Cl. 96—1.5 7 Claims
An electrostatic light sensitive reproduction sheet employing a composition comprising in an insulating resinous binder an organic stable free radical and a precursor sensitive to light to be converted to transient free radicals reactive with the stable free radical to change the conductance of the sheet so that an electrostatic image can be formed.

3,600,170

IMAGE FORMING MATERIAL AND METHOD OF FORMING AN IMAGE THEREFROM

Marilyn Levy, Red Bank, N.J., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,728

Int. Cl. B41m 5/26; G03c 1/72
U.S. Cl. 96—114.6 3 Claims
A dry photographic recording system is described that utilizes silver abietate as both the light sensitive element and the film-forming vehicle. The silver abietate is dissolved in an organic solvent and the resulting solution coated onto a suitable substrate. A print-out image formed by exposing the coated substrate through a negative to light is developed and at the same time desensitized to further action of light by heat.

3,600,171

SULFONAMIDES IN DIFFUSION TRANSFER SYSTEMS

Roger M. Cole, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Nov. 1, 1968, Ser. No. 772,798

Int. Cl. G03c 5/54
U.S. Cl. 96—29 24 Claims
Positive images of increased maximum density in diffusion transfer systems are produced by processing the exposed photographic element in the presence of water-soluble non-silver halide reducing sulfonamides. The sulfon-

amides are preferably utilized in alkaline processing compositions comprising a silver halide developing agent and a silver halide solvent.

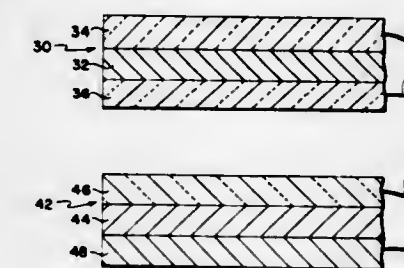
3,600,172

PROCESS FOR PRODUCING IMAGE PATTERNS IN LAYERS COMPRISING ELECTROPHOTOLUMINESCENT MATERIALS

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 11, 1968, Ser. No. 783,001

Int. Cl. G03c 1/92; H01j 1/54
U.S. Cl. 96—45.1 15 Claims



A process for producing image patterns in layers comprising electrophotoluminescent materials. Essentially the process involves the steps of employing an electroluminescent material to optically excite a layer comprising an electrophotoluminescent material so that the electrophotoluminescent material emits visible light. Thereafter, the excitation is discontinued but the layer comprising the electrophotoluminescent material is maintained under an electrical field and continues to emit visible light. While the layer continues to emit visible light, the subject matter to be reproduced is placed in juxtaposition with the layer for a time sufficient to permit a significant imagewise differential in decay of luminescence so that a positive reproduction of the subject matter is formed in the layer.

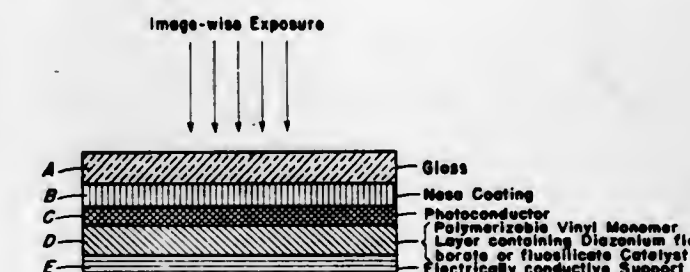
3,600,173

PHOTOELECTROPOLYMERIZATION

Steven Levins, Vestal, N.Y., assignor to GAF Corporation, New York, N.Y.

Filed June 13, 1967, Ser. No. 645,768

Int. Cl. G03c 5/00
U.S. Cl. 96—35.1 20 Claims



Method of photoelectropolymerization wherein incident light energy is converted to electrical energy in accordance with image being reproduced, said electrical energy being utilized to generate an electric current in an electrically conductive vinyl monomer layer and wherein generation of polymerization catalyst occurs electrolytically thereby leading to formation of a polymeric resist-image in accordance with the electrical energy, the catalyst generating material comprising a fluoborate or fluosulfonate salt of a light-sensitive diazotized primary aromatic amine.

3,600,174
HIGH-CONTRAST PHOTOGRAPHIC ELEMENTS AND METHOD FOR PROCESSING SAME
 Kirby M. Milton, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Aug. 18, 1967, Ser. No. 661,531
 Int. Cl. G03c 5/24, 5/26

U.S. Cl. 96—50 14 Claims
 High-contrast photographic elements comprising a support coated with a silver halide emulsion wherein the halide comprises at least about 85 mole percent chloride and having a heavy overcoat of a water-permeable colloid. Methods for processing these elements in a continuous transport processing machine wherein the developer contains a carbonyl bisulfite-amine condensation product are also described.

3,600,175
ARGENTOHALIDE COMPLEX FILM CONSTRUCTION

George de W. Anderson, near Bishops, Stortford, and Graham J. Stehle, Ilford, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 No Drawing. Filed Nov. 20, 1967, Ser. No. 684,518
 Claims priority, application Great Britain, Nov. 22, 1966, 52,310/66
 Int. Cl. G03c 1/36, 5/26

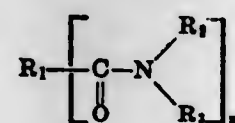
U.S. Cl. 96—65 18 Claims
 This invention discloses a film having at least one layer containing a light insensitive argentohalide complex, said layer being free of protic solvent, photosensitive silver halide crystals and photosensitive silver ions, said complex providing light sensitive silver halide in said layer upon contact with a protic solvent. Such films can be utilized by contacting the layer containing the light insensitive argentohalide complex with a protic solvent, resulting in the generation of photosensitive silver halide, and exposing and developing photosensitive silver halide by conventional photographic technology.

3,600,176
PHOTOGRAPHIC ELEMENTS, COMPOSITIONS AND PROCESSES
 Grant M. Haist and David A. Pupo, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Nov. 29, 1968, Ser. No. 780,231
 Int. Cl. G03c 5/30

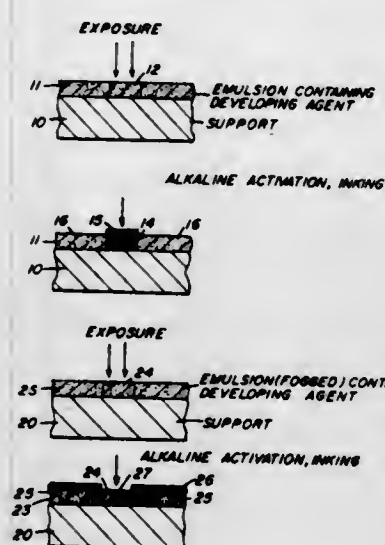
U.S. Cl. 96—66 16 Claims
 A developing agent precursor which is a reaction product of (a) a 3,4-dihydroxy furan silver halide developing agent, such as ascorbic acid, or a hydroxytetronic acid silver halide developing agent, such as 5-phenyl-3-hydroxytetronic acid, with (b) a basic aminophenol silver halide developing agent is employed in photographic elements, compositions and processes, especially dry processing with heat. Such a developing agent precursor has the property of being heat activated in the absence of alkali.

3,600,177
LIQUID AMIDES AS SILVER HALIDE DEVELOPER SOLVENTS
 Thomas I. Abbott and Robert N. Woodward, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 Filed Sept. 22, 1967, Ser. No. 669,863
 Int. Cl. G03c 1/48

U.S. Cl. 96—76 18 Claims
 Developer solvents having the following general formula:



wherein n is 1 or 2; R_1 represents an alkyl group of at least four carbon atoms when n is 1; R_1 represents an aryl group when n is 2; and R_2 and R_3 may be hydrogen, lower alkyl of from 1 to 4 carbon atoms, or may represent



an aryl group or may be joined to form a heterocyclic nucleus, are used for incorporating developers in photographic emulsions either alone or in conjunction with high boiling oil solvents.

3,600,178
PHOTOGRAPHIC EMULSION CONTAINING A MERCAPTO OR THIOXO GROUP
 Jozef Frans Willems, Wilrijk, Robrecht Julius Thiers, Brasschaat, and Frans Clement Heugebaert, Kontich, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
 No Drawing. Filed Feb. 7, 1968, Ser. No. 703,572
 Claims priority, application Great Britain, Feb. 15, 1967, 7,252/67
 Int. Cl. G03c 1/48

U.S. Cl. 96—76 10 Claims
 Photographic light-sensitive silver halide materials are described including a non-light-sensitive water-permeable colloid layer and having incorporated therein at least one organic compound comprising a mercapto group or a thioxo group showing thioxo-thiol tautomerism, a group rendering the compound fast to diffusion in said colloid layer and a group rendering the molecule water-soluble or alkali-soluble. The said organic compound prevents yellowing of the photographic material.

3,600,179
ORGANIC PHOTO-MATERIAL OF INCREASED CONTRAST
 Yoshikazu Yamada, Sierra Madre, and Lester F. M. Storm, Pasadena, Calif., assignors to Bell & Howell Company
 Filed Mar. 14, 1968, Ser. No. 713,206
 Int. Cl. G03c 1/52

U.S. Cl. 96—90 5 Claims
 A photosensitive composition is disclosed yielding a color in light-struck areas and comprising an N-vinyl compound and a polymerization inhibitor. The inhibitor increases gamma, or contrast, by reducing photosensitivity to low levels of light without significantly decreasing photosensitivity to levels of light exposure used to make the image exposure.

3,600,180
METHOD OF MAKING A BLEND OF FOGGED, DIRECT POSITIVE SILVER HALIDE EMULSIONS OF DIFFERENT GRAIN SIZES
 Malcolm L. Judd and Fred W. Spangler, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Nov. 4, 1968, Ser. No. 773,327
 Int. Cl. G03c 1/02, 1/10

U.S. Cl. 96—94 6 Claims
 A method of making a photographic element having at least one layer containing a blended grain silver halide emulsion, wherein the average grain size of at least two component emulsions of the blend differs by at least 50%, which comprises: preparing the respective component silver halide emulsions, blending the silver halide component emulsions, coating said emulsion blend on a support and reducing the liquid content of the coated blend; the improvement which comprises deferring the blending of the component emulsions of different grain size until just prior to coating and thereupon admixing the component blends and promptly thereafter coating the freshly formed admixture on the support whereby the support is coated with the minimum possible time delay between the time of admixing and the time of coating.

3,600,181
FOG REDUCTION OF PHOTOGRAPHIC SILVER HALIDE EMULSIONS BY INCORPORATION OF A NITROCINNAMIC ACID, OR CINNAMALDEHYDE IN A CONTIGUOUS LAYER
 Giacomo Luciani and Fritz Dersch, Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y.
 No Drawing. Continuation-in-part of application Ser. No. 594,675, Nov. 16, 1966. This application July 10, 1967, Ser. No. 652,003
 Int. Cl. G03c 1/34

U.S. Cl. 96—109 18 Claims
 Light-sensitive silver halide emulsions stabilized and made resistant to fogging with a cinnamic acid or cinnamaldehyde.

3,600,182
PHOTOGRAPHIC GELATINS
 Reinhard Matejec and Rudolf Meyer, Leverkusen, and Bruno Mücke, Cologne-Buchheim, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
 No Drawing. Filed Oct. 9, 1968, Ser. No. 766,317
 Int. Cl. G03c 1/04

U.S. Cl. 96—114.7 2 Claims
 Photographic material having a gelatin-silver halide emulsion layer of which the gelatin containing catalase of more than 10 international activity units per gram.

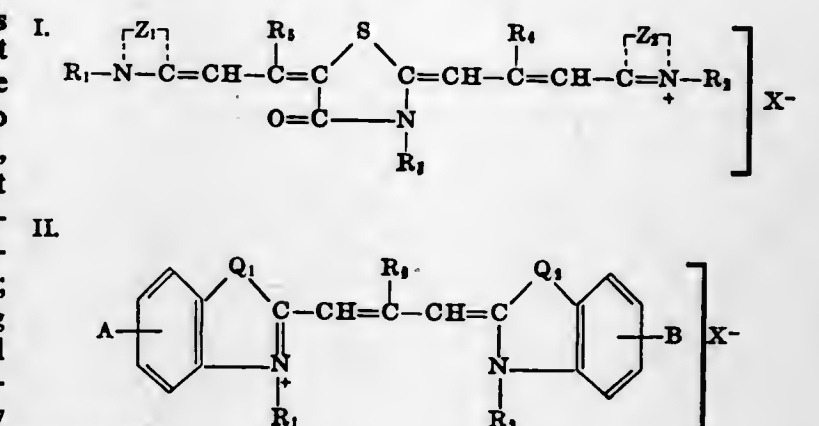
3,600,183
LIGHT-SENSITIVE MATERIAL
 Herman Adelbert Philippaerts, Mortsel, Theofil Hubert Ghys, Kontich, and Henri Depoorter, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
 Filed Nov. 8, 1968, Ser. No. 774,410
 Claims priority, application Great Britain, Nov. 27, 1967, 53,749/67
 Int. Cl. G03c 1/28

U.S. Cl. 96—123 3 Claims



Panchromatic light-sensitive silver halide emulsions are provided, the sensitivity of which extends up to the extreme

red (or near infrared) region of the spectrum by incorporating into said emulsions a rhodacarbocyanine whose sensitizing activity extends beyond 700 nm. and which corresponds to the following general Formula I and at least one carbocyanine corresponding to following general Formula II:



wherein:

each of R_1 and R_2 is a lower alkyl group, a benzyl group, or a phenyl group,
 R_3 is a lower alkyl group, a phenyl group, or a benzyl group,
 R_4 is alkoxy or an amino group,
 R_5 is hydrogen, a lower alkyl group, a phenyl group or a benzyl group,
 R_6 is lower alkyl,
 each of Z_1 and Z_2 represents the non-metallic atoms necessary to complete the same or different thiazole nucleus, benzothiazole nucleus, naphthothiazole nucleus, selenazole nucleus, benzoselenazole nucleus, or naphthoselenazole nucleus,
 each of Q_1 and Q_2 is sulphur or selenium,
 each of A and B is hydrogen, a fused aromatic ring, tetramethylene, methylene dioxy or one or more substituents selected from lower alkyl, phenyl, alkoxy, lower alkylthio, halogen and hydroxyl, and
 X^- is an anion when one of R_1 and R_2 does not contain an anionic group.

3,600,184
SILVER HALIDE PHOTOGRAPHIC MATERIALS SENSITIZED WITH A METHINE DYE HAVING AN ISOINDOLO[2,1-a]BENZIMIDAZOL-11-YL MOIETY

Leslie G. S. Brooker, Rochester, and Gene L. Oliver, Pittsford, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed June 12, 1968, Ser. No. 736,288
 Int. Cl. G03c 1/08

U.S. Cl. 96—129 14 Claims
 Photographic silver halide emulsions are provided which contain a methine dye having an isoindolo[2,1-a]benzimidazol-11-yl moiety.

3,600,185
PHOTOGRAPHIC PRODUCTION OF ELECTRICALLY CONDUCTING METAL LAYERS
 Hugh G. McGuckin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Oct. 2, 1967, Ser. No. 671,972
 Int. Cl. G03c 5/00

U.S. Cl. 96—36.2R 16 Claims

Highly reflecting, electrically conducting metal layers are produced employing photographic means, wherein a binder-free, chemically reduced layer of silver nuclei

forms a receptive surface upon which the conducting metal layers are deposited by means of diffusion transfer, photoresist and plating techniques.

3,600,186 LOW CALORIE FAT-CONTAINING FOOD COMPOSITIONS

Fred H. Mattson, Mount Healthy, and Robert A. Volpenhein, Green Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,607
Int. Cl. A231 1/00; A21d 2/16, 13/06

U.S. Cl. 99—1 6 Claims
Low calorie food compositions are produced by replacing at least a portion of the fat content of a conventional food with a sugar fatty acid ester or sugar alcohol fatty acid ester having at least 4 fatty acid ester groups with each fatty acid having from 8 to 22 carbon atoms.

3,600,187 FAT SUPPLEMENT FOR FEED RATION, AND METHOD OF PREPARING SAME

Gilbert D. Elenbogen, Skokie, Ill., assignor to Vitamins, Inc., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 426,390, Jan. 18, 1965. This application Mar. 14, 1968, Ser. No. 712,935

Int. Cl. A23k 1/00

U.S. Cl. 99—2 5 Claims
The method of making a fat supplement for animals in the form of a homogeneous emulsion of about 30 to 70% edible fat, about 10 to 30% nontoxic alkylene glycol, about 1 to 5% emulsifying agent and about 8–30% water whereby, a mixture of non-toxic alkylene glycol and water is formed, a portion of the emulsifying agent is added to the mixture, the remaining emulsifying agent is added to the edible fat, the water-glycol mixture and fat are mixed at about 100° F. to 140° F. and the resulting mixture is homogenized at a pressure of about 500 to 2000 pounds per square inch.

3,600,188 ANIMAL FEED MANUFACTURE

Morris D. Wilding, Downers Grove, and David M. Miller, Forest Park, Ill., assignors to Swift & Company, Chicago, Ill.

Filed July 18, 1967, Ser. No. 654,080

Int. Cl. A23k 1/00; C05c 9/00

U.S. Cl. 99—2 11 Claims
Urea and proteinaceous materials having known nutritive value are intimately mixed at elevated temperatures and pressures and subsequently extruded. The resulting elongated particles may be subdivided and possess excellent slow release of urea properties. A wide range of proteinaceous materials and operating conditions are set forth.

3,600,189 ANIMAL FEED SUPPLEMENT

Armando R. Raynal, Chihuahua, Chihuahua, Mexico, assignor to Alicia Raynal de Zea, Patricia Raynal de Prado and Rosa I. Raynal, fractional part interest to each

No Drawing. Filed May 24, 1968, Ser. No. 731,719

Int. Cl. A23k 1/00

U.S. Cl. 99—6 4 Claims
A pulverulent animal feed supplement which may be fed free choice which comprises particular proportions of urea, calcium-phosphorous dietary supplement, sodium chloride, calcium carbonate, non-fermented or fermented molasses, dehydrated alfalfa, sulfur, trace elements and

vitamin A which supplement in addition to providing an additional approximately 1% protein to the diet of ruminants eating substantially grass, creates a rumen flora that has been found to keep the cattle in good shape on a 6% protein diet.

3,600,190 PRODUCTION OF ANIMAL FEED FROM SUGAR CANE STRIPPING MILL

William W. Worden, P.O. Box 1053, Ewa, Hawaii 96706

No Drawing. Filed May 12, 1967, Ser. No. 637,937
Int. Cl. A23k 1/06

U.S. Cl. 99—8 2 Claims
An animal feed made from compressed and partially dehydrated sugar cane leaves and tops and a process for making animal feed from such sugar cane waste products by removing most of the moisture content in order to prevent spoilage and then compressing the material to obtain a more easily handled product.

3,600,191 METHOD OF SOLUBILIZING FUMARIC ACID

Aubrey P. Stewart, Jr., and Gene J. Freemyer, Corning, Iowa, assignors to Allied Chemical Corporation, New York, N.Y.

Filed Mar. 19, 1968, Ser. No. 714,229
Int. Cl. A231 1/00

U.S. Cl. 99—78 7 Claims
Fumaric acid powder is pelletized with a crystallizing syrup of a water-soluble food acidulant. Following completion of crystallization the pellets are pulverized to a diameter of 10 to 80 microns.

3,600,192 METHOD OF PRODUCING FRIED RICE FOR INSTANT COOKING

Tatsuro Tanaka, Kyoto, and Yoshitaka Sato, Ibaraki-shi, Japan, assignors to Nissin Shokuhin Kaisha Ltd., Takatsuki, Japan

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,634
Int. Cl. A231 1/10

U.S. Cl. 99—80 4 Claims
The present invention provides for a method of producing fried rice for instant cooking comprising drying boiled rice until the water content of the rice is between 10–20%, and frying the dried rice for 10–20 seconds at a temperature between 356–428° F. (180–220° C.), thereby dehydrating and swelling the rice.

3,600,193 FOOD COMPOSITIONS FOR PREPARING SNACK FOOD PRODUCTS

Elmer F. Glabe, Chicago, and Perry W. Anderson, Niles, Ill., assignors to Milk Research, Inc., Fond du Lac, Wis.

No Drawing. Filed Mar. 28, 1968, Ser. No. 717,014

Int. Cl. A231 1/10

U.S. Cl. 99—83 11 Claims
Compositions for making snack food are prepared by dry blending corn flour, gelatinized corn flour, tapioca starch and milk solids (e.g., nonfat dry milk, whole milk solids, or buttermilk solids), with or without sodium chloride, starch phosphate, potato starch and flavoring materials, mixing with water to form a dough, shaping the dough to make snack preforms, steaming said preforms, drying the steamed preforms and cooking the resultant preforms. Snack foods made in accordance with the invention are puffed or expanded, porous and not dense, have a good flavor, and have a desirable texture for eating.

3,600,194 METHOD OF PREPARING FERMENTED SAUSAGE PRODUCTS

Richard D. Trelease, Downers Grove, Ill., and Cleo A. Rinehart, Boone, Iowa, assignors to Swift & Company, Chicago, Ill.

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,362

Int. Cl. A22c 11/00

U.S. Cl. 99—109 6 Claims
Sweet-sour flavored sausage products and an improved method of controlling the characteristic sweet-sour flavor by incorporating sufficient fermentable sweeteners to produce the desired tangy or sour flavor when fermented, and sufficient artificial nonfermentable sweeteners to produce the desired sweet flavor in the final product.

3,600,195

MARGARINE OIL

Herbert Willem Lincklaen Westenberg, Vlaardingen, Netherlands, assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Feb. 27, 1968, Ser. No. 713,268

Claims priority, application Luxembourg, Feb. 27, 1967, 53,075

Int. Cl. A23d 3/00

U.S. Cl. 99—122 9 Claims
A fat blend suitable for use as the fat phase in margarine contains specified proportions of an interesterified mixture of a liquid fat containing at least 40% polyunsaturated fatty acids with a fat hardened to melt at 42–48° C. and containing at least 10% of C₂₀ to C₂₂ acids. Additional fats make up the blend to give dilatation values affording a spreadable margarine without incurring the effects of oil exudation and preferably comprise vegetable fats hardened to melt at 32–38° C. with up to 10% of others hardened to 42–48° C. which may themselves be interesterified.

3,600,196

NOVEL CREAM PRODUCTS AND THEIR PREPARATION

Christian Heine, Monheim, Rhineland, and Clemens von Schilcher, Leverkusen, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf, Germany

No Drawing. Continuation of application Ser. No. 552,402, May 24, 1966. This application Nov. 18, 1969, Ser. No. 871,680

Claims priority, application Germany, July 16, 1965, H 56,608

Int. Cl. A23g 3/00

U.S. Cl. 99—134A 13 Claims
Cream products comprising 50 to 70% of shortening having a solids content of 10 to 15% at 20° C. and 5 to 10% at 30° C. and 20 to 30% of sugar and optional up to 30% of other powdered ingredients and having 20 to 150 cc. of an inert gas dispersed there through per 100 grams of product.

3,600,197

FLAVOR ENHANCING COMPOSITIONS FOR FOODS AND BEVERAGES

Herbert D. Spangler, Philadelphia, Pa., and Paul A. Hammes, Westfield, and Charles W. Everson, Martinsville, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 27, 1968, Ser. No. 755,728

Int. Cl. A231 1/22

U.S. Cl. 99—140 10 Claims
A composition in which stratification and segregation of the ingredients is retarded, without retarding the

flowability thereof, for use in foods and beverages to improve flavor comprising a premix of salt with a blend of (a) an additive which is an edible glycerol or propylene glycol C₁₂ to C₁₈ fatty acid monoester, or acetylated derivatives thereof; and (b) a mixture of sodium glutamate with flavor enhancing 5'-nucleotides.

3,600,198

PROCESS OF PRESERVING FISH WITH BIOCIDAL MIXTURE

Beatrice Gonthier, Caluire, and Jacques Mocotte, St. Didier-au-Mont-d'Or, France, assignors to Progil, Paris, France

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,396

Claims priority, application France, Apr. 29, 1968, 149,997

Int. Cl. A231 3/34

U.S. Cl. 99—158 8 Claims
Fish are preserved by contacting with ice or an aqueous solution containing a mixture of propionic acid and benzoic acid buffered to a pH less than 7 by adding to the acids their corresponding salts of alkali metals or magnesium.

3,600,199

METHOD OF PRESERVING POTATOES AND OTHER ROOT VEGETABLES BY FREEZING AND COLD STORAGE

Frederik Otto Ornbaek, 27 Nokkedalen, 2730 Herlev, Denmark

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,333

Int. Cl. A23b 7/00, 1/06

U.S. Cl. 99—193 1 Claim
The invention relates to a method of preserving potatoes by freezing in such manner that the taste and other qualities of the potato is unimpaired.

3,600,200

METHOD OF PRESERVING FROZEN FRESH RED MEAT

Harry F. Bernholdt, Park Forest, and Harry L. Roschen, Forest Park, Ill., assignors to Swift & Company, Chicago, Ill.

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,239

Int. Cl. A23b 1/00

U.S. Cl. 99—194 8 Claims
A process for preserving frozen red meat cuts so that they may be displayed under relatively high light intensities for prolonged periods of time without discoloration is set forth.

3,600,201

HARD FACING ALLOY COMPOSITION AND METHOD OF MANUFACTURE

Samuel P. Alessi, Homewood, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,204

Int. Cl. C09d 1/00; C23c 3/00

U.S. Cl. 106—1 6 Claims
A hard facing composition is disclosed herein which contains carbon, chromium, nickel, silica, manganese, boron and iron. The composition is applied to metal surfaces to provide a fused metallic hard facing on the surface when the material is heated to melting temperature.

3,600,202
MOLDABLE WAX COMPOSITIONS
 David M. MacLeod, Sarnia, Ontario, Canada, assignor to Esso Research and Engineering Company
 No Drawing. Filed Oct. 11, 1968, Ser. No. 766,993
 Int. Cl. B28b 7/28; C08h 9/00; C09d 11/00

U.S. Cl. 106—20 7 Claims
 Moldable high strength petroleum wax compositions are prepared involving the use of a major amount of (A) a refined paraffin wax having a melting point of between about 145° and about 155° F., (B) a small amount of a microcrystalline wax having a melting point of between about 170° and about 200° F. and a needle penetration of between about 4 and about 12 mm./10, measured at 77° F., and (C) a small amount of a soft intermediate wax having a melting point of between about 125° and about 140° F. and a needle penetration of between about 18 and about 30 mm./10, measured at 77° F., the blended wax composition having a cloud point of between about 152 and about 163° F. Inert fillers, pigments, dyes and the like, in minor amounts, may be blended with the three component wax compositions for various specific uses.

3,600,203
FLUIDIZED MOLDING MATERIAL FOR MANUFACTURING CORES AND MOLDS AND A METHOD THEREFOR

Adolfo Aldera, Turin, Italy, assignor to Centro Sperimentale Metallurgico Società per Azioni, Rome, Italy
 No Drawing. Continuation-in-part of application Ser. No. 674,003, Oct. 9, 1967. This application Sept. 5, 1969, Ser. No. 855,767

Int. Cl. B28b 7/28 8 Claims
 U.S. Cl. 106—38.3
 The fluidized molding material contains sand, an aluminous cement or a mixture of aluminous cement with other cements, a lithium salt which is an accelerating agent for the setting of the aluminous cement, a tensioactive agent with a foaming action and water and is prepared by mixing these components. The setting time of this molding material may be varied without substantial change in the mechanical strength of the cast product by varying the proportion of lithium salt.

3,600,204
GLASS-CERAMIC ARTICLE PREPARED FROM LOW EXPANSION THERMALLY DEVITRIFIABLE GLASS FRIT

George H. Beall and David A. Duke, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
 Filed May 31, 1968, Ser. No. 733,613
 Int. Cl. C03c 3/04, 3/22

U.S. Cl. 106—39DV 1 Claim
 This invention relates to the production of a devitrifiable glass frit having a composition within the $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{SiO}_2$ field which exhibits, after devitrification, a coefficient of thermal expansion (0°–1000° C.) of less than $15 \times 10^{-7}/^\circ\text{C}$. and excellent dimensional stability when subjected for long periods of time at temperatures up to 900° C. Such a frit is especially suitable for the manufacture of regenerative heat exchanger bodies for use with gas turbines.

3,600,205
BORIC OXIDE-FREE GLASS FIBERS AND COMPOSITIONS FOR MAKING THEM

Jean Claude Breton, Chambéry, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
 No Drawing. Filed July 7, 1967, Ser. No. 651,693
 Claims priority, application France, July 11, 1966, 68,950

Int. Cl. C03c 13/00 10 Claims
 U.S. Cl. 106—50
 Good quality glass fibers are produced with satisfactory properties inter alia for making mats, insulation and textiles, and for reinforcing plastics, at fibering tempera-

tures much lower than those used with the present, standard fibering glass, at lower cost, and in some cases at temperatures which permit the substitution of refractory metals other than platinum in the construction of fibering apparatus.

3,600,206
MgO-P₂O₅ FUSED CAST REFRACTORY
 Allen M. Alper and Robert N. McNally, Corning, N.Y., assignors to Corhart Refractories Company, Louisville, Ky.
 No Drawing. Filed Feb. 27, 1969, Ser. No. 803,053
 Int. Cl. C04b 35/04

U.S. Cl. 106—58 7 Claims
 Thermal shock resistant, fused cast refractory composed of, by weight on an oxide basis, 4 to 20% P_2O_5 , 0 to 25% CaO , BaO , SrO and mixtures thereof, 0 to less than 10% SiO_2 , B_2O_3 , ZrO_2 , Cr_2O_3 and mixtures thereof, 0 to 5% halogen and the balance being at least 69% MgO and less than 1% incidental impurities. Microstructure essentially being a major phase of periclase crystals in a labyrinthine pattern defined by a large amount of direct bonding between adjacent periclase crystals and by a minor phosphate randomly interspersed among the periclase crystals.

3,600,207
NON-SHRINK GROUT MIXTURE
 John K. Bull, 1250 W. 32nd Ave., Vancouver, British Columbia, Canada
 Filed Feb. 14, 1969, Ser. No. 799,272
 Int. Cl. C04b 7/32

U.S. Cl. 106—87 3 Claims
 A hydraulic setting, acid resistant, non-shrink grout mixture, the essential components of which are calcium aluminate cement, cementitious calcium aluminate fine aggregate and aluminum powder.

3,600,208
SYNTHETIC FILM MATERIALS
 Terence Arnold Abbott, Margaret Loudon Clachan, David Rankine Kennedy, and Basil Robert Shephard, Brantham, Manningtree, England, assignors to Bexford Limited, Manningtree, England
 No Drawing. Filed Aug. 7, 1967, Ser. No. 658,646
 Claims priority, application Great Britain, Aug. 10, 1966, 35,786/66
 Int. Cl. G03c 1/80

U.S. Cl. 117—7 4 Claims
 This application describes a film base material consisting of a film biaxially orientated and heat-set polyethylene terephthalate having thereon a thin layer of either copolymer of vinylidene chloride containing not less than 35 mole percent of vinylidene chloride or of a homopolymer of vinylidene chloride, this said layer having been applied to the polyethylene terephthalate before it has been fully biaxially oriented and heat-set; and having superimposed on said layer a layer A, the said layer A consisting predominantly of a polyvinyl halogenoester, or a polyvinyl cyanoester or a copolymer of a vinyl-halogenoester or a vinyl-cyanoester with an alpha-beta unsaturated carboxylic acid with acrylamide or methacrylamide or their N-methylol derivatives or with vinyl acetate and/or alcohol, the said layer A having been applied to the film after it has been fully biaxially orientated and heat-set.

3,600,209
SUEDE-LIKE SHEET MATERIAL OF AN ACRYLIC POLYMER CONTAINING AN ADDITIVE
 Charles A. Young, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Filed June 18, 1968, Ser. No. 737,826
 Int. Cl. D06c 11/00; B44c 1/20

U.S. Cl. 117—8 19 Claims
 An improved supple, synthetic, microporous vapor permeable suede sheet material of a non-woven synthetic

nexible fibrous web that is impregnated with a polymeric binder of an acrylic polymer and about 0.1–20 parts of additive per 100 parts of polymer where the additive is either a hydrocarbon oil, silicone oil, alkyl oleate, or dialkyl sebacate.

3,600,210
TRANSPARENT XEROCOPIES
 Barry Francis Haycock, Wollescote, Stourbridge, England, assignor to The International Nickel Company, Inc., New York, N.Y.
 No Drawing. Filed Feb. 26, 1968, Ser. No. 707,943
 Claims priority, application Great Britain, Feb. 28, 1967, 9,392/67

Int. Cl. G03g 13/16, 13/20 7 Claims
 U.S. Cl. 117—17.5
 Positive xerographic transparencies are produced by transferring the image-forming thermoplastic powder (toner) particles from a photosensitive surface to a transparent film, heating the image and the film to a temperature only sufficient to soften the thermoplastic toner particles without damaging the transparent film and then, in a separate operation, heating and pressing the image-bearing film to fuse the particles to the film and to provide a sharp transparent copy.

3,600,211
MARKING RIBBON
 Serge Ferrari, Charly, Rhone, France
 Continuation-in-part of application Ser. No. 571,331, Aug. 9, 1966. This application Nov. 18, 1969, Ser. No. 877,801
 Claims priority, application France, Oct. 8, 1965, 34,288
 Int. Cl. B44d 1/092; C09k 1/04

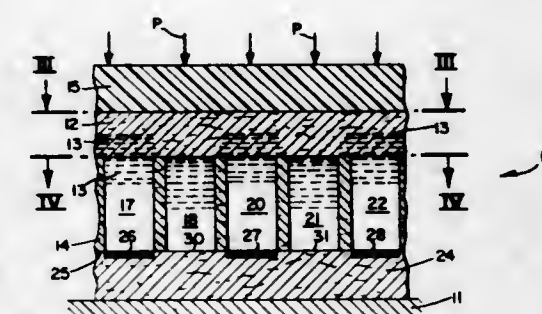
U.S. Cl. 117—33.5 5 Claims



A multi-colored marking ribbon according to the invention is made of a long band of rot-proof fabric the two faces of which are provided with a waterproof coating having a predetermined background color and with a plurality of oblique colored bands having a color which stands out against the color of the background. The colored bands on any given face of the ribbon extend diagonally relative to the colored bands on the other face of the ribbon. Furthermore, the colored bands on one face of the ribbon are displaced longitudinally with respect to the colored bands on the other face of the ribbon. The result is a sort of flickering effect due to the fact that the colored bands appear to carry out a back and forth attracting movement upon the least tremor.

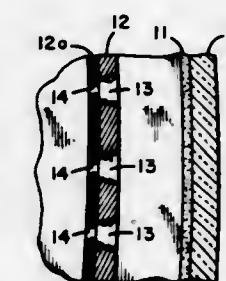
3,600,212
CONTACT COPYING PROCESS
 Mortimer M. Labes, Rosemont, Pa., assignor to Drexel University, Philadelphia, Pa.
 Original application Dec. 11, 1967, Ser. No. 689,666, now Patent No. 3,527,666, dated Sept. 8, 1970. Divided and this application Oct. 24, 1969, Ser. No. 871,181
 Int. Cl. B41m 5/02, 3/12

U.S. Cl. 117—37 12 Claims
 A pressure sensitive copying material is provided, which utilizes a sheet of material having a plurality of



copied is disposed with printed or other images adjacent ends of particular capillaries, or if an unprinted or unimaged surface portion of the sheet to be copied is disposed against ends of the capillaries.

3,600,213
APERTURE MASKS
 Lloyd G. Arndt, St. Paul, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.
 Filed Sept. 12, 1969, Ser. No. 857,437
 Int. Cl. C23c 11/08, 11/10 3 Claims
 U.S. Cl. 117—46CG



An improved method for temporarily reducing the diameter of the apertures in a shadow mask by vapor depositing a layer of carbon on a preformed aperture mask.

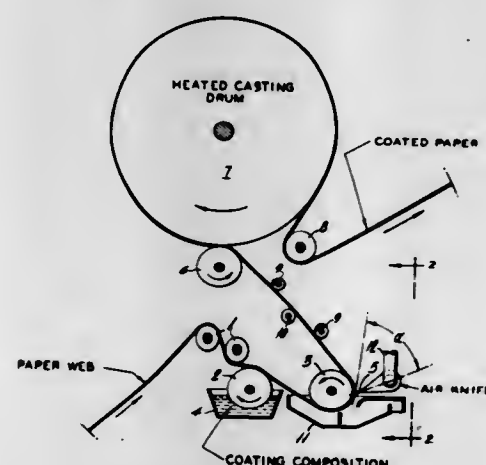
3,600,214
PREPARING THERMOPLASTICS FOR DYEING
 Roland Feinauer, Haltern, and Wolfgang Seeliger, Johann Schlimme van Brunswijk, and Hans Busch, Marl, Germany, assignors to Chemische Werke Huels Aktiengesellschaft, Marl, Germany
 No Drawing. Filed Aug. 26, 1968, Ser. No. 755,428
 Claims priority, application Germany, Sept. 15, 1967, C 43,352
 Int. Cl. B44d 1/48

U.S. Cl. 117—62.1 19 Claims
 The dye receptivity and antistatic properties of polymeric materials, e.g. synthetic hydrophobic polymers, e.g. polyethylene terephthalate, are improved by absorbing into polymers (prior to dyeing) a bicyclic amidoacetal, and subjecting said amidoacetal to ring cleavage, said ring cleavage being effected at 20–100° C. by contact with a liquid which has as an essential ingredient thereof a member selected from the group consisting of
 (a) water,
 (b) a carboxylic acid having from 1–18 carbon atoms; and

(c) an anhydride of (b),
the resultant cleaved molecules being dyeable and difficult to remove from the polymer.

terephthalate, wherein a substratum is used whose reactive components react on the support proper under the influence of heat.

3,600,215
CAST COATING PROCESS
William C. Mervine, Laureldale, Pa., assignor to Wyomissing Corporation, Reading, Pa.
Continuation of application Ser. No. 651,625, July 6, 1967, which is a continuation of application Ser. No. 299,906, Aug. 5, 1963. This application Apr. 16, 1968, Ser. No. 721,694
Int. Cl. B44d 1/44
U.S. Cl. 117—64



A method of cast coating paper with an aqueous mineral cast-coating composition containing casein or soy bean protein as binder wherein the composition has a pH above 5 and below 7 and a solids content of from about 45 to about 60% and wherein the wet coating is partially dried, while the coated paper web is moving and supported on its uncoated side, by directing a uniform jet stream of air onto the wet coating in a direction toward the coating but opposed to the direction of travel of the paper web.

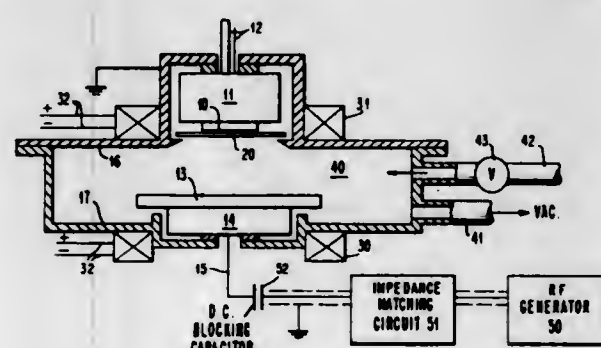
3,600,216
PROCESS FOR ADHERING POLY-P-XYLYLENE TO SUBSTRATES USING SILANE PRIMERS AND ARTICLES OBTAINED THEREBY
Donald D. Stewart, Plainfield, N.J., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Sept. 6, 1968, Ser. No. 758,136
Int. Cl. B44d 1/14; B32b 27/06
U.S. Cl. 117—72

This invention relates to the adhesion of vapor deposited poly-p-xylylene to solid substrates through the use of ethylenically unsaturated silicon compounds having at least one hydrolyzable and or condensable group.

3,600,217
PROCESS FOR PRETREATING POLYESTER FILM SUPPORT FOR THE COATING WITH PHOTOGRAPHIC EMULSIONS
Georg Eichhorn and Lothar Richter, Berlin-Kopenick, Germany, assignors to VEB Fotochemische Werke Berlin, Berlin-Kopenick, Germany
No Drawing. Filed Mar. 4, 1968, Ser. No. 709,888
Int. Cl. B91m 1/18; G03c 1/78
U.S. Cl. 117—76

A process for pretreating a film support in order to increase its adhesiveness for the application of photographic emulsions, said support consisting of high molecular weight thermoplastic foils, particularly polyethylene

3,600,218
METHOD FOR DEPOSITING INSULATING FILMS OF SILICON NITRIDE AND ALUMINUM NITRIDE
William B. Pennebaker, Carmel, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of application Ser. No. 494,789, Oct. 11, 1965. This application May 15, 1968, Ser. No. 729,280
Int. Cl. C23c 11/14, 15/07
U.S. Cl. 117—93.1GD



A substrate and source, of silicon (Si) or aluminum (Al), are positioned within a nitrogen-containing atmosphere of less than 20 microns. Radio-frequency energy is applied across the substrate and source to generate a plasma containing source material, and nitrogen which react so as to deposit a thin insulating film, e.g., of silicon nitride (Si_3N_4) or aluminum nitride (AlN), respectively, on the substrate surface. Preferably, the substrate is maintained in excess of 300°C . during the deposition process.

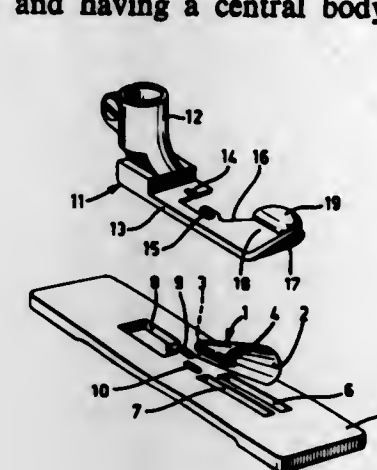
3,600,219
PROCESS FOR THE FLAME-PROOFING OF FIBROUS MATERIALS CONSISTING OF POLYESTER FIBERS AND CELLULOSE FIBERS
Martin Reuter, Kronberg, Claus Beermann, Neu-Isenburg, and Fritz Linke, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Sept. 26, 1968, Ser. No. 763,013
Claims priority, application Germany, Sept. 30, 1967, P 16 19 055.9
Int. Cl. C09k 3/28; D06m 13/44
U.S. Cl. 117—136

Fibrous materials essentially consisting of mixtures of polyesters and cellulose are rendered fire-proof by treatment with the ammonium salt of bis-(hydroxymethyl)-phosphinic acid. This treatment improves, furthermore, the soft handle of the goods.

3,600,220
FABRIC FOLDING DEVICE FOR SEWING MACHINES, PARTICULARLY SUITABLE FOR EDGED POCKET
Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy
Filed Sept. 25, 1969, Ser. No. 860,920
Claims priority, application Italy, Oct. 15, 1968, 22,498/68
Int. Cl. D05b 35/02
U.S. Cl. 112—141

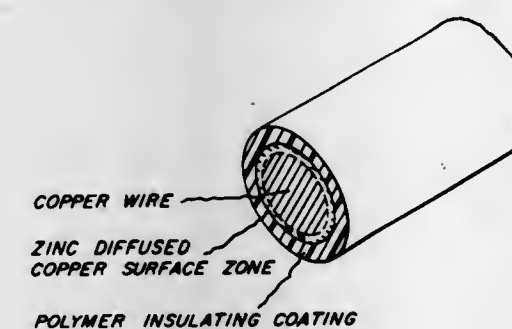
A fabric folding device for a sewing machine is provided including a scroll body having an inlet opening for

receiving a work edge to be folded and a delivery opening located adjacent to the sewing needle of the machine, and a presser foot mounted for movement relative to the scroll body and having a central body located in front



of and in alignment with the inlet opening of the scroll body. The central body cooperates with a feeding device of the machine and the scroll body to advance the work edge through the scroll to fold the work edge and to feed the folded work past the needle.

3,600,221
ZINC DIFFUSED COPPER
Louis E. Hibbs, Jr., Schenectady, N.Y., assignor to General Electric Company
Continuation-in-part of application Ser. No. 720,201, Apr. 10, 1968. This application Feb. 6, 1969, Ser. No. 797,201
Int. Cl. B44d 1/18
U.S. Cl. 117—217

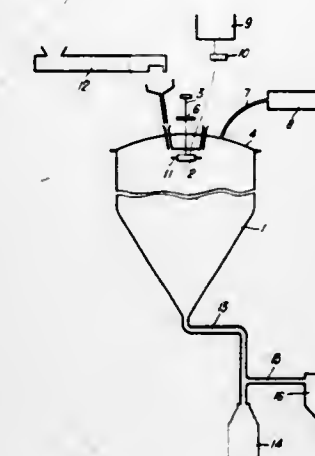


The surface of a copper body which may, for example, be a coating, foil or wire, is provided with a zinc coating. The zinc coating is diffused into the copper surface to form an alloy surface zone which protects and preserves the properties of materials such as polymers and carbon that ordinarily degrade when contacted with copper.

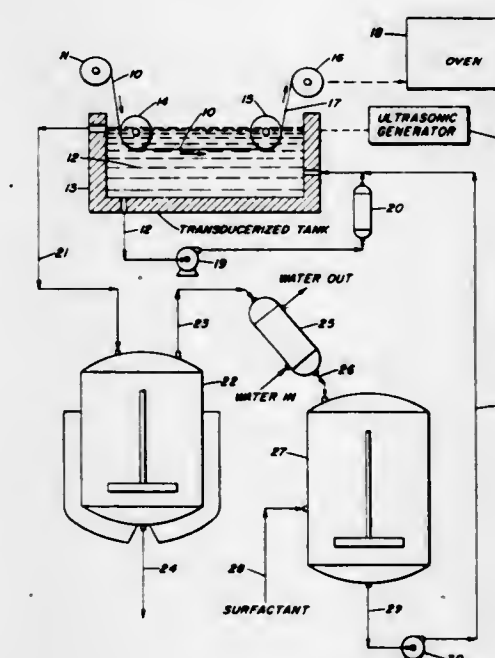
3,600,222
DRIED SUCROSE-CONTAINING PRODUCTS FROM SEPARATE FEEDS
Preston Leonard Veltman, Clarksville, Md., Johannes C. J. Verdonk, Zoog Zaandijk, Netherlands, and Lars Olav Thomsen, Viby, Aarhus, Denmark, assignors to W. R. Grace & Co., New York, N.Y.
Filed Nov. 25, 1969, Ser. No. 879,668
Claims priority, application Great Britain, Nov. 26, 1968, 56,144/68
Int. Cl. C13f 1/02, 3/00
U.S. Cl. 127—30

A process for producing solid sugars wherein separate feeds of sucrose solution and of fine sucrose particles are

dispersed in a current of heated air, whereby the particles are coated with the solution which is evaporated leaving a solid product containing substantially all the sugar fed to the process.



3,600,223
PROCESS FOR CLEANING POLYGLYCOLIC ACID FILAMENTS USEFUL AS ABSORBABLE SURGICAL SUTURES
Arthur Glick and Edward Joseph McCusker, Danbury, Conn., assignors to American Cyanamid Company, Stamford, Conn.
Filed Dec. 15, 1969, Ser. No. 884,867
Int. Cl. B08b 7/00
U.S. Cl. 134—1

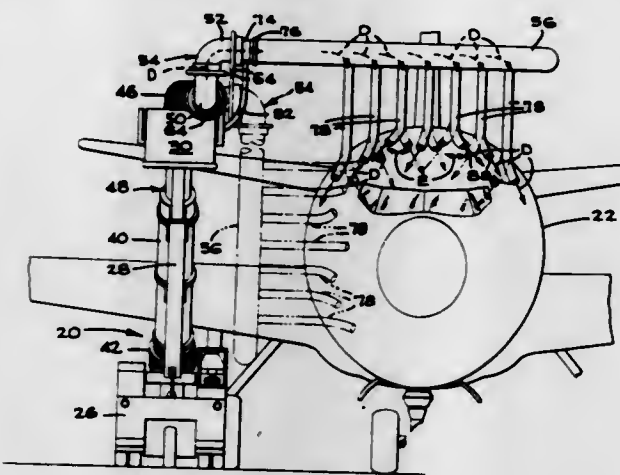


Polyglycolic acid filaments containing surface soil are effectively cleaned by contacting them with ultrasonically agitated solutions, said solutions comprising a solvent and from 1% to 10% by weight of a biologically innocuous surfactant.

3,600,224
METHOD AND APPARATUS FOR CLEANING LARGE SURFACES
Robert E. Stilwell, Santa Clara, Calif., assignor to FMC Corporation, San Jose, Calif.
Filed Nov. 18, 1968, Ser. No. 776,494
Int. Cl. B08b 1/00, 3/10
U.S. Cl. 134—6

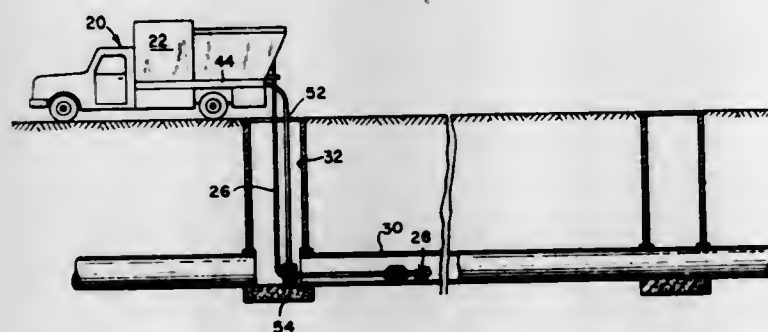
Apparatus for cleaning airplanes or automobiles is disclosed in which high velocity air and a cleansing fluid is discharged through a plurality of cloth sleeves, the outer

ends of which buffet the surface to be cleaned. For cleaning an airplane, a wheeled carriage has a blower which is connected by ducting supported by a boom to the sleeves. For cleaning an automobile, which is moved



along a path, a frame straddles the path and supports a plurality of blowers. The blowers are connected by ducting to a plurality of cloth sleeves which whip against the surface of the automobile as air and cleaning fluid are discharged out the open ends of the sleeves.

3,600,225
PIPE CLEANING
Bruce R. Parmelee, Greenbrae, Calif., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa.
Filed Sept. 19, 1968, Ser. No. 760,862
Int. Cl. B08b 9/04
U.S. Cl. 134-10 10 Claims



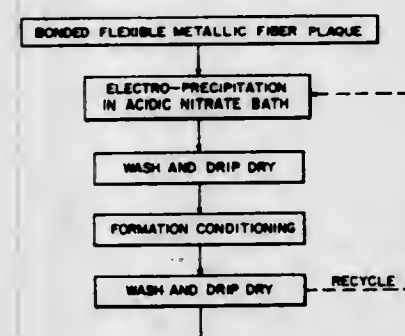
Equipment and method for cleaning pipes, particularly sewer lines, in which the cleaning action is effected by jets of water issuing from a self-propelled nozzle. The water for supplying the jets is taken from the sewer and pumped under high pressure to the nozzle after the removal and collection of grits and other fines.

3,600,226
METHOD FOR MAKING CADMIUM ELECTRODES FOR NICKEL-CADMIUM CELLS
Edwin J. McHenry, Millington, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Continuation-in-part of application Ser. No. 704,392, Feb. 9, 1968. This application Apr. 24, 1969, Ser. No. 824,351
Int. Cl. H01m 43/04
U.S. Cl. 136-24 5 Claims

The disclosure describes a simple, economical, yet effective method for making cadmium electrodes for nickel-

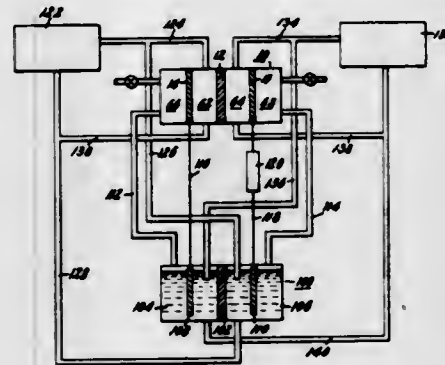
cadmium batteries by pressing together cadmium oxide and copper oxide powders around a conductive support screen and electrochemically reducing the oxides. The copper resulting from the reducing process forms into a continuous copper lattice resembling the porous nickel structure of the conventional nickel-sinter electrode. Since the copper does not participate in the electrochemistry of the battery it remains as a permanent support structure for containing the cadmium metal, or the cadmium oxide formed on discharge.

3,600,227
METHOD OF IMPREGNATING FLEXIBLE METALLIC BATTERY PLAQUES
Carl C. Hardman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 30, 1969, Ser. No. 862,284
Int. Cl. H01m 35/30
U.S. Cl. 136-76 10 Claims



A method of loading active battery material into porous, flexible, metallic battery plaques, comprises the following steps: precipitating nickel hydroxide active material within the plaque by making the plaque cathodic, at a high current density, in an electro-precipitation cell also containing a consumable nickel anode and a solution comprising nickel nitrate; electrochemically oxidizing and reducing the precipitate in caustic formation solution; repeating the electro-precipitation step.

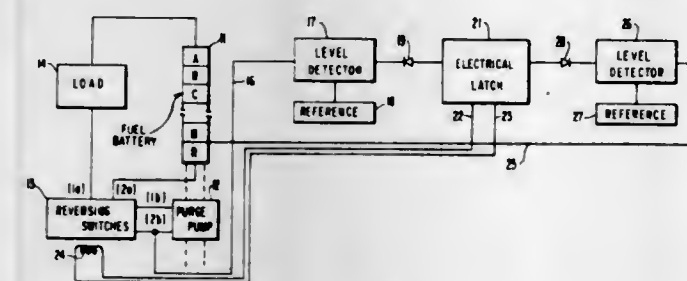
3,600,228
MULTIPLE ELECTROLYTE HIGH VOLTAGE CELL
Anthony Basil La Cont, Lynnfield, Mass., assignor to General Electric Company
Filed Apr. 4, 1966, Ser. No. 539,810
Int. Cl. H01m 27/26; C01b 13/04
U.S. Cl. 136-86 5 Claims



The potential of a fuel cell is increased by placing an alkaline electrolyte adjacent the anode and an acid electrolyte adjacent the cathode. The alkaline and acid elec-

trolytes are separated by a cation exchange membrane. Hydrogen and oxygen may be obtained by electrolysis at a lower impressed potential than with cells having an acid or alkaline electrolyte only. The hydrogen evolving electrode is placed in contact with the acid electrolyte and the oxygen evolving electrode contacts the alkaline electrolyte with the cation exchange membrane separating the electrolytes.

3,600,229
FUEL CELL AUTOMATIC PURGE SYSTEM PROVIDING RELIABLE INITIATION AND TERMINATION OF PURGING
Robert A. Torkildsen, Danvers, Mass., assignor to General Electric Company
Filed Nov. 29, 1968, Ser. No. 779,920
Int. Cl. H01m 27/12
U.S. Cl. 136-86 6 Claims



A combined sensing and output power actuating control system for power generation assemblies of the fluid consuming cell type such as fuel cells and fuel batteries. The control system is designed to sense or detect build-up of undesired inert gaseous matter in the consumable and regenerable fluid supply system of such assemblies by sensing the need for purging of the consumable and regenerable fluid supply system. After some predetermined safe period of purging, the assembly will indicate the need for termination of the purging operation. A signal is then generated in response to the reduction in the inert concentration to actuate the purge control circuitry and terminate the purging operation.

3,600,230
GAS-DEPOLARIZED CELL WITH HYDROPHOBIC-RESIN-CONTAINING CATHODE
Zbigniew Stachurski, New York, N.Y., and Renato Di Pasquale, Paramus, N.J., assignors to Yardney International Corp., New York, N.Y.
Continuation of application Ser. No. 524,927, Feb. 3, 1966. This application Sept. 22, 1969, Ser. No. 860,098
Int. Cl. H01m 29/04, 13/00
U.S. Cl. 136-86 8 Claims



A gas electrode for use in a gas-depolarizable current-generating cell comprises a unitary structure formed of

(1) a conductive apertured current-collecting member, i.e. a metallic grid or screen, (2) a porous conductive layer consisting of a hydrophobic resinous material and a network of conductive material in fibrous form in intimate contact with one surface of the apertured current-collecting member, and (3) a porous catalytically active layer, consisting of a hydrophobic resinous material containing particles of catalytically active material dispersed therein, in intimate contact with the outer surface of the hydrophobic conductive layer.

3,600,231
MERCURY CELL
Robert J. Dawson, Madison, Wis., assignor to ESB Incorporated
No Drawing. Filed Nov. 28, 1969, Ser. No. 880,947
Int. Cl. H01m 15/06 6 Claims

A mercury cell is described having additives in the mercuric depolarizer mix which have the effect of stabilizing the open circuit voltage and inhibiting agglomeration of mercury in the depolarizer mix. The preferred additive is Mn_2O_3 , although Mn_2O_4 has been found to be satisfactory. The additive is mixed with the depolarizer mix in amounts ranging from at least about 1% by weight of the mix to a maximum percentage consistent with capacity and volume requirements.

3,600,232
ELECTRICAL STORAGE BATTERY
Henri Daguene, Le Mans, France, assignor to Societe Industrielle des Comprimés de l'Ouest
Filed Jan. 27, 1969, Ser. No. 793,936
Claims priority, application France, Jan. 25, 1968, 137,354
Int. Cl. H01m 35/32 6 Claims

The battery comprises a plurality of cells separated by tight partitions each including plates connected at their tops by a plate bridge, the electrical connection between bridges of adjacent cells being effected by means of a conducting member embedded in an insulating part sealingly engaged in a slot provided in the top edge of the partition between said adjacent cells. The conducting member has its lateral faces welded to the vertical faces of the plate bridge portions that are adjacent to said lateral faces. Each of the lateral faces of the conducting member is surrounded by a closed rib having a constant height integrally molded with said insulating part, the shape of said closed rib being such that it is adapted to engage without any discontinuity the portion of plate bridge adjacent thereto.

3,600,233
BLOW MOLDED BATTERY CONTAINER AND INDIVIDUAL BLOW MOLDED CELL MODULES HOUSED THEREIN
James P. Coffey, Hatboro, Pa., James W. Consolloy, Pennington, N.J., and Frank A. Vengrofski, Rockledge, Pa., assignors to ESB Incorporated
Filed Sept. 12, 1969, Ser. No. 857,319
Int. Cl. H01m 35/32 8 Claims

A battery comprising blow molded battery cell modules is disclosed wherein external intercell connectors are provided for interconnecting the individual modules. The modules are housed in a blow molded battery container which has a manifold venting arrangement.

3,600,234

ELECTRONIC BATTERY CONDITION INDICATOR

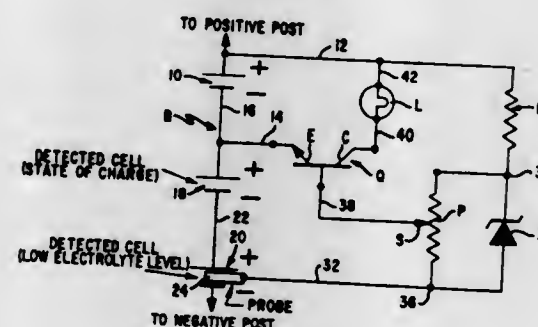
Marion D. Massie, Jr., Toledo, Ohio, assignor to Eltra Corporation, Toledo, Ohio

Continuation of application Ser. No. 649,230, June 27, 1967. This application Jan. 9, 1970, Ser. No. 3,567

Int. Cl. H01m 31/04, 45/06

U.S. Cl. 136—182

3 Claims U.S. Cl. 148—1.6



Indicator for battery conditions showing the state of charge by a voltage comparison means, and electrolyte level in a cell by the use of a probe.

3,600,235

METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICE

Tomisaburo Okumura, Kyoto, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed June 2, 1969, Ser. No. 829,390

Claims priority, application Japan, June 5, 1968, 43/39,251

Int. Cl. H01l 7/34

U.S. Cl. 148—187

4 Claims

A manufacturing method of a semiconductor device having a source and drain doped opposite conduction type to the substrate and a gate on an insulator film coated on a surface portion of the semiconductor substrate between both doped regions; forming a doped layer preliminarily on the whole surface of substrate, etching these layers so as to form the source and drain regions, and forming a gate insulator film on the portions where the doped layers are removed by etching, thereby forming the gate electrode on these portions. By these steps a semiconductor device having a high mutual conductance and a low input electric capacitance can be obtained. This method is applicable to the manufacture of active elements such as transistors and further integrated circuit element.

3,600,236

METHOD OF OBTAINING TYPE CONVERSION IN CdS

James A. Marley, Jr., Needham, Mass., assignor to Corning Glass Works, Corning, N.Y.

Filed May 13, 1969, Ser. No. 824,035

Int. Cl. H01l 7/34

U.S. Cl. 148—1.5

10 Claims

A method of making p-n junction devices by bombarding a polished crystal of cadmium sulfide with ions of an element selected from the group V-A elements. When the crystal is held at an elevated temperature during the ion bombardment step, subsequent annealing is usually not necessary. When the crystal temperature is at room temperature or below during the ion bombardment step, type conversion can be obtained only by post implantation annealing.

3,600,237

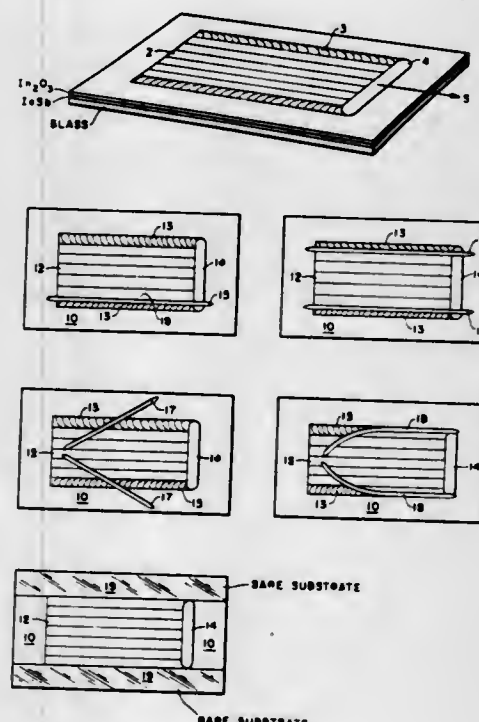
CONTROLLED NUCLEATION IN ZONE RECRYSTALLIZED InSb FILMS

Neil M. Davis and Arthur R. Clawson, Riverside, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Dec. 17, 1969, Ser. No. 885,923

Int. Cl. B01j 17/08

8 Claims



Growth of zone recrystallized films without edge nucleation; a technique by which thin semiconducting InSb films and other materials can be crystallized from the melt with selected crystallographic orientation, allowing processing of more homogeneous and higher quality films for a wide variety of transducers based on the Hall effect and magnetoresistance phenomena.

3,600,238

METHOD OF MANUFACTURING A COMPOSITE PART

Raymond Ravenel, Sceaux, France, assignor to Societe Anonyme Andre Citroen, Paris, France

Filed June 18, 1968, Ser. No. 737,992

Claims priority, application France, June 30, 1967, 112,603

Int. Cl. B22d 25/00; C21d 5/00

U.S. Cl. 148—3

7 Claims

A method of manufacturing composite bodies comprising making a first part from cast iron containing spherical graphite and a second part from self-hardening cast iron, casting one of the parts in or on the other part and applying heat to the combination of the two parts.

3,600,239

METHOD OF USING AND FOR FABRICATING ULTRASONIC BONDING GRADE ALUMINUM WIRE AND RESULTING PRODUCT

Raymond Abbott De Forest, New City, and Robert Linus Moore, Monsey, N.Y., assignors to Secon Metals Corporation, White Plains, N.Y.

Filed Nov. 26, 1968, Ser. No. 778,923

Int. Cl. C22c 21/02; C22f 1/04

U.S. Cl. 148—11.5A

13 Claims

In accordance with the invention there is provided a method which permits ultrasonically bonding silicon aluminum wire to transistors with improved effectiveness by

preparing the silicon aluminum wire with a silicon content of about 1% with an improved method, the method more particularly comprising homogenizing a silicon aluminum material at an elevated temperature, followed by a quenching of the metal. There may be a subsequent forming of a wire from the metal or the wire may be previously formed in part or in entirety. Preferably, if

from the surface of the semiconductor substrate, and the surface of the semiconductor substrate is reoxidized. This eliminates surface defects in the semiconductor substrate which tend to arise at the elevated temperatures over relatively long periods of time necessary for diffusion. Where an epitaxial layer is to be formed on the surface of the substrate, the oxide layer is first removed from the surface. This reduces stacking faults in the epitaxial layer caused by the surface irregularities in the substrate.

3,600,242

PROCESS FOR FORMING ELECTRICALLY STABLE DOPED EPITAXIAL LAYERS

Melvin Berkenblit and Arnold Reisman, Yorktown Heights, and Thomas B. Light, Chappaqua, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 3, 1968, Ser. No. 764,863

Int. Cl. H01l 7/36; H01b 13/06

U.S. Cl. 148—175

13 Claims

A process which stabilizes the resistivity of an epitaxially grown layer of germanium doped with p-type impurities and deposited in a low temperature open tube disproportionation system from a germanium halide specie under surface limited condition is disclosed. When p-type dopants are deposited along with germanium in a surface limited node, heating subsequent to deposition to higher temperatures than the deposition temperature brought about changes in resistivity resulting in inoperable devices or devices having poor characteristics. The resistivity changes can be overcome by a post-deposition anneal alone or by adjusting deposition parameters, such as growth rate and substrate temperature in conjunction with annealing.

3,600,240

EPITAXIAL GROWTH FROM SOLUTION WITH AMPHOTERIC DOPANT

Hans S. Rupprecht, Yorktown Heights, and Jerry M. Woodall, Putnam Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

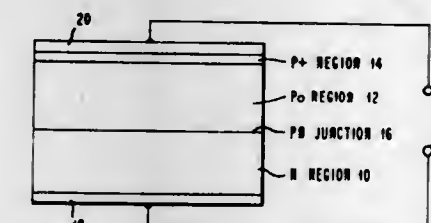
Original application July 15, 1966, Ser. No. 565,440.

Divided and this application Dec. 12, 1968, Ser. No. 798,537

Int. Cl. H01l 7/38

U.S. Cl. 148—171

13 Claims



P-type gallium arsenide is grown epitaxially from solution in gallium on the surface of N-type gallium arsenide, with silicon as dopant on both sides of the junction. A recombination radiation device is made by the method.

3,600,241

METHOD OF FABRICATING SEMICONDUCTOR DEVICES BY DIFFUSION

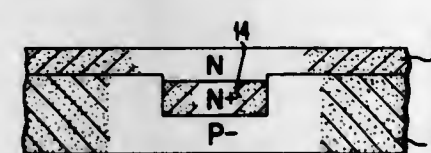
Ven Y. Doo, Poughkeepsie, and Andrea Spiro, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 9, 1968, Ser. No. 758,236

Int. Cl. H01l 7/00, 7/36; C23c 11/00

U.S. Cl. 148—175

5 Claims



In semiconductor device fabrication, after diffusion has been carried out at elevated temperatures through a SiO₂ or other diffusion barrier masks, the mask is stripped

3,600,244

PROCESS OF ETCHING METAL WITH RECOVERY OR REGENERATION AND RECYCLING

Herbert Wegener, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 20, 1969, Ser. No. 800,979

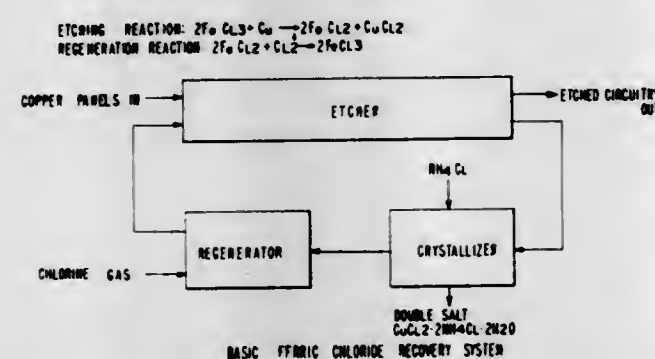
Int. Cl. C23g 1/36; C23f 17/00; H05k 3/06

U.S. Cl. 156—19

9 Claims

This invention refers to a process whereby the reaction products of etching copper, cobalt, iron, nickel, zinc, or magnesium with cupric chloride or ferric chloride are

precipitated as a double salt of the dissolved metal chloride and ammonium chloride by cooling the solution. The double salt is separated from the remaining solution, the



etching solution is recovered and regenerated by the use of an oxidant such as chlorine, muriatic acid and hydrogen peroxide, muriatic acid and air, or muriatic acid and oxygen.

3,600,245 ALUMINUM ETCH PROCESS

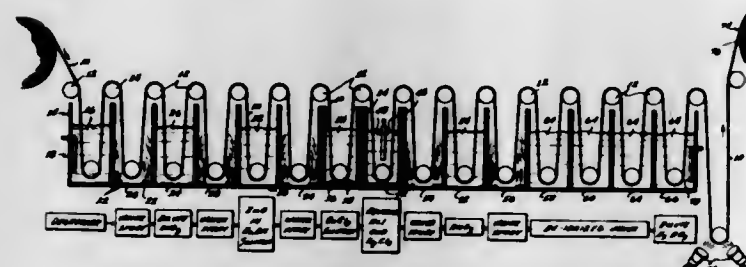
Howard W. Gates, 3624 Sierra Vista Ave.,
Glendale, Calif. 91208

Filed Mar. 6, 1968, Ser. No. 711,040

Int. Cl. C23g 1/22; C23f 1/00

U.S. Cl. 156—22

8 Claims



A process for increasing the surface area of aluminum wherein a galvanic couple is formed between a surface of the aluminum and an overcoating of a metal that is more electronegative than zinc; the overcoating is acid-washed to finely etch the aluminum surface. In a specific example, zinc is first deposited on the surface of high purity aluminum foil, from a solution of zinc oxide in sodium hydroxide. Copper is then deposited from an aqueous solution of cupric chloride. The resultant surface is acid-washed with aqueous hydrochloric acid containing a catalytic amount of ferric chloride, followed by a nitric acid bath.

3,600,246 METHOD OF MAKING LAMINATED SEMICONDUCTOR DEVICES

Joseph Breen, Somerville, N.J., assignor to
RCA Corporation

Filed May 17, 1968, Ser. No. 730,045

Int. Cl. G01r 27/00

U.S. Cl. 156—64

4 Claims

In the fabrication of semiconductor devices, a surface of a semiconductor wafer, containing a plurality of individual semiconductor components, is provided with a paste-like, viscous layer of a bonding cement, such as an epoxy resin. The paste-like material is rendered relatively hard and non-viscous, for the purpose of facilitating further handling of the wafer, and the wafer, after such further handling, is cracked to provide individual pellets, each having a surface of non-viscous bonding cement. The bonding cement is then resoftened to a paste-like, adhesive state, and the bonding cement layer is engaged with a support member to which the pellet is to be bonded. The assembly is heated to cure the bonding cement to form a rigid bond between the pellet and the support member.

3,600,247 METHOD OF LAMINATING EMPLOYING MEASURING THE ELECTRICAL IMPEDANCE OF A THERMOSETTING RESIN

Rudolph J. Armstrong, Jr., Hempstead, N.Y., assignor to
Photocircuits Corporation, Glen Cove, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 680,983, Nov. 6, 1967. This application Apr. 24, 1969, Ser. No. 819,093

Int. Cl. G01r 5/00

U.S. Cl. 156—64

14 Claims

An improved method of laminating thermosetting laminates is provided which comprises heating a laminate assembly which comprises a thermosetting resin, measuring the electrical impedance of the thermosetting resin to ascertain its lowest point, and applying full laminating pressure to the heated laminate assembly at that point of increased electrical impedance occurring subsequent to the ascertained lowest point of electrical impedance. An additional improvement is provided which consists of heating a laminate assembly which comprises a thermosetting resin, measuring the electric current generated by heating the thermosetting resin to ascertain its highest point and applying full laminating pressure to the heated assembly at that point of decreased generation of electric current occurring subsequent to the ascertained highest point of electric current.

Furthermore, an improved press is provided which is adapted with electrical sensing means to determine the gel stage of the thermosetting resin of a heated thermosetting laminate assembly. Lastly, an improved process of preparing multilayer circuit laminates is provided which comprises treating the surface of a fully cured laminate circuit layer having printed, metallic circuit pattern surfaces with a laminating adhesive resin prior to lamination.

3,600,248 METHOD FOR HEAT SEALING THERMOPLASTIC BODIES

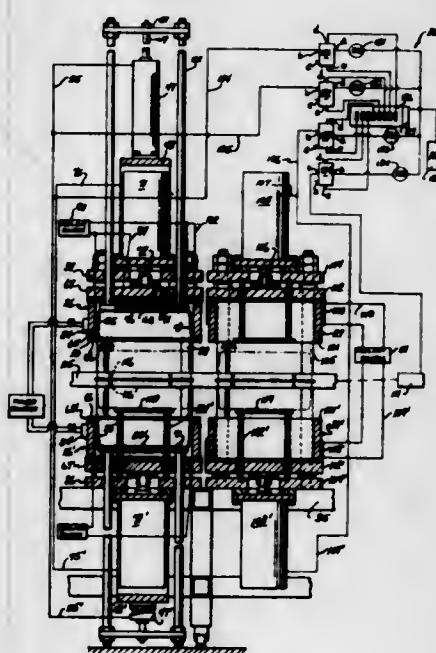
Albert B. Mojonier, Chicago, Ill., and Gilbert M. Schlussman, Ironia, and Harry E. Lowe III, Martinsville, N.J., assignors to Albert Mojonier, Inc.

Filed July 13, 1966, Ser. No. 564,842

Int. Cl. B29c 27/00; B65b 7/28

U.S. Cl. 156—69

6 Claims



A method of joining two thermoplastic polyethylene bodies having overlapping portions, in which the overlapping portions are heat softened by engaging and disengag-

ing the same at least twice in succession between heating jaws heated to a preferably high temperature in the range 500°–1000° F., and the heat softened overlapping portions are thereafter cooled by engaging the same between cool sealing jaws with sufficient pressure to bring the overlapping portions into intimate contact.

3,600,249 REINFORCED PLASTIC HONEYCOMB METHOD AND APPARATUS

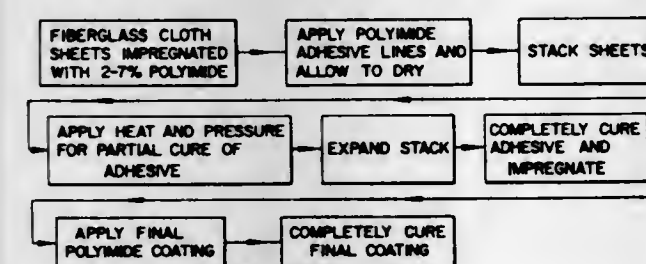
Wendell T. Jackson, Pleasant Hill, John A. Stark, Berkeley, and Beverley R. Garrett, Moraga, Calif., assignors to Hexcel Corporation

Filed July 28, 1966, Ser. No. 568,647

Int. Cl. B31d 3/02; B32b 17/10

U.S. Cl. 156—197

12 Claims



A method and apparatus for constructing honeycomb from a fabric which tends to distort under its own weight. The fabric is impregnated with a slight amount of a resin impregnation material to give it sufficient body, preventing its distortion while allowing it to be flexibly deformed during expansion of the honeycomb. After the impregnation of the fabric, adhesive lines are applied thereto. Strips of the fabric are then stacked and subjected to heat to cure the adhesive and the stacks are expanded to give them the honeycomb configuration. Thereafter the impregnation material and adhesives are further cured and coated to rigidify the structure.

3,600,250 STRETCHING AND LAMINATING THERMOPLASTIC ELASTOMERS

Anthony C. Evans, Redondo Beach, Calif., assignor to
Shell Oil Company, New York, N.Y.

Filed Sept. 12, 1968, Ser. No. 759,365

Int. Cl. B32b 31/00

U.S. Cl. 156—229

2 Claims

A process is provided for the production of thin films of thermoplastic elastomers comprising hot drawing and cold elastic elongation of an extruded film followed by hot lamination with a substrate. An apparatus is provided for carrying out this process which inherently involves high speed lamination and, if desired, very thin films due to the high cold stretchability possible with thermoplastic elastomers.

3,600,251 APPARATUS FOR APPLYING AN ELECTRIC ARC BETWEEN ELECTRICALLY CONDUCTING ELEMENTS AND A CONDUCTIVE STRIPE ON GLASS

Roy Singleton, Ecclestone, St. Helens, England, assignor to
Pilkington Brothers Limited, Lancashire, England

Filed June 2, 1969, Ser. No. 829,175

Claims priority, application Great Britain, June 7, 1968, 27,291/68

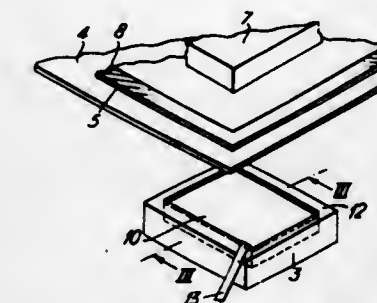
Int. Cl. B29c 27/04

U.S. Cl. 156—380

8 Claims

Apparatus for applying electric current to a conducting stripe on glass, includes means for supporting the glass and electrically conductive elements, each with an extended arcing face, positioned relative to said supporting

means so as to lie adjacent parts of the stripe to which electrical connection is to be made, whereby on con-



3,600,252 MULTIPLE-STATION SERVICING ASSEMBLY FOR TIRE BUILDING OPERATIONS

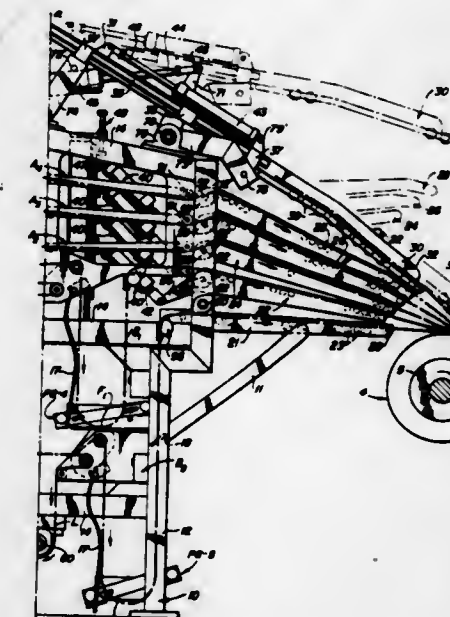
Virgil Estill Henley and Martin Nesbitt Robertson, Akron, Ohio, assignors to The General Tire & Rubber Company

Filed Apr. 24, 1969, Ser. No. 818,890

Int. Cl. B29h 17/20

U.S. Cl. 156—406

8 Claims



A servicer for a tire building drum, complete with carcass stock supply rolls and guides, is provided with a vertically aligned series of servicing trays at one end of the main frame. A selected number of these trays, which all extend from one end of the servicer, are pivotable into and out of respective servicing positions. The pivotable trays can only be pivoted according to a prescribed building sequence. All but the uppermost tray are operatively associated with stock storage and supply systems also carried by the frame. The top or uppermost tray is adapted to store and ultimately present to the builder the normally extruded piece of elastomeric material, which represents the tread or tread and sidewall portion of the tire, to complete the tire building sequence.

3,600,253 APPARATUS FOR APPLYING ADHESIVE TAPE AROUND PACKAGES

Jerome W. Derenthal, Succasunna, N.J., assignor to
Stapling Machines Co., Rockaway, N.J.

Filed Sept. 17, 1968, Ser. No. 760,145

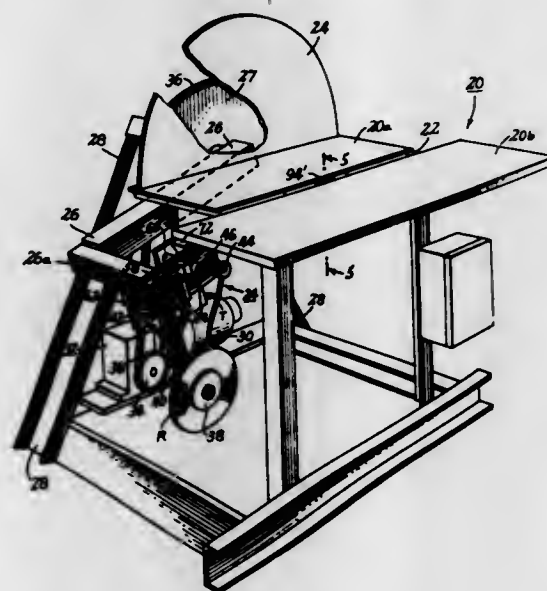
Int. Cl. B65b 13/10

U.S. Cl. 156—468

7 Claims

A machine for applying adhesive tape around a package which includes a tape starter for pressing the leading end

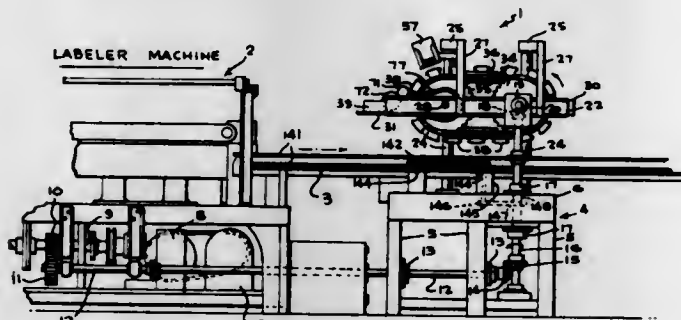
of the tape against the package, a tape supply assembly rotatable around the package, a tape cutter to sever the tape after one revolution of the tape supply assembly, a tape presser to engage the trailing cut end of the tape and



press it against the package, and a tape holder for engaging the leading end of the unused tape to hold it in position for engagement by the tape starter at the beginning of the next cycle.

3,600,254 APPARATUS FOR AFFIXING STRIP STAMPS TO BOTTLE NECKS

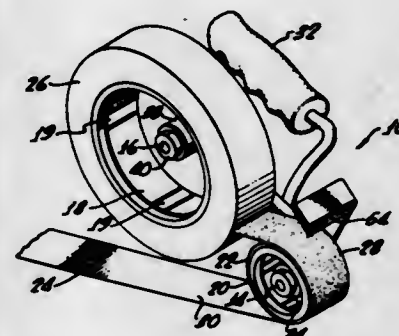
Robert A. Clark, Owensboro, Ky., assignor to Glenmore Distilleries Company, Owensboro, Ky.
Filed Sept. 6, 1967, Ser. No. 665,773
Int. Cl. B65c 3/14, 9/06, 9/36
U.S. Cl. 156—477 14 Claims



An attachment for a labeler machine to apply strip stamps to bottles which is mounted for operation over bottles in predetermined orientation exiting from the labeler machine, that includes a plurality of stamp applying heads mounted for travel in an orbital path to a stamp magazine to pick up stamps, a glue applying station where the stamps receive adhesive and along a stamp applying path where the heads travel in unison with oriented bottles. Each head has a plunger to press the center of a stamp against the top of a bottle, and yieldingly hold it there, while compressible jaws move downwardly and inwardly to stretch the stamp ends along the sides of a bottle neck, and press them against the neck sides, into the radius between the neck and shoulders, and firmly onto the bottle shoulders, the pressure movement of the jaws being controlled by contact of the jaws with the plunger.

3,600,255 PRESSURE SENSITIVE ADHESIVE TAPE APPLICATOR

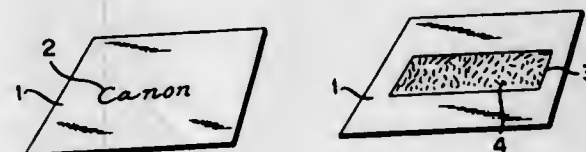
Schubert W. Hinds, 601 Lovell Place,
Fullerton, Calif. 92632
Filed Apr. 26, 1968, Ser. No. 724,511
Int. Cl. B32b 31/18, 31/20
U.S. Cl. 156—527 2 Claims



A pressure-sensitive adhesive tape applicator which permits accurate tape application to a surface adjacent a surface to be painted or otherwise treated. The applicator includes a frame member and a pair of axles upon which are rotatably mounted a roll of tape and a guide roller for applying the tape to the surface to be taped. The frame member is attached to said axles on one side leaving the other side unobstructed so that the tape may be applied close to the incline of the surface. A frame handle is attached to said frame intermediate said axles to roll said tape onto said surface as it is played out from said tape roll.

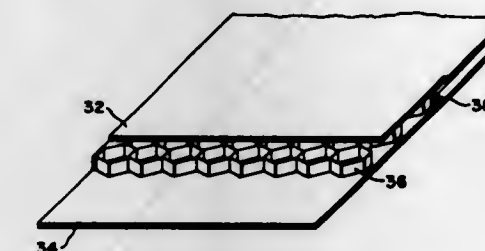
3,600,256 HOT STAMPING LEAF FOR CONCEALING INDICIA AND METHOD OF USING

Umi Tosaka, Tokyo, Yozo Sano, Fujisawa-shi, Takehiko Matsuo, Tokyo, Hirokazu Negishi, Yokohama-shi, Tamao Ikuta, Fujisawa-shi and Masaru Yamaguchi and Setsuko Hattori, Tokyo, Japan, assignors to Canon Camera Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 18, 1968, Ser. No. 722,237
Claims priority, application Japan, Apr. 22, 1967, 42/33,453, 42/33,454; May 12, 1967, 42/39,202; Jan. 27, 1968, 43/4,595
Int. Cl. B44f 1/04
U.S. Cl. 161—3.5 16 Claims



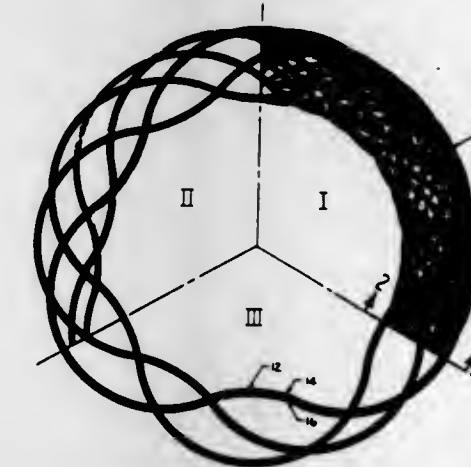
A hot stamping leaf for concealing letters and signs which comprises a base film and a colored coating layer containing a material which near infrared ray and infrared ray can pass through, but visible ray cannot pass through. The colored coating layer may be mainly made of polyvinyl butyral resin and, if desired, another resin having average molecular weight of less than 10,000. The hot stamping leaf may have unevenness on the surface. Further, two ends of the hot stamping leaf may be inserted to two cuts provided on a base paper at a certain interval, respectively. The hot stamping leaf may be composed of a thermosensitive adhesive layer, a colored coating layer and a peelable layer successively provided on a base film.

3,600,257
LIGHTWEIGHT MIRROR STRUCTURES
Frederick A. Reinhardt, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 9, 1969, Ser. No. 789,984
Int. Cl. G02b 5/08; B32b 3/12; B21d 47/00
U.S. Cl. 161—4 1 Claim



Described are lightweight mirror structures comprising a stainless steel honeycomb core sandwiched between sheets of beryllium, the assembly being secured together by a suitable binder such as a plastic adhesive or the like.

3,600,258
FRICTION FACING COMPRISING A TAPE OF MATERIAL OF AT LEAST ONE STRAND OF GLASS YARN AND AT LEAST ONE STRAND OF ASBESTOS YARN IN SIDE-BY-SIDE RELATIONSHIP
Henry C. Morton, East Greenbush, N.Y., assignor to The Bendix Corporation
Filed Mar. 25, 1969, Ser. No. 810,277
Int. Cl. B32b 5/08, 5/26
U.S. Cl. 161—42 15 Claims

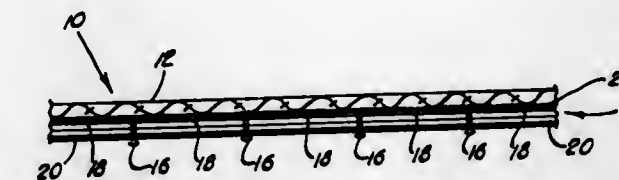


A friction facing for clutches and the like is disclosed which incorporates at least one yarn of filamentary glass fibers in the friction material prior to final fabrication to improve the burst strength of the friction facing. Additionally, bundles of filamentary treated glass fibers may be added to the facing at the I.D. and/or at the O.D. to further improve the hot burst strength of the friction facing.

3,600,259
HEAT FUSIBLE BACKING FABRICS AND LAMINATED FABRICS MADE THEREFROM
Delmont K. Smith, Long Meadow, Mass., and John A. Mortensen, Cranford, N.J., assignors to Johnson & Johnson
Filed Jan. 14, 1969, Ser. No. 792,222
Int. Cl. B32b 7/08
U.S. Cl. 161—51 9 Claims

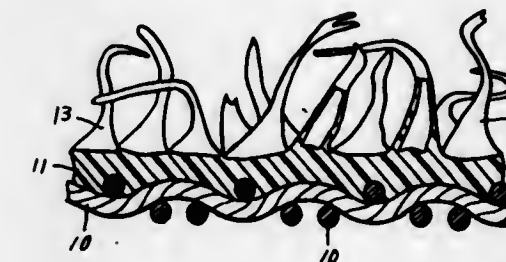
A laminated fabric having excellent drape, a full body and good bulk comprising (1) a facing fabric having desired visual and tactile properties, especially softness and

smooth hand and (2) a backing fabric comprising a layer of fibrous materials stitch-bonded together in an area pattern of stitched warp thread loops normally proceeding



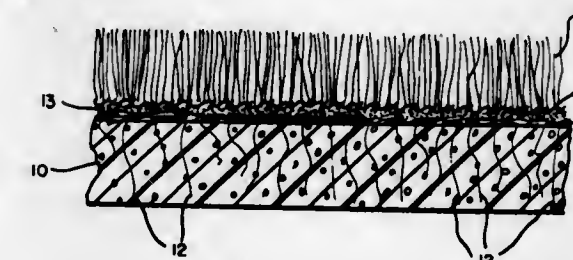
generally in the warp or long direction of the fabric, said facing fabric and said backing fabric being adhesively secured together.

3,600,260
ARTIFICIAL LEATHER OR SUEDE-LIKE MATERIAL
Tatsuo Watanabe, 162 3-chome, Tamagawa-Okuzawa-machi, Setagaya-ku, Tokyo, Japan
Filed Feb. 2, 1967, Ser. No. 613,490
Claims priority, application Japan, June 1, 1966, 41/51,161
Int. Cl. B32b 27/12; D04h 11/00
U.S. Cl. 161—62 1 Claim



This invention relates to synthetic leather or suede-like material and to the method of manufacturing said material. The method of this invention produces a synthetic leather, one surface of which is covered with thin wavy hair-like filaments. The resultant material is soft and also warm to the touch much like suede leather or (buckskin), and is suitable for the top part of shoes or as material for handbags, and other uses where suede leather is usually employed.

3,600,261
FLAME RETARDING BACKING FOR INFLAMMABLE WEBS
Bruno Kerres, Grefrath, Germany, assignor to Cirmes-Werke AG, Krefeld, Germany
Filed Dec. 26, 1968, Ser. No. 787,001
Claims priority, application Germany, Sept. 18, 1968, G 40,356
Int. Cl. B32b 5/08, 5/18; D05c 17/12
U.S. Cl. 161—64 11 Claims



A backing of material having flame retardant properties is disclosed. The new backing material includes a foamed material having a fleece layer composed of non-inflammable fibers joined to one side by needle looming.

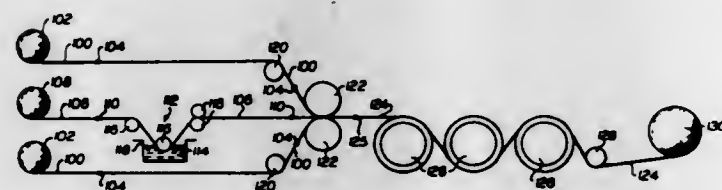
The fleece covered surface of the foamed material can be attached to the back of an inflammable web, such as plush and velour fabrics to render them sufficiently resistant to fire as to be readily marketable.

3,600,262
DISPOSABLE LAMINAR FABRIC COMPRISING PAPER BONDED TO A POLYOLEFIN REINFORCING NETTING

Daniel H. Frank, Port Washington, N.Y., assignor to Disposables, Inc., Whitestone, N.Y.
Filed Mar. 12, 1969, Ser. No. 806,480
Int. Cl. B32b 27/10

U.S. Cl. 161—79

3 Claims



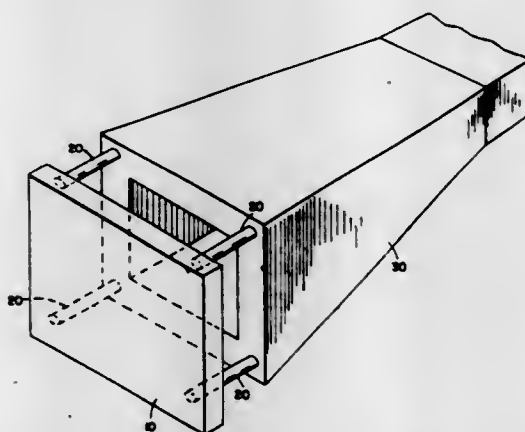
A disposable fabric comprising paper bonded to a plastic reinforcing web which is integrally extruded and has elongation characteristics similar to those of the paper.

3,600,263
METAL CLAD LAMINATES
Theodore W. Lapitz, Jr., La Crosse, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing Filed Aug. 13, 1969, Ser. No. 849,884
Int. Cl. B32b 15/08; H05k 1/00

U.S. Cl. 161—93 6 Claims
Metal clad laminate prepared by heat pressing (1) a "B" stage insulate comprising epoxy resin bonded to a filler in a dicyandiamide-benzyl dimethylamine curing system and (2) metal component with (3) a thin film of thermoplastic polymeric composition disposed between said insulate and said metal component.

3,600,264
STRUCTURAL LAMINATE
Warren D. Williams, Dallas, Tex., assignor to the United States of America as represented by the Secretary of the Army

Filed Oct. 1, 1969, Ser. No. 862,732
Int. Cl. B32b 17/02, 17/10
U.S. Cl. 161—140 2 Claims



A structural laminate for use in radomes and feed horn antennas. The laminate is made up of a plurality of fiber

glass mats that are bonded together with a resin mixture that has dielectric material dispersed therein to produce a structure with a desired dielectric constant and loss tangent.

3,600,265
ORIENTED FOAM LAMINAR STRUCTURES
Leon Edward Wolinski, Buffalo, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 16, 1970, Ser. No. 29,234
Int. Cl. B32b 3/12

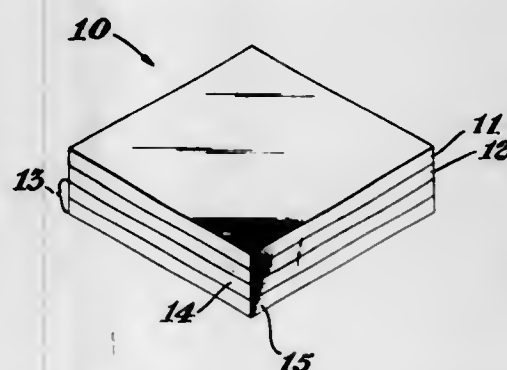
U.S. Cl. 161—160 5 Claims
A laminar structure comprising oriented foam having paper and thermoformable thermoplastic film bonded to a first and second side of the foam, respectively.

3,600,266
COLOR STABILIZED POLYVINYL CHLORIDE POLYURETHANE COMPOSITIONS
Elwood E. Huntzinger, Springfield, Pa., assignor to Air Products and Chemicals, Inc., Philadelphia, Pa.
No Drawing. Filed June 26, 1968, Ser. No. 740,029
Int. Cl. B32b 5/18

U.S. Cl. 161—160 6 Claims
Plastic products wherein a tertiary amine catalyzed semi-rigid polyurethane foam juxtaposes a layer of non-porous polyvinyl chloride are safeguarded against staining of the polyvinyl chloride layer by the incorporation in the polyurethane of a slightly volatile halogen-containing compound which may be added in an appropriate adjuvant. Additionally, methods of making such foams and precursor compositions for the foams are disclosed.

3,600,267
PACKAGING FILM
Robert McFedries, Jr., Bay Village, and Don W. Seldner, Rocky River, Ohio, assignors to The Dow Chemical Company, Midland, Mich.
Filed Apr. 14, 1969, Ser. No. 815,576
Int. Cl. B32b 27/08, 27/10, 27/32

U.S. Cl. 161—165 5 Claims

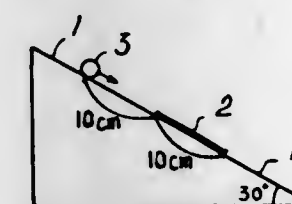


A packaging film having improved machineability by virtue of a lower heat seal temperature, wider sealing range and good seal strength wherein the heat seal layer comprises polyethylene homopolymer and an ethylene-vinyl acetate copolymer.

3,600,268
SURFACE PROTECTING SHEET
Yutaka Hori, Zenzo Honda, and Yoichi Nomura, Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Ibaraki, Japan
Filed Nov. 17, 1967, Ser. No. 683,958
Int. Cl. C09j 7/02

U.S. Cl. 161—167 7 Claims
A surface protecting sheet according to the invention comprises a flexible plastic sheet (polyvinyl chloride, etc.) of a thickness of 0.20 to 0.02 mm. and a cured acrylic rubber layer not over 0.05 mm. thick on one surface

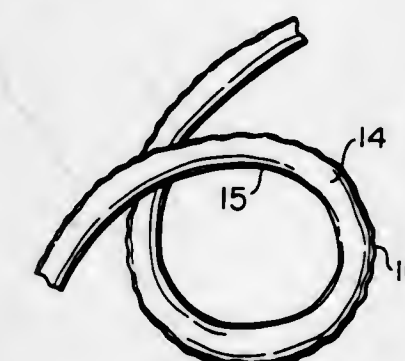
thereof, said rubber layer being made by cross-linking a synthetic rubber consisting mainly of acrylic ester. A layer of low frictional resistance is preferably provided on the other surface of the flexible plastic sheet. The sheet is useful in protecting the surface of a plate, sheet, etc. of metal or the like while affording a view of such surface.



3,600,271
CRIMPED THERMOPLASTIC FILAMENT HAVING A TWO PHASE CROSS-SECTION
Terumichi Ono, Tsuneo Haga, Yasuo Takagi, Nagoya-shi, Japan, and Tomitake Higuchi, Aichi-ken, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Filed Nov. 28, 1967, Ser. No. 686,136
Claims priority, application Japan, Dec. 9, 1966, 41/80,308; June 30, 1967, 42/41,749, 42/41,750, 42/41,751, 42/41,753
Int. Cl. D02g 1/10

U.S. Cl. 161—173

11 Claims

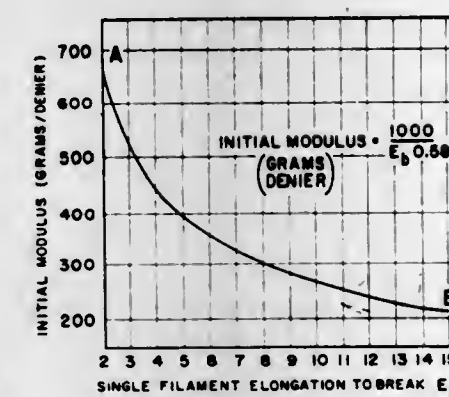


The present sheet has high resistance to light and weather, does not tend to adhere to the protected surface when removed therefrom, and is sufficiently strong to resist pressures applied to the metal sheet or the like during deep drawing, press-binding, roll forming, etc., without tear or damage.

3,600,269
NOVEL FIBER REINFORCED MATRIX COMPOSITES
Brian K. Daniels, Jack Preston, and David A. Zaukelles, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.
Filed July 29, 1968, Ser. No. 748,559
Int. Cl. B32b 27/02, 27/12, 27/34

U.S. Cl. 161—170

26 Claims



An improved crimped filament of thermoplastic synthetic high polymer of the invention is composed of non-conjugated structure having two different phases in cross section of said filament. The above-mentioned two different phases in cross section of the filament is defined by the difference in dyeability or refraction index. The crimped filament of the invention is provided with the outside roughened surface having numerous fine pit-like portions. The process for manufacturing the crimped fiber of the invention is also disclosed.

3,600,272
POLYETHYLENEIMINE CURED EPOXY-MODIFIED PAPER
Louis R. Cortigene, Portland, and William R. Sherman, Cape Elizabeth, Maine, assignors to Scott Paper Company, Delaware County, Pa.
No Drawing. Filed Aug. 29, 1968, Ser. No. 756,312
Int. Cl. D21d 3/00; D21h 3/36

U.S. Cl. 162—164 13 Claims
Process for producing epoxy-modified paper by a chemical reaction on a conventional paper machine by adding at separate points in the papermaking process upstream of a heating section a high molecular weight, polyethyleneimine which is substantive to paper and adding at a separate point an aqueous dispersion of an unreacted epoxy resin such as vinyl cyclohexane dioxide which is curable by said polyethyleneimine.

3,600,270
TRANSPARENT PAPER FOR PHOTOGRAPHIC PURPOSES
Gregor Kemme, Osnabruck, Germany, assignor to Felix Schoeller, Jr., Osnabruck, Germany
No Drawing. Filed Sept. 25, 1967, Ser. No. 670,392
Claims priority, application Germany, Sept. 27, 1966, Sch 39,582
Int. Cl. G03c 1/80

U.S. Cl. 161—251

3 Claims

A transparent and preferably waterproofed photographic paper made up of a plurality of layers, the basis

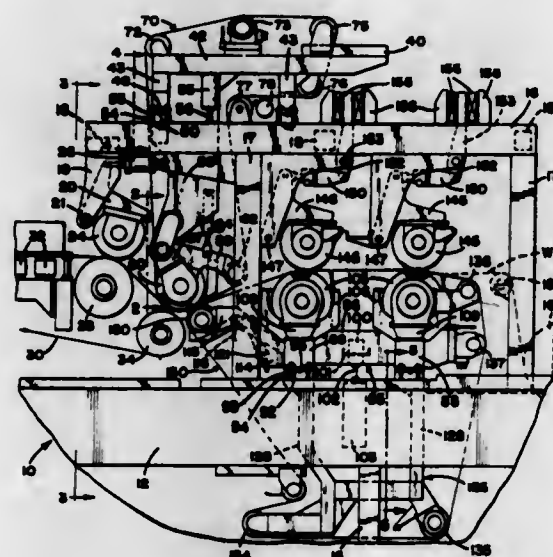
3,600,273
PAPER MACHINE PRESS SECTION
Terence E. McCarrick and Norbert Kessler, Watertown, N.Y., assignors to The Black Clawson Company, Hamilton, Ohio
Filed Sept. 27, 1968, Ser. No. 763,119
Int. Cl. D21f 1/24

U.S. Cl. 162—273

9 Claims

A press section of a paper machine includes a suction press roll supported within an endless felt by an inner frame having one side pivotally connected to a main outer

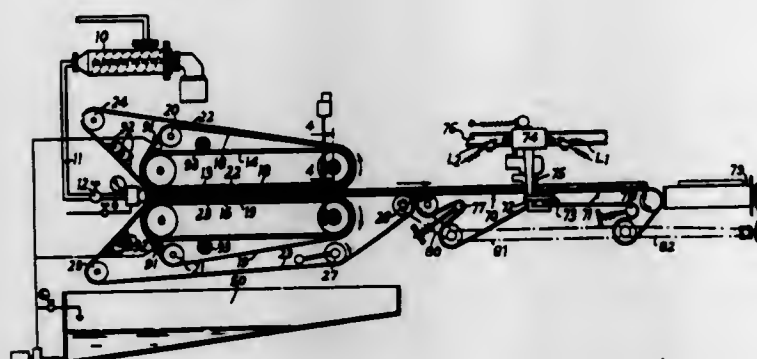
frame and the opposite side releasably secured to the outer frame so that the inner frame may be pivoted by a power operated jack to provide for convenient replacement of the felt. The press section also includes a suction pickup roll supported within the pickup felt in a similar manner.



3,600,274
MOULDING DEVICE FOR A SLURRY WHEREIN THE FORMING MEANS INCLUDES OPPOSED SHOES ATTACHED TO OPPOSED ENDLESS CHAINS

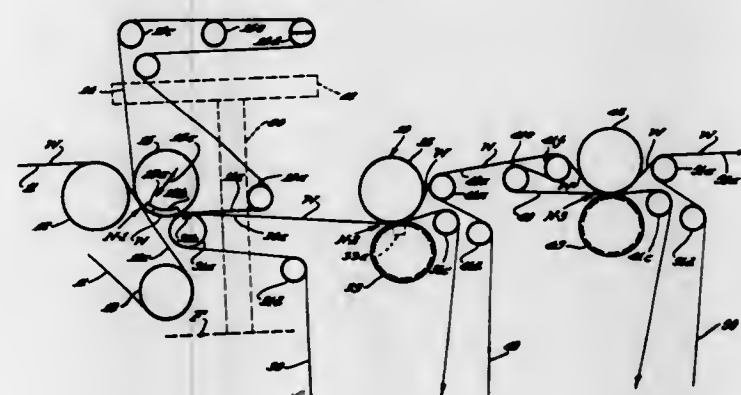
Kenneth Trickett, Egham, and Thomas Leslie Forsyth, Cleadon, near Sunderland, England, assignors to Newalls Insulation & Chemical Company Limited, Washington, England

Filed Feb. 12, 1968, Ser. No. 704,899
Claims priority, application Great Britain, Feb. 24, 1967, 9,058/67
Int. Cl. D21j 3/12
U.S. Cl. 162—303 11 Claims



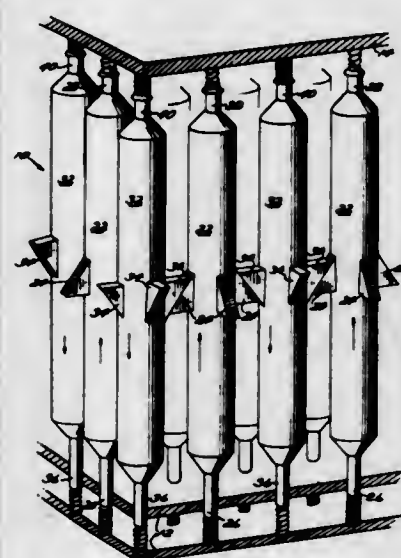
A machine for continuously filtering a slurry and continuously moulding the solid matter retained from the slurry which comprises two endless belt systems providing a run along which shoes attached end to end along to each of the chains engage one another to define a forming zone which is rigid-walled and of constant cross-section. A nozzle that is sealed with respect to the forming zone functions to discharge slurry between the engaged shoes. Each shoe is provided with passage grooves on the formation-zone side thereof to permit the escape of liquid from the slurry in the forming zone. Layers of filtering material such as endless filter belts extend through the formation zone in overlying relationship to the grooves of each shoe.

3,600,275
WEB PICKUP
Dennis C. Cronin, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis.
Filed May 23, 1968, Ser. No. 731,582
Int. Cl. D21f 2/00
U.S. Cl. 162—306 8 Claims



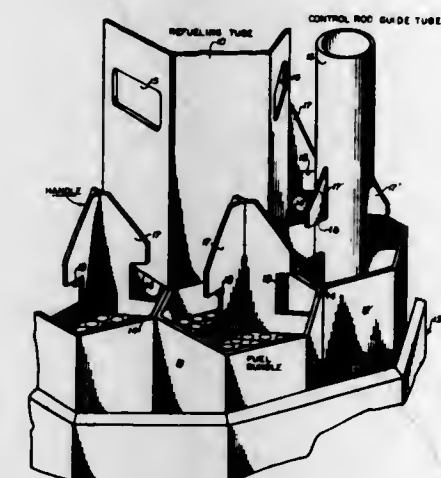
This relates to an improved versatile and sturdy paper-making machine structure. The instant machine involves the selective use of a pickup arrangement using a durable porous pickup belt that is not required to travel through a press nip and thus avoids wear incidental to conventional felt washing and reconditioning devices. Also, the present arrangement provides for the use of a simplified first press for only a single felt with the web thereon which affords better initial dewatering, and avoidance of the conventional transfer (two felt) press, using a system which employs standard parts so arranged as to afford best access for maintenance.

3,600,276
FUEL SYSTEMS FOR NUCLEAR REACTORS
John B. Nims, Jr., Royal Oak, Mich. (% Atomic Power Development Associates Inc., 1911 1st St., Detroit, Mich. 48226)
Original application May 12, 1967, Ser. No. 638,098. Divided and this application Oct. 7, 1968, Ser. No. 798,503
Int. Cl. G21c 3/12, 7/30
U.S. Cl. 176—28 6 Claims



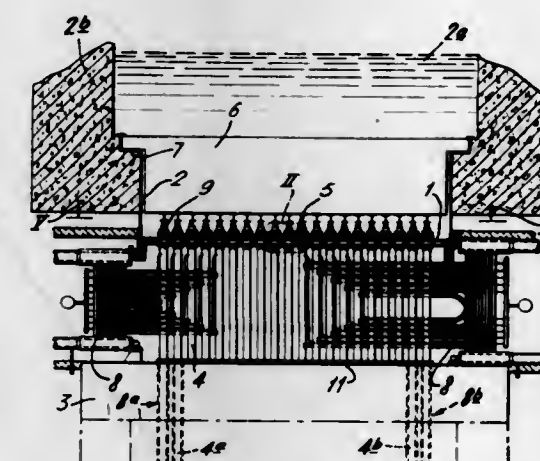
A nuclear reactor comprising an array of fuel sub-assemblies having tapered cooperating interface surfaces, whereby longitudinal expansion of the sub-assembly causes radial core expansion.

3,600,277
REFUELING APPARATUS AND METHOD FOR FAST REACTORS
John H. Germer, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 2, 1968, Ser. No. 764,477
Int. Cl. G21c 19/10, 19/20
U.S. Cl. 176—31 7 Claims



An apparatus and method for transferring fuel bundles in and out of the core of a sodium-cooled fast reactor, utilizing an inert gas filled refueling cell above the reactor and a removable shield plug between the reactor and the refueling cell. Fuel handling is accomplished by a refueling apparatus consisting of two mechanisms, one of which takes fuel bundles between a storage area and a temporary position adjacent to the reactor, and the other transfers fuel between this temporary position and the reactor core while maintaining the fuel elements submerged in the sodium coolant for permitting continuous removal of decay heat therefrom.

3,600,278
NUCLEAR REACTOR INSTALLATIONS
William Birch, Middlewich, and Christopher Powell, Tunbridge Wells, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Mar. 1, 1968, Ser. No. 709,734
Int. Cl. G21c 19/00
U.S. Cl. 176—61 6 Claims



A nuclear reactor has vertically extending fuel tubes which terminate in a pond above the core. A flexible tube plate is penetrated by the fuel tubes and forms the base of the pond containing structure. The tube plate is supported from flanges on the tubes.

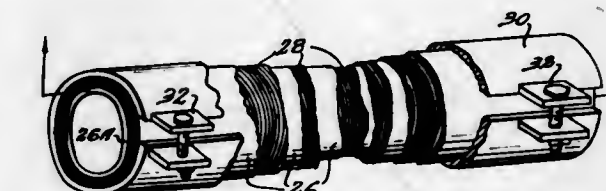
3,600,279
METHOD FOR PRODUCING D-PANTOIC ACID
Takeshi Takahashi, Osaka, and Masao Isono, Hyogo, Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan
No Drawing. Continuation-in-part of application Ser. No. 671,570, Sept. 29, 1967. This application June 1, 1970, Ser. No. 42,509
Int. Cl. C12b 1/00 15 Claims

D-pantoic acid is produced from DL-pantoic acid by inoculating a culture medium containing the latter with a bacterium which assimilates L-pantoic acid but cannot assimilate D-pantoic acid, incubating the culture until L-pantoic acid is substantially consumed, and recovering the unassimilated D-pantoic acid.

3,600,280
PROCESS FOR PREPARING ACETALS AND KETALS OF 2 β ,16 α ,17 α -TRIHYDROXY STEROIDS
Patrick A. Diassi, 77 Sandy Hill Road, Westfield, N.J. 07090, and Pacifico A. Principe, 11 Monush St., South River, N.J. 08882
No Drawing. Original application Mar. 21, 1968, Ser. No. 714,784. Divided and this application June 6, 1969, Ser. No. 831,217
Int. Cl. C07c 167/08 1 Claim

This invention relates to the production of acetals and ketals of 2 β ,16 α -dihydroxyhydrocortisone and acyl derivatives thereof. These compounds are prepared by subjecting acetals and ketals of 16 α -hydroxycortisolone to the action of enzymes of *Absidia coerulea*. The final products of this invention are therapeutically useful compounds possessing anti-inflammatory and progestational activity. In addition, the products of this invention are useful as anti-oxidants and anti-corrosive agents. They are also surfactants and thus may be employed as emulsifiers and wetting agents.

3,600,281
MICROSTABILIZED SUPERCONDUCTOR
Wilfried H. Bergmann, Naperville, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed June 18, 1969, Ser. No. 834,427
Int. Cl. H01f 7/22
U.S. Cl. 335—216 5 Claims

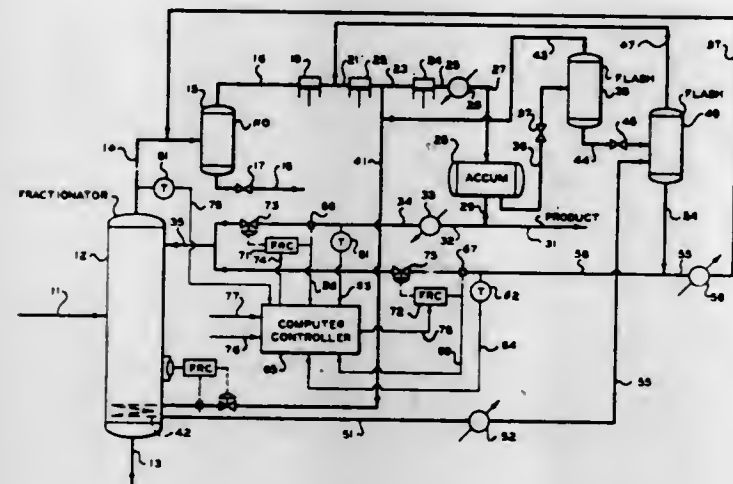


A microstabilized superconductor comprises a superconducting material of the hard Type II series sized in cross sectional area less than 1000 times the coherence length of the material.

3,600,282
CONTROL OF TWO REFLUX STREAMS IN A FRACTIONAL SEPARATION SYSTEM
Dale E. Lupfer, Sweeny, Tex., and James W. Hobbs, Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed Nov. 19, 1968, Ser. No. 776,951
Int. Cl. B01d 3/42 6 Claims

In a fractional distillation system having two sources of liquid reflux streams which will partially vaporize when combined for such use, the flow rate and temperature of

each of the liquid reflux streams are measured and signals representative thereof are applied to a computer-controller. The signals are combined to establish a signal representative of the preflash temperature of the combined stream, which is then employed in an internal reflux control to



determine the required external reflux flow rate. The flow rate of one of the liquid streams is manipulated responsive to a desired control criteria while the flow rate of the other liquid stream is manipulated to provide the balance of the external reflux.

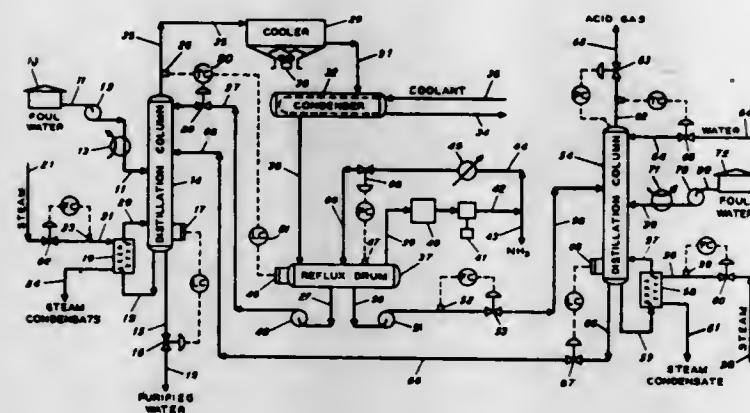
3,600,283 AMMONIA STRIPPER OVERHEAD CONTROL METHOD

Walter M. Bollen, San Rafael, Calif., and William Leigh Short, Amherst, Mass., assignors to Chevron Research Company, San Francisco, Calif.
Continuation-in-part of application Ser. No. 680,267, Nov. 2, 1967. This application May 7, 1969, Ser. No. 822,700

The portion of the term of the patent subsequent to Oct. 1, 1985, has been disclaimed
Int. Cl. B01d 3/42

U.S. Cl. 203—1

6 Claims



Method for controlling an ammonia distillation column used to strip ammonia from an aqueous solution containing ammonia which comprises: cooling and partially condensing overhead vapors from the ammonia distillation column, receiving the partially condensed overhead from the ammonia distillation column in a reflux drum, controlling reflux to the distillation column responsive to temperature in the overhead vapor line from the ammonia distillation column, and controlling the overhead temperature responsive to the liquid level in the reflux drum.

3,600,284 METHOD OF ADDING REFRACTORY METAL HALIDES TO MOLTEN SALT ELECTROLYTES

George M. Martinez, Henderson, Nev., assignor to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Feb. 18, 1969, Ser. No. 800,277
Int. Cl. C22d 3/00

U.S. Cl. 204—64R

8 Claims

An integrated solid mass, e.g., a globule, of a tetrachloride of zirconium or hafnium, or a pentachloride of niobium, molybdenum or tantalum is plunged into a molten salt electrolyte composition in order to introduce this metal compound into the salt bath for the purpose of electrodepositing the particular refractory metal of said metal compound.

3,600,285 MERCURY RECOVERY

Edward J. Botwick, New Haven, and Darrell B. Smith, Cheshire, Conn., assignors to Olin Corporation
No Drawing. Filed Oct. 21, 1969, Ser. No. 868,206

Int. Cl. C01d 1/08

U.S. Cl. 204—99

5 Claims

The recovery of mercury chloride from weak brines effluent from mercury cathode electrolytic cells by contacting said effluent with activated carbon, washing said carbon with water, then heating in a stream of inert gas and condensing mercury chloride by cooling the gas.

3,600,286 ELECTROLYTIC TREATMENT OF AQUEOUS SOLUTIONS

Roland C. Sabins, Lakeside, Calif., assignor to Selectro-Chem Company, Salt Lake City, Utah
Filed Feb. 26, 1968, Ser. No. 708,185
Int. Cl. C02b 1/82; C01b 7/06

U.S. Cl. 204—149

7 Claims

The method of and system for liberating a gas or gases from an electrolyte through the use of two electrodes within the electrolyte and connected with a direct current to form, with the electrolyte, an internal circuit and cyclically reversing the polarity of the electrodes. The system further comprehends subjecting a third electrode to the electrolyte which is connected with the positive side of the direct current as long as the system is in operation.

3,600,287 HYDROXYLATION OF AROMATIC COMPOUNDS

Stephen N. Mandle, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,817
Int. Cl. B01j 1/10

U.S. Cl. 204—158R

10 Claims

Aromatic compounds are hydroxylated by reacting an excess of aromatic compounds with hydrogen peroxide in the absence of any added water by subjecting the two components to the emission of a light source having a wave length less than 3500 Å.

3,600,288 CURABLE SILICONE-POLYCARBONATE COPOLYMER COMPOSITION

Richard V. Viventi, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Filed Jan. 3, 1969, Ser. No. 788,961
Int. Cl. B01j 1/10; C08g 47/10

U.S. Cl. 204—159.13

4 Claims

Organopolysiloxane-polycarbonate copolymers having allylcarbonate chain terminals are cured at room temperature employing organosilicon materials having a plurality of mercaptoalkyl substituents.

3,600,289 TREATMENT OF RESIN SURFACES TO IMPROVE ADHESIVE BONDING, RESIN BODIES WITH TREATED SURFACES AND ADHESIVE PROCESS

Robert A. Bragole, Peabody, Mass., assignor to USM Corporation, Flemington, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 664,648, Aug. 31, 1967. This application Apr. 21, 1969, Ser. No. 818,045

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.14

16 Claims

Surfaces of substrates having a low surface tension of wetting, e.g. polyethylene are subjected to ultraviolet radiation and then treated with polyisocyanate. The polyisocyanate interacts with the radiated material to create a surface character readily and strongly bonded by adhesives.

3,600,290 FURAN-STABILIZED BETA-HYDROXY ESTER COATING COMPOSITIONS

Chester W. Fitko, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

No Drawing. Filed Jan. 15, 1970, Ser. No. 3,197

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.22

15 Claims

A composition stabilized to prevent gel formation but which remains susceptible to polymerization by ionizing radiation comprised of a mixture of a furan compound and an ethylenically unsaturated beta-hydroxy ester prepared from a polyepoxide and an alpha, beta-ethylenically unsaturated monocarboxylic acid such as acrylic or methacrylic acid. The beta-hydroxy ester/furan composition when applied to a substrate as a film and exposed to a source of ionizing radiation for a time sufficient to effect polymerization of the film, cures to a hard, infusible coating.

3,600,291 METHOD OF PRODUCING DENSE CARBON FROM ANTHRACENE

Richard H. Wiley, New York, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Jan. 28, 1969, Ser. No. 794,761

Int. Cl. C07c 3/24

U.S. Cl. 204—162

2 Claims

A process for producing dense carbon products comprising exposing organic compounds to coherent radiation of greater than 1.0 joule per millisecond.

3,600,292 LOCALIZED MACHINING AND DEPOSITION FOR MICROELECTRONIC COMPONENTS BY SPUTTERING

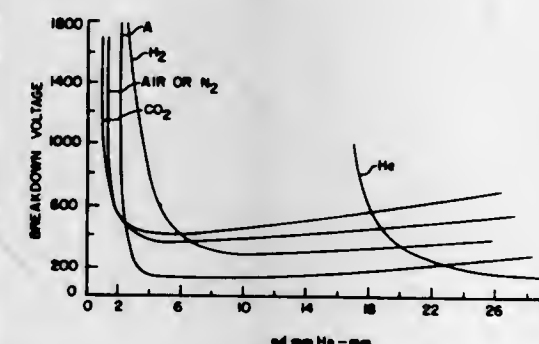
Harvey C. Nathanson, Pittsburgh, and John R. Davis, Jr., Export, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 11, 1969, Ser. No. 806,264

Int. Cl. C23c 15/00

U.S. Cl. 204—192

14 Claims



A sputtering process is described that is suitable for highly localized deposition and machining of elements

of microelectronic components employing a stream of gas in an atmosphere at least within an order of magnitude of atmospheric pressure between closely spaced sputtering electrodes which are preferably supported by the component substrate. Applications to microelectronic components such as for tuning the vibratory members of resonant gate transistors are described.

3,600,293 MONITORING DEVICE FOR COUNTING PARTS PASSING THROUGH AN ELECTROLYTIC BATH

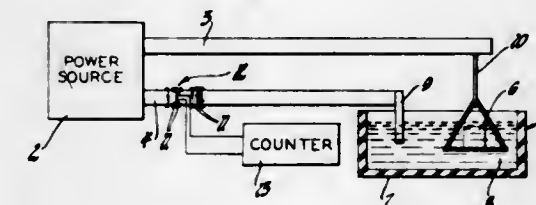
Stanley J. Hyduk and Leo Z. Zeleney, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 10, 1969, Ser. No. 790,300

Int. Cl. B01k 3/00; C23b 5/06, 5/68

U.S. Cl. 204—194

3 Claims



A reed switch, responsive to an electromagnetic field, is attached to a conductor and is closed when the electric current through the conductor reaches a predetermined value. Since the current through a bus bar (conductor) that supplies energy to an electroplating bath varies as the total surface area of the parts being plated varies, closure of the reed switch is indicative of the fact that a part or given number of parts has passed through the plating bath.

3,600,294 ELECTROCRYSTALLIZER

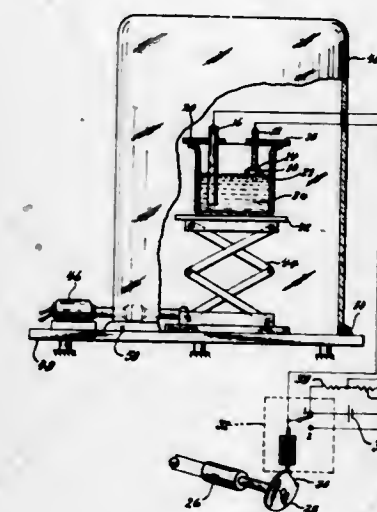
Bernard Rubin, Belmont, and John J. O'Connor, Arlington, Mass., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Aug. 15, 1967, Ser. No. 660,839

Int. Cl. B01k 3/00; C23b 5/00, 7/00

U.S. Cl. 204—228

1 Claim

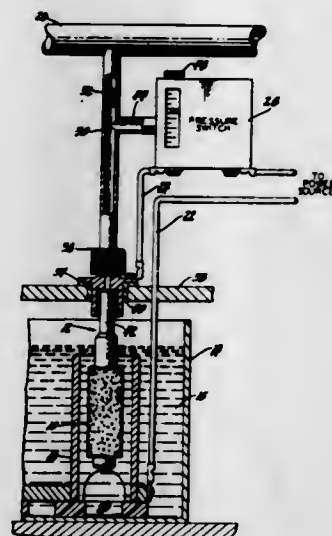


An apparatus and method for growing single crystals comprising an electrochemical circuit including a means for alternating in an asymmetrically timed manner the direction of current flow within the electrochemical circuit. Also included is a means to effect the vertical movement of the electrochemical circuit's electrolyte in a downward direction away from a growing crystal at a rate substantially similar to the rate of growth of the growing crystal.

3,600,295
METHOD AND APPARATUS FOR PRODUCING
POROUS METAL PARTS HAVING UNIFORM
FLUID PERMEABILITY

Donald A. Voorhies, Wauwatosa, Wis., assignor to General Motors Corporation, Detroit, Mich.
 Original application Nov. 15, 1966, Ser. No. 594,480, now Patent No. 3,480,530, dated Nov. 25, 1969. Divided and this application Apr. 30, 1969, Ser. No. 820,436
 Int. Cl. B01k 3/00, 3/04
 U.S. Cl. 204—229

2 Claims

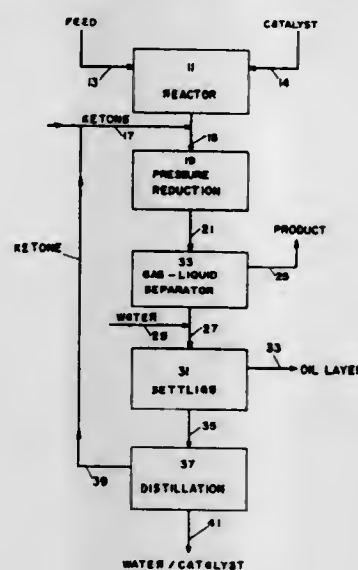


Precise control over the permeability of a porous metal part is accomplished by monitoring the flow rate of the air through the part during electrolytic erosion of metal from the surface pores. The electrolytic erosion is automatically discontinued when the back pressure of the air falls below a predetermined value.

3,600,296
CONTINUOUS RECOVERY OF HYDROCARBON
PRODUCT FROM EFFLUENT CONTAINING
FRIEDEL-CRAFTS CATALYST THEREIN

Robert W. Rieve, Springfield, Pa., assignor to Atlantic Richfield Company, New York, N.Y.
 Filed July 22, 1969, Ser. No. 843,469
 Int. Cl. C10g 21/16; C07c 7/00
 U.S. Cl. 208—13

5 Claims



A process for the elimination of sludges and complexes that form when Friedel-Crafts catalysts are used in hydrocarbon reactions said process including the addition of acetone, diacetyl, or methylethylketone to the reactor effluent as the effluent leaves the reaction vessel thereby dissolving the sludges and complexes as formed, and preventing any undesired accumulation of said sludges and

complexes from fouling the reaction facilities, and preventing losses of catalyst and hydrocarbon which ordinarily become bound up in said sludges and complexes.

3,600,297
PREPARATION OF EASILY SEPARABLE ADDUCTS
IN THE DEPARAFFINATION OF HYDROCAR-
BONS WITH UREA

Hermann Franz, Neu-Isenburg, Bertold Fritz, Koppert, Taunus, and Max Kunert, Frankfurt am Main-Fechenheim, Germany, assignors to Edeleann Gesellschaft mbH, Frankfurt am Main, Germany
 No Drawing. Filed June 6, 1968, Ser. No. 734,886
 Claims priority, application Germany, June 13, 1967, E 34,172
 Int. Cl. C07b 21/00

U.S. Cl. 208—25 10 Claims
 Improvements in the process for the preparation of granular, readily separable adducts of paraffin and urea in the deparaffination of hydrocarbon oils with urea by direct heat exchange of the temperature of the adduct mixtures formed utilizing as the direct heat exchange medium and/or oil solvent vapor introduced directly into the reaction mixture, with the heat of condensation of said steam and/or oil solvent vapor producing the required temperature elevation.

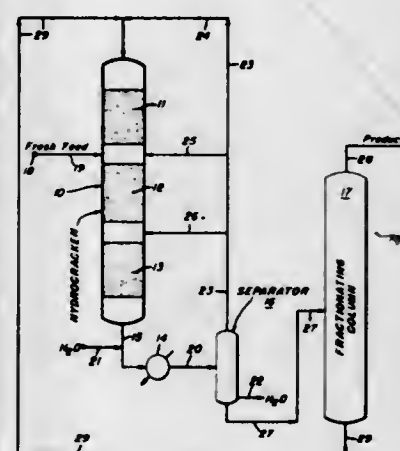
3,600,298
PROCESS FOR PRODUCING HYDROGENATED
ALKYL TARS

Osamu Mayumi, Chiba, and Masaaki Takahashi, Tokyo, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
 No Drawing. Filed Mar. 30, 1970, Ser. No. 23,962
 Claims priority, application Japan, Mar. 28, 1969, 44/23,682
 Int. Cl. C10c 1/20

U.S. Cl. 208—44 9 Claims
 This invention relates to a process for the production of hydrogenated alkyl tars comprising the steps of desulfurization and alkylation with a lower olefin in the presence of a catalyst, of a tar fraction obtained by the thermal cracking of petroleum hydrocarbon at a temperature between 700° C. and 2300° C., followed by hydrogenation of the resulting alkyl tar in the presence of a suitable hydrogenation catalyst.

3,600,299
MULTIZONE HYDROCRACKING PROCESS
 James C. Koller, Chicago, Ill., assignor to Standard Oil Company, Chicago, Ill.
 Filed Nov. 15, 1968, Ser. No. 776,018
 Int. Cl. C10g 23/00

U.S. Cl. 208—89 12 Claims



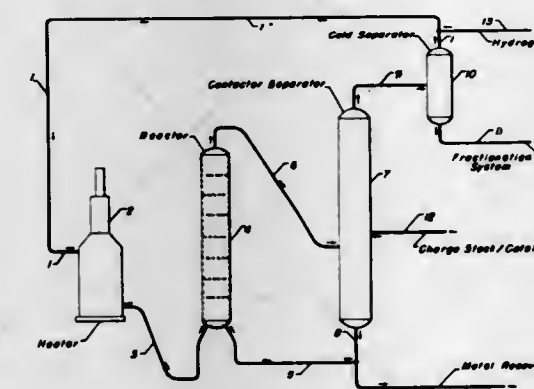
A multizone hydrocracking process in which the first catalytic zone comprises a conventional acid-type hydrocracking catalyst, the second catalytic zone comprises a

denitrogenation catalyst and the third catalytic zone comprises a molecular sieve-type hydrocracking catalyst. The fresh feed, including both hydrocarbon and hydrogen, is introduced into the second zone where the hydrocarbon is denitrogenated and sent to the third zone where the hydrocarbon is partially hydrocracked. Liquid product from the third zone is divided into a high boiling fraction and a low boiling fraction, and the high boiling fraction is recycled to the first zone for further hydrocracking. The effluent from the first zone continues on and is mixed with the fresh feed in the second zone. Gaseous effluent from the third zone is recycled to the first, second and/or third zones where it provides necessary hydrogen gas and aids in controlling catalyst temperatures. The low boiling liquid fraction is recovered as product.

3,600,300
SLURRY PROCESSING FOR BLACK OIL
CONVERSION

Laurence R. Steenberg, Glenview, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed Nov. 26, 1968, Ser. No. 779,013
 Int. Cl. C10g 13/00

U.S. Cl. 208—108 8 Claims



A catalytic slurry process for effecting the conversion of a hydrocarbonaceous charge stock containing hydrocarbon-insoluble asphaltene. The slurry constitutes a mixture of the major proportion of the charge stock, principally 650° F.-plus material, a portion of a previously treated product effluent, and from about 0.4% to about 10.0% by weight of finely-divided solid catalyst particles, on the basis of total liquid feed. The process is effected in a continuous manner, and preferably in an upflow reaction chamber wherein the slurry and hydrogen are individually introduced at a lower portion and the product effluent withdrawn from an upper portion.

3,600,301
HYDROCARBON HYDROPROCESSING
 Richard E. Rausch, Mundelein, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 No Drawing. Continuation-in-part of application Ser. No. 819,114, Apr. 24, 1969. This application June 16, 1969, Ser. No. 833,664
 Int. Cl. C10g 13/02

U.S. Cl. 208—111 10 Claims

A process for hydroprocessing hydrocarbons and mixtures of hydrocarbons utilizing a catalytic composite of a porous carrier material, a rhenium component, a Group VIII noble metal component and a tin component, in which process there is effected a chemical consumption of hydrogen. A specific example of one such catalyst is a composite of a crystalline aluminosilicate, a platinum component, a rhenium component and a tin component, for specific utilization in a hydrocracking process. Other specific hydroprocesses include the hydrogenation of aromatic nuclei, the ring-opening of cyclic hydrocarbons, desulfurization, denitration, hydrogenation, etc.

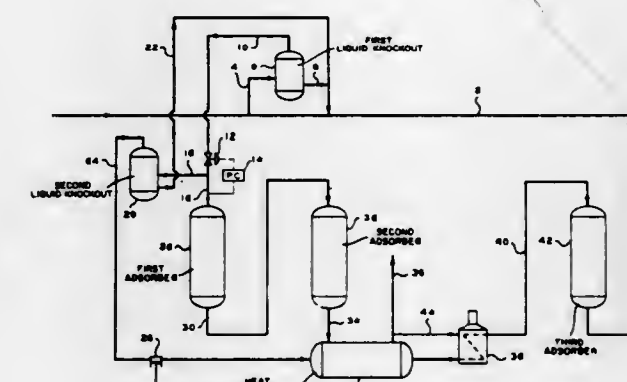
3,600,302
LUBE EXTRACTION WITH MIXED SOLVENTS
 Charles C. Hong, Sarnia, Ontario, Canada, assignor to Esso Research and Engineering Company
 No Drawing. Filed Apr. 3, 1969, Ser. No. 813,334
 Int. Cl. C10g 21/02

U.S. Cl. 208—323 16 Claims
 An improved process for the solvent extraction of petroleum oil fractions. A two-component mixed solvent, where Component A comprises a polar solvent and Component B comprises a glycol ether, is used to selectively extract the more aromatic type constituents from a lube oil feed. Results obtained with these mixed solvents are compared with phenol and aqueous phenol.

3,600,303
PROCESSING A PORTION OF A HIGH
PRESSURE GAS STREAM

Julius E. Schneider, Bartlesville, Okla., assignor to Phillips Petroleum Company
 Filed Apr. 25, 1969, Ser. No. 819,224
 Int. Cl. C10g 5/02

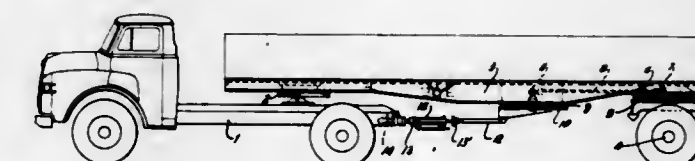
U.S. Cl. 208—340 9 Claims



A method for processing a portion of gas from a high pressure rich gas stream wherein liquids are removed from the gas, adsorbers are regenerated with processed heated gas, and removed liquids are reinjected into the high pressure rich gas stream.

3,600,304
TRACTOR-TRAILER RIG
 Willi Hildebrandt, 7 Waldweg, 424 Emmerich-Huthum, Germany, and Aloysius Theodorus van Huet, Schoolstraat 9, Pannerden, Netherlands
 Filed June 16, 1969, Ser. No. 833,817
 Claims priority, application Germany, June 14, 1968, P 17 55 736.7
 Int. Cl. B26d 53/00

U.S. Cl. 280—426 8 Claims



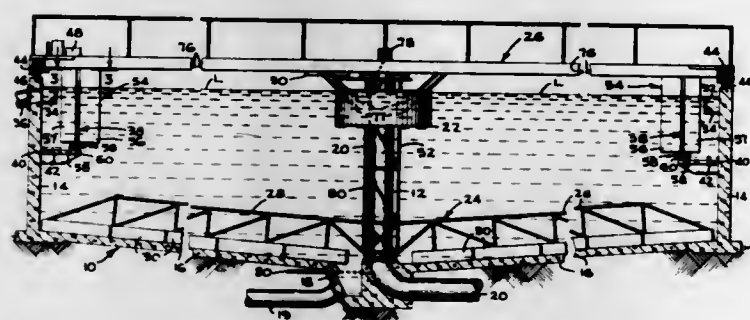
A tractor-trailer comprises a tractor and a trailer whose rear end is provided with an axle turntable about a vertical axis, and whose front end is arranged to rest on and be turnably secured to the rear end of the trailer. A turning arrangement is provided intermediate the front and rear ends of the trailer secured thereto turnable about an additional vertical axis parallel to the first-mentioned one, and a linkage arrangement links the turning arrangement to

the axle of the trailer for turning movement in unison therewith. Limiting means connects the turning arrangement with the tractor so that the turning movement of the axle about its vertical axis, and thereby the angle which can be included between the tractor and the trailer when one of them moves laterally with respect to the other—as in turning a corner—is limited to a predetermined extent.

3,600,305
SONIC FILTER CLEANING APPARATUS AND METHOD
Philip Edgerton, Holicon, Pa., assignor to FMC Corporation, San Jose, Calif.
Filed Apr. 2, 1970, Ser. No. 25,001
Int. Cl. B01d 21/24

U.S. Cl. 210—19

13 Claims



A circular sludge clarification tank, wherein influent sludge enters the tank from a centrally located opening and clarified liquid effluent leaves the tank over an annular weir at the outer circumference of the tank, has an annular filtering screen of slightly less diameter than the collection tank which collects floating and suspended solid particles so as to prevent their exit from the tank with the clarified liquid effluent. A sonic filter cleaner containing sonic transducers and two submersible pumps, straddles the filtering screen and moves circumferentially around the tank while sonically vibrating solid particles off the screen and quickly withdrawing them from the tank with the pumps. The withdrawn solid particles, comprising a slurry of filtrate, are pumped back and introduced into the tank a second time with the influent liquid for recycling.

3,600,306
THIN LAYER CHROMATOGRAPHY METHOD AND APPARATUS
Paul M. Tocci, Miami, Fla., assignor to TLC Corporation, Miami, Fla.
Filed Sept. 5, 1969, Ser. No. 855,477
Int. Cl. B01d 15/08

U.S. Cl. 210—31

19 Claims



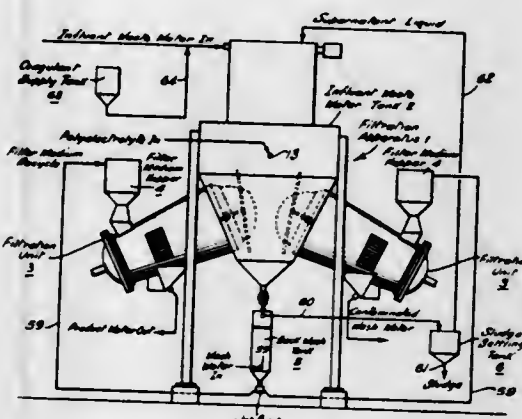
A disposable chromatographic unit which includes (a) a semi-solid solvent, (b) stain, (c) a chromatographic plate, and (d) a chromatography tank in one package. The semi-solid solvents are premixed together with the

stain so as to be available for use at any time. The entire equipment is disposable, the structural parts being made of inexpensive plastic or metal foil which is light weight and which can be thrown away after a single use.

3,600,307
LIQUID PURIFICATION SYSTEM
Edward C. Kehoe, North Caldwell, and Robert Rinaldi, Fairfield, N.J., assignors to Johns-Manville Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 580,780, Sept. 20, 1966. This application Mar. 12, 1968, Ser. No. 716,269
Int. Cl. B01d 23/10

U.S. Cl. 210—33

17 Claims



Suspended organic matter is continuously removed from sewage in a moving bed filter in which waste water flows countercurrent to a compact moving bed of a particular filter medium such as sand. Filtration is preferably carried out in an inclined frusto-conical chamber in which the filter medium moves upwardly. The apparatus can also be used for liquid treatment processes other than filtration.

3,600,308
METHOD OF CLARIFYING AQUEOUS SUSPENSIONS WITH POLYMERIZED LIGNIN DERIVATIVES
George G. Allan, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
No Drawing. Continuation-in-part of application Ser. No. 602,185, Dec. 16, 1966. This application Sept. 12, 1969, Ser. No. 857,542

Int. Cl. C02b 1/20

10 Claims

A forest-derived material for use as a coagulant and the method of use of the coagulant is described. Lignin and ligno-sulfonate materials are reacted with various chemical agents to increase their molecular weight for use as coagulants. The method of using high molecular weight, forest-derived phenolic polymers as coagulants and clarifying agents in aqueous systems is described. The novel coagulants may be used in conjunction with traditionally used coagulants to increase the rate of coagulation.

3,600,309
SOLID LUBRICANT FOR REDUCING DIE-PLATING AND DIE-DRAW DURING THE EXTRUSION OF VISCOUS RUBBER AND ELASTOMERIC PLASTIC COMPOSITIONS
Thomas N. Loser, Yardley, Pa., and Thomas Jones, Piscataway, N.J., assignors to Wyrough & Loser, Inc., Trenton, N.J.
No Drawing. Filed Jan. 12, 1968, Ser. No. 697,308
Int. Cl. C10m 7/28

A new lubricating method and a new solid lubricant composition for reducing die-plating or die-buildup and

die-drag during the extrusion of viscous rubber and elastomeric plastic compositions in the form of a green stock which usually contains reinforcing agents, fillers, pigments, etc., the active lubricant ingredient being finely divided polytetrafluoroethylene granular powder having an average particle size of at least 0.5 micron, preferably 1 to 8 microns, and being effective in an amount of 0.05 to 0.45 part per 100 parts of rubber or plastic elastomer. Especially benefitted are "draggy" extrusion compositions based upon butyl rubber, cross-linked polyethylene, natural rubber, butadiene-acrylonitrile rubber, chlorosulfonated polyethylene rubber (Hypalon), neoprene, ethylene propylene rubbers, styrene-butadiene rubbers, acrylonitrile-butadiene-styrene rubbers, polybutadiene, polyisoprene, epichlorohydrin (Hydrin) rubbers, flexibilized polyvinylchloride, and ethylene vinyl acetate copolymers.

3,600,310
LUBRICANT FOR METAL WORKING
Alan R. Eyres and Jacques C. Dillon-Corneck, Mullica Hill, N.J., assignors to Mobil Oil Corporation, New York, N.Y.
No Drawing. Filed Mar. 20, 1969, Ser. No. 808,987
Claims priority, application Great Britain, Jan. 10, 1969, 1,673/69

Int. Cl. C10m 1/38, 3/04, 5/10

11 Claims

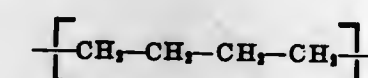
The present invention provides a superior metal rolling lubricant composition useful as a pre-coating oil and as a coating in rolling operations comprising a mineral oil, a fatty acid or the polymers or glycerides thereof, and a wax, preferably a paraffin wax such as slack wax. The composition may also contain a sulfurized mineral oil, or fats, or other sulfur-containing compounds, as well as organic phosphates or phosphites to provide increased protection to the metal surface during coiling and uncoiling. The lubricant composition provided is particularly useful in the cold rolling of steel.

3,600,311
HYDROCARBON SYSTEMS CONTAINING BRANCHED ALKYLENE POLYMERS
Michael I. Naiman, William J. Heintzelman, and Robin A. McLaren, St. Louis, Mo., assignors to Petrolite Corporation, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 432,002, Feb. 11, 1965. This application Sept. 3, 1968, Ser. No. 757,086

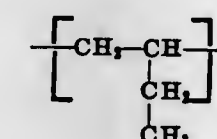
Int. Cl. C10m 1/18

12 Claims

A hydrocarbon system normally subject to the uncontrolled deposition of wax which is improved by the presence therein of a composition comprising branched alkylene polymers, for example alkylene polymers characterized by (1) a molecular weight of about 1,000–50,000; (2) about 90–45%



units, and (3) about 10–55%



units.

These polymers are prepared, for example, from hydrogenated polybutadienes.

These systems include, for example, the use of these branched alkylene polymers as pour point depressants, for

example in petroleum distillates; as viscosity improvers for lube oils; as paraffin deposition inhibitors in petroleum fluids, and the like.

3,600,312
HEAT INSULATION MATERIAL FOR INSULATED CONTAINERS
Robert J. Bohland, North Canton, Ohio, assignor to Diebold, Incorporated, Canton, Ohio
No Drawing. Filed May 26, 1969, Ser. No. 827,980
Int. Cl. C04b 43/00; C09k 3/28; A62c 3/00

U.S. Cl. 252—62
A heat insulating material for the walls of fire-resistive safes, insulated vault doors, and insulated record containers, including water-in-wax capsules in cement and vermiculite containing compositions which form the heat insulating filling material for the walls of such safes, vault doors or containers. The encapsulated water provides an increased water content for the insulating filling, without increasing the "free water" in the filling which can leak from the insulation and initiate mold, odor and rust problems, thereby increasing fire protection while retaining favorable weight characteristics.

3,600,313
COBALT CHROMIUM SULFIDE MAGNETIC COMPOSITIONS HAVING A PYRITE TYPE STRUCTURE AND DEVICES CONTAINING SAME
Paul Christopher Donohue, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Oct. 31, 1969, Ser. No. 873,064
Int. Cl. C04b 35/00; H01b 3/00; H01b 37/32
U.S. Cl. 252—62.51

Magnetic pyrite-type phases having the formula



where $x=0.01$ to 0.4 . The compositions are useful in magnetic switching devices, temperature sensing devices, and the like.

3,600,314
MAGNETIC COMPOSITIONS OF CHROMIUM OXIDE AND METHODS OF MANUFACTURE
Robert S. Haines, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
No Drawing. Filed Dec. 22, 1969, Ser. No. 887,310
Int. Cl. C01g 37/02

U.S. Cl. 252—62.51

7 Claims

This invention relates to the formation of ferromagnetic chromium oxide compositions containing 59% to 62% chromium and 0.05% to 0.90% carbon combined with oxygen, and in the form of uniform, finely divided particles of tetragonal crystalline structure. The process of forming ferromagnetic chromium oxide consists of treating a chromium compound with carbon or carbon containing compound, and then subjecting the mixture to heat and pressure decomposition.

3,600,315
METHODS OF MANUFACTURING MAGNETIC COMPOSITIONS OF CARBON MODIFIED CHROMIUM OXIDE

Robert S. Haines, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
No Drawing. Filed Dec. 22, 1969, Ser. No. 887,412
Int. Cl. C01g 37/02

U.S. Cl. 252—62.51

4 Claims

This invention relates to the formation of ferromagnetic chromium oxide compositions containing 59% to 62% chromium and 0.05% to 0.90% carbon combined with oxygen, and in the form of finely divided particles of tetragonal crystalline structure. The process of forming carbon modified ferromagnetic chromium oxide consists

of mixing a soluble chromium halide compound with an organic complexing agent, associating the complex with additional chromium compound, and then subjecting the mixture to heat and pressure decomposition.

3,600,316

METHOD OF PRODUCING A DESCALING COMPOSITION FROM SODIUM HYDROXIDE, SODIUM AND HYDROGEN UNDER PRESSURE

Jiri Mostecky, Prague, Milan Stanek, Frydek-Mistek, Zdenek Koudela, Novy Bohumin, and Eva Schierova, Ostrava-Poruba, Czechoslovakia, assignors to Lachema, Narodni Podnik, Brno, Czechoslovakia

No Drawing. Filed Aug. 20, 1968, Ser. No. 753,870
Int. Cl. C02b 5/02; C23g 1/28

U.S. Cl. 252—80 7 Claims

A composition for descaling and surface treatment, particularly useful for the treatment of metal surfaces, is produced by reacting at elevated pressure and temperature a mixture of sodium hydroxide, sodium and hydrogen, whereby the hydrogen is supplied in the form of a hydrogen-containing gas under pressure.

3,600,317

NONCAKING DISHWASHING DETERGENT

Anthony Ethelbert Lintner, 920 Berkshire Ave., Pittsburgh, Pa. 15226

No Drawing. Continuation-in-part of application Ser. No. 608,505, Jan. 11, 1967. This application Jan. 27, 1970, Ser. No. 6,319

Int. Cl. C11d 7/56

U.S. Cl. 252—99 7 Claims

A method of making a chemically stable domestic dishwashing detergent is disclosed in which excellent cleaning properties are combined with the ability to resist caking by the controlled addition of, typically, about 2% water to anhydrous sodium tripolyphosphate.

3,600,318

ENZYME-CONTAINING DETERGENT COMPOSITIONS FOR NEUTRAL WASHING

Roy C. Mast, Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Continuation-in-part of application Ser. No. 737,301, June 17, 1968. This application June 2, 1969, Ser. No. 829,787

Int. Cl. C11d 7/18, 7/56

U.S. Cl. 252—99 17 Claims

Enzyme-containing detergent compositions adapted for use under neutral and near-neutral conditions of pH are disclosed. The detergent compositions consist essentially of a synthetic organic detergent characterized by solubility in water of at least 0.05% at about 80° F. to about 130° F., efficient soil-removing and soil-dispersing properties in water in an amount of about 0.05%, resistance to precipitation by hard water mineral ions; 0.001% to 10% of a proteolytic enzyme characterized by proteolytic activity up to about 130° F. in the pH range of from 6 to 8.5; and a proteolytic enzyme-stabilizing neutral inorganic electrolyte salt.

3,600,319

PROCESS FOR APPLICATION OF ENZYMES TO SPRAY-DRIED DETERGENT GRANULES

Burton H. Gedge III, Wyoming, and Charles H. Brain, Mount Healthy, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed June 25, 1968, Ser. No. 739,827

Int. Cl. C11d 9/00, 3/065, 1/18

U.S. Cl. 252—114 6 Claims

Enzymes are applied to spray-dried silicate-containing detergent granules by slurrying enzyme powder in a liquid,

organic vehicle and spraying the slurry onto the granules at a temperature below 140° F.

3,600,320

LOW SUDSING DETERGENT AND CLEANING AGENTS

Edmund Schmadel, Mettmann, and Markus Berg, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

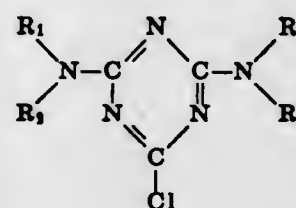
No Drawing. Filed Mar. 27, 1968, Ser. No. 716,314

Claims priority, application Germany, Apr. 1, 1967, H 62,325

Int. Cl. C11d 3/28

U.S. Cl. 252—137 6 Claims

Low sudsing detergent and cleaning compositions containing a water-insoluble triazine derivative of the formula:



wherein R₁ and R₂ each represents hydrogen or an organic radical containing 1 to 24 carbon atoms and R₃ and R₄ each represent an organic radical containing 2 to 24 carbon atoms; said organic radical designating substituted or unsubstituted straight or branched chain aliphatic, cycloaliphatic or aromatic groups which may contain heteroatoms in their chains.

3,600,321

DIMETHYL FORMAMIDE-CONTAINING CORROSION INHIBITOR

Robert J. Tedeschi, Whitehouse Station, and Paul W. Natali, Middletown, N.J., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

No Drawing. Filed Dec. 31, 1968, Ser. No. 789,023

Int. Cl. C11d 7/32

U.S. Cl. 252—148 5 Claims

Aqueous acid solutions are inhibited against corrosion of metals, especially ferrous metals, by incorporation of a corrosion-inhibiting system composed of a combination of 1-hexyn-3-ol, 5-decyn-4,7-diol and dimethyl formamide.

3,600,322

PAINT REMOVAL FORMULATION

Charles R. W. Morison, Clearwater, Fla., assignor to Union Carbide Corporation

No Drawing. Filed May 29, 1968, Ser. No. 732,843

Int. Cl. C09d 9/00; C11d 7/50; C23g 5/02

U.S. Cl. 252—171 3 Claims

A paint remover composition comprising a methylene chloride-methanol solvent and a quaternary nitrogen containing cellulose ether.

3,600,323

METHOD FOR PREPARING STABLE URANIA-PLUTONIA SOLS

Othar K. Tallent, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Oct. 6, 1969, Ser. No. 864,154

Int. Cl. C09k 3/00

U.S. Cl. 252—301.1S 8 Claims

A method for preparing stable urania-plutonia sols which exhibit minimal oxidation-reduction between the tetravalent ionic species is provided by preparing a nitrate-stabilized polymeric tetravalent plutonium sol by alcohol extraction of a plutonium nitrate solution, mixing the

tetravalent plutonium sol with a crystalline, nitrate-stabilized, tetravalent uranium sol and thereafter removing nitrate by solvent extraction.

3,600,324

TERBIUM ACTIVATED STRONTIUM ORTHOPHOSPHATE PHOSPHOR

Alfred Brill and Willem Lambertus Wanmaker, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 23, 1968, Ser. No. 785,911

Claims priority, application Netherlands, Dec. 22, 1967, 6717638

Int. Cl. C09k 1/36

U.S. Cl. 252—301.4P 2 Claims

Terbium activated strontium orthophosphate luminescent material useful as a phosphor in television receiver picture tubes.

3,600,325

AEROSOL FABRIC DE-WRINKLER

Karl L. Kaufman and Doris N. Martin, Indianapolis, Ind., and William J. Brown, Chicago, Ill., assignors to CPC International Inc.

No Drawing. Filed July 2, 1968, Ser. No. 741,882

Int. Cl. C09k 3/30

U.S. Cl. 252—305 4 Claims

This application discloses a fabric de-wrinkler employing an aerosol spray composition which removes wrinkles without the need for pressing or ironing.

3,600,326

PREPARATION OF HYDROPHOBIC SILICA AND USE THEREOF

James D. Wilcox, Fallston, and Joel M. Klein, Baltimore, Md., and Frederick A. Hudson, Jr., Bristol, Conn., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Feb. 27, 1968, Ser. No. 708,493

Int. Cl. B01j 13/00

U.S. Cl. 252—309 8 Claims

The method for preparing hydrophobic silica, the steps comprising milling a mixture comprising colloidal silica, inert solvent, and silicone with subsequent removal of the said solvent. The hydrophobic silica may be combined with millable substances giving use to a product with high dispersibility.

3,600,327

LUBRICATING OIL COMPOSITIONS HAVING IMPROVED SLUDGE DISPERSANCY

Shih-En Hu, Westerfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Filed Feb. 26, 1969, Ser. No. 802,639

Int. Cl. C10m 1/38

U.S. Cl. 252—32.7 7 Claims

Mineral lubricating oil compositions are prepared containing oil-soluble additives having improved sludge inhibition and dispersion, antiwear activity, and antioxidant properties under high temperature conditions. The novel additives are prepared by reacting, at between about 215° and about 255° C., elemental sulfur with oil-soluble hydrocarbons containing aliphatic radicals and reacting the sulfurized product with primary, secondary, or tertiary mono, di or poly aliphatic amines or amino alcohols. Sludge dispersing amounts of these additives are employed in the oil compositions and usually range between about 0.05 and about 10.0 wt. percent of the total composition.

3,600,328

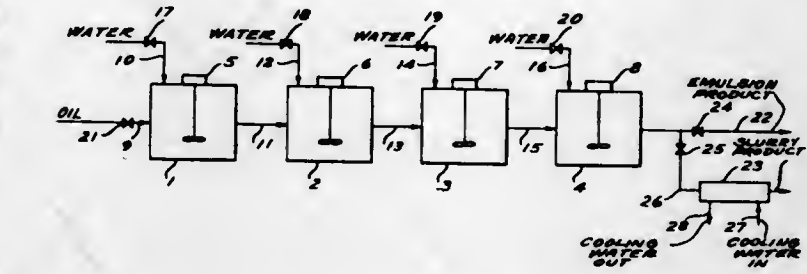
APPARATUS FOR FORMING EMULSIONS

William C. Lieffers, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Original application Mar. 14, 1966, Ser. No. 533,992. Divided and this application Dec. 10, 1968, Ser. No. 785,855

Int. Cl. B01d; B01f; B01i 13/00

U.S. Cl. 252—359C 12 Claims



An apparatus for continuously producing an emulsion of immiscible liquids consisting of an elongated shell defining a mixing chamber through which a first liquid chamber along a substantial length of the chamber and means for introducing a second liquid into the mixing chamber along a substantial length of the chamber whereby an emulsion of second liquid in first liquid is formed and then inverted to an emulsion of first liquid in second liquid.

3,600,329

DIATOMACEOUS EARTH TREATED WITH POLYELECTROLYTE PRODUCT AND A NEW PROCESS FOR PRODUCING IT

Ernesto Enriquez and Luis Espinosa, Mexico City, Mexico, assignors to Kieselguhr de Mexico, S.A., Mexico City, Mexico

Filed Oct. 29, 1968, Ser. No. 771,554

Claims priority, application Mexico, Oct. 30, 1967, 99,299

Int. Cl. B01j 11/58

U.S. Cl. 252—428 3 Claims

Diatomaceous earth product for various uses, particularly suitable as a filtering aid with improved filtration and clarification rates, and method of making said product, by adding to the diatomaceous earth prior to, during or after calcination an anionic, non-ionic or cationic polyelectrolyte in amounts ranging from about 5 to about 10,000 p.p.m. of diatomaceous earth.

3,600,330

METALLIZATION OF INSULATING SUBSTRATES

Frederick W. Schneble, Jr., and Edward J. Leech, Oyster Bay, and Joseph Polichette, South Farmingdale, N.Y., assignors to Photocircuits Division of Kollmorgen Corporation, Hartford, Conn.

Filed Jan. 3, 1967, Ser. No. 607,036

Int. Cl. C23c 3/00

U.S. Cl. 252—430 9 Claims

There are provided compositions to render insulating substrates catalytic to electroless metal deposition comprising materials, e.g., solid agents, having deposited thereon a cationic wetting agent in combination with an elemental form of a metal from Groups I-B and VIII of the Periodic Table of Elements, including mixtures of such metals.

3,600,331
CATALYST CONTAINING COPPER PHOSPHATE AND SILVER PHOSPHATE USEFUL IN THE OXYGENATION OF HYDROGEN HALIDES
 Raymond W. Ingwalson, Chattanooga, Tenn., assignor to Velsicol Chemical Corporation, Chattanooga, Tenn.
 No Drawing. Filed June 18, 1968, Ser. No. 737,810
 Int. Cl. B01j 11/82

U.S. Cl. 252—437 5 Claims
 A catalyst composition which comprises a composite of a catalytic component of a copper phosphate and a silver phosphate and a non-catalytic refractory support. In addition, the catalyst composition can include at least one alkali metal phosphate.

3,600,332
PLATINUM LOADED ZEOLITE
 Philip John Hunter, Twickenham, Middlesex, England, assignor to The British Petroleum Company Limited, London, England
 No Drawing. Filed May 22, 1968, Ser. No. 731,311
 Claims priority, application Great Britain, May 26, 1967, 24,523/67
 Int. Cl. B01j 11/40

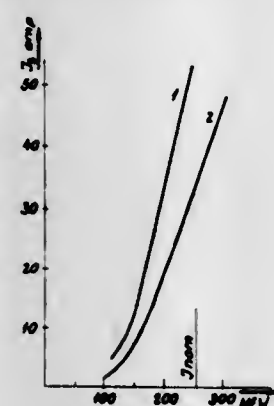
U.S. Cl. 252—455Z 12 Claims
 An alkane dehydrogenation catalyst is made by exchanging platinum group metal ions on to a small pore molecular sieve whose pores are at least as small as those of a 5A sieve. The exchange takes place in two or more stages each separated by a drying and reduction step.

3,600,333
COMPENSATED DETECTOR MATERIAL OF GERMANIUM WITH MERCURY AND GOLD AND METHOD OF COMPENSATING SAME
 Richard A. Reynolds, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
 Filed July 6, 1967, Ser. No. 651,582
 Int. Cl. H01l 3/12

U.S. Cl. 252—501 3 Claims
 A detector material such as mercury sensitized germanium containing acceptor impurity atoms such as copper and Group III elements which have been compensated by a donor impurity such as gold atoms, and a method of compensating the acceptor impurity atoms in the germanium by doping the germanium with gold.

3,600,334
THORIATED CATHODES AND METHOD FOR MAKING THE SAME
 Istvan Koncz, Budapest, Hungary, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
 Continuation-in-part of application Ser. No. 384,500, July 22, 1964. This application Apr. 23, 1968, Ser. No. 727,136
 Int. Cl. H01b 1/00

U.S. Cl. 252—515 10 Claims



Thoriated hot cathodes in which the metal carbide such as W_2C or Mo_2C is transformed from hexagonal to body centered cubic modification. This is done at an elevated temperature by way of a solid-state reaction, in the presence of a suitable metal catalyst.

3,600,335
MODIFIED POLYVINYL CHLORIDE FOAMS, PREPARATION THEREOF AND APPLICATIONS THEREFOR
 Michio Fukushima, Suita-shi, and Motoshi Mitarai, Nishinomiya-shi, Japan, assignors to Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha, Kita-ku, Osaka-shi, Japan
 Filed Dec. 15, 1967, Ser. No. 690,789
 Int. Cl. C08f 47/10, 29/24, 45/36

U.S. Cl. 260—2.5P 3 Claims
 Colorless polyvinyl chloride foams of greatly enhanced softness and elasticity, and with greatly improved fineness and uniformity of cell distribution, are obtained by blending 30 to 150 parts by weight of the total amount of a vinyl acetate-ethylene copolymer with a vinyl acetate content of 30% to 80% by weight and a liquid plasticizer in the proportion of 3% to 60% by weight of the former in the total amount of both together with 100 parts by weight of a polyvinyl chloride resin and by heating the obtained resinous mixture to an elevated temperature at which the foaming agent so decomposes as to be foamed.

3,600,336
POLYAMIDE RESIN FOAM AND A METHOD OF PREPARING THE SAME
 Hiroshi Okada and Atsushi Osakada, Ohtsu-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
 Filed Feb. 19, 1968, Ser. No. 706,496
 Claims priority, application Japan, Feb. 18, 1967, 42/10,162; May 15, 1967, 42/30,327
 Int. Cl. C08g 53/10, 41/04

U.S. Cl. 260—2.5 10 Claims
 A polyamide resin foam comprising a polyamide resin base cross-linked with an organic compound having in the molecule at least two reactive unsaturated double bonds. A method of preparing a polyamide resin foam which comprises uniformly mixing a polyamide with an organic compound having in the molecule at least two reactive unsaturated double bonds and a chemical foaming agent at a temperature higher than the softening point of said polyamide, irradiating said mixture with ionizing rays to effect a cross-linking of the polyamide, and heating the mixture to a temperature higher than the decomposition temperature of said foaming agent to cause foaming.

3,600,337
PROCESS OF MAKING EPOXY CELLULAR PLASTICS
 Edgar Fischer and Ernst Nölken, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Filed Mar. 7, 1968, Ser. No. 711,180
 Claims priority, application Germany, Mar. 10, 1967, F 57,786
 Int. Cl. C08f 47/10; C08j 1/16, 1/26

U.S. Cl. 260—2.5 5 Claims
 Epoxy cellular plastics are produced by foaming and curing an epoxy resin in the presence of a blowing agent, an aliphatic or cycloaliphatic polyhydric alcohol and a Lewis acid or an addition- or complex compound of a Lewis acid.

3,600,338
POLYURETHANE RESINS
 Hyman M. Molotsky, Chicago, Ill., assignor to CPC International Inc.
 No Drawing. Filed Apr. 2, 1968, Ser. No. 718,195
 Int. Cl. C08g 22/14, 22/44
 U.S. Cl. 260—2.5AS 21 Claims
 Polyurethane resins formed by reacting an organic polyisocyanate and an alkoxylated starch hydrolysate prepared

by alkoxylating a starch hydrolysate containing at least one reducing saccharide. The resins may be used as coatings or foams, either of the flexible or rigid type, as binders in the foundry process of making cores or molds, or for other uses. Also a method of preparing the above polyurethanes.

3,600,339
POLYURETHANE FOAMS FROM HYDROXY PHOSPHONATES
 Charles F. Baranaukas and Irving Gordon, Niagara Falls, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
 No Drawing. Division of application Ser. No. 678,157, Oct. 23, 1967, now Patent No. 3,515,776, which is a continuation of application Ser. No. 348,252, Feb. 28, 1964. This application Jan. 3, 1969, Ser. No. 803,513
 Int. Cl. C08g 22/44

U.S. Cl. 260—2.5 20 Claims
 Polyurethane foams are made flame retardant by including hydroxy-containing phosphonates in the reaction mixture.

3,600,340
POLYURETHANE FOAM
 John T. Patton, Jr., Wyandotte, and Louis C. Pizzini, Trenton, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.
 No Drawing. Filed June 30, 1969, Ser. No. 837,882
 Int. Cl. C08g 22/44, 41/04, 51/14
 U.S. Cl. 260—2.5 2 Claims
 Resilient cellular material comprising a cellular mass of polyurethane and fine particles of polyethylene resin.

3,600,341
ABLATIVE CHAR-FORMING COMPOSITIONS CONTAINING AN INTRACTABLE POLYPHENYLENE POLYMER
 Donald L. Schmidt and Paul F. Pirrung, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Air Force
 No Drawing. Filed Nov. 8, 1966, Ser. No. 593,244
 Int. Cl. C08g 37/16, 51/08, 51/10
 U.S. Cl. 260—13 14 Claims

This invention contemplates novel plastic compositions, filled plastic composites, and coating materials wherein the said plastic composition is composed of an intimate mixture of intractable polyphenylene polymer and a cross-linkable thermosetting polymer. The invention further contemplates new high temperature, thermal shielding and thermal control uses for the polyphenylene modified polymers and composites, which are made possible by the superior char forming characteristics of the resinous matrix.

3,600,342
POLYVINYL ALCOHOL-GLYOXAL-POLYOL ADHESIVE COMPOSITION
 Ralph F. Nickerson and Harold D. Weymouth, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.
 No Drawing. Filed Nov. 12, 1968, Ser. No. 775,146
 Int. Cl. C09j 3/16

U.S. Cl. 260—17 17 Claims
 Disclosed herein is an adhesive composition comprising (A) a polyvinyl alcohol resin, (B) glyoxal and (C) a polyol selected from the group consisting of cis 1,2-polyols and certain 1,3-polyols. The adhesive compositions may contain minor amounts of adjuvants such as inert fillers

or extenders, methyl cellulose, potassium triphosphate, sodium acetate and mixtures thereof.

3,600,343
PROCESS FOR THE MANUFACTURE OF COPOLYMER DISPERSIONS OF HIGH PIGMENT TOLERANCE
 Michael Lederer and Siegfried Sommer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Continuation of application Ser. No. 586,392, Oct. 13, 1966. This application July 28, 1969, Ser. No. 863,401
 Int. Cl. C08f 1/13, 15/40

U.S. Cl. 260—17 6 Claims
 Latexes of interpolymers of vinyl chloride, vinyl esters of branched aliphatic carboxylic acids, and acrylic acid esters which show unusual compatibility with dry pigments are prepared by polymerizing the monomer mixture in an aqueous solution containing hydroxyethyl cellulose of 37 to 50% oxyethylene content, an oxyethylated alkyl phenol, and a second anionic emulsifier such as an alkyl-sulfate or alkylsulfonate salt.

3,600,344
HYDROPHYLIC AIR DRYING SYNTHETIC RESINS THAT ARE USEFUL AS BINDERS IN WATER-DILUTABLE LACQUERS AND THEIR METHOD OF PREPARATION WITH BORON AND ITS OXYGEN CONTAINING COMPOUNDS
 Bernhard Broecker and Hans-Joachim Kiessling, Hamburg, Germany, assignors to Reichhold-Albert-Chemie Aktiengesellschaft, Hamburg, Germany
 No Drawing. Filed Feb. 4, 1969, Ser. No. 796,604
 Claims priority, application Switzerland, Feb. 5, 1968, 1,742/68
 Int. Cl. C08g 37/18

U.S. Cl. 260—19 4 Claims
 Water-soluble air drying synthetic resins from drying and/or semi-drying oils comprising:
 (a) fatty acid free condensation products of fatty acids, wherein fatty acid which is free of hydroxyl groups and is at least partially unsaturated and has at least 6 carbon atoms, which contain a predominant amount of such fatty acids free of hydroxyl groups or monoketones derived therefrom, is condensed in the presence of a small quantity of boron or of its oxygen-containing compounds as a condensation catalyst to a temperature of between about 230–330° C. with azeotropic removal of the resulting water of reaction and return of the evaporated fatty acids, with the condensation product containing at least 40% of unsaponifiable matter having a mean molecular weight corresponding to the calculated molecular weight of a condensation product of at least 3 molecules of the corresponding fatty acids and the unreacted fatty acids are substantially separated off from the reaction mixture by extraction or distillation;
 (b) reacting by heating with such quantities of α,β -ethylenically unsaturated monocarboxylic and/or polycarboxylic acids and to the extent they exist, their anhydrides;
 (c) optionally in the presence of other vinyl or vinylidene compounds;
 (d) the reaction products having an acid number of at least 35; and
 (e) neutralized at temperatures of below 50° C. with such quantities of ammonia and/or strong nitrogen bases that the reaction products are adequately capable of dispersion in water or dilution with water.

3,600,345

IMPROVED PREPOLYMER-MODIFIED ALKYD RESINS

Eli Levine, Union, and Robert F. Singer, Middlesex, N.J., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Filed Sept. 16, 1969, Ser. No. 858,529
Int. Cl. C08g 17/16; C09d 3/64

U.S. Cl. 260—22CB 7 Claims
An improved prepolymer-modified alkyd resin is produced by forming the polycondensation product of a polyhydric alcohol (e.g., pentaerythritol), a fatty acid or fatty acid oil (e.g., safflower fatty acids or safflower oil), a polycarboxylic acid or anhydride thereof (e.g., phthalic acid or phthalic anhydride), and a prepolymer derived from (1) a carboxy-substituted, ethylenically unsaturated polymerizable monomer (e.g., methacrylic acid); (2) a hydroxy-substituted, ethylenically unsaturated, polymerizable monomer (e.g., 2-hydroxyethyl methacrylate); and (3) a non-carboxy-non-hydroxy-substituted, ethylenically unsaturated, polymerizable monomer (e.g., methyl methacrylate, ethyl acrylate).

3,600,346

METHOD AND COMPOSITION FOR OBTAINING PAINTED SURFACES WITH GRAINED AND ANTIQUED EFFECTS

Carmine A. Spatola, 465 Ocean Parkway
Brooklyn, N.Y. 11218
No Drawing. Filed Feb. 12, 1969, Ser. No. 798,779
Int. Cl. C09d 3/48, 3/64, 5/28

U.S. Cl. 260—22R 15 Claims
Grained and antique finishes are obtained by applying to a surface a paint containing a suspension of the principal pigment in a paint vehicle and also a suspension of a secondary pigment contained in a carrier which is incompatible with the paint vehicle. The initial application of paint provides a coating of the principal pigment. Pressure is then applied to the wet paint to bring out the secondary pigment and provide a grained and antique appearance.

3,600,347

HOT MELT ADHESIVE FOR POLYETHYLENE

Joseph Lambert Godar, Jr., Wauconda, Ill., assignor to American Can Company, New York, N.Y.
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,477
Int. Cl. C09j 3/26

U.S. Cl. 260—27 10 Claims
A hot melt adhesive composition for polyethylene containing a homogeneous mixture of different copolymers of ethylene and vinyl acetate, atactic polypropylene, and plural tackifying resins.

3,600,348

COATING COMPOSITION FOR WOODEN CONCRETE FORMS AND METHOD OF PREPARING WOODEN FORMS HAVING IMPROVED CONCRETE ANTI-STICKING CHARACTERISTICS

Earl L. Humphrey, Verona, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Sept. 24, 1969, Ser. No. 860,782
Int. Cl. C08f 45/52; B29c 1/04

U.S. Cl. 260—28.5A 12 Claims
Wooden concrete forms having improved concrete anti-sticking characteristics are obtained by applying to the concrete-contacting surfaces of the forms a coating composition consisting essentially of a mixture of (1) a hydrocarbon resin derived from a cyclic olefin such as a resin of dicyclopentadiene; (2) mineral oil having a viscosity of about 100 to about 1000 SUS at 100° F.; (3) paraffin wax having a melting point of about 120° to about 155° F.; and (4) a hydrocarbon distillate solvent, e.g., Stoddard solvent, kerosene, etc.

3,600,349

METHOD FOR CONTROLLING REACTION RATE IN AQUEOUS EMULSION POLYMERIZATION TO FORM ELASTOMERIC POLYMERS

John M. Stone, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation, Baton Rouge, La.
Filed May 1, 1969, Ser. No. 820,868
Int. Cl. C08d 7/00, 1/09; B08f 1/13

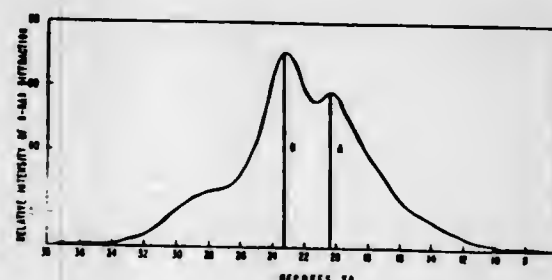
U.S. Cl. 260—29.7 7 Claims
Means and method for controlling reaction rate in the polymerization to form elastomeric polymers and copolymers of butadiene in which use is made of a pre-reactor in advance of the reaction vessels through which the monomeric materials are caused to flow with a small fraction of the catalyst and measurement is made of the temperature rise generated by the exothermic reaction for adjustment of the catalyst additions to control reaction rate.

3,600,350

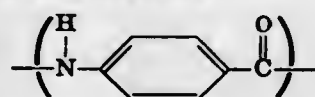
POLY(p-BENZAMIDE) COMPOSITION, PROCESS AND PRODUCT

Stephanie Louise Kwolek, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 644,851, June 9, 1967, which is a continuation-in-part of application Ser. No. 556,934, June 13, 1966. This application Apr. 20, 1970, Ser. No. 30,090

Int. Cl. C08g 20/00, 51/44 21 Claims
U.S. Cl. 260—32.6



High molecular weight polymers consisting essentially of recurring units of the formula



and certain copolymers thereof are useful for the production of fibers having a high initial modulus.

3,600,351

INTERCONNECTED RUBBERS STABILIZED WITH BORATES

Jerry Donald Hunt, Cuyahoga Falls, and Robert Paul Spitz, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed June 18, 1969, Ser. No. 834,541
Int. Cl. C08d 5/02, 11/04

U.S. Cl. 260—33.6AQ 6 Claims
Unvulcanized rubbery interconnected polymers derived from linear homopolymers of conjugated dienes of 4 and 5 carbon atoms and linear copolymers thereof with olefins, are stabilized with trialkyl and triaryl borates.

3,600,352

SILICONE CONSTRUCTION SEALANT

George M. DuJack, Troy, N.Y., assignor to General Electric Company
No Drawing. Filed June 10, 1968, Ser. No. 735,589
Int. Cl. C08g 47/04

U.S. Cl. 260—37 6 Claims
A construction sealant contains a silicone resin and microcrystalline magnesium silicate fibers.

3,600,353

MODIFIED RESORCINOL-BASED ADHESIVE

Edgar Bradbury Baker, Springfield, Oreg., assignor to Borden, Inc., New York, N.Y.
No Drawing. Filed Mar. 21, 1969, Ser. No. 809,391
Int. Cl. C08g 51/04, 37/16

U.S. Cl. 260—38 5 Claims
This invention relates to a method of gluing wood, wood articles and the like with resorcinol-based resin adhesives, said adhesives comprising a resorcinol-based resin and a vinyl acetate polymer in an amount up to about 10% of the resorcinol-based resin solids and the method comprising applying the thus modified adhesive at a total solids level corresponding to between about 80% and about 90% of the level normally required in the case of resorcinol-based resin adhesives not containing vinyl acetate polymers whereby boil-proof and weather-resistant bonds are created not substantially different from the bonds obtainable with the unmodified resorcinol-based resin under the same conditions of assembly and cure.

3,600,354

PIGMENT/POLYMER CONCENTRATE AND METHOD FOR ITS PREPARATION AND USE

Ernst-Guenter Kunze, Frankfurt am Main, Rudi Groepler, Schoneberg, Tannus, Robert Lauerbach-Lehmeier, Frankfurt am Main, and Herbert Toepper, Obertshausen, Germany, assignors to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen
No Drawing. Filed Aug. 23, 1968, Ser. No. 754,974
Claims priority, application Germany, Sept. 7, 1967, V 34,399

Int. Cl. C08b 27/02; C08f 45/02; C08g 51/02 12 Claims
U.S. Cl. 260—40
A pigment/polymer concentrate and method for its preparation comprising treating solid polymer particles to roughen the surfaces thereof, incorporating pigment into said roughened surfaces at a temperature below the softening temperature of said polymer, forming larger concentrate granules by heating and agitating the treated polymer particles at a temperature between the softening temperature and the melting temperature of said polymer to sinter the treated polymer particles together at their contact surfaces with inclusion of further pigment particles therebetween. The term "pigment" includes other particulate conventional additives.

3,600,355

ABS AND HYDROCARBON POLYMERS STABILIZED WITH BORON ESTER-BENZOTRIAZOLE MIXTURES

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Division of application Ser. No. 710,782, Mar. 6, 1968, now Patent No. 3,518,193, which is a continuation-in-part of applications Ser. No. 367,854, May 15, 1964, now Patent No. 3,382,208, and Ser. No. 559,410, June 22, 1966, now Patent No. 3,445,422, the latter being a division of application Ser. No. 366,921, May 12, 1964, now Patent No. 3,301,888. This application Dec. 4, 1969, Ser. No. 882,290

Int. Cl. C08f 45/60 18 Claims
U.S. Cl. 260—45.8N
Solid polymer stabilized against deterioration due to one or both of ultraviolet light or oxidative deterioration containing, as an inhibitor against said deterioration, a stabilizing concentration of a synergistic mixture of about 10% to about 90% by weight of a boron ester of N,N-dihydrocarbyl-alkanolamine or boron ester of polyalkyl-

or polycyclo-alkylpolyhydroxyalkyl-alkylenepolyamine and about 10% to about 90% by weight of an N-hydroxy-phenyl-benzotriazole.

3,600,356

LIQUID CURING AGENTS FOR POLYEPOXIDES COMPRISED OF A MIXTURE OF ISOMERS OF TETRAHYDROPHthalic ANHYDRIDE AND HEXAHYDROPHthalic ANHYDRIDE

Koichi Murai, Kyoto-fu, and Gilch Akazome, Yasuto Murakami, Koichi Tabata, Yoshio Oka, and Akira Fujita, Kyoto-shi, Japan, assignors to New Japan Chemical Company Limited, Kyoto-shi, Japan
No Drawing. Filed Mar. 24, 1969, Ser. No. 809,982
Claims priority, application Japan, Apr. 6, 1968, 43/22,976

Int. Cl. C08g 30/12 3 Claims
U.S. Cl. 260—47
A liquid curing agent for polyepoxide which comprises a mixture of the isomers of tetrahydrophthalic anhydride having a solidifying point of 5 to 20° C. and 5 to 60 weight percent of hexahydrophthalic anhydride, based on the combined weight of said isomer mixture and hexahydrophthalic anhydride.

3,600,357

OPTICALLY BRIGHTENED POLYESTERS CONTAINING SEGMENTS DERIVED FROM 2,5-DIMETHOXYCINNAMIC ACID

Mary J. Stewart, Riddlewood, Media, and John A. Price, Swarthmore, Pa., assignors to FMC Corporation, Philadelphia, Pa.
No Drawing. Filed Apr. 18, 1969, Ser. No. 817,552
Int. Cl. C08g 17/08, 17/14

U.S. Cl. 260—47 3 Claims
A copolyester resin comprising the condensation product of (a) a saturated dicarboxylic acid or its lower alkyl diester, (b) a lower aliphatic glycol, and (c) a minor proportion of 2,5-dimethoxycinnamic acid or its lower alkyl ester.

3,600,358

POLYURETHANE-UREA ELASTOMERS PREPARED FROM 4,4'-METHYLENE BIS (CYCLOHEXYLISOCYANATE), NEOPENTYL ADIPATE AND AN AROMATIC DIAMINE

Bernard Taub, Williamsville, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Jan. 28, 1969, Ser. No. 794,770
Int. Cl. C08g 22/10

U.S. Cl. 260—75NH 10 Claims
Polyurethane elastomers having improved hydrolytic stability are prepared from 4,4'-methylene bis(cyclohexylisocyanate), neopentyl adipate polyester and an aromatic diamine.

3,600,359

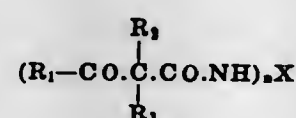
NOVEL THIOURETHANE-URETHANE ACRYLATES

Thomas J. Miranda, Granger, Ind., assignor to The O'Brien Corporation, South Bend, Ind.
No Drawing. Filed Nov. 21, 1968, Ser. No. 777,914
Int. Cl. C08g 22/04

U.S. Cl. 260—77.5 18 Claims
A radiation curable compound is produced by reacting a polymercapto compound, a stoichiometric excess of a polyisocyanate (determined on the basis of the mercapto groups) and a hydroxy acrylate.

3,600,360
METHOD OF MANUFACTURING POLYAMIDES BY ALKALINE POLYMERIZATION OF LACTAMS HAVING AN AT LEAST 7-MEMBERED RING
 Zbyněk Bukač, Jiří Tomka, and Jan Šebenda, Prague, Czechoslovakia, assignors to Československá Akademie Věd, Prague, Czechoslovakia
 No Drawing. Filed July 12, 1968, Ser. No. 744,338
 Claims priority, application Czechoslovakia, July 18, 1967, 5,276/67, 5,277/67
 Int. Cl. C08g 20/18

U.S. Cl. 260—78L 6 Claims
 The method consists in carrying out the known alkaline polymerization of lactams, having an at least seven-membered ring, in the presence of a compound of the general formula



wherein X is the rest of the used amine with n amino groups, R_1 , R_2 and R_3 are alkyl, cycloalkyl, aryl or aralkyl groups with 1 to 18 carbon atoms, either separated or forming together a ring, n is an integer, and either R_2 or R_3 can be also a hydrogen atom, if n is greater than 1.

The rest X can be either plain or substituted hydrocarbon radical such as alkylene, arylene, dialkyl ether, dialkyl thioether, diaryl thioether, diarylsulfone, dialkyl amine, diaryl amine, polyvinyl- or polystyryl rest derived from the corresponding amine with n amino groups. Any substituent on the rest X, which does not interfere with activated alkaline polymerization of lactams can be used, that is any chemically inert, non-acidic substituent such as alkyl, alkoxy and the like.

3,600,361
PROCESS FOR DRYING POLYAMIDE-ACID/IMIDE FILM

James Flavie Heacock, Circleville, Ohio, and Arthur Walter Sweeney, North Tonawanda, N.Y., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 11, 1969, Ser. No. 832,081
 Int. Cl. C08g 20/32

U.S. Cl. 260—78TF 6 Claims
 A process is provided for drying polyamide-acid/imide film wherein a gel-film structure is subjected to the simultaneous action of heat and pressure as by passing a gel-film of 9.5 mil thickness through a 4 mil nip of a pair of rotating nip rolls at a temperature of about 250° C. thereby to obtain a polyimide film.

3,600,362
EPOXY RESIN CURED WITH LIQUID RESINOUS AMINE CURING AGENTS

Frank N. Hirose, Monterey Park, Calif., assignor to Furane Plastics Incorporated, Los Angeles, Calif.

No Drawing. Filed June 12, 1969, Ser. No. 832,863
 Int. Cl. C08g 51/04

U.S. Cl. 260—37EP 3 Claims
 An uncured epoxy resin composition is prepared by mixing an uncured epoxy resin and a resinous liquid and hardening agent which has been prepared by reacting an aromatic polyamine with an active aldehyde compound in proportions which yield a resinous liquid product which selectively may be of low to high viscosity, which uncured epoxy mixture has a long working life, and upon curing yields a cured epoxy resin of unusually high resistance to high temperatures.

3,600,363
POLYAMIDE HAVING CYCLOHEXANE RING PREPARED BY POLYMERIZING 4-AMINOMETHYL-CYCLOHEXANE-1-CARBOXYLIC ACID IN THE PRESENCE OF WATER
 Shigeyuki Suzuki, Kanagawa, and Hitoaki Takita, Masaaki Takahashi, and Kiro Asano, Tokyo, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
 No Drawing. Filed June 26, 1969, Ser. No. 836,969
 Claims priority, application Japan, June 26, 1968, 43/44,107

Int. Cl. C08g 20/00, 20/02, 20/12 8 Claims
 U.S. Cl. 260—78
 A process for producing a polymer of 4-aminomethyl-cyclohexane-1-carboxylic acid, or a copolymer of the acid with ϵ -caprolactam including conducting the polymerization in the presence of from 20 to 150% water, and at a temperature of from 180 to 340° C.

3,600,364
PROCESS OF PREPARING ETHYLENE COPOLYMERS

Haider Beg Mirza and Semih Zaim, Sarnia, Ontario, Canada, assignors to Polymer Corporation, Sarnia, Ontario, Canada

Filed Oct. 19, 1967, Ser. No. 676,523
 Claims priority, application Canada, Oct. 24, 1966, 973,877

Int. Cl. C08f 15/40 6 Claims
 U.S. Cl. 260—80.78
 Rubbery amorphous copolymers of ethylene and at least one other olefin are prepared in a continuous system by feeding the reactant in liquid feed streams to a rapidly agitated reactor, the residence time in the reactor being from six seconds to six minutes and the reaction temperature being maintained by pre-cooling of the feed prior to entry into the reactor.

3,600,365
POLYESTERS FROM POLYCARBOXYLATES AND POLYHALIDES

Donnie G. Brady, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Aug. 19, 1969, Ser. No. 851,482
 Int. Cl. C08g 17/013, 17/04

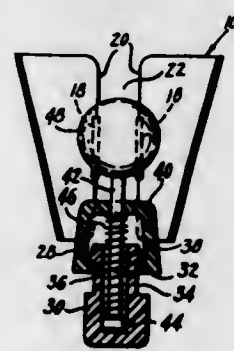
U.S. Cl. 260—78.4 14 Claims
 Preparation of polyesters from organic polyhalides and salts of polycarboxylic acids in effective yield in short reaction times by using, as catalysts, phosphines or quaternary phosphonium salts. The method optionally uses a soluble monohalide with the phosphines for further increases in polyester yield.

3,600,366
BLEACHING OF POLYMALEATE HOMOPOLYMERS AND COPOLYMERS

David C. Heckert, Oxford, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 10, 1969, Ser. No. 884,001
 Int. Cl. C08f 1/88, 3/70

U.S. Cl. 260—78.4R 9 Claims



The bleaching of polymaleate homopolymers and copolymers by the process which comprises treating a poly-

maleate material with chlorine dioxide in the presence of an aqueous solvent.

3,600,367
PROCESS AND CATALYSTS WHICH ARE SUPPORTED ON PARTIALLY UNSATURATED MACROMOLECULAR COMPOUNDS FOR THE POLYMERIZATION AND COPOLYMERIZATION OF OLEFINS AND THE RESULTANT POLYMERS AND COPOLYMERS

Andre Delboulle, Brussels, and Jean-Louis Derroitte, Barvaux-sur-Ourthe, Belgium, assignors to Solvay & Cie, Brussels, Belgium

Filed Feb. 21, 1967, Ser. No. 617,598
 Claims priority, application Belgium, Feb. 23, 1966, 24,410; May 23, 1966, 28,431, Patent 681,400
 Int. Cl. C08f 3/02, 15/04

U.S. Cl. 260—80.78 14 Claims
 Olefins are polymerized and copolymerized in the presence of a catalyst constituted of the reaction product of one or more transition metal compounds, and a macromolecular compound containing carbon-carbon double bonds in its molecule and an activator which is a metal, a hydride or an organo-metallic compound of metals of Groups I to III of the Periodic Table.

3,600,368
PROCESS FOR THE MANUFACTURE OF AMORPHOUS COPOLYMERS

Helmut Schaum, Bad Soden, Taunus, and Hans Emde and Kurt Benedikter, Marl, Germany, assignors to Buna-werke Huls Gesellschaft mit beschränkter Haftung, Marl, Germany

Filed Apr. 1, 1968, Ser. No. 717,760
 Claims priority, application Germany, Apr. 5, 1967, F 52,030
 Int. Cl. C08f 15/40

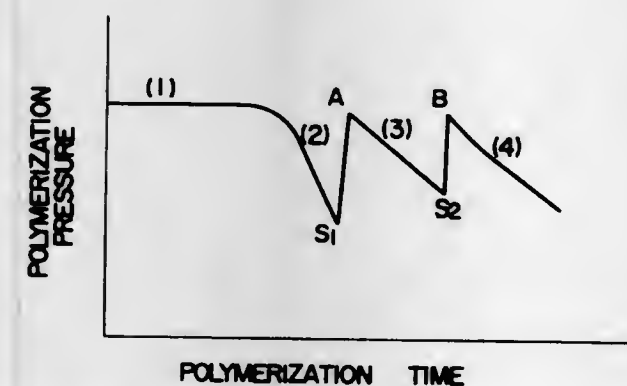
U.S. Cl. 260—80.78 14 Claims
 The present invention relates to a process for the manufacture of copolymers from ethylene and higher α -olefins in suspension with modified organometal mixed catalyst. The mixed catalysts are modified by the addition of certain amounts of a perchlorocrotonic acid halide or ester respectively. This modification results in a catalyst system which is active enough as to avoid an aqueous working-up procedure and regeneration of the solvent.

3,600,369
PRODUCTION AND POWDER COATING OF POLY-VINYLDENE FLUORIDE POLYMER MATERIALS

Yasushi Toyoda, Hajime Ishii, and Nobuo Bannai, Iwakashi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed July 11, 1967, Ser. No. 656,308
 Claims priority, application Japan, July 15, 1966, 41/45,897; Apr. 14, 1967, 42/23,743
 Int. Cl. C08f 1/11, 3/22

U.S. Cl. 260—92.1 1 Claim



Suspension polymerization at a temperature below 40 degrees C. of a vinylidene fluoride monomer substance with at least one intermediate charge of supplementary

vinylidene fluoride monomer at a time when the polymerization pressure drops is carried out to produce vinylidene fluoride polymer materials in the form of spherical particles having intrinsic viscosities of from 0.4 to 1.2, particle size distributions in the range of from 5 to 300 microns, and apparent densities of from 0.3 to 0.7 gram/cc. and having high suitability for powder coating to form film coatings having good properties.

3,600,370
POLYMERIZATION PROCESS AND CATALYST SYSTEM

Lawrence M. Fodor, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,635
 Int. Cl. C08f 1/56, 3/10

U.S. Cl. 260—93.7 6 Claims
 Utilization of a catalyst system formed by admixing (a) a compound of the formula R_nAlX_{3-n} ; (b) a titanium trichloride-aluminum trichloride complex of the approximate formula $TiCl_3 \cdot 1/3 AlCl_3$; and (c) a tetrakis (halo-alkyl) phosphonium halide of the formula $[(XR')_4P^+]X^-$ in the polymerization of 1-olefins results in the production of polymers having improved properties. In the above formulas, R is selected from alkyl, cycloalkyl and aryl groups, and combinations thereof, having from 1 to 12 carbon atoms, R' is an alkylene group containing 1 to 4 carbon atoms, n is 1, 2 or mixtures thereof, and X is halogen.

3,600,371
RECOVERY OF POLYETHYLENE FROM SOLUTION

Stanley J. Marwill, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Nov. 12, 1968, Ser. No. 774,726
 Int. Cl. C08f 1/88

U.S. Cl. 260—94.9 6 Claims
 In the recovery of a normally solid polymer from a solution thereof by flashing into a low-pressure chamber containing a chopper wherein the solvent vaporizes and the precipitated polymer is chopped into small particles, there is provided the improvement of controlling temperature in the chamber by injection of liquid solvent in response to chamber temperature.

3,600,372
CARBON DISULFIDE TREATED MANNICH CONDENSATION PRODUCTS

John H. Udelhofen, Glenwood, Ill., and Roger W. Watson, Highland, Ind., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed June 4, 1968, Ser. No. 734,229
 Int. Cl. C07g 17/00; C10m 1/38

U.S. Cl. 260—132 8 Claims
 An ashless dispersion for lubricant which is made by reacting carbon disulfide or carbon disulfide and an alkali metal hydroxide with a Mannich condensation product.

3,600,373
CONVERSION PRODUCTS OF COMPLEX METAL COMPOUNDS OF AZO DYESTUFFS WITH A BASIC DYESTUFF

Christian Zickendraht, Binningen, and Alfred Fasciati, Böttlingen, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Jan. 16, 1968, Ser. No. 698,109
 Claims priority, application Switzerland, Jan. 25, 1967, 1,071/67

Int. Cl. C09b 45/16, 45/20; D06p 1/10
 U.S. Cl. 260—146R 7 Claims

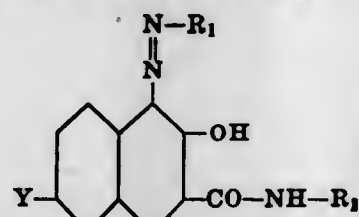
The invention relates to conversion products of complex metal compounds of azo dyestuffs which contain a basic dyestuff and a complex metal compound of an azo dyestuff free from sulphonic acid groups and also free

from carboxyl groups not in vicinal position to an azo bridge and which contains a sulphonic acid-N-alkoxyalkylamide group. Said conversion products are suitable for dyeing or coloring natural or synthetic resins, waxes, lacquers and plastic compositions and show good fastness to light.

3,600,374
PHENYL-AZO-NAPHTHOIC ACID AMIDE PIGMENTS CONTAINING A NAPHTHOSTYRIL GROUP

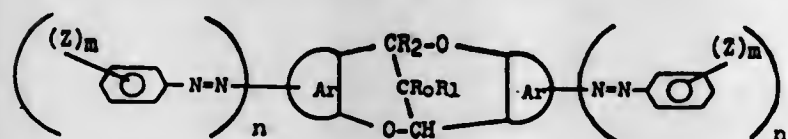
Rudolf Mory, Dornach, Switzerland, assignor to Ciba Limited, Basel, Switzerland
No Drawing. Filed Mar. 1, 1968, Ser. No. 709,828
Claims priority, application Switzerland, Mar. 6, 1967, 3,239/67
Int. Cl. C07c 107/08; C09b 29/20
U.S. Cl. 260—152 9 Claims

Monoazo dyestuffs of the formula



in which Y represents a hydrogen or a halogen atom or an alkoxy or cyano group, R₁ represents a naphthostyryl radical and R₂ represents a benzene radical are valuable pigments which color plastic masses red shades of excellent fastness to light and migration.

3,600,375
AZOMETHANODIOXOCINS
Chun-Shan Wang, Midland, and Henry E. Hennis, Coleman, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,488
Int. Cl. A611 13/00; C07c 107/00; C09b 29/00
U.S. Cl. 260—152 13 Claims



where Ar is a homocyclic or heterocyclic substituted or unsubstituted aromatic ring; m and n are integers of from 0 to 2 inclusive; R₀ is H; R₁ is H, aryl or alkyl; R₀ and R₁ may together with the C to which they are attached form the cyclohexane ring; R₂ is H, aryl or alkyl and Z is hydroxy or a dialkylamino group, are produced by a process comprising reacting by contacting the appropriate diazonium salt with the appropriate phenol or N,N-dialkylaniline. The new azomethanodioxocins have bacteriocidal activity and are excellent dyes and pH indicators.

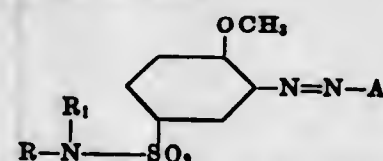
3,600,376
METHOD OF PREPARING J-ACID UREA DISAZO DYE STUFFS

Richard C. Franklin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Oct. 3, 1968, Ser. No. 764,966
Int. Cl. C09b 35/26; D06p 1/04; D21h 1/46
U.S. Cl. 260—175 4 Claims

Direct bis(aryloxy- and sulfoaryloxy)-J-acid urea dye-stuffs, useful for dyeing cellulosic materials, their preparation by a process which comprises coupling an aryl or sulfoaryl diazonium compound to J-acid urea in a neutral to alkaline aqueous medium to which is added a lithium base selected from the hydroxide, bicarbonate and carbonate, and stable, uniform, aqueous, dye pastes of said dyes.

3,600,377
MONOAZO DYES FOR NYLON
Hans Alfred Stengl, Brookside Heights, N.J., assignor to Toms River Chemical Corporation, Toms River, N.J.
No Drawing. Filed Jan. 16, 1968, Ser. No. 698,134
Int. Cl. C09b 29/16; D06p 1/02
U.S. Cl. 260—200 3 Claims

Compounds of the formula



wherein A is a coupling component containing a sulfonic acid group and R and R₁ are hydrogen or alkyl groups of 2-6 carbon atoms with the proviso that only one of R and R₁ is hydrogen, provide yellow to red dyeings of good fastness properties and excellent leveling characteristics on synthetic polyamide fibers.

3,600,378
METHOD FOR THE PURIFICATION OF LIPOPOLYSACCHARIDES
David G. Marsh and Michael J. Crutchley, both of 183-193 Euston Road, London, NW, 1, England
No Drawing. Filed Oct. 17, 1967, Ser. No. 675,781
Claims priority, application Great Britain, Oct. 27, 1966, 48,317/66
Int. Cl. C12d 13/00

U.S. Cl. 260—209 17 Claims

A process for the preparation of a purified non-toxic lipopolysaccharide, which comprises precipitating the lipopolysaccharides with a salt from the culture supernatant of Gram-negative bacteria, grown under conditions of vigorous aeration, redissolving the lipopolysaccharides, dialysing the redissolved precipitate, applying the solution of the lipopolysaccharides to an anionic exchanger preferentially retaining the toxic lipopolysaccharide (endotoxin) until the eluted and isolated product is substantially homogenous and non-toxic.

3,600,379
PROCESS FOR MAKING VISCOSE
Hannes Sihtola, Filimaki 30 A, and Boris Nizovsky, Gyldenintie 14 A, both of Helsinki, Finland
No Drawing. Filed May 16, 1969, Ser. No. 825,390
Claims priority, application Finland, May 24, 1968, 1,466/68; July 17, 1968, 2,036/68
Int. Cl. C08b 9/00

U.S. Cl. 260—217 6 Claims

Process for manufacturing viscose including the step of re-steeping and pressing aged alkali cellulose with a sodium hydroxide solution, the concentration of which is less than 15% by weight, prior to reacting the alkali cellulose with carbon disulfide. The re-steeping and pressing steps reduce the amount of sodium hydroxide in the aged alkali cellulose. The amount of sodium hydroxide in the alkali cellulose is maintained at less than 15 wt. percent during xanthation, resulting in an aged alkali cellulose which requires a low amount of carbon disulfide to yield a xanthate.

3,600,380
CERTAIN 1-ARALKYL-3-AZETIDINOL COMPOUNDS
Elijah H. Gold, West Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J.
No Drawing. Filed May 10, 1968, Ser. No. 728,335
Int. Cl. C07d 25/00

U.S. Cl. 260—239A 10 Claims

Novel 1-(α-alkylphenethyl)-3-azetidins and pharmaceutically acceptable ester and ether derivatives thereof are disclosed. The compounds are effective as stimulants with reduced autonomic side effects. Certain of these compounds are also useful as anorectics.

3,600,381
CAPROLACTAM PURIFICATION PROCESS
Akira Yamamoto, Makoto Yasuda, and Yutaka Furusawa, Mihara-shi, Hiroshima-ken, Japan, assignors to Teljin Limited, Kita-ku, Osaka, Japan
No Drawing. Filed Apr. 21, 1969, Ser. No. 818,155
Claims priority, application Japan, May 9, 1968, 43/31,291
Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 4 Claims

A method for the preparation of pure lactam from an oligomer-containing crude lactam by evaporating said oligomer-containing crude lactam at a temperature less than the evaporation temperature of said lactam while maintaining said lactam under alkaline conditions and then rectifying said oligomer-containing crude lactam. Further purification of the crude lactam remaining after rectification can be carried out by depolymerization of said crude lactam in the presence of an acidic catalyst at a temperature within the range from about 220° C. to about 350° C. and at a pressure within the range from about 0.5 to about 6 atmospheres, separating a lactam aqueous solution, oxidizing said lactam aqueous solution until the permanganate number of the lactam is below 1.50, reducing the water content from said lactam aqueous solution to at least about 5%, and recirculating said lactam aqueous solution to said evaporating step.

3,600,382
Δ^{4,20,22}-BUFATRIENOLIDES
Walter Steidle, Limburgerhof, Germany, assignor to Knoll A.G. Chemische Fabriken, Ludwigshafen (Rhine), Germany
No Drawing. Filed Jan. 13, 1969, Ser. No. 790,851
Claims priority, application Germany, Jan. 16, 1968, P 16 68 356.0
Int. Cl. C07c 173/04

U.S. Cl. 260—239.57 23 Claims

Δ^{4,20,22}-bufatrienolides substituted in the 3α- and 3β-positions by alkoxy, hydroxyalkoxy, cycloalkoxy, benzyl-oxy and 2-oxacycloalkoxy moieties are disclosed as novel cardioactive compounds, as well as a method for their preparation by reaction of 3-hydroxy- and 3-glycosido-Δ^{4,20,22}-bufatrienolides with appropriate hydroxy compounds or 2,3-oxacycloalkenyl ethers.

3,600,383
OXADIAZOLE COMPOUNDS
John Reginald Atkinson and Eric Hemingway, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed July 29, 1968, Ser. No. 748,171
Claims priority, application Great Britain, Aug. 15, 1967, 37,407/67
Int. Cl. C07d 85/54

U.S. Cl. 260—240 1 Claim

Substituted mono- or bis-1,3,4-oxadiazoles in which at least one substituent is a polycyclic aromatic hydrocarbon group having at least three fused rings, a process for their manufacture and their use as fluorescent brightening agents for polymeric materials.

3,600,384
REACTION OF 1,2-BIS(3-CYCLOHEXEN-1-YL)ETHYLENES WITH CERTAIN UNSATURATED COMPOUNDS AND PRODUCT OBTAINED THEREBY
Hans D. Holtz, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation-in-part of abandoned application Ser. No. 502,293, Oct. 22, 1965. This application Nov. 15, 1968, Ser. No. 776,265
Int. Cl. C07c 53/28

U.S. Cl. 260—240 3 Claims

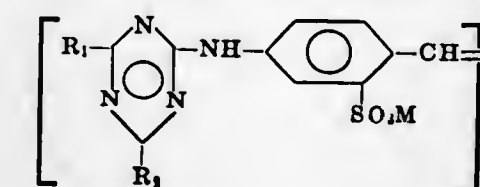
1,2-bis(3-cyclohexen-1-yl)ethylenes are reacted with unsaturated compounds such as maleic anhydride to pro-

duce novel compounds which are useful as curing agents for epoxy resins, as components of alkyl resins and the like, and as starting materials for the production of polyimide resins.

3,600,385
BIS-(TRIAZINYLAMINO) STILBENE DERIVATIVES FOR OPTICAL BRIGHTENING
Frank Fred Loffelman, Middlesex, and Leroy Michael Konzelman, Livingston, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Dec. 16, 1968, Ser. No. 784,250
Int. Cl. C07d 55/22

U.S. Cl. 260—240 7 Claims

A new class of ditriazinyl derivatives is provided which are particularly useful as optical brighteners for cellulose. The compounds are the bis-(triazinylamino)stilbenes represented by the following general formula:

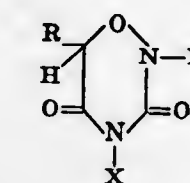


wherein R₁ is the residue of a 3-[(mono- or dihydroxyalkyl)amino]propionamide in which the 3-amino nitrogen is attached to the triazine nucleus; R₂ is a member selected from the group consisting of lower alkoxy, arylamino and the residue of a 3-[(mono- or dihydroxyalkyl)amino]propionamide in which the 3-amino nitrogen is attached to the triazine nucleus; and M is a cation selected from the group consisting of hydrogen, sodium, potassium, lithium, ammonium, and substituted ammonium. A novel and useful class of aliphatic amine intermediates is also disclosed.

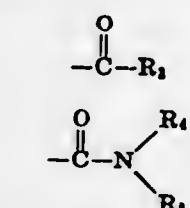
3,600,386
4-SUBSTITUTED OXADIAZINEDIONES
George Levitt, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Mar. 12, 1969, Ser. No. 806,686
Int. Cl. C07d 87/32

U.S. Cl. 260—244 10 Claims

The 4-substituted oxadiazinediones of the formula



wherein R is hydrogen or methyl; R₁ is hydrogen, alkyl of 1 through 6 carbon atoms or phenyl; and X is —S—R₂.



—CH₂—X—R₆, phenoxyacetyl; or acetoacetyl are useful as plant growth regulants. Representative of the oxadiazinediones of the above formula are

6-methyl-4-(trichloromethylthio)-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione;
4-benzoyl-6-methyl-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione;
4-trichloroacetyl-6-methyl-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione;
4,4'-oxalylbis[6-methyl-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione];

6-methyl-4-(p-chlorophenylcarbamoyl)-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione;
4,4'-carbonylbis[6-methyl-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione];
6-methyl-4-(o-fluorophenylcarbamoyl)-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione; and
6-methyl-4-(hydroxymethyl)-2H-1,2,4-oxadiazine-3,5-(4H,6H)-dione.

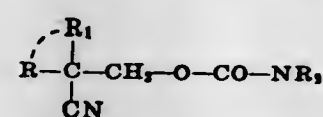
3,600,387

PIPERIDINO OR MORPHOLINO-2-PHENYL-2-CYANO-BUTYL URETHANES

Laszlo Suranyi, Mannheim, Germany, assignor to Knoll A.G., Ludwigshafen (Rhine), Germany
No Drawing. Original application Dec. 27, 1966, Ser. No. 604,638, now Patent No. 3,506,702, dated Apr. 14, 1970. Divided and this application July 2, 1969, Ser. No. 869,981

Claims priority, application Germany, Jan. 3, 1966, K 58,055
Int. Cl. C07d 87/44

U.S. Cl. 260—247.2 2 Claims
Urethanes having utility as muscle-relaxants, antispasmodics, tranquilizers and sedatives and having the formula



in which R is a straight or branched chain alkyl of 1 to 6 carbon atoms; R₁ is a straight or branched chain alkyl of 1 to 6 carbon atoms, phenyl, or phenyl mono- or disubstituted by halogen, trifluoromethyl, nitro, alkyl of 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms; R and R₁ together are divalent alkylene of 3 to 5 carbon atoms; and NR₂ stands for piperidino or morpholino.

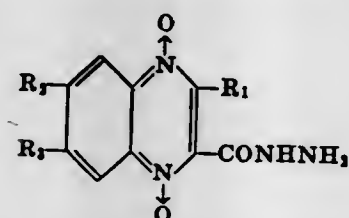
3,600,388

QUINOXALINE-1,4-DIOXIDES

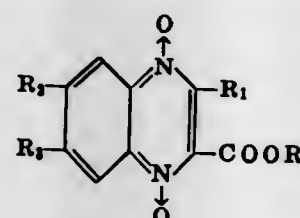
Walter Durckheimer, Hattersheim (Main), and Elmar Schrimmer, Wiesbaden, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed July 7, 1969, Ser. No. 839,646
Claims priority, application Germany, July 25, 1968, P 17 70 975.0

Int. Cl. C07d 51/78

U.S. Cl. 260—250 6 Claims
New carboxylic acid hydrazides of the general formula



in which R₁ is lower alkyl, preferably methyl, and R₂ and R₃ represent hydrogen, lower alkyl or alkoxy, are prepared by reacting a compound of the formula



in which R is alkyl, with hydrazine hydrate under mild reaction conditions. The products of the invention have an antibacterial activity.

3,600,389

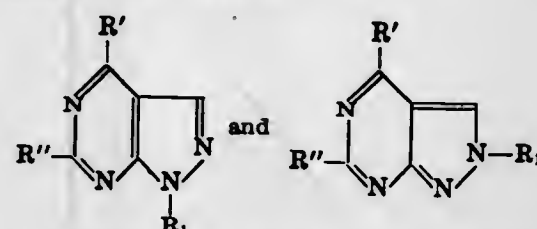
N-SUBSTITUTED PYRAZOLO-PYRIMIDINES

Jean Druey, Riehen, and Paul Schmidt, Therwil, Switzerland, assignors to Ciba Corporation, Summit, N.J.
No Drawing. Continuation of application Ser. No. 292,783, July 3, 1963, now Patent No. 3,399,196, which is a continuation-in-part of application Ser. No. 815,826, May 26, 1959, which is a continuation-in-part of application Ser. No. 775,334, Nov. 21, 1958, which is a continuation-in-part of application Ser. No. 667,042, June 20, 1957, now Patent No. 2,980,677, said application Ser. No. 292,783 being a continuation-in-part of application Ser. No. 815,824, May 26, 1959, now Patent No. 3,187,006, which is a continuation-in-part of application Ser. No. 775,356, Nov. 21, 1958, which in turn is a continuation-in-part of application Ser. No. 637,895, Feb. 4, 1957. This application Apr. 17, 1968, Ser. No. 721,952

Claims priority, application Switzerland, Feb. 10, 1956, 29,762/56

The portion of the term of the patent subsequent to Aug. 27, 1985, has been disclaimed
Int. Cl. C07d 57/16

U.S. Cl. 260—256.4F 2 Claims
Compound of the formulae



in which R₁ stands for branched alkyl, alkenyl or cycloalkyl having at least 3 carbon atoms or hydroxyalkyl, R' stands for free or substituted amino, hydrazino, halogen or free or etherified mercapto, and R'' stands for hydrogen, alkyl or for R' for example: the 1-isopropyl-4-(n-propylamino)-pyrazolo[3,4-d]pyrimidine.

Use: Coronary dilating, diuretic, analgetic or anti-bacterial agents.

3,600,390

NOVEL 5-PHENYL IMIDAZOLIDINO[5,1-a]5H-QUINAZOLINES AND PROCESS THEREFOR

Margaret H. Sherlock, Bloomfield, N.J., assignor to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed July 1, 1968, Ser. No. 743,912
Int. Cl. C07d 57/12

U.S. Cl. 260—256.4 8 Claims
This invention relates to certain 5-phenylimidazolidino [5,1-b]5H-quinazolines, the [5,1-a]isomers thereof and to their use as bronchodilating agents.

3,600,391

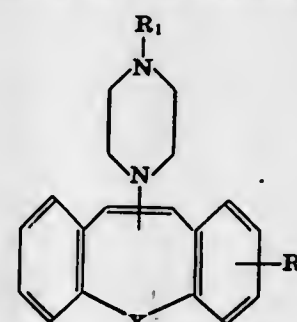
N-[DIBENZO (b,f)AZEPIN-10-YL]-PIPERAZINE COMPOUNDS

Michele Masturzi, Naples, Sabino Lembo, Pozzuoli, and Rene Viterbo, Naples, Italy, assignors to Richardson-Merrell S.p.A., Naples, Italy

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,535
Claims priority, application Italy, Mar. 28, 1967, 35,729/67

Int. Cl. C07d 51/70

U.S. Cl. 260—268 5 Claims
New compounds having the following general formula:



in which X is =O, =S, or =N—R₂; and R, R₁, and R₂ are a variety of substituents. The compounds have useful pharmacological activities which include hypertensive, sedative, muscle relaxant, local anesthetic, analgesic, antipyretic, and anti-inflammatory activities. Various salts of these compounds are also useful and are included within the scope of the present invention. Processes of preparing these compounds are described.

3,600,392

1-(9,10-DIHYDROTHIENO[3,2-b][1]BENZO-THIEPIN-10-YL)-PIPERAZINE AND HOMO-PIPERAZINE DERIVATIVES

Armin Züst, Birsfelden, Basel-Land, and Walter Schindler, Riehen, Basel-Land, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed May 13, 1968, Ser. No. 728,815
Claims priority, application Switzerland, May 19, 1967, 7,089/67

Int. Cl. C07d 51/70

U.S. Cl. 260—268 7 Claims

The compounds are of the class of thiepin derivatives, more particularly benzo thiepin derivatives substituted in 10-position by piperazinyl which may be substituted. The compounds are useful as central depressants, in particular sedatives and tranquilizers. An illustrative embodiment is 1-(9,10-dihydro thieno[3,2-b][1]benzothiepin-10-yl)-4-methyl piperazine.

3,600,393

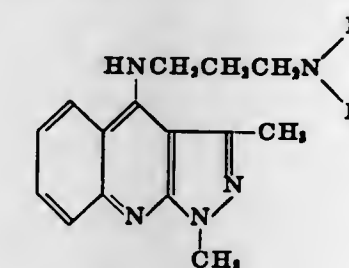
DIALKYLAMINO ALKYLAMINO PYRAZOLO [3,4b] QUINOLINES

Rolf Ernst Graeve, Milwaukee, Joseph Robert Pociask, Cudahy, and Robert George Stein, Wauwatosa, Wis., assignors to Aldrich Chemical Company, Inc., Milwaukee, Wis.

No Drawing. Filed Mar. 3, 1969, Ser. No. 803,952

Int. Cl. C07d 33/54

U.S. Cl. 260—286 9 Claims
Compounds of the formula



wherein R¹ and R² each represent (lower)alkyl; and the pharmaceutically acceptable nontoxic salts thereof exhibit hypocholesteremic and hypolipemic activity and are useful as hypocholesteremic and hypolipemic agents for lowering serum cholesterol and phospholipid levels in mammals.

3,600,394

2-AMINOALKYL-3-ARYLSOCARBOSTYRILS

William E. Coyne and John W. Cusic, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed May 17, 1968, Ser. No. 729,934

Int. Cl. C07d 35/34

U.S. Cl. 260—288 4 Claims

3-phenylisocarbostyrils having a dialkylaminoalkyl or similar substituent at the 2-position are described herein. They possess anti-inflammatory, anti-bacterial, anti-proto-

zoal, and anti-algal activity. The compounds are prepared by the reaction of a 3-phenylisocarbostyril with a strong base and an appropriate aminoalkyl halide.

3,600,395

1-PHENYLETHYL-4-AMINOMETHYL-4-PIPERIDINOL COMPOUNDS

Gilbert Regnier, Chatelay-Malabry, Roger Canevari, Clamart, and Jacques Duhaunt, Chatou, France, assignors to Societe en nom collectif: Science Union et Cie, Societe Francaise de Recherche Medicale, Suresnes, France

No Drawing. Filed May 2, 1969, Ser. No. 821,504
Claims priority, application Great Britain, May 21, 1968, 24,176/68

Int. Cl. C07d 29/34

U.S. Cl. 260—293.4 7 Claims

1-phenylethyl, or 1-fluorophenylethyl-4-aminomethyl piperidin-4-ols, substituted on the amino by: aliphatic acyl having up to five carbon atoms inclusive, benzoyl, hydroxybenzoyl, chlorobenzoyl, acetoxybenzoyl, methylenedioxycarbonyl, parachlorophenoxyacetyl, nicotinoyl, diethylcarbamoyl or methylsulfonyl.

3,600,396

ALPHA-DILOWER ALKYL AMINO - 2,6 - DI-(p-CHLOROPHENYL) - 4-PYRIDINE METHANOLS AND DERIVATIVES THEREOF

Arthur B. Ash, Detroit, Calvin L. Stevens, Troy, and Anica Markovac, Lathrup Village, Mich., assignors to the United States of America

No Drawing. Filed Dec. 17, 1968, Ser. No. 784,467

Int. Cl. C07d 31/42

U.S. Cl. 260—296R 4 Claims

Antimalarial compounds characterized as alpha-dilower alkylaminomethyl-2,6-di-(p-chlorophenyl)-pyridine methanols (VIII) and nontoxic, pharmaceutically acceptable amine acid addition salts are described. These compounds can be prepared by conventional methods. They are preferably prepared by reacting 4-picoline N-oxide with p-chlorophenyl magnesium bromide Grignard reagent to produce 2-p-chlorophenyl-4-picoline (I). (I) was converted to the N-oxide (I)(a) again and reacted with the Grignard reagent again to give 2,6-di-(p-chlorophenyl)-4-picoline (II). Alternatively, (II) may be prepared in one step by adopting a method reported in W. Zecher and F. Krohnke, Chemische Berichte, 94, 698-706 (1961), for the preparation of 2,6-diphenyl-4-picoline, 4,6-diphenyl-2-picoline and 4 - p-nitrophenyl-6-phenyl-2-picoline. This involves reacting a mixture of p-chlorocrotonophenone, p-chlorophenacyl pyridinium bromide, ammonium acetate, glacial acetic acid and acetic anhydride at temperatures up to reflux to effect a ring closure reaction which yields (II) on workup. (II) was oxidized to the corresponding isonicotinic acid which is 2,6-di-(p-chlorophenyl) pyridine-4-carboxylic acid (III) preferably with potassium permanganate. (III) was converted to the corresponding acid chloride (IV) by reaction with thionyl chloride and (IV) was then reacted with diazomethane to produce diazomethyl-2,6-di-(p-chlorophenyl)-4-pyridyl ketone (V). (V) was then reacted with hydrobromic acid to yield alpha-bromomethyl - 2,6-di-(p-chlorophenyl)-4-pyridyl ketone (VI). (VI) was reduced with a hydride such as sodium borohydride to produce bromomethyl - 2,6-di-(p-chlorophenyl)-4-pyridine methanol (VII). (VII) was converted to the antimalarial compounds (VIII) by reaction with a lower alkyl amine in a polar organic solvent. The antimalarial compounds have been shown to be very effective in treating malaria of various types in mammals.

3,600,397

CERTAIN BENZOTRIAZOLYLPHENOXY TIN COMPOUNDS

Toshio Seki, Osaka-shi, Kozaburo Suzuki, Kobe-shi, and Takashi Matsuzaki, Osaka-shi, Japan, assignors to Nitto Kasei Co., Ltd., Osaka, Japan

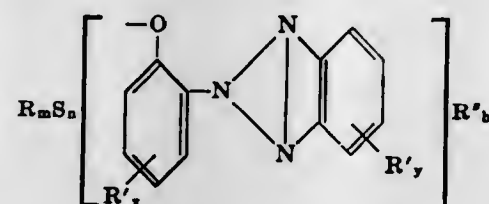
No Drawing. Filed Aug. 25, 1966, Ser. No. 574,924

Claims priority, application Japan, Aug. 25, 1965, 40/51,406

Int. Cl. C07d 55/04

U.S. Cl. 260—299

Compounds of the formula



their preparation and their use as U.V. stabilizers for synthetic resins.

3,600,398

AMINE DERIVATIVES OF MERCAPTOBENZOTHIADIAZOLE

Jerry J. Svarz, La Grange, Louis A. Goretta, Naperville, and Wood E. Hunter, Lombard, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Filed Apr. 18, 1969, Ser. No. 817,337

Int. Cl. C07d 91/44

U.S. Cl. 260—306.6A

1 Claim

A process for producing the thiazole sulfenamides from the group consisting of morpholinobenzothiazole sulfenamide, cyclohexylbenzothiazole sulfenamide and N-tert-butylbenzothiazole sulfenamide.

These sulfenamide derivatives are produced in 94% + yield and at extremely high purity through a common generalized procedure involving the oxidation of mercapto-benzothiazole in the presence of excess amine and at least 8% by weight of water based on the total reaction mixture with either chlorine, bromine, iodine or an alkali metal hypochlorite.

3,600,399

CERTAIN 2-AMINO-5-IMIDAZOL-2-YL-1,3,4-THIADIAZOLES

Gerald Berkelhammer, Princeton, and William Henry Gastrock, Hightstown, N.J., William Alan Remers, Suffern, N.Y., and Andrew Stephen Tomcufcik, Old Tappan, and Martin Joseph Weiss, Oradell, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Oct. 11, 1968, Ser. No. 766,987

Int. Cl. C07d 91/62

U.S. Cl. 260—306.8

5 Claims

The preparation of substituted imidazolyl-1,3,4-thiadiazoles by first preparing the imidazole moiety and then constructing the 1,3,4-thiadiazole moiety or by first preparing the 1,3,4-thiadiazole half and then adding the imidazole moiety, are described. A number of these compounds are useful as depressant agents for the treatment of mental disease and also as intermediates in the preparation of 2-amino-5-(1-methyl-5-nitro-2-imidazolyl)-1,3,4-thiadiazole. The latter compound has high antibacterial and antiprotozoal activity.

3,600,400

2-OXO-2:3:4:5-TETRAHYDRO-1:4-METHANO-1H-3-BENZAZEPINES

Karl Schenker, Binningen, Switzerland, assignor to Ciba Corporation, New York, N.Y.

No Drawing. Application Feb. 21, 1968, Ser. No. 707,306, now Patent No. 3,474,463, which is a continuation-in-part of application Ser. No. 457,858, May 21, 1965, now Patent No. 3,396,171. Divided and this application May 1, 1969, Ser. No. 821,140

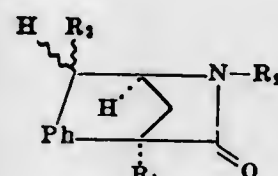
Claims priority, application Switzerland, June 10, 1964, 7,584/64; Apr. 28, 1965, 5,888/65; Apr. 6, 1967, 4,966/67

Int. Cl. C07d 27/30

U.S. Cl. 260—326.5

10 Claims

Compounds of the formula



in which

Ph is an optionally substituted ortho-phenylene radical; R1 is hydrogen or an optionally substituted hydrocarbon radical;

R2 is hydrogen or an optionally substituted hydrocarbon radical;

R3 is hydrogen or a halogen atom;

e.g. the 1-phenyl-2-oxo-2:3:4:5-tetrahydro-1:4-methano-1H-3-benzazepine.

Use: Starting materials for the preparation of diuretic or analgetic agents.

3,600,401

DIKETO-BENZO-DIPYROLE POLYMERS

Charles L. Thomas, Swarthmore, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

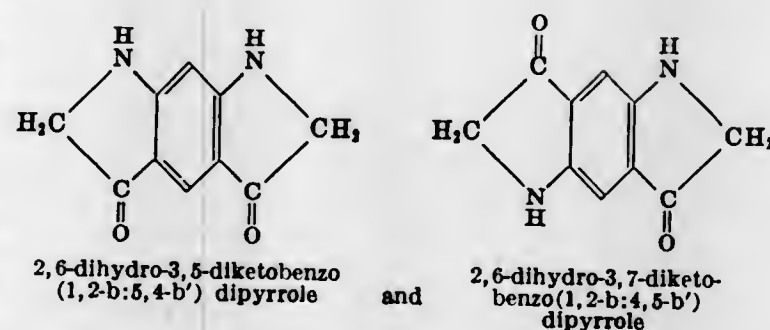
No Drawing. Original application Dec. 29, 1966, Ser. No. 605,574, now Patent No. 3,505,353. Divided and this application Nov. 19, 1968, Ser. No. 796,254

Int. Cl. C07d 27/40

U.S. Cl. 260—326.11

5 Claims

The compounds are:



and the polymers prepared therefrom by oxidative polymerization of the individual monomers or mixtures of the two monomers. The monomers are useful as insecticides and biocides, and the polymers are useful as dyes and semiconductors.

3,600,402

METHOD OF ISOLATING GIBBERELLINS FROM CULTURE FLUID OBTAINED BY CULTIVATING A MICROORGANISM

Raisa Leonidovna Krutova, Ul. Krasina 86, kv. 15, Kurgan, U.S.S.R.; Georgy Sergeevich Muromtsev, 1 ul. Oktyabrskogo polya 21, kv. 175, Moscow, U.S.S.R.; and Eleonora Nikolaevna Pervy, Poltavskaya, ul. 9, kv. 47; and Jury Sergeevich Rakovsky, Ul. Kirova 147, kv. 75, both of Kurgan, U.S.S.R.

No Drawing. Filed Oct. 24, 1968, Ser. No. 770,389

Int. Cl. C07d 5/32

U.S. Cl. 260—343.3

5 Claims

A method of isolating gibberellins from culture fluid obtained by cultivating an organism, e.g., the fungus *Fusarium moniliforme* Sheld., which comprises precipitation of gibberellins with iron salts at a pH of 2.5–4.5 with subsequent separation of the precipitate and drying.

3,600,403

HYDROGENATION OF PYRONE COMPOUNDS

Hans Brinkhoff, Munich, Germany, assignor to Spezialchemie Gesellschaft mit beschränkter Haftung und Co., Arzneimittelwerk, Munich, Germany

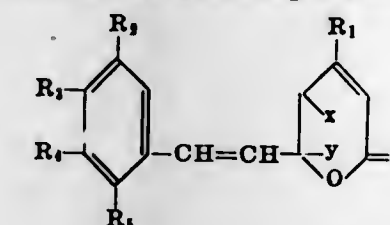
No Drawing. Filed Nov. 24, 1967, Ser. No. 685,340

Int. Cl. C07d 7/10

U.S. Cl. 260—343.5

6 Claims

An improved process of catalytically hydrogenating pyrone compounds being connected by an unsaturated aliphatic bridge with a nuclear substituent and especially a pyrone compound of the following formula



wherein

R1 is lower alkoxy with 1 to 5 carbon atoms;

R2, R3, R4, and R5 are members selected from the group consisting of hydrogen, lower alkoxy with 1 to 5 carbon atoms, and R3 and R4 form the methylene dioxy group —O—CH2—O— while R2 and R5 are hydrogen; and

x and y are members selected from the group consisting of hydrogen and x and y form the double bond between the carbon atoms 5 and 6 of the pyrone ring,

whereby the double bond in the aliphatic bridge is hydrogenated while the double bond in 3,4-position of the pyrone ring remains unaffected and the pyrone ring is not split up. Hydrogenation is effected in the presence of a platinum metal catalyst, preferably of colloidal palladium according to Paal at an initial temperature of —5° C. to —10° C. The final hydrogenation temperature should not exceed +15° C. The yield is almost quantitative.

Examples of pyrone compounds to be hydrogenated are methysticin and kawain yielding dihydromethysticin and dihydrowkain.

3,600,404

TETRAHYDROPYRANYL ETHERS

Jerome H. Ludwig, Cincinnati, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio

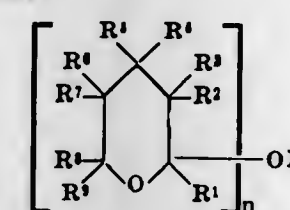
No Drawing. Filed Jan. 4, 1968, Ser. No. 695,566

Int. Cl. C07d 7/04

U.S. Cl. 260—345.9

1 Claim

Novel tetrahydropyranyl ethers, esters or etheresters having the formula:



wherein n represents a whole number from 1 to about 3 inclusive,

wherein OR represents a residue of aliphatic carboxylic acids having from about 7 to about 32 carbon atoms, alkenecarboxylic acids having from about 7 to about 32 carbon atoms, polymerized fatty acids having about 36 carbon atoms, polymerized fatty acids having about 54 carbon atoms, di(hydroxyaryl) alkylencarboxylic acids, alkarylhydroxy or alkylene di(hydroxyaryl); and wherein R1 to R5 inclusive is either hydrogen or lower alkyl.

These novel compounds are useful as stabilizers in vinyl halide resin compositions containing, for example, polyvinyl chloride or polyvinyl chloride-acetate copolymers. The tetrahydropyranyl ethers and/or esters according to the above formula are further characterized by unexpected properties or stabilizing activities.

3,600,405

PREPARATION OF FURAN BY OXIDATION OF SPECIFIED ORGANIC COMPOUNDS

Alfio J. Besozzi, Houston, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,034

Int. Cl. C07d 5/14

U.S. Cl. 260—346.1

4 Claims

Process for the production of furan by contacting specified oxygenated organic compounds with a catalyst containing Mo and Bi atoms in the presence of oxygen and an inert diluent, under particular conditions of temperature and pressure. The reaction of crotonaldehyde to furan is preferred.

3,600,406

TETRACARBOXYLIC CYCLOALKYL KETONES

Irving Touval, Fords, N.J., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 572,915, Aug. 17, 1966. This application Feb. 14, 1969, Ser. No. 799,494

Int. Cl. C07c 61/06, 61/08, 61/10

U.S. Cl. 260—346.3

8 Claims

Bis(cycloalkyldicarboxylic acid)ketones, the corresponding anhydrides and lower alkyl esters thereof are exemplified by bis(4-cyclohexyl-1,2-dicarboxylic acid)ketone. The compounds may be prepared by reacting a cycloalkene dicarboxylic compound with carbon monoxide in the presence of a metal carbonyl and water under hydroxylation conditions, said compounds being useful as reactive components of polyesters, epoxy curing agents, etc.

3,600,407

FURFURYL-2-METHOXY-3,6-DICHLOROBENZOATE

Alfred A. Levin, Skokie, and Sidney B. Richter, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Filed Apr. 4, 1969, Ser. No. 813,723

Int. Cl. C07d 5/00

U.S. Cl. 260—347.4

1 Claim

This invention discloses the new compound furfuryl 2-methoxy-3,6-dichlorobenzoate and further discloses a method of controlling weeds with a herbicidal composition which comprises as the essential active ingredient the above compound.

3,600,408
LIQUID PRESERVATIVE COMPOSITION WHICH CONTAINS PENTACHLOROPHENOL
 Kenneth F. Bursack and Millard L. Oldham, Wichita, Kans., assignors to Frontier Chemical Company, Division of Vulcan Materials Company, Wichita, Kans.
 No Drawing. Filed June 21, 1965, Ser. No. 465,742
 Int. Cl. A01n 9/26

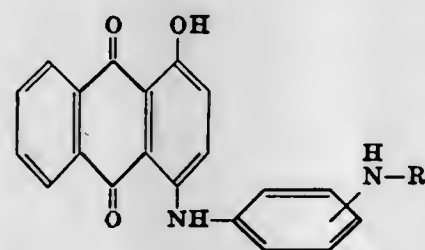
U.S. Cl. 424—347 14 Claims
 The sludging tendency of solutions of pentachlorophenol in a liquid organic solvent, such as an alkylene glycol compound or a hydrocarbon solvent or a mixture of such or similar solvents, is reduced by the addition of an aliphatic carboxylic, an alkyl sulfuric or an alkyl sulfonic acid which contains at least five carbon atoms per molecule.

3,600,409
PROCESS FOR SYNTHESIZING HEXAFLUOROPROPYLENE EPOXIDE
 Alwin S. Millan, Jr., and Paul R. Resnick, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Filed Apr. 9, 1968, Ser. No. 719,851
 Int. Cl. C07d 1/08

U.S. Cl. 260—348.5 4 Claims
 In the oxidation of hexafluoropropylene to hexafluoropropylene epoxide, hexafluoroacetone is also formed, which formation can be substantially eliminated by addition of a small amount of neutral inert aromatic compound to the reaction zone.

3,600,410
1-HYDROXY-4-SULFONAMIDOANILINOANTHRAQUINONE DISPERSE DYES
 Carl Johannes Berninger and Joseph William Fitzpatrick, Toms River, N.J., assignors to Toms River Chemical Corporation, Toms River, N.J.
 No Drawing. Filed Apr. 10, 1968, Ser. No. 720,349
 Int. Cl. C09b 1/50, 1/52

U.S. Cl. 260—373 5 Claims
 1-hydroxy - 4 - sulfonamidoanilinoanthraquinone and 1-hydroxy - 4 - carboxamidoanilinoanthraquinone compounds of the general formula



in which R is a sulfonyl or benzoyl radical such as an alkylsulfonyl radical of 1 to 16 carbon atoms, a branched alkylsulfonyl radical of 3 to 5 carbon atoms, a benzene-sulfonyl radical, both unsubstituted and substituted, or an unsubstituted or substituted benzoyl radical are valuable dyestuffs for the coloration of aromatic polyester fibers.

3,600,411
REDOX POLYESTER POLYMERS
 Harold G. Cassidy, Gerhard Wegner, and Nobuo Nakabayashi, New Haven, Conn., assignors to Research Corporation, New York, N.Y.
 No Drawing. Filed Oct. 7, 1968, Ser. No. 765,612
 Int. Cl. C07c 49/64; C08g 17/08, 33/10

U.S. Cl. 260—396 4 Claims
 Novel redox polymers useful as antioxidants are prepared by the direct condensation of a quinone-diol with a diacyl chloride, phosgene or a diisocyanate.

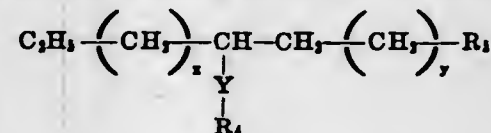
3,600,412
6,1'-SPIROCYCLOPROPYL COMPOUNDS OF THE ANDROSTANE SERIES
 Norman A. Nelson, Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
 No Drawing. Filed Mar. 24, 1965, Ser. No. 442,525
 Int. Cl. C07c 169/22

U.S. Cl. 260—397.4 17 Claims
 Compounds of the class of 6,1'-spirocyclopropyl androstanes and androstenes useful as anabolic, androgenic, estrogenic, hypocholesteremic, antifertility and progestational agents and processes for their production.

3,600,413
N-ALKYLATION OF AROMATIC AMINES
 Robert A. Grimm, Lakeville, Minn., assignor to Ashland Oil & Refining Company, Houston, Tex.
 No Drawing. Filed May 16, 1968, Ser. No. 729,563
 Int. Cl. C09f 7/00; C07c 121/52, 101/78, 87/28, 29/02
 U.S. Cl. 260—404 8 Claims
 A method for producing N-alkylated aromatic amines comprising coreacting carbon monoxide, hydrogen, an aromatic amine, and an olefinic compound at pressures above 200 p.s.i. in the presence of a catalyst which is the reaction product of:

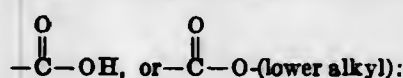
(A) a salt selected from the group consisting of rhodium halides, ruthenium halides, and cobalt carbonyls, with
 (B) a complexing agent selected from the group consisting of trihydrocarbyl phosphine, trihydrocarbyl arsine, and trihydrocarbyl stibine.

An N-alkylated aromatic amine of the formula:



wherein:

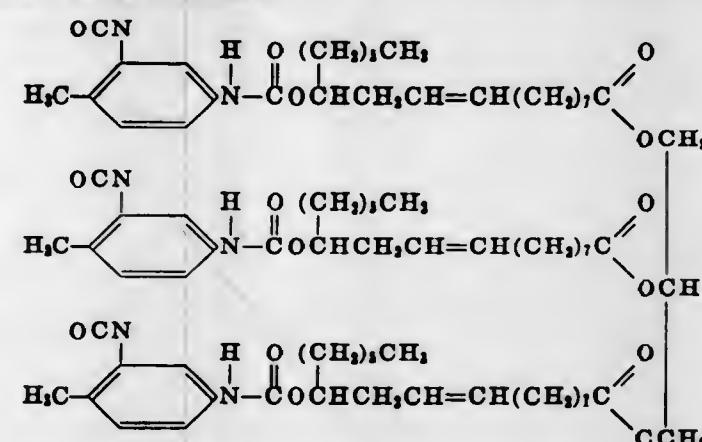
Y is —CH=N— or —CH₂—NH— wherein the nitrogen atom is directly bonded to R¹;
 R¹ is an aromatic radical;
 R² is —H, —CH₃, —CH₂—, —OH, —CHO, —NH₂,



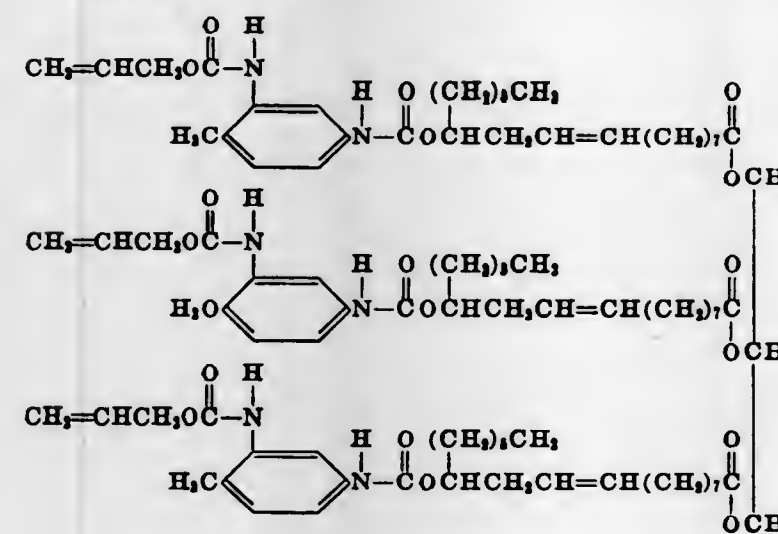
x is an integer from 0 to 23 inclusive;
 y is an integer from 0 to 23 inclusive; and
 x+y is 0 to 23.

3,600,414
SILOXANES HAVING CASTOR OIL DERIVATIVES JOINED THERETO THROUGH URETHANE RADICALS
 Robert S. Craig, Waukegan, Ill., assignor to General Electric Company
 No Drawing. Filed Dec. 1, 1967, Ser. No. 687,093
 Int. Cl. C09f 7/00

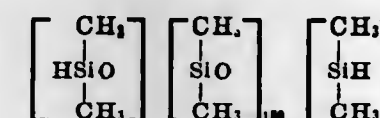
U.S. Cl. 260—404.5 8 Claims
 A radical derived from castor oil is joined to a siloxane through a urethane radical. A compound within the scope of the present invention is made by reacting a triisocyanate-terminated triurethane derivative of glyceryltriacrylate of the formula:



with allyl alcohol to produce a castor oil derivative of the formula:



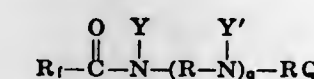
This terminal olefin-containing derivative is then reacted with a polysiloxane of the formula:



to produce a copolymer having alternate siloxane and castor oil derivative units. Products within the scope of the present invention are useful in auto polishes.

3,600,415
FLUORINATED AMIDES
 Richard F. Sweeney, Randolph Township, Morris County, and Alton K. Price, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Aug. 1, 1968, Ser. No. 749,302
 Int. Cl. C07d 103/38

U.S. Cl. 260—404.5 18 Claims
 Fluorinated amides useful as oil-repellency agents have the structural formula



wherein R₁ is a fluorine-containing isoalkoxyalkyl group; Y is H or alkyl; R is a divalent alkylene bridging group; q is an integer from 0 to 2; Q is a radical containing a tertiary amino group; and Y' is hydrogen, alkyl, hydroxy-alkyl, an acyl radical R₄CO— wherein R₄ is as described above, or a radical of the formula —RNYZ wherein R and Y are as described above and Z is hydrogen, alkyl, or the above-described acyl radical.

3,600,416
ORGANOTIN (PHENYLOXYCARBONYL) PHENOLATES
 Toshio Seki, 104 Higashimikuni-cho 2-chome Higashi-yodogawa-ku, Osaka-shi, Japan; Kozaburo Suzuki, 452 Motoyama-cho Mori Higashinada-ku, Kobe-shi, Japan; and Takashi Matsuzaki, 30 Furuichikita-dori 5-chome Joto-ku, Osaka-shi, Japan
 No Drawing. Original application Sept. 9, 1966, Ser. No. 578,140, now Patent No. 3,505,383, dated Apr. 7, 1970. Divided and this application June 24, 1969, Ser. No. 871,017

U.S. Cl. 260—429.7 7 Claims
 This invention relates to organotin (phenyloxycarbonyl) phenolates which are useful for stabilizing syn-

thetic resins against the degrading effect of ultraviolet light.

3,600,417
METHOD OF REMOVING SECONDARY ALUMINUM ALKOXIDES FROM PRIMARY ALUMINUM ALKOXIDES
 Allan J. Lundeen and James E. Yates, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Oct. 21, 1968, Ser. No. 769,348
Int. Cl. C07f 5/06 6 Claims
 A method for removing secondary aluminum alkoxides from primary aluminum alkoxides by heating a mixture containing both types of compounds to selectively convert the secondary alkoxides to olefinic compounds without substantial molecular change of the primary alkoxide. The method is further developed to either remove from the mixture, the olefinic products of thermal decomposition of the secondary alkoxides, or, where such products are derived from dialuminum alkoxides containing both primary and secondary substitution of the alkyl group, to hydrolyze them to primary alcohols. In either procedure, the starting mixture is improved as a source material of alcohol sulfates useful as detergents.

3,600,418
ORGANO-SILICONE BLOCK COPOLYMERS
 Donald L. Bailey, Sistersville, W. Va., and Francis M. O'Connor, Akron, Ohio, assignors to Union Carbide Corporation, New York, N.Y.
 No Drawing. Continuation-in-part of application Ser. No. 162,980, Dec. 21, 1961, now Patent No. 3,480,583, which is a continuation-in-part of applications Ser. No. 660,997, and Ser. No. 661,009, both May 23, 1957. Said application Ser. No. 660,997 being a continuation-in-part of application Ser. No. 417,935, Mar. 22, 1954, now Patent No. 2,834,748, and said application Ser. No. 661,009 being in turn a continuation-in-part of application Ser. No. 435,938, July 10, 1954, now Patent No. 2,917,480. This application Aug. 5, 1969, Ser. No. 847,716

Int. Cl. C07f 7/04, 7/18 24 Claims
 This invention relates to block copolymer compositions comprising at least one siloxane block and at least one oxyalkylene block, (I) the siloxane block (a) being a siloxane polymer composed of difunctional silicon atoms or both difunctional silicon atoms and at least one trifunctional silicon atom (each difunctional silicon atom being linked to two monovalent hydrocarbon groups and two oxygen atoms and each trifunctional silicon atom being linked to a hydrocarbon group and three oxygen atoms) that are joined through silicon-oxygen-silicon bonds and (b) being linked at one end to the oxyalkylene block by a carbon-oxygen-silicon bond and at the other end to a member selected from the group consisting of (1) another of said oxyalkylene blocks by a carbon-oxygen-silicon bond, (2) a trihydrocarbonsiloxy group and (3) an alkoxy group; and (II) the oxyalkylene block (a) being an oxyalkylene polymer having at least five oxyalkylene units joined together by carbon-oxygen-carbon bonds and (b) being bonded at one end to said siloxane polymer through a carbon-oxygen-silicon bond and at the other end to either (1) another of said siloxane blocks by a carbon-oxygen silicon bond or (2) a hydroxyl group, provided at least one oxyalkylene block is bonded at one end to a hydroxyl group.

The block copolymers of this invention are useful as lubricants for metals, fibrous glass, rubber molds and textiles, hydraulic fluids, emulsifying agents, surface tension depressants and foam stabilizers for polyurethane foam.

3,600,419

PREPARATION OF AROMATIC ISOCYANATES
Nicholas B. Franco, North Haven, and Martin A. Robinson, Orange, Conn., assignors to Olin Corporation
No Drawing. Filed Sept. 3, 1968, Ser. No. 757,109
Int. Cl. C07c 119/04

U.S. Cl. 260—453P

13 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprised of either a mixture or a complex of nickel iodide and a Lewis base. The Lewis base is preferably a heteroaromatic nitrogen-containing compound containing between five and six members in the ring, containing no element other than nitrogen and carbon in the ring, containing no more than two nitrogen atoms in the ring, and having at least two double bonds in the ring, such as pyridine and isoquinoline. The catalyst system may also include a second component such as molybdenum trioxide or another metal oxide.

3,600,420

PREPARATION OF PIMELIC ACID DERIVATIVES
George E. Illingworth, Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Mar. 29, 1968, Ser. No. 717,436
Int. Cl. C07c 55/16, 69/46, 153/07

U.S. Cl. 260—455C

11 Claims

Pimelic acid derivatives are prepared by condensing allene with a carboxylic acid or a derivative thereof in the presence of a free radical initiator.

3,600,421

POLYHALOFORMATES

Thomas K. Brotherton, John W. Lynn, and John Smith, Jr., Charleston, W. Va., assignors to Union Carbide Corporation
No Drawing. Filed June 26, 1967, Ser. No. 648,963
Int. Cl. C07c 69/00

U.S. Cl. 260—463

7 Claims

Alkylene oxides and/or epsilon-caprolactone are reacted with nucleus polyol compounds comprising sorbitol 1,2,6-hexanetriol, trimethylolpropane, trimethylethane 1,1,5,5-tetrakis(4-hydroxyphenyl)pentane, pentaerythritol and pyrogallol in a ratio of about 1 to 100 moles per mole of the nucleus polyol to form a poly-hydroxy compound.

3,600,422

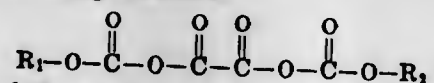
CARBONATE-GROUP-CONTAINING OXALIC ACID ANHYDRIDE

Robert K. Krueger, Oconomowoc, and Saul S. Weinstein, Milwaukee, Wis., assignors to Jos. Schlitz Brewing Company, Milwaukee, Wis.
Filed Nov. 25, 1966, Ser. No. 597,155
Int. Cl. C07c 69/100

U.S. Cl. 260—463

2 Claims

A mixed anhydride having particular use for eliminating the growth and reproduction of microorganisms and having the following formula:



where R_1 and R_2 may be hydrogen or a carbon containing radical having up to 24 carbon atoms.

3,600,423

PREPARATION OF HYDROXY-CAPRONITRILE
Gerardus I. J. Dreesen, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
No Drawing. Filed June 20, 1969, Ser. No. 835,220
Claims priority, application Netherlands, June 21, 1968, 6808725
Int. Cl. C07c 121/02

U.S. Cl. 260—465.2

1 Claim

Preparation of hydroxy-capronitrile by reaction in the vapour phase of ϵ -caprolactone with ammonia, the re-

action temperature being maintained at 270–325° C. and zinc oxide being used as a catalyst.

3,600,424

PROCESS FOR THE PURIFICATION OF NITRILES
Charles Laviron and Michel Schmidgen, Saint-Avoid, France, assignors to Ugine Kuhlmann, Paris, France
No Drawing. Filed Aug. 15, 1967, Ser. No. 660,578
Claims priority, application France, Aug. 26, 1966, 74,295
Int. Cl. C07c 121/30, 121/18

U.S. Cl. 260—465.3

4 Claims

A process for purifying nitrile-containing compositions, particularly compositions containing hydrocyanic acid or nitriles such as acrylonitrile. The process involves freeing the nitriles of epoxide impurities by converting the latter to the corresponding glycols by hydration in the presence of acids. The nitriles are then distilled to leave the glycols as tail products.

3,600,425

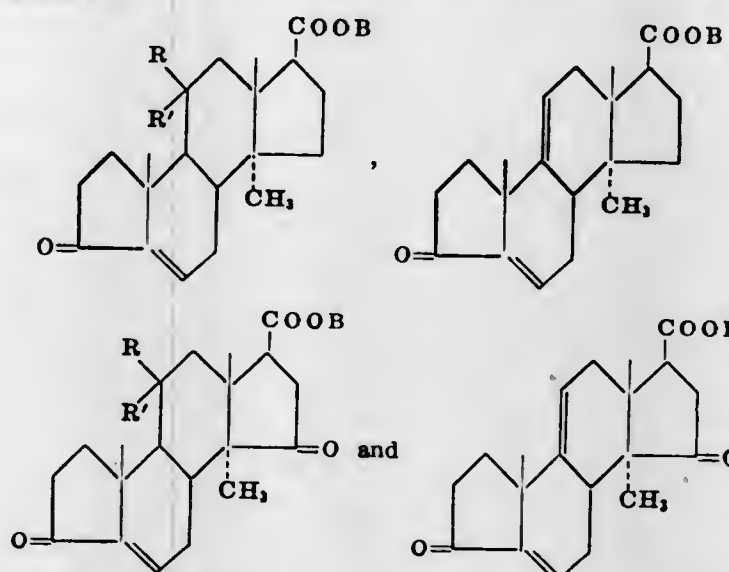
SYNTHESIS OF STEROIDS

Josef Fried, Princeton, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Original application Sept. 13, 1963, Ser. No. 308,693, now Patent No. 3,393,230, dated July 16, 1968. Divided and this application Dec. 13, 1967, Ser. No. 725,962
The portion of the term of the patent subsequent to Feb. 23, 1982, has been disclaimed
Int. Cl. C07c 171/06

U.S. Cl. 260—468F

4 Claims

This invention relates to novel compounds having the formulae



wherein B is selected from the group consisting of hydrogen and lower alkyl; R is hydrogen; R^1 is hydroxy; and together R and R^1 is oxo(=O). These compounds are intermediates for steroids possessing anti-androgenic activity.

3,600,426

1-AMINOCYCLOPENTANECARBOXYLIC ACID ESTERS

Norman H. Grant, Wynnewood, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Sept. 30, 1968, Ser. No. 763,947
Int. Cl. C07c 101/36, 125/06, 101/44

U.S. Cl. 260—368R

4 Claims

1-aminocyclopentanecarboxylic acid esters optionally mono-substituted on the amino group with alkyl, aryl, arylalkyl or arylalkoxycarbonyl (I) are provided by reacting the corresponding 1-aminocyclopentylacyl compound (II) with a reagent (III) capable of providing the ester linkage. Compounds (I) are pharmacologically active in warm blooded lower animals as anti-inflammatory and anti-immune agents.

3,600,427

PHENYL CARBAMATE LATENTiated PHENETHYLAMINES

Anthony J. Verbiscar, 1616 E. Montecito Ave., Sierra Madre, Calif. 91024
No Drawing. Continuation-in-part of application Ser. No. 338,289, Jan. 17, 1964. This application May 8, 1967, Ser. No. 636,650
Int. Cl. C07c 125/04

U.S. Cl. 260—471

17 Claims

Method of providing a physiologically active amine at a site within the body of a mammal where the amine exerts activity on the central nervous system or cerebral cortex which comprises administering an aromatic carbamate of said amine to a mammal at a dosage level stoichiometrically equal to dosage level of the physiologically active amine, whereby said carbamate is absorbed and hydrolyzed in the body, releasing the physiologically active amine. A carbamate of a physiologically active amine wherein the ester moiety is an aromatic radical of the benzene and pyridine series which may be substituted with carbalkoxy, cyano, nitro, carbamoyl, sulfamoyl, acyl and halogen radicals and wherein the nitrogen atom of the carbamic acid moiety is a nitrogen atom of a non-tertiary amino radical of the physiologically active amine penetrates the blood-brain barrier and then release the amine.

3,600,428

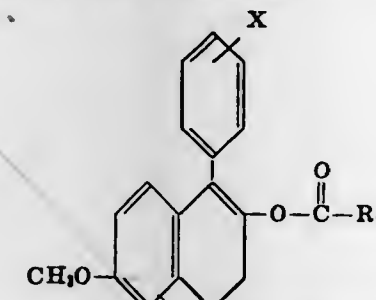
1-PHENYL-2-ACYLOXY-6-METHOXY-3,4-DIHYDRONAPHTHALENES

Daniel Lednicer, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Original application Aug. 17, 1966, Ser. No. 572,889, now Patent No. 3,452,102, dated June 24, 1969. Divided and this application Jan. 14, 1969, Ser. No. 791,148
Int. Cl. C07c 69/76, 69/78

U.S. Cl. 260—476C

2 Claims

Novel 1-phenyl-2-acyloxy-6-methoxy-3,4-dihydronaphthalenes of the formula:



wherein X is hydrogen, halogen, trifluoromethyl or lower-alkyl and R_2 is an aryl radical of 6 to 10 carbon atoms, inclusive. These compounds are useful intermediates in the preparation of the corresponding 1,2-diphenyl-6-methoxy-1,2,3,4-tetrahydro-1,2-naphthalenediols.

3,600,429

PRODUCTION OF ORGANIC ESTERS IN THE PRESENCE OF PALLADIUM ON AN ALUMINA SUPPORT IN SPINEL FORM

Walter Kronig, Leverkusen, Germany, and Bruno Georg Gustav Frenz, deceased, late of Leverkusen, Germany, by Waltraud Evelln Ursula Frenz, acting legal representative, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation-in-part of applications Ser. No. 370,360, May 26, 1964, Ser. No. 472,734, July 16, 1965, Ser. No. 506,263 and Ser. No. 506,282, both Nov. 3, 1965. This application Dec. 19, 1966, Ser. No. 603,710
Int. Cl. C07c 67/04

U.S. Cl. 260—475N

4 Claims

An improved process for preparing organic acetates and esters by reacting an organic acid, oxygen and an un-

saturated compound in the presence of a novel catalyst comprising palladium supported on a spinel containing carrier.

3,600,430

PURIFICATION OF DIESTERS OF BENZENE DICARBOXYLIC ACIDS

Preston K. Martin and Bobby J. Bland, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Filed Mar. 22, 1968, Ser. No. 715,202
Int. Cl. C07c 69/80, 69/82

U.S. Cl. 260—475PR

12 Claims

A process for the purification of a diester of a benzene dicarboxylic acid, e.g. bis(2-hydroxyethyl) terephthalate, by mixing a mononuclear aromatic hydrocarbon or a halo-hydrocarbon solvent with an insoluble amount of molten diester, followed by separating the resulting two phases and recovering purified diester from the lighter of the two phases.

3,600,431

NEOALKANOIC ACID ESTERS OF PHENOLS

Wallace Edmondson Taylor and Enrique Roberto Witt, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Application Oct. 22, 1964, Ser. No. 405,821, now Patent No. 3,462,468, dated Aug. 19, 1969, which is a continuation-in-part of application Ser. No. 174,378, Feb. 20, 1962. Divided and this application Dec. 20, 1968, Ser. No. 816,430
Int. Cl. C07c 69/24, 69/28, 69/78

U.S. Cl. 260—479R

10 Claims

This invention relates to neoalkanoic acid esters of aromatic hydroxy compounds which are useful as lubricants suited for use at high temperatures.

3,600,432

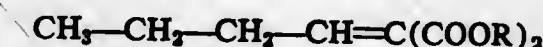
PREPARATION OF BUTYLIDENE MALONIC ACID ESTERS

Christoph Zinsstag and Gerhard Schreiner, Visp, Switzerland, assignors to Lonza Ltd., Gampel, Valais, Switzerland
No Drawing. Filed Mar. 4, 1968, Ser. No. 709,939
Claims priority, application Switzerland, Mar. 7, 1967, 3,274/67
Int. Cl. C07c 69/38

U.S. Cl. 260—485R

10 Claims

Butylidene malonic acid esters of the formula



are prepared by adding an excess of at least 50 mole percent, calculated on malonic ester, of n-butyraldehyde, to a charge containing malonic ester, piperidine, a strong organic acid, and an entraining agent, at a pressure of 1.5 to 4 atm. and a temperature of 80 to 130° C. whereby the water formed is removed during the reaction by the entraining agent.

3,600,433

PERFLUORO CYCLOHEXANE ESTERS OF ACRYLIC AND METHACRYLIC ACIDS

Dewey G. Holland, Allentown, Ronald C. Moyer, Souder-ton, John H. Polevy, Allentown, and Robert A. Walde, Emmaus, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa.
No Drawing. Filed Jan. 11, 1967, Ser. No. 608,510
Int. Cl. C07c 69/54

U.S. Cl. 260—486R

6 Claims

C_2 and higher alkyl benzoyl halides are subjected to electrolytic fluorination in a fluorination cell under conditions producing corresponding perfluorinated (alkyl cyclohexane) carbonyl fluorides in high yield and with minimum destruction of the carbonyl function. Periodic reversal of polarity, circulation of HF electrolyte, and pro-

longed uniform production rate subsequent to an induction period of several days are described as contributing factors. Perfluoro and polyfluoro cyclohexane carbonyl fluorides, particularly those containing a 4 perfluoroalkyl substituent, are converted to amides or esters having polymerizable unsaturation. Segmented copolymers such as polybutadiene-poly (perfluoro-4-n butyl cyclohexane) carbinol acrylate impart soil repellancy and related perfluoro surface properties to substrates such as textiles. Fabrics treated with such copolymers and thermally cured, and containing as little as 0.5% fluorine, have acceptable oil and water repellency.

3,600,434

HALIDE ADDITION PROCESS

Frederick F. Rust, Orinda, and Harvey S. Klein, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Original application Feb. 6, 1964, Ser. No. 343,136, now Patent No. 3,480,661, dated Nov. 25, 1969. Divided and this application May 29, 1969, Ser. No. 840,085

Int. Cl. C07c 67/00, 51/00, 45/00

U.S. Cl. 260—486H

10 Claims

Halogenated carbonylic compounds are prepared by the addition of α -(di- to polyhalo) carbonylic compounds to olefins and dienes in the presence of a copper salt as catalyst.

3,600,435

BIS ALIPHATIC PHOSPHONIC ACID ANHYDRIDES

David L. Randall and Clarence R. Stahl, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

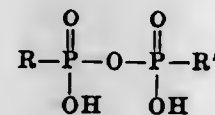
No Drawing. Filed Jan. 26, 1968, Ser. No. 700,743

Int. Cl. C07f 9/28, 9/38

U.S. Cl. 260—502.4P

1 Claim

Bis aliphatic phosphonic acid anhydrides represented by the formula:



wherein R and R' represent an alkyl group, including halo alkyl groups, of 1 to 6 carbon atoms, and preferably a 2-haloalkyl group.

3,600,436

(3-OXOPENTA-1,4-DIEN-1,5-YLENE)-BIS-[(p-PHENYLENEOXY)ACETIC ACID]

Stephen J. Kuhn and Janet E. Ilavsky, Sarnia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 22, 1968, Ser. No. 731,293

Int. Cl. C07c 65/00

U.S. Cl. 260—520

1 Claim

Disclosed is (3-oxopenta-1,4-dien-1,5-yleno) - bis - [(p-phenyleneoxy)acetic acid] which compound is a useful insecticide.

3,600,437

SUBSTITUTED PHENYLALKANOIC ACIDS AND DERIVATIVES THEREOF

Winston S. Marshall, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of applications Ser. No. 752,801, Aug. 15, 1968, and Ser. No. 823,477, May 9, 1969. This application May 28, 1969, Ser. No. 828,756

Int. Cl. C07c 65/00, 149/40

U.S. Cl. 260—520

6 Claims

Novel alkanic acids, substituted by 3-phenoxyphenyl or 3-phenylthiophenyl groups, and the esters, amides,

amines, alcohols, ethers, tetrazoles, carbamates, and ureas related thereto as well as novel intermediates useful in the preparation of such compounds. The compounds of this invention are useful as antiinflammatory, analgesic, and antipyretic agents.

3,600,438

NITROSO DIFLUORO ACETYL HALIDES AND A METHOD FOR THE PREPARATION THEREOF

Robert A. Falk, Rockaway, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,198

Int. Cl. C07c 51/58, 53/20

U.S. Cl. 260—544

4 Claims

Compounds represented by the formula



wherein X is fluoro, chloro, or bromo are disclosed. A method for producing these compounds is provided which consists of reacting for example a 1,1,2,2-tetrafluoro-2-nitroso ethyl or lower alkyl ether with AlCl_3 in an anhydrous solvent at a temperature from -10°C . to 50°C . and recovering nitroso difluoro acetyl chloride and nitroso difluoro acetyl fluoride. The compounds are useful crosslinking monomers for making polymers which are highly resistant to oxidation and corrosion.

3,600,439

PROCESS FOR THE PREPARATION OF A MIXTURE OF N-CHLOROCARBONYL-ISOCYANIDE DICHLORIDE AND CARBONYL-BIS-(N-ISOCYANIDE DICHLORIDE)

Hermann Hagemann, Cologne-Flittard, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 22, 1968, Ser. No. 731,284

Claims priority, application Germany, Aug. 30, 1967, F 53,353

Int. Cl. C07c 127/00

U.S. Cl. 260—544

9 Claims

Preparation of a mixture of N-chlorocarbonylisocyanide dichloride and carbonyl-bis-(N-isocyanide dichloride) or the corresponding thio compounds, by reacting cyanogen chloride in the absence of Lewis acids with phosgene or thiophosgene, e.g. at a temperature of $100-300^\circ\text{C}$., under elevated pressure, e.g. 5–100 atmospheres excess pressure, in the presence of active charcoal, optionally in the presence of an inert gas and/or inert solvent, the mixture being recovered by distillation; each of the mixture components being usable directly as insecticides as well as in the production of auxiliary components for use in the manufacture of synthetic resins and of plant protective agents.

3,600,440

PROCESS FOR CARRYING OUT PARTIAL OXIDATION OF ORGANIC COMPOUNDS

E. Gordon Foster, Bronxville, N.Y., and Stanley F. Newman, San Francisco, and Robert H. Overcashier, Walnut Creek, Calif., assignors to Shell Oil Company, New York, N.Y.

Filed Jan. 24, 1968, Ser. No. 700,199

Int. Cl. C07c 47/22, 57/04; C07d 1/12, 5/34, 5/10

U.S. Cl. 260—530

12 Claims

A process for carrying out partial oxidation of organic compounds in the vapor phase by circulating catalytic granular solids continuously through a system which includes vertically elongated up-flow and down-flow paths, one of which passes through an elongated reaction zone. The solids move as a compact bed, at least through the

reaction zone, and separate gaseous streams containing respectively an organic compound to be oxidized and oxygen are continuously admitted directly into the moving contact bed within the reaction zone at points spaced apart

3,600,442

METHOD OF RECOVERING VANILLIN FROM CRYSTALLIZATION LIQUORS

Wayne Benjamin Gitchel, Rothschild, Donald Guy Diddams, Schofield, and Clarence Anthony Hoffman, Rothschild, Wis., assignors to American Can Company, New York, N.Y.

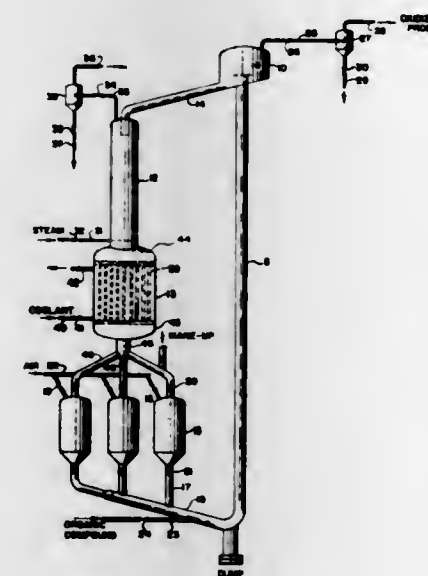
No Drawing. Filed Jan. 7, 1969, Ser. No. 789,599

Int. Cl. C07c 47/58

U.S. Cl. 260—600

6 Claims

Vanillin is recovered from aqueous methanol crystallization mother liquors through selective precipitation by serially treating the crystallization liquors with amounts of alkali-metal hydroxide and a zinc or magnesium salt, preferably a zinc salt, stoichiometrically equivalent to the 5-formylvanillin present, causing the 5-formylvanillin to precipitate, and removing the precipitated 5-formylvanillin, and repeating these steps with the same agents in amounts at least stoichiometrically equivalent to the vanillin and acetovanillone present, thereby precipitating the vanillin and acetovanillone. The vanillin is then separated from the acetovanillone by the bisulfite method.



3,600,443

PROCESS FOR THE CATALYTIC OXIDATION OF LOWER OLEFINS TO CARBONYLS AND ACIDS

Guidobaldo Cevdalli, Milan, Vahan Gurdjian, Mantova, Nicola Giordano, Milan, and Adriano Del Vesco, Mantova, Italy, assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 536,148, Mar. 21, 1966, which is a continuation of application Ser. No. 119,312, June 26, 1961. This application Sept. 26, 1966, Ser. No. 581,718

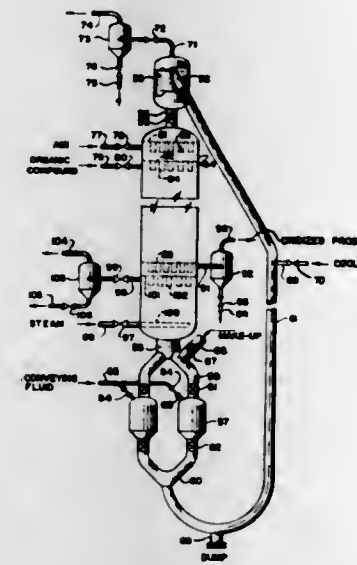
Claims priority, application Italy, July 1, 1960, 11,695/60

Int. Cl. C07c 45/04, 51/32

U.S. Cl. 260—604R

5 Claims

A process for the oxidation of ethylene and propylene to the corresponding aldehyde or acid in which a heteropolyacid or oxide is formed from a first component, an oxide of vanadium, tungsten and molybdenum, and a second component, an acid or oxide of boron, aluminum, silicon, titanium, germanium, zirconium, tin, cerium, phosphorus, arsenic, antimony, bismuth, sulphur, chromium, selenium, tellurium, manganese, iron, cobalt and nickel. The ethylene or propylene is brought into gas-solid contact with the solid catalyst on a support in the absence of any liquid phase for the contact time of 0.5 to 10 seconds at a temperature of 180° to 400°C ., a pressure up to 10 atmospheres, a water vapor: olefin molar ratio of 1 to 10 and an oxygen: olefin ratio of 0.5 to 5.



in the direction of movement of the bed. The streams and contact bed are flowed co-currently through the reaction zone and the reacted mixture is separated from the bed after passage through at least a part of the length of one of the paths.

3,600,441

PROCESS FOR THE PRODUCTION OF OXAMIDE

Theodor Lussling and Ferdinand Theissen, Grossauheim, and Wolfgang Welgert, Offenbach, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,065

Claims priority, application Germany, Mar. 2, 1968, P 16 93 012.4

Int. Cl. C07c 97/00

U.S. Cl. 260—561

10 Claims

Oxamide is formed in good yields under anhydrous conditions employing (1) cyanogen, (2) a carboxylic acid and (3) a carboxylic acid halide or hydrogen halide. Preferably superatmospheric pressure is employed.

3,600,444

HYDROXYARYLTHIO COMPOUNDS AND PROCESS OF PREPARATION

Norman W. Dachs, Buffalo, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Aug. 5, 1968, Ser. No. 749,951

Int. Cl. A01n 9/12; C07c 149/36

U.S. Cl. 260—609

18 Claims

There are described hydroxyarylthio ethane and ethylene derivatives containing in the α -position to the hydroxyarylthio radical an alkoxy, aryloxy, alkaryloxy, aralkoxy, alkylcarboxy, arylcarboxy, alkylthio, arylthio, alkarylthio, aralkylthio, alkylcarbonylthio and arylcarbonylthio. A process for the preparation of said compounds and their pesticidal utility are also described.

3,600,445

ORGANIC SCINTILLATORS

Hermann O. Wirth, Bingen-Budesheim, Werner Kern, Mainz (Rhine), Günter Herrmann, Mainz-Bretzenheim, and Fritz U. Herrmann, Marl, Germany, assignors to E. Merck AG, Darmstadt, Germany
No Drawing. Filed July 20, 1966, Ser. No. 566,489
Claims priority, application Germany, July 20, 1965, M 66,038

Int. Cl. C07c 43/20, 15/12

U.S. Cl. 260—613 2 Claims
Organic scintillators having relatively high solubilities in homopolar solvents, comprising a variety of substituted oligoaryl compounds.

3,600,446

HYDROXYLATION OF AROMATIC COMPOUNDS

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,391
Int. Cl. C07c 39/02, 43/20

U.S. Cl. 260—613D 9 Claims
Nuclear hydroxylation of aromatic compounds is effected by treating said aromatic compound with hydrogen peroxide in the presence of a co-reactant comprising hydrogen cyanide, a metal salt of hydrogen cyanide, or an organic nitrile at a temperature in the range of from about -10° to about 100° C.

3,600,447

PREPARATION OF HYDROXYLATED AROMATIC COMPOUNDS

Jerome A. Vesely, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Dec. 20, 1965, Ser. No. 515,142
The portion of the term of the patent subsequent to Oct. 22, 1985, has been disclaimed
Int. Cl. C07c 39/00, 39/08, 39/10

U.S. Cl. 260—621 8 Claims
Preparation of a hydroxylated aromatic compound by treating a t-alkyl substituted aromatic compound with H₂O₂ in the presence of a Friedel-Crafts catalyst at a temperature of -10° C. to 100° C.

3,600,448

HALOALLYLIC COMPOUNDS AND THEIR PREPARATION

Gene C. Robinson, 1064 N. Leighton Drive, Baton Rouge, La. 70806
No Drawing. Continuation of application Ser. No. 536,604, Mar. 23, 1966. This application Aug. 6, 1969, Ser. No. 849,593
Int. Cl. C07c 39/26

U.S. Cl. 260—623D 17 Claims
β-Haloallylic phenols are prepared by heating a gem-dihalocyclopropane, a phenolic compound having at least one ortho or para hydrogen substituent on the phenolic nucleus, and an alkali metal salt of a phenolic compound to a suitable reaction temperature (e.g., 100 to 200° C.). Novel β-haloallylic phenols are described. These are suitable for use as germicides, fungicides, pesticides, antioxidants, and intermediates for the synthesis of benzofurans.

3,600,449

PREPARATION OF PRIMARY ALCOHOLS

Robert A. Dombro, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed June 20, 1968, Ser. No. 738,419
The portion of the term of the patent subsequent to Dec. 24, 1985, has been disclaimed
Int. Cl. C07c 31/02, 31/16, 35/02

U.S. Cl. 260—638R 8 Claims
Preparation of a primary alcohol by heating an ester of a terminal olefin and a carbothiolic acid in solution

and at about 100°–300° C. with a cleaving agent, such as alkali metal or alkaline earth metal hydroxides or alkoxides, and a mild oxidizing agent, such as a sulfoxide.

3,600,450

PROCESS FOR PREPARING VINYLIDENE FLUORIDE

Franz Kaess, 7 Adalbert Stifter-Str., 8223 Traunstein, Germany; Klaus Lienhard, 11 Wiesenleite, 8223 Trostberg-Mogling, Germany; and Horst Michaud, 6 Dr. Albert Frank-Str., 8223 Trostberg, Germany.
No Drawing. Filed Aug. 29, 1968, Ser. No. 756,329
Claims priority, application Germany, Aug. 29, 1967, S 111,575, S 111,576
Int. Cl. C07c 21/18

U.S. Cl. 260—653.3 4 Claims
Vinylidene fluoride is produced by the gaseous phase reaction of vinylidene chloride with at least 2 mols of hydrofluoric acid per mol of vinylidene chloride at a temperature of from 200° to 400° C. in presence of a catalyst selected from trivalent chromium salts and aluminum fluoride activated with a vanadium, tin or lanthanum compound.

3,600,451

POLYMER ALKYLATION OF AROMATICS

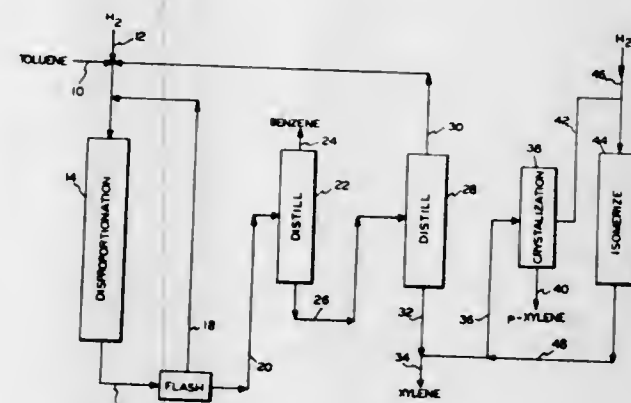
Richard Duwayne Rowe, Dickinson, Tex., assignor to Cosden Oil & Chemical Company, Big Spring, Tex.
No Drawing. Continuation-in-part of application Ser. No. 440,281, Mar. 16, 1965. This application Sept. 5, 1969, Ser. No. 855,774
Int. Cl. C07c 15/04, 3/56

U.S. Cl. 260—668 5 Claims
A polybutene polymer of high molecular weight is alkylated upon a benzene ring compound to produce heat stable higher isoalkyl compounds having at least one and usually more benzene ring positions isoalkylated to higher molecular weight higher isoalkyl benzene compounds highly heat stable and useful as lubricant, hydraulic oil, or heat transfer fluid.

3,600,452

ALKYL TRANSFER OF ALKYL AROMATICS WITH METALS OF GROUPS V-B, VII-B, I-B, AND II-B ON BORIA-ALUMINA

Stephen M. Kovach and Ronald A. Kmecak, Ashland, Ky., assignors to Ashland Oil & Refining Company, Houston, Tex.
Filed Dec. 19, 1968, Ser. No. 785,194
Int. Cl. B01j 11/06; C07c 3/58, 15/08
U.S. Cl. 260—672 12 Claims



A process for the alkyl transfer of alkyl aromatics, including contacting an alkyl aromatic feed material, such as toluene, with a catalyst comprising a metal selected from Group I-B, such as copper or silver, Group II-B, such as zinc or cadmium, Group V-B, such as vanadium, and Group VII-B, such as manganese, and boria deposited on an alumina base at a temperature of about

3,600,456

PRODUCTION OF C₇-C₂₀ OLEFINS

Christopher Patrick Cadman Bradshaw, Sunbury-on-Thames, Middlesex, England, assignor to The British Petroleum Company Limited, London, England
No Drawing. Filed Dec. 5, 1968, Ser. No. 781,616
Claims priority, application Great Britain, Jan. 8, 1968, 1,050/68
Int. Cl. C07c 3/62

U.S. Cl. 260—683D 12 Claims
C₇-₂₀ olefins are prepared by contacting olefins of carbon number C₃ or higher with a disproportionation catalyst comprising rhenium heptoxide or rhenium carbonyl supported on a metal oxide, and an isomerisation catalyst e.g. potassium on alumina.

3,600,457

SHORT CYCLE CATALYTIC DEHYDROGENATION OF ALKANES

Avery D. Milloy, Beacon, and Edwin R. Kerr, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Feb. 24, 1969, Ser. No. 801,858
Int. Cl. C07c 5/18, 3/28

U.S. Cl. 260—683.3 7 Claims
Normal alkanes are catalytically dehydrogenated in a two period cyclic operation alternating between a reaction period of less than 60 seconds and a regeneration period 1 to 10 times as long. A mixture of steam and alkane passes through the catalyst during the reaction period while a mixture of steam and air is used to reactivate the catalyst during the regeneration period.

3,600,458

SHAPED STRUCTURES

Saunders E. Jamison, Summit, N.J., assignor to Celanese Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 611,468, Jan. 24, 1967, which is a continuation of application Ser. No. 364,349, Apr. 10, 1964, which in turn is a division of application Ser. No. 62,534, Oct. 4, 1960, now Patent No. 3,231,543. This application Sept. 13, 1968, Ser. No. 759,791
Int. Cl. C08g 45/06

U.S. Cl. 260—830 7 Claims
This application discloses a process of preparing a self-supporting shaped structure which comprises polymerizing a solid phase monomer in the presence of a fluid catalyst. Specifically, trioxane is mixed with a resinous binder and then polymerized in the presence of boron fluoride. Also disclosed is the copolymerization of trioxane with diepoxides.

3,600,459

COATING COMPOSITIONS CONTAINING A POLYESTER COMPOSITION, AN EPOXY RESIN AND AN AMINOPLAST RESIN

Joseph A. Vasta, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 13, 1968, Ser. No. 728,773
Int. Cl. C08g 17/007

U.S. Cl. 260—834 9 Claims
Novel polyester compositions resulting from the esterification reaction of two or more dicarboxylic acids or anhydrides, a glycidyl ester, a glycol and a polyol selected from the group consisting of trimethylol ethane, trimethylol propane, glycerine and pentaerythritol are provided for use in formulating thermosetting coating compositions by blending the polyester compositions with an epoxyhydroxy polyether condensate and an aminoplast resin for ultimate use in coating industrial appliances.

3,600,453

OLEFIN CLASSIFICATION PROCESS

Paul H. Reichenbacher, Elk Grove Village, and Armand J. de Rosset, Clarendon Hills, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Mar. 5, 1969, Ser. No. 804,684
Int. Cl. C10g 43/08

U.S. Cl. 260—677 6 Claims
A stream containing at least one hydrocarbon isomer selected from the organic compounds having double bonds in cis and trans geometric configurations is contacted with a crystalline aluminosilicate adsorbent to effect adsorption of at least one geometric isomer by the adsorbent. A desorbent stream is then contacted with the crystalline aluminosilicate adsorbent to displace the adsorbed geometric isomer and a stream comprising desorbent and at least one geometric isomer is recovered.

3,600,454

GAS-LIQUID CONTACTING USING SILICONE ANTIFOAMING AGENT IN BUTADIENE EXTRACTION

Pannalal Sohanlal Jhawar, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Oct. 10, 1969, Ser. No. 865,509
Claims priority, application Great Britain, Oct. 14, 1968, 48,618/68
Int. Cl. B01d 3/40; C07c 7/08, 11/16

U.S. Cl. 260—681.5 12 Claims
Gases, for example mixtures of hydrocarbons, are contacted with a liquid selected from dimethylformamide, dimethylacetamide and saturated heterocyclic compounds having 5- or 6-membered rings in which the hetero atom is oxygen or nitrogen, for example N-methylpyrrolidone, and an antifoaming agent, for example a silicone. The process reduces foaming in processes such as the solvent extraction of butadiene, allowing increased extraction rates.

3,600,455

PRODUCTION OF 4-METHYL PENTENE-1

Fred Dean, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Dec. 9, 1969, Ser. No. 883,586
Claims priority, application Great Britain, Dec. 19, 1968, 60,425/68
Int. Cl. B01j 11/58; C07c 1/24

U.S. Cl. 260—682 4 Claims
A process for producing 4-methyl pentene-1 which comprises dehydrating 4-methyl pentan-1-ol or 4-methyl pentan-2-ol by passing it over a dehydration catalyst comprising alkalis alumina.

3,600,460
THERMOPLASTIC REACTION PRODUCT OF A LINEAR SATURATED POLYESTER AND A POLYALKYLENE-DIOL
 Ludwig Brinkmann and Helmut Fröhlich, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Filed Sept. 20, 1968, Ser. No. 761,315
 Claims priority, application Germany, Oct. 7, 1967, P 17 20 723.7

Int. Cl. C08f 29/10; C08g 17/06, 39/10
 U.S. Cl. 260—860 12 Claims
 Thermoplastic moulding compositions comprising linear saturated polyesters and polyalkylene-diols which can be moulded into shaped articles having a high impact strength and bending strength.

3,600,461
VINYL HALIDE POLYMERIC BLENDS
 Yoon Chai Lee, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.
 No Drawing. Filed Aug. 5, 1968, Ser. No. 749,942
 Int. Cl. C08f 29/24, 37/18, 41/12

U.S. Cl. 260—876R 13 Claims
 A polymeric blend is prepared from a vinyl halide polymer and an interpolymers of a dicyanobutene-1. The blends exhibit low oxygen permeability and a superior balance of heat resistance and processability while maintaining or improving other properties, including toughness.

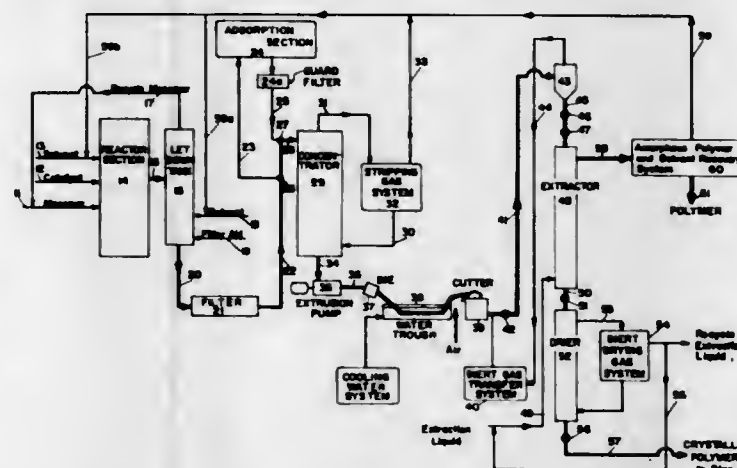
3,600,462
OLEFIN POLYMER BLEND WITH DICARBOXYLIC ACID OF BLOCK COPOLYMER OF α -METHYL STYRENE AND ALIPHATIC CONJUGATED DIOLEFIN
 Thomas O. Harmon, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Sept. 5, 1968, Ser. No. 757,796
 Int. Cl. C08f 29/12, 29/36, 29/50

U.S. Cl. 260—876 10 Claims
 A composition of matter comprising a blend of an olefin polymer such as polyethylene and a dicarboxylic acid of a block copolymer of α -methyl styrene and an aliphatic conjugated diolefin such as 1,3-butadiene has the characteristics of a cross-linked polymer. The composition of matter is prepared by blending or otherwise mixing the olefin polymer and the dicarboxylic acid block copolymer in relative proportions such that the final product has at least about 0.5 percent by weight dicarboxylic acid block copolymer. The composition of matter is useful for providing a protective coating on a substrate of metal or the like.

3,600,463
PROCESS FOR PRODUCING SUBSTANTIALLY ASH-FREE POLYOLEFIN POLYMERS
 Hugh J. Hagemeyer, Jr., David C. Hull, and Samuel J. Park, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.
 Continuation-in-part of application Ser. No. 636,118, May 4, 1967. This application Dec. 18, 1967, Ser. No. 695,820

Int. Cl. C08f 47/00
 U.S. Cl. 260—878B 11 Claims
 Processes for polymerizing alpha olefinic hydrocarbons comprising polymerizing an alpha olefin with a solid stereospecific catalyst in the presence of a diluent which is a solvent for the poly-alpha-olefin at the reaction temperature to produce a polymer solution containing catalyst residues. The polymer solution is filtered to remove catalyst residues. The filtered solution is contacted with alumina and concentrated to form a solid polymer concentrate containing residual solvent. Pellets are formed

of the polymer concentrate and the pellets extracted with a solvent for amorphous low molecular weight polymer



to produce a highly crystalline polymer substantially free of impurities.

3,600,464
SOLVENT RESISTANT VINYL-PYRIDINE BLOCK POLYMER DERIVATIVES AND THEIR PREPARATION
 Ralph H. Bauer, Huntington Beach, and Alfred W. Shaw, Moraga, Calif., assignors to Shell Oil Company, New York, N.Y.
 No Drawing. Continuation-in-part of application Ser. No. 361,256, Apr. 20, 1964. This application Oct. 3, 1968, Ser. No. 764,929

Int. Cl. C08f 15/02 5 Claims
 Novel block copolymer derivatives, resistant to non-polar organic solvents, are disclosed. These comprise block copolymers of the group consisting of block copolymers having at least three polymer blocks, at least two of the blocks being polymerized vinyl-pyridine compounds, dissimilar to the adjacent blocks, and at least one of the blocks being polymerized conjugated diene, and hydrogenated derivatives the copolymers, at least 50% of the heterocyclic nitrogen atoms being reaction products with mineral acids.

3,600,465
THERMOPLASTIC MOULDING COMPOSITIONS
 Karl-Heinrich Knapp, Leverkusen, and Karl-Heinz Ott, Karl Dinges, and Werner Scholtan, Cologne-Stammheim, Germany (all % Farbenfabriken Bayer AG, Leverkusen, Germany)
 Continuation of application Ser. No. 479,671, Aug. 13, 1965. This application Oct. 22, 1968, Ser. No. 769,762
 Claims priority, application Germany, Oct. 7, 1964, F 44,156

Int. Cl. C08f 15/04, 15/18
 U.S. Cl. 260—880 2 Claims
 Thermoplastic moulding compositions from butadiene, styrene and acrylonitrile having improved notched impact strengths and prepared from 5 to 60% by weight of butadiene polymer, containing up to 30% of copolymerized monomers, and 95 to 40% by weight of polymerized styrene and acrylonitrile in a weight ratio from 90:10 to 50:50.

3,600,466
PROCESS FOR THE PREPARATION OF PURE-WHITE POLYSTYRENE COMPOSITIONS
 Eiichi Moriguchi, Takeshi Goto, Michikazu Hiraoka, Teruhisa Mitsumori, and Shonosuke Rokudo, Tokyo, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
 No Drawing. Filed June 16, 1967, Ser. No. 646,477
 Int. Cl. C08f 1/04, 1/11; C08d 15/04
 U.S. Cl. 260—880 3 Claims
 Pure-white polystyrene compositions having high impact resistance and good heat resistance are prepared by a

two step graft polymerization, that is, by conducting a bulk polymerization of a mixture of a styrene monomer and polybutadiene at 80–120° C., with the conversion ratio of 20–40% of the styrene monomer with the addition of, if necessary, less than 0.2% by weight of dicumyl peroxide, conducting a suspension polymerization of the product, after mixing the product with an aqueous solution of a dispersing agent, at 105–125° C., with the addition of dicumyl peroxide, in an amount such that the total amount of the catalyst is 0.05–0.5% by weight until the conversion ratio reaches more than 70%, and then conducting further polymerization at 125–140° C. The uniformity of the product beads can be further improved by using as the dispersing agent a partially saponified vinyl acetate-dodecylvinyl ether copolymer.

3,600,467
PROCESS OF PREPARING GRAFT INTERPOLYMERS
 Jules Darcy, Sarnia, Ontario, and Paul Grenville Palmer, Acton, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada
 No Drawing. Filed Nov. 17, 1967, Ser. No. 683,810
 Claims priority, application Canada, Nov. 28, 1966, 976,538

Int. Cl. C08f 15/04 6 Claims
 Graft interpolymers of a vinyl aromatic monomer such as styrene, a butadiene-1,3 hydrocarbon and a vinyl nitrile monomer such as acrylonitrile are prepared by polymerization of the grafting monomers in the presence of the butadiene-1,3 hydrocarbon in solution in an aromatic hydrocarbon solvent, to a predetermined conversion of from 20–40%.

3,600,468
ADHESIVE BLEND COMPRISING AN ETHYLENE/UNSATURATED ACID COPOLYMER AND AN ETHYLENE/UNSATURATED ESTER COPOLYMER
 Reinhard D. Böhme, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Oct. 31, 1968, Ser. No. 772,376
 Int. Cl. C08f 37/18

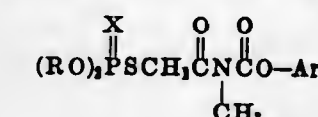
U.S. Cl. 260—897 7 Claims
 An adhesive blend of polymers having an adhesiveness in terms of peel strength greater than the sum of the peel strengths of each polymer in the blend comprising a copolymer of ethylene and an α,β -ethylenically unsaturated carboxylic acid such as acrylic acid and a copolymer of ethylene and an alkyl ester of an α,β -ethylenically unsaturated carboxylic acid such as ethyl acrylate. The adhesive blend is prepared by masticating the copolymers in a Banbury mixing apparatus or the like.

3,600,469
COATING COMPOSITIONS OF CHLOROSULFONATED POLYETHYLENE AND CHLORINATED ISOTACTIC POLYPROPYLENE
 Koichi Sato, Saita-shi, Akira Niki, Hirakata-shi, and Masanobu Morimoto, Ibaragi-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
 No Drawing. Filed Feb. 18, 1969, Ser. No. 800,295
 Claims priority, application Japan, Feb. 23, 1968, 43/11,092

Int. Cl. C08f 29/12, 29/22
 U.S. Cl. 260—897C 3 Claims
 A coating composition capable of affording a coating film having an improved surface adhesive property, comprising 100 parts by weight of a vulcanizable noncrystalline chlorosulfonated polyethylene, 15–45 parts by weight of tribasic lead maleate, 5–50 parts by weight of chlorinated isotactic polypropylene and, optionally, organic acids and vulcanization accelerators.

3,600,470
HYDROXY OR ALKOXY PHOSPHONATE COMPOSITIONS AND AMINE SALTS THEREOF
 Morton Lewis, Elmhurst, Ill., assignor to Swift & Company, Chicago, Ill.
 No Drawing. Filed Oct. 27, 1967, Ser. No. 678,546
 Int. Cl. C07f 9/40; C09k 3/00; C08f 5/58
 U.S. Cl. 260—924 13 Claims
 Hydroxy substituted phosphonates are produced by reacting a halohydrin with an aliphatic or aromatic phosphite. At high temperatures, an acidic compound is formed instead of, or at least substantially in place of the neutral compound. The neutral ester of the phosphonic acid can be subjected to either acidic or basic hydrolysis to form the free phosphonic acid, which in turn can react with alkyl amines or alkylol amines to form excellent corrosion inhibitors. The neutral esters themselves can be used as additives for extreme pressure lubricants.

3,600,471
N - α - DIALKOXYPHOSPHINOTHIOACETYL-N-METHYLCARBAMATES OF PHENOLS AND THEIR USE AS PESTICIDES
 Albert H. Haubein, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.
 No Drawing. Continuation-in-part of application Ser. No. 646,486, June 16, 1967, which is a continuation-in-part of application Ser. No. 567,064, July 22, 1966, both now abandoned. This application July 9, 1968, Ser. No. 743,322
 Int. Cl. A01n 9/36; C07f 9/18
 U.S. Cl. 260—938 14 Claims
 Compounds, useful as pesticides, of the formula



in which X is O or S, R is methyl or ethyl and Ar is phenyl or substituted phenyl. A representative compound is m-isopropylphenyl N- α -dimethoxyphosphinodithioacetyl-N-methylcarbamate.

3,600,472
O-(2,5-DICHLORO-4-ALKYLMERCAPTOPHENYL) THIONOPHOSPHATES AND THIONOPHOSPHONATES
 Richard Sehring and Wolfgang Buck, Ingelheim (Rhine), Germany, assignors to C. H. Boehringer Sohn, Ingelheim (Rhine), Germany
 No Drawing. Filed Nov. 15, 1967, Ser. No. 683,125
 Claims priority, application Germany, Nov. 22, 1966, B 89,951; July 41, 1967, B 93,427
 Int. Cl. A01n 9/36; C07f 9/18, 9/40
 U.S. Cl. 260—949 8 Claims
 The compounds are O-(2,5-dichloro-4-alkylmercaptophenyl) - thionophosphates and analogous thionophosphonates, useful as insecticides and acaricides.

3,600,473
PHOSPHATE ESTER- β -CAROTENE PRECURSORS
 Joseph Donald Surmatis, West Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
 No Drawing. Application July 11, 1968, Ser. No. 743,979, which is a division of application Ser. No. 416,128, Dec. 4, 1964. Divided and this application July 16, 1970, Ser. No. 55,583
 Int. Cl. C07f 9/40
 U.S. Cl. 260—956 2 Claims
 The compound diethyl 9-[2,6,6-trimethyl-1-cyclohexen-1-yl]-3,7-dimethyl-2,6,8-nonatrien-4-yne phosphonate, and its dehydrogenated products which are intermediates in the preparation of trans- β -carotene from oxenin or isooxenin.

3,600,474
CYCLOBUTENE PHOSPHORIC ACID ESTERS
 Beat Böhner and Kurt Rüfenacht, Basel, Switzerland, assignors to Celgy Chemical Corporation, Ardsley, N.Y.
 No Drawing. Filed Nov. 17, 1967, Ser. No. 683,784
 Claims priority, application Switzerland, Nov. 21, 1966, 16,667/66

Int. Cl. C07E 9/08, 9/22, 9/40
 U.S. Cl. 260—957 **9 Claims**
 Phosphoric acid esters which contain as esterifying radical a cyclobutenol radical which is fused to a ring system are produced from novel intermediates which are α -halogeno-cyclobutanones fused to a ring system. The esters are useful as pesticides; a method of controlling pests with the aid of the compounds as well as pesticidal compositions containing them as active ingredients are also described.

3,600,475
PROCESS FOR PREPARING 2-CHLOROETHANE-PHOSPHONIC ACID ESTERS
 Kurt Schimmelschmidt, Frankfurt am Main, and Hans-Jerg Kleiner, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Filed Mar. 7, 1968, Ser. No. 711,181
 Claims priority, application Germany, Mar. 9, 1967, F 51,763

Int. Cl. C07F 9/40
 U.S. Cl. 260—970 **3 Claims**
 Process for preparing 2-chloroethane-phosphonic acid esters by reacting vinyl chloride at about normal pressure with diethyl phosphites or diethyl thiophosphites in the presence of radicals generating substances and/or ultraviolet radiation at a temperature between about 120° and 200° C. and under inert atmosphere and in absence of oxygen.

3,600,476
METHOD FOR MANUFACTURE OF LIGHT WEIGHT AGGREGATES
 Takamura Suzuki, Tokyo, and Haruo Inagaki, Shoji Shishido, and Tadahiko Ara, Yokohama, Japan, assignors to Kanagawa Prefectural Government, Yokohama, Japan

No Drawing. Filed Sept. 10, 1969, Ser. No. 856,819
 Claims priority, application Japan, Sept. 18, 1968, 43/66,976

Int. Cl. C04b 31/00
 U.S. Cl. 263—52 **8 Claims**
 A method for the manufacture of coated-type light weight aggregates which comprises mixing a siliceous material, particularly a material such as fly ash which in itself is low in plasticity, with sludge from a sewage-treating plant and, if necessary, with sodium silicate or the like as an auxiliary binder, granulating the resultant mixture into pellets, and burning the pellets in a rotary kiln.

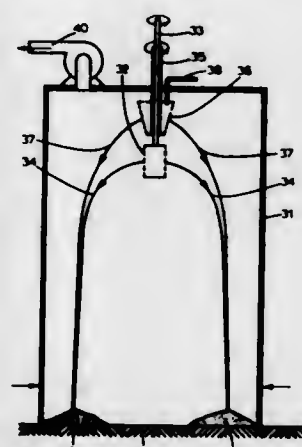
3,600,477
PROCESS FOR GRANULATING EXPLOSIVE COMPOSITIONS
 Lutz Friedel, Steyerberg, Gerhard Lindner, Holtorf, and Bruno Rohe, Steyerberg, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
 Filed Dec. 24, 1968, Ser. No. 786,678
 Claims priority, application Germany, Jan. 16, 1968, P 16 67 011.4

Int. Cl. C06b 21/02
 U.S. Cl. 264—3 **10 Claims**
 The present disclosure relates to a process and apparatus for the granulation of materials, for example suspensions of explosives, wherein said materials are introduced into a granulating vessel onto the surface of a rotating disk which flings the materials against the

walls of said granulating vessel. Advantageously, water or another suitable liquid is also introduced onto the surface of the rotating disk and is likewise flung against the wall of the granulating vessel together with the materials to be granulated. The addition of a fluid such as water during the process provides a maximum degree of safety during the operation.

3,600,478
SIMULTANEOUS PREPARATION OF UREA GRANULES OF TWO SIZES
 Franciscus A. Kars, Beukenboomweg 8, Sittard, Netherlands
 Filed May 8, 1969, Ser. No. 822,882
 Int. Cl. B01j 2/02

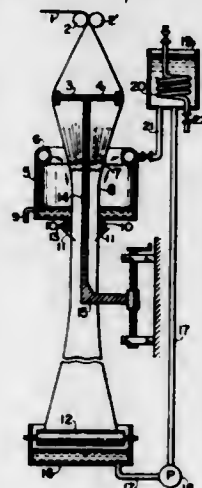
U.S. Cl. 264—8 **2 Claims**



There is provided a process for the preparation of urea granules, so-called prills. Drops of liquid urea are allowed to solidify to granular product during a free fall with direct cooling. The drops of liquid urea supplied from a perforated rotary vessel are solidified during the free fall in the presence of urea drops from a second perforated rotary vessel, the perforations in which have such a diameter that the mean diameter of the drops issuing from it is at most half that of the former drops. The solidified droplets are collected together and classified according to size. If two types of urea prills are produced, urea of different biuret contents can be supplied to each of the rotary vessels.

3,600,479
METHOD FOR UNIAXIALLY AFTER-STRETCHING A TUBULAR FILM
 Masahide Yazawa and Haruhisa Tani, Tokyo, Japan, assignors to Polymer Processing Research Institute Ltd., Tokyo, Japan

Filed Oct. 30, 1969, Ser. No. 872,579
 Claims priority, application Japan, Nov. 12, 1968, 43/82,729
 Int. Cl. B29d 7/16, 7/24
 U.S. Cl. 264—25 **14 Claims**



Method for producing at least one sheet of uniaxially oriented film having no appreciable extent of biaxial molecular orientation which is harmful to fibrillation, by

after-stretching a tubular film longitudinally in the original tubular state during the pass from feeding pinch rollers to take-up pinch rollers in the primary after-stretching, which comprises sliding it over the outside periphery of a horizontal circular guide mounted on a vertical elongated support at a temperature as close to room temperature as possible in order to recover the original round state from a flatly folded state; heating it uniformly up to a temperature sufficient for after-stretching so as to start rapid stretching all at once from a circumference lying at substantially the same level and cleaving the stretched film. The invention also may include the above-mentioned primary after-stretching and the secondary stretching carried out at a higher temperature than the primary after-stretching between another set of feeding pinch rollers and taking-up pinch rollers.

3,600,480
PROCESS FOR REPAIRING RUNNERS FOR HANDLING MOLTEN METAL
 Joseph R. Parsons, Park Forest, Ill., assignor to Chicago Fire Brick Company
 Filed May 15, 1969, Ser. No. 824,862
 Int. Cl. C04b 35/52, 35/54
 U.S. Cl. 264—30 **5 Claims**



A patch composition consisting essentially of particles of pitch and particles of carbon such as particles of coke, graphite or coal is filled into the recess of the damaged portion of a runner trough of a blast furnace or cupola while the trough is at a temperature above 500° F. but below the carbonization temperature of the pitch, and then the patch is further heated by a gas flame or other means to a temperature sufficient to carbonize of coke the pitch, this forming a solid patch of carbon. Small amounts of calcium chloride, clays, bentonite or liquid pitch may be added to the patch particle composition especially to relieve the dusting problem when fine particles of carbon such as 60 mesh or finer are used.

3,600,481
METHOD FOR MORE RAPIDLY PRODUCING AEROCONCRETE BUILDING ELEMENTS
 Walter Lanz, 601 Kleinfeld, 2563 Ipsach, Switzerland
 Continuation of application Ser. No. 642,038, May 29, 1967. This application Nov. 26, 1969, Ser. No. 873,747
 Claims priority, application Austria, June 8, 1966, A 5,454/66
 Int. Cl. C04b 15/02, 15/12
 U.S. Cl. 264—42 **2 Claims**



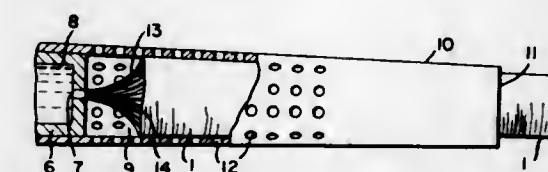
A method for continuously producing building elements of aeroconcrete, wherein components of a multi-part form include bottom portions which are recirculated to a filling

station after setting of the elements being produced while frames and inserts of the multi-part forms are recirculated after stabilization of the aeroconcrete which has been poured, and prior to the use are cleaned and greased. By using a mixture of aluminum and limestone powders as the blowing agent and by preheating the concrete mixture to about 20–35° C., the aeroconcrete is stabilized sufficiently to permit removal of the die frames within about 36 minutes after pouring.

3,600,482
METHOD OF FORMING A MAT OF FIBROUS GELATIN
 Ival O. Salyer and James L. Schwendeman, Dayton, Ohio, assignors to Monsanto Research Corporation, St. Louis, Mo.
 No Drawing. Continuation-in-part of application Ser. No. 606,001, Dec. 30, 1966. This application Jan. 15, 1970, Ser. No. 3,232

Int. Cl. B29d 27/00
 U.S. Cl. 264—50 **4 Claims**
 A process for preparing light, porous mats of gelatin fibers which comprises producing a low-density foam from a 3–25% gelatin solution containing a surfactant, bringing said foam to a temperature at which gelation occurs, drying said foam, and crushing the membranes of said foam. The mats are useful packaging and insulating materials, filters and thermoplastic adhesives.

3,600,483
PROCESS OF FLASH SPINNING AND COLLECTING PLEXIFILAMENT TO FORM ROD-SHAPED BACK-WINDABLE BATT
 Thomas Wade Davis, Petersburg, and Robert John Gilardi, Richmond, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 Original application Sept. 30, 1964, Ser. No. 400,353, now Patent No. 3,413,185, dated Nov. 26, 1968. Divided and this application June 17, 1968, Ser. No. 810,040
 Int. Cl. B29d 27/00; D01d 5/04
 U.S. Cl. 264—53 **6 Claims**



Flash-spun plexifilament is collected by allowing the network to expand in an elongated passageway adjacent the extrusion orifice and impinge on a yieldable surface whereby the network folds upon itself to form a rod-shaped back-windable batt. The passageway is at a pressure lower than that of the solution prior to extrusion and preferably above atmospheric. The cross-section of the passageway governs the size and shape of the cross-section of the expanded network.

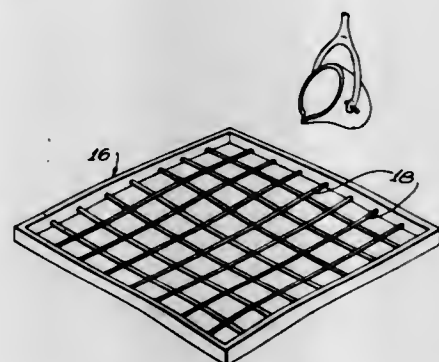
3,600,484
SINTERING FERROELECTRIC MATERIALS SUCH AS BARIUM TITANATE IN A VACUUM
 Edward J. Smoke, Edison, and Howard Wichansky, Eatontown, N.J., assignors to the United States of America as represented by the Secretary of the Army
 No Drawing. Filed Feb. 6, 1969, Ser. No. 797,237
 Int. Cl. C04b 35/00, 35/64

U.S. Cl. 264—65 **2 Claims**
 The dielectric properties of ferroelectric materials such as barium titanate are upgraded by sintering the dry pressed shapes in a vacuum having partial air pressures of 1 to 1000 microns. Maintaining the vacuum during cooling is optional.

3,600,485
METHOD OF PRODUCING SYNTHETIC STONE MEMBERS SIMULATING MOSAICS
 Shlomo Brauner, 46 Yahalom, Ramat Gan, Israel
 Filed May 22, 1967, Ser. No. 640,307
 Claims priority, application Israel, May 26, 1966, 25,848

U.S. Cl. 264—74 Int. Cl. B29c 9/00

3 Claims

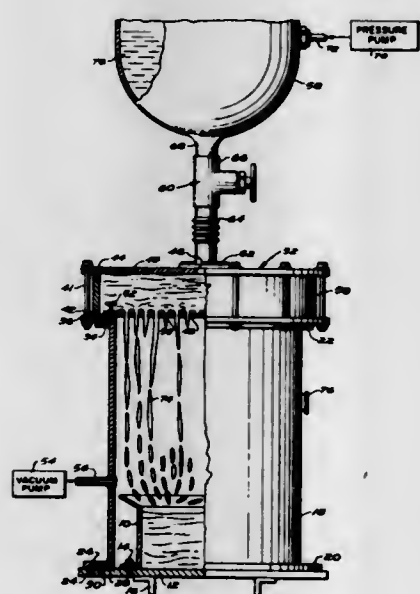


A method of producing synthetic stone members simulating mosaics is described, in which there is provided a mould having partitions dividing the bottom into a plurality of compartments, introducing into the compartments a layer of a liquid transparent material, a layer of a colored liquid plastic material, and then a layer of a backing material. According to a further feature the colored layer may be produced by pouring the plastic material through a screen having a plurality of spaced strands coated with coloring matter. The transparent and the colored layers are of an unsaturated polyester resin, the backing layer also including an unsaturated polyester resin, but further including styrene and particles of quartz, zircon, stone or plaster.

3,600,486
PRESSURE CASTING PROCESS
 Lloyd A. Walker, Placerville, and Rudolph A. Peterson, Rancho Cordova, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.
 Filed Dec. 4, 1967, Ser. No. 687,651
 Int. Cl. B29c 5/00

U.S. Cl. 264—89

5 Claims



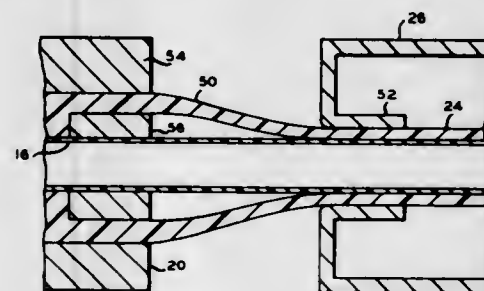
A pressure casting apparatus for casting highly viscous material having a casting mold within a vacuum bell, whereby the vacuum prevents voids in the cast material and reduces the pressurization otherwise required on a

transfer pot containing the material to be cast. The transfer pot is operably connected to a pressure casting head having pattern holes in the bottom thereof, which casting head forms the top of the vacuum bell above the casting mold. The casting process is performed by drawing a vacuum in the bell, pressurizing the transfer pot, forcing the material from the transfer pot through the casting head, and dropping the extruded material into the casting mold for curing.

3,600,487
FORMING PARISONS WITH NUCLEATED INNER LAYER
 Fredrick Zavasnik, Chicago, Ill., assignor to Phillips Petroleum Company
 Filed Sept. 8, 1969, Ser. No. 855,801
 Int. Cl. B29c 17/07

U.S. Cl. 264—89

9 Claims

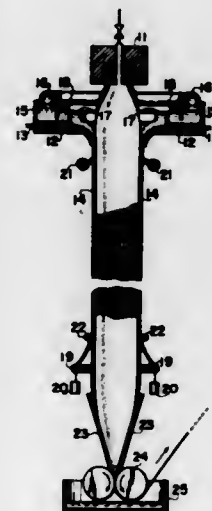


Tubular parisons suitable for blow molding into high strength transparent hollow objects are formed having a thin inner layer of nucleated polypropylene and a thicker outer layer of polypropylene containing no nucleating agent.

3,600,488
METHOD FOR SHAPING A TUBULAR FILM BY LIQUID COAGULATION
 Masahide Yazawa, Tokyo, Japan, assignor to Polymer Processing Research Institute Ltd., Tokyo, Japan
 Filed July 18, 1969, Ser. No. 842,996
 Claims priority, application Japan, July 26, 1968, 43/52,864
 Int. Cl. B29d 7/20

U.S. Cl. 264—95

8 Claims



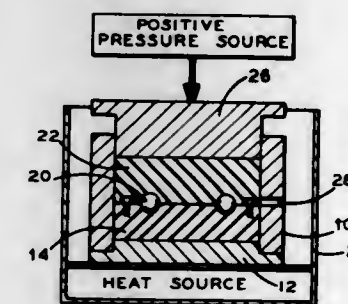
A tubular film of thermoplastic polymer having any desired diameter is shaped by extruding it downwards in a tubular form from an annular die, while applying gas pressure in the inside of the tubular film, before passing the extruded film, so as to effect complete coagulation, through the inside of a cylindrical net provided in contact with a coagulation liquid which is supplied from the top of the net and flowing downwards along the surface

of the net and by withdrawing the coagulated film from the lower part of the net. By adjusting the tension of the cylindrical net, the tubular film is always in light contact with a turbulent stream of the coagulating liquid without channelling of the stream, and the tubular film of any desired diameter and thickness can be readily prepared in the same apparatus.

3,600,489
METHOD OF MAKING A MOLD
 Richard Posner, East Northport, N.Y., assignor to Creative Polymer Products Corp., Long Island City, N.Y.
 Filed Nov. 25, 1968, Ser. No. 784,998
 Int. Cl. B29c 27/22

U.S. Cl. 264—135

1 Claim

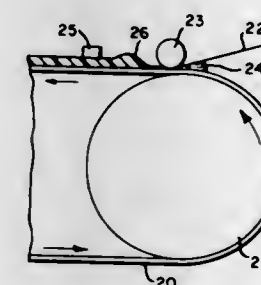


A mold is made by covering one surface of a first slab of polymerizable material which flows under pressure with a separating material. A pattern is then placed on this so-covered surface and a second slab of the polymerizable material placed over the pattern and the so-covered surface. A compressive force is applied to the slabs which are then polymerized.

3,600,490
PROCESS OF FORMING A RIPPLE-FREE STRUCTURE FROM A POLYMERIZABLE MATERIAL THAT SHRINKS UPON POLYMERIZATION
 John G. S. Billingsley, Newark, Del., and David E. Nickles, Williamsville, N.Y., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 Filed July 23, 1969, Ser. No. 843,985
 Int. Cl. B29d 7/02

U.S. Cl. 264—171

11 Claims

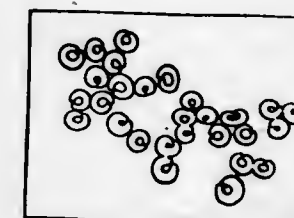


A process for casting a structure having at least one ripple-free surface from a polymerizable material that shrinks upon polymerization which comprises coating a substantially smooth casting surface with a liquid, covering the liquid coated casting surface with a film that shrinks as the polymerizable material shrinks, depositing the polymerizable material on the film, and polymerizing the polymerizable material. The liquid is applied in a manner such as to form a continuous layer between the casting surface and the film which wets both surfaces, so that the surface tension of the liquid will maintain them in intimate contact without inhibiting lateral movement of the film relative to the casting surface. Continuous casting and a process for casting structures having both surfaces ripple free are also provided for.

3,600,491
PRODUCTION OF HOLLOW ACRYLIC FIBERS
 Keitaro Shimoda and Keitaro Fukushima, Saidaiji, Japan, assignors to Japan Exlan Company Limited
 Filed Jan. 28, 1969, Ser. No. 794,696
 Claims priority, application Japan, Feb. 14, 1968, 43/9,527

U.S. Cl. 264—177F Int. Cl. B28h 21/54; D01d 7/00

5 Claims



Process for producing hollow acrylic synthetic fibers by extruding a spinning solution of an acrylic polymer and a concentrated aqueous solution of an inorganic salt through spinning orifices into an inert gaseous medium which is incapable of coagulating the spinning solution, each spinning orifice having a continuous central portion substantially enclosed by a slit (see figures) and coagulating the thus-formed hollow current of the spinning solution within which is enclosed the inert gas.

3,600,492
PROCESS AND DEVICE FOR THE MANUFACTURE OF MONOFILAMENTS OF CIRCULAR CROSS-SECTION MADE OF SYNTHETIC LINEAR HIGH-POLYMERS

Gunther Vock, Augsburg, Hans Seelg, Schwabmunchen, and Dieter Paulin, Bobingen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt am Main, Germany
 Filed Mar. 10, 1969, Ser. No. 805,506
 Claims priority, application Germany, Mar. 14, 1968, P 17 10 620.6
 Int. Cl. D01d 5/08

U.S. Cl. 264—178F

8 Claims



Process for the manufacture of monofilaments of circular cross-section made of synthetic, linear high-polymers by spinning said high-polymers through circular spinneret openings into a liquid bath and deviating the freshly spun monofilament in the bath on their path of travel to the takeup on a deviating device designed as turnable guiding element, which conducts the monofilaments along the curve performed by them without guidance in the liquid bath on their path of travel to the take away into guide grooves designed as rounded off, wedge-shaped grooves whose bottoms have as radii of curvature the radii of the undrawn monofilaments, one guide groove being provided for each monofilament. As the deviating device there is used an easily turning roller or a disposition of several easily turning small rollers which have parallel axes. The monofilaments are guided into grooves which have to be exactly adjusted to the diameters of these monofilaments; said disposition of one or several small deviating rollers for carrying out the process of the invention also constituting an object of the present invention.

3,600,493
METHOD FOR DRAWING FIBERS COMPRISED OF CELLULOSE ACETATE-POLYMER BLENDS
 Michael Maurice Basso, West Orange, N.J., assignor to Celanese Corporation, New York, N.Y.
 No Drawing. Filed Oct. 7, 1968, Ser. No. 765,639
 Int. Cl. B29c 25/00; D01d 5/12

U.S. Cl. 264-210 9 Claims
 Strong shaped articles containing a cellulose ester blended with a synthetic reinforcement polymer can be prepared by drawing in an organic fluid selectively absorbed by said cellulose ester.

3,600,494
SEROLOGICAL TEST FOR SYPHILIS
 Takayuki Tomizawa and Koichiro Fujita, Tokyo, Japan, assignors to Fujizokiseiyaku Kabushikikaisha, Tokyo, Japan
 No Drawing. Filed Nov. 6, 1967, Ser. No. 680,979
 Int. Cl. G01n 31/02, 33/16

U.S. Cl. 424-13 2 Claims
 A serological test for syphilis based on a carrier agglutination reaction is disclosed. The test includes the

treatment of the serum test sample with a solution containing non-pathogenic strains of *Treponema pallidum* cell components and normal rabbits' testes components to absorb heterogenic antibodies. The treated serum sample is then reacted with a new antigen preparation comprising a suspension of *Treponema pallidum* sensitized carriers in a phosphate buffered saline solution.

3,600,495
MEDICAMENT PREPARATION AND PROCESS FOR THE MANUFACTURE THEREOF
 George W. Oertel, Mainz, Germany, and Kurt Munzel, Rhehen, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed July 15, 1968, Ser. No. 744,675
 Claims priority, application Switzerland, July 28, 1967, 10,755/67
 Int. Cl. A61k 17/00

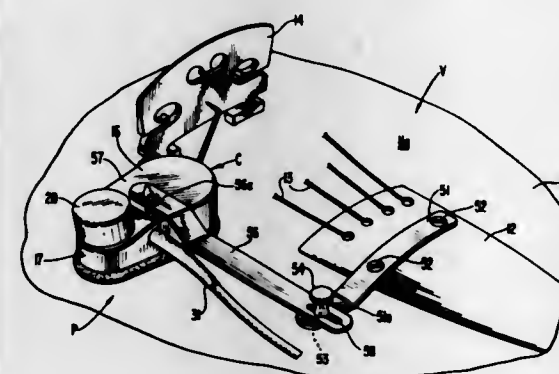
U.S. Cl. 424-31 8 Claims
 Hormonal imbalance can be favorably influenced by the oral administration of sulpho-conjugated neutral steroids in gastric-juice-resistant form.

ELECTRICAL

3,600,496
ELECTROMAGNETIC PICKUP FOR A STRINGED MUSICAL INSTRUMENT
 Joe D. Ellis, 1850 Christian Road, Charleston, S.C.
 Filed Sept. 5, 1969, Ser. No. 855,484
 Int. Cl. G10h 3/00

U.S. Cl. 84-1.15

5 Claims



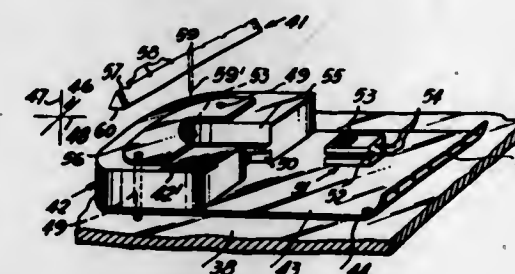
A device for sensing the vibrations of a stringed, musical instrument which includes an electromagnet having a diaphragm carrying a needle. The electromagnet being supported on the instrument isolated vibrationwise from the instrument body with the outer end of the needle engageable with the instrument bridge so that the device senses and amplifies the vibrations of the bridge during the playing of the instrument.

3,600,497
ELECTROMECHANICAL TRANSDUCER PICK-UP BRIDGES FOR STRINGED MUSICAL INSTRUMENTS
 Arrigo Zanussi, 215 Montevideo St., Mendoza, Argentina
 Continuation-in-part of application Ser. No. 608,148, Jan. 9, 1967, now abandoned. This application Nov. 20, 1969, Ser. No. 878,335

Claims priority, application Great Britain, Jan. 13, 1966, 1727/66
 Int. Cl. G10h 3/00

U.S. Cl. 84-1.14

4 Claims



A piezoelectric pickup bridge for capturing the vibrations of a stringed musical instrument and comprising two parts separated by a resilient pad, the upper part carrying an adjustable screw that transmits vibrations to a transducer. A tone and volume compensating circuit for a sound amplifier connected to said transducer and comprising resistances and capacitances for selectively boosting or attenuating high or low frequencies and simultaneously maintaining substantially constant the overall gain of the system.

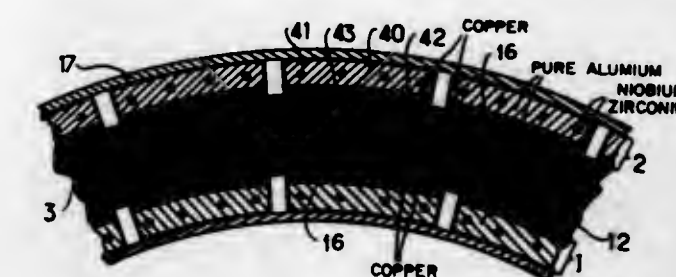
3,600,498
SUPERCONDUCTIVE CABLE FOR CARRYING EITHER ALTERNATING OR DIRECT CURRENT
 Marcel Aupoix, Paris; Francois Molson-Franckhauser, Bretigny-sur-Orge, and Jean Royet, Orsay, all of France, assignors to Compagnie Generale D'Electricite
 Filed Dec. 24, 1969, Ser. No. 887,848
 Claims priority, application France, Dec. 26, 1968, 180,800
 Int. Cl. H01b 7/34, 5/00

U.S. Cl. 174-15

4 Claims

A cable for cryogenic connection having one or more pairs

of conductive layers insulated electrically from each other and consisting of several super-conductors arranged in spiral



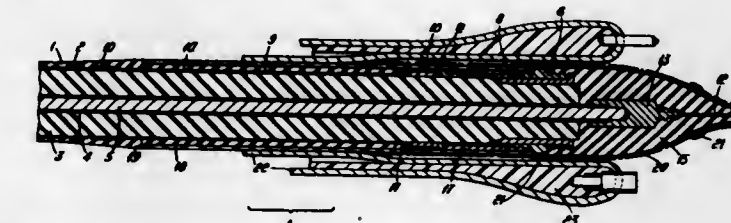
formation over the opposing surfaces of the conductive layers.

3,600,499
JOINT BETWEEN A SUBMARINE COAXIAL ELECTRICAL CABLE AND A REPEATER TAIL CABLE AND METHOD OF MAKING SAME
 David Arthur Hibbs, Chancellors Ford, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Mar. 27, 1970, Ser. No. 23,134
 Claims priority, application Great Britain, Apr. 2, 1969, 17,320/69
 Int. Cl. H02g 15/14

U.S. Cl. 174-70 S

5 Claims

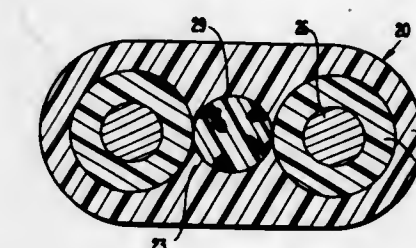


An end of a submarine coaxial cable is joined to an end of a repeater tail coaxial cable by replacing the free end of the aluminum outer conductor of the submarine coaxial cable with an aluminum alloy braid sheath, welding the sheath to the aluminum outer conductor, and fitting a composite water barrier assembly into the inner insulation at the free end of the submarine cable. The assembly comprises a copper alloy castellated sleeve, an aluminum alloy end piece friction welded to the castellated sleeve, and a high strength copper alloy liner. The aluminum alloy end piece is welded to the braided sheath, and the castellated sleeve is joined to the copper braid of the outer conductor of the repeater coaxial tail cable.

3,600,500
TWIN CONDUCTOR WITH FILLER
 Roger J. Schoerner; Bobby C. Gentry, and Bobby A. Rowland, all of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.
 Filed June 2, 1969, Ser. No. 829,377
 Int. Cl. H01b 7/00, 7/28

U.S. Cl. 174-115

8 Claims



A conductor assembly of improved physical properties including high tensile strength, crush force resistance and fungi resistance is prepared with at least two individually insulated

conductors such as round wires and a cordage product comprising a continuous coherent fibrous article of substantially cylindrical configuration produced from an oriented film composed essentially of a polymeric material, said article being a longitudinally fibrillated fibrous web, the fibroid segments forming said web being in random coherent association. An outer jacket of weatherproofing material surrounds the pair of conductors and the cordage product.

3,600,501

RADIALLY DEFORMABLE ELECTRICAL CONNECTOR INCLUDING TWO CONTIGUOUS MEMBERS

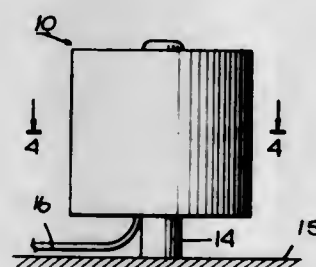
David J. Crammins, Stockton, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed June 10, 1969, Ser. No. 831,912

Int. Cl. H02g 15/08

U.S. Cl. 174-94 R

4 Claims



The deformable electrical connector is made in part of a material which has the property which permits outwardly directed deformation of the connector without failure of the connector while also maintaining the structural stability of the connector during deformation. The connector comprises a sleeve made of deformable material and surrounded by an outer shell of higher tensile strength. The electrical connection is formed by pushing the connector onto a lead and post so that the lead initially penetrates the deformable sleeve of the connector and then, when the deformable sleeve develops the strength of the lead, flattens so as to completely fill the space between the connector and post.

3,600,502

ELECTRICAL CONDENSER BUSHING HAVING A PLURALITY OF CYLINDRICAL, INTERLEAVED, GROUND AND TAP LAYERS

Loren B. Wagenaar, Muncie, Ind., and Elmer J. Grimmer, Sharpsville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 26, 1969, Ser. No. 880,228

Int. Cl. H01b 17/28

U.S. Cl. 174-143

9 Claims



A condenser bushing including a conductor stud, insulating means disposed about the stud, and a plurality of radially spaced cylindrical layers of electrically conductive material

disposed in the insulating means. The layers of electrically conductive material include interleaved ground and tap layers, to increase the total capacitance between tap and ground layers, and a voltage terminal connected to the tap layers.

3,600,503

DOWNLEAD INSULATOR

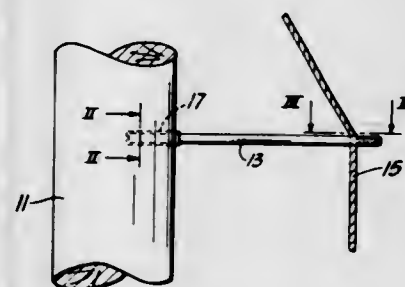
Moses W. Gaylord, Pittsburgh, Pa., assignor to Koppers Company, Inc.

Filed Mar. 26, 1970, Ser. No. 22,757

Int. Cl. H01b 17/16

U.S. Cl. 174-164

3 Claims



A downlead insulator for supporting pole line hardware has a hollow tubular cross section and is made of fiberglass reinforced resin. A plastic sleeve on one end fits into a hole in the pole and the downlead or grounding wire coats with and is secured to the other end of the downlead insulator.

3,600,504

FIELD SEQUENTIAL TO SIMULTANEOUS COLOR SIGNAL CONVERTER

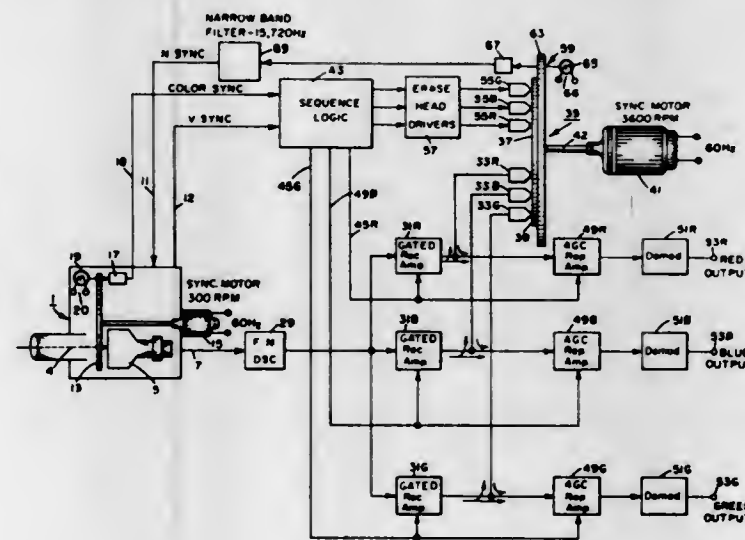
Edward J. Reilly, Mayfield Heights, Ohio, assignor to Clevite Corporation

Filed Jan. 26, 1970, Ser. No. 5,797

Int. Cl. H04n 9/42

U.S. Cl. 178-5.2 R

9 Claims



An endless track multitrack magnetic recorder-reproducer is employed as a sequential to simultaneous color TV signal converter. The scan of the television system and the displacement of the record medium of the recorder are synchronized so that the field scan rate and the repetition rate of the recorder are equal. The sequential color signal modulates a carrier which is switched sequentially to a record-reproduce head at each track in synchronism with the sequential change in color information. Thus each track periodically receives a new recording of signals corresponding to the color assigned to that track. A separate playback circuit including a demodulator is connected to each record-reproduce head. Each circuit delivers continuous signals corresponding to the color assigned to its track, first during recording and subsequently during playback until a new recording takes place. Each playback circuit includes means for attenuating the

signal from the record amplifier, to which it is connected, during the time that recording is taking place at that head. Synchronization is simplified for closed circuit applications by driving the recorder-reproducer by a synchronous motor powered from the local AC power line, and generating horizontal sync signals for the TV system at the recorder-reproducer. A preferred form of sync generator is a light chopper mechanically coupled to the record medium.

3,600,505

COLOR CORRECTION APPARATUS FOR A COLOR PRINTER

Mouayed Edouard Dobouney, Dartford, England, assignor to Crosfield Electronics Limited, London, England

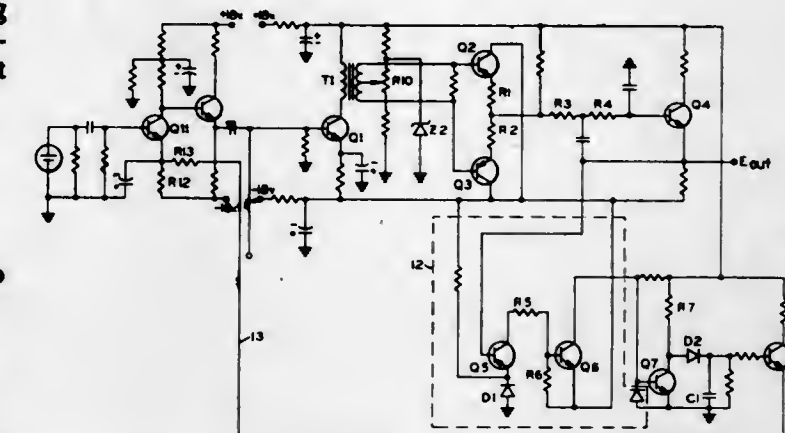
Filed Nov. 13, 1969, Ser. No. 876,497

Claims priority, application Great Britain, Nov. 26, 1968, 56088/68

Int. Cl. H04n 9/53

U.S. Cl. 178-5.2 A

10 Claims



document background as white. The circuit also serves to fix the darkest area of the document scanned as being black.

3,600,507

HIGH DATA RATE OPTICAL COMMUNICATION SYSTEM

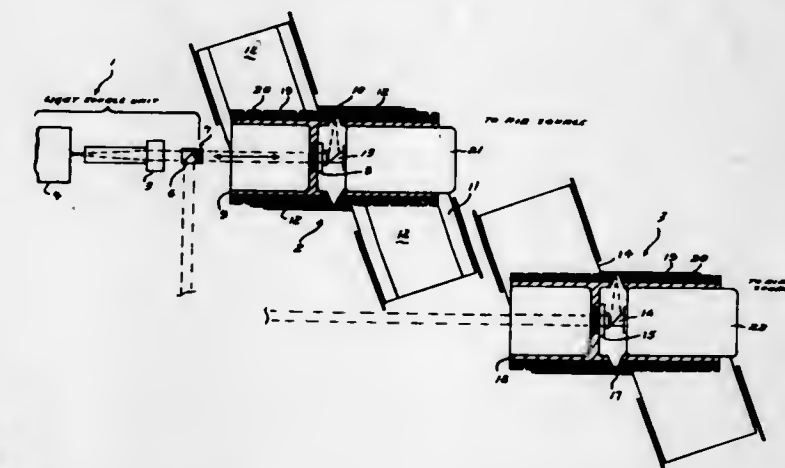
Peter M. Newgard, Redwood City, and Alfred E. Brain, El Granada, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force

Filed June 11, 1969, Ser. No. 832,113

Int. Cl. H04n 1/06

U.S. Cl. 178-6

3 Claims



A high data rate optical communication system in which a high speed mechanical scanner directs a converging laser light beam through an intelligence containing film which is reflected back through the film by a mirror surface positioned on the immediate exterior of the film. The beam is modulated by twice passing it through the film and is directed back to the scanner for transmission to a receiver where the transmitted beam will recreate the transmitted information on an unexposed film at the receiver.

3,600,508

VIDEO TAPE RECORDER WITH EDITING FEATURE AND IMPROVED TAPE SPEED CONTROL

Albert H. Dann, Mountain View; Robert L. Davis, San Jose, and Eugene R. P. Leman, Los Gatos, all of Calif., assignors to International Video Corporation, Sunnyvale, Calif.

Filed July 7, 1969, Ser. No. 839,190

Int. Cl. G11b 15/28, 19/28, 27/28

U.S. Cl. 178-6.6 A

17 Claims

A video tape recorder having a servocontrol of the video head drive and another servocontrol of the capstan tape drive is described. In record, the capstan tape drive is controlled by tachometer pulses from the video head drive and during playback the capstan tape drive is switched over to control by control pulses from the magnetic tape. The tachometer pulses and the control track pulses are multiplied

3,600,506

BACKGROUND SENSING AND BLACK LEVEL SETTING CIRCUIT

William E. Richeson, Jr., Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind.

Filed Mar. 3, 1969, Ser. No. 803,609

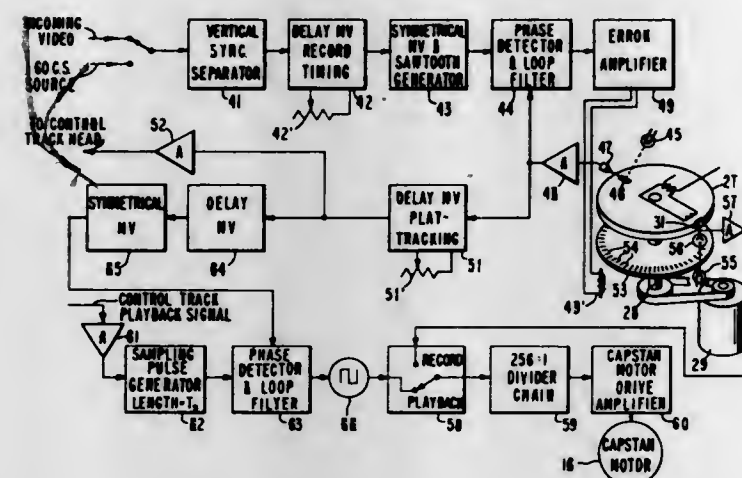
Int. Cl. H04n 3/12

U.S. Cl. 178-6 R

10 Claims

A background sensing and black level setting circuit for a facsimile transmission system is disclosed which linearly "stretches" the particular gray scale input of a document to yield an output having complete black to white gray scale characteristics. The circuit decreases its own gain rapidly when the lightest part of a document (exceeding some

by a substantial amount to reduce the degree that they may be out-of-phase with each other to thereby reduce the effect



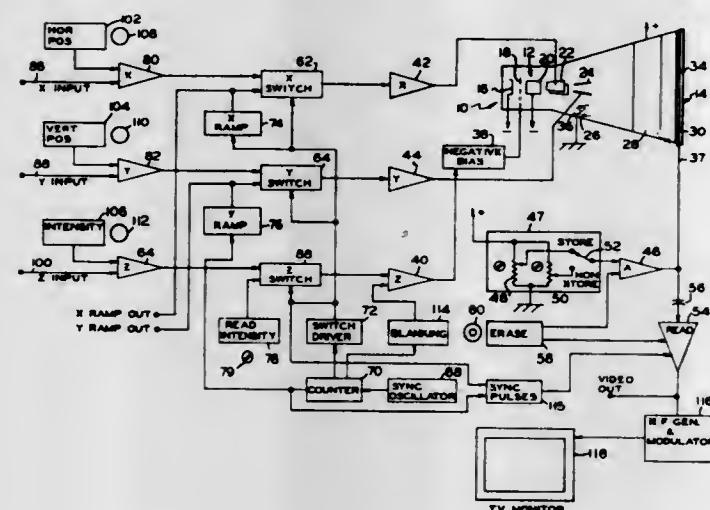
on capstan speed when switching from control by the control pulses to control by the tachometer.

3,600,509 CATHODE-RAY STORAGE TUBE AND MONITOR SYSTEM HAVING CONTROLLED IMAGE PERSISTENCE IN NONSTORE MODE

Charles B. Gibson, Jr., Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Dec. 6, 1968, Ser. No. 781,759
Int. Cl. H04n 5/02

U.S. Cl. 178-6.8

5 Claims



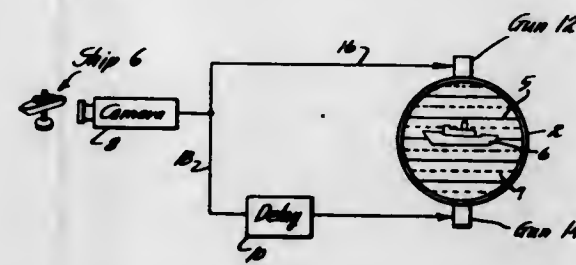
A system is shown for monitoring a direct viewing bistable image storage cathode-ray tube with a cathode-ray monitor tube in which the monitor tube visually displays stored writing when the storage tube is operated in its storage mode and nonstored writing when the tube is operated in a nonstore mode. The nonstored writing is displayed on the screen of the monitor tube with improved intensity and in a manner which insures that the complete image visible on the phosphor of the storage tube is reproduced on the screen of the monitor tube. This is accomplished by providing a circuit which maintains both a readout raster on the storage dielectric of the storage tube target and electron flood guns in operation while at the same time maintaining a potential on the target backplate below that necessary for the storing operation but at a value which causes the nonstored writing to have a controlled persistence lasting for at least the time duration of one frame of the readout raster.

3,600,510 CLOSE VIEWING TV FOR SIMULATORS

Joseph R. Owen, Orlando, and John J. Kulik, Winter Park, both of Fla., assignors to The United States of America as represented by the Secretary of the Navy
Filed July 1, 1969, Ser. No. 838,128
Int. Cl. H04n 7/18

U.S. Cl. 178-6.8

1 Claim



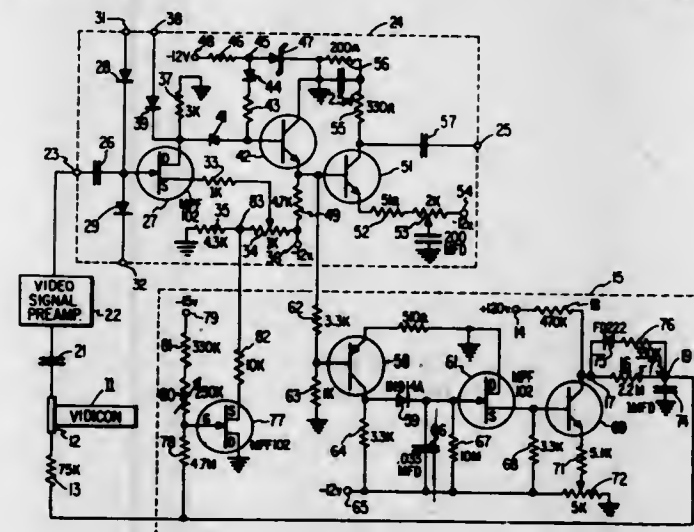
The number of lines in a television raster is increased to remove a raster visible on a television tube screen at close viewing distances without a concomitant increase in complexity of apparatus. One gun of a two-gun cathode-ray display tube receives a video signal. The second gun receives the video signal delayed. The scanning lines generated by the two guns on the display screen are controlled by sweep voltages in such manner that the lines are interleaved and the horizontal sweep of one beam is delayed an amount proportional to the video delay.

3,600,511 APPARATUS FOR CONTROLLING THE OPERATING POTENTIAL OF A VIDICON

John Andrew Cooksey, Indianapolis, Ind., assignor to RCA Corporation
Filed July 3, 1969, Ser. No. 838,988
Int. Cl. H04n 5/19

U.S. Cl. 178-7.2

8 Claims



The video signal derived from a vidicon target electrode, after preamplification, is applied to the control gate input electrode of a field effect transistor where it is clamped by a pair of diodes and where combined horizontal and vertical blanking pulses are added to it by another diode at the transistor drain electrode and a pedestal component derived from a pedestal control circuit is added at the transistor source electrode to produce a clamped composite signal. The composite signal is clipped at a fixed level by a series diode coupled between the drain electrode of the field effect transistor and the base electrode of an emitter follower transistor, the emitter electrode being coupled to an output amplifier and to the input transistor of a peak detector including a diode and a second field effect transistor, the source output electrode of which is coupled to a transistor which supplies the operating potential for the vidicon target electrode through a coupling circuit comprising a capacitor and having a first branch including a relatively small value resistor and a diode which is forward biased for operating

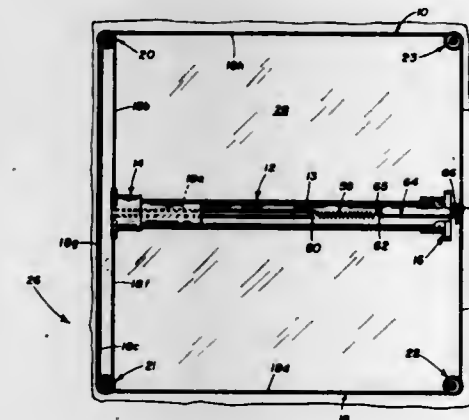
potential decreases, thereby forming with the capacitor a short time constant, fast reacting circuit; the coupling circuit having a second branch including a relatively large value resistor which forms with the capacitor a long time constant, slow recovery circuit for operating potential increases which reverse bias the diode. The vidicon target electrode operating potential also is applied to the input gate electrode of a third field effect transistor having an output source electrode which is coupled to the pedestal control circuit.

3,600,512 APPARATUS FOR CORRELATING DIFFERENT PORTIONS OF A PROJECTED IMAGE AND METHOD OF ASSEMBLY THEREFOR

Bruce E. Crayton, 400 Plymouth Ave., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 11, 1968, Ser. No. 782,961
Int. Cl. A43i 13/02; H01j 29/89

U.S. Cl. 178-7.85

15 Claims



This disclosure relates to apparatus for correlating different portions of an image displayed upon a screen and to a method of assembling the apparatus. Illustratively, the apparatus includes a correlating or indexing member which is suspended upon a flexible strand to allow the correlating member to be moved across the screen, and a plurality of guide points about which the strand is disposed. The guide points are located with respect to the display screen to permit the indexing member to be moved across a substantial portion of the display screen. The indexing member has an opening therethrough in which there is disposed spring means to interconnect a first portion of the flexible strand to a second portion of the flexible strand and also to place a predetermined tension upon the flexible strand.

3,600,513 PROCESS FOR RAPID RECORDING OF POLYGONAL IMAGES

Charles R. Pendred, Pennsauken, N.J., and Stephen Marrs Petty, Albuquerque, N. Mex., assignors to RCA Corporation

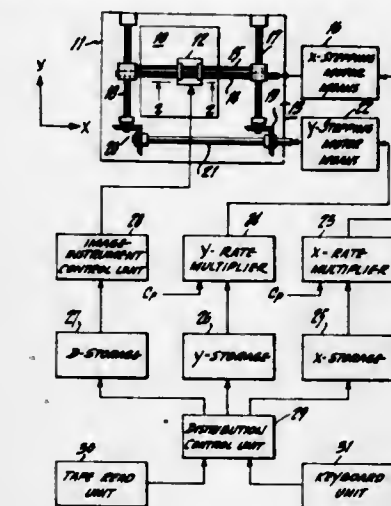
Filed July 5, 1968, Ser. No. 742,563
Int. Cl. G08c 21/00; H04i 21/04

U.S. Cl. 178-15

2 Claims

A process for recording a solid polygonal image on an imaging medium. An artwork tool or apparatus illustrated as an automatic drafting system with an imaging instrument shown as a photoexposure head is employed. The photoexposure head is capable of recording images of different shapes and widths. According to the process, an image of the polygon is formed on the imaging medium by recording a number of smaller adjacent polygonal images which integrally form the image of the overall polygon. The polygon to be recorded is partitioned into a number of integral parts. The time required by the artwork tool to form the image is

reduced by selecting the integral parts as rectangles whenever practical so that major portions of the polygonal image



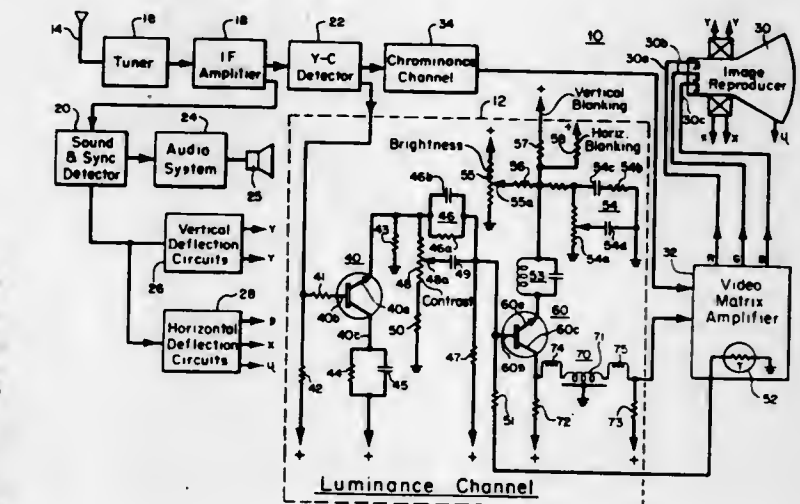
can be formed with the widest available images which will fit within a particular rectangle.

3,600,514 SOLID-STATE LUMINANCE CHANNEL FOR COLOR TELEVISION RECEIVER

Dwight J. Poppy, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Mar. 9, 1970, Ser. No. 17,549
Int. Cl. H04n 9/00, 5/14

U.S. Cl. 178-5.4 R

6 Claims



An improved solid-state luminance channel for a color television receiver having a plurality of interconnected transistor amplifiers wherein contrast and brightness controls are located in respective emitter electrode circuits so that the level of direct current components of the luminance signal remains substantially unaffected with selective settings of such controls. A time delay network is further included having both resistive and reactive termination to enhance the frequency response thereof, particularly at high frequencies. The resistive termination elements for the time delay means effectively serve as the load impedance for the associated transistor amplifier stage.

3,600,515 APPARATUS FOR RECONSTRUCTING SPEECH GENERATED IN AN ABNORMAL GAS ATMOSPHERE

Willard D. Carpenter, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 9, 1970, Ser. No. 17,407

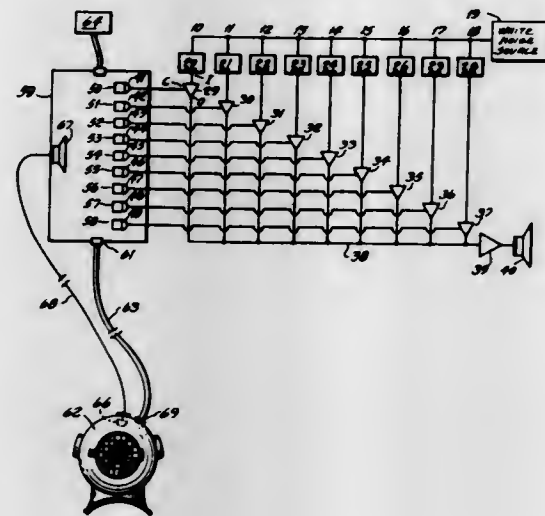
Int. Cl. G10i 1/00

U.S. Cl. 179-1 SA

6 Claims

The reconstruction of distorted speech due to an abnormal breathing atmosphere is accomplished by providing a series

of separate channels each supplied with a white noise signal and having therein a narrow band filter and an amplitude controllable amplifier. The control input of each amplifier is connected to a microphone disposed within a Helmholtz resonator whose resonant frequency in air is equal to that of the filter associated with that particular amplifier. The



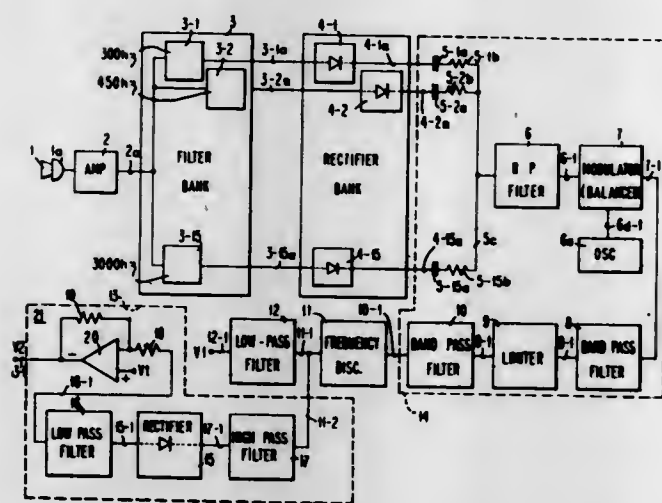
resonators are disposed in an atmosphere identical to that of the person whose speech is to be reconstructed or proximate the speaker and are subjected to the distorted acoustic speech. The outputs of the amplifiers are simultaneously applied to an output amplifier which in turn drives a transducer such as a loudspeaker to provide a corrected speech pattern.

3,600,516 VOICING DETECTION AND PITCH EXTRACTION SYSTEM

John H. King, Jr., Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 2, 1969, Ser. No. 829,414
Int. Cl. G101 1/04

U.S. Cl. 179-1 SA

3 Claims

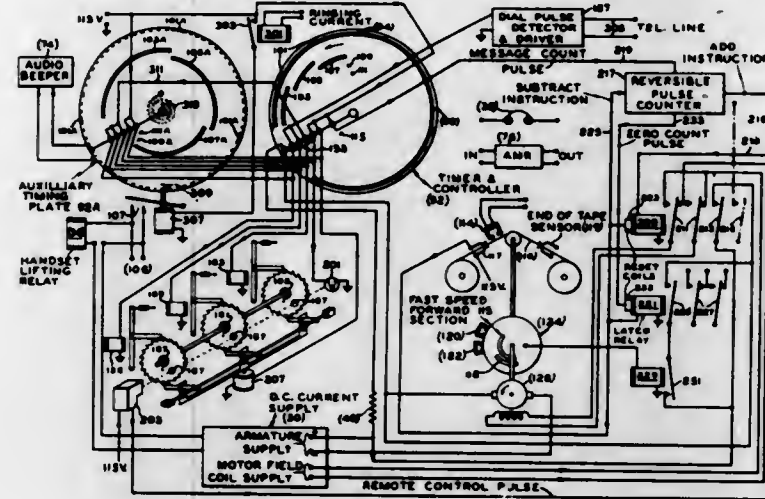


Voicing detection and pitch extraction from speech sounds are achieved by means of an embodiment including a plurality of band-pass filters each having sufficient passing bandwidth to pass at least two harmonics of the fundamental voice frequency, whereby each provides a signal for all voiced sounds in the form of modulated waves, the envelopes of which having a periodicity equal to the voice fundamental. This periodicity is further enhanced by means of a hard limiter. A frequency discriminator whose input is provided by the band-pass filtered output of the limiter provides a voltage waveform whose special energy distribution is utilized for discrimination between voiced and unvoiced sounds.

3,600,517
DIAL PULSE DECODERS
David M. Goodman, 3843 Debra Court, Seaford, N.Y.
Division of Ser. No. 256,883, Feb. 7, 1963, Pat. No. 383,469.
Filed May 6, 1968, Ser. No. 726,665
Int. Cl. H04m 11/10

U.S. Cl. 179-5.5

10 Claims

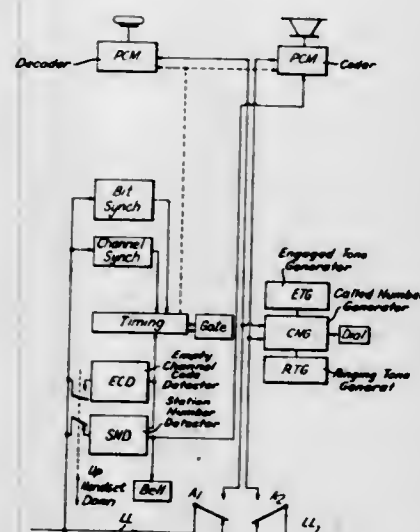


An automatic telephone answering and message recording device is described which permits remote control of the device by providing audible signals to instruct persons, familiar with the spacial code set into the machine, in what sequence to transmit the code from the remote location. The decoding device includes dial pulse responsive detectors which analyze the pulses, and their times of transmission, to provide a control pulse when the proper code has been sent, received, and decoded. The control pulse is used to play back recorded messages, to erase the recorded messages, and to change the announcement message. In one embodiment the dial pulse detectors comprise a plurality of counting wheels with a plurality of holes therein which, when interrogated by a light beam, generates the control signal if the holes in the counting wheels are in alignment.

3,600,518
SUBSCRIBER SUBSET FOR PCM TELEPHONE SYSTEM
Joseph H. McNelly, Harlow Essex, and Roger A. Manship, Stortford, both of, England, assignors to International Standard Electric Corp., New York, N.Y.
Filed May 21, 1969, Ser. No. 826,316
Claims priority, application Great Britain, May 23, 1968, 24,694/68
Int. Cl. H04j 3/08

U.S. Cl. 179-15 AL

6 Claims

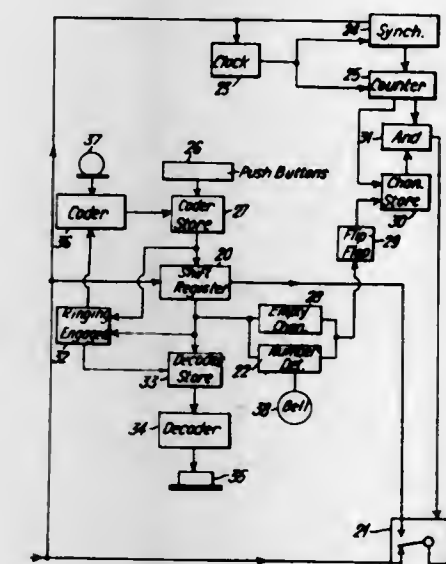


In a pulse code modulated telephone system subscriber sets are connected in series and each subscriber is responsive to its own unique call numbers in any time slot. Each called subscriber returns a modified signal in the same time slot to indicate the call has been received.

3,600,519
SUBSCRIBER SUBSET FOR PCM TELEPHONE SYSTEM
Joseph Hood McNelly, Harlow, Essex, and Roger Alan Manship, Stortford, both of, England, assignors to International Standard Electric Corp., New York, N.Y.
Filed May 21, 1969, Ser. No. 826,369
Claims priority, application Great Britain, July 26, 1968, 35856/68
Int. Cl. H04j 3/08

U.S. Cl. 179-15 AL

5 Claims



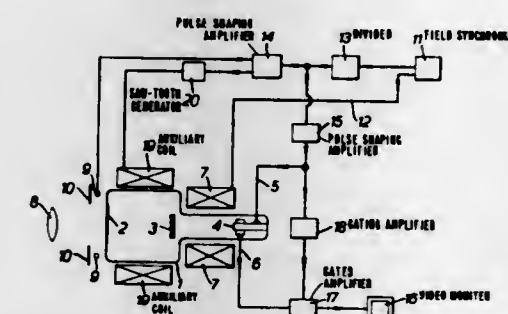
In a closed loop PCM system each subscriber's subset functions as digital equipment for both speech and signalling. A speech coder used in the system does not go into operation until after the signalling setting up a call has been completed, consequently it is possible to use one store (shift register) for setting up the signalling codes and also as the counter forming part of the speech coder. The subset also uses a common shift register for all incoming and outgoing line signals.

3,600,520
LATENT IMAGE DISCHARGE FOR VIDEO CAMERA TUBE

Norman Arthur Stark, Essex, England, assignor to English Electric Valve Company Limited, London, England
Filed July 12, 1968, Ser. No. 744,351
Claims priority, application Great Britain, Aug. 4, 1967, 35,992/67
Int. Cl. H04n 5/26

U.S. Cl. 178-7.2

9 Claims

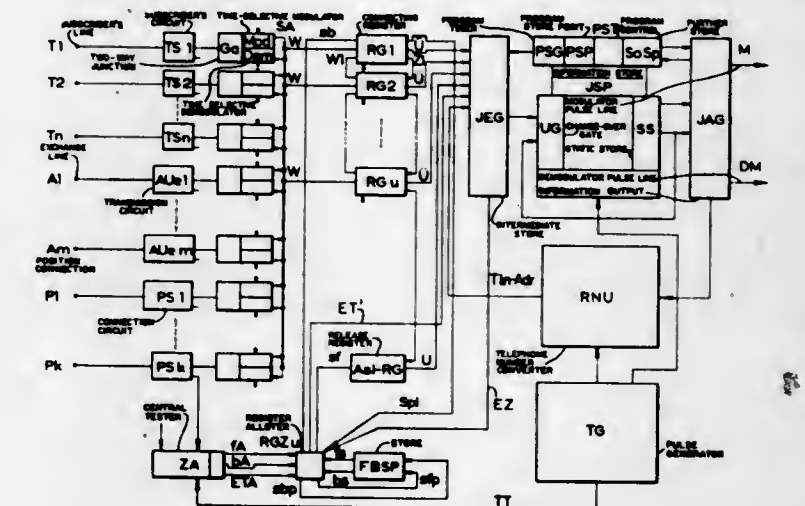


In a storage television camera tube, the photocathode is subjected to flood lighting during selected blanking intervals. A large amount of charge is thus produced on the screen and the screen is scanned to remove this charge so that only a negligibly small amount of charge remains. In this way optical images may be produced on the screen and read off in a short period, and a second image may be produced, without leaving a noticeable amount of charge on the cathode from the first image.

3,600,521
TELEPHONE EXCHANGE ARRANGEMENTS WITH CENTRAL CONTROL
Karl-Ludwig Plank, 28, Berliner Strasse, Ober-Roden; Hans-Wilhelm Reber, 29, Hans Bockler Ring, Salzgitter-Lebenstedt, and Johannes-Georg Schoenig, 100 Hammarckjodring, Frankfurt am Main, all of, Germany
Filed Sept. 23, 1968, Ser. No. 761,444
Claims priority, application Germany, Sept. 26, 1967, P 15 37 904.1
Int. Cl. H04q 3/42; H04j 3/00

U.S. Cl. 179-18 ER

15 Claims

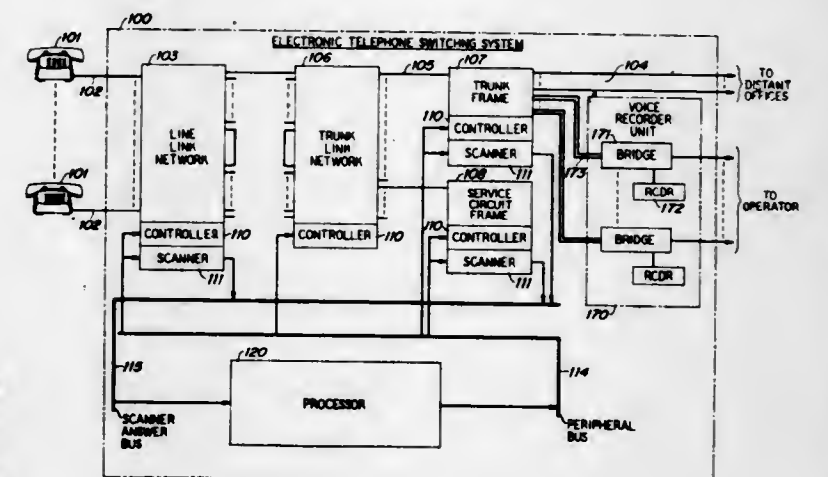


An automatic telephone exchange arrangement is disclosed with central control and with a central information store, individual rows in which are associated with various possible simultaneous calls, wherein each row in this information store has storage locations not only for the addresses of the calling and called subscribers but also locations for accommodating a code representing whatever program stage has been reached by the call concerned. If the telephone exchange is a private exchange, provision may be made for a subscriber to be connected to a public telephone exchange after a test has been made automatically for ascertaining whether the calling subscriber is entitled to be connected to the public exchange.

3,600,522
MODIFIED ABBREVIATED DIALING ARRANGEMENT
Gary R. Benson, Itasca, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murry Hill, Berkeley Heights, N.J.
Filed Oct. 30, 1969, Ser. No. 872,584
Int. Cl. H04m 3/44, 3/38

U.S. Cl. 179-18 BA

18 Claims



In a telephone switching system employing abbreviated dialing, class of service information uniquely associated with

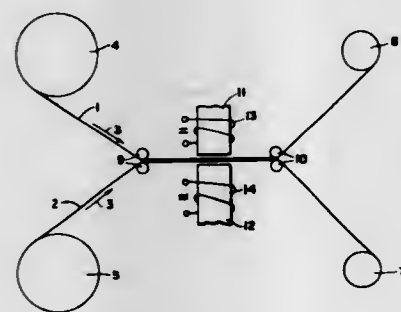
abbreviated dialing directory numbers, is stored in an abbreviated dialing repertoire. The switching system is responsive to the dialing of abbreviated codes by originating subscribers to establish telephone calls to stations defined by the directory numbers stored in an abbreviated dialing repertoire, and to assign a class of service to the established calls as prescribed by the class of service information associated with the called directory number.

3,600,523
REPRODUCTION PROCESS FOR MAGNETIC TAPES
Eduard Schuller, Berlin, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Uhm (Danube), Germany

Filed Sept. 30, 1968, Ser. No. 763,560
Claims priority, application Germany, Sept. 29, 1967, P 15 72 529.8
Int. Cl. G11b 5/86

U.S. Cl. 179—100.2 E

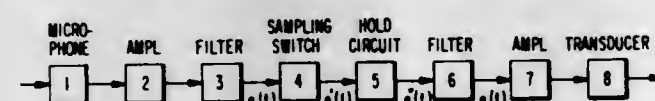
11 Claims



A contact reproduction process for magnetic tape recordings wherein information is first recorded on a tape, which forms the original, in the form of at least one strand of magnetizable material having cross-sectional variations provided therein. The original tape is then brought into contact with a blank tape and, subsequently, both tapes are exposed to a direct-current field and a high frequency field superimposed thereon. Since the original tape cannot be erased, it can be exposed to an optimum field intensity.

3,600,524
HEARING AID USING MULTIPLE FREQUENCY TRANSLATION
Emanuele Biondi, and Leonardo Biondi, both of Milan, Via I, Nieve, 28/1, Milan, Italy
Continuation-in-part of application Ser. No. 718,506, Apr. 3, 1968. This application July 9, 1968, Ser. No. 743,460
Int. Cl. H04r 27/02, 25/00
U.S. Cl. 179—107 R

3 Claims

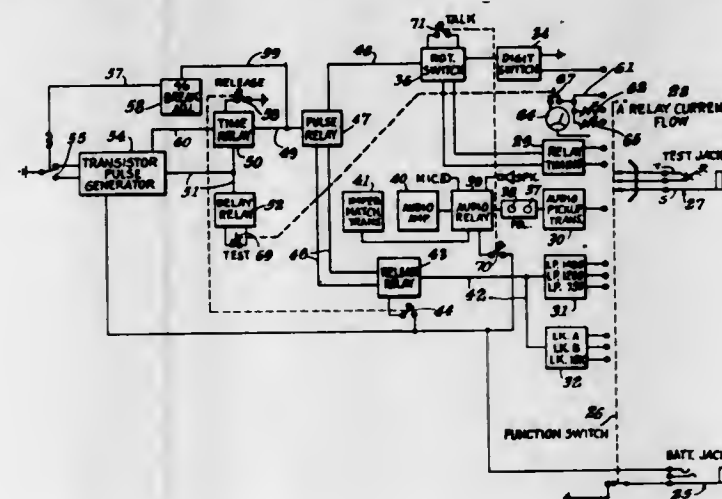


A method for making the human voice audible and comprehensible to deep deaf persons according to the multiple frequency translation technique or system, wherein the sound signals are converted into suitably amplified electrical signals, wherein a general electrical signal, containing the information which is desired to be comprehensible to deaf persons, is filtered, sampled according a sampling frequency f_s , so that said electrical signal is picked off for durations of time Δt spaced at intervals from one another for a time T corresponding to the sampling period and such that each duration of time Δt is sufficiently small that the individual picked off portions of the signal are considered to be of an approximately constant amplitude, but varying according to the values of said signal; the individual portions of the signal

thus sampled are then delivered to at least one holding circuit causing them to continue for a period of time equal to T , and then subsequently filtered and converted to sound signals audible by deep deaf persons.

3,600,525
TEST SET FOR STROWGER SWITCHES
Jim C. Garrett, and Robert H. Johnson, both of 5060 Salt Lake Avenue, Huntington Park, Calif.
Continuation of application Ser. No. 654,871, July 20, 1967, now abandoned. This application July 31, 1970, Ser. No. 64,132
Int. Cl. H04m 3/26
U.S. Cl. 179—175.21

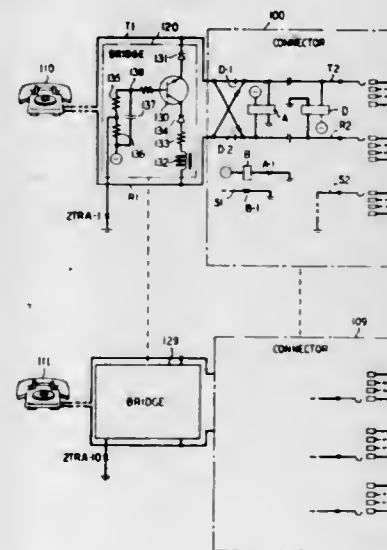
5 Claims



A test set particularly for equipment such as PBX, CDO and large telephone central offices, and comprising a hand-portable and compact boxlike, case-type unit in which is incorporated means to test timing and pulsing, Strowger two-motion switch "A" relay current flow, polarity across the lines, and amplified push-to-talk circuits of such equipment.

3,600,526
TIMED INSERTION BRIDGE
Donald C. Pilkinton, Metuchen, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Dec. 10, 1968, Ser. No. 782,622
Int. Cl. H04m 3/22
U.S. Cl. 179—175.2 C

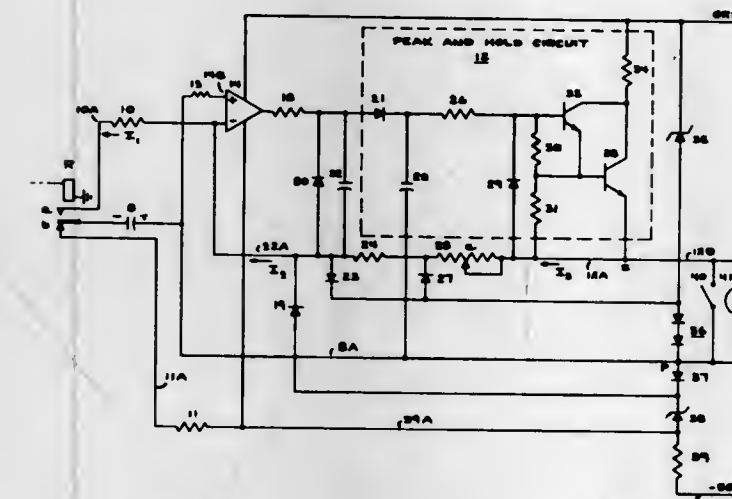
8 Claims



I disclose an arrangement for holding up a connection from the called end in a telephone switching system. Gradual insertion of holding bridges across the transmission paths of all switches serving a particular subscriber line eliminates acoustical disturbances. Responsive to a called subscriber signal, a bridge containing the emitter-collector path of a transistor is placed across the transmission paths by slowly biasing the transistor into conduction.

3,600,527
DIAL SPEED TESTER
William H. Blaschfield, Gallon, Ohio, assignor to North Electric Company, Gallon, Ohio
Filed Dec. 5, 1969, Ser. No. 882,455
Int. Cl. H04m 1/24
U.S. Cl. 179—175.2 A

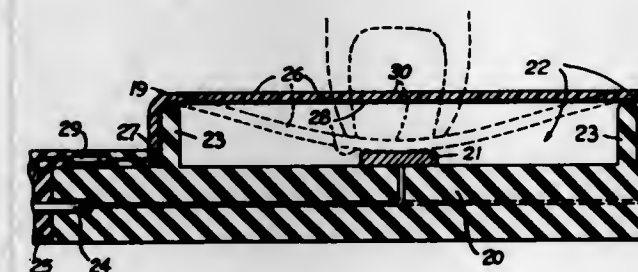
12 Claims



A circuit arrangement for testing the speed of telephone dials wherein the number of dial pulses from the telephone dial is represented by the voltage on a capacitor which can be read by a direct current meter with a linear scale.

3,600,528
MULTIPLE SWITCH CONSTRUCTION
Wayne V. Leposavic, Saratoga, Calif., assignor to Lematex Corporation, Cupertino, Calif.
Filed Sept. 25, 1969, Ser. No. 860,861
Int. Cl. H01h 9/26
U.S. Cl. 200—5

17 Claims



Multiple switches produced as a flat panel embodying the basic principle of laminates of electrical conductors in desired patterns assembled as stratifications in close proximity but separated by spacers and covered by resilient material facilitating momentary pushbutton operation of companion switch elements thereof, the separators isolating companion switch elements of the stratified laminates within switching zones identified by indicia or pushbutton pads on the resilient cover.

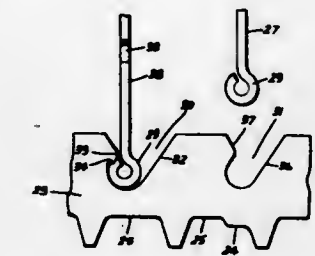
3,600,529
PUSHBUTTON SWITCH ASSEMBLY WITH ACTUATOR AND SLIDER COMPLEMENTARY LATCH MEANS
Albert J. Gartland, Jr., Trumbull, Conn., assignor to General Electric Company
Filed Mar. 2, 1970, Ser. No. 15,381
Int. Cl. H01h 9/26

U.S. Cl. 200—5 E

4 Claims

A pushbutton switch assembly includes a housing having a plurality of movable contacts and a plurality of elongated sliders. The sliders are reciprocally movable to selectively actuate the movable contacts. A plurality of push rods extend from the housing for longitudinal reciprocating movement relative to the housing. The inner ends of the push rods are received in actuating recesses in the sliders for selectively

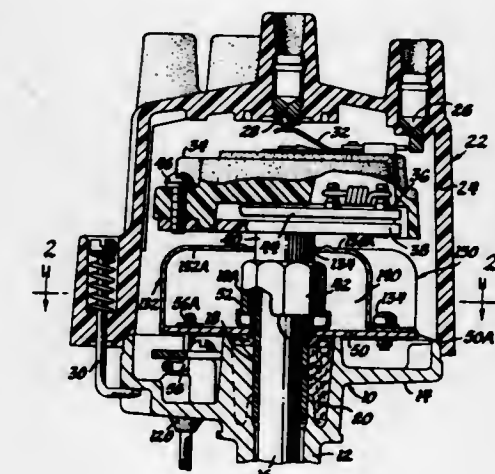
moving the sliders as selected push rods are depressed. A first push rod and its associated actuating recess in a first of the sliders have corresponding generally planar latching surfaces



disposed generally perpendicular to the axis of movement of the first push rod for holding that push rod depressed. A second push rod, during depression, engages the first slider to free the first push rod.

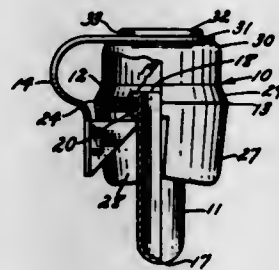
3,600,530
IGNITION DISTRIBUTOR HAVING A RADIO FREQUENCY INTERFERENCE SHIELD
Charles L. Dusenberry, Chesterfield, and Donald G. Guethersloh, Anderson, both of, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Sept. 17, 1969, Ser. No. 858,729
Int. Cl. H01h 19/00; H02h 9/02
U.S. Cl. 200—19

3 Claims



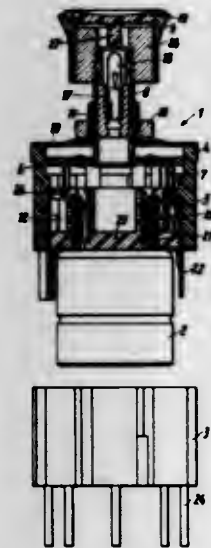
A radio frequency interference shield of an ignition distributor of the type having a fixed base and an adjustable breaker plate which is shifted by a vacuum unit relative to the base. The distributor is of the type wherein the centrifugal advance mechanism is disposed above the breaker and located within a rotor assembly for the distributor. A radio frequency interference shield is provided which comprises a generally cup-shaped metallic housing that is attached to the breaker plate of the distributor. The cup-shaped housing is formed of two complementary interfitting metallic parts which are attached to the breaker plate and which have matching semicircular openings that together form a circular opening disposed about a rotatable part of the distributor that drives the rotor. The two housing parts are secured to the breaker plate by screws and with the breaker plate form a closed housing except for the opening that receives a rotatable part of the distributor and an opening for adjusting the breaker contact set of the distributor. The compartment defined by the breaker plate and the two housing shield parts enclose the distributor breaker contacts, a capacitor, and the capacitor lead wire connecting the capacitor to one of the breaker contacts.

3,600,531
SELF-SHORTING PHONO PLUG
 Otto Hoegerl, Saegertown, Pa., assignor to National Tel-
 Tronics Corporation, Yonkers, N.Y.
 Filed May 8, 1970, Ser. No. 35,830
 Int. Cl. H01r 33/30
 U.S. Cl. 200—51.1 2 Claims



A self-shorting plug for use in connection with a phonojack including a conventionally configured centrally disposed prong, a surrounding outer body member, and a flat steel shorting spring staked at one end thereof to the border of a centrally disposed opening in said outer body member, and having a free end terminal penetrating a slotted opening in a skirt portion of said outer body member to contact a surface of said prong.

3,600,532
AUTOMATIC EMERGENCY SWITCH TO ACTUATE AID SIGNAL FOR MOTOR VEHICLES
 Wolfgang Priesemuth, Postkamp, Itzehoe, Holstein, Germany
 Filed July 9, 1969, Ser. No. 840,332
 Int. Cl. H01h 35/14
 U.S. Cl. 200—61.45 4 Claims

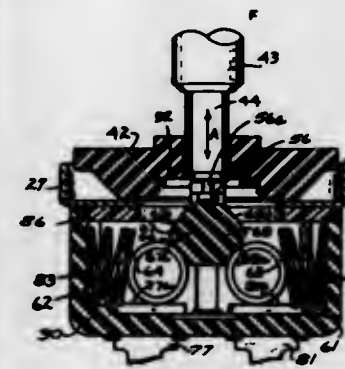


A switch unit for use in connection with a flasher, which switch unit in addition to having a first set of stationary terminals also has a second set of weight loaded movable terminals which in response to the motor vehicle equipped with said switch unit being decelerated beyond the rate of deceleration normally occurring in motor vehicles during ordinary driving conditions will engage the first set of terminals and with the latter will close the circuit for the flasher.

3,600,533
ELECTRICAL SWITCH AND COMBINATION ELECTRICAL RESISTOR AND SWITCH
 Jack A. English, Elkhart, Ind., assignor to CTS Corporation, Elkhart, Ind.
 Filed July 3, 1969, Ser. No. 838,755
 Int. Cl. H01h 15/18
 U.S. Cl. 200—77 16 Claims

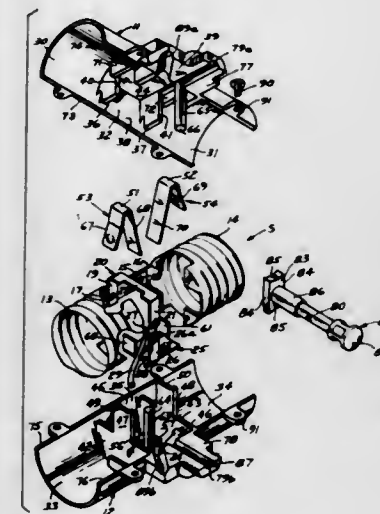
An actuator, coiled compression spring, and abutment surface or pair of stationary contact surfaces trap a contact roller. The spring shifts relative to the roller, assumes various

contorted configurations, and whips the roller along actuator cam surfaces to stable roller positions. Also disclosed are means interlocking a shaft and switch actuator; a rotatable



and axially movable switch actuator; and an actuator and shaft that snap together with means that prevent subsequent separation of the shaft and actuator.

3,600,534
ELECTRIC SOCKET SWITCH
 David D. Lovitz, Short Hills, N.J., assignor to Sternco Industries, Inc., Harrison, N.J.
 Filed Aug. 21, 1970, Ser. No. 65,998
 Int. Cl. H01r 19/50
 U.S. Cl. 200—51.17 11 Claims

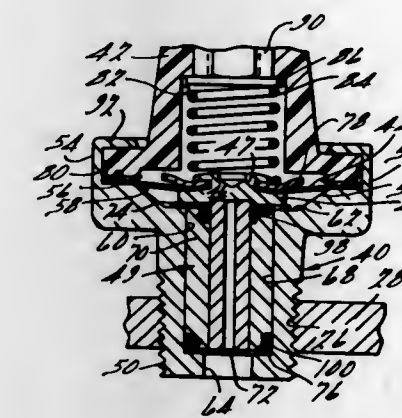


An electric socket switch with a two-part casing having inner coating holding means for holding contact components in position without the use of special fasteners. The two casing halves have interengageable transverse walls for clamping therebetween certain contact components, and also two oppositely extending posts for holding other contact components in place, upon an operative assembly of the two casing parts.

3,600,535
FLUID PRESSURE ACTUATED ELECTRICAL SWITCH WITH ELECTROMAGNETIC BIASING MEANS FOR ESTABLISHING DIFFERENT PRESSURE LEVELS FOR ACTUATION AND DEACTUATION
 Rudolph Bergsma, and Harry L. Baker, both of Ann Arbor, Mich., assignors to Chrysler Corporation, Highland Park, Mich.
 Filed Oct. 2, 1969, Ser. No. 863,108
 Int. Cl. H01 35/34
 U.S. Cl. 200—83 R 4 Claims

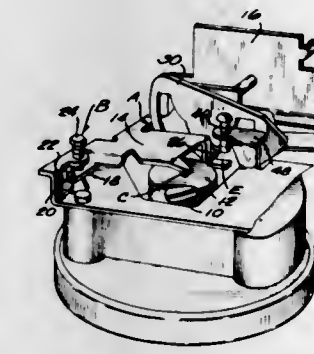
An electrical switch operable from a source of variable fluid pressure and settable from a first electrical condition to a second electrical condition when the applied pressure attains a first predetermined level and resettable from the second back to its first electrical condition when the applied pressure decreases to a second predetermined level. The

operating levels of the switch are determined by a compound biasing means establishing the first pressure level to set the switch and by a portion of the biasing means establishing the second pressure level to reset the switch.



switch and by a portion of the biasing means establishing the second pressure level to reset the switch.

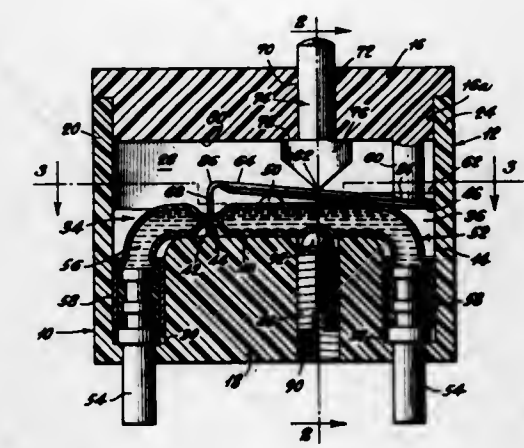
3,600,536
CALIBRATING PRESSURE SWITCHES AT EXTRA LOW-PRESSURE SETTING
 Erich Kothe, Schiller Park, Ill., assignor to Controls Company of America, Melrose Park, Ill.
 Filed Dec. 22, 1969, Ser. No. 887,269
 Int. Cl. H01n 35/26, 35/34
 U.S. Cl. 200—83 WM 5 Claims



The force or degree of compression of the spring is adjusted by rocking the lever about its axis A-B by means of the manually operated cam acting on the lever at D. Calibration for the low-to-high range is effected by adjusting the screw at B to rock the lever about axis A-D. For "extra low" settings, the cam is turned so the tab at D can, in effect be unlimited on its rise and the calibration is then effected by adjusting the limit screw acting on tab E. Any tool forces applied to either adjusting screw during calibration cannot be transmitted to the spring to adversely effect calibration.

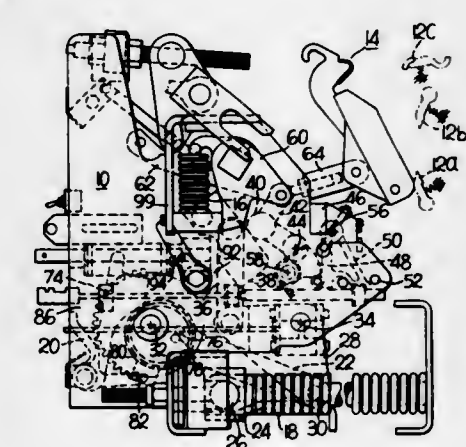
3,600,537
SWITCH
 Robert H. Twyford, Falls Church, Va., assignor to Mechanical Enterprises Incorporated
 Filed Apr. 15, 1969, Ser. No. 816,322
 Int. Cl. H01h 29/00
 U.S. Cl. 200—152 6 Claims

An electrical switch including a resilient deformable tube filled with an electrically conductive liquid and a pair of relatively movable pinching elements disposed on opposite sides of the tube. The elements are mounted for movement between tube pinching and tube releasing positions, whereby in the tube pinching position the liquid in the tube is parted



at least one of the elements for snapping the same from one of its positions to the other.

3,600,538
CIRCUIT BREAKER ARRANGEMENT FOR PREVENTING SLOW CLOSING OF BREAKER CONTACTS
 Vitold S. Puzas, Norwood, and John J. Abdou, Jr., Braintree, both of Mass., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
 Filed Jan. 9, 1970, Ser. No. 1,746
 Int. Cl. H01h 3/30
 U.S. Cl. 200—153 SC 1 Claim



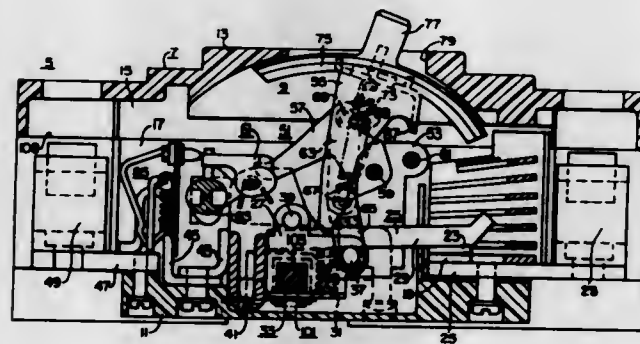
An electric circuit breaker having springs which discharge to close the circuit breaker contacts is provided with a motor to recharge the springs. A one-way ratchet device connected to the motor shaft prevents reverse motor rotation in the event of power loss to the motor due to spring discharge and thereby prevents the partially charged springs from discharging to cause slow closing of the contacts.

3,600,539
MULTIPOLE CIRCUIT INTERRUPTER
 Eugene J. Walker, and Donald G. Portman, both of Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Sept. 17, 1969, Ser. No. 858,614
 Int. Cl. H01h 9/24
 U.S. Cl. 200—153 G 10 Claims

A multipole circuit interrupter, having an elongated metal-

core tie bar supporting the plurality of movable contact arm structures, comprises improved means supporting the tie bar

sion bar. A releasable latching means holds the crank in such position until it is released, whereupon the torsion bar rotates

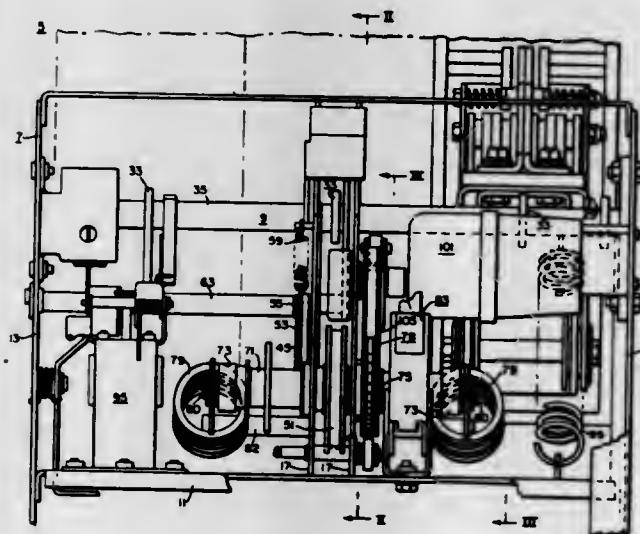


for pivotal movement with insulating means preventing a phase-to-phase fault through the metal core.

3,600,540
MOTOR-OPERATED SPRING-CLOSING CIRCUIT BREAKER
Fred Bould, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 6, 1969, Ser. No. 874,648
Int. Cl. H01h 3/00

U.S. Cl. 200-153

5 Claims



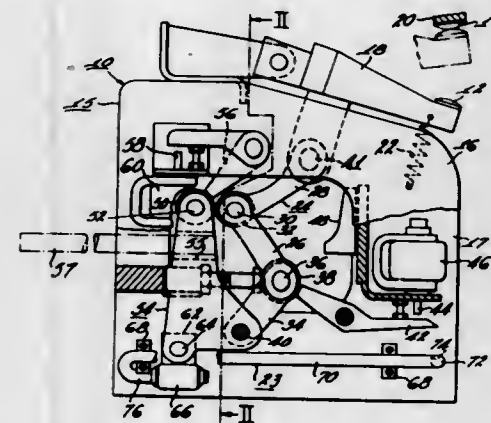
A circuit breaker comprises spring closing means and a motor drive structure for charging the spring-closing means with improved means supporting the motor drive structure in a cooperating relationship with the spring closing means.

3,600,541
CIRCUIT BREAKER OPERATING MECHANISM HAVING TORSION BAR SPRINGS
Edwin C. Goodwin, Jr., Canton, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Nov. 6, 1969, Ser. No. 874,460
Int. Cl. H01h 3/00

U.S. Cl. 200-153

14 Claims

A circuit breaker operating mechanism comprises one or more supporting frame members on which a movable contact operating means, including a collapsible toggle linkage, is mounted. One or more torsion bars, each having a fixed end attached to a frame member and a rotatable working end, are mounted on the frame members. A pivotable member or crank on the frame members cooperates with the toggle linkage and the working end of the torsion bar. A manually operable handle or motor-driven cam moves the crank to a position wherein it allows the toggle linkage to assume its contact open position and wherein the crank charges the tor-

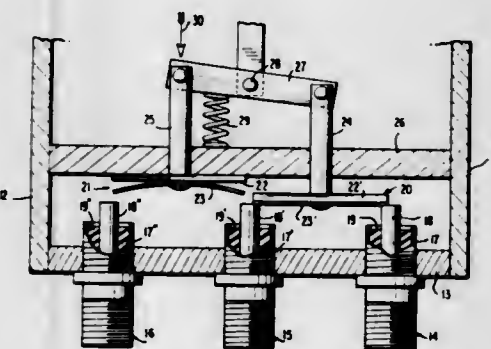


the crank which, in turn, moves the toggle linkage to contact closed position.

3,600,542
VIBRATION-RESISTANT CONTACT STRUCTURE FOR COAXIAL SWITCH
Gunter M. Richter, Brookfield Center, Conn., assignor to The Bunker-Ramo Corporation, Oakbrook, Ill.
Filed Mar. 5, 1969, Ser. No. 804,458
Int. Cl. H01h 1/24, 1/50

U.S. Cl. 200-166 H

11 Claims



A vibration-resistant contact structure including a movable contact for interconnecting two fixed contacts. The movable contact includes a rigid blade and a flexible blade. The flexible blade engages the fixed contacts when the movable contact is urged into partially closed connection. When fully closed, the flexible blade is deflected substantially flush up against the rigid blade. During vibration, the movable contact need not remain absolutely motionless but can move within the range established between the partially closed and fully closed positions and continuity is retained. In one embodiment, the flexible blade is secured to the rigid blade at a point between its ends. In another, the flexible blade is attached to one of the fixed contacts, and in still another the flexible blade is slidably mounted on the contact actuator. Use of contact structures of this type is illustrated in a coaxial switch including provision for make-before-break operation.

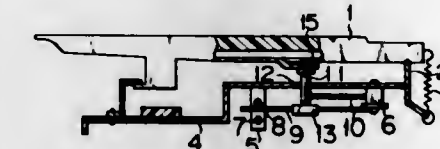
3,600,543
KEYING SWITCH ASSEMBLY
Seiji Nakada, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Shizuoka-ken, Japan
Filed Nov. 19, 1969, Ser. No. 878,061
Claims priority, application Japan, Nov. 21, 1968, 43/101650
Int. Cl. H01h 1/50

U.S. Cl. 200-166 H

9 Claims

A keying switch assembly operable by means of a key includes a stationary contact member, an elastically bendable contact member having a fixed end and a movable end which is selectively operable to contact the stationary contact, and

a flexible shock absorber attached to the bendable contact member for reducing shock noises. An actuator strikes against the shock absorber upon operation of the key so as to

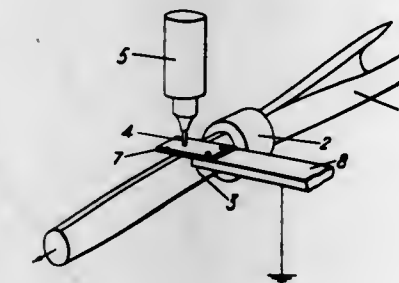


cause the bendable contact member to be silently bent, so that the movable end thereof contacts the stationary contact member.

3,600,544
CABLE SHEATH SEAM WELDING
Colin Francis Greening Smith, Hants, England, assignor to International Standard Electric Corporation, New York, N.Y.
Filed June 20, 1966, Ser. No. 558,900
Claims priority, application Great Britain, June 25, 1965, 26996/65
Int. Cl. B23k 9/02

U.S. Cl. 219-61

4 Claims

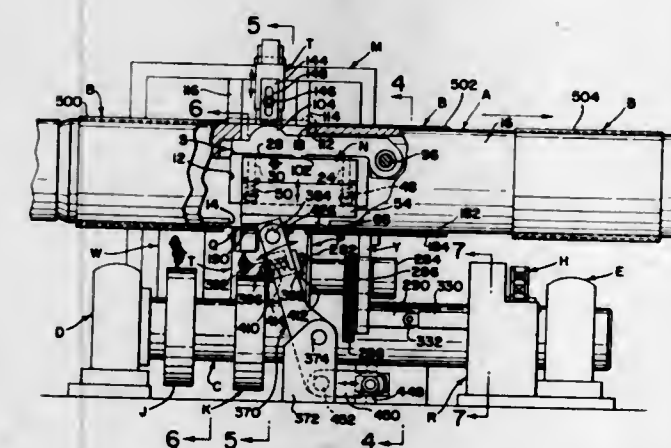


A seam-welding method for metal tubes displaces the welding electrode from a normal position with respect to the tube to a position over an auxiliary electrode. Current is initiated between the welding electrode and auxiliary electrode which is removed and the current increased, with the welding electrode being returned to the normal position.

3,600,545
ELECTRIC WELDER FOR CAN BODY SEAMS
Ronald Herman David Armbruster, Battle Creek, and Roger Jacob Nelsen, Hastings, both of, Mich., assignors to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed Sept. 3, 1968, Ser. No. 756,996
Int. Cl. B23k 1/16, 1/130
U.S. Cl. 219-64

8 Claims

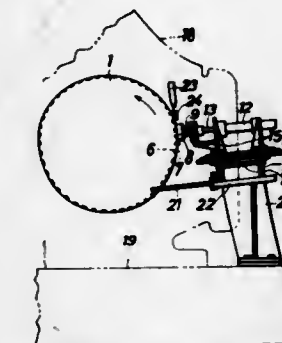


A machine for making spot welds along the seam of a tubular can body includes an elongated cylindrical mandrel along which the can bodies are advanced. A reciprocating electrode is mounted in a cavity in the mandrel and selective-

ly contacts the inside of a can seam. Another reciprocating electrode is mounted externally of the mandrel and contacts the outside seam of a can blank. The machine includes a rotatable shaft on which cams are mounted for selectively moving the inner and outer electrodes into engagement with the seam of a can blank. A special scraper is also cam operated to move along the surface of the inner electrode and scrape tin therefrom as the electrodes are moved apart.

3,600,546
ELECTRICAL DISCHARGE TREATMENT AND MACHINING APPARATUS
Toshio Niwa, Osaka; Yasuo Kimoto, Osaka; Katsunori Tamiya, Kobe, and Hisashi Okamura, Osaka, all of, Japan, assignors to Hitachi Shipbuilding and Engineering Co. Ltd., Nishi-ku, Osaka, Japan
Filed Aug. 20, 1969, Ser. No. 851,556
Claims priority, application Japan, Aug. 23, 1968, Aug. 23, 1968, Aug. 23, 1968, 43/60759, 43/60761, 43/60762, 43/60760
Int. Cl. B23p 1/08
U.S. Cl. 219-69 M

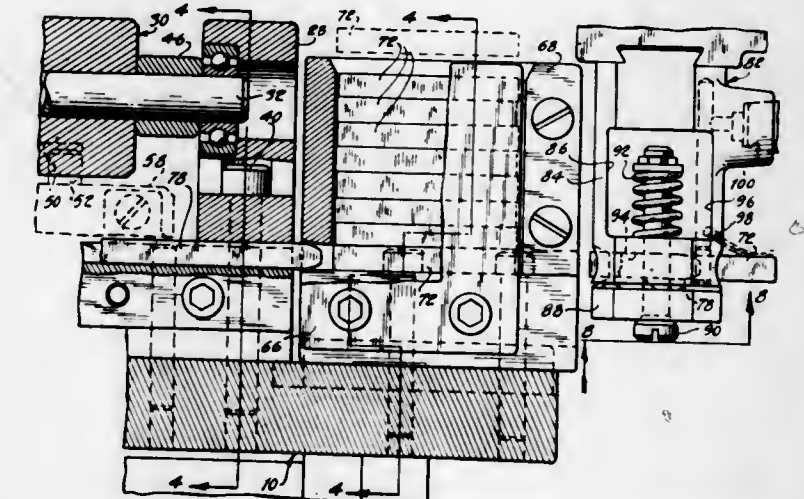
7 Claims



A method of electrical discharge machining employs a sugar mill roll as a cathode and an electrode for performing treatment serving as an anode. Water is injected therebetween and concurrently therewith repetitive transient arc discharges are effected, whereby the grooved surface of the roll is provided with satin finish. The electrode can be a turner or scraper plate which is machined with the roll serving as the tool electrode and subsequently employed with the roll as a mill.

3,600,547
AUTOMATIC MAGAZINE-TYPE ELECTRODE HOLDER FOR AN ELECTROSTATIC DISCHARGE MACHINING DEVICE
Philip L. Turner, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Aug. 27, 1970, Ser. No. 67,443
Int. Cl. B23p 1/04, 1/08; H05b 31/20
U.S. Cl. 219-69 E

12 Claims



An electrostatic discharge machining device comprising an automatic feeder for loading electrodes automatically and for successively advancing them to compensate for erosion in-

cluding an electrode holder for positioning the electrodes, a quill support adapted to receive the electrodes prior to a machining operation and an actuator for advancing the quill support toward the electric spark region during machining operations thereby maintaining a proper arc gap and an automatic cam mechanism for triggering the operation of the actuator in timed sequence with the advancing and retracting modes for the electrode quill support, the actuator and said cam mechanism being adapted to eject successively each electrode after it is eroded to a predetermined extent and for replacing it with a new electrode during subsequent advancement of the electrode quill support to its operating position.

3,600,548

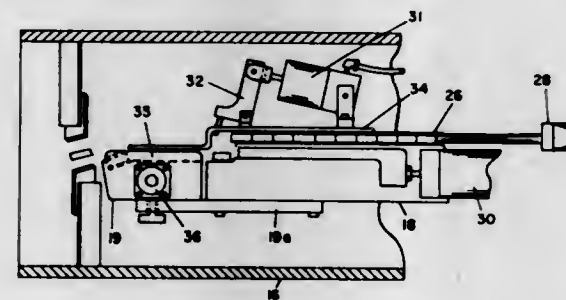
RESISTANCE WELDING APPARATUS

John C. Bock, Madison, Wis., assignor to Bock Corporation, Madison, Wis.

Filed July 9, 1970, Ser. No. 53,530
Int. Cl. B23k 9/12

U.S. Cl. 219-79

4 Claims



Resistance welding apparatus and method for attaching a series of metal pieces to the inside of a metal tube in a predetermined pattern controlled by longitudinal and rotational indexing of the tube. An electrode arm extends into the tube and has an associated feed track along which the metal pieces are intermittently moved to a welding head on the end of the electrode arm. A piston carried by the welding head and acting against the inside of the wall of the tube moves the welding head transversely of the electrode arm to bring the piece to be welded into pressure contact with the inside of the tube. Current is run through the electrode arm, welding head, piece, tube and a grounded contact to weld the piece to the tube.

3,600,549

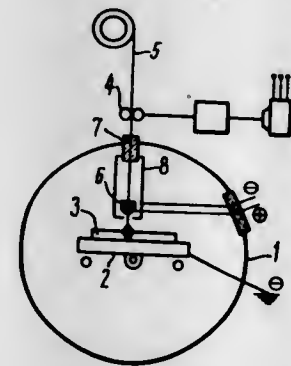
METHOD OF THE ARC WELDING AND DEPOSITION OF METALS IN VACUUM

Nikolai Alexandrovich Olshansky, Pogonolosinoostrovskaya ulitsa 6, Kv. 2, Moscow, U.S.S.R., and Alexandra Vladimirovna Mordvintseva, deceased, late of Moscow, U.S.S.R. (Alexander Mordvintsev Leonide, administrator, Prospekt Mira, 112 kv. 163, Moscow, U.S.S.R.)

Filed June 25, 1969, Ser. No. 836,669
Int. Cl. B23k 9/10

U.S. Cl. 219-137

4 Claims



A method of the arc welding and deposition of metals in vacuum by means of a consumable electrode, in which for

the purpose of providing the stable arcing process between the electrode wire and the workpiece, the arc is stabilized by shielding the current-carrying parts of one of the electrodes with the aid of a metal envelope having a charge corresponding to the charge of the other electrode.

3,600,550

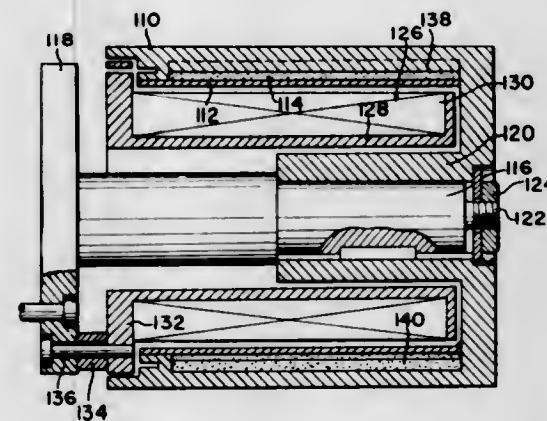
METHOD OF AND APPARATUS FOR HEATING A ROTARY ROLL

Takuma Katsumata, Inazawa, Aichi Prefecture, and Tetsuo Ochi, Nagoya, Aichi Prefecture, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 11, 1969, Ser. No. 857,045
Int. Cl. H05b 5/00; B21b 27/06

U.S. Cl. 219-10.61

11 Claims



In a rotary roll for heating articles, such as fibers which are to be worked, an annular space is provided within the roll adjacent its outer periphery. A liquid heat transfer medium is placed in the annular space and the roll is heated so that the heat transfer medium is in the boiling state having a liquid phase and a vapor phase. As the roll is rotated centrifugal forces are developed which maintain the liquid phase of the medium against the outer surface defining the annular space. The structure of the roll defining the outer surface of the annular space can be a continuous smooth surface or an undulating surface providing alternate ridges and depressions for improving the effect of the heat transfer medium. The heat medium provides a uniform temperature distribution over the roll.

3,600,551

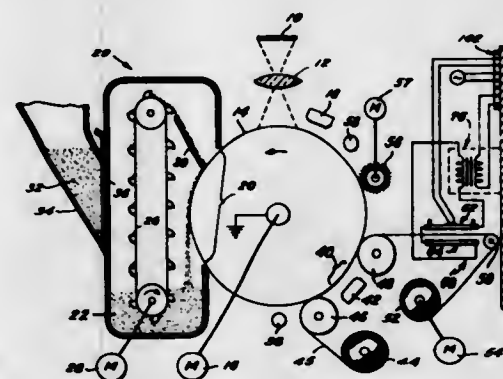
FUSING APPARATUS

Charles D. Flanagan, Attleboro, Mass., assignor to Texas Instrument Incorporated, Dallas, Tex.

Filed Jan. 2, 1968, Ser. No. 694,914
Int. Cl. H05b 1/00

U.S. Cl. 219-216

9 Claims



A fuser unit useful in copier machines, such as zero-graphic-type machines, is shown, in which the support base on which toner particles form an image and the toner particles are heated to effect fusion of the particles and bonding of the fused toner to the support base. A conventional zero-graphic machine is shown which mounts therein the fuser unit comprising a low voltage source in the form of a high turns ratio transformer, a temperature controller, foil-heating

3,600,553

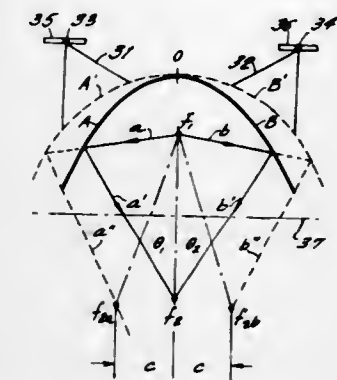
METHOD AND APPARATUS FOR HEATING A PLURALITY OF CLOSELY SPACED DISCRETE ZONES BY A SINGLE ENERGY SOURCE

Bernard J. Costello, Ringoes, N.J., assignor to Argus Engineering Co., Inc., Hopewell, N.J.

Filed Sept. 16, 1969, Ser. No. 858,291
Int. Cl. H05b 1/00; F24h 9/02

U.S. Cl. 219-348

9 Claims



elements suspended in frames and a temperature sensor having first thermal response located on one of the foil elements. An alternating current source in the machine is used as the input to the system via the temperature controller. The foil heater, which has no thermal or electrical insulation, and hence minimal thermal lag, has minimal mass with substantial radiant heat generating surface area thereby permitting a very fast warmup time—within a copy cycle—so as to be maintained in a deenergized standby condition between copy cycles. The low voltage source obviates shock hazards in the machine. The support base can be moved at a constant rate of speed or intermittently if desired.

Another embodiment employs a rotating drum adapted to carry a support base, which has been subjected to a liquid development treatment, through a fuser unit. The drum may be heated if desired. A foil heater is mounted between two current distributing support electrodes, one electrode being fixed; the other, biased to tension the foil against the drum in intimate heat transfer relationship to the support base passing therebetween. As in the first embodiment a temperature controller, alternating current source and a temperature sensor having low mass are employed. The secondary is comprised of a large cross-sectional area bus bar whose ends are electrically joined to the foil through the current distributing electrodes and whose control section passes through the iron core of the transformer thereby providing a single turn secondary winding. The cross section of the bus bar is selected to minimize voltage drop and associated power loss with the substantial current flows necessary. This type of transformer secondary can also be used in the first embodiment.

Radiant energy heating apparatus for heating a plurality of discrete, closely spaced zones through the use of a single radiant energy source. The radiant energy is focused upon the discrete zones by a reflector assembly of elliptical shape which is split at its apex into at least two halves, which halves are rotated relative to one another by an amount sufficient to locate the resulting plurality of focal points coincident with the zones being heated.

3,600,552

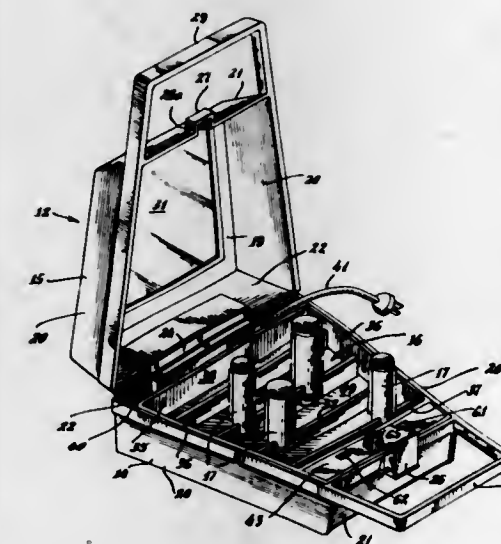
PORTABLE ELECTRIC APPLIANCE

Robert J. Tolmie, Fairfield, Conn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed June 17, 1968, Ser. No. 737,467
Int. Cl. A45d 4/16, 2/10; H05b 3/00

U.S. Cl. 219-222

8 Claims



A hair roller heating apparatus comprising, a plastic casing having a container section housing a heat conductive flat plate with straight, continuous, elongated, spaced, parallel rails extending upwardly from one side and a U-shaped heating element on the opposite side of the plate for heating the plate and rails. Hair rollers of various diameters each comprise an outer tubular cylindrical plastic member and an inner tubular cylindrical aluminum member fitting within the outer member in heat transfer relation therewith. Each of the inner and outer members have diametric recesses which fit on the rails with the inner member in heat transfer relation with the rails.

3,600,554

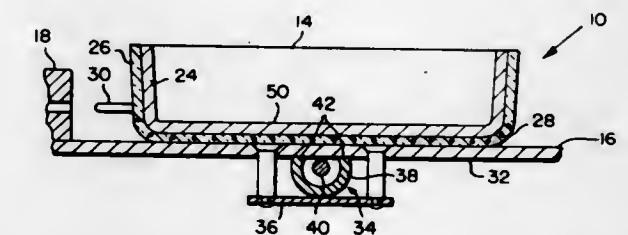
COOKING APPLIANCE HAVING A THERMALLY SENSITIVE BASE

Glenn R. Bange, Pittsford, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Apr. 8, 1970, Ser. No. 26,630
Int. Cl. F27d 11/02

U.S. Cl. 219-432

8 Claims



A cooking appliance including a cooking container having an exterior glass coating and an electric heating element encapsulated in the glass coating along the bottom of the container. An electric supply and control console adapted to accommodate one or more cooking containers having a container supporting platform made of a heat conducting material with a thermostat thermally coupled to the undersurface of said supporting platform so that with the container resting on the platform, the electric element is located between the container and the thermostat.

3,600,555

DUAL FUNCTION MOTOR KEY FOR CALCULATORS

Klaus Korte, Wilhelmshaven, Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany

Filed Mar. 13, 1970, Ser. No. 19,385
Claims priority, application Germany, Mar. 14, 1969, P 19 13 069.9

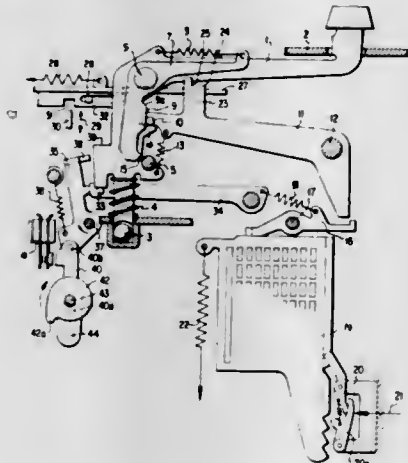
Int. Cl. G06c 21/02

U.S. Cl. 235-60.49

7 Claims

A dual function motor key for calculators has a setting mechanism, such as a pin carriage, having a home position and a value position and mounted for movement, from one position to the other. A key, such as a dividend input key, is mounted to be depressed and initiate an operating step, and a

latch is movably mounted on the key for a movement with it. A program control member is operatively connected to the setting mechanism to sense its position when the key is depressed; and is operatively connected to the latch to actuate the latch and hold the key in its depressed position until the operating step is concluded when the setting mechanism is in its value position. When the setting mechanism is in its

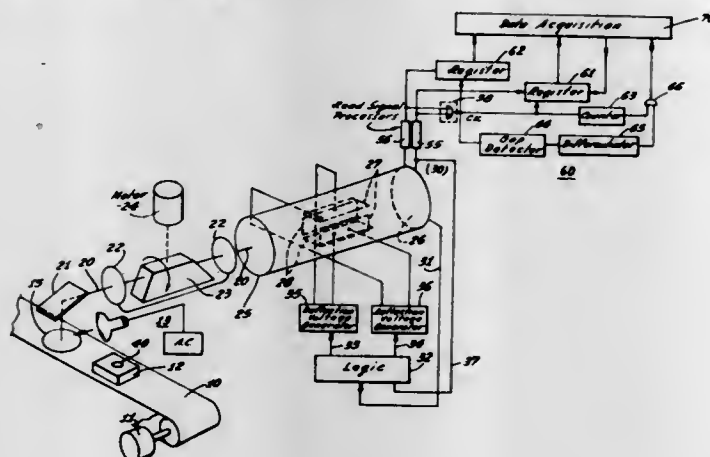


home position, the program control member does not actuate the latch and the key is permitted to move out of its depressed position during the operating step. In this manner, if a value is sensed in the setting mechanism, it is first fed into the appropriate register before the contents of that register are produced. If there is no value in the setting mechanism, the contents of the appropriate register are merely produced at once.

3,600,556

APPARATUS FOR MACHINE READING RANDOMLY POSITIONED AND ORIENTED INFORMATION
Norbert K. Acker, Koenigstein, Germany, assignor to Scanner, Inc., Houston, Tex.
Filed Apr. 21, 1969, Ser. No. 817,680
Int. Cl. G06k 7/00
U.S. Cl. 235-61.11 E

47 Claims



A device is disclosed in which an area through which data in a data field may pass, is imaged onto detectors of an image position detection device. The area image rotates and a data image therein is centered as soon as detected to rotate about its own center. Fine-position control maintains the rotating data in particular relation to readout detectors, scanning circular image tracks in the vicinity of at least one of the image position detectors.

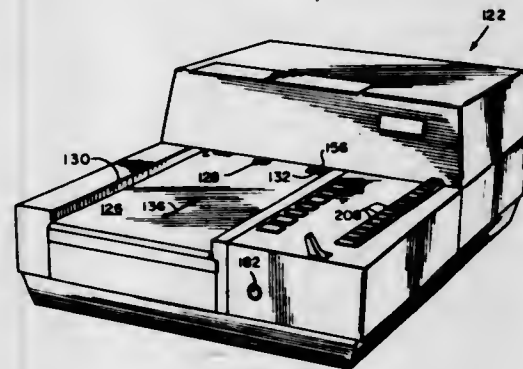
3,600,557
DATA SCANNER

Joseph M. Zappa, Miami, Fla., assignor to Datatype Corporation, Miami, Fla.
Filed May 27, 1969, Ser. No. 828,238
Int. Cl. G06k 7/10; G01n 21/30
U.S. Cl. 235-61.11 E

59 Claims

A system for scanning transversely extending lines of data printed graphically on a document, the system comprising a

transversely movable scanning head, means for moving a document longitudinally relative to the scanning head and control means including optical means for finding a line of data to be scanned and stopping such relative movement. The control means may also include switch means for stopping the drive means providing the relative longitudinal movement and a plurality of switch actuator means longitudinally spaced apart to define a plurality of preselected rela-



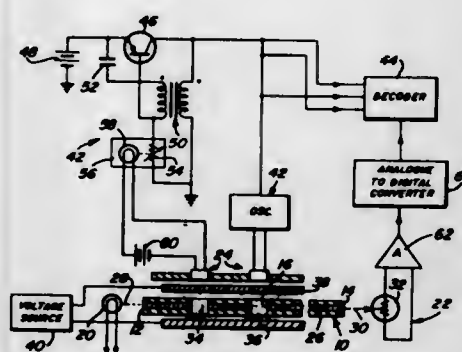
tive positions for the scanning head and such a document. The scanning head carries light source means for projecting light at the data, a light-responsive semiconductor device and optical means for projecting light reflected from such a document toward said device, whereby the concentration of light on said device depends on the presence or absence as well as the width and spacing of graphical symbols in the line of data being scanned.

3,600,558

CODED CARD AND READING MEANS

Gregory Grosbard, Long Beach, N.Y., assignor to International Research Development, Inc.
Filed Apr. 17, 1969, Ser. No. 822,850
Int. Cl. G06k 7/10; G01n 21/30
U.S. Cl. 235-61.11 E

15 Claims



The code punch holes in a data processing card are detected by sensing devices in a code reading apparatus to obtain information from both the location of the holes and the number of holes in each column. Electronic oscillators generate the signals fed to logic and decoding circuits when the holes are detected by the sensing devices.

3,600,559

DIVISION DEVICE FOR USE IN MOTOR OPERATED CALCULATORS

Rii Watanabe, Tagata-gun, Shizuoka-ken, Japan, assignor to Tokyo Denki Kabushiki Kaisha, (also known as Tokyo Electric Co., Ltd.), Tokyo-To, Japan
Filed June 12, 1968, Ser. No. 736,474
Int. Cl. G06c 23/00

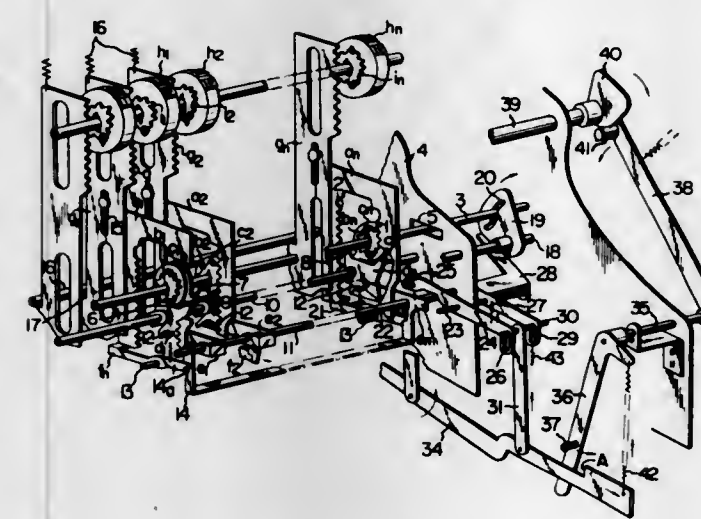
U.S. Cl. 235-63 F

7 Claims

There is provided a rod actuating a device for changing-over the calculator from subtraction state to addition state, and when the dividend becomes negative after any subtraction has been completed, the calculator is automatically changed over to addition state and said rod is brought in connection with a main driving shaft only when a lever which operates in the case of a subtraction state and another lever which operates in the state where the dividend becomes negative are both operated, whereby it is made possible to

change over correctly the calculator from addition state to subtraction state and vice versa without causing reestablishment of the addition state when the calculator is once changed over to addition state.

Furthermore, a lever rotative in response to movement of a rack plate belonging to the uppermost figure and a complement-calculation lever engageable with a rack plate belong-



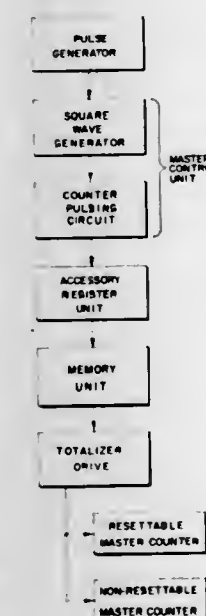
ing to the first figure are provided, said former lever being engaged with said latter lever and operation of said latter lever being locked by a coupling member which operates in the case of division, whereby it is made possible to carry out division without calculating out any complement, because the complement-calculation lever is locked in the case of adding operation.

3,600,560

RATE/TIME COMPUTER

Russell N. Gosselin, Salem, N.H., and Joseph B. Melanson, Salem, Mass., assignors to General Tally Computers, Inc., Salem, N.H.
Filed May 19, 1969, Ser. No. 825,846
Int. Cl. G06f 7/38
U.S. Cl. 235-92 ST

8 Claims



A rate/time computer which comprises a pulse generator adapted to transmit pulses at various selected frequencies which selected frequencies correspond to preselected monetary values. A plurality of accessory register assemblies are in communication with the pulse generator and may be actuated to respond to one or more of the selected frequencies. If the accessory register assembly is actuated to correspond to two of the pulsed frequencies, then a transmitter located in each accessory register allows a counter disposed within the register to register or count the total accumulated pulses serially within a given preselected time period. If one or more accessory registers are actuated to be responsive to one or

3,600,561

DECADE COUNTER EMPLOYING LOGIC CIRCUITS

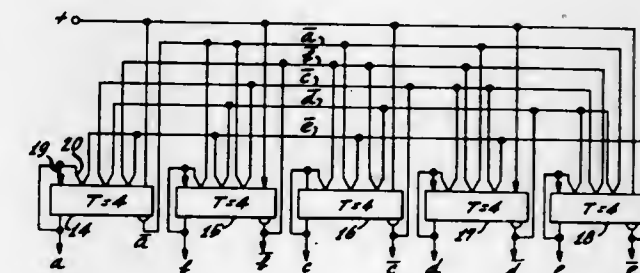
Robert Owen Winder, Princeton, N.J., assignor to RCA Corporation

Filed Sept. 25, 1969, Ser. No. 861,038

Int. Cl. H03k 21/00

U.S. Cl. 235-92 LG

6 Claims



In a decade counter comprised of five threshold gates, each producing two output signals, the first signal indicative of a bit and the second of its complement. A clock pulse and its own first signal are applied to each circuit. The second signal produced by each circuit is applied to the remaining four circuits.

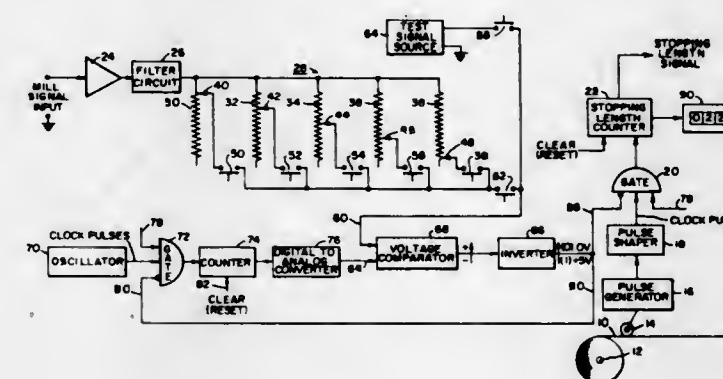
3,600,562

COMPUTER SYSTEM FOR DETERMINING THE STOP LENGTH REQUIRED TO ARREST A MOVING STRIP OF MATERIAL

Frank DiNicolantonio, Williamsville; Volt C. Drankhan, Hamburg, and Paul W. Wagener, Depew, all of N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 19, 1969, Ser. No. 886,697
Int. Cl. G06g 7/78

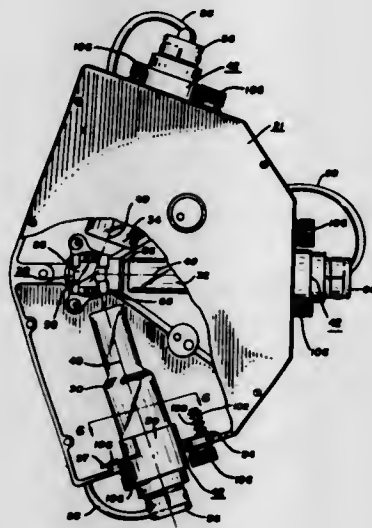
U.S. Cl. 235-151.32

5 Claims



This disclosure relates to a computer for determining the length of material required in order to arrest a moving strip of material in a preselected deceleration time, the material being payed out from a reel in a mill operated at a predetermined mill speed. An analog signal, which is a function of the mill speed and deceleration time, is applied to a voltage comparator. Another input to the voltage comparator is a ramp signal. A train of pulses, synchronized with the ramp signal, is generated as a function of the payed out length of the strip material, the pulses being counted by a stop length counter. When the voltage comparator has inputs which are equal in magnitude, an inhibit signal is developed which is applied to inactivate the stop length counter, the cumulative counts of which will then be a function of the length of material required to stop the mill for the mill speed and deceleration time selected by the mill operator.

phenomenon. A plurality of adjustable light sources emitting radiation that is characteristic of particular atoms are mounted in radial relation about an optical means. The optical means is adapted to select radiation from a particular source and to direct a beam of radiation through a flame zone of a burner into which a test solution is aspirated. The burner is a slot-type burner that is rotatably, horizontally,



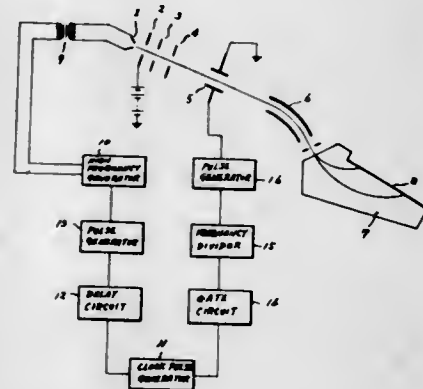
and vertically adjustable to control the position of the flame through which the beam passes. An adjustable aspirator assembly is provided for the burner to control the aspiration efficiency. A piezoelectric ignition system is provided for the burner that automatically moves a spark device into and out of the flame zone while simultaneously generating a high voltage for creating the spark.

3,600,572
LAMP SHADE AND METHOD OF MANUFACTURING SAME
Jorgen Grunwald, Solledgaardsvej 29, 2840 Holte, Denmark
Filed Sept. 2, 1969, Ser. No. 862,605
Claims priority, application Denmark, Sept. 5, 1968, 4,266/68
Int. Cl. F21v 1/00
U.S. Cl. 240—108 R
4 Claims



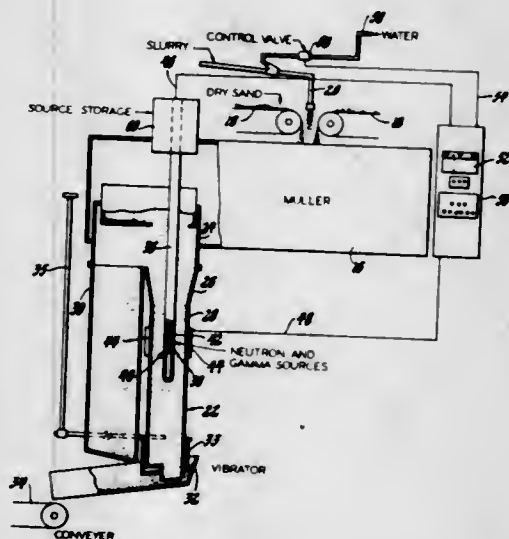
A lamp shade is provided which consists of a spiral strip cut out of a plane sheet and is maintained in a hybrid spiral and helical path by means of strips or filaments extending transversely of the turns of the spiral strip and attached thereto in the points of intersection. To provide such a lamp shade a method is provided, according to which a spiral strip is first cut out of a plane sheet and is then pulled out perpendicularly to its plane by attaching supporting strips or filaments to the spiral strip in predetermined attachment areas thereof.

3,600,573
ION BEAM INTENSITY CONTROL WITH PULSED BEAM DEFLECTOR AND SYNCHRONIZED ION SOURCE BLANKING
Eiji Watanabe, Tokyo, Japan, assignor to Nihon Denshi Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 6, 1969, Ser. No. 864,054
Claims priority, application Japan, Oct. 9, 1968, 43/73690
Int. Cl. H01j 39/34, 37/34
U.S. Cl. 250—41.9 ME
4 Claims



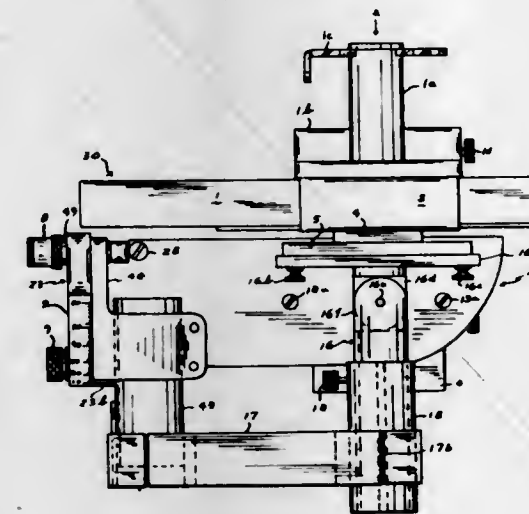
A method and apparatus for selectively introducing an intermittent ion beam to an analyzer by passing the intermittent ion beam through deflection electrodes to which generated pulses are applied to direct the ion beams in a manner that the intermittent ion beam does not pass the electrodes at a rising and falling time of the pulses. The pulses selectively project into the analyzer the intermittent ion beam in accordance with the amount of exposure.

3,600,574
RADIOMETRIC METHOD AND APPARATUS FOR MEASURING AND CONTROLLING FOUNDRY SAND MOISTURE
Donald D. Glaza, Warren, and Arthur D. Block, Farmington, both of, Mich., assignors to General Motors Corporation, Detroit, Mich.
Continuation of application Ser. No. 692,742, Dec. 22, 1967, now abandoned. This application May 12, 1969, Ser. No. 827,086
Int. Cl. G01t 1/16; G01n 23/14
U.S. Cl. 250—45
7 Claims



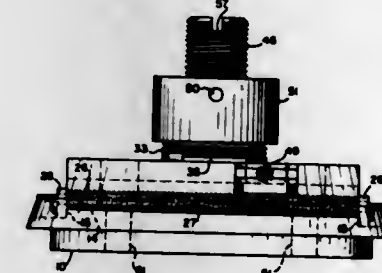
To measure the amount of water present in foundry sand continuously flowing through a chute, a probe within the chute carries a fast neutron source and a slow neutron detector to detect the amount of water in the sand. A gamma source in the probe and a gamma detector outside the chute measure the sand density. The detector output signals are arithmetically combined to give a signal proportional to percent moisture by weight. The signal may be used to control water addition to the sand.

3,600,575
CRYSTAL MOUNT AND GONIOMETER FOR TAKING LAUE PATTERNS AND FOR ORIENTATION OF LARGE SINGLE CRYSTALS
Frank L. Chan, 3228 Ravenwood Road, Fairborn, Ohio
Filed May 5, 1969, Ser. No. 821,595
Int. Cl. G01n 23/20
U.S. Cl. 250—51.5
3 Claims



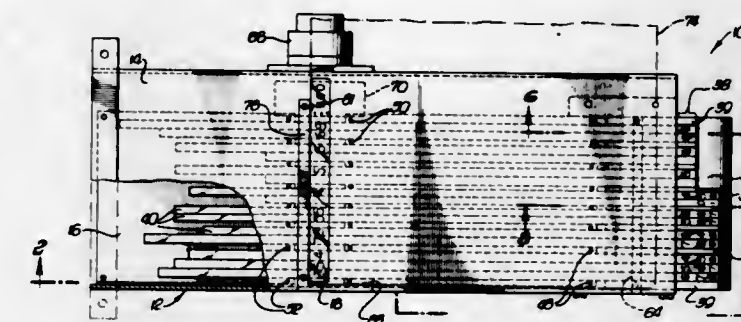
A combined, portable crystal mount and goniometer apparatus having built-in vertical and horizontal goniometer members, and an adjustably mounted crystal holder member adapted to be rigidly positioned on the camera track of a standard type of X-ray diffraction apparatus and thereby extend the latter's inherent ability in taking Laue patterns of small types of crystalline structures to the further capability of taking X-ray diffraction pictures of the relatively large or macro-type crystal.

3,600,576
AGONIOMETER DEVICE
Forrest L. Carter, 8000 MacArthur Blvd., Cabin John-Bethesda, Md., and Walter C. Sadler, 4903 Prince George Ave., Beltsville, Md.
Filed June 2, 1969, Ser. No. 829,338
Int. Cl. G01n 23/20
U.S. Cl. 250—51.5 R
4 Claims



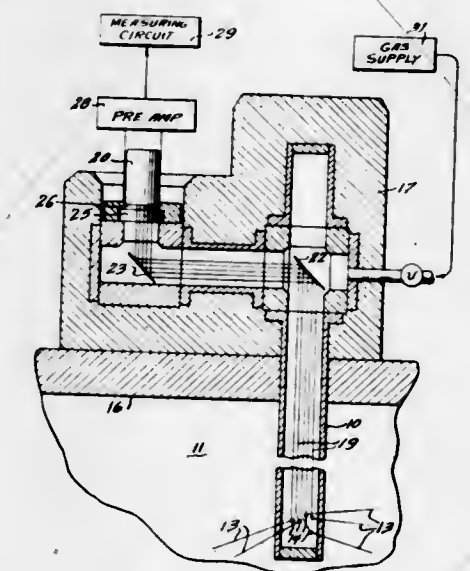
This disclosure is directed to an arcless goniometer head which supports a single crystal specimen for examination by the use of X-rays of neutrons. The device is made for X-Y adjustment of the crystal as well as for height adjustment and the crystal is so mounted that the mount may be removed with the crystal thereon for use of the device for other crystal studies through use of other mounts. The X-Y translation mechanisms are housed within a low flat housing which is removed from the crystal the maximum distance possible such that the crystal may be adjusted without exposure of ones hands during the adjustment. Thus, the crystal mounting rod extends considerable distance from the base such that high or low temperature may be used without the base affecting the temperature.

3,600,577
RADIOGRAPHIC FILM IDENTIFICATION DEVICE
William D. Lovison, 4902 Willmonte Ave., Temple City, Calif.
Filed July 18, 1969, Ser. No. 843,082
Int. Cl. G03b 41/16
U.S. Cl. 250—67
5 Claims



An X-ray film identification device in which one unexposed edge of an X-ray film is placed adjacent a radiation transparent window in which is displayed a set of identifying characters. The identifying characters are located on slidable strips which are guided individually from a remote location into registering position with the window. One end of each of the individual strips is attached to a separate wheel which is rotated to bring various indicia on the strips into registering location with the window.

3,600,578
REACTOR POWER LEVEL SENSING DEVICE USING CHERENKOV RADIATION
Karl G. Porges, Evanston, and Raymond Gold, Woodridge, both of, Ill., assignors to The United States of America as represented by the United States Atomic Energy Commission.
Filed Oct. 7, 1969, Ser. No. 864,443
Int. Cl. G01t 1/20
U.S. Cl. 250—71.5 R
6 Claims



A gas filled probe is positioned within a reactor to intercept gamma rays developed therein. The gamma rays above a predetermined threshold energy level develop Compton recoil electrons in the gas and tube with velocities greater than the velocity of light in the gas. The Cherenkov radiation resulting from the slowing down of the electrons is detected and measured by a photomultiplier to measure the power level of the reactor.

3,600,579

THERMAL LUMINESCENT MATERIAL FOR IONIZING RADIATION DOSIMETRY

Serge Carpentier, Cretell; Radovan Dajevic, Rontenay-aux-Roses; Roger Delarue, Paris; Henri Francois, Paris; Guy Portal, Massy; Jacques Pradel, Malakoff, and Georges Soudain, Antony, all of France, assignors to Commissariat A L'Energie Atomique, Paris, France

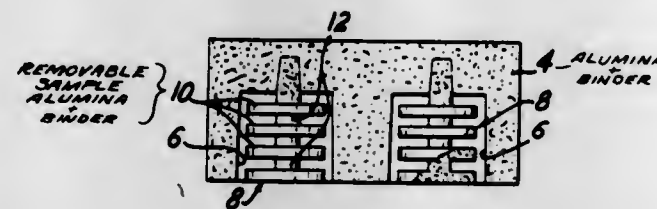
Filed Jan. 7, 1969, Ser. No. 789,460

Claims priority, application France, Jan. 18, 1968, Sept. 18, 1968, Mar. 12, 1968, 136,564; 166,636; 143,427

Int. Cl. G01t 1/11

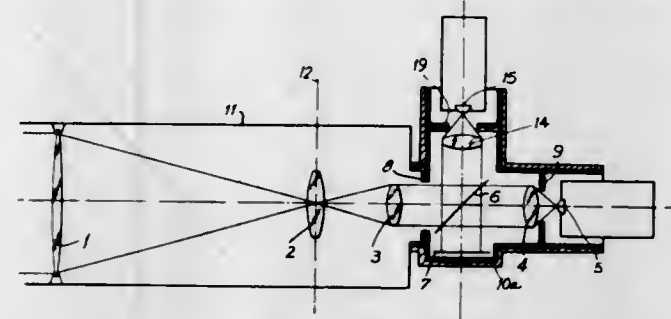
U.S. Cl. 250-71

10 Claims



The material essentially consists of alumina Al_2O_3 in the form of particles smaller in size than 400μ . A proportion higher than 80 percent by weight should be in the form of alpha crystals. A proportion of particles at least equal to 60 percent has a size higher than 10μ . The alumina may be used in powdered form or included in a construction material.

plane and the field lens is positioned at this plane. The collimator forms a parallel beam path of smaller diameter than that of the image entering the objective. A stop is positioned in the path and is provided with an aperture which permits the passage of the parallel beam while blocking heat rays which might be generated upstream of the stop. A second objective receives the parallel beam and focuses an image at a



receiver all which responds to the IR content thereof. This cell has a determinable operating temperature and a cooling apparatus is provided which cools the system between the collimator and the cell to a temperature which is close to that of the cell. A beam splitter can be provided which operates on the parallel beam and with this beam splitter is associated another objective and receiver cell. A cooling apparatus is also provided to operate with this additional structure.

3,600,582

RADIOACTIVE TRACER WELL LOGGING

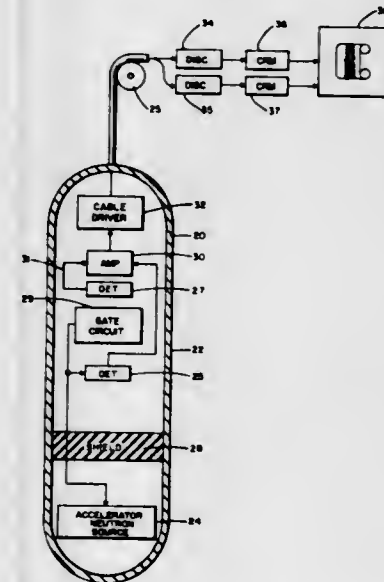
Mike Davis, and Arthur H. Youmans, Both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed June 3, 1968, Ser. No. 733,878

Int. Cl. G01v 5/00

U.S. Cl. 250-83.3

7 Claims



The thermal neutron capture cross section of the fluid in an earth borehole is altered by the addition of a soluble neutron absorber and a radioactive tracer material, the tracer material serving to facilitate location of the injected fluid by means of a radiation detector and the neutron absorber serving to facilitate measurement of the pore volume occupied by the injected fluid in the formations surrounding the borehole by measurement of the thermal neutron capture cross section of the formation.

3,600,583

APPARATUS AND METHODS FOR READING THERMOLUMINESCENT DOSIMETERS AND THE LIKE

Donald A. Paynter, Goleta, Calif., assignor to EG & G, Inc., Bedford, Mass.

Filed Mar. 24, 1969, Ser. No. 809,721

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3

10 Claims

Thermoluminescent dosimeter reader in which dose measurements are based on the glow curve peak. Measurements

3,600,581

IR-OPTICAL IMAGE REPRODUCING SYSTEM AND METHOD

Josef-Ferdinand Menke, Glucksburg, Germany, assignor to Eltro GmbH & Co., Heidelberg, Germany

Filed Aug. 18, 1969, Ser. No. 851,021

Claims priority, application Germany, Aug. 16, 1968, P 17 97 108.3

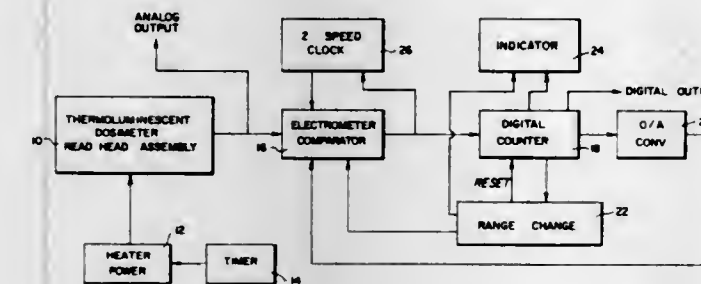
Int. Cl. G01t 1/16

U.S. Cl. 250-83 R

6 Claims

An IR-optical image reproduction system which comprises an objective, a field lens and collimator arranged in optical series. The objective focuses the incoming image at an image

are made by comparing the output of a photomultiplier tube with the analog-converted state of a digital counter, the comparison being performed by alternately connecting a capacitor to the output of the digital-to-analog converter and to the signal from the photomultiplier, periodically, in order to produce error pulses which are amplified in an AC amplifier and which advance the counter when the sense of the error indicates that the signal is greater than the counter state. A



two-speed clock controls the sampling frequency at which measurements are performed, so that the signal source is isolated from the measurement circuit most of the time, and the counter is advanced rapidly when the signal exceeds the counter state. Range change circuitry inserts a shunting impedance in the input of the comparator when the counter fills to capacity, resets the counter, and actuates an indicator connected to the counter.

3,600,584

X-RAY PHOTOTIMER THAT IS COMPENSATED FOR DARK CURRENT

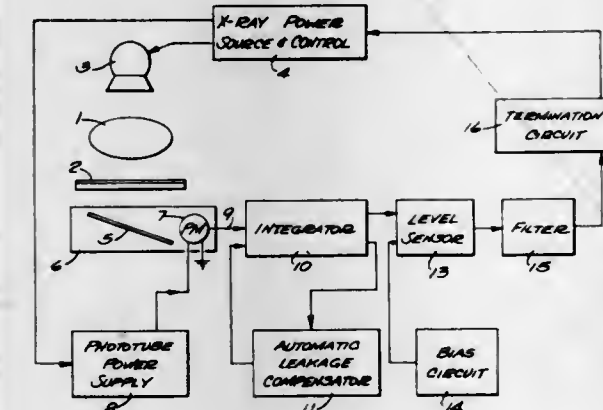
John E. Schneble, Wauwatosa, Wis., assignor to General Electric Company

Filed May 28, 1969, Ser. No. 828,682

Int. Cl. G03b 41/16; H01j 39/12

U.S. Cl. 250-95

1 Claim



X-ray film density is controlled with a phototimer that uses a detector for producing an electric current which is proportional to the instantaneous intensity of the X-rays that penetrate the film. The detector current is integrated with respect to time. The exposure is ended when the integrator output changes by a certain amount in which case the output from the integrator signals the X-ray generator to terminate. At this time, the film which is also integrating the X-radiation should be properly exposed. Leakage current varies between detectors and ordinarily causes an error in the integrated signal and, hence, in the exposure time. A circuit is provided to compensate for whatever leakage current error would exist with the particular detector that is used.

3,600,585

PLUTONIUM HEAT SOURCE

Donald P. Kelly, Dayton, Ohio; James A. Powers, Rockville, Md., and Phillip A. Tucker, Dayton, Ohio, assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 3, 1967, Ser. No. 616,422

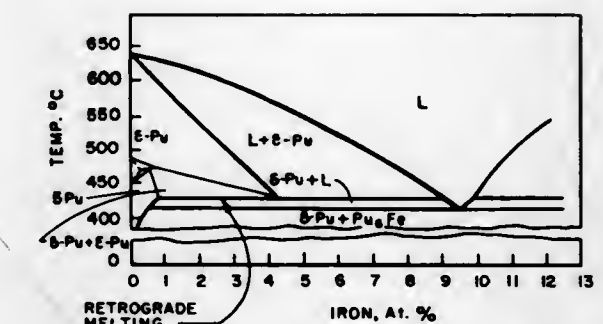
Int. Cl. G21h 5/00

U.S. Cl. 250-106 S

4 Claims

A radioisotopic heat source for a thermoelectric generator

having a plutonium-238 alloy enclosed within a tantalum



container and an arc melting method and apparatus to produce said alloy.

3,600,586

α-RAY HEAT SOURCE, SUITABLE FOR USE IN A CARDIAC PACEMAKER

Pierre Barthelemy, Fontenay-Aux-Roses, and Rene Boucher, Paris, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

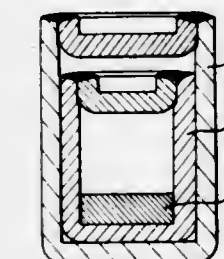
Filed Nov. 5, 1968, Ser. No. 773,377

Claims priority, application France, Nov. 9, 1967, 127637

Int. Cl. G21h 1/10

U.S. Cl. 250-106

8 Claims



The heat source comprises a leak-tight container and a body of α-ray emitting material in the container. The material is an alloy of Pu 238 and of Sc, Ce, In, Ga or Am in such proportions that the alloy is in δ phase. The container consists of an inner sheath of tantalum or tungsten and of an outer sheath of platinum.

3,600,587

FREQUENCY SHIFT KEYING LASER COMMUNICATION SYSTEM

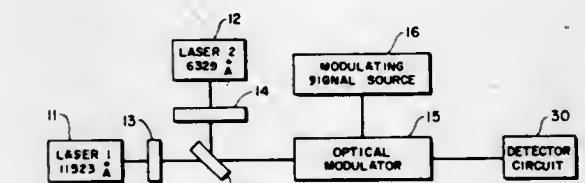
Donald A. Smith, Schenectady, N.Y., assignor to The United States of America as represented by the Secretary of the Army

Filed June 10, 1969, Ser. No. 831,972

Int. Cl. H04l 27/10; H04b 9/00

U.S. Cl. 250-199

13 Claims



An optical frequency shift keying system for representing a first binary signal condition by a first optical frequency and a second binary signal condition by a second optical frequency by means including an optical modulator biased to provide optical transmission predominantly at one of said optical frequencies during one of said signal conditions and to provide transmission at the other of said optical frequencies during the second condition.

3,600,588

PHOTOELECTRIC OPTICAL GRATING

Leonard Alfred Sayce, Glasgow, Scotland, assignor to National Research Development Corporation, London, England

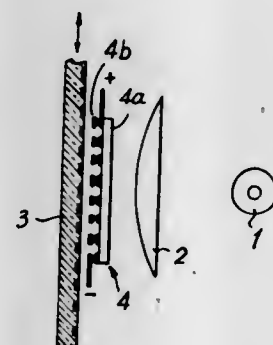
Filed Dec. 10, 1969, Ser. No. 883,877

Claims priority, application Great Britain, Dec. 13, 1968, 59477/68

Int. Cl. H01J 39/04

U.S. Cl. 250-211 R

5 Claims



An index grating for use in measuring apparatus in which relative movement between the index grating and a scale grating is monitored, consisting of a regular series of alternate transparent and opaque regions, the opaque regions constituting parts of a solid state photocell. There is also described a reading head incorporating such an index grating.

3,600,589

LOGARITHMIC SENSE AMPLIFIER HAVING MEANS FOR ESTABLISHING A PREDETERMINED OUTPUT VOLTAGE LEVEL WHEN THE INPUT SIGNAL IS AT A MAXIMUM

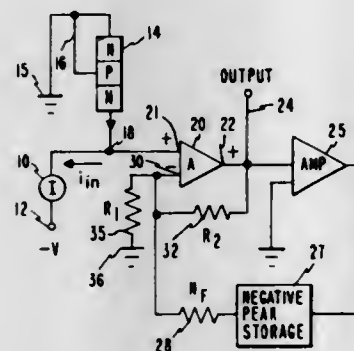
Charles C. Hanson, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 18, 1968, Ser. No. 768,706

Int. Cl. H01J 39/12; H03K 3/42; H03F 1/36

U.S. Cl. 250-214

12 Claims



A logarithmic sense amplifier particularly adapted for use in contrast measurement for character or mark reading systems. The amplifier includes an input circuit combining a photodiode sensor consisting of a diode having a logarithmic characteristic for range compression and a compatible differential amplifier having a feedback network which includes an output voltage comparator and a peak voltage storage device to feedback a signal to the input of the amplifier so that steady state input signals are balanced out in the output such that only incremental input changes evidencing the presence of a mark will be present in the output of the differential amplifier of the amplifying system.

GAS MEASURING APPARATUS FOR DETECTING CONTAMINANTS

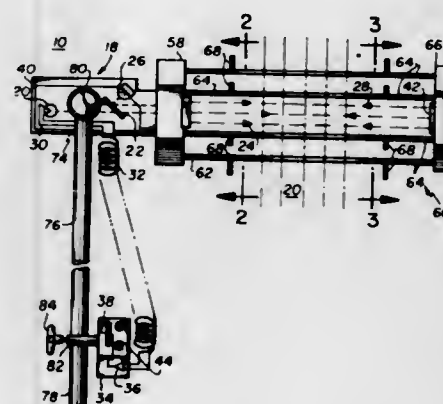
Harry Einstein, c/o Nebetco Engineering, 1107 Chandler Ave., Roselle, N.J.

Filed Nov. 12, 1968, Ser. No. 774,871

Int. Cl. G01n 21/26

U.S. Cl. 250-218

23 Claims



Gas measuring apparatus is disclosed for detecting the presence of particles and other contaminants suspended in exhaust gases and the like. The apparatus includes a sensing system, preferably a photoelectric transceiver including a light source and detector mounted within a single housing, located out of the path of the gas being measured to prevent the contamination thereof. The sensing system disperses visible light (ultraviolet or infrared may be utilized) into the gas being measured such that the amount of light reflected and detected provides an output signal representative of the presence of particles and other contaminants suspended in the gas. An output system including an appropriate meter is responsive to the signal developed by the sensing system to provide a visible indication of the pollution of the gas. Various types of positioning frame assemblies may be utilized in conjunction with the basic system to extend its applicability to many common types of pollution expelling environments. Each of these embodiments may additionally be provided with a self-contained calibration unit for establishing predetermined levels for the measurement of pollutants.

3,600,591

APPARATUS FOR DETECTING SURFACE ELEVATIONS ON A MOVING SHEET

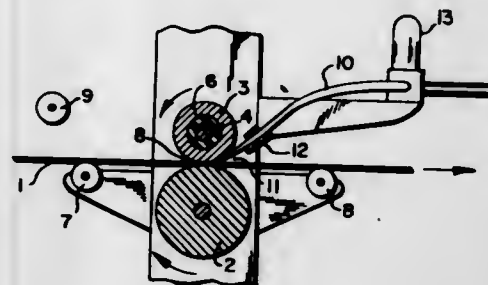
Richard Thier, Buderich near Dusseldorf, and Heinz Voigt, Bielefeld, both of Germany, assignors to Feldmuhle Aktiengesellschaft, Dusseldorf, Germany

Filed Jan. 13, 1970, Ser. No. 2,502

Int. Cl. G01n 21/32

U.S. Cl. 250-219 DF

5 Claims



Surface elevations such as wrinkles are detected in a moving, normally smooth-surfaced paper sheet by passing the sheet between a driven cylinder having a fixed axis of rotation and an idler cylinder yieldably biased toward the driven cylinder so as normally to define a continuous line of contact with the moving sheet. When a surface elevation causes a portion of the idler cylinder to be lifted from the moving sheet, light from a lamp on one side of the line of contact reaches transverse end faces of light conducting fibers ar-

ranged contiguously adjacent the other side of the line in a row parallel to the line. The fibers conduct the received light to photomultiplier tubes to generate an electric signal indicative of the magnitude and location of the surface elevation.

3,600,592

PHOTOSENSING FOLIO KEYED KEYBOARD

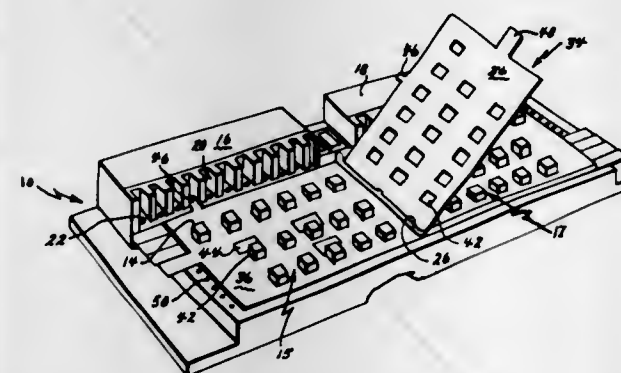
Ralph E. Mahan, San Jose; James K. Gerrie, Sunnyvale, and James C. Lashbrook, San Jose, all of Calif., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Oct. 27, 1969, Ser. No. 869,771

Int. Cl. G01n 21/30

U.S. Cl. 250-219 DC

9 Claims



A photosensing keyboard which is utilized in conjunction with a folio. The folio is mounted on the face of the keyboard. The keyboard has a first and second photosensing means therein. The photosensing means and folio are interrelated in such a manner that the keyboard is capable of detecting the presence of the folio thereon and also the specific page the folio is opened to.

3,600,593

HAND HELD PRINTED TICKET READER COMPRISING A RECTILINEARLY MOVING SCANNING LENS

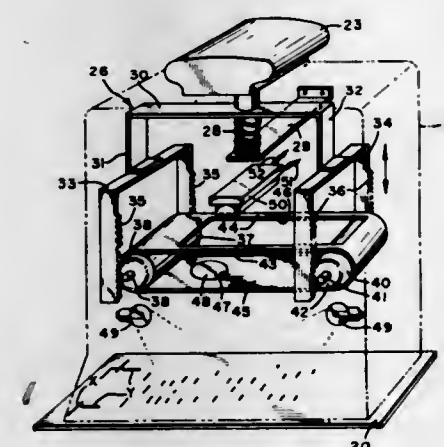
Robert M. Berler, Westport, Conn., assignor to Pitney Bowes-Alper, Inc., Danbury, Conn.

Filed Nov. 10, 1969, Ser. No. 875,473

Int. Cl. G01n 21/30; G06k 7/00; H01J 31/14

U.S. Cl. 250-219 DC

9 Claims



A photo optical hand held reader which is positionable over a printed mark document and held stationary while a lens contained in the reader housing is moved so as to scan the printed information on the document. A light source housed in the reader provides the necessary illumination to permit the images from the printed marks to be reflected through the lens to an array of photoelectric sensors which converts the images, by means of logic and other signal processing circuits, to intelligible information.

FIBER OPTICS PULSE WIDTH MODULATOR

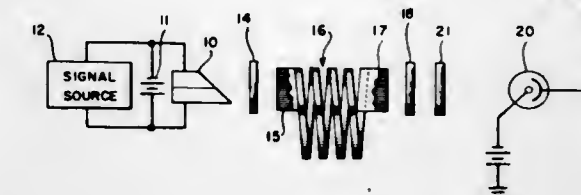
John F. Moore, Plainfield, N.J., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Dec. 9, 1968, Ser. No. 782,024

Int. Cl. H01J 5/16

U.S. Cl. 250-227

8 Claims



An optical pulse width modulator having a spiral stack of optical fibers providing a plurality of independent channels of different length for the passage of light. A suitable light source is intensity modulated in accordance with an applied electronic signal waveform and the light directed through the stack of optical fibers. The light emerging from the fibers is correlated with a waveform pattern in an optical grating and detected photoelectrically as a width modulated signal representing the correlation function between the applied electronic signal and the optical grating.

3,600,595

METHOD AND ARRANGEMENT FOR INTERCONNECTING HYDROELECTRIC PUMPING-UP POWER SYSTEM

Kei Yasunobu, 11-22-304 5-Chome Roppongi, Minato-Ku, Tokyo, Japan

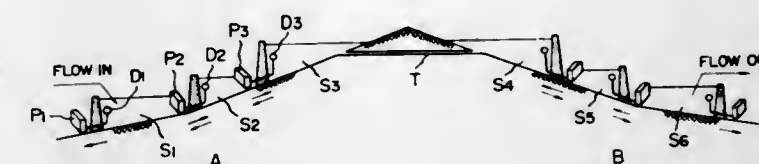
Filed July 7, 1970, Ser. No. 52,929

Claims priority, application Japan, Aug. 7, 1969, 44/62048

Int. Cl. F15b 1/06

U.S. Cl. 290-52

2 Claims



Interconnection of a plurality of hydroelectric pumping-up power systems is achieved by providing two groups of pumping-up hydroelectric power plants on respective sides of a mountain and by accommodatively transferring water thus pumped up between water reservoirs provided at the highest levels on respective sides of the mountain through a corresponding number of water tunnels or the like, and the water thus transferred can be utilized for various purposes in addition to hydroelectric power generation.

3,600,596

VEHICLE LIGHT SWITCH APPARATUS

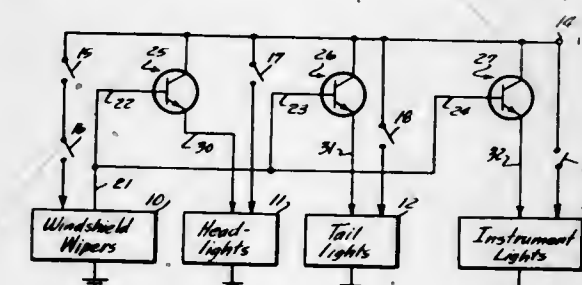
John R. Aloisanti, 722 South Ranger Blvd, Winter Park, Fla.

Filed June 5, 1969, Ser. No. 830,599

Int. Cl. H02g 3/00

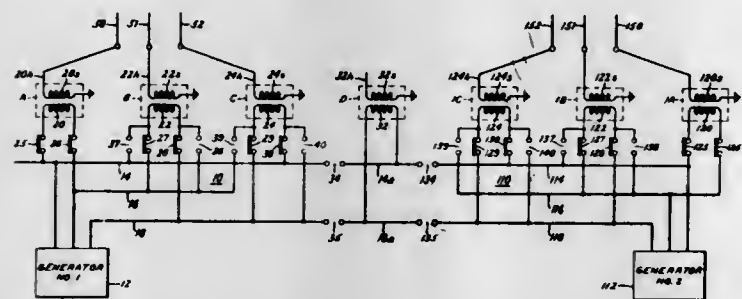
U.S. Cl. 307-10

7 Claims



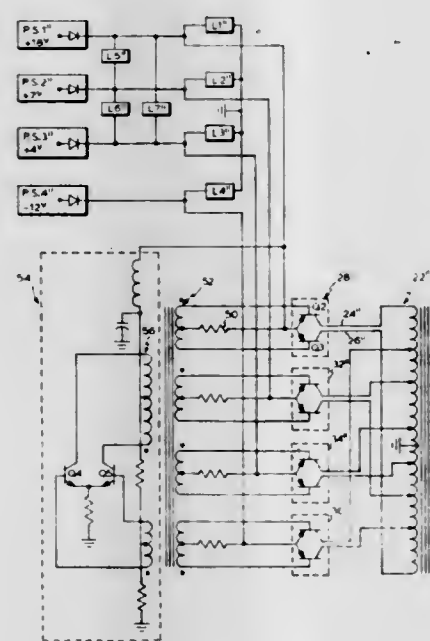
A vehicle light switch apparatus is provided for turning the lights of a vehicle on and off automatically upon turning the windshield wipers for the vehicle on and off without otherwise affecting the main light switch for the vehicle.

3,600,597
SPARE TRANSFORMER CONNECTING MEANS
 Nathan Swerdlow, Philadelphia, Pa., assignor to General Electric Company
 Continuation-in-part of application Ser. No. 794,049, Jan. 27, 1969, now Patent No. 3,519,838. This application Mar. 24, 1970, Ser. No. 22,329
 Int. Cl. H02j 3/00
 U.S. Cl. 307-17 7 Claims



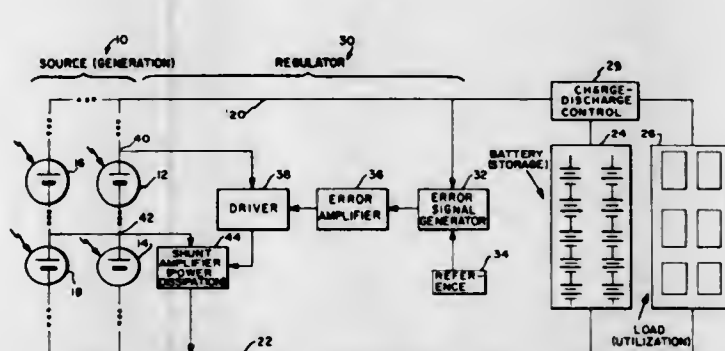
Discloses a power system in which first, second and third single-phase transformers have their primary windings connected in delta. A spare transformer is disposed physically adjacent the third transformer and is provided with switching means for connecting its primary winding to the bus in a manner that enables the spare to serve as a replacement for the third transformer. Additional switching means is provided for connecting the primary winding of the third transformer to the bus in a way that enables the third transformer to serve as a replacement for the second transformer, should such replacement be necessary. Still additional switching means is provided for connecting the primary of the second transformer to the bus in a way that enables the second transformer to serve as a replacement for the first transformer, should this latter replacement be necessary.

3,600,598
POWER SUPPLY SYSTEM
 Roy P. Foerster, Thousand Oaks, Calif., assignor to The Bunker Ramo Corporation, Oak Brook, Ill.
 Filed Aug. 11, 1969, Ser. No. 849,032
 Int. Cl. H02j 1/00
 U.S. Cl. 307-19 7 Claims



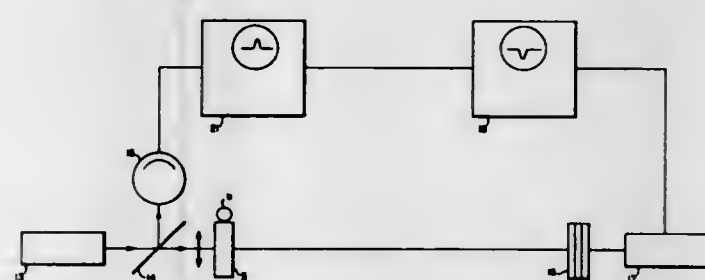
An electrical power supply system for efficiently supplying power at multiple voltage levels to various loads. The system includes transformer means intercoupling a plurality of different voltage levels so as to automatically translate or redistribute power as load conditions change. For example, as load current directions change, power is translated with minimum loss from levels acting as a current sink to levels requiring a current source.

3,600,599
SHUNT REGULATION ELECTRIC POWER SYSTEM
 Warren H. Wright, Palos Verdes, and John J. Bless, Canoga Park, both of, Calif., assignors to TRW Inc., Redondo Beach, Calif.
 Filed Oct. 3, 1968, Ser. No. 764,823
 Int. Cl. H02j 1/10, 3/38, 7/34
 U.S. Cl. 307-53 2 Claims



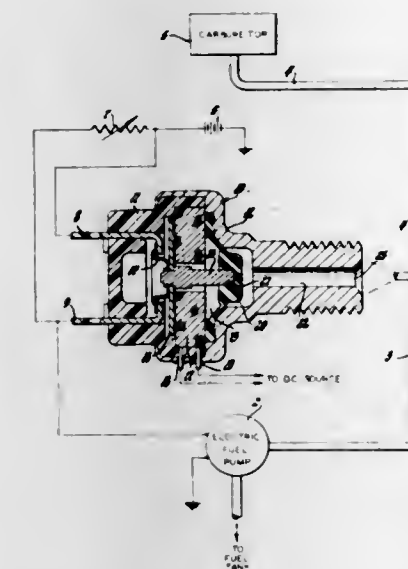
A regulated electric power system having load and return bus lines. A plurality of solar cells interconnected in power supplying relationship and having a power shunt tap point electrically spaced from the bus lines is provided. A power dissipator is connected to the shunt tap point and provides for a controllable dissipation of excess energy supplied by the solar cells. A dissipation driver is coupled to the power dissipator and controls its conductance and dissipation and is also connected to the solar cells in a power taping relationship to derive operating power therefrom. An error signal generator is coupled to the load bus and to a reference signal generator to provide an error output signal which is representative of the difference between the electric parameters existing at the load bus and the reference signal generator. An error amplifier is coupled to the error signal generator and the dissipation driver to provide the driver with controlling signals.

3,600,600
OPTICAL HARMONIC GENERATING MEDIUM AND MODULATING DEVICE
 Paul P. Bey, Oxon Hill; John F. Giuliani, Kensington, and Herbert Rabin, Bethesda, all of, Md., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Sept. 25, 1968, Ser. No. 762,553
 Int. Cl. H02m 5/00
 U.S. Cl. 307-88.3 4 Claims



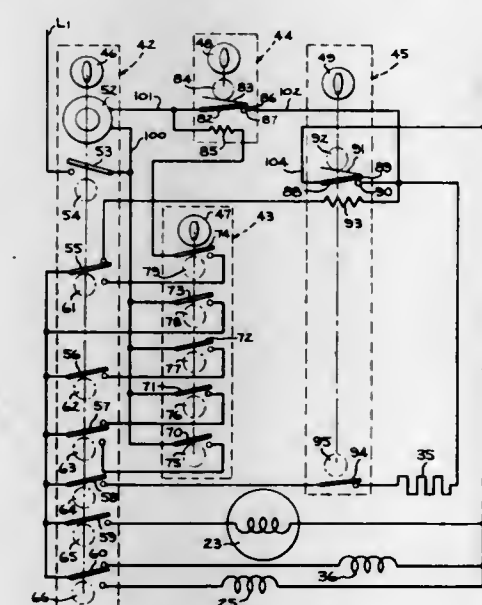
This disclosure is directed to a device which generates an enhanced third harmonic light wave of the neodymium laser by the introduction of anomalous dispersion into a liquid medium to produce phase matching of the interacting waves, and applications thereof which depend upon the state of polarization of the incident laser radiation.
 The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

3,600,601
PRESSURE MODULATOR SWITCH FOR ELECTRIC FUEL PUMP
 John A. Ayres, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Dec. 15, 1969, Ser. No. 884,817
 Int. Cl. H02g 3/00
 U.S. Cl. 307-118 3 Claims



An electric fuel pump for a motor vehicle is provided with two modes of operation such that the pump will provide a high pressure at high flow rates in one mode of operation and a lower pressure at low flow rates in a second mode of operation.

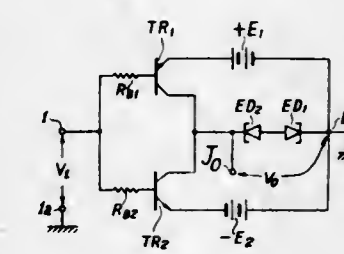
3,600,602
CONTROL ARRANGEMENT FOR A WASHING MACHINE
 Johnny W. Yartz, Anchorage, Ky., assignor to General Electric Company
 Filed Oct. 13, 1969, Ser. No. 865,799
 Int. Cl. H01h 3/34
 U.S. Cl. 307-141.8 7 Claims



In an automatic washing machine, such as a dishwasher, having a timer control including cams for opening and closing predetermined combinations of switches whereby the electrical components of the machine are sequentially energized to provide an operational cycle, the circuit by which the motor of the timer control is energized is provided with at least two normally closed thermally responsive switches in series therewith. Each of the thermally responsive switches is adapted to be separately regulated manually and is arranged in the machine's circuitry such that, during a predetermined

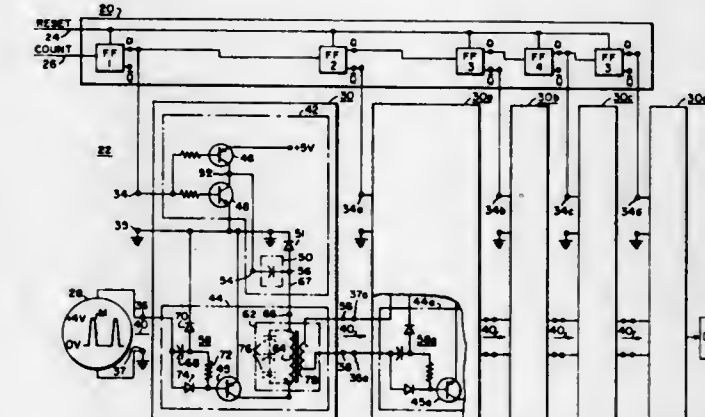
step of the machine's operational cycle, the motor circuit may be repeatedly interrupted to repeatedly halt the advancement of the timer control whereby the effective time duration of one or more of the electrical components operatively involved in the step is incrementally increased. Each of the thermally responsive switches is adaptively arranged in the circuitry to extend the effective operating time of those electrical components involved in a different specific step in the machine's operational cycle.

3,600,603
TERNARY LOGIC CIRCUIT
 Teruji Watanabe, Kitadachi-gun, and Hideo Yamamoto, Sagami-hara-shi, both of, Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan
 Filed Jan. 15, 1970, Ser. No. 3,080
 Claims priority, application Japan, Jan. 20, 1969, 3517/69
 Int. Cl. H03k 19/10, 19/08
 U.S. Cl. 307-206 3 Claims



A ternary logic circuit, in which values of series-connected two controllable resistances to which plus potential and minus potential are respectively applied are controlled by a common input voltage. The output of the ternary logic circuit assuming one of three possible values in accordance with the value of the input voltage is obtained across a nonlinear load resistance connected across the ground and a junction between the two controllable resistances.

3,600,604
FAILSAFE LOGIC GATES
 George M. Thorne-Booth, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Dec. 3, 1968, Ser. No. 780,662
 Int. Cl. H03k 19/22
 U.S. Cl. 307-218 15 Claims

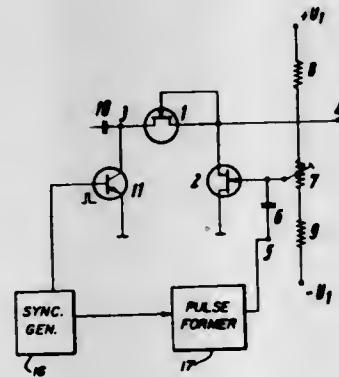


A novel electronic switching circuit is operated as an AC enable gate circuit which is adaptable to perform diverse functions in which failsafeness is desired. These functions include logic gating in binary data signal systems and interlocking relay functions in safety monitoring systems. The switching circuit construction yields an enable gate circuit operation mode which relies upon two dynamic signals to thereby provide virtually total failsafeness. The gate switching is performed by actuating an active amplifying device between its ENERGIZED and DEENERGIZED states to provide the OPEN and CLOSED enable gate circuit conditions, respectively. A gate actuation signal input network of the circuit derives the device energizing signal in response to a dynamic actuation signal, which is one of the dynamic

signals relied upon for failsafe properties. The enable gate channel of the circuit is of a construction which passes only a dynamic, or AC carrier signal above a predetermined threshold. The carrier signal is the other of the dynamic signals relied upon for failsafe properties. The AC carrier is amplified and then attenuated in its passage through the enable gate channel to cooperate with a thresholding in other circuits which may be connected in cascade.

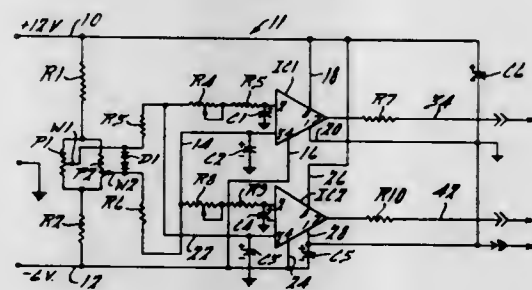
3,600,605 CIRCUIT FOR MULTIPLYING TWO ELECTRICAL SIGNALS

Klaus Lehmann, Nieder-Ramstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany
Filed June 26, 1969, Ser. No. 838,049
Claims priority, application Germany, June 29, 1968, P 17 62 514.8
Int. Cl. G06g 7/12, 7/16
U.S. Cl. 307-229 12 Claims



A circuit for multiplying two electrical signals for use particularly in television. Two field-effect transistors are interconnected with their drain-source paths to form a voltage divider. The video signal is applied to one field-effect transistor, by way of a capacitor and clamping transistor. The gate of this one field-effect transistor is connected to the junction of the two field-effect transistors which serve, at the same time, as the output of the circuit for providing the product of the two electrical signals. The second signal to be multiplied to the video signal is applied to the gate of the other field-effect transistor which has simultaneously a predetermined voltage level applied to it through an adjustable resistor.

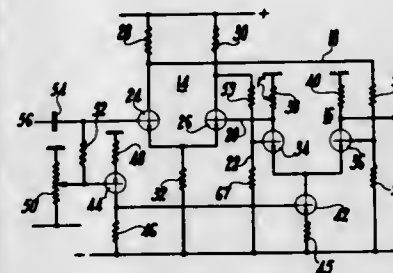
3,600,606
VOLTAGE COMPARATOR
Anthony G. Clor, Jr., Utica, Mich., assignor to Design Products Corporation, Troy, Mich.
Filed Feb. 15, 1968, Ser. No. 705,654
Int. Cl. H03k 5/20
U.S. Cl. 307-235 11 Claims



A voltage comparator providing an indication of a voltage balance and separate indications of unbalance on either side of balance.

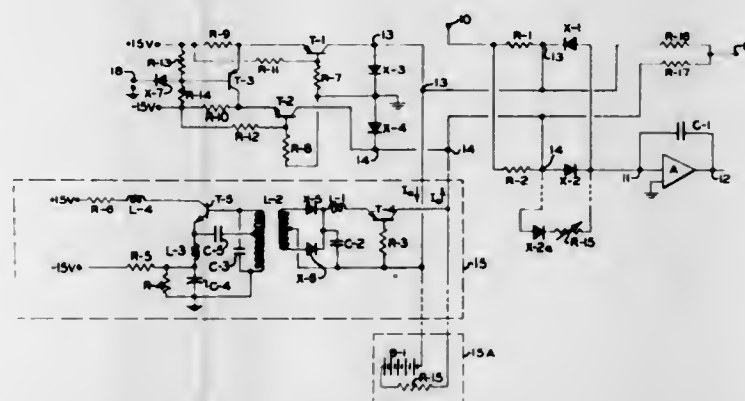
3,600,607 GATE DEVICE TRIGGERED FOR PASSAGES THROUGH ZERO

Robert Vatin, Ivry, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed Dec. 3, 1968, Ser. No. 780,655
Claims priority, application France, Dec. 14, 1967, 132278
Int. Cl. H03k 5/20
U.S. Cl. 307-235 3 Claims



A gate device has two stable states and a variable threshold voltage utilizing the properties of the differential amplifiers. Two transistors having the same emitter circuit have their collectors connected through a resistor to a point brought at a constant potential. The device is of the type in which the initial input voltage and the input voltage establishing the first stable state are equal and has two transistorized amplifiers, a main amplifier and an additional amplifier and two resistor circuits connecting respectively the first and second stages of the main amplifier to the second and first stages of the additional amplifier. A transistorized amplifier supplies a current proportional to the threshold voltage to the additional amplifier. A direct connection is made between one end of the load resistor of the first stage of the additional amplifier and the input of the second stage of the main amplifier, the voltage drop across said load resistor being equal to the difference between the input voltages for which the first and second stable states are established.

3,600,608
HIGH SPEED LOW-OFFSET ELECTRONIC SWITCH FOR ANALOG SIGNALS
Edward O. Gilbert, Ann Arbor, Mich., assignor to Reliance Electric Company
Filed May 8, 1969, Ser. No. 822,913
Int. Cl. H03k 17/74
U.S. Cl. 307-259 15 Claims

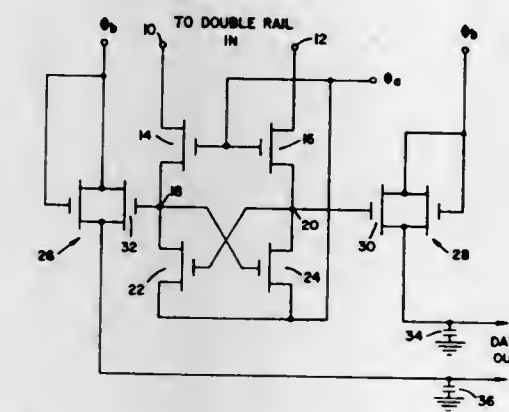


An electronic switch in which an analog input signal is applied to an output terminal through two oppositely-poled diodes and a circulating current from a floating current source is circulated through the two diodes so that the effects of their forward voltage drops on the switched current tend to cancel each other. To open the switch the circulating cur-

rent is diverted from the two diodes and they are reverse-biased by the forward drops across a further pair of diodes.

3,600,609 IGFET READ AMPLIFIER FOR DOUBLE-RAIL MEMORY SYSTEMS

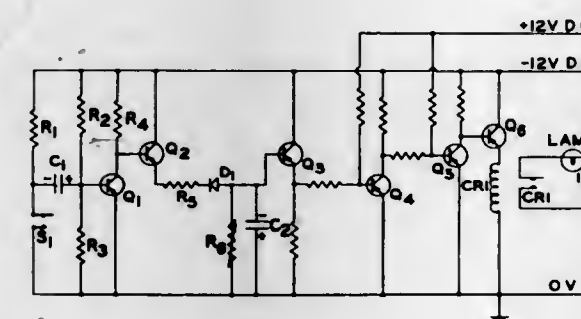
Alton O. Christensen, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Feb. 3, 1970, Ser. No. 8,208
Int. Cl. H03k 3/26; G11c 11/40
U.S. Cl. 307-279 6 Claims



A pair of cross-coupled IGFET devices connected in a race mode are combined with IGFET inverters to convert a differential double-rail output of an IGFET memory circuit into a full-logic-level double-rail data output.

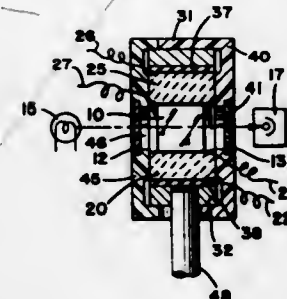
3,600,610 TIME DELAY CIRCUIT FOR A RADIANT ENERGY PROTECTIVE APPARATUS

Robert J. Kelsch, Penfield, and Paul F. Schmitt, Walworth, both of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Division of Ser. No. 596,281, Nov. 22, 1966, Patent No. 3,495,904. Filed July 9, 1969, Ser. No. 862,555
Int. Cl. H03k 17/28
U.S. Cl. 307-293 2 Claims



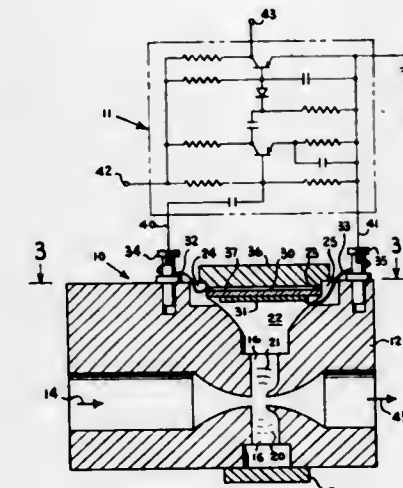
This invention relates to document motion detention devices and, more particularly, to protection of original documents from burning or tearing in graphic information scanning and transporting systems. A time delay circuit is provided wherein a switch is continuously energized and deenergized to control the operation of associated circuitry for the external control of a lamp or other control circuitry. If this switch remains opened or closed for a length of time due to a malfunction within the external control circuitry, the time delay circuit would deenergize said external circuitry to prevent damage to said original documents.

3,600,611
ELASTO-OPTIC DEVICE WITH MECHANICAL BIAS
Richard W. Treharne, Xenia, Ohio, assignor to Kettering Scientific Research, Inc., Yellow Springs, Ohio
Filed Mar. 18, 1970, Ser. No. 20,527
Int. Cl. H01v 7/00; G02f 1/24
U.S. Cl. 310-8.2 7 Claims



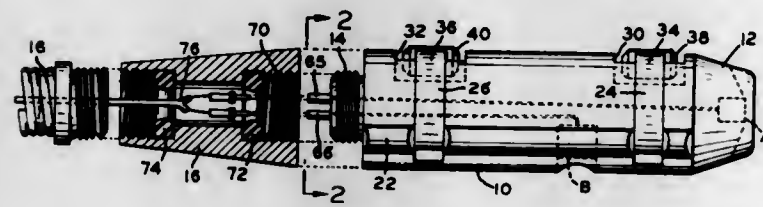
A device for modulating the intensity of a beam of light includes a pair of polarizing filters, the polarization plane angles of which are crossed, and a fused quartz light transmitting element mounted between the polarizing filters with its preferred axis oriented at 45° to the filters. The element is made to exhibit birefringence by mechanical stress imposed by a piezoelectric device mechanically attached to one side of the element. A second piezoelectric device is attached to the other side of the element, and supplies an output to control the frequency of an oscillator circuit to maintain the frequency of oscillation of the assembly at resonance. The light transmitting element and the piezoelectric devices are mounted in a metal ring which is provided with an adjustment so that mechanical force may be applied to the element through the piezoelectric devices to bias the element thereby producing a quarter wave retardation which improves the efficiency of the device.

3,600,612
TRANSDUCER
Basil B. Beeken, New Haven, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.
Filed Mar. 27, 1970, Ser. No. 23,262
Int. Cl. H04r 17/00
U.S. Cl. 310-8.2 3 Claims



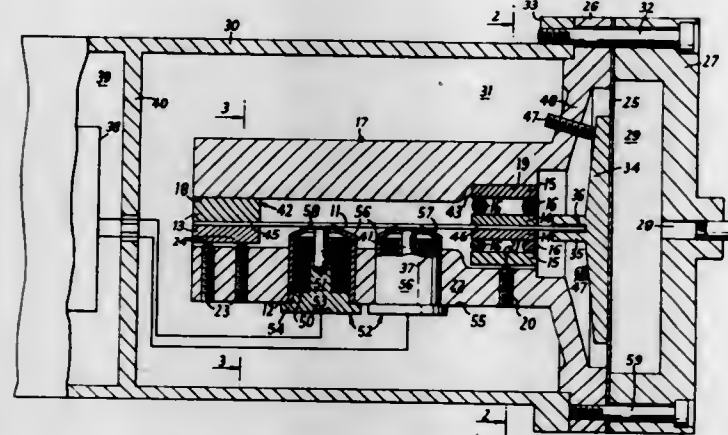
Transducing of a fluidic signal to an electric signal is accomplished in two steps by causing the fluidic signal to operate a whistle and then directing the resultant acoustical energy against a piezoelectric crystal that in sympathetically vibrating produces a low voltage output signal which can be used to control a suitable amplifying and rectifying electric circuit.

3,600,613
TRANSDUCER PROBE FOR ULTRASONIC PULSE-ECHO TEST APPARATUS
 William F. Clarke, Stamford, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
 Filed Aug. 22, 1968, Ser. No. 754,648
 Int. Cl. H01v 7/00; H04r 17/00
 U.S. Cl. 310-9.1 1 Claim



A transducer probe for ultrasonic pulse-echo testing comprises a generally circular elongated body adapted to be inserted into a tubing for being rotated and moved axially during test. The probe mounts one or more ultrasonic transducers and is provided with a set of fixed projections and a set of radially pivotable arms adapted to expand or retract to accommodate changes in tube diameter. In this manner the angle of incidence of the ultrasonic energy impinging on the tube is maintained substantially constant.

3,600,614
FORCE TRANSDUCER WITH ELONGATE VIBRATING MEMBER
 Ian F. M. Curtis, Farnborough, England, assignor to The Solartron Electronic Group Limited, Farnborough, England
 Filed Nov. 10, 1969, Ser. No. 875,391
 Claims priority, application Great Britain, Nov. 18, 1968, 54706/68
 Int. Cl. H02k 35/00
 U.S. Cl. 310-25 21 Claims

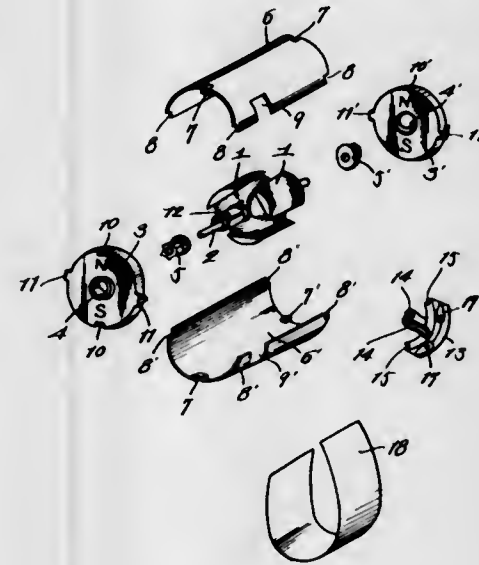


A force transducer in which a strut is fixed at one end and has the other end coupled to an arrangement for applying force in the axial direction of the strut. In operation, transverse vibration of a length of the strut is maintained by feedback from a pickup coil to a drive coil through an amplifier, the frequency being a measure of the axial force to which the strut is subjected. Adjacent the said other end a node is formed by a clamp gripping a portion of the strut. This clamp includes rolling bearings arranged to permit axial movement of the gripped portion of the strut.

3,600,615
MINIATURE MOTOR
 Tarou Morita, 6, 2-Chome, Gotenham, Otu-shi, Japan
 Filed Jan. 19, 1970, Ser. No. 3,878
 Int. Cl. H02k 15/02
 U.S. Cl. 310-40 3 Claims

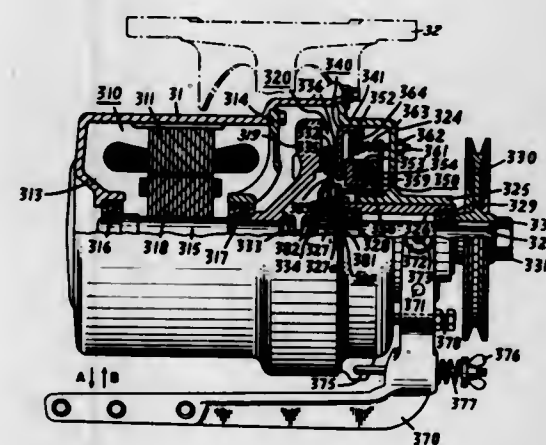
A miniature motor for moving toys comprising a rotor, a shaft on said rotor is fixedly mounted for rotation therewith, a rectifier element fixedly mounted on said rotor shaft, a pair of supporting discs made of permanent magnets for rotatably

supporting said rotor shaft, a pair of semicircle section magnetic cover members surrounding said rotor in a peripherally spaced relation thereto and held in position on said supporting discs by the magnetic attraction force of said supporting discs and mechanical means, said cover members having



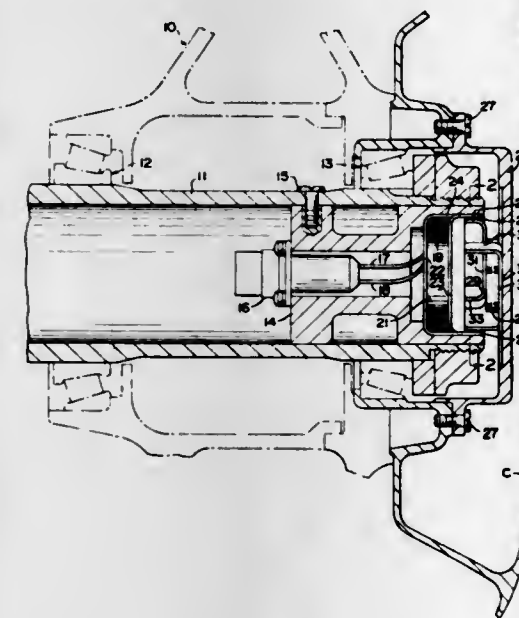
mating notches at the adjacent side edges to define an opening, a brush holder fitted in said opening and having a pair of brushes to pinch said rectifier element therebetween an adhesive tape applied around the periphery of said pair of cover members to secure the cover members together.

3,600,616
CLUTCH MOTOR WITH ELECTROMAGNETICALLY OPERATED AUXILIARY BRAKING MEANS
 Masahiro Yokoyama, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed July 29, 1969, Ser. No. 845,856
 Claims priority, application Japan, Aug. 1, 1968, 43/54,568
 Int. Cl. H02k 7/12
 U.S. Cl. 310-76 5 Claims



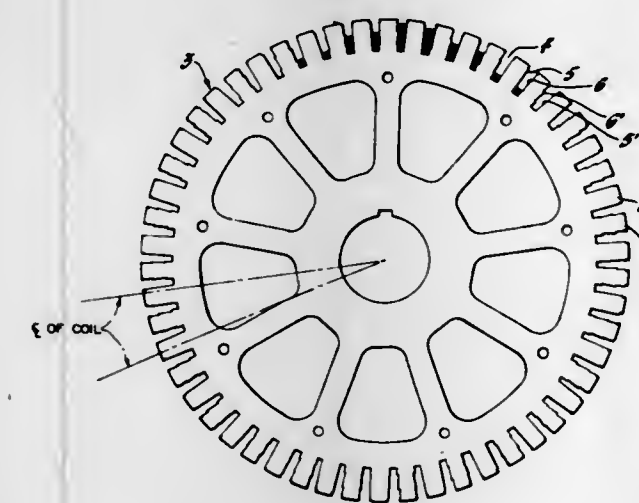
Upon stopping an output shaft driven by an electric motor, a clutch is driven into the partly clutched mode of operation through energization of electromagnets. An auxiliary brake disposed on the shaft is also operated by the electromagnets to maintain that mode of operation stable. The electromagnets respond to the associated load being at its predetermined position to be deenergized to stop the shaft and therefore the load at that position.

3,600,617
PULSE GENERATOR
 Theodore Frayer, North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Jan. 21, 1970, Ser. No. 4,552
 Int. Cl. H02k 21/16
 U.S. Cl. 310-156 5 Claims



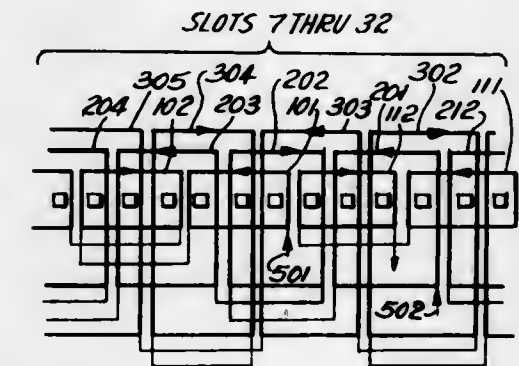
An electrical pulse generator comprising a fixed coil with an odd number of sets of pole piece fingers thereon is provided in association with a rotatable magnet having a different odd number of sets of pole piece fingers thereon and extending therefrom for operative association with and rotation by the pole piece fingers extending from the coil for creating pulses therein as a wheel in which the magnet is usually positioned is rotated.

3,600,618
WOUND ROTOR ALTERNATOR COIL SLOT CONSTRUCTION
 Gordon J. Nicholas, Naperville, and Edward P. Kupka, LaGrange, both of, Ill., assignors to General Motors Corporation, Detroit, Mich.
 Filed Oct. 27, 1969, Ser. No. 869,533
 Int. Cl. H02k 1/06
 U.S. Cl. 310-216 3 Claims



A lamination for a dynamoelectric machine wherein the slots include a pair of sides, one of which sides is straight and the other of which is stepped. The slots are so designed to receive a prewound coil.

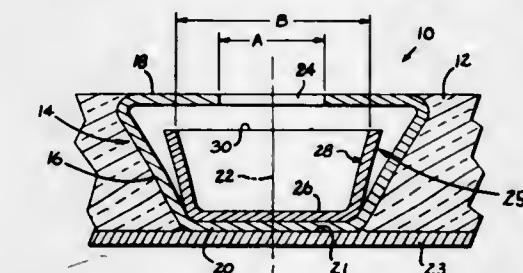
3,600,619
STATOR WINDING
 Roger C. Tiarks, West Allis, Wis., assignor to Lincoln Tool & Manufacturing Co., Milwaukee, Wis.
 Filed June 5, 1970, Ser. No. 43,664
 Int. Cl. H02k 3/00 15 Claims



A stator winding includes three simultaneously wound winding patterns which are angularly spaced at 40°. Each winding pattern includes a series of 12 alternately oppositely wound coils in lapping relation to coils in the other two patterns, which coils all have a uniform span of 30°.

Also disclosed herein is a method of producing the first mentioned stator winding.

3,600,620
ANODE BUTTON FOR PREVENTING LEAKAGE OF X-RADIATION
 Edward C. Slick, Warren, and Floyd H. West, Sugar Grove, both of, Pa., assignors to Sylvania Electric Products Inc.
 Filed July 13, 1970, Ser. No. 54,192
 Int. Cl. G21f 3/00; H01j 5/32, 5/52
 U.S. Cl. 313-64 3 Claims

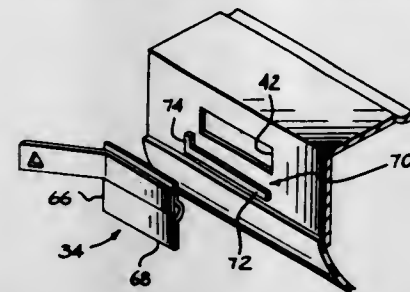


A substantially hollow anode button formed for sealing in a glass wall of a cathode-ray tube envelope has a radiation shield positioned therein. The shield has a bottom and an upstanding circumferential wall which extends to a height just less than the interior height of the button. The shield is free to move within the cup to allow easy exit of cleaning or rinsing fluids used in tube processing.

3,600,621
LOCATING DEVICE FOR TEMPERATURE COMPENSATED PARALLAX BARRIER SUPPORTING SYSTEM
 Benedict F. Vitale, Auburn, N.Y., assignor to Sylvania Electric Products, Inc.
 Division of Ser. No. 786,183, Dec. 23, 1968.
 Filed Nov. 20, 1970, Ser. No. 91,389
 Int. Cl. H01j 29/02, 29/06, 31/20
 U.S. Cl. 313-855 1 Claim

Cooperating means formed between a temperature compensating member having an expansion loop and a sidewall of a parallax barrier are provided to insure centering of the loop within a preformed opening in the barrier sidewall. The

cooperating means comprise protruding portions and matching receiving openings therefor, either of which may be



formed on either member with the mating portion formed on the other member.

3,600,622 LOCATING DEVICE FOR TEMPERATURE COMPENSATED PARALLAX BARRIER SUPPORTING SYSTEM

Benedict F. Vitale, Auburn, N.Y., assignor to Sylvania Electric Products, Inc.

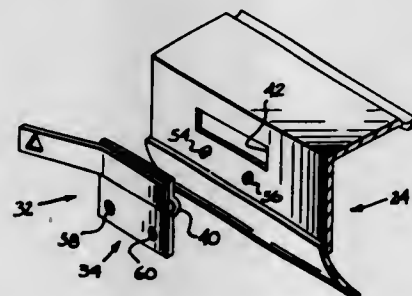
Division of Ser. No. 786,183, Dec. 23, 1968.

Filed Nov. 20, 1970, Ser. No. 91,388

Int. Cl. H01J 29/06, 3/38

U.S. Cl. 313-85 S

3 Claims



Cooperating means formed between a temperature compensating member having an expansion loop and a sidewall of a parallax barrier are provided to insure centering of the loop within a preformed opening in the barrier sidewall. The cooperating means comprise protruding portions and matching receiving openings therefor, either of which may be formed on either member with the mating portion formed on the other member.

3,600,623 LOCATING DEVICE FOR TEMPERATURE COMPENSATED PARALLAX BARRIER SUPPORTING SYSTEM

Benedict F. Vitale, Auburn, N.Y., assignor to Sylvania Electric Products, Inc.

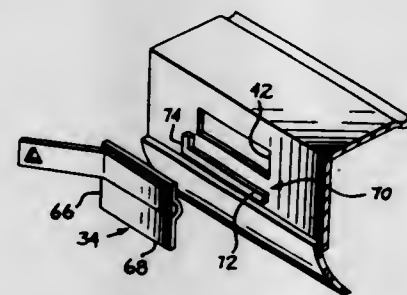
Division of Ser. No. 786,183, Dec. 23, 1968.

Filed Nov. 20, 1970, Ser. No. 91,390

Int. Cl. H01J 31/20

U.S. Cl. 313-85 S

3 Claims



Cooperating means formed between a temperature compensating member having an expansion loop and a sidewall of a parallax barrier are provided to insure centering of the loop within a preformed opening in the barrier sidewall. The cooperating means comprise protruding portions and matching receiving openings therefor, either of which may be formed on either member with the mating portion formed on the other member.

3,600,624 DISTORTION REDUCTION OF CHARACTER APERTURE MASK IN SHAPED BEAM TUBES

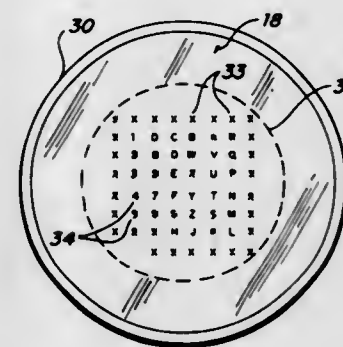
Paul H. Gleichauf, La Jolla, Calif., assignor to Stromberg Datagraphix, Inc., San Diego, Calif.

Filed Dec. 29, 1969, Ser. No. 888,437

Int. Cl. H01J 29/56, 31/16

U.S. Cl. 313-86

1 Claim



A shaped beam cathode-ray tube having an improved character-bearing matrix is disclosed. The character shaping matrix consists of a thin sheet having a plurality of shaped apertures therethrough corresponding to the desired character shapes, grouped in an active character area. The quality of images produced by a tube using such a matrix is improved when a row of similar apertures is added surrounding the active character area. The areas and spacing of these outer apertures is important in achieving optimum distortion reduction.

3,600,625 PROJECTION PICTURE TUBE WITH ROTATING FLUORESCENT SCREEN

Asahide Tsuneta, Kawasaki-shi; Kuramatsu Hayakawa, Kawasaki-shi; Shimichi Sawagata, Tokyo, and Masao Ando, Kawasaki-shi, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

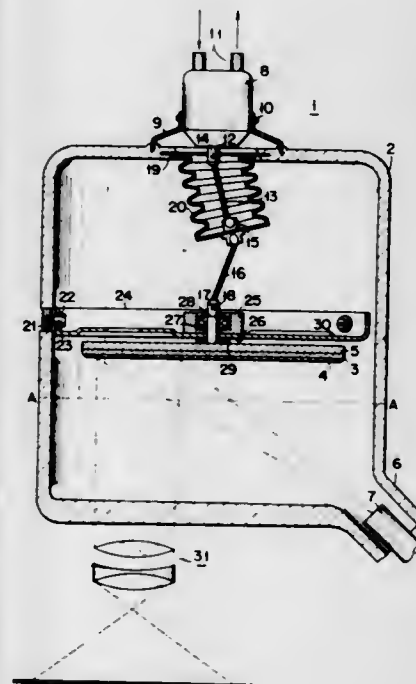
Filed Aug. 26, 1969, Ser. No. 853,174

Claims priority, application Japan, Aug. 31, 1968, Oct. 17, 1968, 75008/68; 90232/68

Int. Cl. H01J 1/44, 29/02, 7/24

U.S. Cl. 313-149

6 Claims



A projection picture tube comprising an evacuated envelope, an electron gun assembly disposed therein, a metal target member with a fluorescent film thereon which is to be

scanned by electron beams emitted by the electron gun assembly, a motor for rotating the target member without causing the electron beams to be affected by an external magnetic field, and an optical system for enlarging the image produced on the fluorescent film.

3,600,626 MULTICELL DISPLAY DEVICE HAVING COMMUNICATION PATHS BETWEEN ADJACENT CELLS

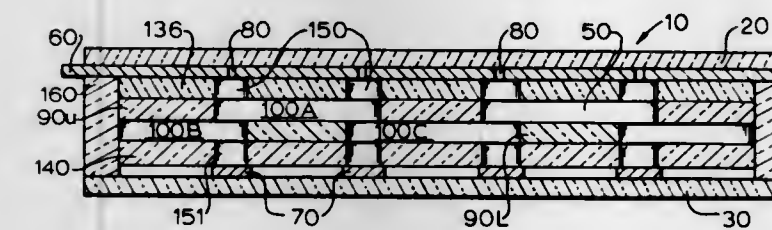
George A. Kupsky, Milford, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 26, 1969, Ser. No. 880,347

Int. Cl. H01J 61/30

U.S. Cl. 313-220

2 Claims



A display panel having a plurality of gas-filled cells arrayed in rows and columns and having gas communication paths between adjacent cells formed by properly overlaying and offsetting plates having identical openings so that portions of corresponding openings form the cells and other portions form the gas communication paths between cells.

3,600,627 ELECTRODE CONFIGURATION FOR ELECTRON BEAM SCANNER

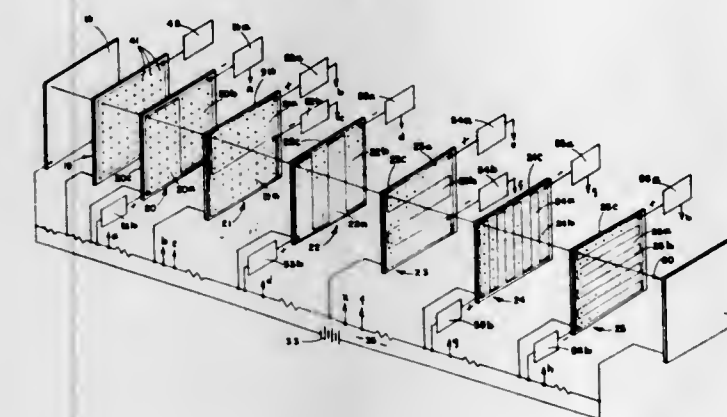
Walter F. Goede, Torrance, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.

Filed Aug. 26, 1969, Ser. No. 853,172

Int. Cl. H01J 29/41

U.S. Cl. 315-12

5 Claims



An electron beam scanner has a plurality of dynode members between a cathode and a target for controlling the flow of electrons therebetween. Each dynode member has a pair of electrodes formed on one side thereof in a finger pattern. The other side of each dynode has a single electrode covering substantially the entire surface thereof, to which a fixed bias potential is supplied. The fixed bias potentials applied to the dynodes are graduated from dynode to dynode between the cathode and the target. Means are provided to alternatively either forward or reverse bias each of the finger pattern electrodes with respect to its associated oppositely positioned fixed biased electrode, thus controlling the flow of electrons through each dynode.

3,600,628 CATHODE RAY TUBE PROJECTION DISPLAY SYSTEM

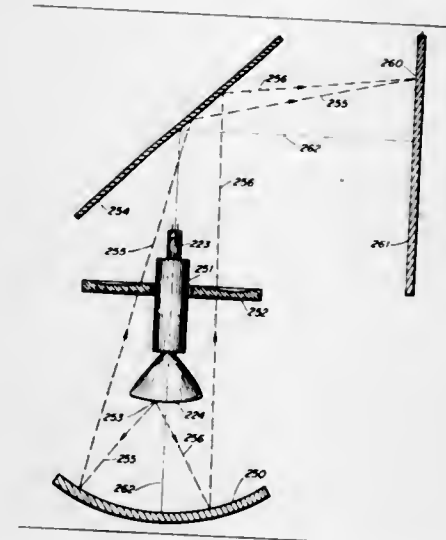
Charles R. Corpew, La Mesa, and Paul H. Gleichauf, La Jolla, both of Calif., assignors to Stromberg Datagraphix, Inc., San Diego, Calif.

Continuation-in-part of application Ser. No. 694,686, Dec. 29, 1967, now Patent No. 3,473,077. This application Sept. 22, 1969, Ser. No. 859,978

Int. Cl. H01J 29/70

U.S. Cl. 315-27

9 Claims



A display system using a cathode ray tube of the shaped beam type is disclosed. A Schmidt-type optical system is used to project an image from the tube face onto a large surface. In order to provide the desired projected image brightness and definition, a shaped beam tube having three electromagnetic deflection yokes positioned along the tube in a substantially unipotential region to accomplish aperture selection, beam convergence and beam realignment is provided.

3,600,629 TUNER FOR PROVIDING MICROWAVE CROSS-FIELD TUBES WITH AN EXTENDED TEMPERATURE STABILIZED FREQUENCY RANGE

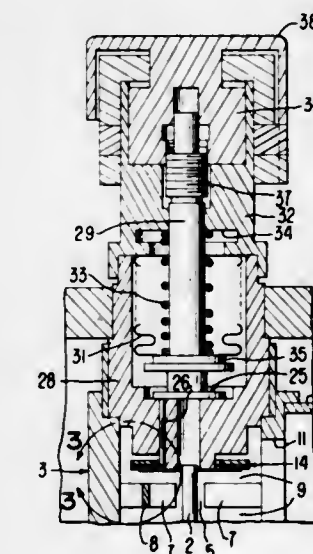
Paul Fenster, Highland Park, N.J.; John B. Horrigan, Beverly, Mass., and Leonard Safran, Beverly, Mass., assignors to Varian Associates, Palo Alto, Calif.

Filed Nov. 12, 1969, Ser. No. 875,850

Int. Cl. H01J 25/50

U.S. Cl. 315-39.61

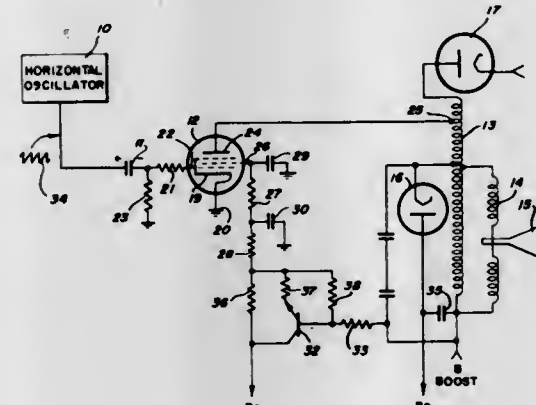
9 Claims



A rising-sun magnetron tube is disclosed employing a composite tuning ring structure axially translatable in an end space region adjacent the open ends of the anode resonators. The composite tuning ring includes a pair of conductive rings separated by a ceramic insulator. In a preferred embodiment

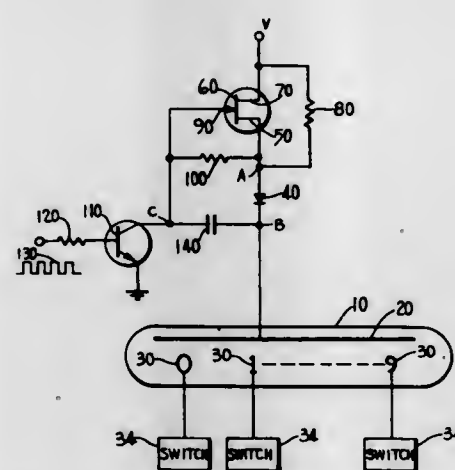
the conductive ring facing the anode circuit is disposed in axial registration with the back wall of the small anode resonators and has a radial width less than that of the other ring. The resultant tuner has increased tuning range and a more linear tuning rate to facilitate temperature compensation.

3,600,630
HORIZONTAL OUTPUT TUBE PROTECTION CIRCUIT
Grigory Strachanow, Des Plaines, Ill., assignor to Warwick Electronics Inc.
Filed May 2, 1969, Ser. No. 821,324
Int. Cl. H01J 29/76
U.S. Cl. 315—27 TD



The horizontal scan circuit for the cathode-ray tube of a television receiver having a horizontal power amplifier with a screen grid circuit including a transistor which is biased on by a signal from the horizontal scan circuit. If the input to the power amplifier fails, the bias signal is not present and the transistor turns off, limiting conduction by the power amplifier.

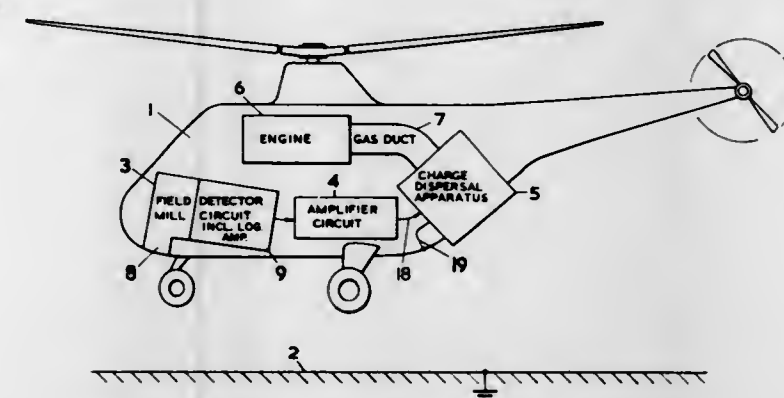
3,600,631
OPTIONAL HIGH VOLTAGE BOOSTER CIRCUIT FOR INDICATOR TUBE
Arthur F. Cake, Orange, N.J., assignor to Burroughs Corporation, Detroit, Mich.
Filed July 2, 1968, Ser. No. 742,032
Int. Cl. H01J 61/66; H02m 7/52
U.S. Cl. 315—169 R



The disclosure is of a circuit for driving an indicator tube of the type including an anode and a plurality of glow cathode electrodes. The circuit includes a normal anode power supply and an auxiliary circuit for increasing the voltage supplied to the anode of the tube by a fractional amount of the voltage supplied by the normal power supply during periods when the normal power supply is insufficient to fire the tube.

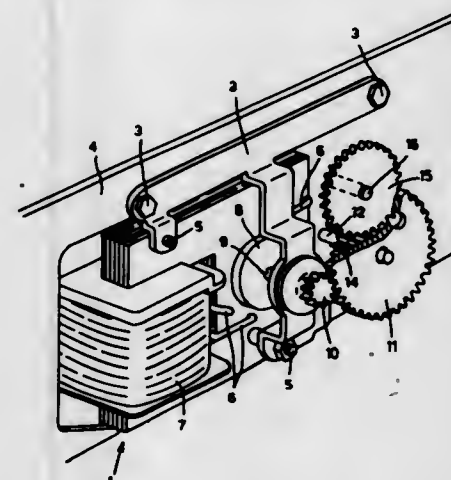
3,600,632
STATIC ELECTRICITY DISCHARGE SYSTEMS
Alfred William Bright, Southampton; Brian Makin, Botley; Michael Edward Rogers, Frimley, and Bruce Robert Whewell, London, all of, England, assignors to Minister of Technology in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed Dec. 2, 1969, Ser. No. 881,428
Claims priority, application Great Britain, Dec. 3, 1968, Nov. 12, 1969, 57433/68; 55380/69
Int. Cl. H05F 3/06

U.S. Cl. 317—2 7 Claims



Equipment for discharging static electricity from a structure comprises a transducer for measuring the magnitude and polarity of any electrostatic field developed at the surface of the structure, and charge-dispersal apparatus controlled thereby for ejecting electric charges in or on a stream of solid or liquid or frozen liquid particles of greater inertia than atmospheric gas ions. The particles may be formed by condensation in a fast-moving stream of vapor-containing gas. The gas stream may be formed in a duct having a throat and a widening expansion section downstream from the throat constructed so that the gas reached sonic speed at the throat and a speed from 1.3 to 2 times sonic speed in the expansion section. A voltage controlled by the transducer is applied to electrodes in the duct to cause a corona discharge in the gas stream. The invention may be used in aircraft, especially helicopters, and the gas stream may be provided through a duct from an engine of the aircraft.

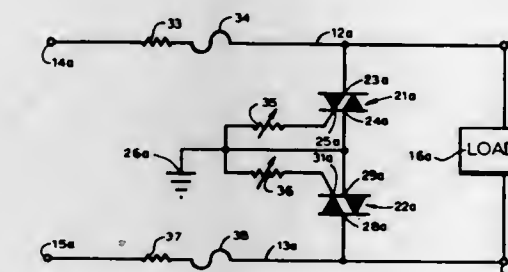
3,600,633
SAFETY DEVICE FOR OFFICE MACHINES ACTUATED BY AN ELECTRIC MOTOR CONSISTING OF A TEMPERATURE RESPONSIVE DEFORMABLE THERMOPLASTIC GEAR
Carlo Bellis, Strambino, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy
Filed June 16, 1970, Ser. No. 46,785
Claims priority, application Italy, June 21, 1969, 52,330-A/69
Int. Cl. H02h 7/08; H02k 7/00
U.S. Cl. 317—13 R 2 Claims



A safety device for electric office machines comprises a reduction gear train adapted to transmit the rotation of the

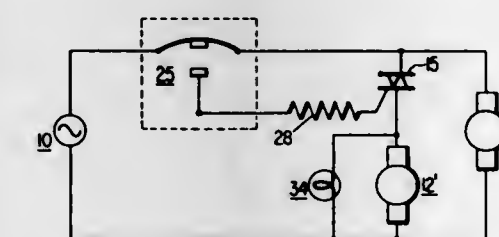
motor shaft to a main shaft of the machine, the gear train comprising a gear of thermoplastic material. When the motor is stalled and the rotor temperature rises, the temperature of the gear rises sufficiently rapidly to become plastic, thus allowing the motor to turn freely before real damage occurs thereto.

3,600,634
PROTECTIVE CONTROL CIRCUIT AGAINST TRANSIENT VOLTAGES
Charles A. Muench, Jr., Doraville, Ga., assignor to Integrated Systems, Inc., Norcross, Ga.
Filed Dec. 16, 1969, Ser. No. 885,485
Int. Cl. H02h 3/22
U.S. Cl. 317—16 10 Claims



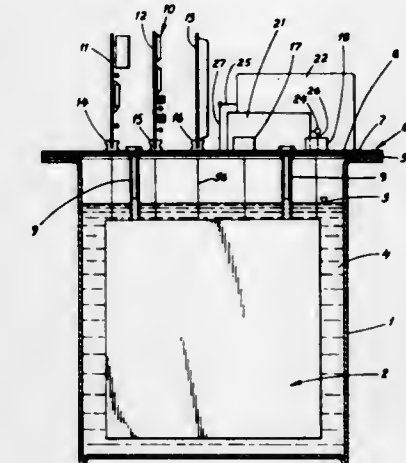
A load protective circuit using a pair of solid state gate controlled AC switches, each connected from one side of a transmission line to ground in order to shunt the load terminals of the load from overvoltages. In the first embodiment, a firing control resistor connected between the gate terminal of the triac and ground determines the firing voltage to be presented to the gate terminal when a transient occurs on the transmission line and thereby renders the triac conductive if the firing voltage exceeds the triac threshold voltage. In the second embodiment, the firing control resistor is a variable potentiometer by which the firing voltage applied to the gate terminal of the triacs may be varied to vary the overall protection firing voltage.

3,600,635
PROTECTION CIRCUIT INCLUDING A THYRISTOR AND A THREE TERMINAL DEVICE
John Manning Savidge Nelson, Norristown, Pa., assignor to RCA Corporation
Filed July 15, 1969, Ser. No. 841,766
Int. Cl. H02h 3/08
U.S. Cl. 317—33 SC 5 Claims



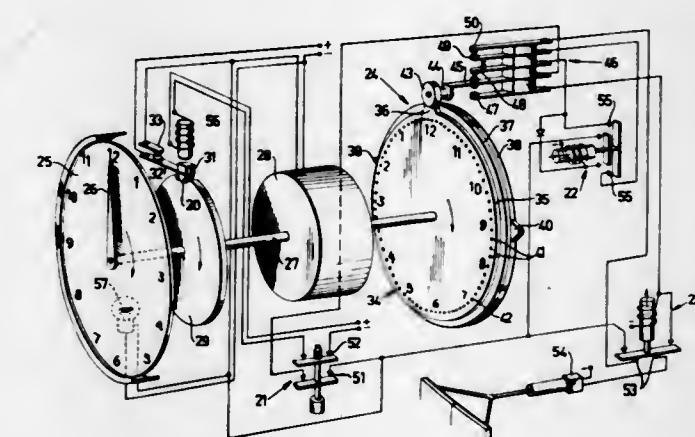
A three terminal device containing a pair of mechanical contacts is placed in circuit with a thyristor and a load to be supplied; the mechanical contacts are adapted to respond to the current supplied to the load to determine the presence or absence of a triggering signal at the control electrode of the thyristor.

3,600,636
ELECTRICAL APPARATUS COMPRISING A POWER SECTION AND A CONTROL SECTION WITH FLUID COOLING
Tom Kastrup Petersen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark
Filed Nov. 12, 1969, Ser. No. 875,876
Claims priority, application Germany, Nov. 14, 1968, P 18 08 887.4
Int. Cl. H05k 7/20; H02b 1/10
U.S. Cl. 317—100 11 Claims



The invention relates to an assembly of electrical apparatus which includes a power section and a control section. A container is provided for housing the power section and insulating cooling fluid for the power section. A cover plate of insulating material closes the top of the container and the control section is mounted on the cover plate. Holes are provided in the insulated cover plate with each hole being individually surrounded by a metal coating bonded to the insulating material. Connecting wires extend from above and/or below into the holes and each connecting wire terminates a short distance from the opposite side of its hole. Each connecting wire is soldered to the metal coating surrounding its hole to provide an electrical connection and to provide a fluidtight seal for the hole. Printed circuit means on the underneath side of the cover plate includes the metal coatings surrounding the hole to provide electrical interconnections between the soldered connecting wires.

3,600,637
ELECTRIC LOCK
Helge Bertil Bergkvist, Nordana, Beotby, Sweden
Continuation-in-part of application Ser. No. 500,578, Oct. 22, 1965, now abandoned. This application Sept. 10, 1968, Ser. No. 758,777
Int. Cl. E05b 49/00
U.S. Cl. 317—134 13 Claims



An electric lock operating an actuator in response to a sequence of electric signals supplied at predetermined points

in an operating cycle. A switching device serves to direct signals supplied at the predetermined points in the operating cycle to a first relay device and to direct signals supplied at any other point to a second relay device. If the first relay device receives signals in accordance with the predetermined sequence, it operates in steps—each corresponding to one signal—to close or otherwise operate a control circuit of the actuator. If the second relay device receives a signal at any point in the operating cycle, it prevents the first relay device from closing or operating the control circuit for the remainder of the operating cycle. A presettable signal transmitter is provided which, after preselected pushbuttons have been depressed, can be set in operation to automatically supply signals at points in the operating cycle corresponding to the preselected pushbuttons.

3,600,638

SOLID STATE ELECTRONIC TIMER

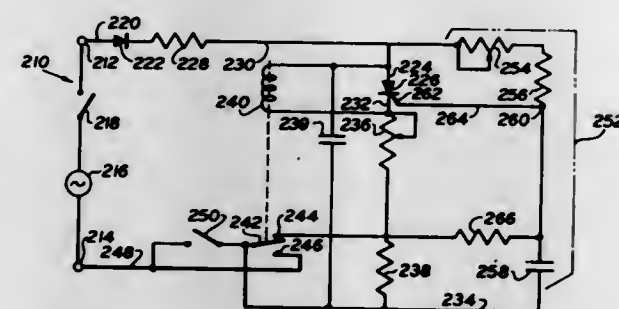
Robert H. Ward, Huntington Station, N.Y., assignor to Tempo Instrument Incorporated, Plainview, N.Y.

Filed July 10, 1968, Ser. No. 743,766

Int. Cl. H01h 47/18

U.S. Cl. 317-141 S

2 Claims



A control circuit for controlling the operation of a relay including an SCR connected between a pair of terminals which, in turn, are adapted to be connected across a source of potential. A relay is connected with the SCR so that the conduction of the SCR causes the relay to change states. Time delay means is connected to the control electrode of the SCR so that the SCR begins to conduct after the time delay means has been operated for a preselected interval of time thereby to provide a specific time interval before the relay changes state.

3,600,639

RELAY DRIVER WITH AUTOMATIC TIME DISTORTION COMPENSATION

Jean Claude Grange, Cagnes sur Mer, and Philippe Henri Hernandez, Nice, both of France, assignors to International Business Machines Corporation, Armonk, N.Y.

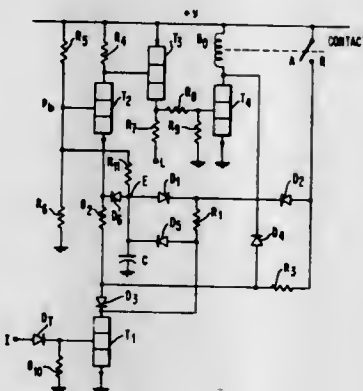
Filed Aug. 24, 1970, Ser. No. 66,369

Claims priority, application France, Sept. 16, 1969, 6932232

Int. Cl. H01h 47/32

U.S. Cl. 317-148.5 R

6 Claims



In combination with a relay, a driving circuit in which the relay drop in and drop out times are made equal in response to abrupt and correspondingly occurring changes of input

signal level. An arrangement of active sensing and biasing elements delays the actual opening or closing of the relay by charging up a capacitor to different predetermined levels and requiring the change of state to occur well within the capacitor charging times independent of the initial closure state.

3,600,640

CONTROL CIRCUIT FOR A VISION TESTING DEVICE

Philip W. Johnston, Wellesley, Mass., assignor to Tracor, Inc., Austin, Tex.

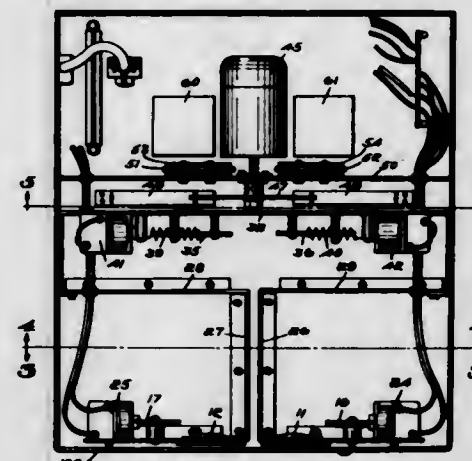
Division of Ser. No. 636,500, May 5, 1967, abandoned.

Filed Mar. 25, 1969, Ser. No. 832,521

Int. Cl. H01h 47/28; A61b 3/02

U.S. Cl. 317-149

4 Claims



A device for viewing a programmed sequence of displays through first and second fields of vision on a rotatable disk controlled by a motor, ratchet and timing device, the displays being a sequence of symbols assuming one of two possible orientations and of a size ascertainable by a person with normal vision. A movable lens arrangement is included for distorting the person's vision while viewing a short subsequence to test for farsightedness. Movable shutters alternately block each eye during the test. Symbols viewable by both eyes simultaneously appear superimposed to a person of normal muscle control.

3,600,641

ELECTROMAGNETIC PULSE COUNTER

Herald Gessinger, Vienna, Austria, assignor to International Standard Electric Corporation, New York, N.Y.

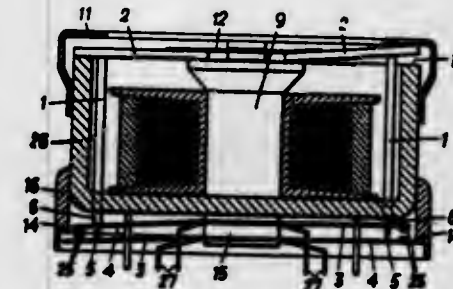
Filed May 6, 1970, Ser. No. 35,121

Claims priority, application Austria, June 18, 1969, 5747/69

Int. Cl. H01h 9/00, 51/08

U.S. Cl. 317-157

16 Claims



A miniature electromagnetic pulse counter is provided. The counter employs a circular configuration of armatures the one of which has been operated last moves the next one to be operated to an intermediate position. The next pulse will then cause operation of the next armature etc.

3,600,642

MOS STRUCTURE WITH PRECISELY CONTROLLED CHANNEL LENGTH AND METHOD

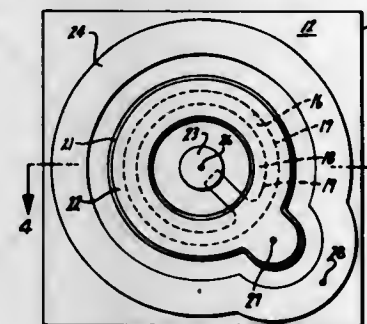
David F. Allison, Los Altos, and Lewis K. Russell, Livermore, both of, Calif.

Filed Nov. 15, 1968, Ser. No. 776,069

Int. Cl. H01l 11/00; H01c 7/14

U.S. Cl. 317-235

2 Claims



MOS structure with precisely controlled channel length and method for making the same by utilization of the same mask for making the channel.

3,600,643

SECURITY SYSTEM

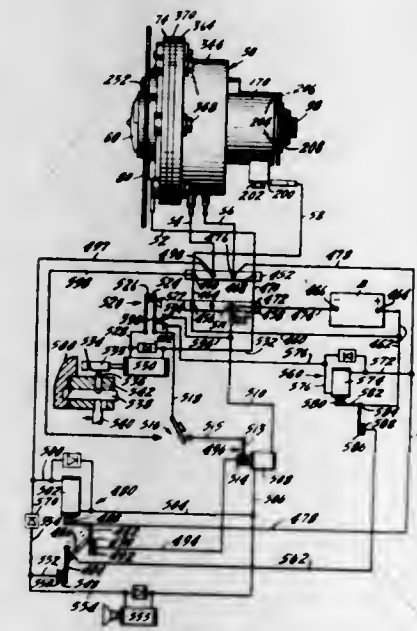
Arthur Marquis Loevy, 8 Carey St., East Islip, N.Y.

Filed Dec. 4, 1968, Ser. No. 781,177

Int. Cl. E05b 49/00; H01h 27/00, 31/6

U.S. Cl. 317-134

7 Claims



A security system in which maximum security is provided by obviating the use of keys and also by making operation by a trial and error technique or by detection devices impossible. In the disclosed embodiment a circuitry is in combination with a mechanism having a shaft which can be rotated by the user to different angular positions which are indicated by suitable indicia and has two rotors mounted thereon, each of which has a spring which drives a ratchet wheel only when its corresponding rotor is turned in a particular direction, the ratchet wheels each being engaged by a pawl spring which allows it to rotate only in the particular direction in which it may be driven by its corresponding rotor. The directions in which the ratched wheels may be rotated by the respective rotors are opposite and one of the wheels has all but one of its teeth electrically conductive so that a current passing from the rotor, its spring, and through its corresponding wheel and pawl spring will energize a time delay mechanism which will operate to prevent the actuation of a latch release mechanism unless that rotor is turned to bring the nonconductive tooth against the pawl spring, the other wheel having all but one of its teeth nonconductive so that rotation of the rotor to bring the conductive tooth against a corresponding

pawl spring allows current to pass from that rotor and wheel and through the associated pawl spring to a solenoid to energize a mechanism which will thereby permit actuation of the latch release mechanism.

3,600,644

SUPERCONDUCTOR-NORMAL METAL CIRCUIT ELEMENTS EXHIBITING JOSEPHSON EFFECTS

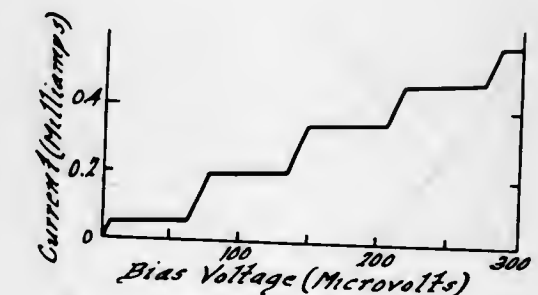
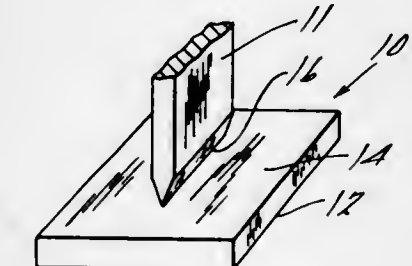
Robert E. Eck, Costa Mesa, Calif., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 6, 1969, Ser. No. 804,891

Int. Cl. H01l 5/04, 9/08

U.S. Cl. 317-234

6 Claims



This disclosure relates to a low temperature circuit element exhibiting radio frequency or AC Josephson effects comprising a member constructed of metal capable of superconductivity at low temperatures and a second member constructed of a metal that is normal or nonsuperconductive. One of the members has a generally flat surface and the other has a tapered end either in the form of a point or a line positioned in contact with the flat surface.

The disclosure also relates to the method of constructing a low temperature circuit element which comprises taking a material exhibiting superconducting effects when cooled to a critical temperature and another material of the normal or nonsuperconductive type. A flat surface is formed on the one member, while a tapered end, either in the form of a point or knife edge, is formed on the other. The members are cooled to a temperature equal to or below the critical temperature of the superconductive material. The member having the tapered end is then moved into engagement with the flat surface in a direction generally perpendicular to the plane of the flat surface.

3,600,645

SILICON CARBIDE SEMICONDUCTOR DEVICE

Herbert S. Berman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 11, 1969, Ser. No. 832,117

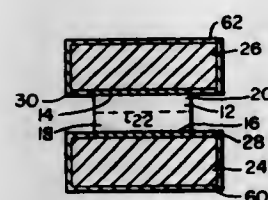
Int. Cl. H01l 3/00

U.S. Cl. 317-234 R

5 Claims

This disclosure relates to a silicon carbide device in which electrodes affixed to a wafer of silicon carbide are gold

plated. As a result of the gold plating of the electrodes, the device need not be hermetically sealed. In addition, the gold

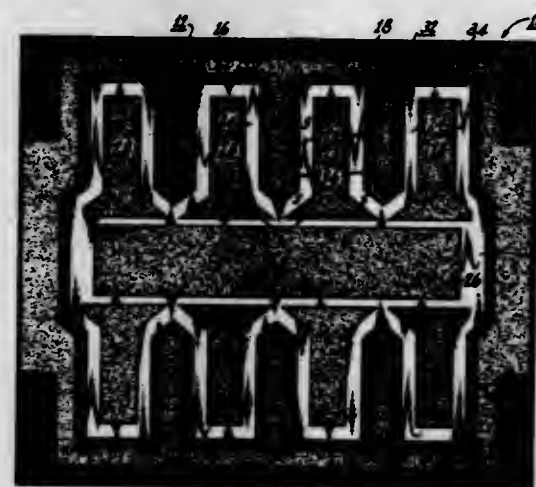


plating operation provides a method of testing the device for leakage current.

3,600,646
POWER TRANSISTOR
Norbert William Brackelmanns, Ironia, and Joel Ollendorf, Springfield, both of N.J., assignors to RCA Corporation
Filed Dec. 18, 1969, Ser. No. 886,293
Int. Cl. H011 5/02

U.S. Cl. 317-234

3 Claims



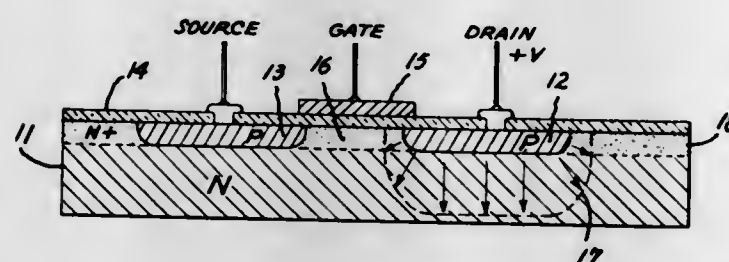
A transistor with interdigitated emitter and base fingers, in which the emitter has a web portion for feeding current to the fingers, and metal layers on both the web and the fingers. The emitter finger metal layers are spaced from the web portion metal layers to introduce a ballasting resistance, with that portion of each finger metal layer proximate to the web portion being substantially wider than the remainder of the finger layer, and interspersed between the corresponding base finger and the emitter web portion to maintain a uniform distance between the base finger and the emitter finger metal layer.

3,600,647
FIELD-EFFECT TRANSISTOR WITH REDUCED DRAIN-TO-SUBSTRATE CAPACITANCE
Peter V. Gray, Scotia, N.Y., assignor to General Electric Company

Filed Mar. 2, 1970, Ser. No. 15,680
Int. Cl. H011 11/00

U.S. Cl. 317-235

6 Claims



A field-effect transistor having reduced drain-to-substrate capacitance is described as comprising a semiconductor sub-

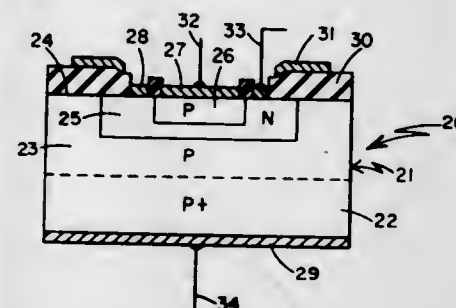
strate having a region of substantially lower resistivity than the substrate in the vicinity of the drain electrode. The region of low resistivity is of comparable depth to the drain region and produces devices having low drain-to-substrate capacitance and a higher drain-to-source "punch-through" voltage breakdown.

3,600,648
SEMICONDUCTOR ELECTRICAL TRANSLATING DEVICE
Thomas A. Longo, Winchester, Mass., assignor to Sylvania Electric Products Inc.

Filed Apr. 21, 1965, Ser. No. 449,759
Int. Cl. H011 11/06

U.S. Cl. 317-235 R

3 Claims



Double-diffused planar-type transistor having a layer of conductive material overlying the oxide coating protecting the edge of the base-collector junction in order to prevent inversion of the semiconductor material in the region of the junction.

3,600,649
HIGH POWER AVALANCHE DIODE
Shing-Gong Liu, Princeton, and John Joseph Risko, Cranbury, both of N.J., assignors to RCA Corporation
Filed June 12, 1969, Ser. No. 832,654
Int. Cl. H011 5/00

U.S. Cl. 317-235 R

5 Claims



A high power avalanche diode includes a substrate of N+-type semiconductor material having an epitaxial layer of a semiconductor material on a surface thereof. The epitaxial layer includes an N-type region adjacent the surface of the substrate and a P-type region over the N-type region forming a PN junction therebetween. The N-type region is at least 3 microns thick and is of uniform carrier concentration. The P-type region has a graded carrier concentration which increases from the PN junction to the surface of the epitaxial layer.

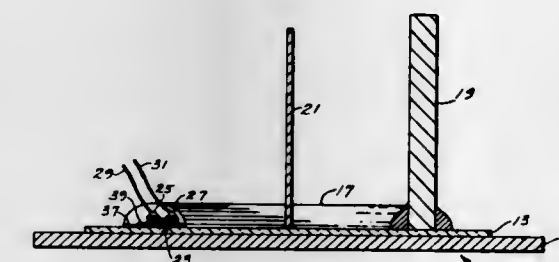
The avalanche diode is made by epitaxially forming a layer of N-type semiconductor material on the surface of a substrate of N+-type semiconductor material. A source of P-type dopant material is provided on the surface of the epitaxial layer. The P-type dopant material is diffused into the epitaxial layer to a distance which is spaced from the substrate not less than 3 microns and so as to provide the graded carrier concentration in the resultant P-type region.

3,600,650
PROTECTED SEMICONDUCTOR DEVICE HAVING SENSOR THERMALLY COUPLED TO ELECTRODE
Robert E. Obenhaus, South Easton, and Lyle E. McBride, Jr., Norton, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1968, Ser. No. 787,640
Int. Cl. H011 11/00, 15/00

U.S. Cl. 317-235 R

5 Claims



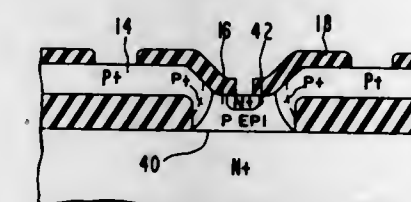
A semiconductor device has a sensor of thermistor material in thermally conductive contact with an electrode of the device at a surface common to the electrode and the sensor for intimate thermal sensing of the temperature of the electrode. Because of its small mass and intimate contact with the electrode, the sensor has a rapid thermal response (small time constant) relative to the rate of change of the device temperature so that the temperature of the sensor will essentially follow the temperature of the electrode without significant thermal lag. In a method of sensing the temperature of the device the sensor of thermistor material is placed in thermally conductive contact with the electrode of the device and the resistance thereof is sensed as a predetermined function of the temperature of the sensor. At a preselected temperature of the sensor the current flowing through the device is protectively reduced.

3,600,651
BIPOLAR AND FIELD-EFFECT TRANSISTOR USING POLYCRYSTALLINE EPITAXIAL DEPOSITED SILICON
David M. Duncan, San Francisco, Calif., assignor to Fairchild Camera and Instrument Corporation, Long Island, N.Y.

Filed Dec. 8, 1969, Ser. No. 883,060
Int. Cl. H011 11/00

U.S. Cl. 317-235 R

7 Claims



Adjacent layers of single crystalline and polycrystalline semiconductor material are located upon a semiconductor substrate. The single crystalline layer provides for the active regions of a semiconductor device while the adjacent polycrystalline layers provide for lateral contacts to the active regions.

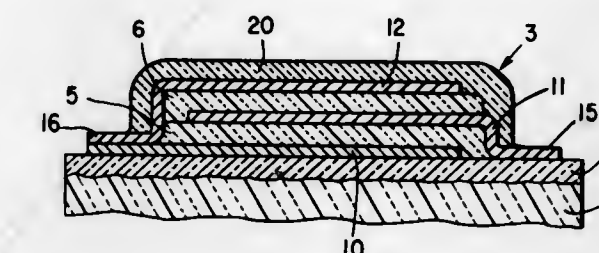
3,600,652
ELECTRICAL CAPACITOR
Richard E. Riley, Mequon, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis.
Filed Jan. 24, 1969, Ser. No. 793,822
Int. Cl. H01g 3/06

U.S. Cl. 317-258

9 Claims

A dielectric material particularly suited for use in an electrical capacitor. The material has a constituent with particular metals combined with lead niobate. This constituent is

dispersed in a ceramic matrix and can be readily deposited as a layer by screen printing techniques. The electrical capaci-

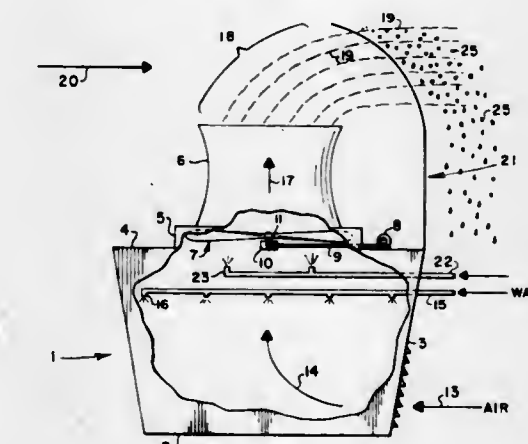


tor may be supported on a substrate and may comprise more than one dielectric layer.

3,600,653
FOG ABATEMENT
William A. Hall, Springfield, Pa., assignor to Atlantic Richfield Company, New York, N.Y.
Filed Apr. 2, 1970, Ser. No. 25,070
Int. Cl. B03c 3/00

U.S. Cl. 317-262 R

8 Claims

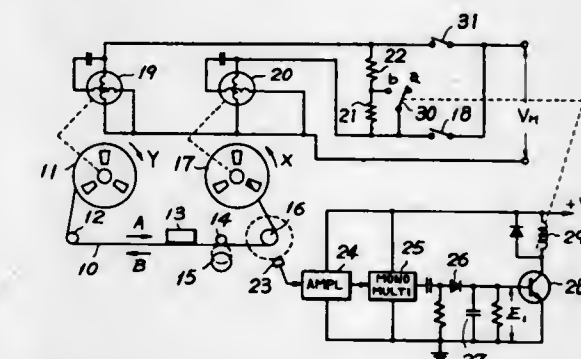


A method and apparatus for increasing visibility through fog by employing an electrical field to force liquid particles in the fog together to form large drops of sufficient mass to precipitate from the fog under the force of gravity.

3,600,654
MAGNETIC TAPE SPEED CONTROLLING SYSTEM
Katsuya Yasutake, Yokohama-City, Japan, assignor to Victor Company of Japan Limited, Kanagawa-ku, Yokohama-City, Japan
Filed Aug. 12, 1969, Ser. No. 849,483
Int. Cl. H01J 9/22

U.S. Cl. 318-6

7 Claims



A system for controlling the running speed of a magnetic tape. The running speed of a magnetic tape is always controlled within a determined value by increase of reverse rotational torque of a reel motor of a tape supplying reel and back tension of the tape when the running speed of the magnetic tape exceeds the determined value during fast forward or rewinding of the tape.

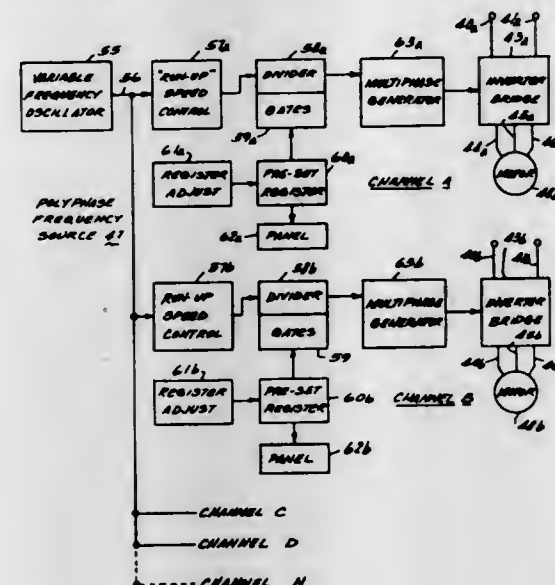
3,600,655 SYSTEM FOR CONTROLLING THE SPEED OF A PLURALITY OF MOTORS WHICH HAVE OUTPUT SHAFTS TO DRIVE ELEMENTS THAT ARE INTERRELATED

Richard A. Karim, Winnetka, Ill.; Edgar J. Justus, Beloit, Wis., and Leroy H. Bunker, Rockton, Ill., assignors to Beloit Corporation, Beloit, Wis.

Filed May 21, 1968, Ser. No. 730,825
Int. Cl. H02p 5/52

U.S. Cl. 318-67

26 Claims



A motor control system for a papermaking machine formed of a rectifier and inverter circuit connected between an alternating current source of fixed frequency and a plurality of synchronous motors of the papermaking machine which are to be driven with a frequency which can be varied. A single master oscillator provides a common source for a plurality of divider circuits, each of which are connected to the respective inverter circuit associated with each individual motor. Each divider circuit is formed of a "runup" speed control circuit which enables gradual increase of motor speed, a speed control logic circuit which provides a "draw" control between individual motors, and a polyphase generator to provide a polyphase voltage which is applied to the individual motors. Each speed control logic circuit is variable to control the speed of individual motors, and, consequently, the "draw" between the motors. The master oscillator is variable to control the speed of all motors jointly and concurrently.

3,600,656 STARTING MEANS FOR A SINGLE-PHASE ASYNCHRONOUS MOTOR

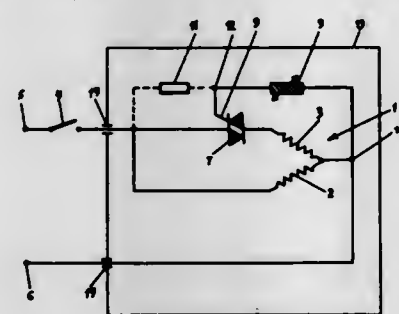
Ager Gramkow, Gammelgaard pr. Augustenborg, Denmark, assignor to Danfoos A/S, Nordborg, Denmark
Filed Feb. 2, 1970, Ser. No. 7,890

Claims priority, application Germany, Mar. 25, 1969, P 19 15 135.0

Int. Cl. H02p 5/40, 1/44

U.S. Cl. 318-221 E

3 Claims



The invention relates to a starting switch assembly for a single phase asynchronous motor. The assembly includes a symmetrically controlled semiconductor valve in series with

the motor starting coil. The control electrode of the valve is connected by way of a PTC resistor to the end of the starting coil which is remote from the valve. In this arrangement the PTC resistor is controlled directly by the power supply voltage and the time required for the PTC resistor to reach the cutout temperature depends substantially only on the characteristics of the PTC resistor and is independent of the particular construction of the motor.

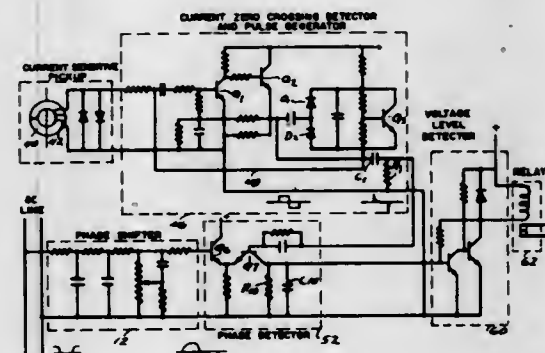
3,600,657 METHOD AND APPARATUS FOR ELECTRONIC SENSING OF MOTOR TORQUE

Ernest H. Pfaff, Deerfield, and Thomas F. Mills, Jr., Chicago, both of Ill., assignors to Jeanne Pfaff, Deerfield, Ill.

Continuation-in-part of application Ser. No. 720,554, Apr. 11, 1968, now Patent No. 3,518,810. This application June 17, 1970, Ser. No. 47,087

U.S. Cl. 318-218

10 Claims



A circuit is provided for connection to an AC line and a reactive load which extracts a voltage wave form from the line, the phase of which is adjustable. A pickup to the load extracts a current wave form from the load on the line to the load and converts the current wave form to pulses which are synchronized with the zero crossing or points where the current goes to zero. A phase detector is connected to the voltage wave source and the current zero crossing pulse source and converts the signals to a DC analog output of the phase relationship between the voltage and current wave and this current is used to control by means of a voltage level operated switch, and an external circuit.

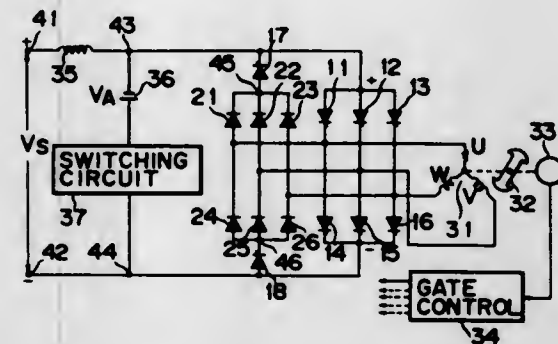
3,600,658 BRUSHLESS MOTOR INCLUDING FORCED COMMUTATION RESPONSIVE TO ROTOR MOVEMENT

Masateru Kuniyoshi, Yokohama-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed May 9, 1968, Ser. No. 727,961

Claims priority, application Japan, May 15, 1967, 30524/67
Int. Cl. H02k 29/00

U.S. Cl. 318-254

2 Claims



A brushless motor having substantially the same properties as those of a direct current motor and formed from a combination of thyristors included in a bridge inverter and a synchronous motor, wherein there is provided a diode bridge connected to the AC side of the inverter by means of Graetz connection for use as a bypass circuit for the back elec-

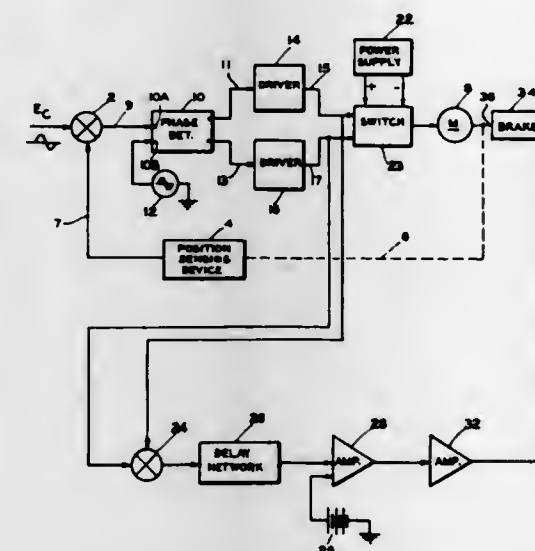
tromotive force occurring in the armature of the synchronous motor, and that there is also provided an auxiliary thyristor between the respective inverter buses and each of a pair of common contacts disposed opposite thereto thereby effectively to actuate the bypass circuit only at the time of commutation.

3,600,659 SOLID-STATE COMPACT SERVOSYSTEM

Alex Danchuk, Livingston, N.J., assignor to The Bendix Corporation
Filed Sept. 30, 1969, Ser. No. 862,208

U.S. Cl. 318-608

2 Claims



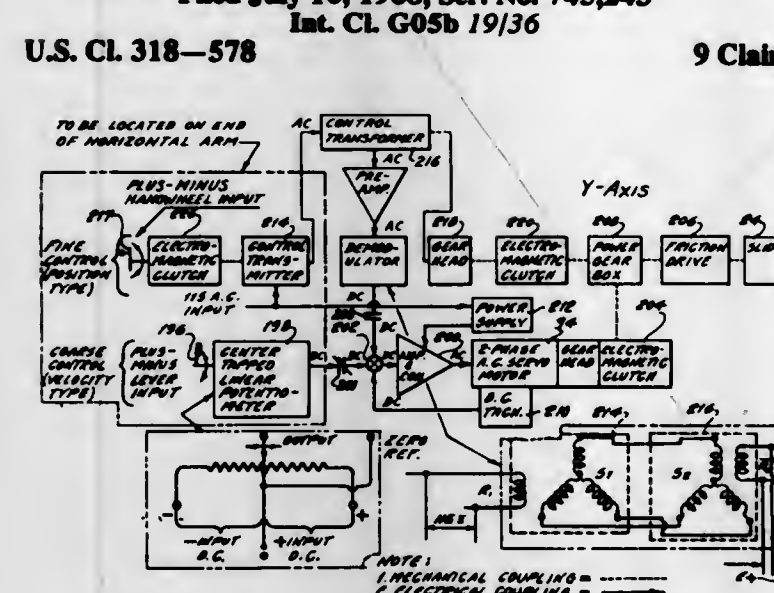
A servosystem having solid-state components includes means for summing an alternating command signal with a motor shaft position signal and when the resulting difference signal exceeds a predetermined threshold drivers are actuated for applying to the motor a voltage having a polarity in accordance with the phase of the difference signal relative to a reference. The voltage is cut off when the motor is at null, whereupon inertia drives the motor past null to provide a difference signal of opposite polarity so that the motor is driven in the opposite direction until it again passes through null, reversing the voltage thereto with the result being that full voltage is applied to the motor until the null is reached.

3,600,660 ELECTRONIC CONTROL SYSTEM FOR A MULTIPLE AXIS PROBE FOR OBTAINING COORDINATE DATA FOR SURFACE POINTS ON A THREE-DIMENSIONAL SURFACE

William A. Ford, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed July 16, 1968, Ser. No. 745,243

U.S. Cl. 318-578

9 Claims



A control system for a three dimensional surface probe used for measuring and recording the coordinates of points

on a surface including a course adjustment feature and a fine adjustment feature whereby the probe may be steered by an operator over the surface, each adjustment feature includes operator-controlled electric motors and a probe position sensor in the probe for interrupting the motion applied to the probe by the motors when the probe reaches a surface contacting position.

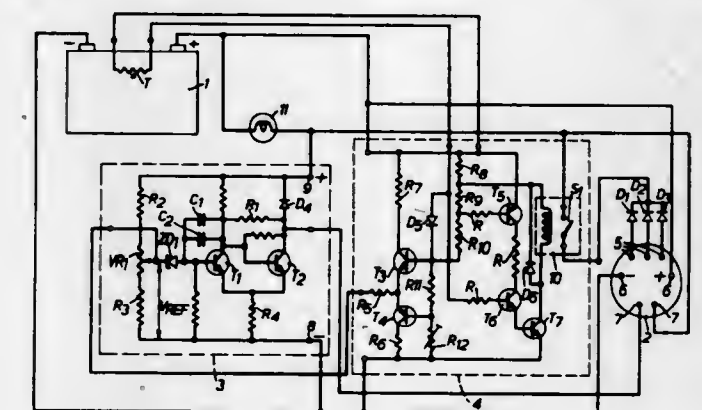
3,600,661 TEMPERATURE COMPENSATED AND PROTECTED BATTERY CHARGING APPARATUS

Leonard A. Briggs, Rayleigh; Harold Morton, Audenshaw, and Jan Swiderski, Preston, all of England, assignors to Butech Limited, Preston, Lancashire, England and Oldham & Son Limited, Denton, Manchester, England
Filed Nov. 10, 1969, Ser. No. 875,163

Claims priority, application Great Britain, Nov. 11, 1968, 53443/68

U.S. Cl. 320-35

9 Claims



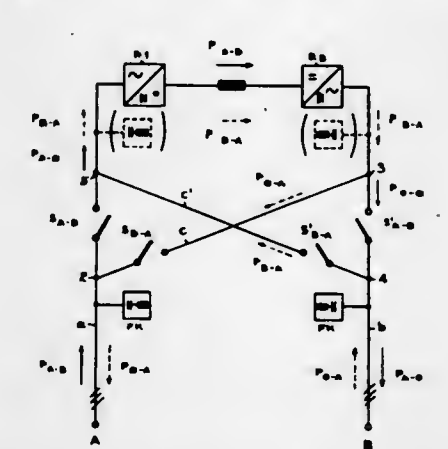
A temperature compensation arrangement in or for battery charging equipment embodying a voltage regulator, the voltage regulator having a feedback arrangement in which a potential divider is provided for feeding back a fraction of the regulated voltage for regulating the charging current applied to a battery. The temperature compensation arrangement is provided with two shunt paths for shunting the respective parts of the potential divider, the impedance of the shunt paths being made variable in dependence upon the temperature of a part of the equipment so that the fraction of the regulated voltage fed back varies with temperature.

3,600,662 POWER DIRECTION REVERSAL IN ASYNCHRONOUS MAINS COUPLINGS

Elmar Anwander, Baden, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Aug. 7, 1969, Ser. No. 848,222

U.S. Cl. 321-4

3 Claims



An arrangement for effecting an exchange in the direction of power flow from one three-phase mains operating at one frequency to a second three-phase mains operating at a different frequency comprises a converter system intercon-

nected between and coupling the two three-phase mains together, the converter system including a rectifier of the semiconductor-type for converting the alternating current at the frequency of one of the mains to direct current and an inverter of the semiconductor type for converting the direct current back into alternating current at the frequency of the other mains. In order that diodes exclusively may be used in one converter, i.e. the rectifier, and thyristors exclusively used in, the other converter, i.e. the inverter, a system of cross-connections and switching means is utilized between the mains and the input and output sides of the converter so that the power is caused always to flow through the converter in the same direction regardless of the direction in which the power flows between the two mains.

3,600,663 VOLTAGE REGULATED POWER SUPPLY HAVING LOW RIPPLE FACTOR

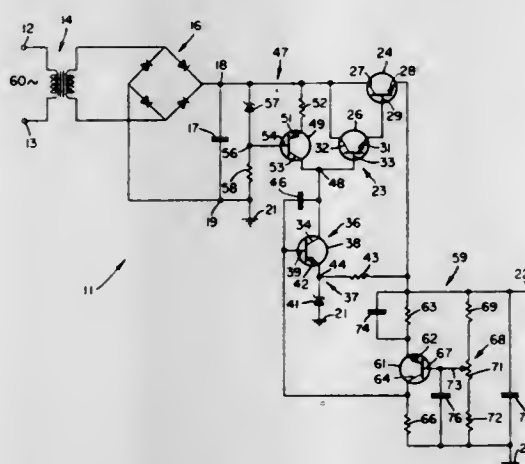
Ronald H. Wagner, Fremont, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed July 31, 1969, Ser. No. 846,486

Int. Cl. H02m 1/14; G05f 1/00

U.S. Cl. 321-10

5 Claims



A high-gain AC amplifier is coupled to amplify the AC signal components forming the ripple voltage superimposed on the regulated DC output voltage provided by a regulated DC power supply. The amplified AC signal components are coupled to the control electrode of a series pass voltage regulator of the power supply as an AC error signal to cancel AC signal components coupled thereto from a source of unregulated voltage serving as the primary power source.

3,600,664 OVERCURRENT PROTECTION FOR SOLID-STATE VOLTAGE REGULATOR

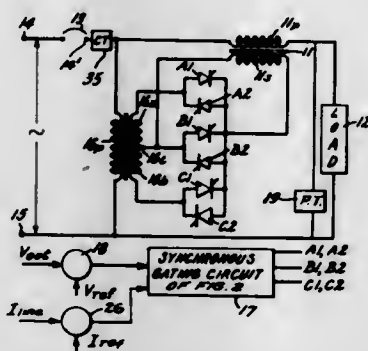
Leon J. Goldberg, and Francois D. Martzloff, both of Schenectady, N.Y., assignors to General Electric Company

Filed Jan. 20, 1970, Ser. No. 4,246

Int. Cl. G05f 1/20, 1/30

U.S. Cl. 323-9

9 Claims



A solid-state voltage regulator constructed with low current rating step changing solid-state switches, or pairs of switches, is protected against overcurrents in the interval before the opening of a slow-acting circuit breaker. The over-

current is transferred from one switch to another in sequence rapidly to take advantage of the short time current overcapacity, or is diverted to a shunting protective switch which can have other functions. Alternatively, one switch has a high current rating, and the overcurrent is diverted to the heavy-duty switch.

3,600,665 FIRING CIRCUIT FOR GATE-CONTROLLED POWER SWITCHES

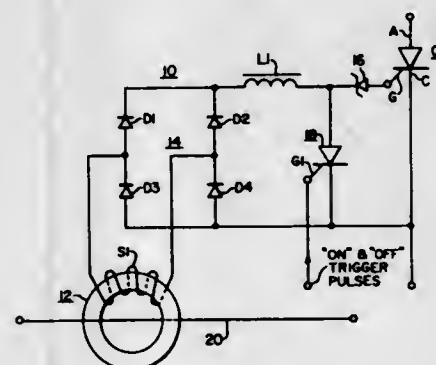
Brian R. Pelly, Murrysville, and Richard H. Osman, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1969, Ser. No. 862,426

Int. Cl. G05f 3/00

U.S. Cl. 323-16

13 Claims



A firing control circuit comprised of a current source, a current-storage device responsive to current from the current source and a switching element which applies the stored current in the form of firing pulses to gate-controlled switches in response to ON-OFF conductive states determined by a timing pulse generator circuit.

3,600,666 SWITCHING REGULATOR POWER SUPPLY INCLUDING FAST TURNOFF MEANS FOR SWITCHING TRANSISTOR

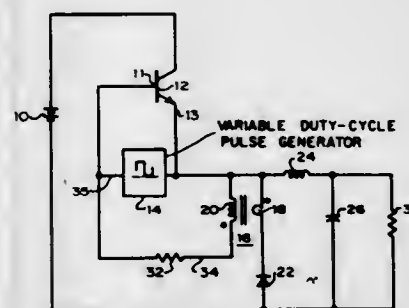
John H. Gilever, San Jose, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 19, 1970, Ser. No. 21,116

Int. Cl. G05f 1/56

U.S. Cl. 323-22 T

6 Claims



A pulse transformer is added to a switching regulator power supply by placing its primary in series with the commutating diode and its secondary between the emitter and the base of the switching transistor through a bias resistor. When the switching transistor starts to turn off, a pulse from the transformer helps turn off the switching transistor faster by removing the stored charge from the base, thus reducing power dissipation in the transistor.

3,600,667 POWER SUPPLY HAVING PARALLEL DISSIPATIVE AND SWITCHING REGULATORS

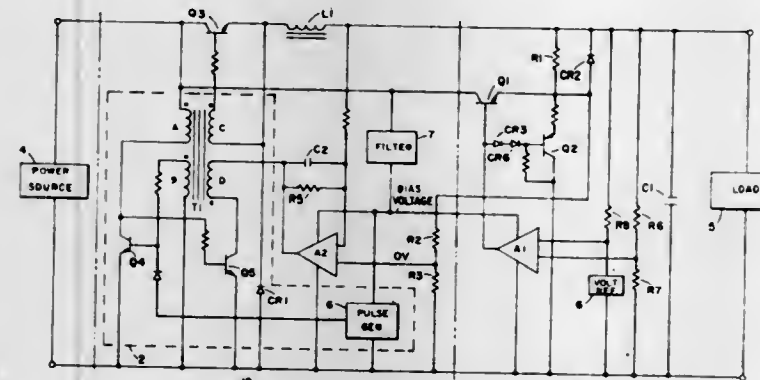
William D. Wyman, Salt Lake City, Utah, assignor to The United States of America as represented by the Secretary of the Army

Filed Sept. 16, 1969, Ser. No. 858,399

Int. Cl. G05f 1/56

U.S. Cl. 323-22 T

1 Claim



The parallel combination of a dissipative-type regulator and a switching-type regulator is controlled by a differential amplifier to provide steady state power to a load.

3,600,668 TIME RATIO SOLID STATE VOLTAGE REGULATOR

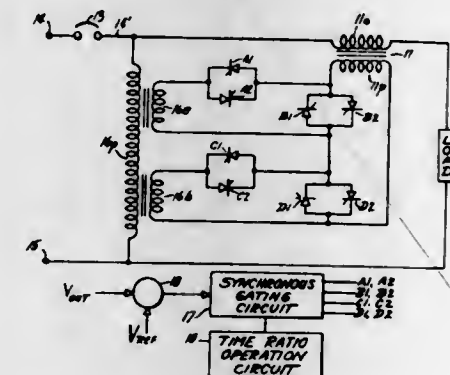
Leon J. Goldberg, Schenectady, N.Y., assignor to General Electric Company

Filed Feb. 2, 1970, Ser. No. 7,790

Int. Cl. G05f 1/20, 1/30

U.S. Cl. 323-43.5 S

8 Claims



The solid state switches connected to fixed taps on a voltage-injecting transformer winding in a solid state step voltage regulator or load tap changing transformer are controlled synchronously to effectively insert the winding in series with the line for a variable number of half cycles, or preferably full cycles, of a base time interval. In addition to zero and full value voltage insertions, a variable portion of the full value voltage increment is injected in series with the line voltage without increasing the number of switches.

3,600,669 METHOD AND APPARATUS FOR LINEARIZING THE SIGNAL OUTPUT OF AN LVDT RESPONSIVE TO NONLINEAR INPUT MOTION

John T. McClain, Houston, Tex., assignor to Daniel Industries, Inc., Houston, Tex.

Filed Sept. 8, 1969, Ser. No. 856,046

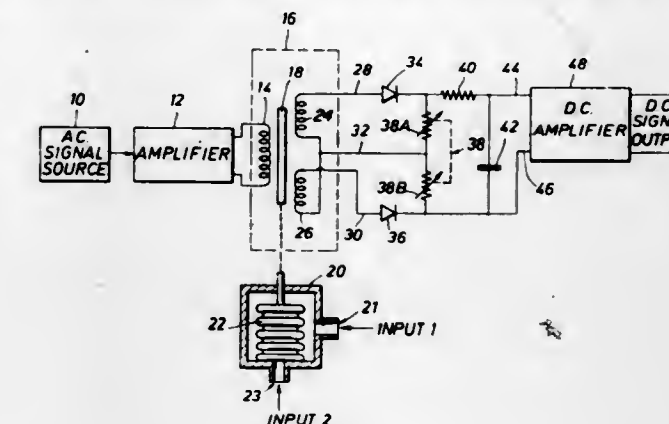
Int. Cl. H01f 21/06

U.S. Cl. 323-51

10 Claims

An improvement in methods and apparatus for linearizing the output of a linear voltage differential transformer responsive to a nonlinear input motion by utilizing a variable resistor disposed across the output of the secondary coils of the

transformer for adjusting the magnitude of the difference signal to a predetermined value and reduce the error in the



signal to zero for a known displacement of the movable transformer core.

3,600,670 ELECTRICAL BRIDGE SYSTEM WITH LEAKAGE-RESISTANCE PROTECTION

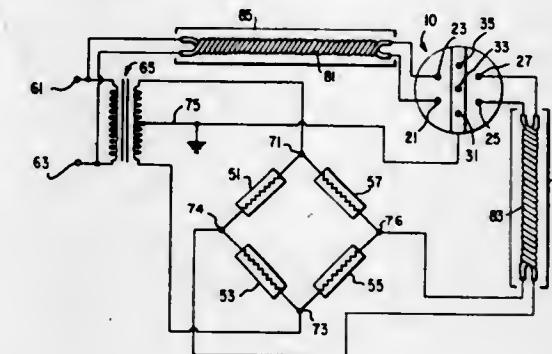
Donald A. Senour, Carlisle, and Fred J. Ling, Lynnfield, both of Mass., assignors to BLH Electronics, Inc., Waltham, Mass.

Filed Dec. 4, 1969, Ser. No. 881,998

Int. Cl. H01r 3/06; G01r 17/10

U.S. Cl. 323-75 D

4 Claims



The effects of leakage resistance in a precision measuring system are minimized by providing a guard strip for shielding the power input terminals from the low-level signal output terminals in an electrical connector, by grounding the center tap of the secondary of the power input transformer, and by both twisting and shielding the pairs of power input leads and signal output leads.

3,600,671 METHOD FOR DETERMINING CONTACT CLOSING BEHAVIOR OF A BIFURCATED CANTILEVER SPRING

Royston Walter Bannister, Tunbridge, and Brian M. Lewis, London, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

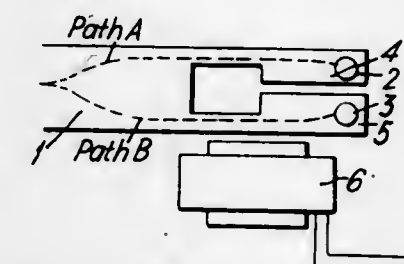
Filed Mar. 2, 1970, Ser. No. 15,746

Claims priority, application Great Britain, Mar. 7, 1969, 12224/69

Int. Cl. G01r 31/02

U.S. Cl. 324-28 R

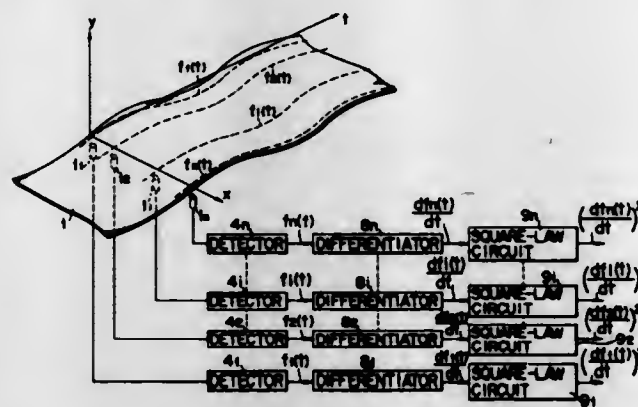
2 Claims



An electrical testing procedure is shown for detecting whether a pair of bifurcated contacts close at the same time and, if not, which contact is closing first. Detection of con-

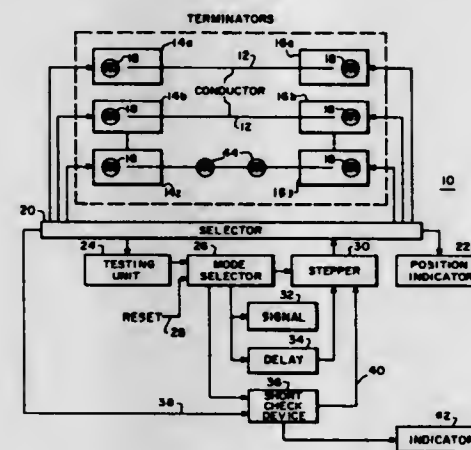
tact closing is accomplished by detecting alternating current caused magnetic fields adjacent the separate portions of the bifurcated contact arms.

3,600,672
METHOD FOR DETERMINING THE DEGREE OF ELONGATION OF ROLLED MAGNETIC METAL STRIPS AND AN APPARATUS FOR THE SAME
 Morikada Kube, Tokyo, and Kuniji Asano, Kawasaki-shi, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
 Filed July 8, 1969, Ser. No. 840,008
 Claims priority, application Japan, July 12, 1968, 43/48459
 Int. Cl. G01r 33/12
 U.S. Cl. 324—34 R 6 Claims



A method for determining the degree of elongation of rolled magnetic metal strips and an apparatus for the same which comprises bringing automatic induction detectors close to one side of a travelling rolled magnetic metal strip to cause changes with time in the displacement of the metal strip in the direction of its thickness to be detected in the form of changes in inductance, supplying outputs from the detectors to one side of an AC bridge circuit, demodulating outputs from the bridge circuit by a demodulator, differentiating the values of the demodulated outputs by differentiators, and squaring the differentiated values by square-law circuits, and detecting the momentary values of the degrees of elongation of said metal strip, thereby controlling its rolled form.

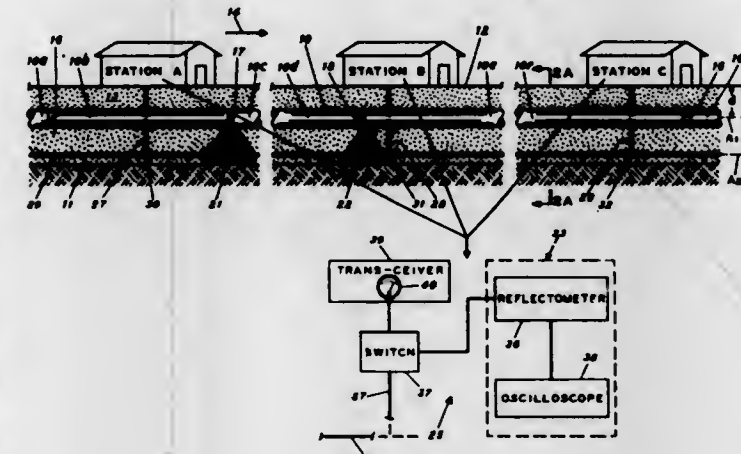
3,600,673
SEQUENTIALLY STEPPED, TERMINATION INDICATING MULTI-CONDUCTOR CHECKING AND TESTING APPARATUS
 Stephen J. Kohke, Bridgewater Township, Somerset County, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
 Filed July 15, 1969, Ser. No. 841,943
 Int. Cl. G01r 31/02
 U.S. Cl. 324—51 13 Claims



An apparatus useful in the assembly and testing of the multi-conductor cable assemblies which in a first mode of operation indicates the path for each conductor and indicates the

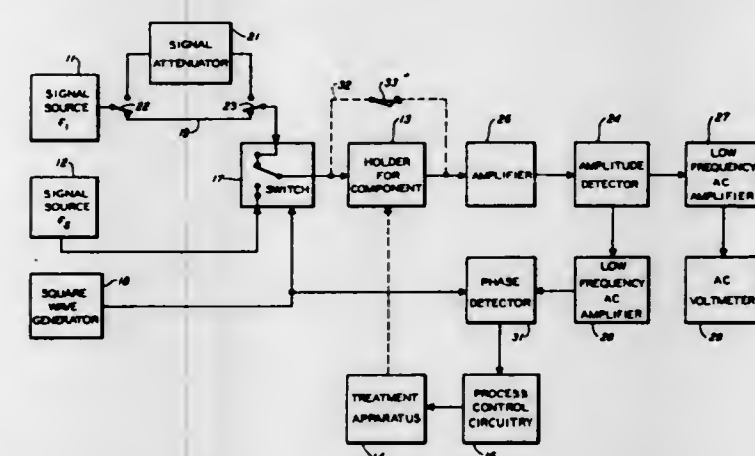
path for each succeeding conductor only after such conductor has been properly terminated. In a second mode of operation a completed cable assembly may be checked out to determine whether each of its conductors properly extends between its desired terminators. In a further mode of operation each conductor may be checked against the remaining conductors of the cable assembly in order to insure absence of shorts between such conductors and the remaining conductors of the cable. Various indicators are provided to indicate the particular conductor under test, to indicate whether or not termination has been properly made and if a short exists. Further, test procedures built into the apparatus prevent the device from further functioning where conditions exist either due to a misterminated conductor or by the presence of a short between a selected conductor and the remaining conductors of the cable.

3,600,674
METHOD OF DETERMINING LEAKS FROM BURIED PIPELINES USING A TIME-SHARING TRANSMISSION LINE
 Frederick Alexander Roberts, Brea, and Edwin B. Saunders, Whittier, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.
 Filed Apr. 2, 1969, Ser. No. 812,676
 Int. Cl. G01r 31/11; G01m 3/16
 U.S. Cl. 324—52 9 Claims



A method of determining leakage from a buried pipeline using a closed-loop radar system having time-sharing transmission line buried adjacent to the pipeline to be monitored.

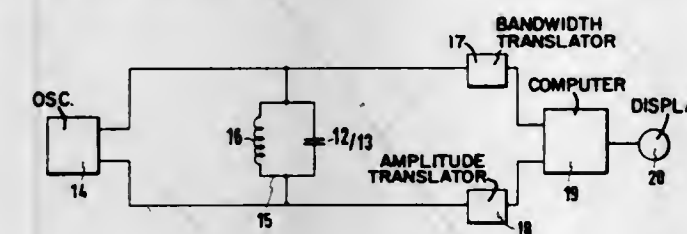
3,600,675
METHOD AND SYSTEM FOR ADJUSTING ELECTRICAL COMPONENTS USING ALTERNATELY APPLIED SIGNALS
 Robert P. Greiner, Newburyport, Mass., assignor to Western Electric Company, Incorporated, New York, N.Y.
 Filed Dec. 30, 1969, Ser. No. 889,211
 Int. Cl. G01n 27/00
 U.S. Cl. 324—57 R 9 Claims



A crystal filter or similar electrical component is adjusted by application to the filter of a characteristic adjusting medi-

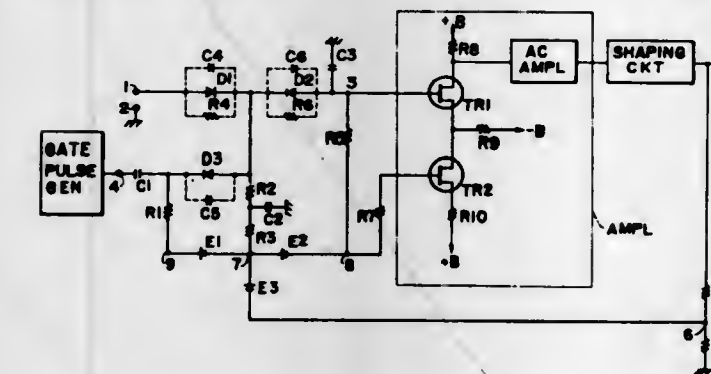
um, such as evaporated or sputtered gold, in order to provide a desired differential insertion loss with respect to output signals corresponding to two input signals generated at two frequencies of interest. The two input signals are applied sequentially to the filter with the signal levels of the input signals calibrated to differ by a quantity equal to the desired differential insertion loss. An initial calibration, utilizing a signal attenuator, provides this differential. Treatment then occurs, with the output of the crystal being continuously monitored by a signal amplitude measuring device. An AC monitoring signal, representing the alternating output signal levels corresponding to the sequentially applied input signals, is generated from the signal amplitude measuring device. A phase reversal in the AC monitoring signal is sensed by a phase detector, which generates a control signal to terminate the treatment operation. The phase reversal occurs at the instant that the desired differential insertion loss value is attained.

3,600,676
MOISTURE METER UTILIZING AMPLITUDE AND BANDWIDTH SIGNALS
 Rainer Wolfgang Ludwig, Stuttgart-Feuerbach, and Herwig Max Jungmichel, Wilferdingen, both of Germany, assignors to Horst Nauditt Roland Strenenbau-Electronic-schiffbau, Noettingen, Germany
 Filed Mar. 21, 1969, Ser. No. 809,353
 Int. Cl. G01r 27/26
 U.S. Cl. 324—61 R 6 Claims



There is disclosed a meter for measuring on a continuous basis the moisture content of a moving layer of bulk materials such as coal or wood chips. A capacitor has two plates on one side to span a portion of the conveyed bulk material with its field. This capacitor is connected in a resonant circuit which is frequency modulated with a sawtooth modulation wave varying about a particular center frequency which is predetermined for the dielectric constant provided to the capacitor by a known bulk material. Then the amplitude and bandwidth of the resonant circuit frequency response is a function of the moisture content and quantity of bulk material in the capacitor field. An analog computer then takes a ratio to produce a direct reading as a percentage of moisture content.

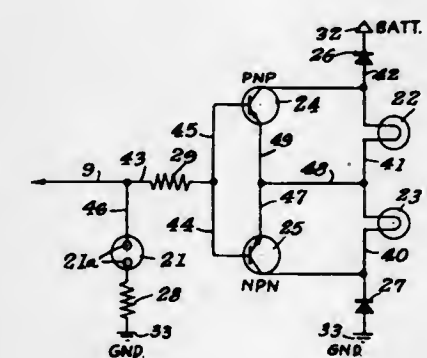
3,600,677
WIDE BAND GATE CIRCUITS WITH FEEDBACK CIRCUITS
 Kozo Uchida, Tokyo, Japan, assignor to Iwatsu Electric Company, Ltd., Tokyo, Japan
 Filed Mar. 26, 1969, Ser. No. 810,625
 Claims priority, application Japan, Apr. 2, 1968, 43/21229
 Int. Cl. G01r 19/16; H03k 17/00
 U.S. Cl. 324—103 P 10 Claims



The wide band gate circuit with a feedback circuit comprises at least one series element including a first and a

second diodes connected in series opposition, an input terminal connected to one end of the series element to receive a signal to be measured, an output terminal connected to the other end of the series element, a third diode connected to the junction between the first and second diodes to apply a gate pulse from a gate pulse generator to cause said signal to flow between input and output terminals and to prevent a portion of the input signal from being reflected by the gate pulse generator back to the input terminal, a condenser connected between the output terminal and the ground to store the amplitude of said signal, a shunt element including a large capacitance and connected between the ground and the junction between the first and second diodes so as to prevent a leakage signal from appearing on the output terminal, an amplifier connected to the output terminal, a shaping circuit to accumulate and maintain the peak value of the output from the amplifier and a feedback circuit to feedback at least a portion of the signal accumulated in the shaping circuit to all of the diodes.

3,600,678
SOLID-STATE POLARITY TESTER FOR TELEPHONE EQUIPMENT
 Jim C. Garrett, and Robert H. Johnson, both of 3300 East Spring St., Long Beach, Calif.
 Filed Sept. 12, 1969, Ser. No. 857,368
 Int. Cl. G01r 19/14, 19/16
 U.S. Cl. 324—133 6 Claims

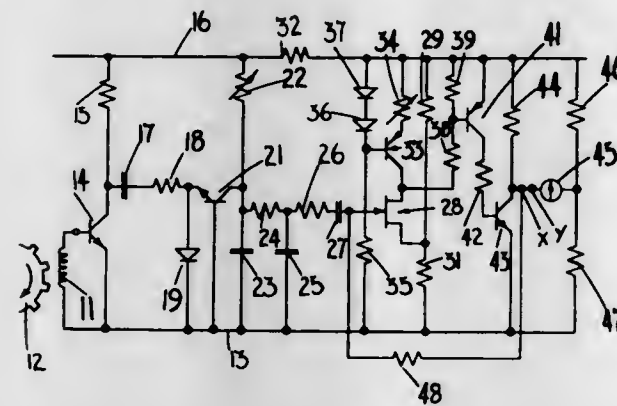


A solid-state polarity tester provided with ground and battery terminals for connection to like contacts of a battery in a telephone central office switchroom, and with a probe to test polarity of telephone equipment, the same embodying two similar circuits between the probe and each respective terminal, each said circuit including an indicator lamp and a transistor that switches on to close the circuit through one lamp according to the direction of current flow, and shorting out the other lamp. The tester includes a third circuit between the probe and the ground terminal and including a glow tube energized to indicate either high-level DC or AC in contact with the probe.

3,600,679
MAXIMUM ACCELERATION OR DECELERATION METER FOR A ROAD VEHICLE
 William Frank Hill, Stafford, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
 Filed July 14, 1969, Ser. No. 841,255
 Claims priority, application Great Britain, July 29, 1968, 36,026/68
 Int. Cl. G01p 3/42 1 Claim

A meter for indicating the acceleration of a road vehicle has a speed-sensing means which produces an electrical signal representing the speed of the vehicle. This signal is then applied to a differentiating circuit, and the output from the differentiating circuit whereby the indicator reads the

maximum acceleration or the maximum deceleration depending on the position of the switch means is applied to an



indicator. The acceleration can be a positive acceleration or a negative acceleration.

3,600,680

FSK DEMODULATOR AND MODULATOR COMBINING DIFFERENTIATED COUNTED SIGNALS INTO A WEIGHTED ANALOG OUTPUT

Maurice A. Maniere, and Jacques K. Melle, both of Paris, France, assignors to Lignes Telegraphiques Et Telephoniques, Paris, France

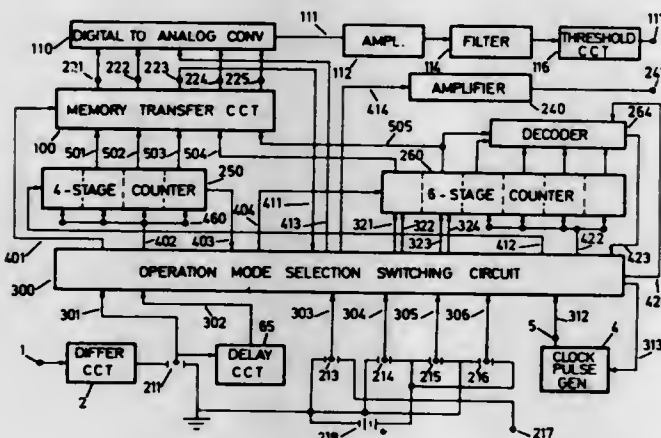
Filed Apr. 13, 1970, Ser. No. 27,711

Claims priority, application France, Sept. 22, 1969, Dec. 18, 1969, Jan. 31, 1970, 32150/43899; 03264

Int. Cl. H04b 1/40; H04 27/14

U.S. Cl. 325-18

9 Claims



A demodulator for frequency-shift modulated telegraph signals using at least two different signal frequencies, comprising means for deriving from the received wave control signals corresponding to the passages through zero of said wave, means for deriving delayed signals from said control signals, a clock pulse generator having a frequency much higher than said frequencies, means for applying said pulses to a binary counter having a plurality of stages, means for resetting said counter to an initial state by said control signals, and logic circuits means including a storage type data-gating circuit controlled by said control signals and displaying the state of said counter in the form of a group of binary signals. The latter are combined into an analog signal which, after being amplified, is applied to a threshold circuit, and the signals appearing at the output of the latter circuit are applied to a utilization terminal. It is shown that a circuit for modulator operation may be obtained by combining most elements of the demodulator with a frequency divider for the pulse frequency and a decoder.

3,600,681

NONLINEAR EQUALIZATION SYSTEM INCLUDING SELF- AND CROSS-MULTIPLICATION OF SAMPLED SIGNALS

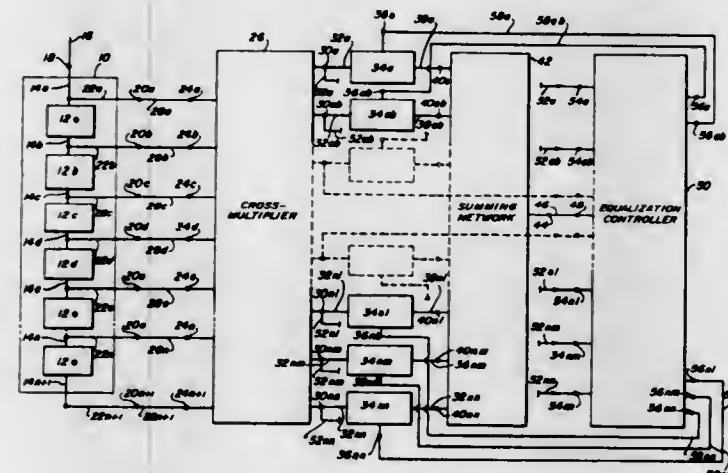
Timothy Arbuckle, Montclair, N.J., assignor to Computer Modern Corporation, Fort Lee, N.J.

Filed Dec. 4, 1969, Ser. No. 881,964

Int. Cl. H04b 1/12, 3/04

U.S. Cl. 325-42

6 Claims



A communication channel equalization system having capacity for compensatingly modifying received signals for first and higher order communication channel disturbances respectively inducing linear and nonlinear distortion in received signals. The system includes means providing self-multiplication and cross-multiplication of samplings of received signals, and means for selective attenuation control of such multiplied samplings.

3,600,682

MICROWAVE POWER AMPLIFIER NETWORKS INCLUDING SWITCHING ARRANGEMENTS THEREFOR

Kouichi Yoshimoto, and Susumu Kitazume, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

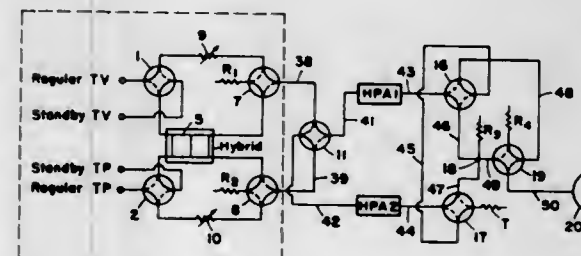
Filed May 13, 1969, Ser. No. 824,059

Claims priority, application Japan, May 14, 1968, 43/32391

Int. Cl. H04b 1/04

U.S. Cl. 325-168

11 Claims



Multiplex signals are interconnected to two high-power amplifiers with microwave switches and hybrids in an arrangement so that each amplifier can selectively handle the signals of the other amplifier in case of failure of one of the amplifiers.

3,600,683

FREQUENCY SYNTHESIZERS

David John Martin, Ilford, England, assignor to The Plessey Company Limited, Ilford, England

Filed June 20, 1969, Ser. No. 835,016

Claims priority, application Great Britain, June 27, 1968, 30796/68

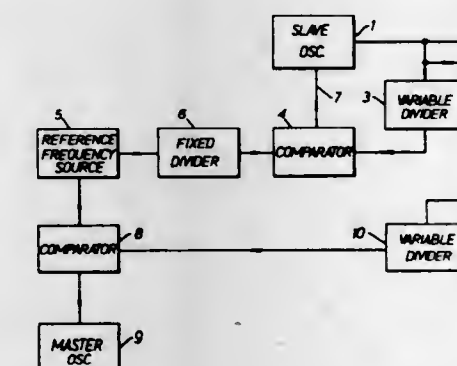
Int. Cl. H04b 1/04

U.S. Cl. 325-184

3 Claims

A frequency synthesizer comprising two control loops wherein the frequency of a slave oscillator is coarsely controlled in accordance with the setting of a variable divider contained in one loop having a short time constant and

wherein fine frequency control is achieved in accordance with the setting of a further variable divider which is contained within the other loop having a long time constant



(narrow bandwidth) thereby to provide the advantages of wide tuning range associated with LC oscillators with the stability of a crystal oscillator.

3,600,684

OVERLOAD COMPENSATION CIRCUIT FOR ANTENNA TUNING SYSTEM

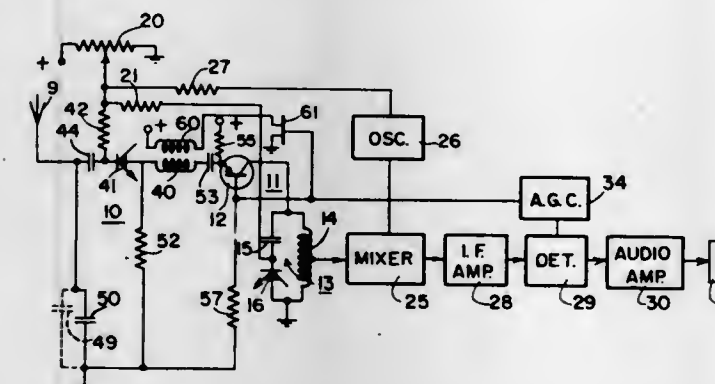
James R. Cherry, Barrington, Ill., assignor to Motorola Inc., Franklin Park, Ill.

Filed May 15, 1969, Ser. No. 824,986

Int. Cl. H04b 1/18; H03g 3/30; H03j 3/06

U.S. Cl. 325-319

7 Claims



As the RF signal supplied by an antenna to a varactor-tuned coupling circuit increases in magnitude, the impedance across an inductor in series with the varactor also increases due to the increased conductivity of an AGC-controlled field-effect transistor connected in the circuit of a secondary winding inductively coupled to the inductor. The system also is frequency sensitive, so that as the frequency of the RF signal applied across the inductor increases, the effective impedance also increases to compensate for increases of the reactance of the varactor diode at higher frequencies to maintain the RF signal level across the varactor diode at a level below that at which the diode rectifies the RF signals applied thereacross.

3,600,685

APPARATUS AND METHOD FOR INTERFERING WITH RADIO COMMUNICATIONS

William C. Doyle, Los Altos, Calif., assignor to Itek Corporation, Lexington, Mass.

Continuation of application Ser. No. 602,454, Dec. 13, 1966, This application Mar. 20, 1969, Ser. No. 809,053

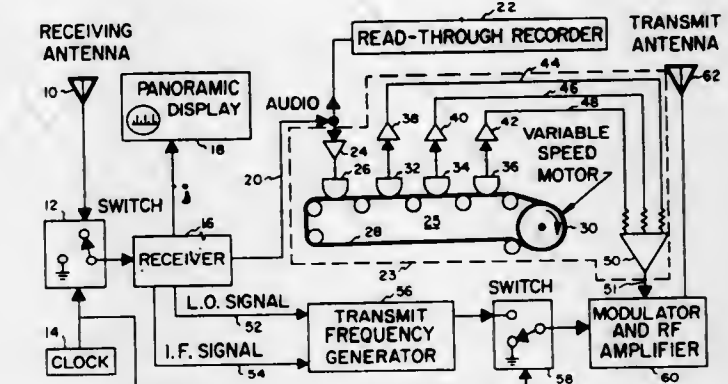
Int. Cl. H04b 1/36

U.S. Cl. 325-332

9 Claims

Interfering with the radio communication between a transmitter and one or more receivers using the communication itself to destroy the intelligibility of the communication to the intended recipient. The communication is intercepted during one portion of a duty cycle and delayed by various different

amounts. Thereafter, the differently delayed communications are added to form an unintelligible signal which is trans-



mitted during the other portion of the duty cycle for reception by the intended recipient.

3,600,686

BINARY PULSE RATE MULTIPLIERS

James Richard Halsall, Reading, England, assignor to Imperial Chemical Industries Limited, London, England

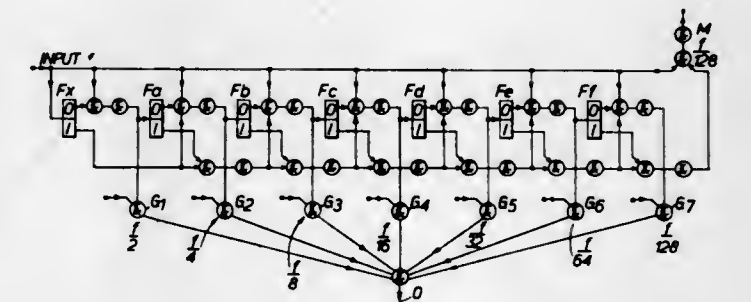
Filed May 14, 1969, Ser. No. 824,580

Claims priority, application Great Britain, May 22, 1968, 24417/68

Int. Cl. H03k 23/00

U.S. Cl. 328-38

3 Claims



This invention relates to a binary pulse rate multiplier for use in digital incremental control or instrumentation systems. Unlike known binary rate multipliers, the multiplier of the invention does not require any pulse shaping or differentiating circuits and comprises a plurality of bistable elements or flip-flops arranged to operate as a progressive binary or Gray code pulse counter, and means whereby the pulses arriving at the inputs to the bistable elements are routed to a combined output pulse line via individual pulse rate selection gates, so that energization of appropriate selection gates creates an output pulse train in the output pulse line having an average repetition rate which is a desired fraction of the average repetition rate of the input pulses applied to the counter by way of an input pulse line.

3,600,687

LOGIC ONE-SHOT

George J. Dusheck, Jr., Cinnaminson, N.J., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 3, 1969, Ser. No. 788,847

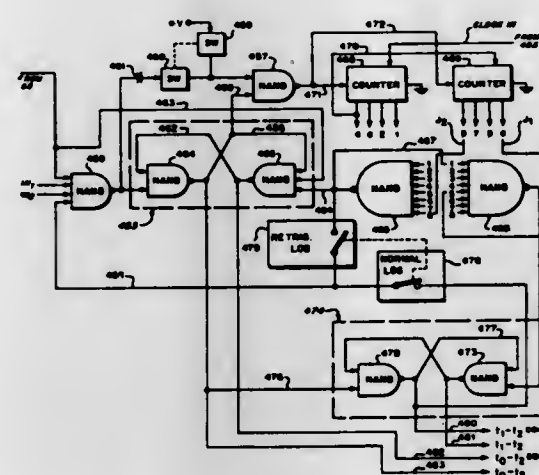
Int. Cl. H03k 19/00

U.S. Cl. 328-63

10 Claims

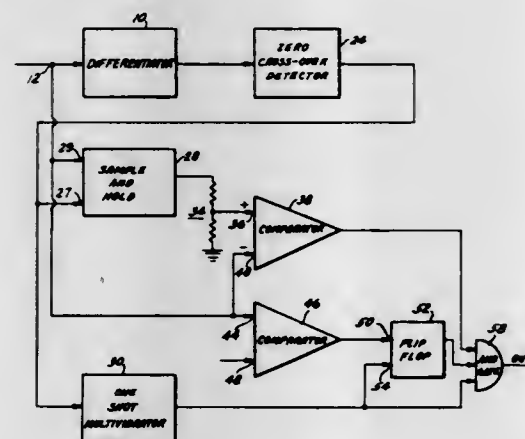
A logic circuit for providing output signals and their complements at predetermined time intervals in response to the coincidence of received input signals. Separate signals are

generated at both the receipt of the input signals and at a first predetermined time afterwards. The signals are terminated at a second predetermined time of later occurrence than the first time.



minated at a second predetermined time of later occurrence than the first time.

3,600,688
SIGNAL DISCRIMINATOR CIRCUIT
Robert C. Booth, Bethlehem, Pa., assignor to Bethlehem Steel Corporation
Filed Apr. 21, 1970, Ser. No. 30,398
Int. Cl. H03k 5/20
U.S. Cl. 328—111 3 Claims

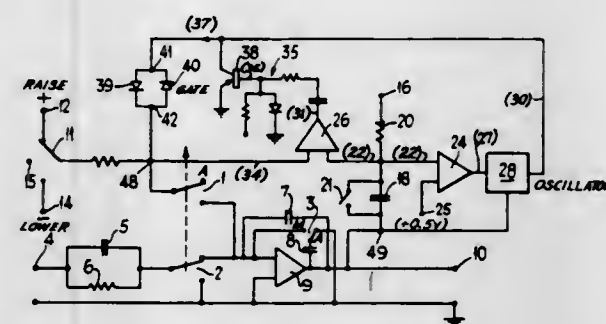


A circuit, for eddy current testing of steel shapes, which discriminates input pulses caused by severe defects from input pulses caused by minor defects as well as pulses caused by changes in the properties of the shapes. The circuit discriminates input pulses greater than a minimum amplitude and less than a maximum width from other pulses.

3,600,689
AN ELECTRIC CONTROLLER WITH IMPROVED STABILIZER APPARATUS FOR THE STORAGE CAPACITOR
Ian Carrodus Hutcheon, Bedfordshire; Stephen Arthur Foster, Harlington; Kenneth Barton, Dunstable, and Donald Louis Critten, Luton, all of England, assignors to George Kent Limited, Luton, Bedfordshire, England
Filed Sept. 24, 1969, Ser. No. 860,689
Int. Cl. H03k 5/00
U.S. Cl. 328—127 19 Claims

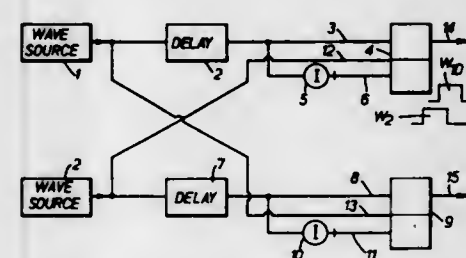
For stabilizing a voltage stored on a memory capacitor, an electric controller has a generator providing a recurrent ramp wave form. Each time the ramp wave form voltage rises to a reference level, an oscillator is switched on to provide a series of sawtooth pulses, beginning always at a peak. The ramp wave form and the stored voltage are fed to a differential amplifier so that this has an output when ramp wave form voltage exceeds the stored voltage. The amplifier output is used to open a gate to allow part of one of the saw-

tooth pulses to be fed to the capacitor as a correction pulse, unless the sawtooth pulse is at zero when the gate opens. The stored voltage is thus first brought, if necessary, to a value corresponding to a zero value of the sawtooth pulse and is



then stabilized at that value. The controller can operate either automatically or manually and the operation can be changed bumplessly and without balancing.

3,600,690
PHASE DIFFERENCE DETECTORS
Colin Graham White, Essex, England, assignor to The Marconi Company Limited, London, England
Filed May 25, 1970, Ser. No. 40,305
Claims priority, application Great Britain, June 23, 1969, 31505/69
Int. Cl. H03d 13/00
U.S. Cl. 328—133 2 Claims

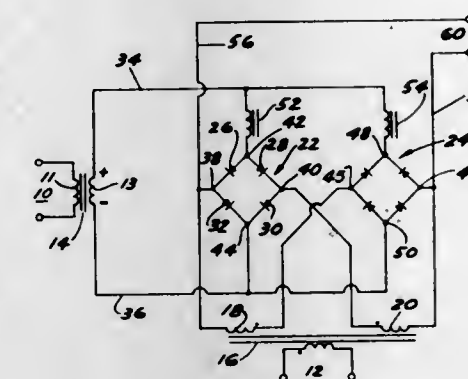


This invention provides a phase difference detector for detecting when the phase relationship between two waves changes from a predetermined relationship by a predetermined amount. Delay means are provided for relatively delaying the two waves to an extent dependent upon the lead or lag tolerance permitted in the phase relationship between the two waves, and a JK flip-flop circuit is provided to one data input terminal of which one of the two relatively delayed waves are applied and to the other data input terminal of which the same wave inverted is applied. The other of the delayed waves is applied to the sampling input terminal of said circuit.

3,600,691
SYNCHRONOUS DEMODULATOR
William P. Caywood, Jr., Murrysville, Pa., assignor to The United States of America as represented by the Secretary of the Army
Filed July 8, 1969, Ser. No. 839,828
Int. Cl. H03b 3/04
U.S. Cl. 328—133 8 Claims

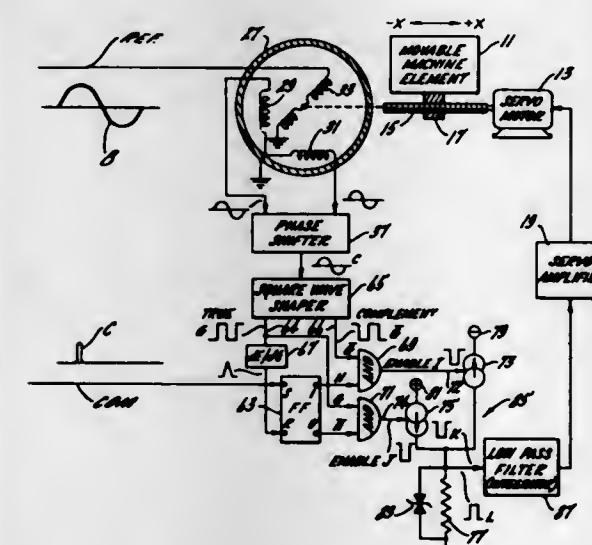
A synchronous demodulator which when supplied at its two sets of input terminals with two signals that are of dif-

ferent frequencies, develops at its output terminals, through a pair of oppositely poled demodulator bridges, a signal that in the electronic and mechanical portions of a missile wherein it is required that a signal be held for a finite time comprising



cludes the sum frequency and difference frequency of the two inputs.

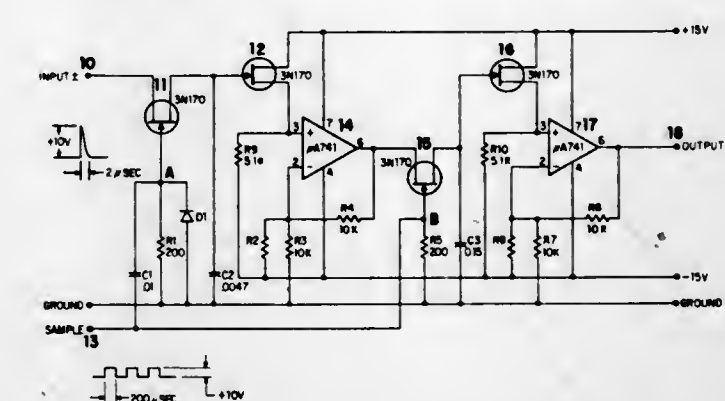
3,600,692
PHASE COMPARATOR PROVIDING DC OUTPUT AS A FUNCTION OF VARIABLE PHASE BETWEEN TWO INPUTS
John K. McGee, Houston, Tex., assignor to Giddings & Lewis Machine Tool Company, Fond du Lac, Wis.
Division of Ser. No. 555,048, June 3, 1966, Pat. No. 3,539,895.
Filed Oct. 17, 1969, Ser. No. 871,195
Int. Cl. H03b 3/04
U.S. Cl. 328—134 4 Claims



A phase discriminator for producing a DC voltage which varies in magnitude and polarity according to the sense and extent of the phase displacement between two recurring signals which may vary in phase relation to one another. The first signal may, for example, be a train of pulses and the second signal may be a recurring sinusoidal wave. A tristate DC signal producing circuit is controlled by the two signals and its output is supplied to an averaging filter.

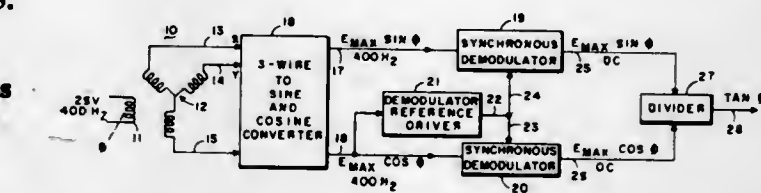
3,600,693
SAMPLE-HOLD CIRCUIT
Bert P. VanDenBerg, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy
Filed Aug. 3, 1970, Ser. No. 60,495
Int. Cl. H03k 19/00
U.S. Cl. 328—151 4 Claims

A sample-and-hold circuit which provides an interface between



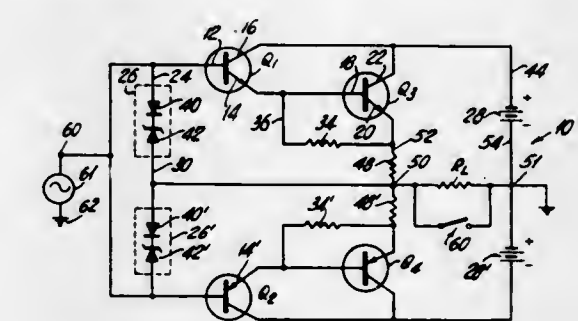
two complete sample-and-hold circuits in series.

3,600,694
POWER NORMALIZATION OF ANGULAR INFORMATION FROM THREE-WIRE SYNCHRO SOURCE
James H. McCollum, Jr., Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed Apr. 27, 1970, Ser. No. 31,895
Int. Cl. H03d 3/18
U.S. Cl. 329—50 7 Claims



An angle defining synchro output signal is subject to variation stemming from synchro induced phase shift and transformation ratio variations between units, as well as by variations in carrier excitation source amplitude. By converting a three-wire synchro output to respective carrier signals modulated by sine and cosine functions of the synchro signal information angle, demodulating each synchronously with respect to a signal phased in accordance with one of the sine and cosine modulated signals, and subsequently dividing the demodulator outputs, an output signal proportional to the ratio of the sine and cosine functions of the angle is obtained which is not affected by changes in synchro phase shift, transformation ratio, and carrier energization magnitude.

3,600,695
POWER AMPLIFIER WITH OVERLOAD PROTECTION
Friedrich Johann Krausser, Jericho, N.Y., assignor to Emerson Electric Co.
Filed Oct. 30, 1967, Ser. No. 679,119
Int. Cl. H03k 21/00, 3/10, 3/26
U.S. Cl. 330—11 3 Claims



A transistor push-pull power amplifier, adapted to be connected to a loudspeaker, includes driver transistors and output power transistors. A shunt arm, preferably including a Zener diode and a reversely poled high-speed diode, is con-

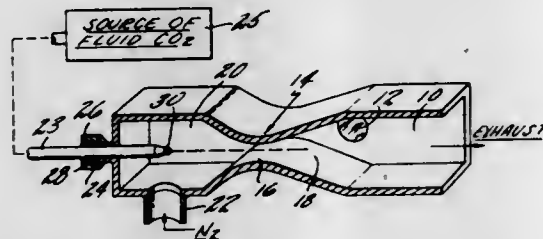
3,600,704 GAS LASER

Conrad M. Bannas, Manchester; Allan P. Walch, Manchester, and Albert W. Angelbeck, East Hartford, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 23, 1968, Ser. No. 710,697
Int. Cl. H01s 3/22

U.S. Cl. 331-94.5

10 Claims



CO₂ particles, including small particles for laser chamber cooling and large particles for remote mixing purposes, are injected into the stream of an excited energizing gas in a gas laser, the solid CO₂ subliming to a gas, becoming excited through resonant collision energy transfer with the energizing gas, and emitting photons so as to generate the laser output.

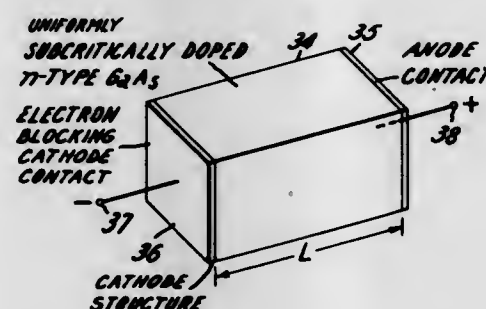
3,600,705 HIGHLY EFFICIENT SUBCRITICALLY DOPED ELECTRON-TRANSFER EFFECT DEVICES

Wirojana Tantraporn, Schenectady; Se Puan Yu, Schenectady, and Paul J. Shaver, Scotia, all of N.Y., assignors to General Electric Company

Filed Feb. 27, 1969, Ser. No. 802,796
Int. Cl. H03b 7/06

U.S. Cl. 331-107 G

22 Claims



The subcritically-doped injection-current-limited (SDICL) microwave amplifier device comprises a bulk semiconductor having a doping density-length ($n_d L$) product below the critical value needed to sustain Gunn oscillation, in which the electric field is maintained approximately uniform above the threshold field in the vicinity of the cathode and elsewhere by limiting the injection of charge carriers. The injection current is limited by the conduction characteristics of the cathode structure or by tapering the bulk semiconductor. The SDICL device is DC stable, has high efficiency, is designed to operate over a wide range of frequencies, and can be connected directly in series or series-parallel for higher power levels in amplifier and oscillator circuits.

3,600,706 VARACTOR CONTROLLED AFC CIRCUIT FOR WIDE BAND TUNER

Dean D. Ritchie, Streamwood, Ill., assignor to Standard Kollsman Industries, Inc., Melrose Park, Ill.

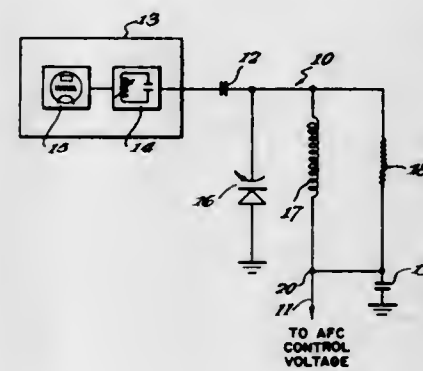
Filed Aug. 29, 1969, Ser. No. 854,101
Int. Cl. H03j 3/18

U.S. Cl. 331-177 V

3 Claims

An AFC control circuit for an oscillator that is tunable over a wide frequency band produces a relatively constant frequency change or "pull-in" range at any frequency value within the band. The control circuit is connected across the main capacitance of the oscillator's resonant circuit and is

comprised of a varactor and a parallel inductance that define a reference resonant frequency lower than any frequency value within the band. The control circuit exhibits an effective capacity at all frequencies of interest and the varactor



provides a change in such effective capacity which is related to operating frequency in a manner to achieve the uniform "pull-in" characteristic.

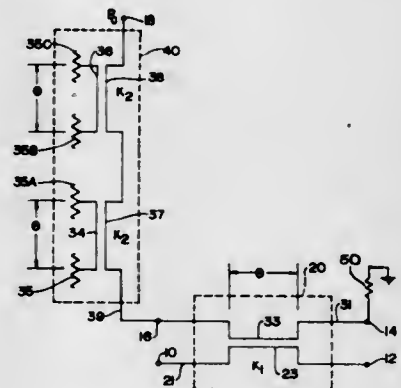
3,600,707 COMPENSATED FLAT DIRECTIONAL COUPLER

David S. Friedman, Framingham, Mass., assignor to Alpha Industries, Inc., Newton Upper Falls, Mass.

Filed June 9, 1969, Ser. No. 831,590
Int. Cl. H01p 5/14

U.S. Cl. 333-10

9 Claims



A compensated flat directional coupler includes a main branch carrying an electrical signal and a coupled branch carrying a coupled electrical signal responsive to the signal on the main branch. The coupled branch includes an auxiliary compensating network in the output portion of the coupled branch. The auxiliary compensating network couples to the coupled branch and is substantially isolated from the main branch. The auxiliary compensating network is substantially independent of the coupling between the main and coupled branch. The auxiliary coupling network renders the ratio of coupled output signal to the main branch output signal substantially independent of input signal frequency variation.

3,600,708 MICROWAVE LIMITER

Philip E. King, Acton, Mass., assignor to Alpha Industries, Inc., Newton Upper Falls, Mass.

Filed Dec. 17, 1969, Ser. No. 885,840
Int. Cl. H03h 7/10; H04b 3/06

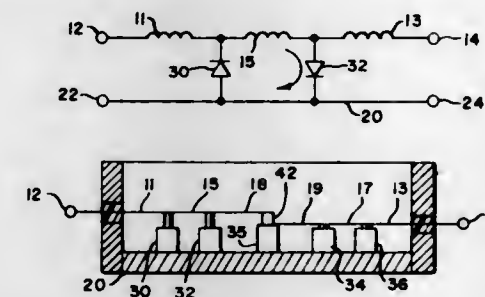
U.S. Cl. 333-17

7 Claims

A microwave device for use in limiting an RF signal includes two terminal pairs, an outer conductor defining a cavity and first and second inner conductors within the cavity. Each inner conductor is respectively coupled to a signal terminal of the terminal pairs. Within the cavity, a diode chip has one of its terminals connected to the first inner conductor and its other terminal connected to the outer conductor. A second diode chip, oppositely poled, has one of its terminals connected to the second inner conductor and its other terminal connected to the outer conductor. A third inner

conductor within the cavity interconnects the terminals of the diode chips coupled to the inner conductors. Preferably, the first diode chip is a high-power type and the second diode

a plurality of interjacent arrays of electrode elements and the spacing between successive electrode elements is equal to an integral multiple of one-half wavelength at the desired



chip rectifies at a lower power level and pumps signal through the first diode chip when high power is incident to the device, thereby limiting the signal level at the output terminal to the rectification level of the second diode chip.

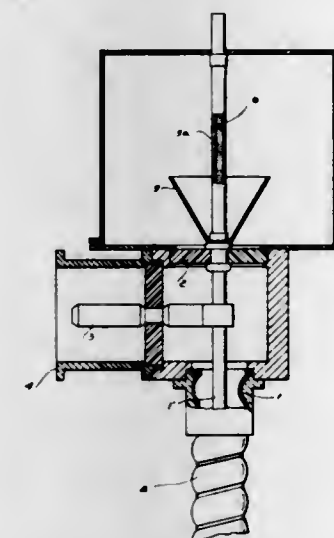
3,600,709 TERMINAL ASSEMBLY FOR THE END PORTION OF A FLUID-COOLED COAXIAL CABLE

Hans Leo Ditscheld, Bergisch-Gladbach, and Walter Scherrer, Cologne-Muelheim, both of Germany, assignors to Felten & Guillaume Carlswerk Aktiengesellschaft, Cologne-Muelheim, Germany

Filed Sept. 23, 1968, Ser. No. 761,678
Claims priority, application Germany, Oct. 6, 1967, P 16 40 104.0

U.S. Cl. 333-33

Int. Cl. H01b 7/34; H01p 1/26; H03p 13/00
8 Claims



A cable terminal assembly to be secured to an end portion of a high frequency cable of the type having an outer and a coaxial tubular fluidtight inner conductor through which a cooling fluid is to be circulated. Conductor means is provided on the assembly which extends radially of the outer and inner conductors of the cable when the assembly is secured to the end portion thereof, and which is arranged to be electrically conductively connected with the inner conductor of the cable. Conduit means is arranged to be axially connected with the inner conductor of the cable so as to supply fluid to or receive fluid from the inner conductor. Shielding means serves to shield both the surroundings of the cable terminal and also cooling fluid flowing in the conduit means from the electromagnetic field created about the terminal when the cable transmits high frequency energy.

3,600,710 ACOUSTIC SURFACE WAVE FILTER

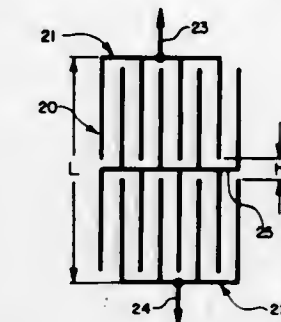
Robert Adler, Northfield, and Adrian J. De Vries, Elmhurst, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 12, 1968, Ser. No. 752,073
Int. Cl. H03h 9/30, 9/32

U.S. Cl. 333-72

6 Claims

A body of piezoelectric material propagates acoustic surface waves. A first surface wave interaction device is actively coupled to that surface to interact with the waves. Spaced on the same surface from the first device is a second such interaction device. The interaction devices are segmented into



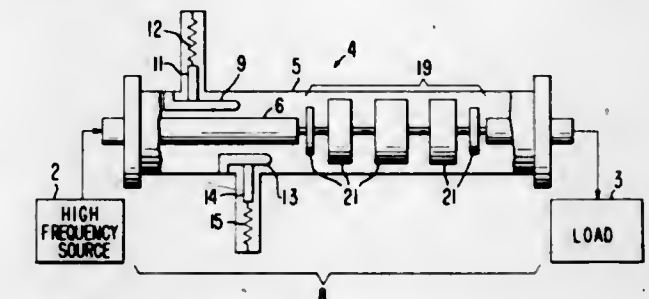
3,600,711 COAXIAL FILTER HAVING HARMONIC REFLECTIVE AND ABSORPTIVE MEANS

Richard Z. Gerlack, Cupertino, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Aug. 13, 1969, Ser. No. 849,715
Int. Cl. H03h 13/00; H01p 1/22

U.S. Cl. 333-73 C

6 Claims



A coaxial filter is disclosed. The filter includes a coaxial line having resonant reflector means carried from the outer conductor for reflecting harmonic wave energy toward the source while permitting fundamental wave energy to pass through the coaxial line to a load. A harmonic resonant means is disposed between the harmonic reflectors and the source for picking up and absorbing the harmonic energy in a load disposed externally of the outer conductor.

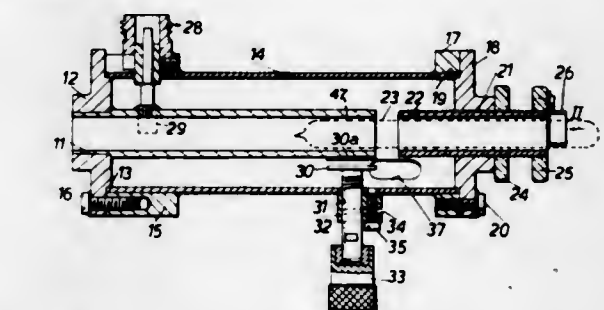
3,600,712 APPARATUS FOR THE EXCITATION OF ELECTRODELESS DISCHARGE TUBES

Vivian R. Williamson, Braintree, England, assignor to Evans Electroscintum Limited, Braintree, England

Filed Dec. 16, 1969, Ser. No. 885,602
Claims priority, application Great Britain, Dec. 23, 1968, 61155/68

Int. Cl. H01p 7/06; H01j 11/00, 19/80
U.S. Cl. 333-83 R

11 Claims



High efficiency apparatus for exciting electrodeless discharge tubes in which the tube is placed partially inside a cylindrical resonant cavity with the internal metal coated area of the discharge tube in a gap between the cavity and a sleeve having its axis in longitudinal alignment with the axis of the cavity, and a capacitor plate outside the cavity is movable towards and away from the cavity axis in order to tune the cavity to the exact frequency of the energizing supply.

ERRATUM

For Class 335-216 see:
Patent No. 3,600,281

DESIGNS

AUGUST 17, 1971

221,410 SKI BOOT

Chris A. Hanson, Boulder, Colo., assignor to The Lange Company, Broomfield, Colo.
Filed July 15, 1970, Ser. No. 23,968
Term of patent 14 years
Int. Cl. D2—04
U.S. Cl. D2—276

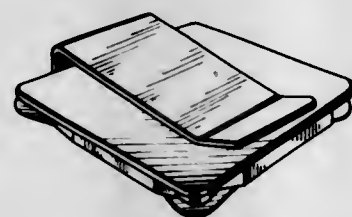


221,411 GLOVE

Deloris I. Cook, 889 Farmleigh Road, West Vancouver, British Columbia, Canada
Filed Aug. 22, 1969, Ser. No. 18,815
Term of patent 14 years
Int. Cl. D2—07
U.S. Cl. D2—364

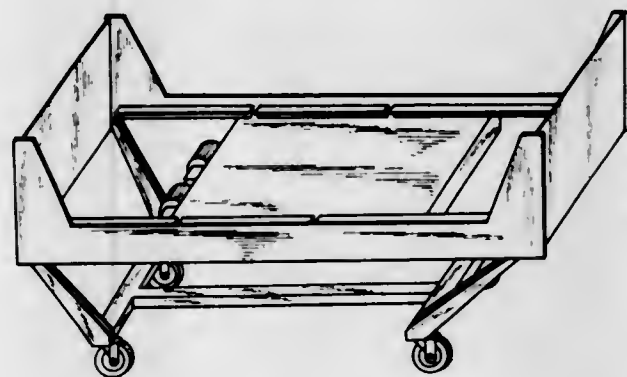


221,412
COMBINED POCKET KNIFE AND MONEY CLIP
Clayton A. Laughlin, Minneapolis, Minn., assignor to Arthur Salm Inc., Chicago, Ill.
Original design application Sept. 20, 1968, Ser. No. 13,640, now Patent No. 218,729, dated Sept. 22, 1970. Divided and this application Aug. 7, 1969, Ser. No. 19,342
Term of patent 14 years
Int. Cl. D2—08
U.S. Cl. D2—407

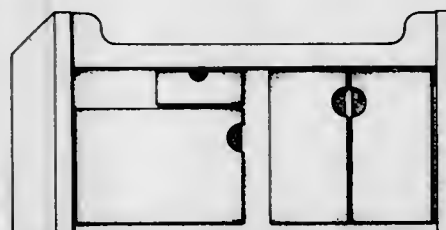


221,413 ADJUSTABLE BED

Finn Andre Kjellberg, Bent Ivan Kjellberg, and Sven Edward Nielsen Lemvig, all of 13 Ostergade, 3700 Ronne, Denmark
Filed Feb. 2, 1970, Ser. No. 21,218
Claims priority, application Denmark Aug. 4, 1969
Term of patent 14 years
Int. Cl. D6—01
U.S. Cl. D5—4

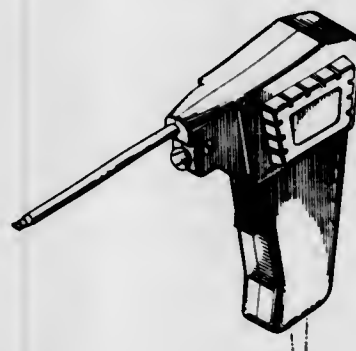


221,414
BED, STORAGE AND DESK UNIT
Mary Ellen Quirk, 163 Commonwealth Ave., Boston, Mass. 02116
Filed Apr. 22, 1970, Ser. No. 22,574
Term of patent 14 years
Int. Cl. D6—01
U.S. Cl. D5—4



221,415 SOLDERING PISTOL

Rinze P. Elzinga, Nijkerk, Netherlands, assignor to Technische Industrie Elko N.V., Nijkerk, Netherlands
Filed Nov. 20, 1969, Ser. No. 20,193
Term of patent 7 years
Int. Cl. D8—02
U.S. Cl. D8—30

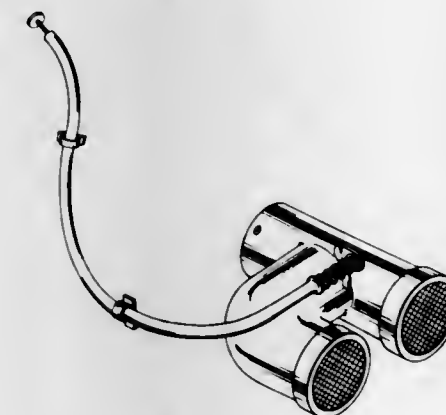


AUGUST 17, 1971

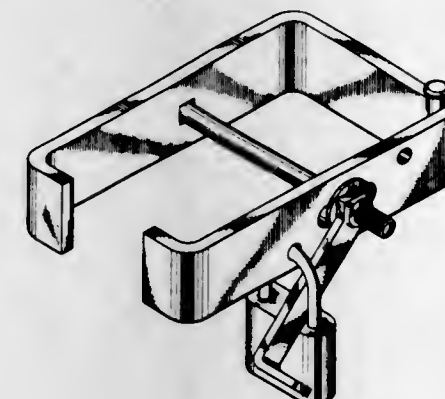
U. S. PATENT OFFICE

1047

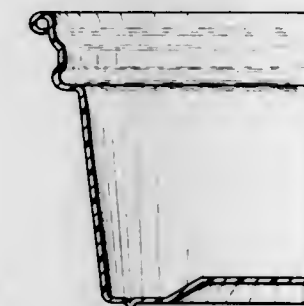
221,416
CHAIN SAW WARNING DEVICE OR
SIMILAR ARTICLE
Donald Jennings, P.O. Box 237, Cascade, Idaho 83611
Filed Dec. 11, 1969, Ser. No. 20,458
Term of patent 14 years
Int. Cl. D8—02
U.S. Cl. D8—70



221,417
VEHICLE WHEEL LOCK
Wilson Prichard, 670 E. 49th St., Hialeah, Fla. 33013
Filed Apr. 30, 1970, Ser. No. 22,729
Term of patent 14 years
Int. Cl. D8—03
U.S. Cl. D8—113



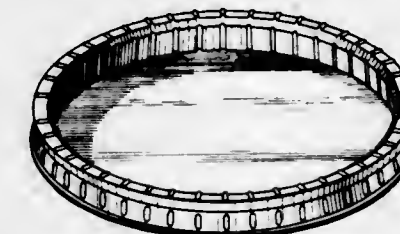
221,418
PACKAGING CUP
Alfred W. Kinney, Kansas City, Mo., assignor to Phillips Petroleum Company
Filed Feb. 5, 1970, Ser. No. 21,291
Term of patent 14 years
Int. Cl. D9—99
U.S. Cl. D9—220



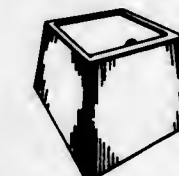
221,419
CONTAINER FOR A FOOD SPREAD
Miles R. Grove, New York, N.Y., assignor to Lever Brothers Company, New York, N.Y.
Filed Apr. 27, 1970, Ser. No. 22,943
Term of patent 14 years
Int. Cl. D9—99
U.S. Cl. D9—220



221,420
CONTAINER LID
Paul Davis, Swampscott, Mass., assignor to Sweetheart Plastics, Inc., Wilmington, Mass.
Filed Mar. 11, 1970, Ser. No. 21,855
Term of patent 14 years
Int. Cl. D9—02
U.S. Cl. D9—267



221,421
BOTTLE CAP
David L. Lundberg, 3417 S. 77th St., Omaha, Nebr. 68124
Filed Mar. 24, 1969, Ser. No. 16,412
Term of patent 14 years
Int. Cl. D9—02
U.S. Cl. D9—275



221,422
CAMPING RECREATION VEHICLE BODY
George Richard Geldbaugh, 46 SW. 9th Ave., Boca Raton, Fla. 33432
Filed Oct. 22, 1969, Ser. No. 19,670
Term of patent 14 years
Int. Cl. D12—09
U.S. Cl. D4—3

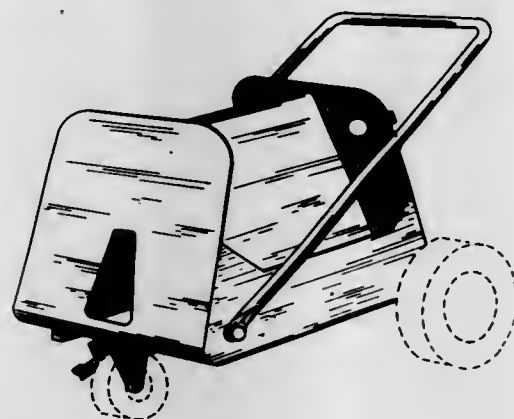


**221,423
CART BODY**

Harold Douglas Selestad, Jr., Birmingham, Mich., assignor to Midwest Aero Industries Corporation, Royal Oak, Mich.

Filed July 28, 1970, Ser. No. 24,192
Term of patent 14 years
Int. Cl. D12—02

U.S. Cl. D14—3

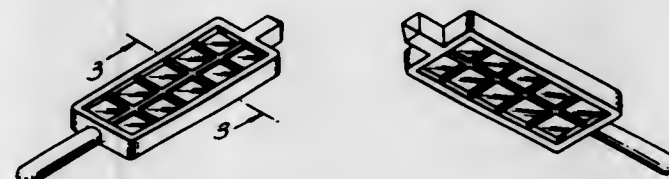


**221,426
DIP INOCULUM SLIDE**

Arnold Brecker, London, England, assignor to Oxoid Limited, London, England

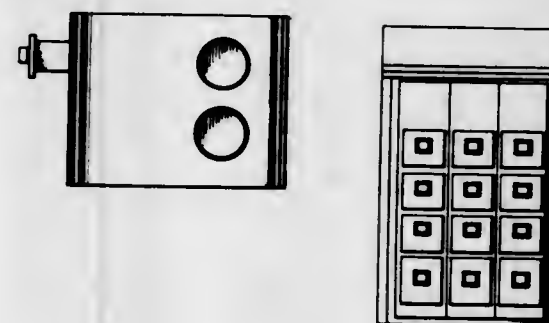
Filed July 11, 1969, Ser. No. 18,179
Claims priority, application Great Britain May 13, 1969
Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D16—1



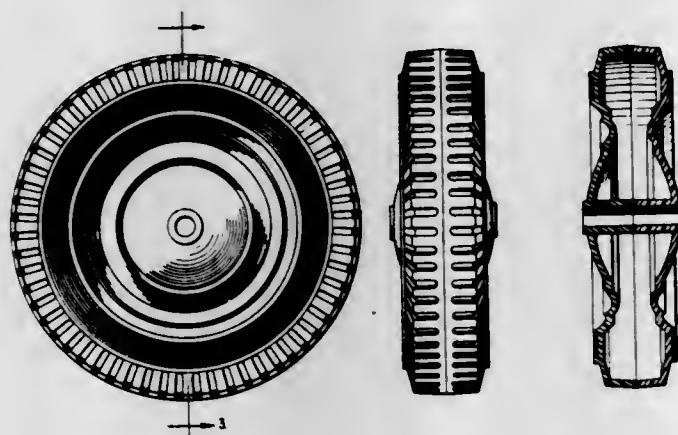
**221,427
ISOTOPE STORAGE CABINET**
Felix R. Grat and Eugene L. Savettiere, Lake Hiawatha, and George E. Griffin, Cedar Grove, N.J., assignors to Radiation Machinery Corporation
Filed July 1, 1969, Ser. No. 18,010
Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D16—2



**221,424
JUVENILE VEHICLE WHEEL**
Harry Golden, New York, N.Y., assignor to Ideas for Auto and Bike Specialties, Inc., New York, N.Y.
Filed May 7, 1970, Ser. No. 22,878
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D14—30



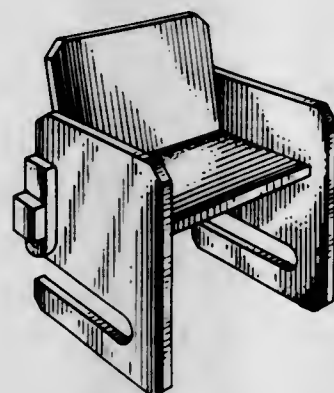
**221,428
HANDGUN GRIP**
Karl R. Lewis, 77 Olney Road, Wethersfield, Conn. 06109
Filed Aug. 15, 1969, Ser. No. 18,695
Term of patent 14 years
Int. Cl. D22—01

U.S. Cl. D22—1



**221,425
CHILD'S SEAT**
Joseph S. Pasakarnis, Jr., 4401 Elm St., Downers Grove, Ill. 60515
Filed Apr. 22, 1970, Ser. No. 22,555
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—1



**221,429
SWING SPOUT**
Tor Petterson, San Pedro, Calif., assignor to Lloyd Spencer, Pasadena, Calif.
Filed May 8, 1970, Ser. No. 22,896
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—32

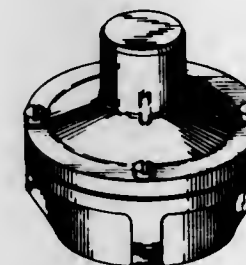


**221,430
VALVE**

Bernie E. Robinson, Oak Creek, Wis., assignor to Milwaukee Valve Company, Inc., Milwaukee, Wis.

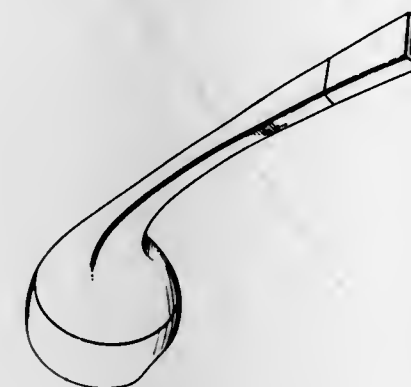
Filed Jan. 5, 1970, Ser. No. 20,764
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—19



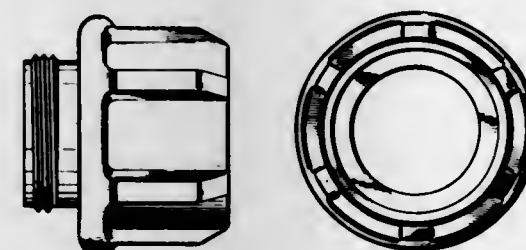
**221,431
MIXING VALVE HANDLE**
Tor Petterson, San Pedro, Calif., assignor to Lloyd Spencer, Pasadena, Calif.
Filed May 8, 1970, Ser. No. 22,895
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—29



**221,432
HOSE COUPLING**
Jerald V. Dunlap, P.O. Box 1541, Santa Monica, Calif. 90406
Filed Jan. 23, 1969, Ser. No. 15,472
Term of patent 14 years
Int. Cl. D23—01

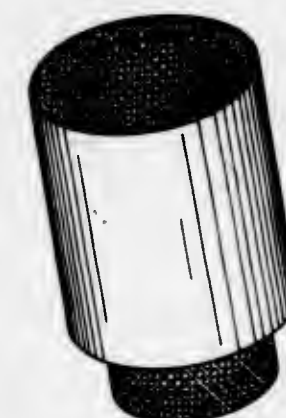
U.S. Cl. D23—43



**221,433
SAUNA HEATER**

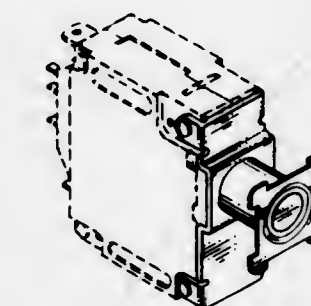
Albert F. Erickson, Arlington Heights, and Linas Burys, Chicago, Ill., assignors to Air Xperts Corporation, Chicago, Ill., and Sauna Corporation of America, Chippewa Falls, Wis., fractional part interest to each
Continuation of design applications Ser. No. 15,467 and Ser. No. 15,468, both Jan. 23, 1969, both now abandoned. This application June 11, 1969, Ser. No. 17,768
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—84



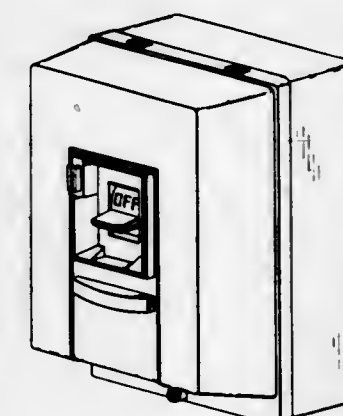
**221,434
ADAPTER FOR A CIRCUIT BREAKER**
Ralph B. Davis, Lawrence Township, Mercer County, N.J., assignor to Heinemann Electric Company, Trenton, N.J.
Filed Dec. 2, 1969, Ser. No. 20,330
Term of patent 14 years
Int. Cl. D13—03

U.S. Cl. D26—13

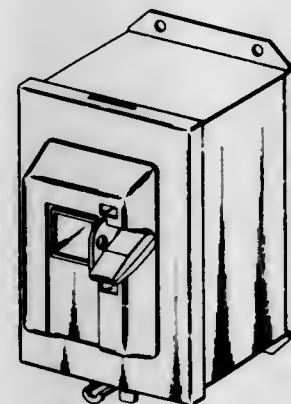


**221,435
ELECTRICAL SWITCH ENCLOSURE**
Joseph J. Gribble and Don J. Arneberg, Milwaukee, Wis., and David E. Scott, Royal Oak, Mich., assignors to Square D Company, Park Ridge, Ill.
Filed Feb. 6, 1970, Ser. No. 21,317
Term of patent 14 years
Int. Cl. D13—03

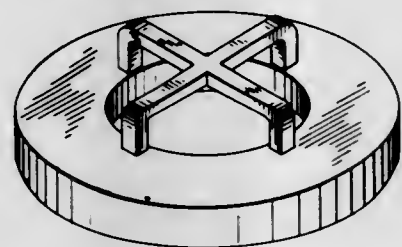
U.S. Cl. D26—13



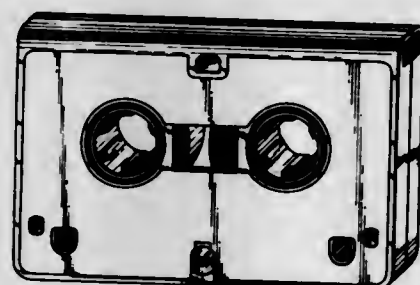
221,436
ELECTRICAL SWITCH ENCLOSURE
 Lewis M. Lehman and John R. Stauder, Milwaukee, Wis.,
 and David E. Scott, Royal Oak, Mich., assignors to
 Square D Company, Park Ridge, Ill.
 Filed Feb. 6, 1970, Ser. No. 21,318
 Term of patent 14 years
 Int. Cl. D13-03
 U.S. Cl. D26-13



221,437
TAPE REEL WEIGHT
 Harry S. Dearing, 25 E. 83rd St.,
 New York, N.Y. 10028
 Filed June 25, 1969, Ser. No. 17,880
 Term of patent 14 years
 Int. Cl. D14-99
 U.S. Cl. D26-14



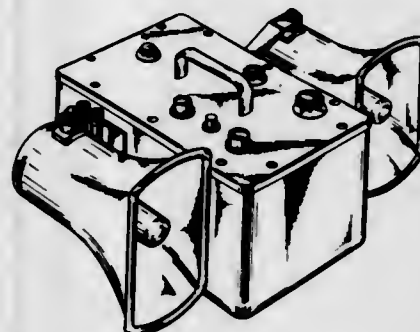
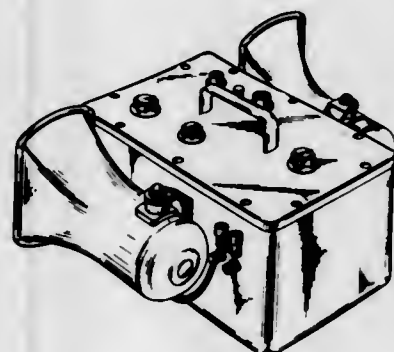
221,438
RECORDING AND REPRODUCING CARTRIDGE
 Shoichi Saito, Tokyo, Japan, assignor to Olympus Optical
 Company Limited, Tokyo, Japan
 Filed Oct. 2, 1969, Ser. No. 19,386
 Claims priority, application Japan May 19, 1969
 Term of patent 14 years
 Int. Cl. D14-01
 U.S. Cl. D26-14



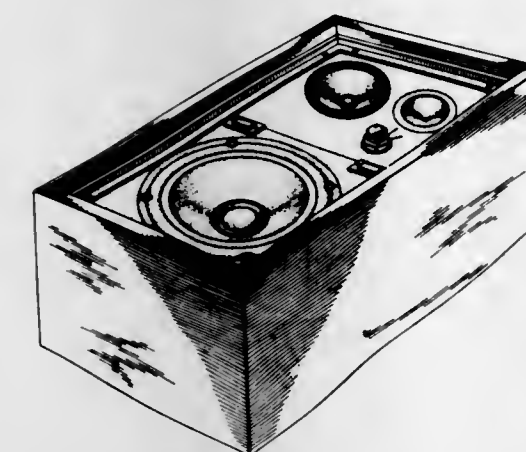
221,439
**AUTOMOBILE TAPE PLAYER OR
 SIMILAR ARTICLE**
 Robert E. Mowris, Janesville, Wis., assignor to Gibbs
 Special Products Corporation, Janesville, Wis.
 Filed Feb. 16, 1970, Ser. No. 21,455
 Term of patent 14 years
 Int. Cl. D14-01, 03
 U.S. Cl. D26-14



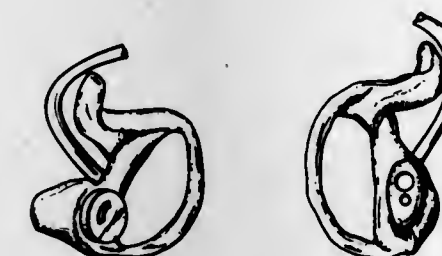
221,440
PORTABLE PUBLIC ADDRESS SYSTEM
 David G. Biddulph and Stephen L. Hermann, Phoenix,
 Ariz., assignors to Environmental Tactics Corporation
 Filed Feb. 19, 1970, Ser. No. 21,253
 Term of patent 14 years
 Int. Cl. D14-03, 04
 U.S. Cl. D26-14



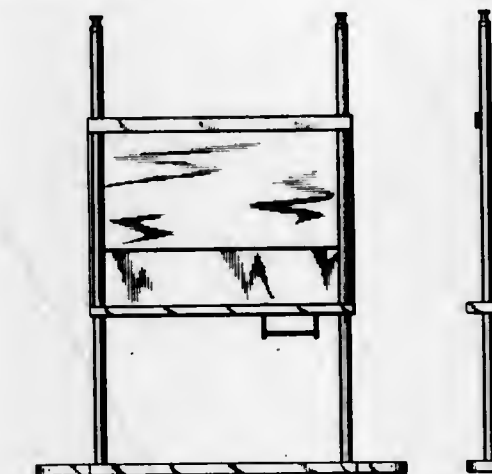
221,441
SPEAKER CABINET
 Haruo Ishikawa, 3-314, 1246 Matsunoki Jutaku,
 Matsunoki-chi Suginami-ku, Tokyo, Japan
 Filed Mar. 4, 1970, Ser. No. 21,729
 Claims priority, application Japan Dec. 26, 1969
 Term of patent 14 years
 Int. Cl. D14-01
 U.S. Cl. D26-14



221,442
EAR INSERT FOR A HEARING AID
 Abraham Feingold, 32-33 147th Place,
 Flushing, N.Y. 11354
 Filed Aug. 5, 1970, Ser. No. 24,309
 Term of patent 14 years
 Int. Cl. D14-04; D24-99
 U.S. Cl. D26-14



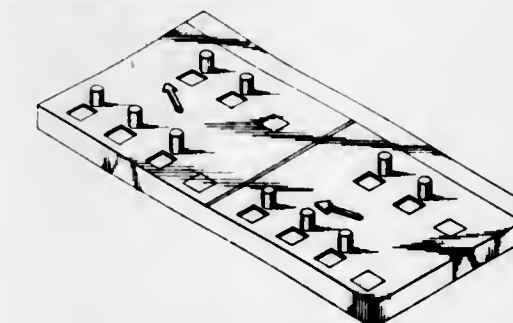
221,443
**PORTABLE TRAY ASSEMBLY FOR
 SOLDERING APPARATUS**
 Paul V. De Luca, Port Washington, N.Y., assignor to
 Porta Systems Corporation, Port Washington, N.Y.
 Filed June 9, 1970, Ser. No. 23,390
 Term of patent 14 years
 Int. Cl. D6-04
 U.S. Cl. D33-3



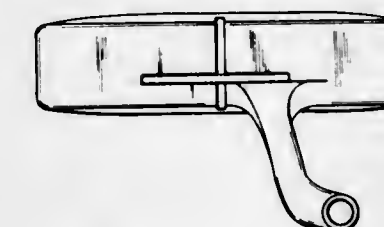
221,444
TABLE
 Victor Lukens, 300 E. 51st St., New York, N.Y. 10022
 Filed May 27, 1969, Ser. No. 17,382
 Term of patent 14 years
 Int. Cl. D6-01
 U.S. Cl. D33-14



221,445
GAME SCORE DEVICE
 Alan R. Bergstrom, 906 E. 4th St.,
 Ellensburg, Wash. 98926
 Filed Jan. 28, 1970, Ser. No. 21,126
 Term of patent 14 years
 Int. Cl. D21-01
 U.S. Cl. D34-5



221,446
GOLF PUTTER HEAD
 Raymon W. Cook, 1026 Mount Eden,
 San Antonio, Tex. 78213
 Filed Feb. 3, 1970, Ser. No. 21,228
 Term of patent 14 years
 Int. Cl. D21-02
 U.S. Cl. D34-5



221,447
TILTABLE EXERCISE BOARD OR THE LIKE
 John M. Brubaker, Star Rte., Box 48,
 Hammett, Idaho 83627
 Filed Mar. 30, 1970, Ser. No. 22,085
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5



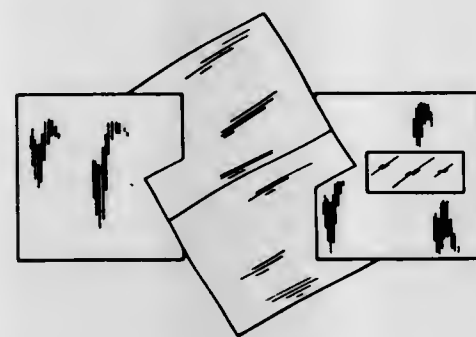
221,448
SPOON WITH A MUSICAL DEVICE
 Taizo Ishida, 14 of 2, Tokiwa 4, Urawa-shi,
 Saitamaken, Japan
 Filed May 22, 1969, Ser. No. 17,287
 Claims priority, application Japan Feb. 20, 1969
 Term of patent 14 years
 Int. Cl. D21-02

U.S. Cl. D34-15



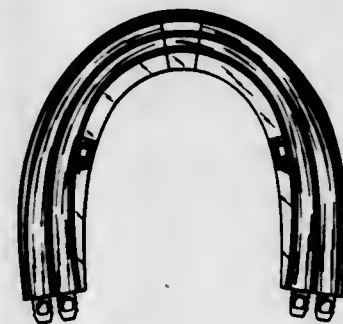
221,449
OPTICAL ILLUSION PUZZLE
 Beverly W. Taylor, Hermann, Mo., assignor to Steven
 Manufacturing Company, Hermann, Mo.
 Filed Sept. 4, 1969, Ser. No. 19,002
 Term of patent 14 years
 Int. Cl. D21-02

U.S. Cl. D34-15



221,450
**CURVED TRACK SECTION FOR MINIATURE
 TOY VEHICLES**
 William R. Baynes and Harvey W. La Branche, Palos
 Verdes Peninsula, and George Soulakis, Los Angeles,
 Calif., assignors to Mattel, Inc., Hawthorne, Calif.
 Filed Feb. 2, 1970, Ser. No. 21,178
 Term of patent 14 years
 Int. Cl. D21-02

U.S. Cl. D34-15



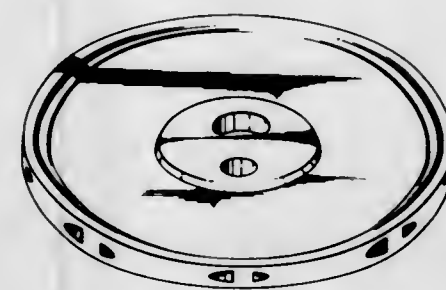
221,451
NOVELTY PISTOL
 Marvin C. Hewett, 5273 Independence Road,
 Boulder, Colo. 80302
 Filed Mar. 10, 1970, Ser. No. 21,838
 Term of patent 7 years
 Int. Cl. D21-01

U.S. Cl. D34-15



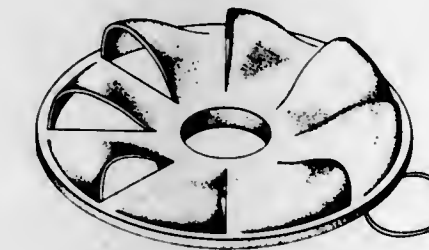
221,452
SPINNING TOY OR SIMILAR ARTICLE
 Elmer W. Swanberg, 1420 E. 58th Ave.,
 Spokane, Wash. 99203
 Filed Mar. 30, 1970, Ser. No. 22,086
 Term of patent 14 years
 Int. Cl. D21-02

U.S. Cl. D34-15



221,453
FLYING TOP TOY
 Elmer W. Swanberg, 1420 E. 58th Ave.,
 Spokane, Wash. 99203
 Filed Mar. 30, 1970, Ser. No. 22,109
 Term of patent 14 years
 Int. Cl. D21-02

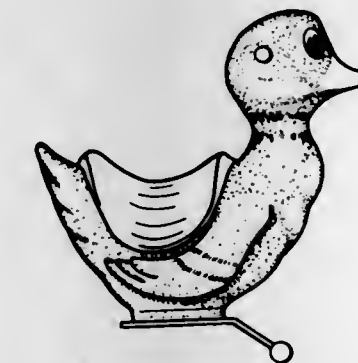
U.S. Cl. D34-15



221,454
**ANIMAL FIGURE SEAT FOR PLAYGROUND
 APPARATUS**
 Steven A. Henning and Philip G. Miller, Anderson, Ind.,
 assignors to American Playground Device Co., Ander-
 son, Ind.

Filed Apr. 23, 1970, Ser. No. 22,609
 Term of patent 14 years
 Int. Cl. D21-04

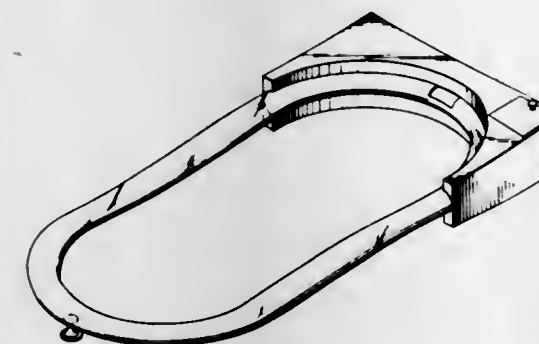
U.S. Cl. D34-15



221,455
PNEUMATIC SKILL TOY
 Elmer W. Swanberg, 1420 E. 58th Ave. 99203, and
 Frank R. Drury, E. 12023 19th 99206, both of
 Spokane, Wash.

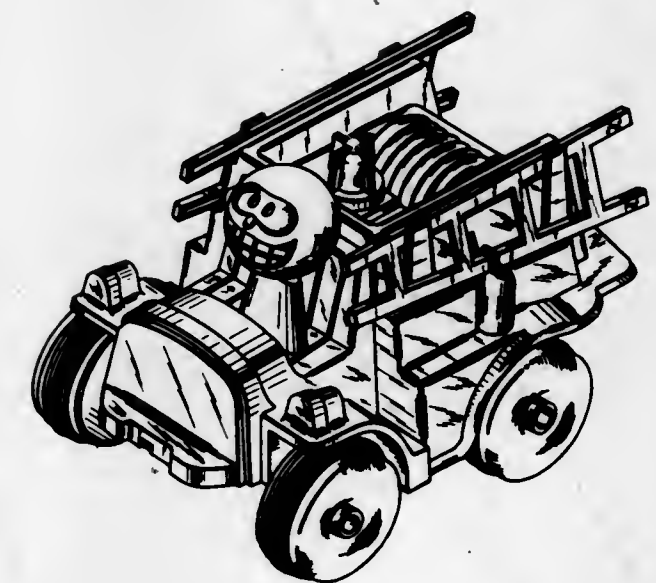
Filed May 15, 1970, Ser. No. 23,020
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15



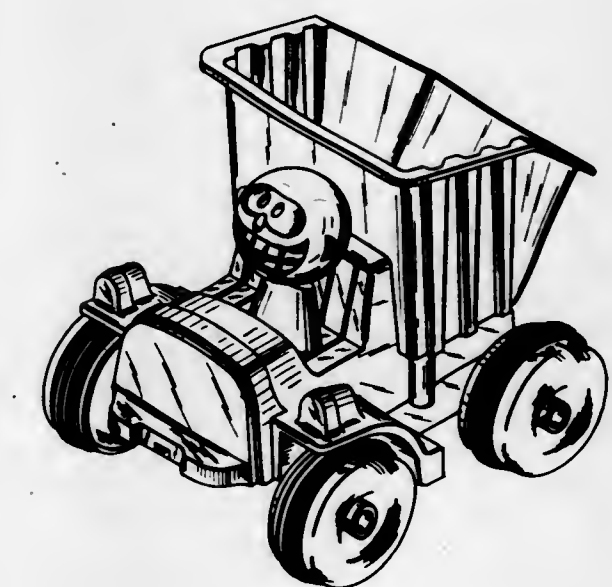
221,456
TOY WHEELED VEHICLE OR THE LIKE
 Richard E. Henderson, Huntington Beach, Calif., assignor
 to Mattel, Inc., Hawthorne, Calif.
 Filed June 8, 1970, Ser. No. 23,345
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15



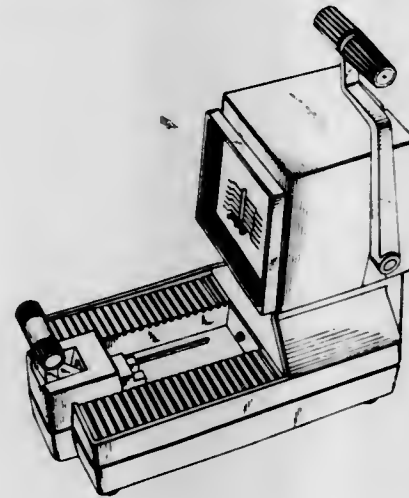
221,457
TOY WHEELED VEHICLE
 Richard E. Henderson, Huntington Beach, Calif., assignor
 to Mattel, Inc., Hawthorne, Calif.
 Filed June 8, 1970, Ser. No. 23,359
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15



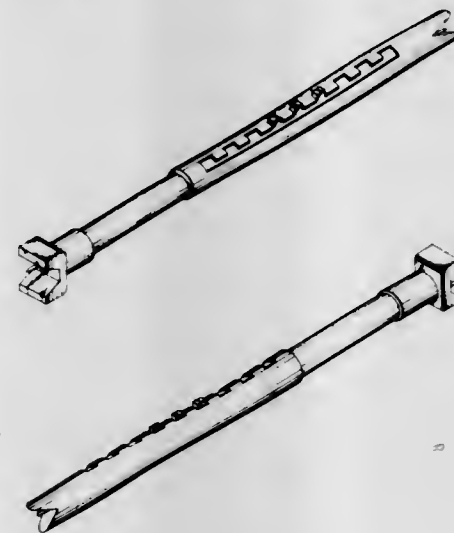
221,458
TOY PUMP FOR FILLING TOY VEHICLES, AND THE LIKE, WITH COMPRESSED AIR
 Martin L. Blumenthal, Chatham Township, N.J., assignor to Topper Corporation
 Filed June 24, 1970, Ser. No. 23,940
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15



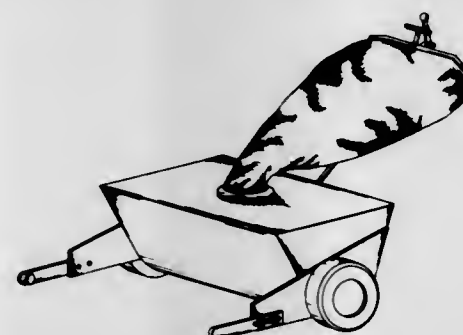
221,459
ADJUSTABLE BRANCH SPREADER
 Ralph Wolf, 1115 Reservoir Road, and Douglas R. Evans
 Rte. 8, Box 439, both of Yakima, Wash. 98902
 Filed June 29, 1970, Ser. No. 23,716
 Term of patent 14 years
 Int. Cl. D8—01, 03

U.S. Cl. D35—1



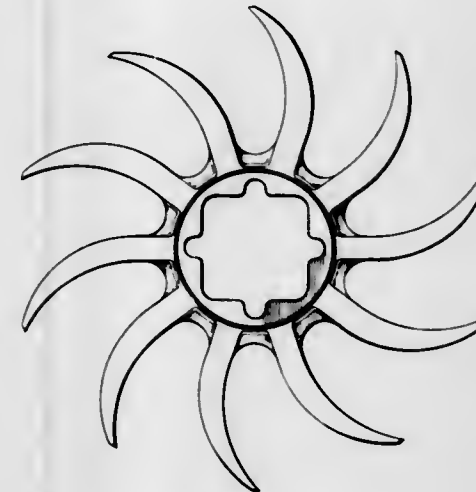
221,460
LAWN FOOD SPREADER ATTACHMENT
 Herman R. Matthes, 824 N. McDonald Road,
 Spokane, Wash. 99216
 Filed May 15, 1970, Ser. No. 23,021
 Term of patent 14 years
 Int. Cl. D15—03

U.S. Cl. D35—2



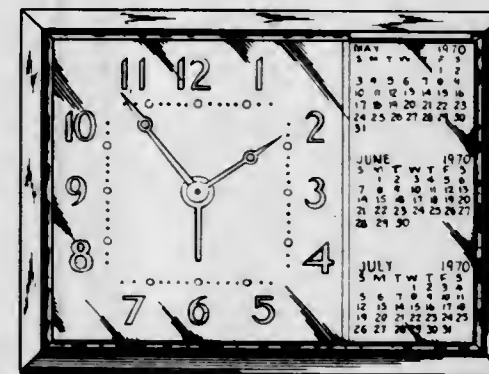
221,461
ROTARY CULTIVATOR SPIDER
 Roy W. Hagenstad, Crosslake, Minn. 56442
 Filed Jan. 2, 1970, Ser. No. 20,746
 Term of patent 14 years
 Int. Cl. D15—03

U.S. Cl. D39—1



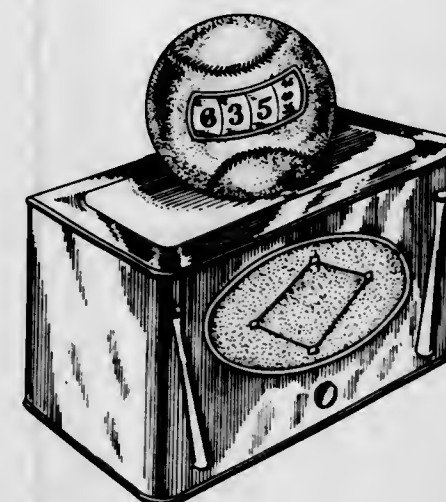
221,462
COMBINED CLOCK AND CALENDAR
 Erich Rittinghaus, Kreis, Neu-Ulm, Bavaria, Germany,
 assignor to Uhrenfabrik Senden GmbH, Ulm (Danube),
 Germany
 Filed Nov. 3, 1969, Ser. No. 19,878
 Term of patent 3½ years
 Int. Cl. D10—01

U.S. Cl. D42—7



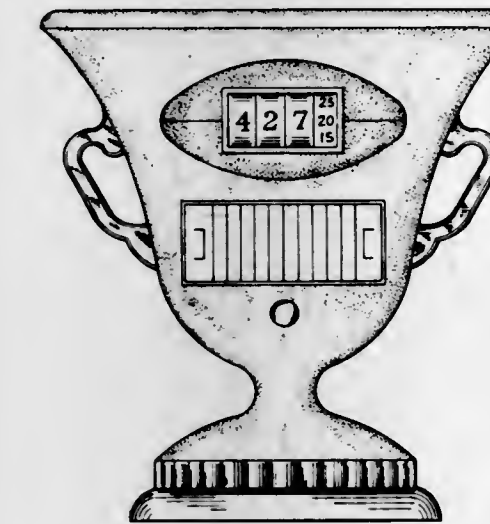
221,463
CLOCK
 Max S. Polisky, 1261 N. Laurel Ave.,
 Los Angeles, Calif. 90046
 Filed Nov. 4, 1969, Ser. No. 19,925
 Term of patent 14 years
 Int. Cl. D10—01

U.S. Cl. D42—7



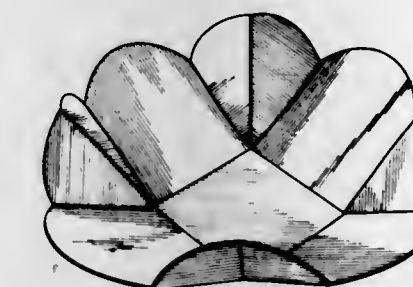
221,464
CLOCK
 Max S. Polisky, 1261 N. Laurel Ave.,
 Los Angeles, Calif. 90046
 Filed Nov. 12, 1969, Ser. No. 20,034
 Term of patent 14 years
 Int. Cl. D10—01

U.S. Cl. D42—7



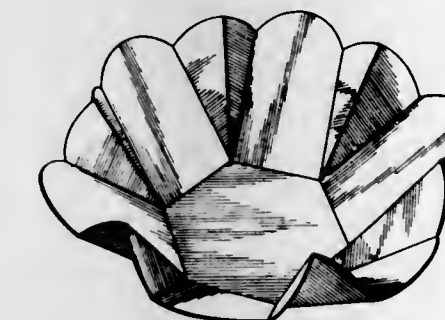
221,465
DISH FOR NUTS OR THE LIKE
 George Sera, Mount Prospect, Ill., assignor to
 Kenyon & Eckhardt, Inc., New York, N.Y.
 Filed Apr. 14, 1970, Ser. No. 22,427
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D44—10



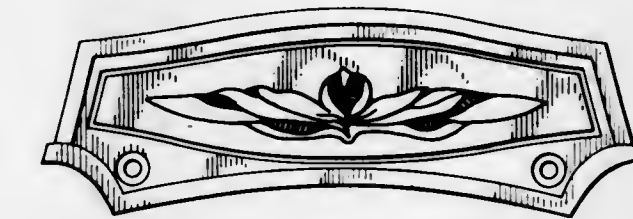
221,466
DISH FOR NUTS OR THE LIKE
 George Sera, Mount Prospect, Ill., assignor to
 Kenyon & Eckhardt, Inc., New York, N.Y.
 Filed Apr. 14, 1970, Ser. No. 22,428
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D44—10



221,467
HANDLE FOR A TRAY OR THE LIKE
 Manuel E. Ziskin, Mayfield Heights, and Harold O.
 Wagner, Sheffield Lake, Ohio, assignors to American
 Trading and Production Corporation, Baltimore, Md.
 Filed Apr. 29, 1970, Ser. No. 22,714
 Term of patent 14 years
 Int. Cl. D7—99

U.S. Cl. D44—29



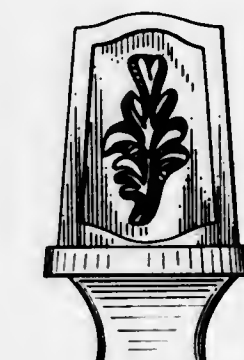
221,468
HANDLE FOR A HOSTESS TRAY OR THE LIKE
 Manuel S. Ziskin, Mayfield Heights, and Harold O.
 Wagner, Sheffield Lake, Ohio, assignors to American
 Trading and Production Corporation, Baltimore, Md.
 Filed Apr. 29, 1970, Ser. No. 22,715
 Term of patent 14 years
 Int. Cl. D7—99

U.S. Cl. D44—29



221,469
HANDLE FOR A CASSEROLE OR THE LIKE
 Manuel S. Ziskin, Mayfield Heights, and Harold O.
 Wagner, Sheffield Lake, Ohio, assignors to American
 Trading and Production Corporation, Baltimore, Md.
 Filed Apr. 29, 1970, Ser. No. 22,716
 Term of patent 14 years
 Int. Cl. D7—99

U.S. Cl. D44—29



221,470
ICE CREAM DISPENSER
 Sidney Sevell, 320 Wyoming Ave.,
 North Massapequa, N.Y. 11758
 Filed Apr. 8, 1970, Ser. No. 22,328
 Term of patent 3½ years
 Int. Cl. D7—99

U.S. Cl. D44—29



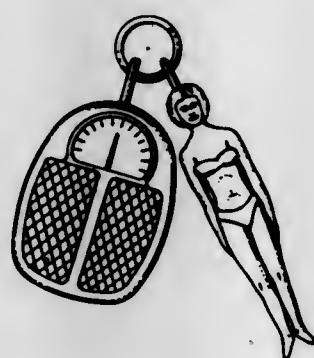
221,471
CUFF LINK
 Herman Winkler, 62 Alden Court,
 Malverne, N.Y. 11565
 Filed Apr. 14, 1970, Ser. No. 22,426
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—1



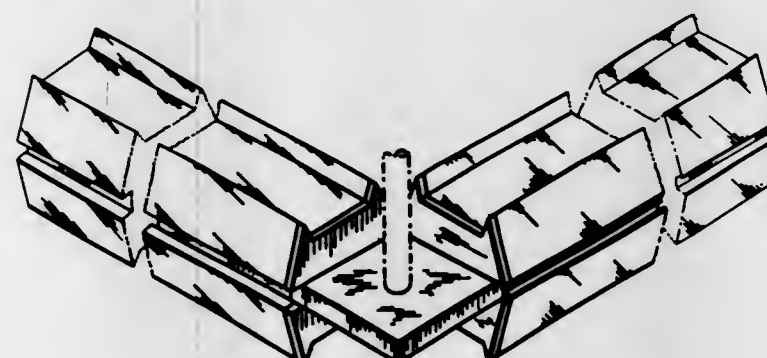
221,472
CHARM FOR BRACELET OR THE LIKE
 Bertha S. Wolfe, 6154 W. 76th St.,
 Los Angeles, Calif. 90045
 Filed July 27, 1970, Ser. No. 23,147
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—17



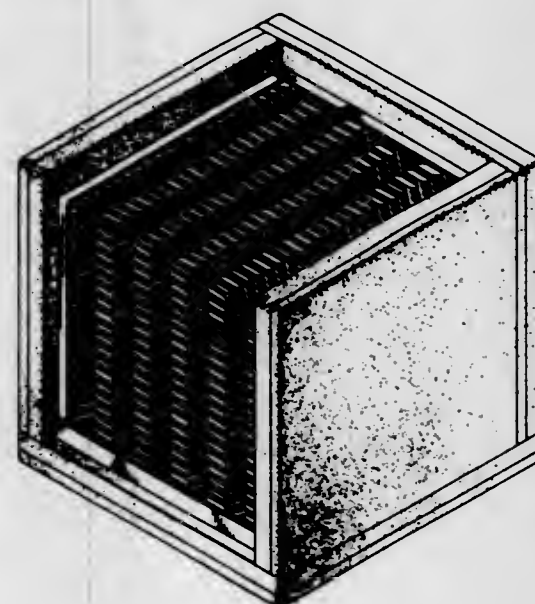
221,473
FLUORESCENT LIGHTING FIXTURE
 Mitchell Bobrick, Pacific Palisades, Calif., assignor to
 Linear Lighting Co., Palisades, N.Y.
 Original design application Mar. 4, 1968, Ser. No. 10,846,
 now Patent No. 218,356, dated Aug. 11, 1970. Divided
 and this application Dec. 19, 1968, Ser. No. 18,360
 Term of patent 14 years
 Int. Cl. D26—02

U.S. Cl. D48—23



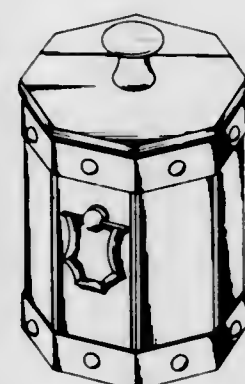
221,474
OUTDOOR LIGHTING FIXTURE HOUSING
 Fred M. Gore, Carrollton, Tex., assignor to
 Lans-Cube, Inc., Dallas, Tex.
 Filed May 1, 1970, Ser. No. 22,754
 Term of patent 14 years
 Int. Cl. D26—03

U.S. Cl. D48—31



221,475
WASTE RECEPTACLE OR THE LIKE
 Peter E. Norquest, 2001 Hervey, Boise, Idaho 83705
 Filed Feb. 25, 1970, Ser. No. 21,613
 Term of patent 14 years
 Int. Cl. D7—99

U.S. Cl. D49—35



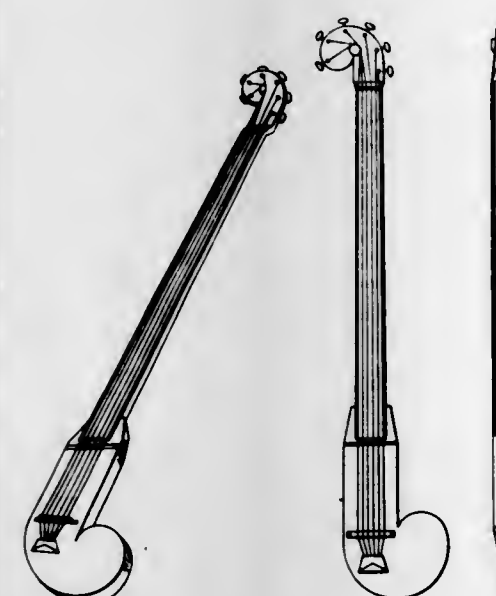
221,476
PRESSURE GAUGE
 Clyde J. Martin, Cincinnati, Ohio, assignor to
 Martin Industries, Inc., Cincinnati, Ohio
 Filed Mar. 18, 1970, Ser. No. 21,958
 Term of patent 14 years
 Int. Cl. D10—08

U.S. Cl. D52—6



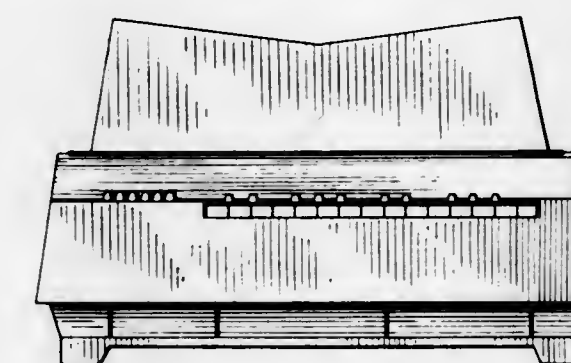
221,477
ELECTRIC STRINGED INSTRUMENT
 Robert C. Turner, New York, N.Y.
 (R.F.D. 1, Box 190, Burton, Wash. 98013)
 Filed Oct. 2, 1969, Ser. No. 19,388
 Term of patent 14 years
 Int. Cl. D17—03

U.S. Cl. D56—1



221,478
CHORD ORGAN
 William Macowski, Jr., Montclair, N.J., assignor to
 Magnus Organ Corporation, Linden, N.J.
 Filed Mar. 13, 1970, Ser. No. 21,892
 Term of patent 14 years
 Int. Cl. D17—01

U.S. Cl. D56—2



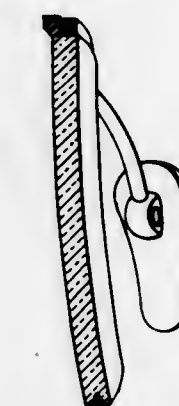
221,479
PHONOGRAPH CABINET
 William G. Broman, Chicago, Ill., assignor to The Seeburg
 Corporation of Delaware, Chicago, Ill.
 Filed June 25, 1970, Ser. No. 23,658
 Term of patent 14 years
 Int. Cl. D14—01

U.S. Cl. D56—4



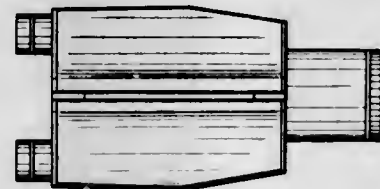
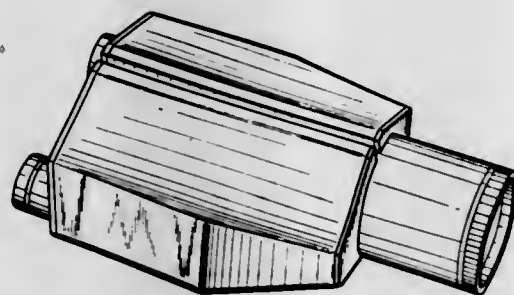
221,480
OPHTHALMIC SPECTACLES
 Luc Andre Marcel Tagnon, Paris, France, assignor to
 Société des Lunetiers, Société en Commandite Simple,
 Paris, France
 Filed Aug. 7, 1969, Ser. No. 18,581
 Claims priority, application France Feb. 28, 1969
 Term of patent 14 years
 Int. Cl. D16—08

U.S. Cl. D57—1

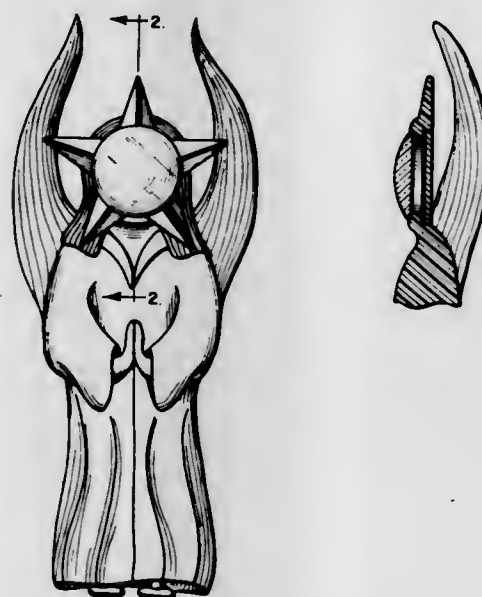


221,481
BINOCULAR TELESCOPE OR THE LIKE
 Franz Hoffmann, Vienna, Austria, assignor to Karl Vockenhuber & Raimund Hauser, Vienna, Austria
 Filed Dec. 22, 1969, Ser. No. 20,605
 Claims priority, application Austria June 23, 1969
 Term of patent 14 years
 Int. Cl. D16—08

U.S. Cl. D57—1

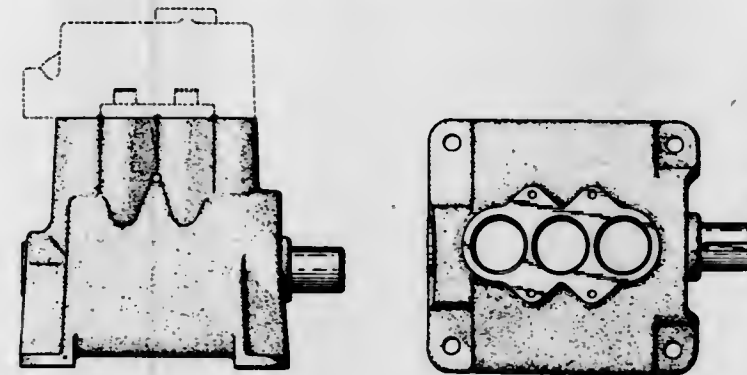


221,482
PLAQUE MAGNIFIER
 St. Barth Alaska, 3811 Scoville Ave., Berwyn, Ill. 60402
 Filed May 1, 1970, Ser. No. 22,774
 Term of patent 14 years
 Int. Cl. D16—08; D11—99
 U.S. Cl. D57—1



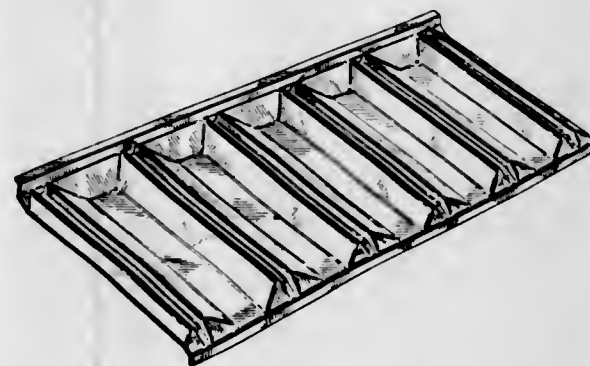
221,483
PUMP BODY
 Robert F. Rasmussen, 3800 56th Ave. N., Minneapolis, Minn. 55429
 Filed Mar. 25, 1970, Ser. No. 22,042
 Term of patent 14 years
 Int. Cl. D15—02

U.S. Cl. D65—1



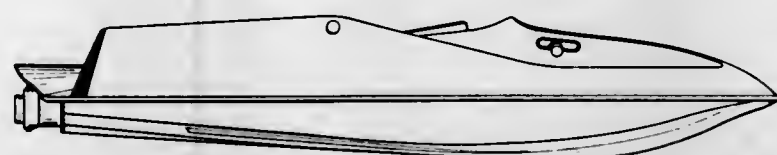
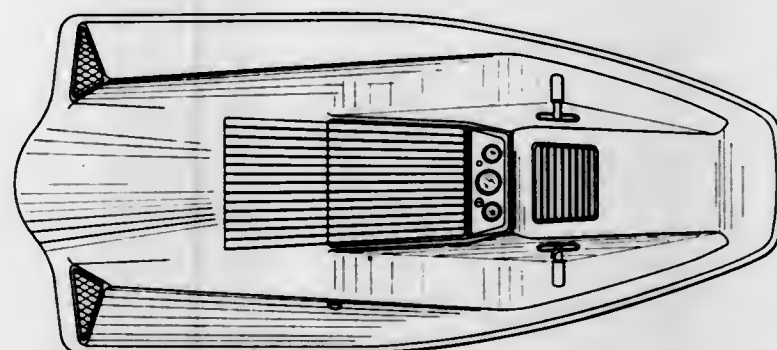
221,484
ROOFING PANEL
 Jan Hendricus Zylstra, Auckland, New Zealand, assignor to Alex Harvey Industries Limited, Panmure, Auckland, New Zealand
 Filed Sept. 16, 1969, Ser. No. 19,161
 Claims priority, application New Zealand Mar. 31, 1969
 Term of patent 14 years
 Int. Cl. D25—01

U.S. Cl. D68—1



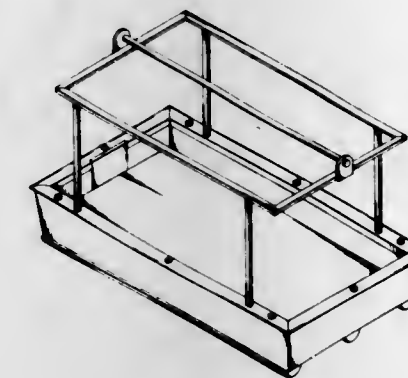
221,485
SINGLE OCCUPANT POWER BOAT
 Claude H. Hutcheson, Jr., and Peter A. Ligozio, Rochester, N.Y., assignors to Aquasonics Incorporated, Rochester, N.Y.
 Filed Mar. 26, 1970, Ser. No. 22,065
 Term of patent 14 years
 Int. Cl. D12—06

U.S. Cl. D71—1



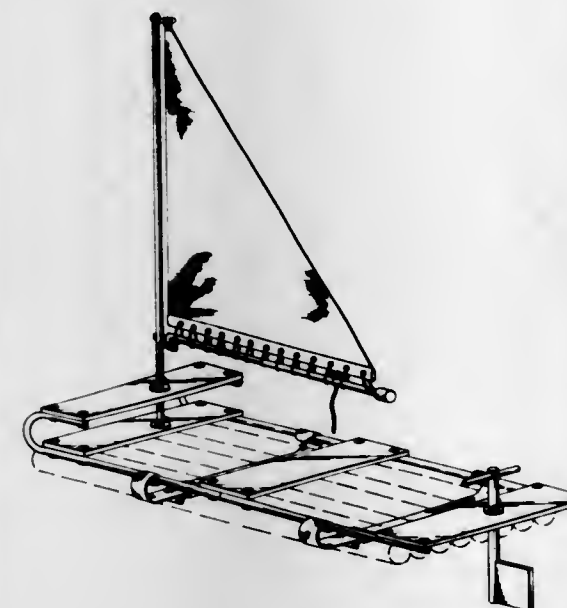
221,486
BOAT
 Dale E. Cooper, Main at Boise, Emmett, Idaho 83617
 Filed May 15, 1970, Ser. No. 23,022
 Term of patent 14 years
 Int. Cl. D12—06

U.S. Cl. D71—1



221,487
SAILING FRAME STRUCTURE
 Ole Goodman, 205 McGraw St., Seattle, Wash. 98109
 Filed Mar. 30, 1970, Ser. No. 22,129
 Term of patent 14 years
 Int. Cl. D12—06

U.S. Cl. D71—1



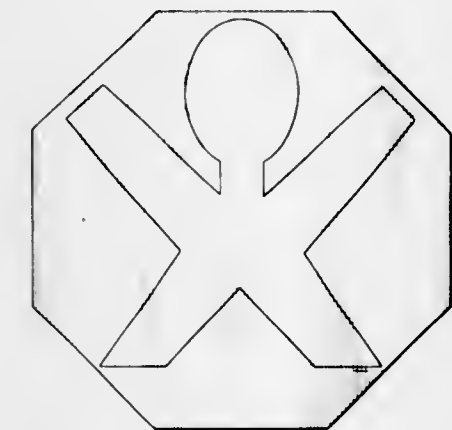
221,488
INFLATABLE BUOYANT BODY FOR MARINE USE
 Knut Beyer-Olsen and Otto Steffenssen, Aalesund, Norway
 Filed Sept. 19, 1969, Ser. No. 19,216
 Claims priority, application Norway Mar. 24, 1969
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D71—1



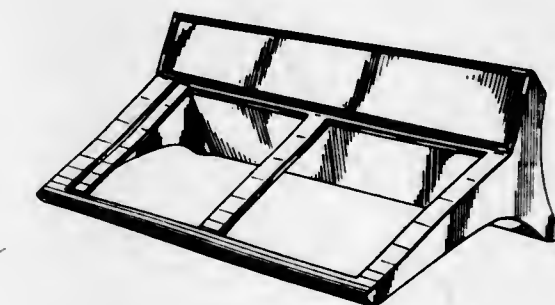
221,489
VEHICLE WARNING SIGN
 Robert K. Stortz, 16230 Cumberland Trail, Brookfield, Wis. 53005
 Filed Aug. 7, 1970, Ser. No. 24,369
 Term of patent 14 years
 Int. Cl. D29—02

U.S. Cl. D72—1



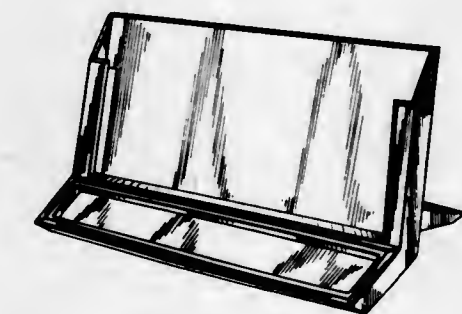
221,490
DESK CALENDAR HOLDER
 Henry Finkel, Westmount, Quebec, Canada, assignor to W. L. Plastics and Metal Producers Co., Ltd.
 Filed Feb. 26, 1970, Ser. No. 21,644
 Term of patent 14 years
 Int. Cl. D19—03

U.S. Cl. D74—5



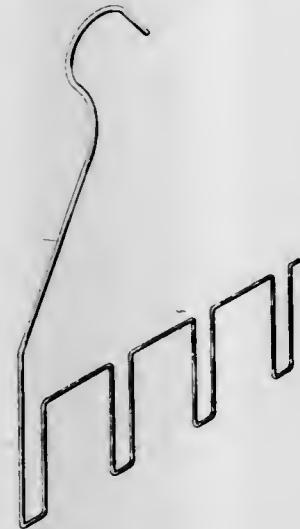
221,491
DESK CALENDAR HOLDER
 Henry Finkel, Westmount, Quebec, Canada, assignor to W. L. Plastics and Metal Producers Co., Ltd.
 Filed Feb. 26, 1970, Ser. No. 21,645
 Term of patent 14 years
 Int. Cl. D19—03

U.S. Cl. D74—5



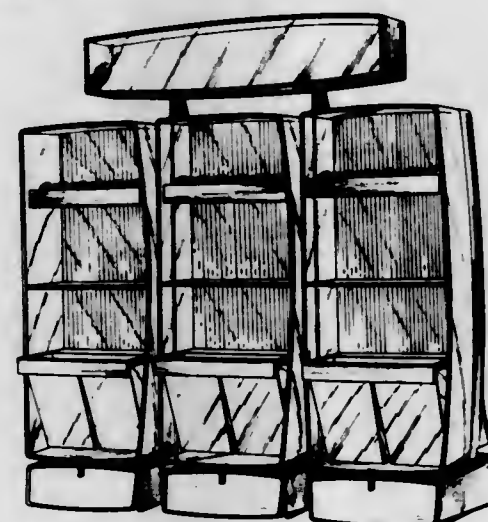
221,492
HANGER FOR CLIP-ON TIES
 Larman D. Johnson, 1718 N. 17th,
 Boise, Idaho 83702
 Filed June 29, 1970, Ser. No. 23,718
 Term of patent 14 years
 Int. Cl. D6—07

U.S. Cl. D80—8



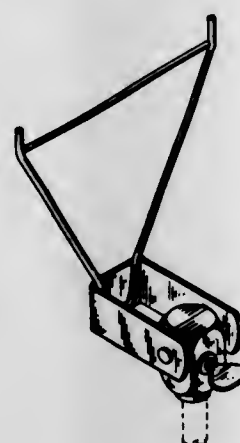
221,493
MERCHANDIZING DISPLAY STAND
 Frank H. Stephens, Jr., Dunwoody, Ga., assignor to
 Scripto Inc.
 Filed Oct. 3, 1969, Ser. No. 19,404
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D80—9



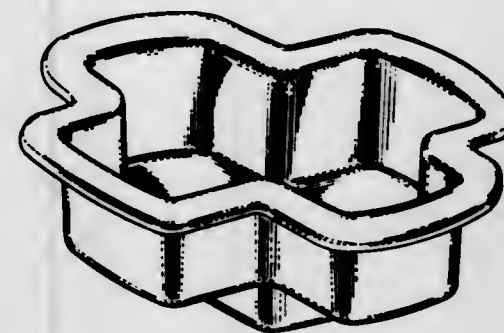
221,494
SHOE DISPLAY BRACKET
 Angelo R. Puddu, New York, N.Y.
 (55 Berry St., Brooklyn, N.Y. 11211)
 Filed Jan. 6, 1970, Ser. No. 20,782
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D80—10



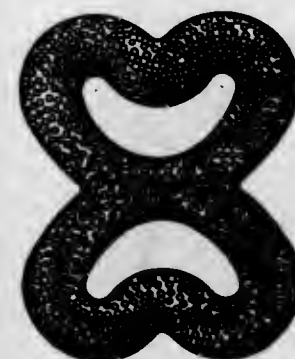
221,495
HYDROTHERAPY POOL
 David K. Cavenah, Los Angeles, Calif. (4238 Shady Glade
 Ave., P.O. Box 1174, Studio City, Calif. 91604)
 Filed May 14, 1970, Ser. No. 22,988
 Term of patent 14 years
 Int. Cl. D23—02; D24—02

U.S. Cl. D83—1



221,496
BABY GUM SOOTHER
 Murry Herbst, 266—16 78th Ave.,
 Floral Park, N.Y. 11004
 Filed Mar. 11, 1970, Ser. No. 21,866
 Term of patent 14 years
 Int. Cl. D24—05; D21—02

U.S. Cl. D83—8



221,497
BABY GUM SOOTHER
 Murry Herbst, 266—16 78th Ave.,
 Floral Park, N.Y. 11004
 Filed Mar. 11, 1970, Ser. No. 21,862
 Term of patent 14 years
 Int. Cl. D24—05; D21—02

U.S. Cl. D83—8



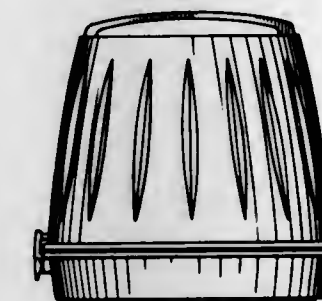
221,498
BOOT TREE
 Norman P. Goldberg, Denver, Colo., assignor to Gold-
 burg Plastics, Inc., and Porter Shoes, Inc., both of
 Denver, Colo., fractional part interest to each
 Filed Feb. 25, 1970, Ser. No. 21,629
 Term of patent 14 years
 Int. Cl. D3—99

U.S. Cl. D86—10



221,499
HAIR DRYER
 Monte L. Levin, New York, N.Y., assignor to Scovill
 Manufacturing Company, Waterbury, Conn.
 Filed July 17, 1970, Ser. No. 24,000
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D86—10



221,500
UNITARY SHOE CLEANING-POLISHING DEVICE
 Andrew W. Brainerd, Kent H. Brainerd, and Stuart
 Brainerd, all of 630 Walden Road, Winnetka, Ill.
 60093
 Filed May 21, 1970, Ser. No. 23,076
 Term of patent 14 years
 Int. Cl. D4—01

U.S. Cl. D86—11



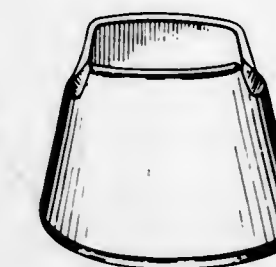
221,501
PROTECTIVE SHEATH FOR A DRY SHAVER
 Florian Seffert, Glashütten, Taunus, Germany, assignor
 to Braun A.G., Frankfurt am Main, Germany
 Filed June 8, 1970, Ser. No. 23,352
 Claims priority, application Germany Dec. 12, 1969
 Term of patent 14 years
 Int. Cl. D3—99

U.S. Cl. D87—1



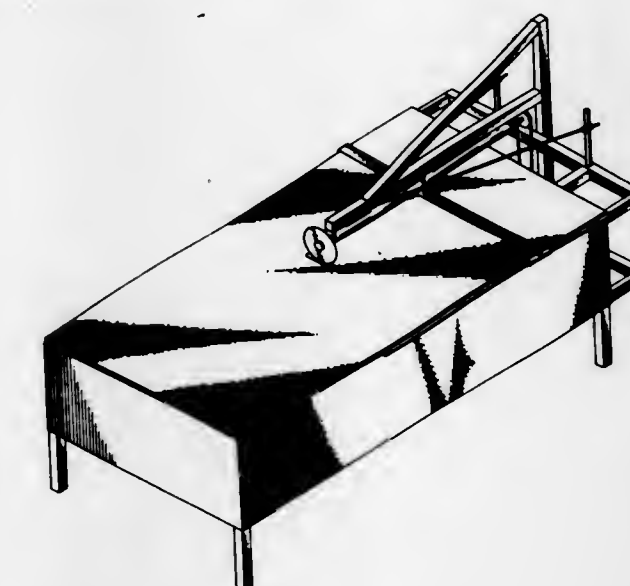
221,502
UMBRELLA HANDLE
 Heinz Weber, Hilden, Germany, assignor to Telesco
 Brophey Limited, Quebec, Canada.
 Filed Dec. 16, 1969, Ser. No. 20,523
 Claims priority, application Germany Sept. 5, 1969
 Term of patent 14 years
 Int. Cl. D3—03

U.S. Cl. D88—3



221,503
PANEL SLITTER
 George E. Kunkle, Jr., Mesquite, Tex.
 (P.O. Box 83211, Fort Worth, Tex. 76112)
 Filed Feb. 13, 1970, Ser. No. 21,430
 Term of patent 14 years
 Int. Cl. D15—05

U.S. Cl. D93—3



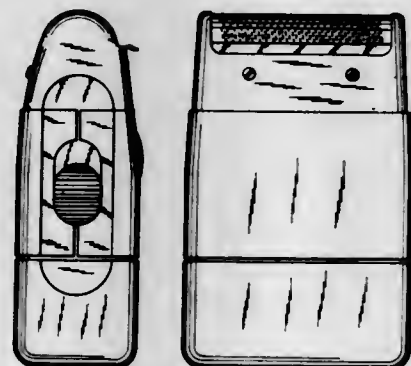
221,504

DRY SHAVER

Florian Seiffert, Glashutten, Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed June 8, 1970, Ser. No. 23,354
Claims priority, application Germany Dec. 12, 1969
Term of patent 14 years
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U.S. Cl. D95—3



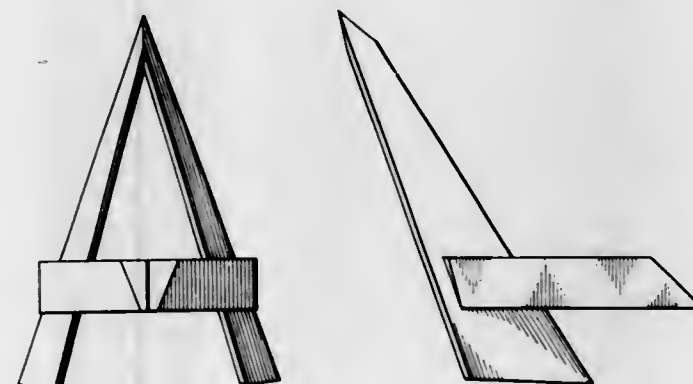
221,505

SIGN STRUCTURE

Robert J. Roston, New York, N.Y., assignor to City of Anaheim

Filed May 26, 1970, Ser. No. 23,161
Term of patent 14 years
Int. Cl. D20—03

U.S. Cl. D96—12



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 17TH DAY OF AUGUST, 1971

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Carter, Ernest P., to Monsanto Company. Inextensible filamentary structure and fabrics woven therefrom. 3,599,679, Cl. 139-420.

Carter, Forrest L.; and Sadler, Walter C. Goniometer device. 3,600,576, Cl. 250-51.5

Carter, John Henry, to Aeromarine Corporation. Winch. 3,599,937, Cl. 254-150.

Cartmell, James V.: See—

Churchill, Donald; and Cartmell, James V., 3,600,060.

Carver, Richard N.; and Hubiak, Walter, to Marx, Louis & Co., Inc. Toy vehicle propulsion unit. 3,599,365, Cl. 46-202.

Cassidy, Harold G.; Wegner, Gerhard; and Nakabayashi, Nobuo, to Research Corporation. Redox polyester polymers. 3,600,411, Cl. 260-396.

Caterpillar Tractor Company: See—

Freese, Gary P., 3,599,506.

Kiwalie, Jozef; and Lamb, Frederick M., 3,599,998.

Loyd, Calvin D.; Oberle, Theodore L.; Sage, Ira H.; and Satzler, Ronald L., 3,599,857.

Stafford, Warren J., 3,600,012.

Totz, Clayton J., 3,599,813.

Cates, Joseph A.; and Sebastian, William H., to International Business Machines Corporation. Automatic photoconductor advance mechanism for a xerographic copying machine. 3,600,086, Cl. 355-16.

Cavanaugh, George F. Photo-composing apparatus. 3,599,544, Cl. 95-4.5

Cavolina, Thomas: See—

Sollecito, Vito; and Cavolina, Thomas, 3,599,526.

Caywood, William P., Jr., to United States of America, Army, mesne. Synchronous demodulator. 3,600,691, Cl. 328-133.

Celanese Corporation: See—

Besso, Michael Maurice, 3,600,493.

Jamison, Saunders E., 3,600,458.

Levine, Eli; and Singer, Robert F., 3,600,345.

Martin, Preston K.; and Bland, Bobby J., 3,600,430.

Taylor, Wallace Edmondson; and Witt, Eriquo Roberto, 3,600,431.

Celmer, Blase G.: See—

Rafalaki, Michael J., Jr.; and Celmer, Blase G., 3,599,995.

Centre Electronique Horloger S.A.: See—

Hetzel, Max, 3,599,501.

Centre Electronique Horloger S.A.: See—

Oguey, Henri, 3,599,420.

Centro Sperimentale Metallurgico Societa per Azioni: See—

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Ceskoslovenska Akademie ved: See—

Bukac, Zbynek; Tomka, Jiri; and Sebenda, Jan, 3,600,360.

Cevdilli, Guidobaldo; Gurdjian, Vahan; Giordano, Nicola; and del Vesco, Adriano, to Universal Oil Products Company. Process for the catalytic oxidation of lower olefins to carbonyls and acids. 3,600,443, Cl. 260-604.

Chan, Frank L. Crystal mount and goniometer for taking laue patterns and for orientation of large single crystals. 3,600,575, Cl. 250-51.5

Chancy, Harold K.; and Strandrud, Halvor T., to Boeing Company, The. Electric fluid actuator. 3,599,428, Cl. 60-52.

Chapman, Dave Goldsmith & Yamasaki, Inc.: See—

Anderson, Douglas, 3,599,837.

Chawda, Prabhulal P.; Caldwell, John P.; and Kramer, William E., to Xerox Corporation. Xerographic development apparatus. 3,599,604, Cl. 118-637.

Check, Donald R., to Sports Technology, Inc. Ski boot with rigid outer shell. 3,599,351, Cl. 36-2.5

Cheiten, Samuel S. Combination brush and scraper. 3,599,263, Cl. 15-111.

Chemetron Corporation: See—

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Chemical Construction Corporation: See—

Shah, Indravadan S., 3,600,131.

Chemische Werke Huels Aktiengesellschaft: See—

Feinauer, Roland; Seeliger, Wolfgang; Van Brunswijk, Johann Schlimme; and Busch, Hans, 3,600,214.

Chen, Tai-Seng; Cook, Kenneth A.; and McDonnell, Bernard P., to Corning Glass Works. Temperature control system for a glass tank forehearth. 3,600,149, Cl. 65-162.

Chenevier, Paul A., to Aluminum Textures, Inc. Method and apparatus for forming patterns in metal panels. 3,599,465, Cl. 72-207.

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Grant, Charles James; Cheney, Paul E.; and Belsito, Kenneth J., 3,599,689.

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Chevron Research Company: See—

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Roberts, Frederick Alexander; and Saunders, Edwin B., 3,600,674.

Chicago Tire Brick Company: See—

Parsons, Joseph R., 3,600,480.

Childers, Frank M. Portable traction stand. 3,599,632, Cl. 128-75.

Chisholm, James J.; and Emmel, Henry J., to Bausch & Lomb Incorporated. Multiple lamp housing and burner assembly for photometric apparatus. 3,600,571, Cl. 240-41.35

Chitra, John, Jr., to United States of America, Atomic Energy Commission. Conveyor structure. 3,600,578, Cl. 104-168.

Chorney, Peter L., to FMC Corporation. Magnetic can handling apparatus with surge and hold control. 3,599,804, Cl. 214-1.

Chow, Ho; and Chow, Junlin Wong. Key case. 3,599,458, Cl. 70-459.

Chow, Junlin Wong: See—

Chow, Ho; and Chow, Junlin Wong, 3,599,458.

Christensen, Alton O., to Shell Oil Company. IGFET read amplifier for double-rail memory systems. 3,600,609, Cl. 307-279.

Christie, James. Carrying bag. 3,599,690, Cl. 150-11.

Chrysler Corporation: See—

Bergama, Rudolph; and Baker, Harry I., 3,600,535.

Churchill, Donald; and Cartmell, James V., to National Cash Register Company, The. Display device containing minute droplets of cholesteric liquid crystals in a substantially continuous polymeric matrix. 3,600,060, Cl. 315-160.

Ciba Corporation: See—

Druey, Jaen; and Schmidt, Paul, 3,600,389.

Schenker, Karl, 3,600,400.

Ciba Limited: See—

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Zickendraht, Christian; and Fasciati, Alfred, 3,600,373.

Cicci, George B.: See—

Scarnato, Thomas J.; Risum, H. Mervin; Meyer, Martin H.; and Cicci, George B., 3,599,411.

C.I.M. (Compagnie Industrielle de Mecanismes): See—

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Cincinnati Milacron Inc.: See—

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Renner, Howard W.; and Grzymek, Rolf, 3,599,376.

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Cities Service Oil Company: See—

Dareing, Donald W., 3,600,040.

Clachan, Margaret Loudon: See—

Abbott, Terence Arnold; Clachan, Margaret Loudon; Kennedy, David Rankine; and Shephard, Basil Robert, 3,600,208.

Clapton, Jefferson M.: See—

Clapton, Jefferson M.; and McCready, Donald K., 3,600,156.

Clapton, Jefferson M.; and McCready, Donald K., to Clapton, Jefferson M., and McCready, Donald K. Recovery of mercury from cinnabar. 3,600,156, Cl. 75-101.

Clark, John M., Jr.; Nye, Allan R.; and Wood, Charles D., to Southwest Research Institute. Air control system for apparatus displacing material by combustive explosions. 3,600,116, Cl. 431-1.

Clark, Norman Owen, to English Clays Lovering Pochin & Company Limited. Grinding treatment of clay. 3,599,879, Cl. 241-4.

Clark, Robert A., to Glenmore Distilleries Company. Apparatus for affixing strip stamps to bottle necks. 3,600,254, Cl. 156-477.

Clarke, William F., to Branson Instruments, Incorporated. Transducer probe for ultrasonic pulse-echo test apparatus. 3,600,613, Cl. 310-9.1

Clawson, Arthur R.: See—

Davis, Neil M.; and Clawson, Arthur R., 3,600,237.

Clayton, Bobby J., to United States of America, Army. Negative feedback fluidic oscillator. 3,599,653, Cl. 137-81.5

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Clevite Corporation: See—

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Clor, Anthony G., Jr., to Design Products Corporation. Voltage comparator. 3,600,606, Cl. 307-235.

Coach and Car Equipment Corporation: See—

Harder, Arthur J., Jr., 3,599,956.

Cochran Western Corporation: See—

Carder, Victor H.; Green, Sheldon K.; and Wood, Christopher R., 3,599,262.

Coc, Peter F., to Lever Brothers Company. Apparatus for mechanically handling cylindrical articles. 3,599,779, Cl. 198-127.

Coffey, James P.; Consolloy, James W.; and Vengrofski, Frank A., to ESB Incorporated. Blow molded battery container and individual blow molded cell modules housed therein. 3,600,233, Cl. 136-134.

Cohen, Charles L.: See—

McKinnis, Charles L.; and Cohen, Charles L., 3,600,147.

Cohen, Sherman E.; and Sproat, William H., Sr., to Lockheed Aircraft Corporation. Apparatus for converting acoustic energy into a visible image. 3,599,477, Cl. 73-67.5

Cole, Roger M., to Eastman Kodak Company. Sulfonamides in diffusion transfer systems. 3,600,171, Cl. 96-29.

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Bigelis, Charles F.; Colehour, Jeffrey L.; Davidson, G. Dennis; Farquhar, Bannister W.; and Heiberg, Andreas, 3,599,429.

Coleman, Fred K.; and Schmid, Robert B., to Ameron, Inc., mesne. Hoisting coupler. 3,600,031, Cl. 294-88.

Coleman, John H., to Surface Aviation Corporation, mesne. Method of grafting ethylenically unsaturated monomer to a polymeric substrate. 3,600,122, Cl. 8-115.7

Collins Radio Company: See—

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Colomb, Gracie H. Shampoo machine. 3,599,250, Cl. 4-159.

Colorado Leisure Products, Inc.: See—

Bargman, Dale L., Jr., 3,599,817.

Combes, Marvin G.; and Ripert, Roger L., to Grove Valve and Regulator Company. Auxiliary valve stem seal. 3,599,991, Cl. 277-9.

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Misenti, Angelo J., 3,599,498.

Commissariat a l'Energie Atomique: See—

Barthelemy, Pierre; and Boucher, Rene, 3,600,586.

Carpentier, Serge; Dajlevic, Radovan; Delarue, Roger; Francois, Henri; Portal, Guy; Pradel, Jacques; and Soudain, Georges, 3,600,579.

Dubouch, Claude; and Petit, Maurice, 3,599,475.

Vatin, Robert, 3,600,607.

Compagnie de Saint-Gobain: See—

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Rougeux, Andre, 3,600,150.

Compagnie Francaise des Petroles: See—

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Compagnie Generale d'Electricite: See—

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Compagnie Pechiney: See—

Lauzier, Rene; and Gabillon, Jean, 3,599,707.

Compoflex Company Limited of Lumb Hill: See—

O'Brien, Patrick W., 3,599,677.

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Condeco Automation, Inc.: See—

Whitfield, Homer G., 3,599,782.

Condit, Philip M.; Ormiston, Robert A.; Nixon, Walter Barry; and Sweeney, Thomas E. Semi-rigid airfoil for airborne vehicles. 3,599,904, Cl. 244-38.

Condolios, Elie, to Societe Grenobloise d'Etudes et D'Applications. Hydraulic sorting apparatus. 3,599,791, Cl. 209-157.

Congdon, R. J. Max. Headlight cleaning apparatus. 3,599,269, Cl. 15-250.04

Conner, Jesse R.; and Ball, Kenneth E., to Environmental Science Inc. Method for integrating electrical signals over long time periods. 3,600,566, Cl. 235-183.

Connolly, Patrick W., to Visi-Trol Engineering Company. Composite track and method of making same. 3,599,768, Cl. 193-25.

Consolloy, James W.: See—

Coffey, James P.; Consolloy, James W.; and Vengrofski, Frank A., 3,600,233.

Container Corporation of America: See—

Koboldt, Melvin A.; and Uhles, Lester W., 3,599,540.

Conte, Silvio; and Evans, Thomas W., to Veeder Industries Inc. Printer controlled interlock. 3,599,834, Cl. 222-30.

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Continental Can Company, Inc.: See—

Fitko, Chester W., 3,600,290.

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Continental Oil Company: See—

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Control Company of America: See—

Kothe, Erich, 3,600,536.

Conway, Charles T.; and Campbell, John J. Modular carrier for such articles as tape reels. 3,599,828, Cl. 220-102.

Cook, Kenneth A.: See—

Chen, Tai-Seng; Cook, Kenneth A.; and McDonnell, Bernard P., 3,600,149.

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Cope, Geoffrey Wilton, to Dresser Industries, Inc. Automatic pneumatic coupling system. 3,599,803, Cl. 213-76.

Copolymer Rubber & Chemical Corporation: See—

Stone, John M., 3,600,349.

Corbett Associates, Inc.: See—

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Corbett, Robert B., to Corbett Associates, Inc. Thermal testing apparatus. 3,599,476, Cl. 73-15.6

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Corning Glass Works: See—

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Cortigene, Louis R.; and Sherman, William R., to Scott Paper Company. Polyethyleneimine cured epoxy-modified paper. 3,600,272, Cl. 162-164.

Cosden Oil & Chemical Company: See—

Rowe, Richard Duwayne, 3,600,451.

Costello, Bernard J., to Argus Engineering Co., Inc. Method and apparatus for heating a plurality of closely spaced discrete zones by a single energy source. 3,600,553, Cl. 219-348.

Cotton, Curran D., to Maytag Company, The. Dryer control. 3,599,342, Cl. 34-45.

Couche, Raymond Arthur. Wool scouring process. 3,600,124, Cl. 8-139.1

Coudriet, Edward A.; Dodd, Roy G.; and Kesler, George W., to Inta-Roto, Incorporated. Method of and means for severing web strip material upon completion of winding a roll and initiating winding of a new roll. 3,599,888, Cl. 242-64.

Coverstone, Stephen L.; and Hughes, Raymond K., to Hoerner Waldorf Corporation. Method of making a sewn closure square bottom bag. 3,599,539, Cl. 93-35.

Cowan, Larry C.: See—

Browner, Charles W.; Cowan, Larry C.; and Horton, Robert, 3,599,892.

Cox, Frank T., Jr.; and Svenson, Robert R., to North American Rockwell Corporation. Wedge-actuated three-shoe brake. 3,599,762, Cl. 188-323.

Coykendall, Wayne C. Prefabricated door assembly. 3,599,373, Cl. 49-380.

Coyne, William E.; and Cusic, John W., to Searle, G. D., & Co. 2-Aminoalkyl-3-arylisocarbostyrls. 3,600,394, Cl. 260-288.

CPC International Inc.: See—

Kaufman, Karl L.; Martin, Doris N.; and Brown, William J., 3,600,325.

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Craft, John T.; Forbes, John D.; and Vig, Merle E., to Jolyn Corporation. Friction chain drive. 3,599,502, Cl. 74-219.

Craig, Robert S., to General Electric Company. Siloxanes having castor oil derivatives joined thereto through urethane radicals. 3,600,414, Cl. 260-404.5

Craig, Sam N.; Warner, Ellis R., Jr.; and Buckman, Wayne T., to Wascon Systems, Incorporated. Pulping apparatus with solids deflector. 3,599,881, Cl. 241-46.06

Crain Cutter Company, Inc.: See—

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Crain, Millard Jr., to Crain Cutter Company, Inc. Carpet stretcher plate. 3,599,936, Cl. 254-62.

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Craven, Walter Scott; and Brown, George R. Riding greens mower. 3,599,408, Cl. 56-26.

Crawford, Charles Ian: See—

Brown, Kenneth Robson; Crawford, Charles Ian; and Reid, Erskine Robert, 3,599,495.

Crayton, Bruce E.; and Slark, Norman Arthur, to Eastman Kodak Company English Electric Valve Company Limited. Apparatus for correlating different portions of a projected image and method of as-

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 Posner, Richard, 3,600,489.
 Crescent Niagara Corporation: See—
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 Crimmins, David J., to Thomas & Betts Corporation. Radially deformable electrical connector including two contiguous members. 3,600,501, Cl. 174-94.
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 Hutcheon, Ian Carrodus; Foster, Stephen Arthur; Barton, Kenneth; and Critten, Donald Louis, 3,600,689.
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 Curtis, Daniel L., to Litton Systems, Inc. Deep submergence heating system. 3,599,625, Cl. 126-204.
 Curtis, George N. Gate opener and closer. 3,599,372, Cl. 49-263.
 Curtis, Ian F. M., to Solartron Electronic Group Limited. The. Force transducer with elongate vibrating member. 3,600,614, Cl. 310-25.
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 Curtis, Peter Edward; and Wills, Peter Alfred Robert, to Ilford Limited. Measuring device. 3,599,666, Cl. 137-391.
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 Daab, Heinz; and Meier, Karl-Heinz, to Quick-Rotan Becker & Notz KG. Shaft speed control system comprising clutch and brake. 3,599,764, Cl. 192-12.
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 Darcy, Milton P.; and Tomlinson, Joseph N., to Eastman Kodak Company. Method and apparatus for drying a web. 3,599,341, Cl. 34-23.
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 Davis, Robert, to Scientific Industries, Inc. Apparatus for reagent formation. 3,600,135, Cl. 23-253.
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 De Benedictis, Leonard Charles, to Union Carbide Corporation. Diffuse optical pumping system for lasers. 3,600,702, Cl. 331-94.5
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- Gramkow, Asger, to Danfoss A/S. Starting means for a single-phase asynchronous motor. 3,600,656, Cl. 318-221.
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- Greemore, Ralph J. Cultivator shank and disc setter. 3,599,729, Cl. 172-741.
- Green, Frank B. K. Diffusion pulp washer. 3,599,448, Cl. 68-181.
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- Grenier, Robert P., to Western Electric Company, Incorporated. Method and system for adjusting electrical components using alternately applied signals. 3,600,675, Cl. 324-57.
- Gresham, Conrad W. Self service multi-storied rotatable airplane hangar and operating means therefor. 3,599,809, Cl. 214-16.1
- Greulich, Robert G., to Singer Company, The. Sewing machine pneumatic needle threader. 3,599,587, Cl. 112-225.
- Grimm, Robert A., to Ashland Oil & Refining Company. N-alkylation of aromatic amines. 3,600,413, Cl. 260-404.
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- Grover, Jacquelyne A. Examination table. 3,599,963, Cl. 269-325.
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- Kolb, Robert H., to Shell Oil Company. Method for laying coated pipelines underwater. 3,599,435, Cl. 61-72.1
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- Koller, James C., to Standard Oil Company. Multi-zone hydrocracking process. 3,600,299, Cl. 208-89.
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- Kondo, Tatsuo, to Victor Company of Japan, Limited. Automatic control device for record players. 3,599,984, Cl. 274-1.
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- Kopelman, Bernard, to Sylvania Electric Products, Inc. Flashlamp. 3,600,120, Cl. 431-93.
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- Krenke, Norman O.; and Ingram, Charles E., to Baker Perkins Inc. Container loading system. 3,599,390, Cl. 53-55.
- Krieve, Walter F., to TRW Space Technology Laboratories. Thrust stand. 3,599,480, Cl. 73-117.4
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- Kruspe, Henry R.; and Perkins, Norwood Kenneth, to International Business Machines Corporation. Measured review for disc-type dictation apparatus. 3,599,989, Cl. 274-14.
- Krutova, Raisa Leonidovna; Muromtsev, Georgy Sergeevich; Pervy, Eleonora Nikolaevna; and Rakovsky, Jury Sergeevich. Method of isolating gibberellins from culture fluid obtained by cultivating a microorganism. 3,600,402, Cl. 260-343.3
- Kruzan, Harold F.; and Johnson, Dwight N., to American Meter Company. Pressure regulator with internal relief valve. 3,599,658, Cl. 137-116.5
- Kubo, Moritada; and Asano, Kuniji, to Tokyo Shibaura Electric Co., Ltd. Method for determining the degree of elongation of rolled magnetic metal strips and an apparatus for the same. 3,600,672, Cl. 324-34.
- Kudo, Atsushi: See—
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- Kupsky, George A., to Burroughs Corporation. Multi-cell display device having communication paths between adjacent cells. 3,600,626, Cl. 313-220.
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3,599,462	3,599,983	3,600,627	3,599,972	12 : 3,599,300	3,599,868
3,599,470	3,599,991	3,600,628	3,599,972	12 : 3,599,300	3,599,868
3,599,474	3,599,996	3,600,642	3,599,972	12 : 3,599,300	3,599,868
3,599,480	3,599,997	3,600,644	3,599,972	12 : 3,599,300	3,599,868
3,599,510	3,600,002	3,600,663	3,599,972	12 : 3,599,300	3,599,868
3,599,513	3,600,004	3,600,666	3,599,972	12 : 3,599,300	3,599,868
3,599,515	3,600,007	3,600,674	3,599,972	12 : 3,599,300	3,599,868
3,599,544	3,600,009	3,600,678	3,599,972	12 : 3,599,300	3,599,868
3,599,564	3,600,013	3,600,685	3,599,972	12 : 3,599,300	3,599,868
3,599,591	3,600,022	3,600,693	3,599,972	12 : 3,599,300	3,599,868
3,599,606	3,600,023	3,600,697	3,599,972	12 : 3,599,300	3,599,868
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3,599,622	3,600,031	3,600,711	3,599,972	12 : 3,599,300	3,599,868
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3,599,625	3,600,035	3,600,711	3,599,972	12 : 3,599,300	3,599,868
3,599,633	3,600,035	3,600,711	3,599,972	12 : 3,599,300	3,599,868

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3,600,188	3,599,335	3,600,293	3,600,484	3,600,174	3,599,921
3,600,193	3,599,382	3,600,340	3,600,493	3,600,177	3,599,925
3,600,194	3,599,524	3,600,375	3,600,501	3,600,180	3,600,014
3,600,200	3,599,686	3,600,396	3,600,513	3,600,181	3,600,027
3,600,201	3,599,840	3,600,412	3,600,526	3,600,184	3,600,060
3,600,248	3,599,903	3,600,428	3,600,534	3,600,185	3,600,111
3,600,275	3,600,008	3,600,462	3,600,553	3,600,204	3,600,147
3,600,281	3,600,034	3,600,468	3,600,561	3,600,206	3,600,186
3,600,287	3,600,112	3,600,535	3,600,590	3,600,218	3,600,234
3,600,290	3,600,222	3,600,547	3,600,594	3,600,221	3,600,252
3,600,299	3,600,257	3,600,574	3,600,626	3,600,230	3,600,267
3,600,300	3,600,326	3,600,601	3,600,629	3,600,239	3,600,312
3,600,301	3,600,347	3,600,606	3,600,631	3,600,240	3,600,318
3,600,347	3,600,345	3,600,608	3,600,646	3,600,241	3,600,319
3,600,355	3,600,376	3,600,660	3,600,649	3,600,242	3,600,341
3,600,372	3,600,600	3,600,660	3,600,659	3,600,244	3,600,351
3,600,394	25 : 3,599,286	27 : 3,599,276	3,600,673	3,600,247	3,600,361
3,600,398	3,599,288	3,599,330	3,600,681	3,600,258	3,600,366
3,600,407	3,599,313	3,599,351	3,600,687	3,600,262	3,600,404
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3,600,420	3,599,323	3,599,381	3,600,703	3,600,273	3,600,504
3,600,446	3,599,339	3,599,385	35 : 3,599,340	3,600,288	3,600,527
3,600,447	3,599,423	3,599,386	3,599,508	3,600,291	3,600,585
3,600,449	3,599,437	3,599,388	3,599,584	3,600,330	3,600,611
3,600,453	3,599,439	3,600,021	3,600,011	3,600,339	3,600,617
3,600,470	3,599,493	3,600,064	3,600,157	3,600,346	3,600,622
3,600,480	3,599,521	3,600,100	36 : 3,599,272	3,600,352	3,599,334
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3,600,514	3,599,629	3,600,413	3,599,295	3,600,440	3,599,663
3,600,522	3,599,652	3,600,589	3,599,297	3,600,444	3,599,716
3,600,536	3,599,660	3,599,383	3,599,321	3,600,457	3,599,734
3,600,578	3,599,668	28 : 3,599,266	3,599,325	3,600,489	3,599,932
3,600,618	3,599,691	29 : 3,599,249	3,599,327	3,600,512	3,599,962
3,600,630	3,599,721	3,599,367	3,599,332	3,600,516	3,599,974
3,600,655	3,599,739	3,599,368	3,599,341	3,600,517	3,600,145
3,600,657	3,599,748	3,599,457	3,599,369	3,600,554	3,600,153
3,600,684	3,599,756	3,599,540	3,599,377	3,600,558	3,600,303
3,600,706	3,599,769	3,599,575	3,599,388	3,600,562	3,600,365
3,600,710	3,599,787	3,599,580	3,599,389	3,600,571	3,600,370
18 : 3,599,333	3,599,828	3,599,722	3,599,401	3,600,580	3,600,371
3,599,392	3,599,838	3,599,776	3,599,427	3,600,587	3,600,384
3,599,511	3,599,849	3,599,975	3,599,434	3,600,610	3,600,417
3,599,536	3,599,937	3,600,059	3,599,444	3,600,621	3,599,448
3,599,559	3,600,017	3,600,311	3,599,453	3,600,623	3,599,609
3,599,603	3,600,070	3,600,569	3,599,467	3,600,638	3,599,980
3,599,729	3,600,071	3,600,575	3,599,500	3,600,643	3,600,353
3,599,741	3,600,079	3,599,518	3,599,526	3,600,647	3,600,509
3,599,759	3,600,093	3,599,657	3,599,528	3,600,664	3,599,239
3,599,761	3,600,117	3,599,657	3,599,541	3,600,668	3,599,310
3,599,763	3,600,120	3,599,657	3,599,546	3,600,695	3,599,317
3,599,856	3,600,172	3,599,657	3,599,552	3,600,701	3,599,320
3,599,951	3,600,228	3,600,169	3,599,553	3,600,705	3,599,326
3,599,952	3,600,229	3,600,560	3,599,555	3,599,523	3,599,359
3,599,961	3,600,236	34 : 3,599,263	3,599,561	3,599,645	3,599,365
3,599,995	3,600,259	3,599,264	3,599,584	3,599,679	3,599,384
3,599,998	3,600,289	3,599,299	3,599,598	3,600,134	3,599,395
3,600,042	3,600,294	3,599,358	3,599,604	3,600,269	3,599,399
3,600,072	3,600,342	3,599,379	3,599,617	38 : 3,599,727	3,599,405
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3,600,325	3,600,541	3,599,566	3,599,654	3,599,259	3,599,464
3,600,338	3,600,551	3,599,587	3,599,656	3,599,279	3,599,476
3,600,359	3,600,640	3,599,590	3,599,662	3,599,299	3,599,479
3,600,437	3,600,648	3,599,610	3,599,671	3,599,281	3,599,522
3,600,502	3,600,650	3,599,637	3,599,675	3,599,282	3,599,529
3,600,506	3,600,670	3,599,655	3,599,680	3,599,291	3,599,542
3,600,511	3,600,675	3,599,667	3,599,681	3,599,307	3,599,596
3,600,530	3,600,699	3,599,669	3,599,682	3,599,347	3,599,600
19 : 3,600,533	3,600,707	3,599,703	3,599,704	3,599,376	3,599,627
3,599,278	3,600,708	3,599,754	3,599,750	3,599,386	3,599,709
3,599,212	26 : 3,599,256	3,599,755	3,599,770	3,599,403	3,599,711
3,599,337	3,599,269	3,599,825	3,599,774	3,599,418	3,599,744
3,599,342	3,599,303	3,599,880	3,599,803	3,599,442	3,599,765
3,599,355	3,599,322	3,599,901	3,599,829	3,599,487	3,599,797
3,599,402	3,599,352	3,599,979	3,599,830	3,599,527	3,599,832
3,599,688	3,599,360	3,600,077	3,599,862	3,599,538	3,599,855
3,599,812	3,599,390	3,600,089	3,599,894	3,599,572	3,599,870
3,599,905	3,599,391	3,600,094	3,599,895	3,599,574	3,599,881
3,599,973	3,599,469	3,600,099	3,599,897	3,599,586	3,599,889
3,600,032	3,599,471	3,600,128	3,599,912	3,599,639	3,599,906
3,600,191	3,599,512	3,600,143	3,599,914	3,599,650	3,599,920
3,600,694	3,599,533	3,600,163	3,599,966	3,599,687	3,599,934
20 : 3,599,249	3,599,614	3,600,170	3,599,970	3,599,694	3,599,942
3,599,714	3,599,661	3,600,216	3,600,018	3,599,695	3,599,981
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3,599,605	3,599,782	3,600,307	3,600,066	3,599,710	3,600,138
3,599,820	3,599,786	3,600,310	3,600,076	3,599,723	3,600,139
3,599,872	3,599,940	3,600,321	3,600,081	3,599,726	3,600,140
3,599,989	3,599,954	3,600,327	3,600,087	3,599,766	3,600,144
3,600,086	3,599,955	3,600,345	3,600,088	3,599,778	3,600,146
3,600,254	3,599,957	3,600,377	3,600,098	3,599,780	3,600,151
3,600,452	3,599,992	3,600,380	3,600,122	3,599,783	3,600,176
3,600,620	3,599,994	3,600,385	3,600,131	3,599,796	3,600,197
22 : 3,599,250	3,600,003	3,600,390	3,600,135	3,599,818	3,600,212
3,599,713	3,600,005	3,600,406	3,600,136	3,599,822	3,600,215
3,599,733	3,600,033	3,600,410	3,600,159	3,599,842	3,600,227
3,600,130	3,600,037	3,600,415	3,600,160	3,599,848	3,600,233
3,600,349	3,600,043	3,600,425	3,600,162	3,599,859	3,600,266
3,600,448	3,600,044	3,600,438	3,600,166	3,599,864	3,600,292
23 : 3,600,272	3,600,051	3,600,458	3,600,167	3,599,871	3,600,296

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3,600,317	44 : 3,599,393	3,599,705	3,600,692	3,599,507	3,599,689
3,600,348	3,599,446	3,599,712	49 : 3,599,595	3,599,589	3,599,728
3,600,357	3,599,892	3,599,717	3,599,899	3,599,599	3,599,805
3,600,401	3,599,946	3,599,718	3,600,667	3,599,612	3,599,807
3,600,426	3,599,990	3,599,719	50 : 3,599,257	3,599,731	3,599,882
3,600,433	45 : 3,599,305	3,599,735	3,599,315	3,599,824	3,599,883
3,600,435	3,599,678	3,599,736	51 : 3,599,525	3,599,904	3,599,923
3,600,503	3,600,496	3,599,760	3,599,539	3,599,988	3,600,118
3,600,531	46 : 3,599,502	3,600,010	3,599,562	3,600,016	3,600,231
3,600,539	3,599,740	3,600,029	3,599,571	3,600,308	3,600,263
3,600,540	47 : 3,600,057	3,600,105	3,599,640	54 : 3,600,418	3,600,295
3,600,566	3,600,323	3,600,116	3,599,646	3,600,421	3,600,393
3,600,597	3,600,331	3,600,264	3,599,888	55 : 3,599,265	3,600,422
3,600,604	48 : 3,599,277	3,600,282	3,599,929	3,599,293	3,600,442
3,600,620	3,599,285	3,600,333	3,599,976	3,599,306	3,600,548
3,600,635	3,599,435	3,600,406	3,600,102	3,599,324	3,600,584
3,600,645	3,599,436	3,600,430	3,600,115	3,599,387	3,600,619
3,600,653	3,599,438	3,600,431	3,600,121	3,599,406	3,600,652
3,600,665	3,599,478	3,600,451	3,600,483	3,599,576	56 : 3,599,592
3,600,688	3,599,482	3,600,463	3,600,537	3,599,621	57 : 3,599,238
3,600,691	3,599,494	3,600,582	3,600,565		

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221,432	221,422	221,500	221,434	221,494	221,452
221,450	13 : 221,493	18 : 221,454	221,458	221,496	221,453
221,456	16 : 221,416	25 : 221,414	221,478	221,497	221,455
221,457	221,447	221,420	36 : 221,419	221,499	221,459
221,463	221,475	26 : 221,423	221,424	221,505	221,460
221,464	221,486	221,435	221,437	39 : 221,467	221,487
221,472	221,492	27 : 221,412	221,442	221,468	55 : 221,430
221,473	17 : 221,425	221,461	221,443	221,469	221,436
221,495	221,433	221,483	221,444	221,476	221,439
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PATENT OFFICE NOTICES

Printing of Chemical Patents

In view of financial and scheduling considerations associated with the closing of Fiscal Year 1971, no chemical patents will appear in the patent issues of August 24 and 31, and September 7 and 14, 1971. Chemical patents will again be issued on September 21, 1971.

RICHARD A. WAHL,
Acting Commissioner of Patents.
July 6, 1971

Supplement to the Manual of Classification

Over a span of years, Patent Examiners have created "unofficial" subclasses and digests to facilitate searches within the arts under their jurisdiction. A recent inventory of the unofficial U.S. patents in the Examiner search file (exclusive of designs) has enabled the issuance of a listing of unofficial subclasses and digests as a supplement to the Manual of Classification.

Current subscribers to the Manual of Classification shall receive the Supplement as soon as it becomes available (Sept.-Oct. '71), at a cost to be included in a forthcoming renewal fee. New subscriptions shall include the Supplement at a slightly higher cost.

It should be noted that the Supplement is intended only as an interim publication until such time as the Manual of Classification can be completely reprinted with the unofficial subclasses and digests shown in their proper relationship to respective official classes and subclasses. The reprinted Manual, in the described integrated format, shall be derived from computer stored data now in the process of being compiled and should be available by mid-1972.

WILLIAM R. NUGENT,
Assistant Commissioner.
July 27, 1971.

Patents and Trademarks

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92-34.

Public Law 92-34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92-34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

- Applicant(s) for patent or trademark registration;
- Patentee(s) or trademark registrant;
- Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceedings in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statutory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science
and Technology.

[FR Doc. 71-10469; Filed 7-22-71; 8:52 am]

36 F.R. 13694; July 23, 1971

AUGUST 24, 1971

U. S. PATENT OFFICE

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Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,861,688, H. H. Harms, LIQUID CLARIFICATION SYSTEM, filed May 17, 1967, D.C., S.D. Ind. (Indianapolis), Doc. IP67-C-221, *Henry Manufacturing Co. Inc. v. Commercial Filters Corporation*. Claims 34 and 35 of patent are invalid and not infringed, Apr. 13, 1971.

2,867,001, Lewis, Rice and Estrin, MEANS AND METHOD FOR FORMING INDICIA ON THE SURFACE OF CONTINUOUS VULCANIZED PRODUCTS, filed May 24, 1971, U.S. Ct of App., 1st Cir., Mass. (Boston), Doc. 71-1164, *Teledyne Mid-America Corporation v. International Telephone & Telegraph Corporation*.

2,892,750, R. L. Ramm, METHOD AND APPARATUS FOR LOOSENING WET PIPE FROM A MANDREL; 3,000,776, J. H. Swensen, APPARATUS FOR FORMING ASBESTOS-CEMENT PIPE; 3,137,509, H. J. Kazlenko, PIPE COUPLING; 3,095,346, Sfscko, Nebel and Van Derbeek, METHOD OF PRODUCING SHAPED ASBESTOS-CEMENT ARTICLES, filed Mar. 26, 1971, D.C., N.D. Ohio (Cleveland), Doc. 71-294, *John-Manville Corporation v. The Flintkote Company*.

2,914,823, X. L. Bean, CASTING MOLD AND PATTERN AND PROCESS; 2,991,267, same, COATING SAND AND METHOD OF MAKING THE SAME, filed July 12, 1967, D.C., N.D. Ala. (Birmingham), Doc. C-67-393, *Morris Bean & Co. v. Reichhold Chemicals, Inc.* Judgment, restraining and enjoining defendant from further infringement of said patents, Apr. 2, 1971.

2,917,271, G. W. Banks, HIGH PRESSURE METERING VALVE, filed May 11, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-1136-JWC, *George W. Banks v. Dragon Valve, Inc.*

2,920,971, S. D. Stookey, METHOD OF MAKING CERAMICS AND PRODUCT THEREOF, filed Nov. 8, 1963, D.C. Del. (Wilmington), Doc. 2763, *Corning Glass Works v. Anchor Hocking Glass Corporation*. Final judgment, patent valid and infringed by defendant. Perpetual injunction enjoining defendant, May 4, 1971.

2,934,932, H. B. Wagner, HYDRAULIC CEMENT MORTAR COMPOSITIONS AND METHODS OF USE; 3,243,307, G. Selden, HYDRAULIC CEMENT MORTAR COMPOSITIONS, filed Oct. 30, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c2242, *Tile Council of America, Inc. v. Chicago Mastic Company*. Said patents valid and infringed, Apr. 12, 1971.

2,942,768, R. J. McCall, BOX, filed Dec. 8, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70-C-1496, *Mack-Chicago Corp. v. Sturdi-Box Corp.* Consent judgment for injunction, Apr. 9, 1971.

2,946,385, R. W. Dicken, WELL SYSTEM, filed May 12, 1971, D.C., S.D. Ohio (Dayton), Doc. 4051, *Dicken Manufacturing Co. v. Don Knies*.

2,988,259, J. N. Callinicos, ADJUSTABLE FLORAL PACKAGE, filed Sept. 16, 1968, D.C., E.D.N.Y. (Brooklyn), Doc. 68-C-932, *Boas Box Co. v. Proper Folding Box Corp.* Patent Nos. 2,821,297 and 2,988,259 invalid, Apr. 30, 1971.

2,991,267. (See 2,914,823.)

3,000,776. (See 2,892,750.)

3,011,920, C. F. Shipley, METHOD OF ELECTROLESS DEPOSITION ON A SUBSTRATE AND CATALYST SOLUTION THEREFOR, filed Feb. 17, 1968, D.C. Conn. (New Haven), Doc. 12419, *Shipley Company, Inc. v. MacDermid, Inc.* Stipulation and order dismissing action, Mar. 9, 1971.

3,019,497, Horton, Ashbrook and Feagin, MAKING FINE GRAINED CASTINGS; 3,157,928, same; 3,259,948, R. C. Feagin, same, filed Apr. 13, 1971, D.C., S.D. Fla. (Miami), Doc. 71-566-C-CA, *Hownet Corp. v. Aircraft Castings, Inc.*

3,025,200, W. R. Powers, CELLIFORM STRUCTURE AND METHOD OF MAKING SAME, filed Apr. 1, 1971, D.C. Conn.

(New Haven), Doc. 14335, *Scott Paper Company v. Olin Corporation*.

3,037,865, Lillen and Glabe, PEANUT BUTTER PRODUCT AND PROCESS OF MAKING THE SAME, filed June 7, 1971, D.C., W.D. Pa. (Pittsburgh), Doc. 71-529-C.A., *National Bakers Services v. General Nutrition Corp. et al.*

3,041,963, Hazelton and Ostendorf, STOP DEVICE FOR PRESS BRAKES AND THE LIKE; Re. 26,236, Hazelton, Griesheimer and Ostendorf, LEVEL CONTROL FOR PRESS BRAKES AND THE LIKE, filed July 19, 1968, D.C., N.D. Ill. (Chicago), Doc. 68c1343, *The Cincinnati Shaper Company v. Dreis & Krump Manufacturing Co.* Ordered that the defendant be, and it is hereby authorized to continue in the manufacture, use, and sale of its accused level control system for hydraulic press brakes. Claims 1 through 4 and 6 of Patent 3,041,963 are invalid, May 7, 1971.

3,045,922, A. E. Jensen, SELF-ERECTING SPRINKLER HEAD FOR IRRIGATION PIPELINES, filed June 7, 1971, D.C., N.D. Tex. (Dallas), Doc. CA-3-4845-A, *Arthur E. Jensen v. IRECO Industries, Inc. and Joe Ed Helms*.

3,048,668, E. M. Weiss, TRANSDUCER SUSPENSION SYSTEM, filed Oct. 14, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2553, *Beltone Electronics Corp. v. Otto Butz, doing business as Otto Butz Lab. of Audio Aids and North American Phillips Co.* Stipulation and order, dismissed without prejudice, Apr. 6, 1971.

3,067,433, Dietz, MacFadgen and Bossemeyer, SELF-CONTAINED SEWAGE SYSTEM; 3,172,131, Herkenhine and Lee, SEWAGE SYSTEM, filed Sept. 3, 1965, D.C., C.D. Calif. (Los Angeles), Doc. 65-1319-CC, *Monogram Industries, Inc. v. Koehler Aircraft Products Company*. Consent judgment and order dismissing action with prejudice, Mar. 9, 1966.

3,067,879, W. O. Baker, SKIM TANK; 3,306,448, same, AUTOMATIC SKIM TANK AND SYSTEM, filed May 13, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-1159-IH, *Swimquip, Incorporated v. Swimrite, Inc. and Swimrite Manufacturing Co., Inc.*

3,075,167, R. J. Kinkaid, PANEL CONNECTOR WITH FLAG-TYPE TERMINALS, filed Sept. 11, 1968, D.C., N.D. Ill. (Chicago), Doc. 68c1688, *AMP Incorporated v. Moles Products Company*. Claims 5, 6, 7, 8 and 10 of said patent are valid and infringed, Apr. 20, 1971.

3,088,386, M. J. Sugarman, Jr., ELECTROPHOTOGRAPHIC PHOTOCOPY MACHINE, filed Mar. 24, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c751, *American Photocopy Equipment Co. v. Scott Paper Co. et al.* Voluntary notice of dismissal by plaintiff under Rule 41(a)(1), Apr. 15, 1971.

3,095,346. (See 2,892,750.)

3,095,470, H. Dozier, INSULATED ELECTRICAL TERMINAL CONSTRUCTION, filed Sept. 17, 1965, D.C., S.D.N.Y. Doc. 65-C-2809, *U.S. Terminals, Inc. v. Sealectro Corp.* Consent judgment, plaintiff owner of patent, defendants permanently enjoined, May 13, 1971.

3,122,610, A. Cacisatka, CIRCUITRY FOR MULTIPLEX TRANSMISSION OF FM STEREO SIGNALS WITH PILOT SIGNAL, filed Apr. 15, 1971, D.C., S.D.N.Y., Doc. 71-C-1687, *General Electric Company v. The Magnavox Company, Inc.* Same, filed Apr. 15, 1971, D.C., S.D.N.Y., Doc. 71-C-1688, *General Electric Company v. Philco Distributors, Inc.* Same, filed Apr. 15, 1971, D.C., S.D.N.Y., Doc. 71-C-1689, *General Electric Company v. Morse Electro Products Corp.*

3,137,509. (See 2,892,750.)

3,157,926. (See 3,019,497.)

3,172,131. (See 3,067,433.)

3,259,948. (See 3,019,497.)

3,306,448. (See 3,067,879.)

Re. 26,236. (See 3,041,963.)

Service by Publication

Larry K. Clark

In accordance with Rule 47(b) of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on July 3, 1968 and August 20, 1968, respectively, of applications for patent entitled "Load Control Error Detector," and "Capacitor Type Timing Circuit Utilizing Energized Voltage Comparator," on behalf of Larry K. Clark, whose last known address is 917½ West Locust St., Davenport, Iowa. These applications were made in compliance with Rule 47(b) and 35 U.S.C. 118 by E. W. Bliss Company without execution by the said Larry K. Clark. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said Larry K. Clark in connection with the said applications must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

James F. Tamburrino

In accordance with Rule 47(b) of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on September 24, 1969, of an application for patent entitled "Electric Monitoring Device," on behalf of James F. Tamburrino, whose last known address is 5123 33rd Ave., Kenosha, Wis. The application was made in compliance with Rule 47(b) and 35 U.S.C. 118 by Abbott Laboratories without execution by the said James F. Tamburrino. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said James F. Tamburrino in connection with the said application must be taken within thirty days of the publication of this notice.

F. H. BRONAUGH,
Assistant Commissioner of Patents
(Acting).
May 26, 1971.

Disclaimers

Design No. 219,409.—Roger J. Kuhns, Lincoln, Mass. DIE CUTTER FOR DEVELOPED FILM OR SIMILAR ARTICLE. Patent dated Dec. 8, 1970. Disclaimer filed Mar. 5, 1971, by the assignee, *Avant Incorporated*.

Hereby enters this disclaimer to the sole claim of said patent.

3,034,841.—Kenneth A. Blevins, Missoula, Mont. PORTABLE-SEWING-MACHINE TABLE. Patent dated May 15, 1962. Disclaimer filed May 6, 1971, by the assignee, *Sirco Manufacturing, Inc.*

Hereby disclaims the terminal portion of the term of the patent subsequent to Dec. 5, 1978.

3,175,330.—Henry T. Holman, Santa Barbara, Calif. BEAD FOR PLASTER, STUCCO, AND THE LIKE. Patent dated Mar. 30, 1965. Disclaimer filed June 16, 1971, by the inventor.

Hereby enters this disclaimer to claims 1 and 4 of said patent.

3,295,334.—Nils Lennart Hultgren, Stockholm, Sweden. HEAT OPERATED REFRIGERATOR OPERABLE ON GAS OR ELECTRICITY AND CONTROL MECHANISM THEREFOR. Patent dated Jan. 3, 1967. Disclaimer filed May 21, 1971, by the assignee, *Aktiebolaget Electrolux*.

Hereby enters this disclaimer to claims 1 to 9, inclusive of said patent.

3,420,891.—Orville Leonard Mageli, Buffalo, and Richard Anthony Bafford, Tonawanda, N.Y. TRIS-PEROXIDES FROM 1,3,5-TRISOPROPYLBENZENE. Patent dated Jan. 7, 1969. Disclaimer filed Dec. 18, 1970, by the assignee, *Pennwalt Corporation*.

Hereby enters this disclaimer to claims 1-5 of said patent.

Certificates of Correction for the Week of Aug. 24, 1971

D. 220,128	3,558,667	3,573,270	3,576,807
Re. 27,117	3,559,611	3,573,273	3,576,681
3,124,653	3,561,398	3,573,285	3,576,682
3,489,599	3,561,759	3,573,309	3,576,718
3,507,743	3,561,979	3,573,416	3,576,739
3,519,614	3,562,112	3,573,420	3,576,754
3,522,243	3,562,266	3,573,589	3,576,801
3,523,153	3,563,137	3,573,689	3,576,832
3,527,704	3,563,979	3,573,735	3,576,883
3,529,922	3,565,197	3,573,749	3,576,901
3,531,724	3,566,437	3,573,831	3,576,916
3,537,363	3,566,561	3,574,087	3,576,985
3,539,513	3,566,827	3,574,172	3,577,359
3,541,435	3,566,996	3,574,173	3,577,431
3,541,981	3,567,487	3,574,267	3,577,451
3,544,657	3,567,586	3,574,597	3,577,682
3,545,431	3,568,111	3,574,733	3,578,044
3,546,217	3,568,148	3,574,748	3,578,089
3,547,822	3,568,735	3,574,870	3,578,127
3,549,518	3,569,846	3,575,172	3,578,313
3,549,656	3,570,435	3,575,175	3,578,445
3,550,662	3,570,663	3,575,227	3,578,462
3,551,527	3,570,780	3,575,429	3,578,581
3,552,019	3,571,757	3,575,849	3,578,593
3,553,133	3,571,857	3,575,869	3,578,596
3,553,199	3,571,920	3,575,872	3,578,637
3,553,429	3,572,166	3,575,914	3,578,933
3,554,745	3,572,226	3,575,941	3,578,937
3,555,161	3,572,443	3,575,968	3,579,262
3,555,587	3,572,729	3,575,971	3,579,310
3,557,650	3,572,740	3,576,011	3,579,450
3,558,045	3,572,932	3,576,436	3,579,457
3,558,479	3,573,061	3,576,476	3,580,038
3,558,491	3,573,261	3,576,519	3,580,839

Patents Available for Licensing or Sale

3,340,843. MEANS FOR SWEEPING PRESSURE MINES. L. F. Jones, P.O. Box 434, Lynn Haven, Fla., 32444.

3,558,252. RADIATING ELEMENT. Industrias Del Hogar, S.A., Navarra, Spain. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,565,329. TEAR STRAND FOR PACKAGES. Springfield Wire, Inc., Springfield, Mass. Correspondence to: Chapin, Neal and Dempsey, Third National Bank Bldg., Springfield, Mass., 01103.

The following 2 patents are offered by: Richard S. Kubik, 1030 Villa Vista Drive, Colby, Kans., 67701.

3,512,543. FLOW CONTROL SPRINKLER.

3,572,554. PESTICIDE APPLICATOR.

Wood Industries, Inc., is prepared to grant non-exclusive licenses under the following 5 patents or to sell these patents upon reasonable terms to domestic manufacturers. Applications for licenses or sale may be addressed to Wood Industries, Inc., Box 1112, Plainfield, N.J., 07061. Attn: C. H. Ringe, Patent-Engineering Department.

3,426,941. ADJUSTABLE VERTICAL FEEDER MEANS FOR STACKED ARTICLES.

3,481,590. FEEDER MEANS WITH HEATER.

3,512,626. FEEDER MEANS.

3,563,169. APPARATUS FOR PRINTING ARTICLES HAVING AN UPSTANDING FLANGE AROUND THEM.

3,583,545. ARTICLE TRANSFER MEANS.

General Electric Company is prepared to grant non-exclusive licenses under the following 89 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following 4 patents may be addressed to General Electric Company, Patent Counsel, Insulating Materials Department, Bldg., 38, Room 209, 1 River Road, Schenectady, N.Y., 12345.

3,500,094. COMPOSITE LAMINATED MICA-POLYAMIDE FIBER PAPER COMMUTATOR CONE.

3,519,697. FLAME RETARDANT EPOXY RESINS.

3,533,932. PROCESS OF DIMERIZING CARBOXYLIC ACIDS IN A CORONA DISCHARGE.

3,571,491. ELECTRICAL INSULATING COMPOSITIONS OF POLYESTER RESIN, EPOXY RESIN, POLYVINYL ACETAL RESIN AND FINELY DIVIDED FILLER.

Applications for license under the following 13 patents may be addressed to: Patent Counsel, LSTG-I & MT Divisions, General Electric Company, 1 River Road, Bldg., #43, Schenectady, N.Y., 12305.

3,377,778. METHOD AND APPARATUS FOR DEGASSING LIQUIDS.

3,397,080. PROTECTIVE CERAMIC COATING.

3,420,054. COMBINED STEAM-GAS CYCLE WITH LIMITED GAS TURBINE.

3,422,800. COMBINED GAS TURBINE AND WASTE HEAT BOILER CONTROL SYSTEM.

3,423,078. COMBINED JET AND DIRECT AIR CONDENSER.

3,536,134. CONDENSER.

3,561,405. SECONDARY FUEL SYSTEM FOR A SUPPLEMENTARY FIRED HEAT RECOVERY STEAM GENERATOR.

3,561,886. TURBINE BUCKET EROSION SHIELD ATTACHMENT.

3,573,521. CONDUCTOR BLADE FOR A LIQUID METAL COLLECTOR.

3,564,315. EVAPORATIVE COLLED COLLECTOR RINGS FOR DYNAMOELECTRIC MACHINE.

3,572,958. ELECTROHYDRAULIC CONTROL WITH THROTTLE PRESSURE COMPENSATOR.

3,572,968. TURBINE BUCKET COVER.

3,578,281. PRECISION ALIGNMENT FIXTURE.

Applications for license under the following 71 patents may be addressed to: Patent Counsel, Lamp Division, General Electric Company, Nela Park, Cleveland, Ohio, 44112.

3,211,952. FLUORESCENT LAMP OPERATING CIRCUIT.

3,261,676. METHOD FOR FORMING SILICA ARTICLES.

3,275,470. GLASS BODIES AND METHODS OF TREATMENT THEREOF.

3,319,456. QUANTITATIVE DIFFERENTIAL THERMAL ANALYSIS APPARATUS.

3,324,742. CONTROL MECHANISM FOR ROTATING HEADS ON ROTARY INDEXING TURRET TYPE MACHINES.

3,324,824. LAMP BULB COATING APPARATUS.

3,326,350. LAMP BULB ASSORTING APPARATUS.

3,329,766. ELECTRIC CABLE.

3,341,731. REFLECTOR ARC LAMP WITH ARC TUBE SUPPORT COMPRISING ARC TUBE INLEAD CONNECTORS FASTENED TO THE OUTER END OF FERRULES SEALED IN THE OUTER ENVELOPE.

3,346,714. LAMP BASE TERMINAL WELDING APPARATUS.

3,351,334. CONTAINER FOR MOLTEN FUSED SILICA.

3,351,796. CALCIUM HALOPHOSPHATE PHOSPHOR FOR HIGHLY LOADED LAMP.

3,358,167. JACKETED DISCHARGE LAMP.

3,374,122. EXPENDABLE IMMERSION THERMOCOUPLE INCLUDING WEIGHT.

3,402,813. LAMP BULB CONVEYOR MECHANISM.

3,409,792. FLUORESCENT PANEL LAMPS WITH WHITE EMITTING PHOSPHOR COATED ON ENVELOPE BACKPLATE AND RED EMITTING PHOSPHOR COATED ON ENVELOPE FACEPLATE.

3,420,694. PLURAL COATED TRANSPARENT COLORED LAMP AND METHOD OF FORMING SAME.

3,441,770. ELECTRIC INCANDESCENT LAMP WITH SHOCK AND VIBRATION RESISTANT FILAMENT SUPPORT STRUCTURE.

3,448,318. LOW PRESSURE ELECTRIC DISCHARGE LAMP ELECTRODE.

3,453,470. JACKETED FLUORESCENT LAMP UTILIZING STANDARD BASE PLUS SPACER AND WIND CAP.

3,488,176. STEM MAKING MACHINE FOR ELECTRIC LAMPS AND SIMILAR DEVICES.

3,493,405. SEMICONDUCTOR ENCAPSULATION GLASS.

3,493,718. SEMICONDUCTOR WELDING CIRCUIT.

3,500,118. ELECTRODES GASEOUS ELECTRIC DISCHARGE DEVICES UTILIZING FERRITE CORES.

3,521,120. HIGH FREQUENCY ELECTRODELESS FLUORESCENT LAMP ASSEMBLY.

3,545,987. TRANSPARENT YTTRIA-BASED CERAMICS AND METHOD FOR PRODUCING SAME.

3,551,171. BaO—PbO—SiO₂ SEMICONDUCTOR ENCAPSULATION GLASS.

3,551,180. AQUEOUS BINDER WITH ADHERENCE ADDITIVE FOR LAMP PHOSPHOR COATING.

Re. 26,122. DUCTILE NIOBIUM AND TANTALUM ALLOYS.

3,294,497. COATED COLUMBIUM OR TANTALUM BASE METAL.

3,300,285. POWDER-METALLURGICAL TUNGSTEN-BASE ALLOY AND METHODS OF MAKING SAME.

3,305,490. FLUORESCENT PHOSPHATE GLASS.

3,310,418. FLUORESCENT LAMP COATING.

3,315,216. LAMP BASE AND TERMINAL STRUCTURE.

3,324,699. PRODUCTION OF NON-EARING MOLYBDENUM SHEET.

3,334,381. BASE-MAKING MACHINE.

3,345,687. INJECTION MOLDING APPARATUS.

3,346,380. COLUMBIUM-BASE ALLOYS.

3,357,788. PROCESS FOR PRODUCING FINELY DIVIDED CALCIUM FLUORIDE HAVING CONTROLLED PARTICLE SIZE.

3,374,176. PROCESS FOR MAKING N-TYPE ZINC CADMIUM SULFIDE ELECTROLUMINESCENT MATERIAL.

3,378,354. SYNTHESIS OF CALCIUM CHLOROSPODIOSITE.

3,378,499. SYNTHESIS OF HALOPHOSPHATE PHOSPHORS USING CALCIUM CHLOROSPODIOSITE.

3,379,520. TANTALUM-BASE ALLOYS.

3,379,649. PREPARATION OF HALOPHOSPHATE PHOSPHOR.

3,384,479. COLUMBIAN-BASE ALLOYS.

3,384,598. HALOPHOSPHATE PHOSPHOR TREATMENT PROCESS.

3,395,979. PROCESS FOR THE CONVERSION OF CALCIUM ACID PHOSPHATE DIHYDRATE TO CALCIUM ACID PHOSPHATE.

3,396,118. STRONTIUM MAGNESIUM ORTHOPHOSPHATE PHOSPHORS.

3,416,126. CONTACT PIN AND MANUFACTURE THEREOF.

3,420,625. RECRYSTALLIZATION OF ANHYDROUS CALCIUM ACID PHOSPHATE FROM THE DIHYDRATE FORM.

3,420,689. METHOD FOR FORMING AN OXIDATION RESISTANT COATING ON A SUBSTRATE.

3,429,753. METHOD OF FORMING METAL BORIDE COATING ON WIRE.

3,430,089. CALCIUM HALOPHOSPHATE PHOSPHORS.

3,430,189. RECESSED DOUBLE CONTACT PIN BASE.

3,434,811. TUNGSTEN-HAFNIUM-OXYGEN ALLOYS.

3,434,829. TUNGSTEN-BASE ALLOYS.

3,440,853. METAL EXTRUSION METHOD.

3,441,391. TUNGSTEN-BASE ALLOYS.

3,441,512. YTTRIUM VANADATE EUROPIUM PHOSPHOR PREPARATION BY PRECIPITATION USING AMMONIUM CARBONATE.

3,447,921. MOLYBDENUM-BASE ALLOY.

3,450,642. STRONTIUM YTTRATE LUMINESCENT MATERIALS.

3,450,643. ALKALINE EARTH YTTRATE LUMINESCENT MATERIALS.

3,458,452. LUMINESCENT MATERIALS OF ZINC MAGNESIUM GERMANATE ACTIVATED WITH MANGANESE.

3,462,372. METHOD FOR PRODUCING ELECTROLUMINESCENT ZINC-CADMIUM SULFIDE-OXIDE PHOSPHORS.

3,475,144. COMPOSITE METAL CONDUCTOR SEALED TO GLASS.

3,479,296. YTTRIUM VANADATE EUROPIUM PHOSPHOR PREPARATION BY PRECIPITATION.

3,484,382. TREATMENT OF RECRYSTALLIZED YVO₄:Eu LUMINESCENT MATERIALS.

3,485,767. CALCIUM HALOPHOSPHATE PHOSPHOR TREATMENT PROCESS.

3,488,549. DISPENSER CATHODE MATERIAL AND METHOD OF MANUFACTURE.

3,493,515. RECRYSTALLIZATION OF YTTRIUM VANADATE LUMINESCENT MATERIALS.

3,544,479. LITHIUM VANADIUM GARNET PHOSPHORS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 27, 1971

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

* Date of Oldest Application (New)

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	5-04-70
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	3-05-70
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	7-01-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Fore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director....	8-03-70
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..	*2-24-70
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	11-02-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	*2-18-70
Ordinance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	6-30-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	7-08-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 280—R. L. EVANS, Director.....	6-19-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	6-29-70
Industrial Arts; Household, Personal and Fine Arts.	

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	7-02-70
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	5-01-70
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	6-03-70
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	8-10-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	7-01-70
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 85th Congress, approved August 23, 1944 (58 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,682,658 to 2,685,084, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

PATENTS

GRANTED AUGUST 24, 1971

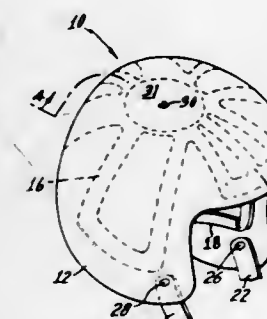
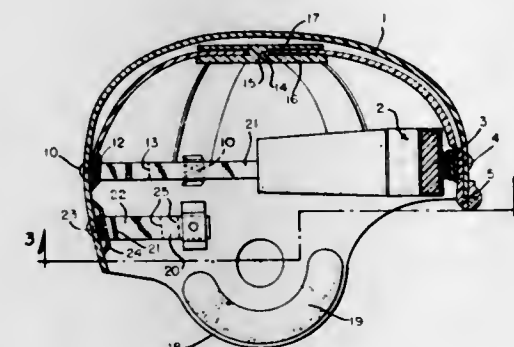
GENERAL AND MECHANICAL

3,600,713
ATHLETIC HELMET

Mike C. Holt, c/o Southern Athletic Service P.O.Box 46,
Leesburg, Fla.
Continuation-in-part of application Ser. No. 796,336, Feb. 4,
1969. This application July 7, 1969, Ser. No. 839,585
Int. Cl. A42b 1/08

U.S. Cl. 2—3

4 Claims



therethrough. The interaction of the deformable shell hydraulic assembly and compressible liner results in the dis-

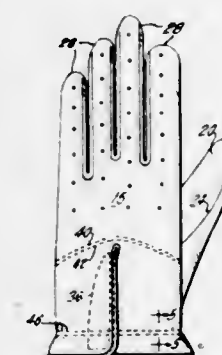
sipation, absorption and distribution of the energy of an external blow delivered to the shell.

3,600,715
GOLF GLOVE PALM-SMOOTHING MEANS

Frank E. Perrella, Gloversville, N.Y., assignor to Joseph Perrella, Inc., Gloversville, N.Y.
Filed Jan. 21, 1970, Ser. No. 4,698
Int. Cl. A41d 19/00, 19/02

U.S. Cl. 2—162

5 Claims



3,600,714
HYDRAULIC HELMET

James R. Cade, and Brady B. Greathouse, both of Gainesville, Fla., assignors to Hop-N-Gator, Inc., Tallahassee, Fla.
Filed Mar. 19, 1969, Ser. No. 808,559
Int. Cl. A42b 1/08

U.S. Cl. 2—3

25 Claims

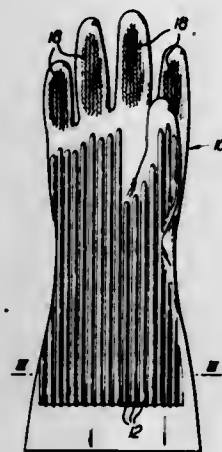
A helmet including an outer resiliently deformable shell, an inner compressible liner contacting the user's head, and an intermediate portion positioned between the shell and liner including a hydraulic cushioning assembly. The assembly includes a plurality of spaced elastic cells and an elastic sump generally coextensive with the interior of the shell and means connecting some of the cells to other of the cells and/or to the sump for intercommunication of the hydraulic fluid therebetween. The connecting means includes constrictive passageways to restrict the fluid flow

A golf glove, including a rear and a palm portion; a V-shaped opening in the rear portion of the glove, extending inward and tapering inward from the wrist edge of the glove, for permitting the glove to be donned and removed; fastening means of the "Velcro" type along the edges of the opening to fasten it closed and to facilitate individual adjustment and tightening at the wrist; first elastic means for pulling the rear of the glove laterally inward, the elastic means being curved such that the concave curvature is facing toward the wrist edge of the glove; second elastic means encircling the glove around the wrist and intersecting the fastening means, for holding the glove tightly on the hand.

3,600,716
FLEXIBLE GLOVES HAVING INTERNAL PASSAGES
 Albert Thomas Frank Berry, Barnham, Sussex, England, assignor to James North & Sons Limited, Hyde, England
 Filed May 6, 1969, Ser. No. 822,242
 Int. Cl. A41d 19/00

U.S. Cl. 2-167

5 Claims

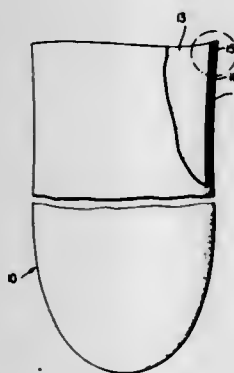


Flexible gloves having passages formed along the inside thereof to provide cooling, maximum flexibility and sensitivity.

3,600,717
DISPOSABLE STUMP SOCK
 Laura McKeehan, 709 N. Greenbrier St., Arlington, Va.
 Filed Sept. 26, 1969, Ser. No. 861,371
 Int. Cl. A61f 1/02

U.S. Cl. 3-19

8 Claims



The instant invention comprises a laminated cushioning means disposed between the skin of an amputee's leg and the encompassing cupped wall of the appliance, the inner side of said means remaining soft, pliable and dry at all times while transferring latent moisture away from the skin of the amputee and storing same in spaced relation thereto and to said wall. Said means may be readily removed from the appliance as well as the stump and disposed of and replaced by a new one with the minimum of trouble and expense.

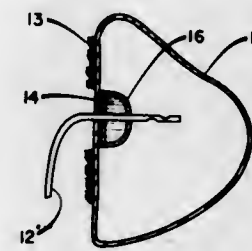
3,600,718
INFLATABLE PROSTHESIS
 Jack L. Boone, Larkin Township, Midland County, Mich., assignor to Dow Corning Corporation, Midland, Mich.
 Filed Dec. 29, 1969, Ser. No. 888,795
 Int. Cl. A61f 1/00, 1/24; A41c 3/10

U.S. Cl. 3-36

6 Claims

An improved surgically implantable mammary prosthesis comprising an inflatable shell and a filling stem for said shell for introduction of a filling fluid to inflate the shell. At the point of introduction of the stem into the shell, there is provided a capsule of sealing gel through which the stem passes. After implantation and inflation, the stem is withdrawn either

wholly or partially and the gel in the capsule seals the stem outlet against leakage of the inflating fluid. The inflation

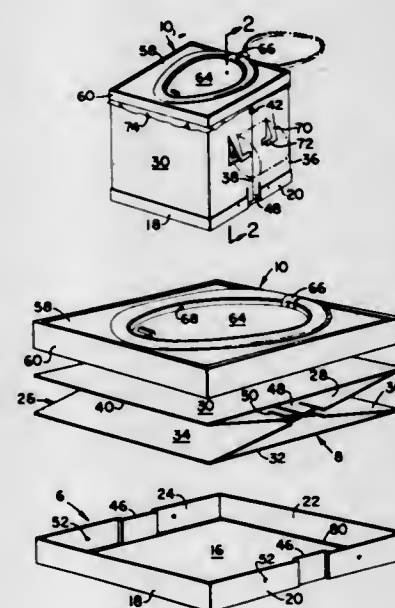


system is also suitable for prostheses other than mammary prostheses.

3,600,719
PORTABLE COLLAPSIBLE COMMODE
 Paul F. Karr, 31835 Chicoline, Hayward, Calif.
 Filed Feb. 2, 1970, Ser. No. 7,903
 Int. Cl. A47k 11/02

U.S. Cl. 4-116

12 Claims



A portable collapsible or knockdown type of commode having a bottom section, a body section and a cover section. The body section is open at the top and bottom and is foldable between an open operative position and a flat inoperative position. In its open position, the bottom end of the body may be supported on the bottom with the cover overlying the upper end of the body. In its folded condition, the body may be stored completely within the bottom section and the cover section inserted over the bottom section to provide a flat package.

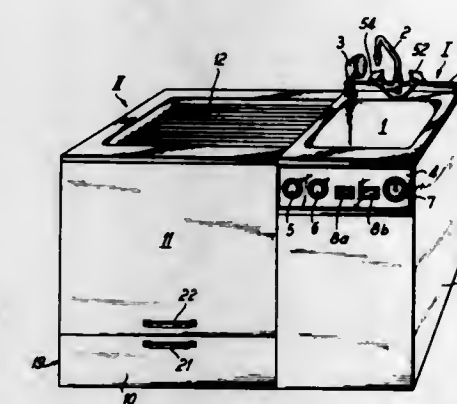
3,600,720
COMBINATION SINK AND SHOWER UNIT
 Hans Marschall, Mettmann, Germany, assignor to Marshcall K. G., Mettmann, Germany
 Filed May 1, 1968, Ser. No. 725,836
 Int. Cl. A47k 4/00

U.S. Cl. 4-145

13 Claims

A combination sink and shower unit includes a cabinet having a top wall with a basin with connections for delivering water through a spout mounted adjacent one end of the basin and/or for delivering water through a hand spray shower which is mounted on one corner of the cabinet. The cabinet encloses a heater with suitable controls for heating the water to a suitable temperature which are visible on a front panel of the cabinet. The device includes a shower stall portion which includes a tray or catch basin at floor level. When

folded, the shower stall portion defines a sink drain extending to one side of the sink basin but when it is opened it defines a swimming pool to hold the deck closely adjacent the upper end of the swimming pool for limited relative movement in a

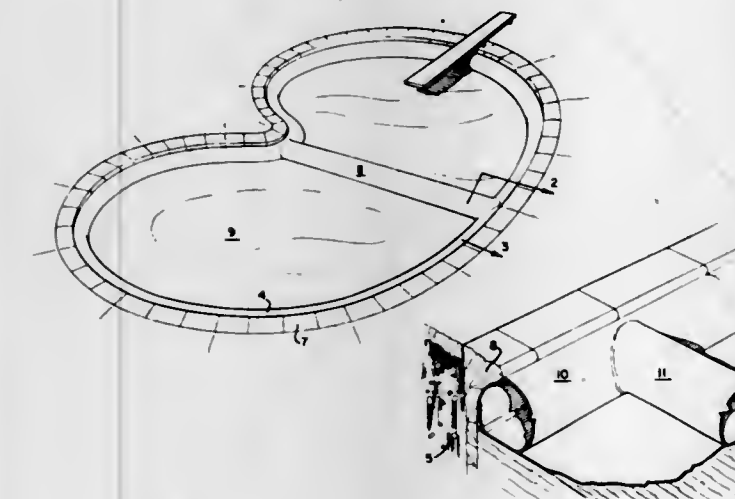


shower stall with a high back wall for mounting the hand spray and a shower curtain.

3,600,721
SWIMMING POOL COVER
 Eugene H. Pusey, 6202 E. Calle Camelia, Scottsdale, Ariz.
 Filed Sept. 1, 1967, Ser. No. 674,690
 Int. Cl. E04h 3/19

U.S. Cl. 4-172.12

6 Claims



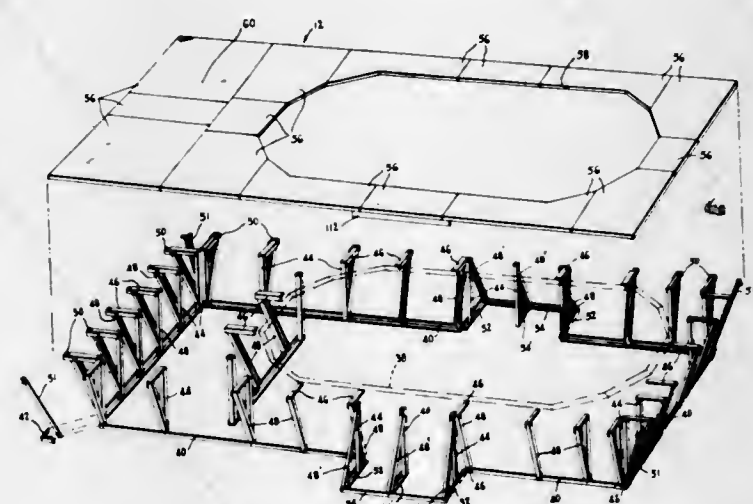
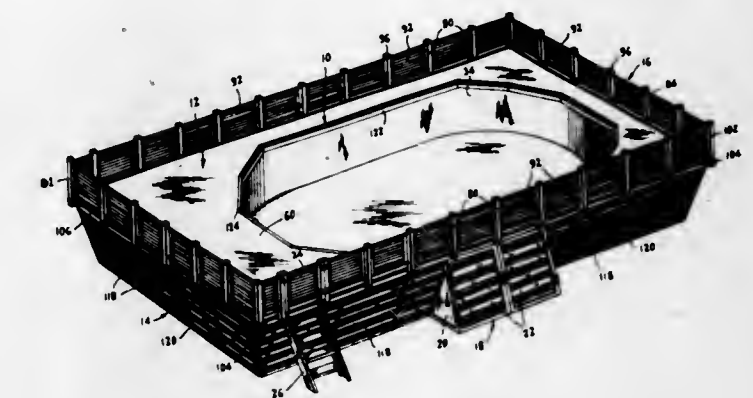
This invention relates to a floating cover for a swimming pool adapted to protection of a water-filled pool from dirt and debris, the retardation of evaporation, the conservation of chemicals placed in the water, and the protection of children and others who might inadvertently fall into the pool. It is characterized by a sheet of impervious material supported around its periphery by a raised inflatable tubular segment, the whole cover free-floating and unattached to the pool sides but fitting snugly against the sides so as to afford the above protections.

3,600,722
POOL AND ENCLOSURE THEREFOR
 Joseph Diamond, Simsbury; Melvin Y. Gershman, West Hartford, Conn.; Henry L. Sundberg, Jr., and Norbert A. Vangness, Longmeadow, Mass., assignors to Coleco Industries, Inc., Hartford, Conn.
 Filed Feb. 17, 1970, Ser. No. 12,090
 Int. Cl. E04h 3/18

U.S. Cl. 4-172.19

15 Claims

A swimming pool assembly for aboveground installation has a self-supporting swimming pool and a self-supporting deck enclosure extending about the periphery of the swimming pool with a multiplicity of wall panels providing a sidewall about at least a portion of the swimming pool assembly. Means on the deck enclosure are engaged with the

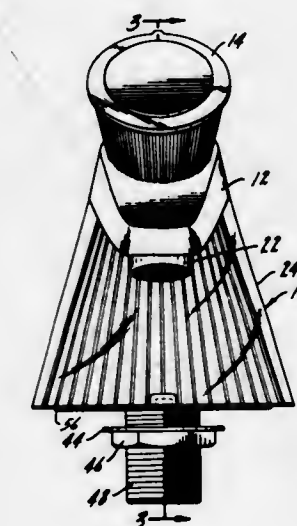


vertical direction but permit relative horizontal movement of the deck enclosure and swimming pool during use thereof.

3,600,723
FAUCET-MOUNTING CONSTRUCTION
 Paul A. Mongerson, Elyria; Alfred M. Moen, Grafton, and Charles G. Mackie, Elyria, all of, Ohio, assignors to Stanadyne, Inc., Hartford, Conn.
 Filed Aug. 18, 1969, Ser. No. 850,977
 Int. Cl. E03c 1/04

U.S. Cl. 4-192

12 Claims



Means for mounting a mixing faucet having a mixing valve in which the mixing valve is supported on a bracket attached to a sink top at its lower end. An escutcheon surrounds the mixing valve and is seated at its lower end upon the sink top.

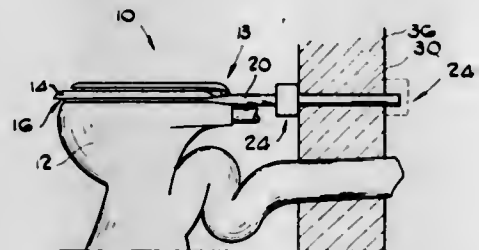
The upper portion of the escutcheon is attached to an upper portion of the mixing valve by a threaded nut, with the nut providing a downwardly directed force upon the top of the escutcheon to hold it to the sink top. There are seals at the upper and lower ends of the escutcheon so that the entire interior of the escutcheon is watertight.

3,600,724 TOILET BOWL VENTILATION

Robin Harry Stamper, 1891 Westbourne Road, Bryanston, Transvaal, and John Osborne McEwan Abbott, Johannesburg, Transvaal, Republic of South Africa, assignors to said Abbott to said Stamper

Filed Aug. 5, 1968, Ser. No. 750,037
Claims priority, application Republic of South Africa, Aug. 10, 1967, 67/4814

U.S. Cl. 4-217 Int. Cl. A47k 13/30 4 Claims



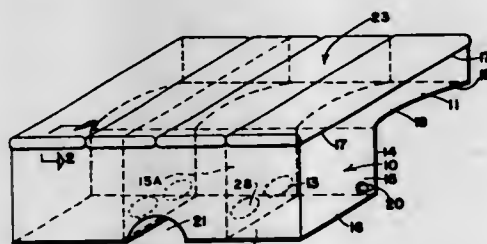
A toilet bowl ventilation apparatus having a seat adapted to seat sealingly on a toilet bowl, a seal adapted to fit between the seat and the bowl, and extractor means mountable to extract air from the bowl, including a fan which is powered by a dry cell battery.

3,600,725 PNEUMATIC SUPPORT FOR AUTOMOBILE REAR SEATS

James I. McCartney, 302-117 Nymark Ave., Willowdale, Ontario, Canada

Filed Sept. 8, 1969, Ser. No. 856,057
Int. Cl. A47c 27/08

U.S. Cl. 5-94 1 Claim



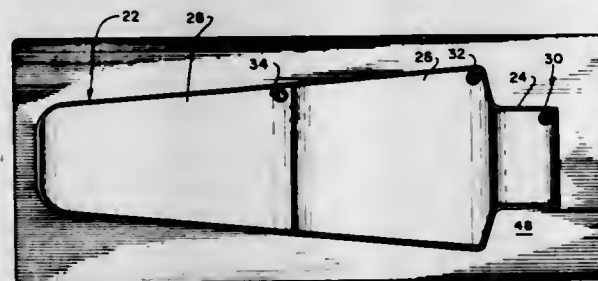
A low-pressure pneumatic cell for automobile rear seats which has a well portion and a seat portion with a padded panel covering the seat portion.

3,600,726 SUPPORT FORCE DISTRIBUTION APPARATUS

Harry Albert Williams, 28711 Indies Lane, Saugus, Calif.

Filed Mar. 17, 1969, Ser. No. 807,813

U.S. Cl. 5-348 Int. Cl. A47c 27/18 6 Claims



The specification and drawing discloses a therapeutic or comfort pad as for sitting. The apparatus includes a flexible

film outer envelope substantially filled with a fluid pervious foam material. Water or other noncompressible fluid is introduced through a valve in the envelope and the proportion of air to water to foam is adjusted at the valve by the introduction or withdrawal of air and/or water therethrough.

3,600,727 PRESSURE-CONTROLLED CUSHION STRUCTURE

Harry Albert Williams, P.O. Box 1505, Saugus, Calif.

Filed Aug. 6, 1969, Ser. No. 847,936

Int. Cl. A47c 27/18

U.S. Cl. 5-348 5 Claims



A therapeutic comfort pad or mat includes a flexible film outer envelope substantially filled with a fluid-pervious foam material. Noncompressible fluid is introduced through a valve in the envelope and the proportion of air to water to foam is adjusted at the valve by the introduction or withdrawal of air and/or water therethrough. The valve is self-closing under the influence of internal pressure but can be opened by finger pressure applied externally.

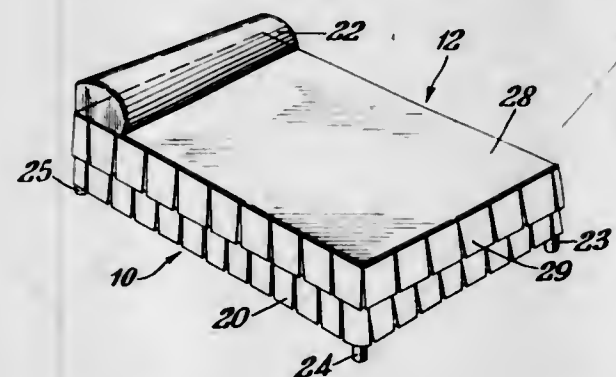
3,600,728 BED-MAKING AND TEMPERATURE-CHANGING DEVICE

Augustus B. Kinzel, 1738 Castellana Road, La Jolla, Calif.

Filed Aug. 13, 1969, Ser. No. 849,712

Int. Cl. A47c 19/04, 21/00

U.S. Cl. 5-362 16 Claims



The device comprises a canopy coextensive with a bed which canopy is supported by a vertically movable member adapted to raise it from, and lower it onto, the bed. The upper surface of the canopy carries a fabric material which covers the bed when the canopy is in the lowered position. The lower surface of the canopy may be provided with heating or cooling means for warming or cooling the bed surface.

3,600,729 MULTIPLE TOOL POCKET IMPLEMENT

Clayton A. Laughlin, Minneapolis, Minn., and Etsuo Watanabe, Seki-she, Japan, assignors to Arthur Salm Inc., Chicago, Ill.

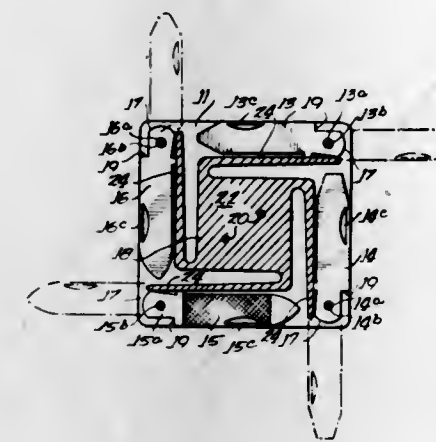
Filed Oct. 24, 1968, Ser. No. 770,219

Int. Cl. B26b 11/00

U.S. Cl. 7-11 8 Claims

A pocket-sized multiple tool implement, the described embodiments comprising a number of tools resiliently biased by

an integral spring, and disposed between two plates of differing shape which cooperate to form finger recesses on one side of said implement, and comprising an assembly of tools



disposed between two plates, one of which is substantially square and the other of which has corners defining acute angles for mounting and exposing said tools.

3,600,730 PRINTING OF MOVING YARNS

Raymond Victor Evans, Blackburn, England, assignor to Singer-Cobble Limited, Blackburn, England

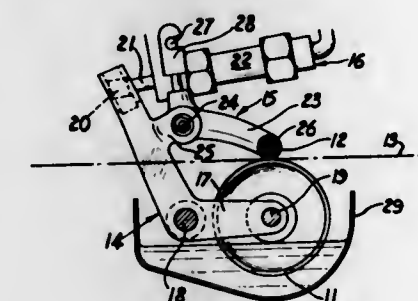
Filed Oct. 10, 1969, Ser. No. 865,271

Claims priority, application Great Britain, Oct. 22, 1968,

50061/68

Int. Cl. B05c 1/08

U.S. Cl. 8-149 24 Claims



The invention concerns a method of and an apparatus for applying dyestuffs to yarns at spaced intervals therealong whereby opposed cooperating members act on the yarn simultaneously from opposite sides thereof, the members each being moved towards the yarn so as to make contact therewith. The invention is of particular use in the selective application of a range of dyestuffs to a moving yarn at intervals therealong and according to a predetermined pattern, a plurality of groups of cooperating members being arranged in succession in the direction of yarn movement and the individual groups being separately actuable as required to give the said pattern.

3,600,731 METHOD FOR TREATING TEXTILES

Niels Rudolf Bergholtz, Kinna, Sweden, assignor to Ludvig Svensson (Holland) N.V., Amsterdam, Netherlands

Filed Dec. 3, 1968, Ser. No. 780,805

Claims priority, application Sweden, Dec. 13, 1967,

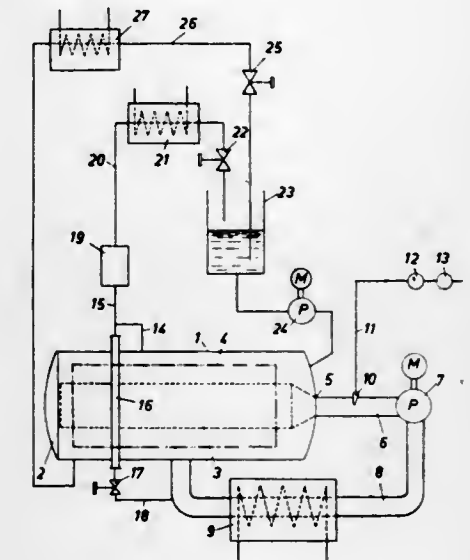
17,133/67

Int. Cl. B05c 8/02; D06f 17/02

U.S. Cl. 8-149.1 10 Claims

In a method for treating textile materials and in particular in a method of beam-dyeing fabrics, a pressurized gas in a finely divided state is introduced into the treating liquid in a ratio of 0.1-10 liters per minute for every 10,000 liters per minute of treating liquid. The size of the gas bubbles are maintained small enough so that they enter between and

separate the filaments of the textile material. These gas bubbles, and the treating liquid, are forced through the textile



material by a pump, and the surplus gas is removed from the top of the container housing the textile material.

3,600,732 BEAM-DYEING METHOD FOR PILE FABRICS CONTAINING ACRYLIC FIBER PILE

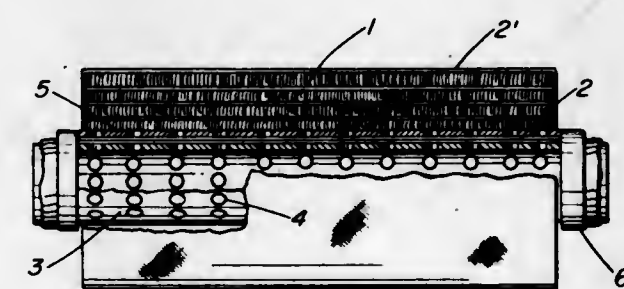
Genichi Hayashi; Tomoji Okubo, Okayama; Koshin Miyamoto, Toyonaka; Masatake Masuda, Okayama, and Syozo Shigita, Hirakata, all of Japan, assignors to American Cyanamid Company, Stamford, Conn.

Filed Feb. 27, 1970, Ser. No. 14,921

Claims priority, application Japan, Mar. 5, 1969, 44/17122

Int. Cl. B05c 8/02

U.S. Cl. 8-154 1 Claim



The present invention discloses a beam-dyeing process for pile fabrics having a pile of acrylic fibers involving use of a perforated plate of triangular cross section to eliminate winding irregularities and maintenance of specific winding density and volume rate of flow of dye liquor during dyeing.

3,600,733 PLANING BOAT HULL

Hangwind F. Lippisch, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio

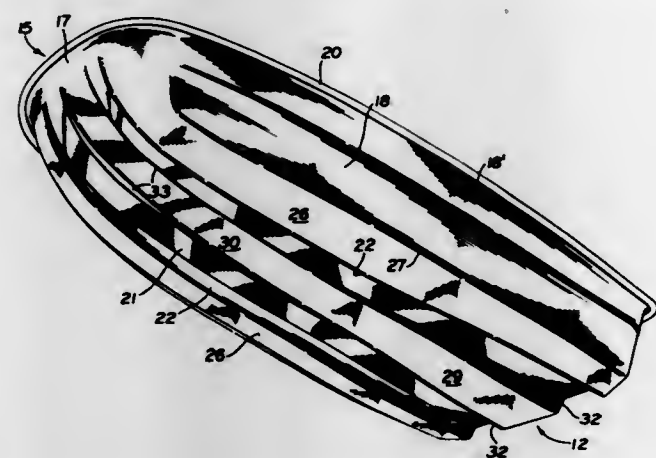
Filed Mar. 18, 1970, Ser. No. 20,571

Int. Cl. B63b 3/00

U.S. Cl. 9-6 14 Claims

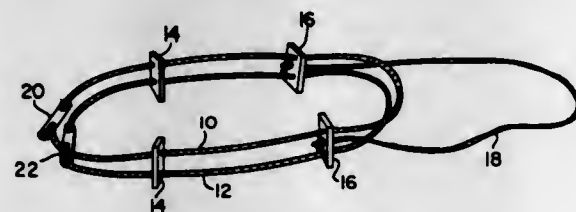
A planing type boat hull for maintaining a substantially constant trim angle throughout a slow to moderate speed range, said hull having a flat-bottomed central longitudinal tunnel with its sidewalls tapering outwardly from bow to stern to gradually increase the tunnel width, and a central lifting surface extending longitudinally throughout said tunnel, said lifting surface being inclined to the tunnel bottom to

form a channel extending forwardly of the medial portion thereof and forming an inclined plane projecting downwardly



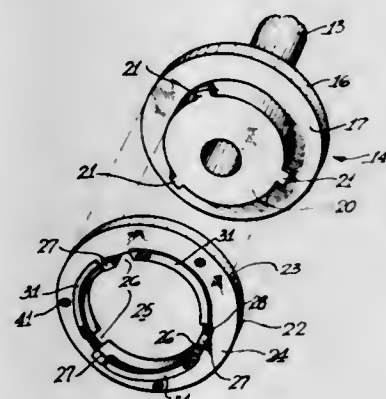
from the tunnel bottom and extending rearwardly of the medial portion.

3,600,734
BOOT-CARRYING DEVICE
Paul Pollinger, 210 Pine Road, Edgeworth, Pa.
Filed Dec. 18, 1969, Ser. No. 886,265
Int. Cl. A43d 5/00
U.S. Cl. 12-120.5



A device for securing and transporting boots comprising two elastic members which engage the terminal portions of the boots. The elastic members are linked to secure the boots together in combination with the holding action of the elastic members. A carrying strap and stand up device may be attached to the basic structure.

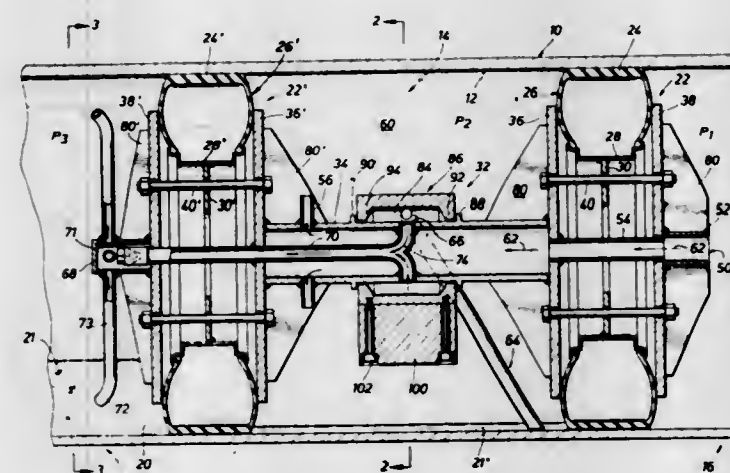
3,600,735
FLOOR POLISHER DRIVE CONNECTION
Bohumil Jerabek, Scarborough, Ontario, Canada, assignor to Dustbane Enterprises Limited, Ottawa, Ontario, Canada
Filed Jan. 26, 1970, Ser. No. 5,828
Int. Cl. A47I 1/164
U.S. Cl. 15-49 R



A drive connection for a floor polisher which permits ready removal from an attachment of brush units to the vertical shaft driven by the motor. The drive connection includes an annular plate element, which is secured to the brush unit, the plate element being adapted to be locked against a circular flange carried by the shaft, the shaft having lugs which

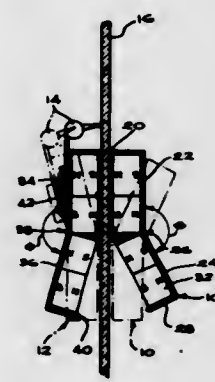
pass through radially extending recesses in the annular plate element and turn in behind the annular plate element. On its rear face, the annular plate element has lug engaging ramps which terminate at lug abutments, the ramps being formed by flexible strips which are normally held away from the rear face adjacent the abutments by urethane plugs received in bores under the flexible strips.

3,600,736
PRESSURIZED PIPELINE PIGS
James Calley Smith, Beaumont, Tex., and Marvin Dew Powers, 6060 Skyline Drive, Apt. 14, Houston, Tex., assignor by said Smith to said Powers
Filed Apr. 10, 1969, Ser. No. 816,181
Int. Cl. B08b 9/04
U.S. Cl. 15-104.06 R



This invention relates to apparatus commonly known as pigs for removing liquids and solids from pipe lines. The pig includes at least two transverse stoppers or plugs spaced apart and coupled together to form a moving drying chamber between the plugs. The pig is adapted to be propelled through the pipe by a fluid pressure gradient. Each stopper has an external peripheral surface provided by a resilient material forming a sealing but slidable engagement with the surrounding cylindrical interior wall of the pipe. Under the influence of the pressure gradient the front stopper pushes the fluids downstream and any remaining liquids within the moving drying chamber, which is formed by the inner cylindrical wall of the pipe between the moving stoppers, become siphoned out by a siphon tube outwardly from the drying chamber in the direction of fluid flow.

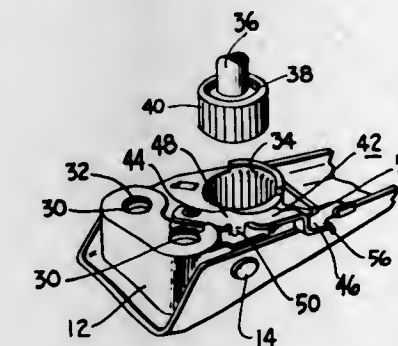
3,600,737
APPARATUS FOR CLEANING WINDOWS
Melvin Shore, 2720 W. Summerdale, Chicago, Ill.
Filed Jan. 5, 1970, Ser. No. 705
Int. Cl. A47I 1/08
U.S. Cl. 15-104



A magnetic window cleaning apparatus including a master unit and a slave unit each having angularly disposed panels containing magnetic elements. The units are positioned on opposite sides of a windowpane and are magnetically coupled. The angled panels permit pivoting of a cleaning member mounted on one panel of the slave unit into and out

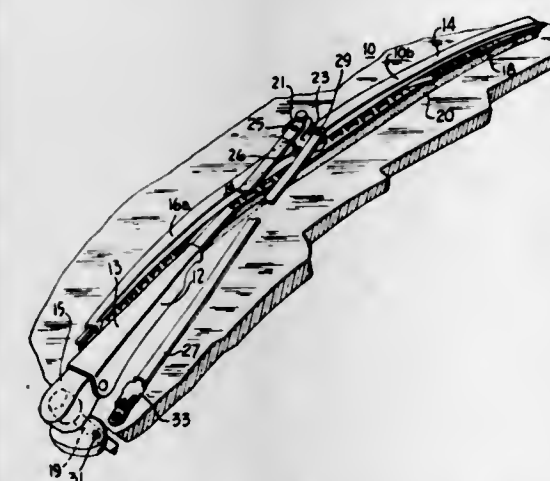
of contact with the windowpane by selective magnetic pling between the respective panels of the two units due to the master unit.

3,600,738
WINDSHIELD WIPER ARM
William C. Riester, Williamsville, and Raymond A. Deibel, West Falls, both of N.Y., assignors to Trico Products Corporation, Buffalo, N.Y.
Continuation-in-part of application Ser. No. 747,763, July 5, 1968, now Patent No. 3,512,205. This application Feb. 25, 1970, Ser. No. 14,112
Int. Cl. B60a 1/04
U.S. Cl. 15-250.34



A windshield wiper arm includes a mounting head having a mounting head cover or retainer enveloping the mounting head and pivoted thereto. The retainer may be pivoted to the mounting head with portions of its sidewalls straddling the mounting head. A pair of compression springs recessed in the mounting head bear against the web of the mounting head cover to urge the arm against a windshield of a motor vehicle. Alternatively, an exposed mounting head may be employed wherein a tension spring spans the pivotal connection. A recess in the mounting head receives a pivot shaft drive burr in driving engagement. A latch pivoted to the arm head engages the edge of one flange of the mounting head cover in the installation position. In the latching position the latch underlies the drive burr to retain it in the recess. Additional forms of latches comprise a lever transversely slidable on the mounting head, manually slidable to a position where a portion engages either a longitudinal edge or an edge at the end of the flange of the arm head cover member or retainer to maintain the arm in an installation attitude. In the latching position a portion of the lever underlies the drive burr retaining it in the drive burr recess of the mounting head.

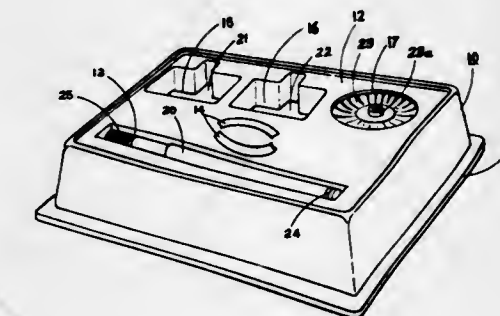
3,600,739
ARM AND BLADE ASSEMBLY
Peter Mower, Whitton, Twickenham, England, assignor to Trico Products Corporation, Buffalo, N.Y.
Filed Mar. 12, 1969, Ser. No. 806,454
Claims priority, application Great Britain, Mar. 13, 1968, 12251/68
Int. Cl. A47I 1/02
U.S. Cl. 15-250.23



A wiper arm and drag link are pivoted about parallel axes on a pivot block at their blade carrying ends; at its other end

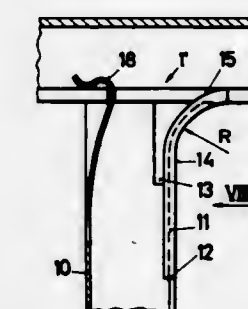
the arm is mountable on a pivot shaft for oscillation therewith; the drag link is detachably anchored adjacent the pivot shaft for pivotal movement; the arm and drag link form a parallelogram linkage to oscillate the blade relative to the arm assembly as the arm assembly oscillates to and fro across a windshield; the end of the arm and an annular recess formed in an upstanding connecting pin secured to the blade provide a detachable arm to blade connection, the pin extending through the pivot block.

3,600,740
HOME CLEANING SYSTEM
Lois J. Ogier, c/o John E. Wagner, Attorney at Law, 1041 E. Green St., Suite 202, Pasadena, Calif.
Filed July 16, 1969, Ser. No. 842,837
Int. Cl. A46b 17/00
U.S. Cl. 15-257



A combination of a telescoping handle, wet mop, broom, dust mop and a storage and carrying case for the same is disclosed. The heads are all interchangeable for use with the same handle and each has its own storage space in the carrier. The carrier is so dimensioned so as to allow storage on a normal kitchen shelf. One embodiment includes an internal cavity for use as a dust pan when the carrier is placed on the floor and in certain embodiments the storage cavities for one or more of the heads is designed to act as a nonspillable pail and integral wringer.

3,600,741
APPARATUS FOR INSERTING HOOKS OR THE LIKE INTO CURTAIN RAILS
Louis Bays, Gurbru, Switzerland, assignor to Henri Egger, Bern, Switzerland, a part interest
Filed Feb. 20, 1969, Ser. No. 800,902
Int. Cl. A47h 13/12
U.S. Cl. 16-87.8

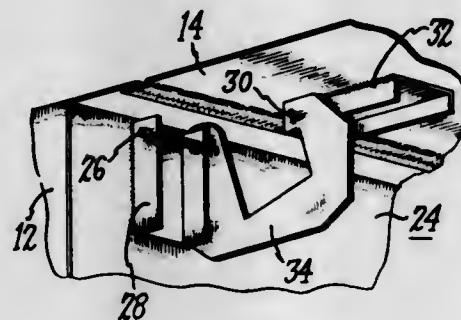


The unit has members for holding it in position on a fixed curtain rail and for providing movement of curtain glide hooks along its length and onto the fixed curtain rail.

3,600,742
CONCEALED DOUBLE-PIVOT HINGE FOR HINGED ENCLOSURE
Donald R. Barger, Hickory, N.C., assignor to General Electric Company
Filed July 7, 1969, Ser. No. 839,337
Int. Cl. E05d 3/06
U.S. Cl. 16-164

A concealed double-pivot hinge is disclosed which will allow a hinged cover to be opened substantially 180° with

respect to a fixed portion of an enclosure. The hinge has one pivot member secured to the cover and a second pivot member secured to the fixed portion of the enclosure. The pivot pin on the cover is mounted slightly higher than the pivot pin on the fixed portion of the enclosure. At least one U-shaped link is provided having the end of one leg secured

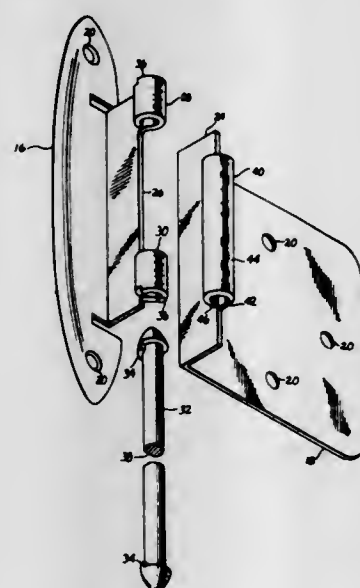


to one pivot member and the end of the other leg secured to the other pivot member. The U-shaped link has the outer edges of the legs parallel to each other and the inner edges of such leg parallel to each other, but the outer edges of the legs are nonparallel or in an angular relation to the inner edges of the legs.

3,600,743
SELF-CLOSING HINGE
Ray Meadows, Lake Dallas, Tex., assignor to David Allison Co., Inc., Woodbury, N.Y.
Filed Oct. 17, 1969, Ser. No. 867,191
Int. Cl. E05f 1/12

U.S. Cl. 16-180

2 Claims U.S. Cl. 18-1 B



A self-closing hinge having a hinge pin with a flattened section mounted to rotate with a first hinge plate and a resilient sleeve positioned on a second hinge plate disposed concentrically about said pin and having a complementary flattened portion adapted to pivotally engage an edge of the flattened portion of the hinge pin so as to cause a door to shift towards a closed position and to be biased in said closed position.

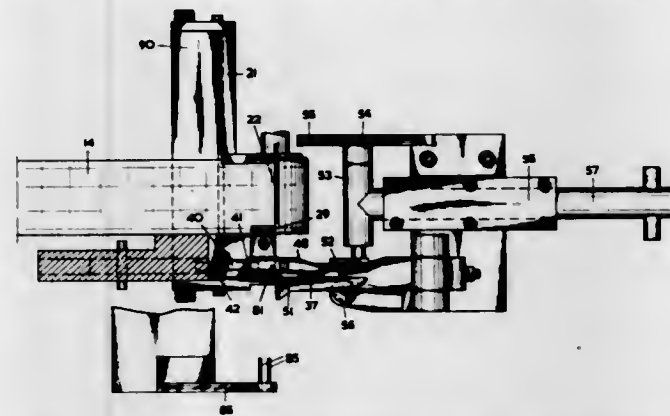
3,600,744
METHOD FOR SHELLING SHRIMPS
Hendrikus Gerhardus Muller, Hengelo, Netherlands, assignor to N. V. Machinefabriek B & S Bedrijven v.d. Woerdt, Hengelo, Netherlands
Filed Mar. 14, 1969, Ser. No. 807,349
Claims priority, application Netherlands, Mar. 14, 1968, 6803635
Int. Cl. A22c 29/00

U.S. Cl. 17-48

4 Claims

Cooked shrimps which are accordingly curved are shelled by accurately orienting them and transferring them to a shelling station where the body portion of the shell is gripped and the tail is straightened out and the shrimp is beheaded. The body and tail portions of the shell are then separated and

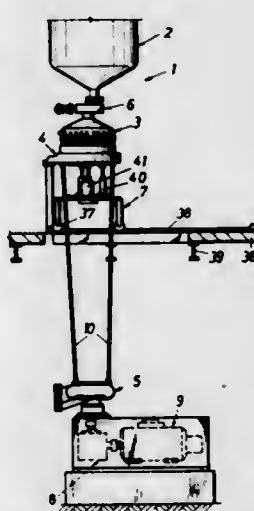
the shrimp is pushed part way out of the gripped body portion of the shell. The tail portion of the shell is then stripped



off and the shrimp is then pushed all the way out of the body portion of the shell.

3,600,745
DEVICE FOR THE GRANULATION OF SYNTHETIC PLASTICS
Hans Heinrich Wilhelm Hench, Aschaffstrasse 75, 8750, Aschaffenburg; Wilhelm August Seegers, Obernburg, Main, and Leo Karl Markus Muller, Mespelbrunn, all of, Germany, assignor by said Seegers and said Muller to said Hench
Continuation-in-part of application Ser. No. 844,685, Apr. 7, 1969, which is a division of application Ser. No. 596,213, Nov. 22, 1962. This application July 22, 1970, Ser. No. 57,074

Claims priority, application Germany, Aug. 6, 1969, P 19 39 871.1
Int. Cl. B29f 3/00



A device for the processing of synthetic plastics from a melt to solid granules of uniform size, the device including in succession an autoclave or extruder holding the melt, a casting unit and distributor with a plurality of discharge ducts and shutoff valves in the ducts, a partially mobile discharge unit with aligned injectors into which the liquid melt is discharged. In the injectors and subsequent guide hoses the strands of plastic are cooled for partial solidification by a first flow of water, then stretched and further solidified by a second, pressured flow of water. The guide hoses lead the strands and the surrounding water to a cutting unit where rapidly moving cutters chop the plastic strands into granules. Quick-connect links on the guide hoses, auxiliary valve control means and access provisions for adjustment and inspection provide operational reliability.

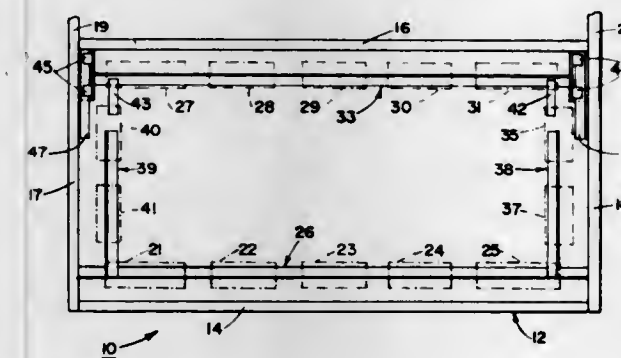
3,600,746
APPARATUS FOR MOLDING ARTICLES
Robert E. Kostur, Oak Brook, and Robert J. Brown, Chicago, both of, Ill., assignors to Comet Industries, Inc., Bensenville, Ill.
Filed Feb. 14, 1969, Ser. No. 799,456
Int. Cl. B29c 17/02; D06c 3/08; B25b 5/14

U.S. Cl. 18-1 FS

7 Claims

Articles are molded by heating a sheet of thermoplastic material, stretching it during the heating of the sheet to prevent it from sagging, and then forming the heated material

into the article. The apparatus includes a clamping frame on which is slidably mounted a series of spaced-apart clamping assemblies for holding the marginal edges of the sheet to position it in a planar configuration. The clamping assemblies are moved farther apart by means of a series of piston

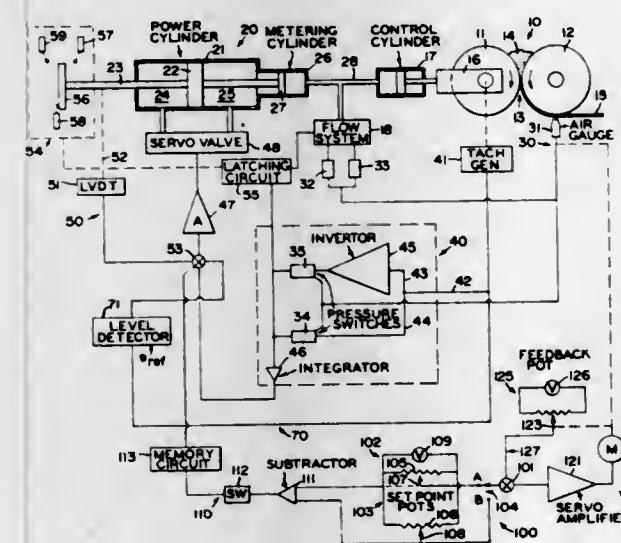


cylinder assemblies to expand the frame thereby stretching the heated sheet to maintain its coplanar configuration during the heating thereof. By controllably moving the clamping assemblies toward one another to contract the frame during the subsequent forming of the article, the wall thickness of the article is controlled.

3,600,747
SYSTEM FOR CALENDER CONTROL
John R. McCarty, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
Filed May 21, 1969, Ser. No. 826,627
Int. Cl. B29d 7/14

U.S. Cl. 18-2 C

23 Claims



An apparatus for controlling the thickness of material in a calender system. The sheeting roll gap is regulated by a plurality of hydraulic cylinders which are supplied with the precise amount of fluid by a servo valve. An error-measuring device can actuate, for example, a series of pressure switches or a potentiometer circuit to impose a signal on the servo valve which can be made proportional to the speed of the calender to compensate for a lag between the error-measuring device and the calender-positioning control. The apparatus can also be readily adapted to prevent pinch off of the material when the calender stops and to allow facile changes to be made in the specification of the material being calendered.

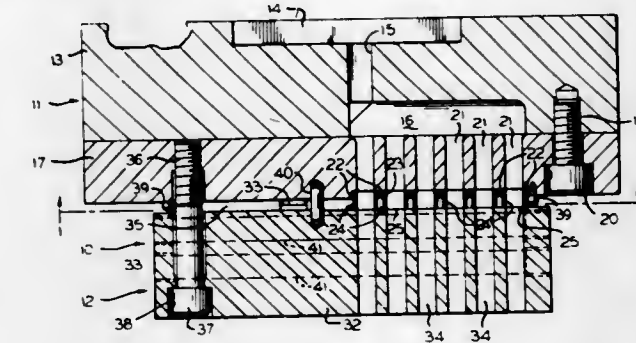
3,600,748
EXTRUSION DIE
Knud Faehndrich, Fort Lee, N.J., and Edmund Lindner, Ludwigshafen am Rhine, Germany, assignors to BASF Corporation, New York, N.Y.
Filed May 1, 1969, Ser. No. 820,731
Int. Cl. B29f 3/00

U.S. Cl. 18-12 DM

5 Claims

Extrusion die embodying a heated rear section, a cooled front section with a plurality of extrusion orifices therein,

passage means extending through the heated rear section for feeding thermoplastic polymer melt to the orifices, means

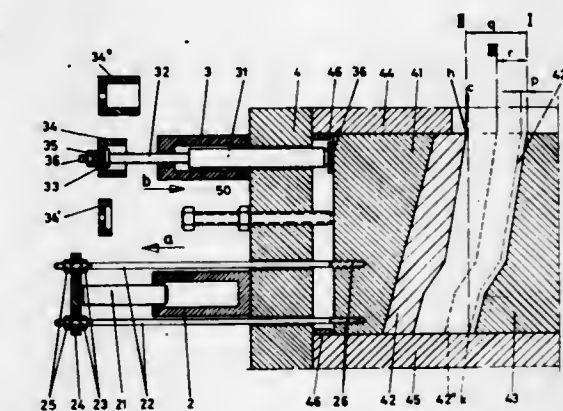


such as an air space insulating the cooled front section from the heated rear section, and thin-walled, melt-conducting ring gaskets bridging the space between said sections.

3,600,749
APPARATUS FOR PRESSURE-MOLDING OF ARTICLES FROM A NONFLOWING MIXTURE OF COMMUNUTED ORGANIC FIBROUS MATERIALS AND A HEAT-SETTING BINDER
Edmund Munk; Herbert Haas, and Gerd Weinberg, all of Oberstenfeld, Germany, assignors to Fur-ier-und Sperrholzwerk J. F. Werz, Jr. K.G., Werzalit-Pressholzwerk, Oberstenfeld, Wurttemberg, Germany
Filed June 26, 1968, Ser. No. 740,318
Int. Cl. B30b 1/32

U.S. Cl. 18-16 R

10 Claims



A molding apparatus in which the forward and return strokes of the press punch are carried out in three steps so that, after one molding operation has been completed, the punch is retracted enough that the finished article may be removed from the mold without difficulty, thereafter the punch is advanced by a second movement for such a distance that the space between the molding surface of the punch and the core will have the proper width for receiving the exact amount of mixture which is required for compressing to the desired thickness of the mold article, and then finally by a third movement of the punch the filled-in mixture is compressed to the desired thickness of the mold article while the mold may be heated at the same time for curing the compressed material.

The application also discloses an apparatus in which the punch is operated by one or more hydraulic cylinders and pistons for fully retracting the punch and by one of more hydraulic cylinders and pistons for advancing the punch from the retracted position to the filling position.

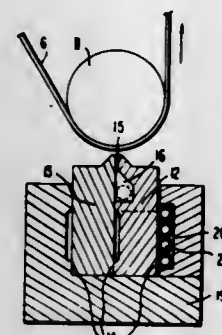
3,600,750
EXTRUSION DIE OR NOZZLE
Joachim Stroszynski, Wiesbaden, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Blebrich, Germany
Filed Dec. 27, 1967, Ser. No. 693,998
Claims priority, application Germany, Dec. 29, 1966, K 61046
Int. Cl. B29f 3/04

U.S. Cl. 18-12 DS

10 Claims

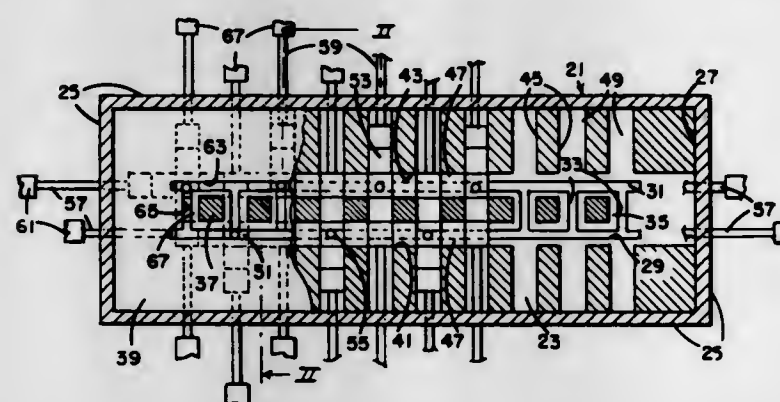
This disclosure relates to a slotted die comprising a pair of abutting cheek means having a discharge slot between them,

external means for supporting the cheek means, chamber means in the external means, and means for exerting pressure



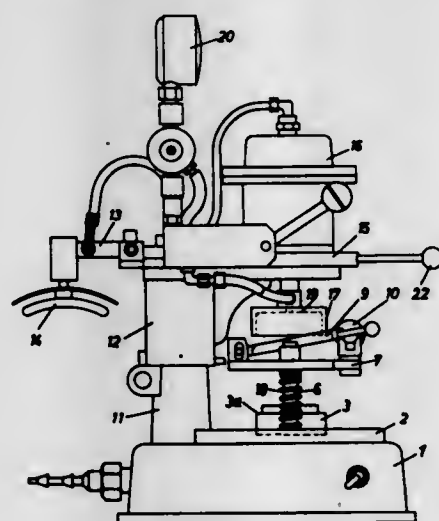
in the chamber means whereby the cheek means are urged together.

3,600,751
APPARATUS FOR EXTRUSION OF INTERLACED WEBS
Theodore H. Fairbanks, West Chester, Pa., assignor to FMC Corporation, Philadelphia, Pa.
Filed Jan. 24, 1969, Ser. No. 793,731
Int. Cl. B29f 3/04
U.S. Cl. 18-12 N 5 Claims



Manufacture of a woven web or netlike structure by extrusion.

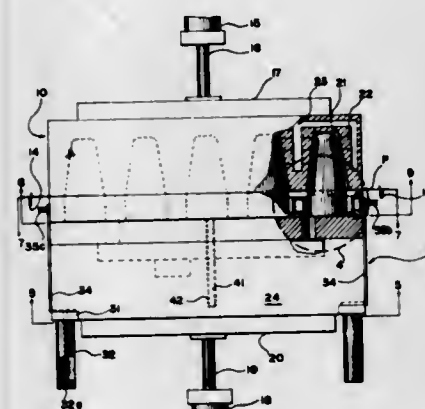
3,600,752
DEVICE FOR MAKING DENTAL CASTING PATTERNS
Erich Kopp, 15 Panoramaweg, Württemberg, Pfalgrafeweller, Germany
Division of Ser. No. 514,286, Dec. 16, 1965, Pat. No. 3,532,776.
Filed Jan. 23, 1969, Ser. No. 817,595
Int. Cl. B29c 17/02; A61c 13/02, 13/08
U.S. Cl. 18-19 H 12 Claims



An apparatus for making casting patterns to be used in the casting of articles of manufacture having a thin wall thickness in at least a portion thereof is provided. The apparatus comprises means for supporting at least one dental die model of

at least one tooth form from an individual. The apparatus also includes a means to support a sheet of thermoplastic material and means for heating the sheet of thermoplastic material to a softened condition. A means is provided to apply the softened or plasticized sheet to the dental die model thereby forming an accurate reproduction thereof. The apparatus includes means to effect a different air pressure on each side of the sheet which fits over the dental die model to aid in the formation of the accurate reproduction thereof.

3,600,753
DIFFERENTIAL PRESSURE FORMING MOLD ASSEMBLY FOR FORMING PLASTIC ARTICLES IN A THERMOPLASTIC WEB
Melvin Otto, Gladwin, Mich., assignor to Koehring Company, Milwaukee, Wis.
Filed Sept. 29, 1969, Ser. No. 861,636
Int. Cl. B29c 17/04
U.S. Cl. 18-19 F 9 Claims

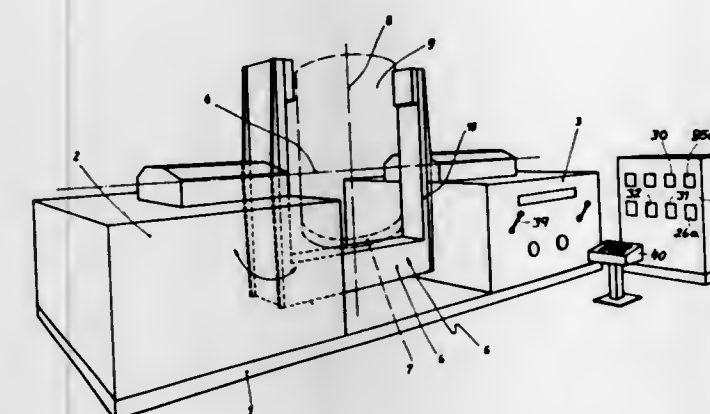


A differential pressure forming mold wherein a sheet of deformable plastic is supported between a mold assembly having a plurality of article forming mold cavities and an opposed mold assembly having a plurality of cavity aligned, projecting plug assists. A plate incorporated with the mold assembly having the plug assists and operative to prevent ballooning of portions of the sheet surrounding those portions which are moved into the mold cavities by the plug assists has openings for passing the plug assists and is mounted for relative movement with the plug assists. The plate is moved toward the mold assembly having the mold cavities and engages the mold assembly having the mold cavities to clamp the edges of the plastic sheet thereto, prior to the time the plug assists are moved into the cavities to stretch the sheet and mechanically move portions of the sheet into the mold cavities. Thereafter a differential pressure condition is created to move the sheet portions finally into intimate engagement with the mold cavities.

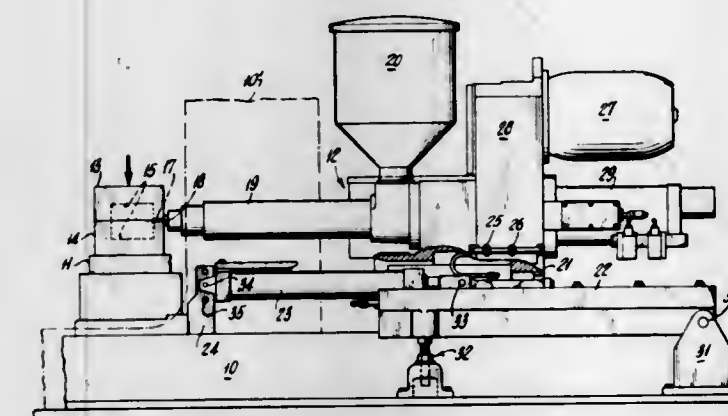
3,600,754
ROTATIONAL CASTING APPARATUS
Anton Johannes Vox, Ruit, Germany, assignor to Thermovox G.m.b.H., Kunststoffmaschinen, Ruit, Germany
Filed Mar. 17, 1969, Ser. No. 807,812
Claims priority, application Germany, Mar. 20, 1968, P 17 78 011.9
Int. Cl. B29c 5/00
U.S. Cl. 18-26 RR 9 Claims

A rotational casting apparatus has drive means for rotating a hollow mold about two mutually transverse axes. The rotation about at least one of these axes can be periodically reversed by a control apparatus to rock or oscillate the mold through an angle of less than 360°. This control system includes a double-acting pneumatic cylinder connected via a rack to a control pinion of a reversible, adjustable hydraulic motor connected to the mold. Switches actuatable by the rack control reversal of this cylinder via pneumatic valves. A

stop switch actuatable by the yoke carrying the mold can stop the mold at a predetermined angular setting for rocking to move to engage the support arm to prevent rotation



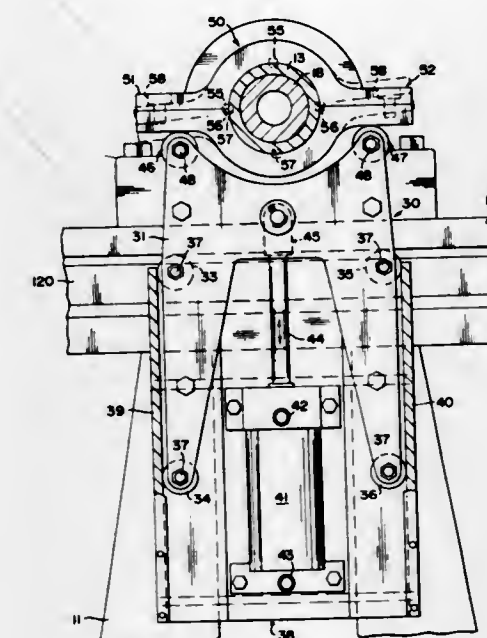
3,600,755
PLASTIC INJECTION-MOLDING MACHINE WITH VARIABLE SPRUE-HEIGHT ADJUSTMENT
Francis W. Cook, Jr., Newington, Conn., assignor to The New Britain Machine Company, New Britain, Conn.
Filed May 15, 1969, Ser. No. 824,845
Int. Cl. B29f 1/00
U.S. Cl. 18-30 JA 4 Claims



In a plastics injection-molding machine, the injector is reciprocatably slidable on a platform for engaging the injector nozzle with the sprue hole of a mold on the machine. One end of the platform is pivoted for jacked vertical movement of the other end, to adjust the vertical position of the injector nozzle. Such adjustment accommodates the injector nozzle to the elevation of the sprue hole, for successive molds having sprue holes at different heights. The portion of the nozzle engaging the sprue hole is generally spherical for making universally good contact therewith, throughout the range of adjustably available angular positions of the injector relative to the mold.

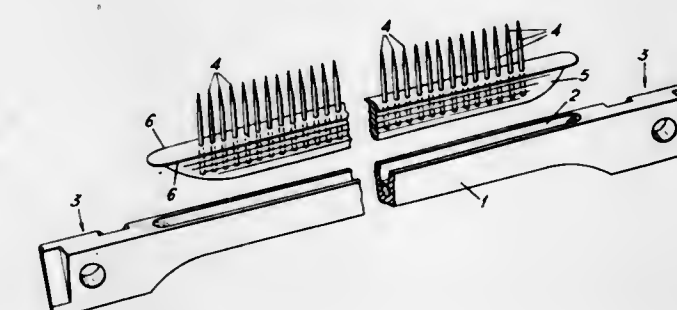
3,600,756
INDEXING AND BRAKE APPARATUS FOR ROTATIONAL CASTING MACHINES
Alden C. Boyce, Stow, Ohio, assignor to Rota-Matic, Inc., Cuyahoga Falls, Ohio
Filed Feb. 3, 1969, Ser. No. 795,899
Int. Cl. B29c 5/04
U.S. Cl. 18-26 RR 6 Claims

In a rotational casting machine, a stop means is provided adjacent a support arm used in the casting machine for support of and rotation of the mold-carrying means, and such stop means is movable to and from engagement with the sup-



thereof and to control the stop position of molds operatively carried by the support arm.

3,600,757
FALLERS FOR TEXTILE MACHINES
John K. P. Mackie, Belfast, Northern Ireland, assignor to James Mackie & Sons Limited, Belfast, Northern Ireland
Filed May 5, 1969, Ser. No. 821,716
Claims priority, application Great Britain, May 20, 1968, 23940/68
Int. Cl. D01g 19/00
U.S. Cl. 19-129 5 Claims

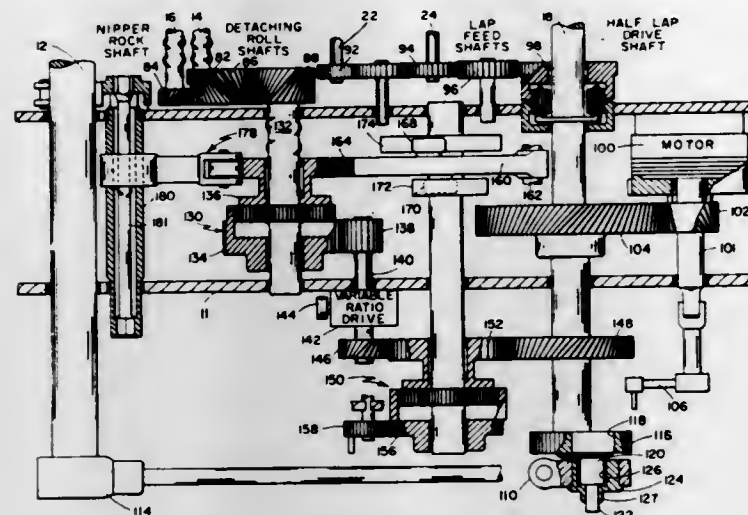


A faller for a textile machine of the kind in which the pins are mounted in an insert of synthetic plastic held within a slot in the body of the faller by means of adhesive is improved by the formation of the insert with a laterally extending flange at each side so that when the insert is fitted in position the flanges extend over the upper surface of the faller and thus prevent excess adhesive flowing over the surface of the insert between the pins.

3,600,758
TEXTILE COMBER NIPPER DRIVE
John Clifford VonKaenel; Gordon Campbell Anderson, and Stephen David Seymore, Jr., all of Clemson, S.C., assignors to Maremont Corporation, Chicago, Ill.
Division of Ser. No. 585,605, Oct. 10, 1966, Pat. No. 3,479,699
Filed May 2, 1969, Ser. No. 841,652
Int. Cl. D01g 19/16
U.S. Cl. 19-225 6 Claims

This invention relates to a nipper assembly drive having two cooperating eccentric elements which makes it possible to establish an adjustable predetermined stroke of the nipper assembly from a generally unchanged back position of the

nipper assembly. This adjustment is made particularly convenient by the utilization of indicia for each of the eccentric



members which cooperate with one another to provide such adjustment.

3,600,759

DRAFTING APRON CRADLE ASSEMBLY
Peter F. Grishin, P.O. Box 250, Sanford, N.C.

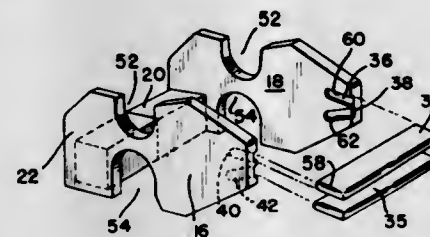
Continuation of Ser. No. 669,519, Sept. 21, 1967

Filed Mar. 24, 1969, Ser. No. 814,882

Int. Cl. D01h 5/88

U.S. Cl. 19—255

5 Claims



This invention relates to textile fiber handling apparatus in the form of a cradle assembly used in the process of drafting textile fibers through the medium of an apron or aprons and particularly to a novel cradle assembly construction having side walls which seal the apron-holding pins and apron interior to prevent the accumulation of lint or fly within the aprons, about the rolls and along the pins on which the aprons ride. The cradle may be constructed in a unique manner which permits significant control of the tension in the lower apron.

3,600,760

RELEASE MECHANISM

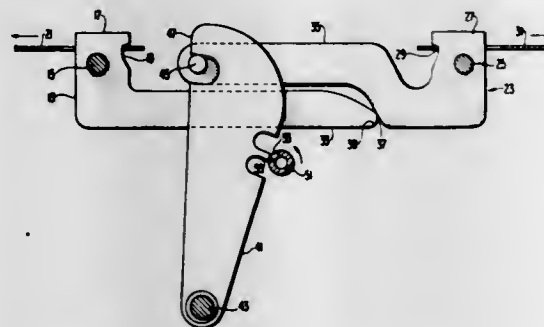
Ralph G. Eshleman, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed Dec. 11, 1969, Ser. No. 884,219

Int. Cl. A43c 11/14; G04b 33/00

U.S. Cl. 24—68 R

11 Claims



This invention relates to a time-delay release mechanism for restraining and releasing large loads. For example, as in the case of a steel banding strap used to hold a large package together. The invention, in one embodiment, includes ad-

jacent, rotatably mounted release levers which distally engage the ends of the strap at the mounting thereof. The release levers are connected by a rotatably mounted locking lever. In a second embodiment, a single release lever, adapted to engage one end of a fixed strap, is resiliently attached to a rotatable mounting by a locking lever. A timer selectively allows rotational movement of the locking lever to free, in one embodiment both release levers, and in the other, the release lever and the mounting, which in turn release the load.

3,600,761

CLOSURE DEVICES

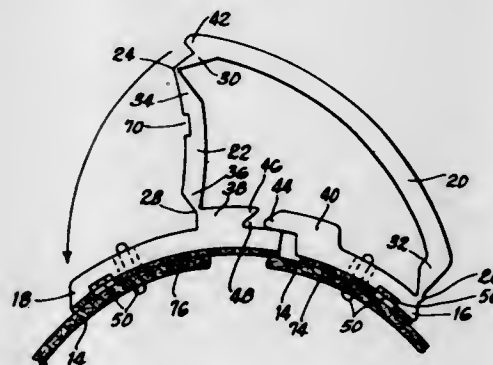
Charles J. Mathey, 517 S. Reuter Drive, Arlington Heights, Ill.

Filed Apr. 27, 1970, Ser. No. 32,107

Int. Cl. A43c 11/14

U.S. Cl. 24—71 SK

22 Claims



The closure device comprises two toggle links connected between base members. Hinge elements, preferably integral with the toggle links, are connected between the two toggle links, and also between each link and the corresponding member. In a modified construction, interfitting hook elements are provided between on toggle link and the corresponding base member. The toggle links are preferably made of flexible, resilient plastic material. In one advantageous application of the closure device, the base members are secured to the closure flaps of a shoe, by means of one or more laces, threaded through the lace holes in the shoe, and also through corresponding lace openings in the base members. The outer toggle link preferably covers and conceals the other toggle link, and also the base members.

3,600,762

WEB RETENTION CLIP

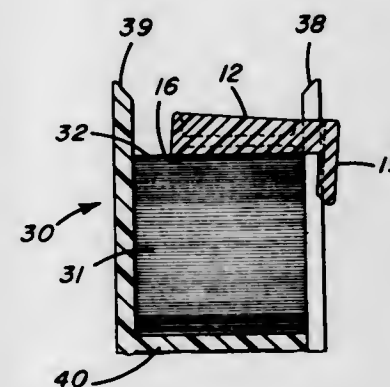
Arthur C. Rissberger, Jr., Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 23, 1970, Ser. No. 21,832

Int. Cl. A44b 21/00; B65d 85/672

U.S. Cl. 24—81 FC

5 Claims



A clip for the retention of a web wound upon a reel having a flange with radially extending slot for slidable movement of the clip along the flange. The clip includes a pressure bearing means having the general shape of a frustum of a wedge. This permits first contact to be made at the thick end of the wedge and through resilient cantilevered action, web contact along the length of the pressure bearing means is ensured.

The clip has gripping means which includes a friction fit of the flange width. The gripping means also includes a pair of resilient shoulders which cooperate with the thin end of the wedge for gripping the flange to maintain the position of the clip on the flange. Gripping action and web retention are further enhanced by having a neck portion resiliently couple the pressure bearing means with the gripping means.

3,600,763

CLOTHES PEG

Heinz H. Weick, 94 Rue de la Servette, Geneva, Switzerland

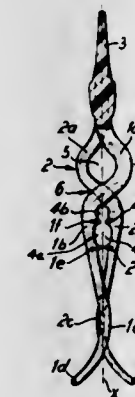
Filed Jan. 28, 1969, Ser. No. 794,626

Claims priority, application Switzerland, Feb. 6, 1968, May 29, 1968, Nov. 1, 1968, 1902/68; 8183/68; 16427/68

Int. Cl. D06f 55/00

U.S. Cl. 24—137 R

6 Claims



A clothes peg moulded in one piece from thermoplastic material and comprising a handle with depending clamping arms which can be flexed apart to straddle a clothes line. Each clamping arm comprises a resiliently flexible portion adjacent the handle, an adjoining clamping portion and a terminal portion. The terminal portions together define a splayed entrance channel by which the peg is offered to the clothes line. The clamping portions define a ribbed passage in which the clothes line is received when the peg has been finally positioned. During flexure, the clamping portions are displaced from a position in which they subtend acute angles to one in which they are more nearly parallel.

3,600,764

ARTICLE-HANGING CLIP

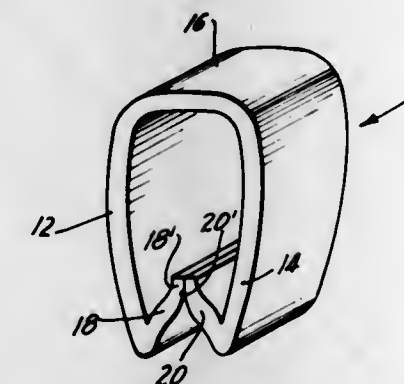
Monroe Froehlich, Jr., South Salem, N.Y., assignor to DHJ Industries, Inc., New York, N.Y.

Filed Oct. 16, 1969, Ser. No. 866,968

Int. Cl. D06f 55/00

U.S. Cl. 24—137 R

3 Claims



A clip for gripping and holding, in hanging fashion, articles such as garments which can be inexpensively produced by molding of plastic or other suitable material.

3,600,765

ROPE END COUPLING

Raymond R. Rovinsky, Wilkes-Barre, and Harry R. Gardner, Jr., Shavertown, both of Pa., assignors to American Chain & Cable Company, Inc., Bridgeport, Conn.

Filed Dec. 27, 1968, Ser. No. 787,466

Int. Cl. F16g 11/02, 11/04

U.S. Cl. 24—122.6

11 Claims



A rope end coupling composed of a ferrule having a conically shaped bore and a tapered wedge for securing a rope having a plurality of outer strands in the ferrule bore. The tapered wedge includes a plurality of grooves in its outer surface to receive some or all of the strands of the rope and tightly hold them against the ferrule.

3,600,766

STRINGERS FOR FASTENERS

Herbert Alberts, Rua Capitao Luiz Ramos 312, Sao Paulo, Brazil

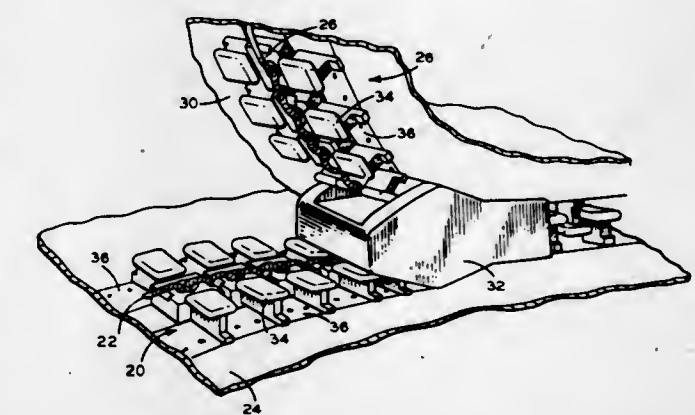
Filed July 28, 1969, Ser. No. 845,455

Claims priority, application Brazil, Aug. 1, 1968, 201575

Int. Cl. A44b 19/08, 19/10

U.S. Cl. 24—205.12

9 Claims



A plastic fastener comprises two stringers. Each stringer includes a plurality of longitudinally spaced plastic engaging elements. The engaging elements of each stringer are interconnected via a plastic strip in which are embedded threads whereby each stringer is a unitary structure of molded plastic material. Each engaging element of each stringer extends transverse to the axis of the stringer and is provided with teeth or hooks at its both ends for meshing with engaging elements of the other stringer.

3,600,767

COIL-TYPE ZIPPER STRINGER

Roy M. Cowdrey, Lake Hiawatha; Robert B. Brauch, Wayne, N.J., and Anne C. Clapp, Siler City, N.C., assignors to The Singer Company, New York, N.Y.

Filed June 17, 1969, Ser. No. 833,972

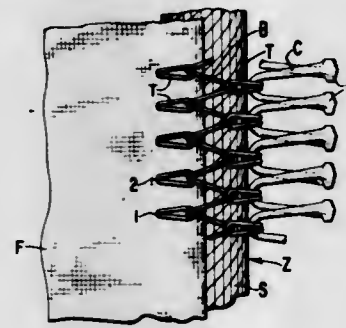
Int. Cl. A44b 19/12, 19/40

U.S. Cl. 24—205.16

1 Claim

A coil-type zipper stringer is disclosed which a home sewer is enabled to produce directly on a material using a family-type zigzag sewing machine. The material is positioned under and to one side of a stuffer cord. A zipper coil is positioned in parallel contact with the other side of the stuffer cord so that the total throw of the zigzag sewing machine needle dur-

ing one stitch sequence encompasses from the material on the one side of the stuffer cord to an inside loop of the zipper coil on the other side of the stuffer cord, whereby the zigzag



stitching locks the material, the stuffer cord and the zipper coil together to form a zipper stringer, wherein the stitch crossover occurs on a bottom portion of the zipper stringer.

3,600,768

INTEGRAL THREE-POINT SAFETY BUCKLE

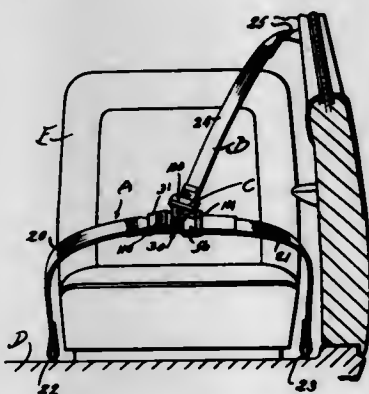
Louis Romanzi, Jr., Brighton Township, and William J. Eubank, Livonia, both of Mich., assignors to Irvin Industries Inc., Lexington, Ky.

Filed Feb. 26, 1969, Ser. No. 802,557

Int. Cl. A44b 17/00

U.S. Cl. 24—205.17

12 Claims



A safety belt and buckle construction for vehicles in which lap belt straps or webbing are provided as well as shoulder strap means, both the lap webbing and shoulder webbing being attached to the vehicle and remote therefrom all being connected by buckle means having a plurality of detents to respectively hold the lap belt straps and shoulder strap means in releasable latched position whereby all of the straps may be simultaneously released by a single pushbutton means or the shoulder strap released without releasing the lap straps.

3,600,769

SEAT BELT BUCKLE

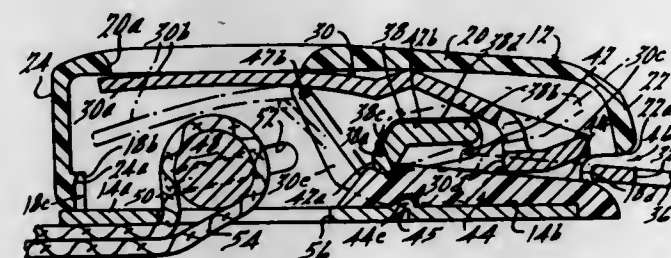
William V. Bachmann, St. Clair Shores, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed July 14, 1969, Ser. No. 841,334

Int. Cl. A44b 11/26

U.S. Cl. 24—230 A

10 Claims



A seat belt buckle of the push button type wherein a lever member is pivoted intermediate its ends within the buckle housing with one end of the lever underlying an opening in the top wall of the housing to permit engagement of that end

of the lever by the finger of an operator, while the other end of the lever defines a detent structure which releasably engages the tip end or blade of the mating belt assembly.

3,600,770

CIRCULAR CLAMPS

Horace P. Halling, Leverstock Green, England, assignor to Avica Equipment Limited, Hemel Hempstead, Hertfordshire, England

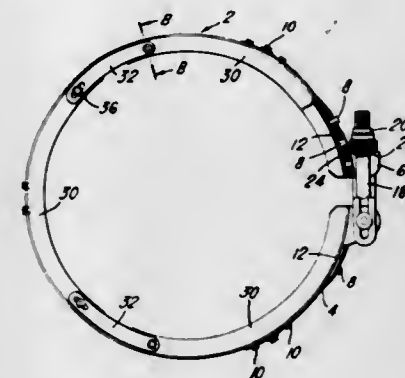
Filed Oct. 20, 1969, Ser. No. 867,572

Claims priority, application Great Britain, Apr. 29, 1969, 21874/69

Int. Cl. B65d 63/06

U.S. Cl. 24—279

11 Claims



The invention relates to a circular clamp for clamping flanges, which comprises a body having a clamping strap supporting interiorly thereof at least one flange engaging member; and at least two lugs which are pulled together by a nut and bolt to tighten the body around the flanges, each lug being fast with a reinforced free end portion of the clamping strap, and the bolt being pivotally attached to one of the lugs. There will be two lugs and one nut and bolt arrangement when the clamp is in the form of a split ring, and there will be four lugs and two nut and bolt arrangements when the clamp is in the form of two separate half circles. Usually the clamping strap will have pivotal flange-engaging members attached to its inner face, and the flanges to be joined are preferably V-flanges.

3,600,771

DEVICE FOR DRAINING NEWLY CAST CONCRETE BY VACUUM TREATMENT

Bror Dyrander, Nacka, Sweden, assignor to Tremix Aktiebolag, Nacka, Sweden

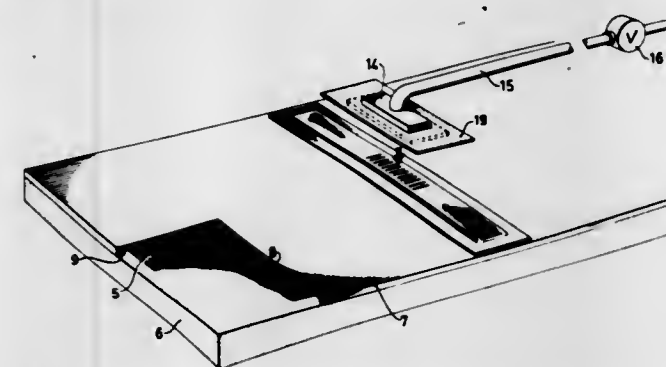
Filed July 11, 1969, Ser. No. 840,971

Claims priority, application Sweden, Aug. 1, 1968, Feb. 10, 1969, 10396/68;282/69

Int. Cl. E04g 21/06

U.S. Cl. 25—1 F

7 Claims



For draining cast concrete a filter gauze is spread over the concrete surface and covered by a mat of flexible rubber or plastics. Draining passages are formed between the gauze and the mat and connected to collecting spaces provided at the outside of the mat. Outlet ports from said collecting spaces cooperate with a nozzle connected to a movable suction conduit and dimensioned to cover all said outlet ports when applied manually in correct position against the exterior of the mat.

3,600,772

IMMUNOELECTROPHORESIS AGAR-GEL PUNCH

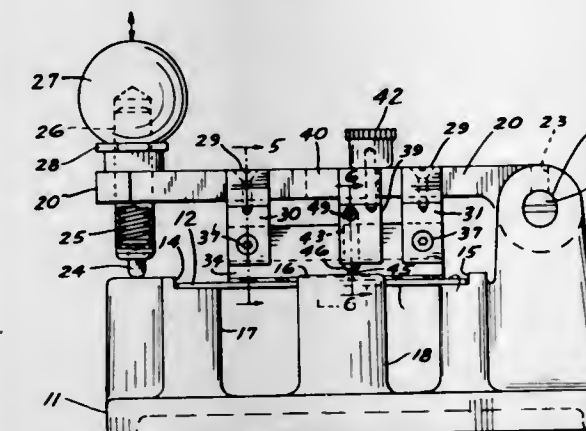
Walter Farris, 19193 Parkside, Detroit, Mich.

Filed Mar. 12, 1970, Ser. No. 19,035

Int. Cl. B28b 7/14

U.S. Cl. 25—105

6 Claims



An agar-gel punch and cutter for use in the separation of serum proteins by the practice of immunoelectrophoresis.

A particular combination and arrangement of elements, which includes a base for supporting agar-gel covered microscopic slides and a hinged top, which is provided with a multiplicity of depending resiliently mounted, adjustable punches, for making holes in the agar-gel, and a plurality of resiliently mounted pairs of spaced blades for forming troughs in the agar-gel, there being an adjustable, eccentric pivot between the base and top to permit the leveling of the top with respect to the slide, and there being an adjustable and resilient element between the base and the top to limit the relative movement when the parts are parallel.

3,600,773

CONCRETE-FORMING DEVICE

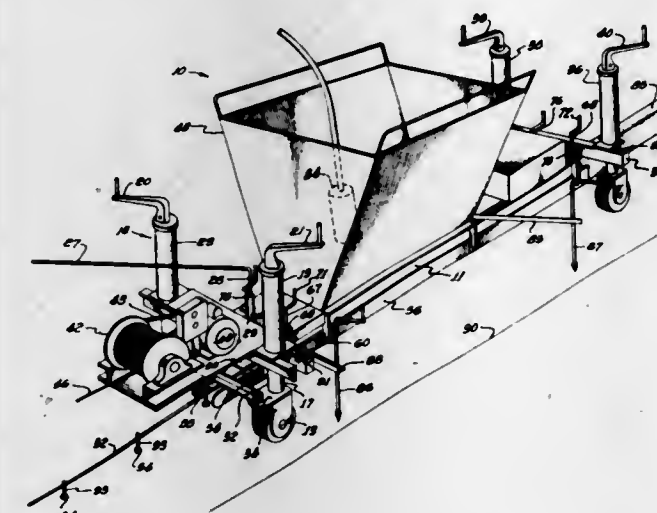
Leland J. Davis, 1409 N. Mar Les Drive, Santa Ana, Calif., and Paul T. Ogilvie, 1129 Orangegrove, Orange, Calif.

Filed Mar. 26, 1969, Ser. No. 810,645

Int. Cl. E01c 19/50

U.S. Cl. 25—118 W

9 Claims



A concrete-forming device that includes an elongated open-ended mold complementary to a shape to be produced, the mold having movable lower side edge portions resiliently biased downwardly to accommodate surface irregularities for confining the concrete in the mold, with adjustable means being provided for obtaining further movement of the lower side edge portions. A hopper communicates with the upper portion of the mold for receiving concrete to flow by gravity into the mold, and a vibrator is introduced into the concrete to cause it to fill the entire section of the mold. Steerable

3,600,774

APPARATUS FOR STRAND TREATMENT

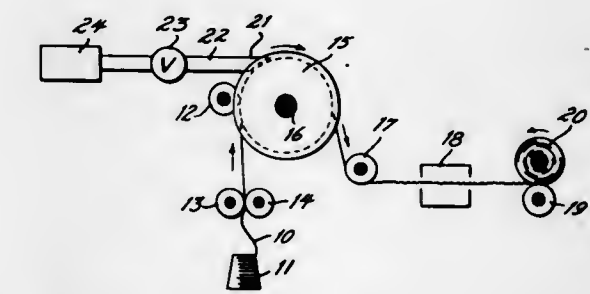
Charles A. McClure, R. D. 2, Malvern, Pa.

Continuation-in-part of application Ser. No. 714,171, Mar. 19, 1968, now Pat. No. 3,500,516, dated Mar. 17, 1970, which is a continuation-in-part of application Ser. No. 543,947, Apr. 20, 1966, now Pat. No. 3,374,514, which is a continuation-in-part of application Ser. No. 686,424, Nov. 29, 1967, now Pat. No. 3,457,613. This application Mar. 13, 1970, Ser. No. 19,440

Int. Cl. D02g 1/00

U.S. Cl. 28—1.2

15 Claims



Strand-treating apparatus is provided to draw and crimp textile strands, including means for cooling the strand-supporting surface of a draw roll and means for directing hot fluid, preferably obliquely, onto one side of a textile strand so supported, the opposite side of which is maintained relatively cool on the cooled roll surface. Means are provided for so treating one monofilament or multifilament strand or many individual strand "ends" lying alongside one another.

3,600,775

TANGLING JET

Robert Sluifjters, Arnheim, Netherlands, assignor to American Enka Corporation, Enka, N.C.

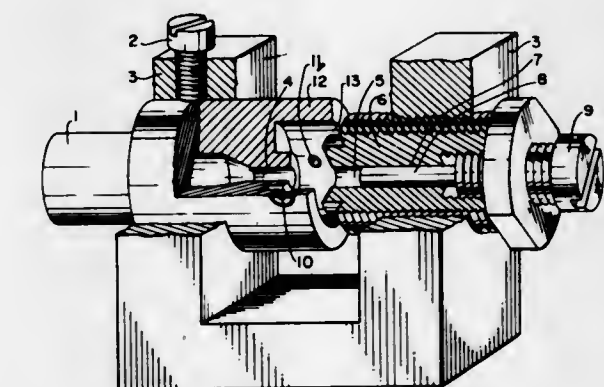
Filed June 3, 1969, Ser. No. 829,894

Claims priority, application Netherlands, June 13, 1968, 6808286

Int. Cl. D02g 3/00

U.S. Cl. 28—1.4

1 Claim



A tangling jet having a nozzle member and a resonance chamber member positioned coaxially therewith is improved by adding a tubular body concentrically around the nozzle member and the resonance chamber member, and by providing thread guide openings in the tubular body so that a thread bundle passing therethrough intersects the common centerline of the nozzle and resonance chamber members.

3,600,776

STUFFER CRIMPER

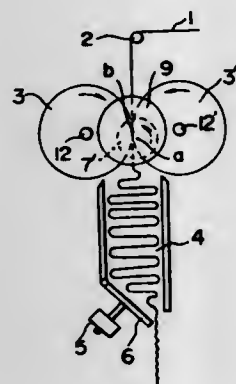
Sokichi Aoki, and Yoshinobu Murakami, both of Matsuyama-shi, Japan, assignors to Teijin Limited, Kita-ku, Osaka, Japan

Filed Nov. 26, 1969, Ser. No. 880,130

Int. Cl. D029 1/12

U.S. Cl. 28-1.6

1 Claim



Improvements in a stuffer, crimper unit having a pair of feed rolls wherein the central positions of side plates urged against both side faces of said feed rolls are located apart from the nip of the feed rolls eccentrically with respect to the line connecting centers of both feed rolls and line perpendicular thereto and said side plates are held in position in holders so that they are freely rotatable to prevent uneven abrasion of the side plates and increase the efficiency of the apparatus.

3,600,777

TOOL FEEDING DEVICE FOR MACHINE TOOLS

Giorgio Ollearo, and Elio Pagella, both of Ivrea, Italy, assignors to Ing. C. Olivette and C., S.p.A., Ivrea (Turin), Italy

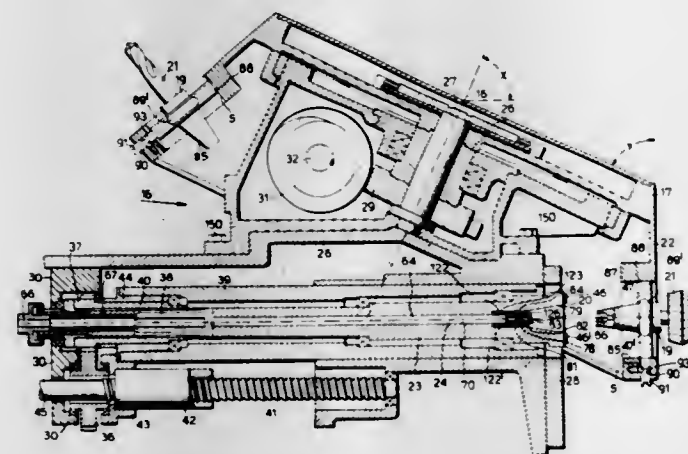
Filed July 29, 1968, Ser. No. 748,402

Claims priority, application Italy, July 29, 1967, 52600 A/67

Int. Cl. B23b 39/00, 7/04

U.S. Cl. 29-26

4 Claims



A machine tool arrangement having a device for controlling the chuck thereof, comprising a base, a headstock mounted thereon, and a sleeve axially slideable within the headstock, the chuck being rotatable within the sleeve. The chuck is arranged to be rotatable by a shaft disposed parallel and noncoaxially thereto by a train of gear wheels displaceable together with the sleeve, relative to the shaft. The sleeve is arranged to be shifted axially by means of a mechanism arranged parallel and noncoaxially with the shaft to apply rotational force to the chuck in a manner such that the torsional deformation thereof remains constant throughout the entire chuck stroke.

3,600,778

METHOD OF MANUFACTURING THE FOCUSING**GRIDS OF COLOR TELEVISION TUBES**

Andre Martin, Paris, France, assignor to Thomson-CSF

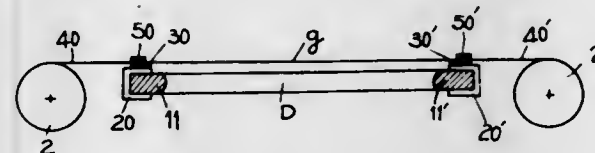
Filed Jan. 28, 1969, Ser. No. 794,597

Claims priority, application France, Feb. 1, 1968, 138,334

Int. Cl. H01j 9/00

U.S. Cl. 29-25.14

3 Claims



A method of manufacturing focusing grids for color television tubes, consisting in first producing a sheet of wires having the desired accuracy in terms of pitch and flatness, on a prismatic drum the corners of which are constituted by precision screws in the threads of which the wires are laid. The wires are then preliminary fixed to channel irons carried by the side members of a precision frame.

A substantial economy is achieved by using the same frame for manufacturing a great number of grids. Only the channel iron need to be changed.

3,600,779

PRESS ROLL WITH TAPERED GROOVES

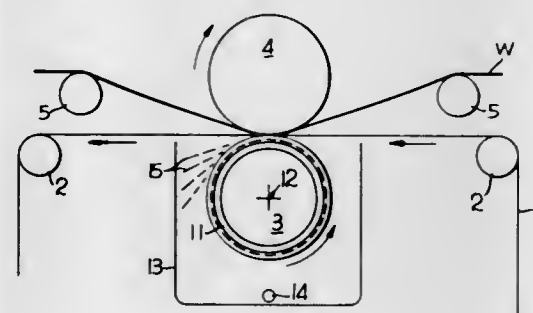
Donald B. DeNoyer, Beloit, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 12, 1969, Ser. No. 884,490

Int. Cl. B21b 27/02

U.S. Cl. 29-121 A

5 Claims



A grooved press roll shell is disclosed for dewatering a newly formed web of paper. The shell may be grooved with a continuous helical groove in its periphery. The groove presents a continuous radially inward converging taper from the outer cylindrical surface of the roll to the bottom of the groove. The bottom of the groove is defined by a cylindrical surface concentric to the outer cylindrical surface of the roll. The groove tapers inwardly for a distance which is preferably more than twice the width of the groove at the outer periphery of the roll, to define an included angle preferably in a range of from 8° to 10° and a bottom surface between one-half and two-thirds of the width of the groove at the outer periphery of the roll. The continuous taper of the flat bottom groove from the roll surface radially inward to such depth provides desired dewatering without an undesired counter pressure of water trapped in the groove and without the groove become clogged or plugged with felt hair or fiber.

3,600,780

METHOD FOR IMPROVING BEARING WEAR

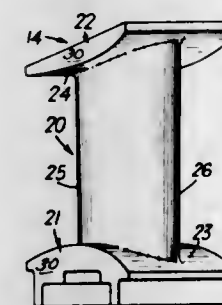
Dominick F. Dolce, and Walter G. Poland, both of Sandusky, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of application Ser. No. 810,367, Mar. 25, 1969, now abandoned. This application Aug. 7, 1970, Ser. No. 62,167

Int. Cl. B23p 11/00; B21d 53/10

U.S. Cl. 29-148.4 A

5 Claims



A method of improving machine bearing wear wherein components of a rotating bearing assembly are immersed in oil and heated to an approximate temperature of 400° F in an air atmosphere from 60 to 90 minutes. The bearing components are immersed in a hydrocarbon mineral lubricating oil, the excess oil is removed leaving the components coated with an adherent film, and the bearings are then heated to form a varnish film from the adherent film which when placed in an operative environment with normal lubrication provides longer wear characteristics.

3,600,781

METHOD OF PRODUCING A STATOR VANE FOR A GAS TURBINE ENGINE

Malcolm Ralph Scott, Shelton Lock, Derby, England, assignor to Rolls-Royce Limited, Derby Derbyshire, England

Filed Mar. 6, 1969, Ser. No. 804,964

Claims priority, application Great Britain, Mar. 8, 1968, 11427/68

Int. Cl. B21k 3/04; B23p 15/02, 15/04

U.S. Cl. 29-156.8 B

4 Claims

A method of making stator vanes for a gas turbine engine comprises forming the radially outer surface of the vane platform, and/or the radially inner surface of the shroud of the vane, with a convex curvature, and thereafter reducing this convex curvature to a desired value such that the throat area defined between adjacent like stator vanes has the design value. Excessive curvature reduction may be compensated by bending the trailing edges and/or changing the angle of incidence of the vanes.

3,600,782

METHOD AND APPARATUS FOR MAKING GUIDE BRACKET AND BALL-BEARING CARRIER UNITS FOR DRAWERS AND THE LIKE

Morris Manson, Great Neck, N.Y., and William G. Meyer, St. Petersburg, Fla., assignors to Corax Corporation, Yonkers, N.Y.

Filed Oct. 20, 1969, Ser. No. 867,506

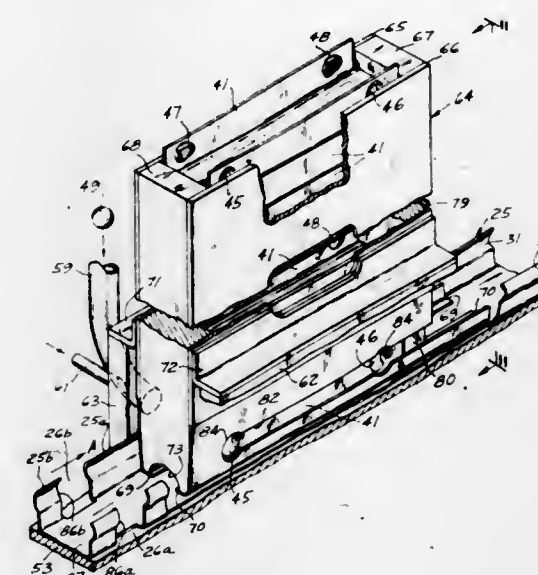
Int. Cl. B23p 11/00, 19/04

U.S. Cl. 29-148.4 A

15 Claims

A method and apparatus for making guide bracket and ball bearing carrier units from a plurality of channel-shaped carrier members with ball bearing sockets, ball bearings, and a longitudinally moving channel-shaped guide bracket strip comprising a plurality of guide bracket sections defined by longitudinally spaced notched portions. The carrier members are sequentially fed to a working position in an assembling station in timed relation to the operative forward movement of the strip, each operatively positioned carrier member being held against movement while in said working position, the guide bracket strip uninterruptedly moving through said assembling station while ball bearings are being fed to positions between the sockets in the carrier member legs and the flanking legs of the moving guide bracket strip, thereby effecting a rollable interengagement of the carrier member and the adjacent coating guide bracket section. The carrier

member is then released from its said assembling position, and the interengaged members are moved forwardly to



cutting apparatus at which successive completed units are operatively severed.

3,600,783

BADGE PRESS

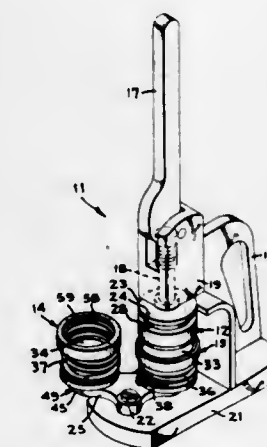
Jack Krinsky, 672 Grand Ave., Long Beach, Calif., and George Pavlich, 9289 Cedartree Road, Downey, Calif.

Filed Dec. 3, 1969, Ser. No. 881,658

Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29-200 B

11 Claims



The invention is a press utilizing transfer dies for rapidly assembling badges or similar items made from laminar material. The transfer dies are hollow and shaped to register with each other. A first die having a sharpened wedge-shaped edge performs the functions of cutting badge material to size and then holding the badge material in its hollow interior. Second and third dies, arranged to successively register with the first die, each include a piston which pushes cut badge material into the first die where the material is accumulated until a complete badge is formed.

3,600,784

SPRING-LOADED HOTSTICK FOR MANIPULATING ELECTRIC CABLE CONNECTORS

Richard F. Propst, Lexington, Ky., and Norman M. Neagle, Hickory, N.C., assignors to General Electric Company

Filed Dec. 2, 1969, Ser. No. 881,564

Int. Cl. H01r 43/00; B25b 27/02

U.S. Cl. 29-203 H

10 Claims

A hotstick for manipulating electric cable connectors is provided with a manually controlled, spring-actuated mechanism that makes the speed of circuit interrupting and circuit making operations independent of the speed at which a lineman moves the hotstick. To perform either a load making or load breaking function by connecting or disconnecting a cable connector module to, or from, a fixed terminal, a

manually operated trigger on the hotstick is actuated after the hotstick is moved to position the module with respect to the terminal. Thus actuated, the trigger releases a spring



loaded mechanism on the hotstick, which snaps the cable connector either toward or away from the fixed terminal to make or break the circuit with a minimum of arcing.

3,600,785

CIRCUIT BOARD ASSEMBLY LINE

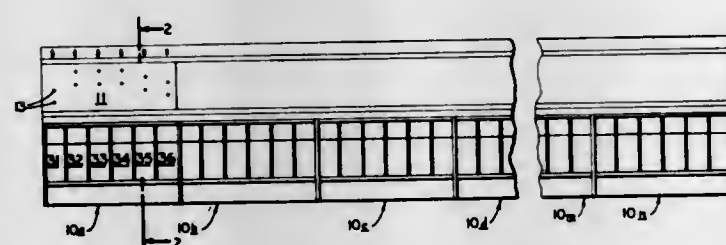
Leslie J. Cook, 2537 Regent St., Berkeley, Calif., and John E. Lindberg, 1211 Upper Happy Valley Road, Lafayette, Calif.

Filed Oct. 16, 1969, Ser. No. 866,855

Int. Cl. H05k 13/04; B23q 17/00; H05k 3/30

U.S. Cl. 29—203 B

4 Claims



An assembly line for placing a large number of circuit components at their proper locations on a series of identical printed circuit boards. A series of opaque support plates are supported above a light source, one plate for each station in the assembly line. Each plate has a series of windows or openings through which the light shines, and these correspond to the locations of the leads for the circuit components to be assembled to the circuit board at that station. In front of the support board is a series of bins, one for each component, and located generally beneath their respective openings. At each station, the components to be assembled are spaced rather widely apart across the board. Above the support board, one of each component to be assembled at that station is positioned generally vertically above the place where it is to be installed.

3,600,786

MACHINES FOR APPLYING SLIDERS TO SLIDE FASTENERS

Harry Hansen, Valby-Copenhagen, Denmark, assignor to Lysta A/S, Copenhagen-Valby, Denmark

Filed Mar. 20, 1969, Ser. No. 808,830

Claims priority, application Denmark, Mar. 22, 1968, 1241/68

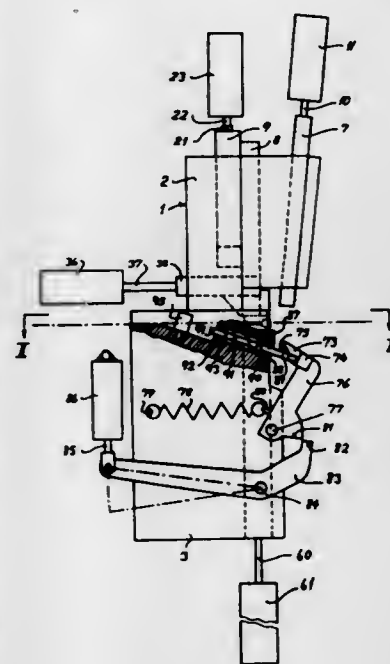
Int. Cl. B23p 19/04

U.S. Cl. 29—207.5 SL

5 Claims

The invention relates to a machine for applying sliders to a slide fastener blank in the form of two continuous tapes with interengaging rows of fastening elements alternating with blank zones where a slit is formed between the tapes. The machine comprises a pair of spreading legs, the ends of which lie close together to form a wedge capable of penetrating through the slit between the tapes and thereafter being movable away from each other to spread the tapes apart for receiving a slider therebetween. The machine also comprises

a spreading finger introducer between the tapes to spread them further apart so as to initiate disengagement of the



fastening elements first entering into the slider upon continuation of the feeding movement of the blank.

3,600,787

METHOD OF MAKING CAPACITORS WITH FREE-STANDING ELECTRODES

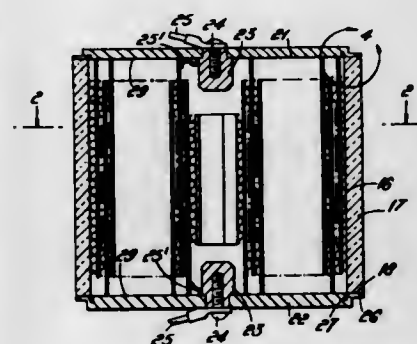
Wesley N. Lindsay, San Jose, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 696,951, Jan. 10, 1968, now abandoned which is a continuation of Ser. No. 509,250, Oct. 21, 1965, abandoned, which is a division of Ser. No. 326,696, Nov. 29, 1963, abandoned. This application May 26, 1969, Ser. No. 827,741

Int. Cl. H01g 13/00

U.S. Cl. 29—25.41

16 Claims



The disclosure includes a method of making a vacuum capacitor having parallel, conductive electrodes which can be in the form of plates, discs, cylinders, or meshed spirals. Two spacing layers of dielectric, bonded salt particles, or bonded molybdenum trioxide particles are employed to keep the turns of each plate spaced from each other and from the turns of the other plate. Removable stainless steel strips may also be used in some configurations of electrodes. A braze joint is provided for one edge of one plate to fix the position of the said one plate. A braze joint is similarly provided for an edge of the other plate. Brazing is performed while both plates and both spacing layers are held tightly together. The plates are then further processed to make a vacuum capacitor. It is one outstanding feature of the disclosure that the brazing steps are performed while the spacing layers are left intact. This makes it possible to increase arcing or breakdown voltage, to increase capacitance, and to decrease the size of the capacitor. It is also possible to make a larger

diameter capacitor and a longer capacitor of much greater capacitance. It is further possible to make such an improved capacitor at a lower cost.

3,600,788

RUBBER BAND STRETCHING TOOLS

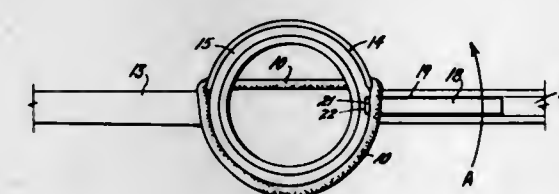
Walter R. Armand, 1320 Speer Blvd., Denver, Colo.

Filed July 16, 1969, Ser. No. 842,281

Int. Cl. B23p 19/04

U.S. Cl. 29—229

3 Claims



An outer cylindrical sleeve rotatably positioned about an inner cylindrical sleeve, each sleeve being provided with a radially projecting handle, said handles being capable of relative rotation to stretch said band into a circular ring peripherally encircling said outer cylindrical sleeve, provided with trigger means for urging said stressed ring from said outer sleeve to a contracted position about a work piece positioned within said inner cylindrical sleeve. wire

3,600,789

LEAD ANCHOR-SETTING TOOL

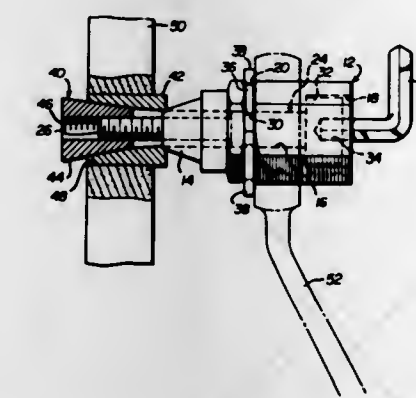
Harry P. Bubniak, 12372 DeVoe Ave., Southgate, Mich.

Filed June 27, 1969, Ser. No. 837,268

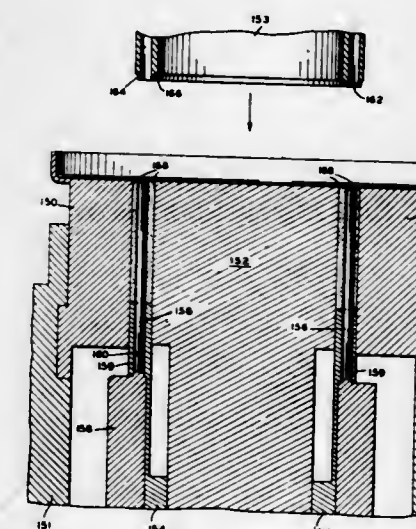
Int. Cl. B23p 19/04

U.S. Cl. 29—264

3 Claims



A setting tool suitable for installing lead anchors in walls having the following elements: a main body having a tapered conical nose at one end and a central bore having an enlarged diameter section at the end opposite the nose. An annular groove is cut in the surface of the main body concentric to the central bore, and a small bore extends from the bed of the groove to the central bore on an axis transverse to the axis of the central bore. A drive bolt is seated in the central bore of the main body, and comprises a cylindrical head having an internal recess adapted to receive a turning wrench, a section of reduced diameter attached to and on the same axis with the head having an annular groove in it which is aligned with the annular groove on the surface of the body, and a threaded section attached to the section of reduced diameter and having the same axis. A pin is seated in the small bore in the main body, one end of which extends into the annular groove in the section of reduced diameter of the drive bolt, thus retaining the bolt against axial movement. A retaining split ring, mounted in the groove of the body, holds the pin in place.



A method of making a composite brake drum having an axially perforated sintered metal drum ring and a stamped

3,600,790

MANUFACTURE OF CLAD WIRE AND THE LIKE
Paul A. Dion, North Attleboro, Mass., and Arthur J. Thomson, Allamuchy, N.J., assignors to Texas Instruments Incorporated, Dallas, Tex.

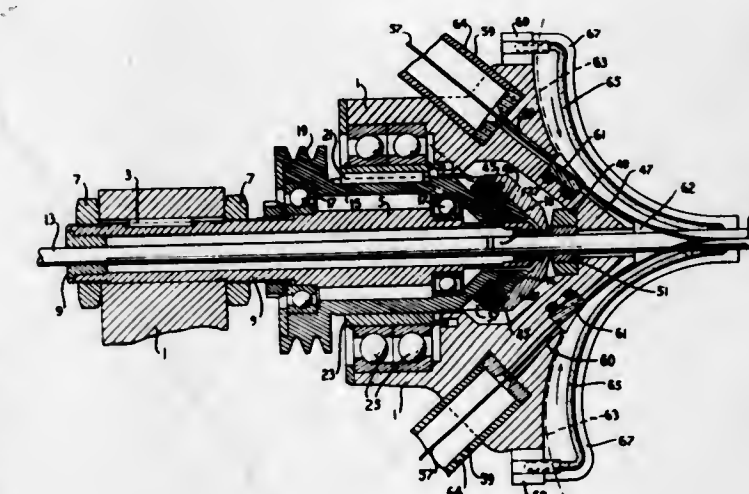
Division of Ser. No. 607,254, Jan. 4, 1967, Pat. No. 3,444,603.

Filed Mar. 7, 1969, Ser. No. 805,260

Int. Cl. B21d 39/04

U.S. Cl. 29—474.1

10 Claims



A wire is pulled by squeeze rolls through a drawing die, a guide bushing, a circumferential milling device, and an axially operative shaving die. The shaving die forms a virgin surface on the wire. The milling device is operative closely adjacent to the inlet of the shaving die so as to cut away its chips and prevent jamming thereby and wire breakage. Between the shaving die and the draw rolls clean cladding strips are brought into engagement with the virgin surface of the wire to effect solid-phase bonding thereto under roll squeezing action. They converge in a compartment leading to the rolls and containing a protective or reducing atmosphere. The cutting edge of the shaving die also forms a gas seal around the wire inlet to this compartment.

3,600,791

METHOD OF MAKING A COMPOSITE BRAKE DRUM
Charles Robert Talmage, New Canaan, Conn., assignor to Motor Wheel Corporation, Akron, Ohio

Division of Ser. No. 433,563, Feb. 18, 1965, abandoned.

Filed June 14, 1968, Ser. No. 796,241

Int. Cl. B22f 3/24

U.S. Cl. 29—420.5

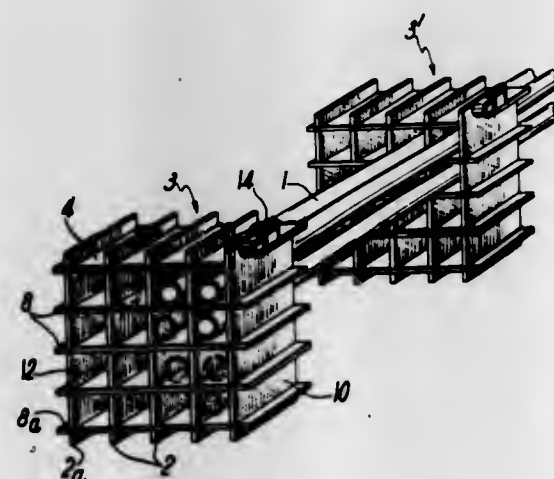
5 Claims

steel mounting back attached to one end of the drum ring. The drum ring is compacted from ferrous powder in an annular cavity of a compacting press while a plurality of tapered core pins are disposed in circumferentially spaced relation in and extending axially through the cavity. The compact is stripped from the cavity and pins by movement of the compacting punches relative thereto. The compact is sintered to complete the drum ring and thereafter a stamped steel back is secured to the ring by arc welding a continuous welded seam between the ring and back.

3,600,792
METHOD OF SUPPRESSING VIBRATIONS IN A BUNDLE OF PARALLEL TUBES

Robert Valluy, Massy, and Louis Maudinet, Palaiseau, both of, France, assignors to Societe Alcatel S.A., Paris, France
Filed July 22, 1968, Ser. No. 746,670
Claims priority, application France, July 31, 1967, P.V. 116,371

Int. Cl. B23p 19/00
U.S. Cl. 29—428 3 Claims

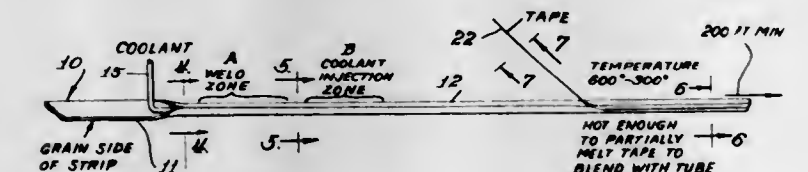


In order to suppress vibrations at a point of a bundle of parallel tubes without complicating the assembly of the bundle or entailing the need to dismantle the tube bundle after it has been installed, there is accordingly inserted between the tubes of the bundle a first series of parallel plates which are carried by an end-plate and which limit vibrations in a first direction, then a second series of parallel plates perpendicular to the first one for limiting the vibrations in a second direction, the two series of plates are then displaced by sliding in a longitudinal direction and thereby interassembled in such a manner that each tube is placed in a parallelepipedal recess while being in contact only with one or at a maximum with two of said plates, whereupon the two series of plates are rigidly fastened together.

3,600,793
METHOD OF MANUFACTURING FINISHED WELDED TUBING

John E. Masters, Barrington, Ill., assignor to Pre Finish Metals, Inc., Elk Grove Village, Ill.
Filed May 16, 1969, Ser. No. 825,287
Int. Cl. B23p 19/00; B23k 31/02

U.S. Cl. 29—430 3 Claims



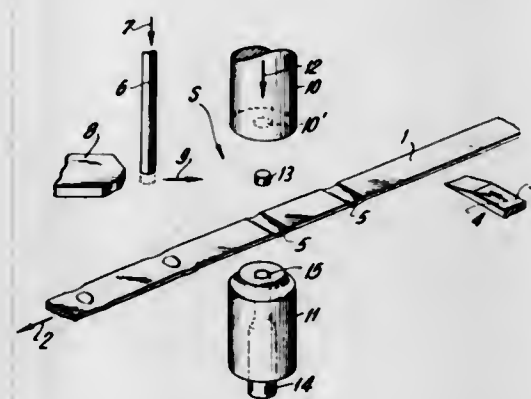
Flat prefinished metal strip is continuously converted to prefinished tube in a tube forming and welding process which includes continuous application of a film matching strip to the tubing in the region of the weld while the tubing is still

hot from the welding operation. The film strip includes a surface which is at least partially heat-fusible at the temperature of the tubing surface at the point at which the film strip is applied and is adherent thereto.

3,600,794
METHOD AND APPARATUS FOR PRODUCING ELECTRICAL CONTACTS

Akira Shibata, and Shigeru Tabel, both of Tokyo, Japan, assignors to Chugai Electric Industrial Co., Ltd., Tokyo, Japan
Filed Dec. 31, 1968, Ser. No. 788,258
Claims priority, application Japan, June 18, 1968, 43/42,070

Int. Cl. B23k 21/00
U.S. Cl. 29—470.1 2 Claims

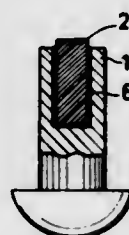


A method and apparatus are provided for pressure-bonding a precious contact metal selected from the group consisting of silver, platinum, gold, palladium and alloys based on these metals to a metal substrate strip selected from the group consisting of copper, nickel, copper-base and nickel-base alloys to which the contact metal is cold bondable. The invention includes feeding a strip of the metal substrate towards a bonding station comprising upper and lower dies, one die being adapted to apply pressure to the other, producing a freshly cut or fractured surface in a portion of the strip before it reaches the bonding station, freshly cutting or fracturing the piece of precious contact metal, superposing the precious metal against the substrate with their freshly fractured surfaces in contact with each other, and then immediately applying impact pressure to the superposed metal portions by means of the pressure-applying die sufficient to deform the precious metal at least 30 percent of its thickness against the substrate whereby to cold bond the precious metal to the substrate. Precious metal clad to a base metal of copper, nickel, copper-base and nickel-base alloys may be used as contact metal, the clad precious metal being freshly fractured through the base metal side for bonding to the metal substrate strip.

3,600,795
METHOD OF SOLDERING

John Olof Brundin, Fagersta, Sweden, assignor to Fagersta Bruks Aktiebolag, Fagersta, Sweden
Filed Nov. 25, 1968, Ser. No. 778,387
Claims priority, application Sweden, Nov. 27, 1967, 16232/67

Int. Cl. B23k 31/02
U.S. Cl. 29—473.1 4 Claims



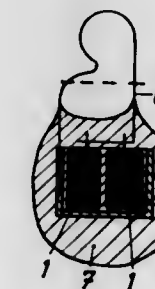
A method of soldering together two metal bodies having substantially different coefficients of expansion wherein a

first body having a low coefficient of expansion is snugly fitted into a recess in a second body having a high coefficient of expansion, and effecting a soldering gap between said first and second bodies by heating them to the soldering temperature thereby causing a differential expansion of the bodies due to their different coefficients of expansion.

3,600,796
METHOD OF MANUFACTURING ELECTRICAL CAPACITORS

Horst Gebert; Silvia Lipka, and Martin Meyer, all of Nurnberg, Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Jan. 14, 1969, Ser. No. 790,986
Claims priority, application Germany, Jan. 15, 1968, P 16 39 432.4

Int. Cl. B01f 17/00
U.S. Cl. 29—570 7 Claims

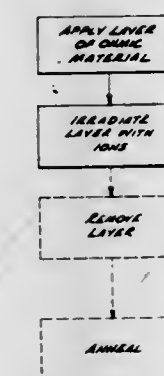


A capacitor is formed of two metallic anode bodies mounted closely together. A dielectric oxide layer is formed on the bodies over which a semiconductor layer is applied and then a conductive layer is applied to combine the bodies into one unit.

3,600,797
METHOD OF MAKING OHMIC CONTACTS TO SEMICONDUCTOR BODIES BY INDIRECT ION IMPLANTATION

Robert W. Bower, Palos Verdes, and Gordon A. Shifrin, Malibu, both of, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Dec. 26, 1967, Ser. No. 693,215
Int. Cl. H01f 7/18

U.S. Cl. 29—584 11 Claims

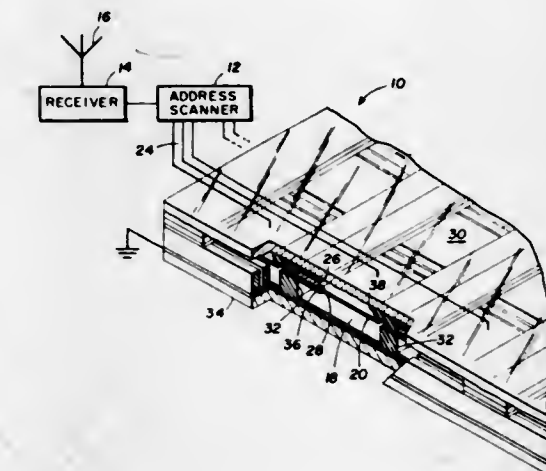


Method of making ohmic contacts to a semiconductor body by applying a layer of the desired contact metal on the surface of a semiconductor, bombarding this dopant with a beam of ions to drive atoms of the contact metal into the semiconductor body, and then removing the metal layer, if desired.

3,600,798
PROCESS FOR FABRICATING A PANEL ARRAY OF ELECTROMECHANICAL LIGHT VALVES

Ray H. Lee, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Feb. 25, 1969, Ser. No. 801,971
Int. Cl. H01s 4/00

U.S. Cl. 29—592 12 Claims

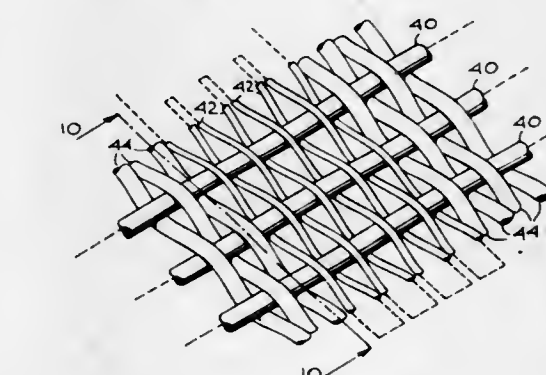


Electromechanical light valves in a panel array are fabricated by a process including several metal patterning steps. Each light valve consists of a housing having grounded conducting walls for shielding the interior thereof from external electrostatic forces produced by surrounding valves in the array or from other external electrostatic forces. These walls are formed in a series of processing steps on a light transparent substrate coated with a conductive coating. Light from a source enters one end of the housing through a light transparent substrate to which is mounted an electrostatically controlled leaf shutter for each valve also formed in a series of processing steps. Upon completion of the processing for forming the individual leaf shutters on the one transparent substrate and the valve housings on the other transparent substrate, the two transparent panels are aligned to form an array of electromechanical light valves. The display state of the individual light valves may be modulated by a video signal in a system that makes use of the capacitance of the individual valve as a storage device for transforming the video signal, which is available only during a writing time of short duration to a display signal. Necessary components for each of the light valves required in a display duration modulation system are fabricated in the process for producing the light valve array.

3,600,799
METHODS OF FABRICATION OF PREWOVEN BIT-WIRE MEMORY MATRIX APPARATUS

John S. Davis, Glendale, Calif., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif.
Division of Ser. No. 365,891, May 8, 1964. Filed July 16, 1969, Ser. No. 862,559
Int. Cl. H01f 7/06

U.S. Cl. 29—604 10 Claims

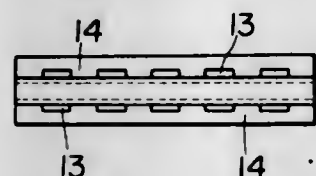


A woven configuration of a bit-wire memory utilizes certain orthogonal filamentary elements to develop selectively

positioned discontinuities in the layer of remanently magnetic material deposited on the bit-wires to limit domain wall travel during operation of the memory. Particular fabrication methods which arrange the various interwoven elements so as to provide selective masking which results in the desired discontinuities are disclosed.

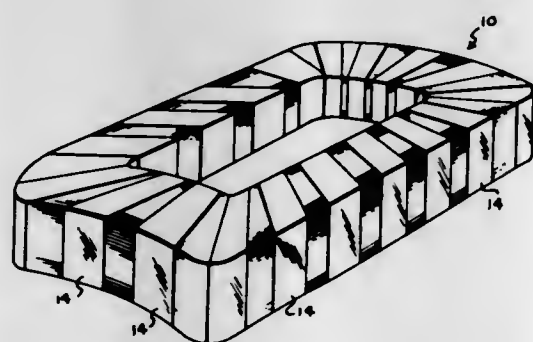
3,600,800
METHOD OF MANUFACTURING WIRE MEMORY PLANE

Hisateru Akachi, Yokohama; Masaki Hagi, Tokyo, and Yoshihiro Nita, Tokyo, all of Japan, assignors to Oki Den-sen Kabushiki Kaisha, Kanagawa, Japan
Filed Feb. 5, 1969, Ser. No. 796,864
Claims priority, application Japan, July 26, 1968, 43/52862
Int. Cl. H05k 3/10; G11c 11/14
U.S. Cl. 29-604 3 Claims



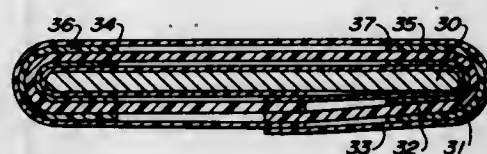
A wire memory plane comprising two parallel word line plates of thermosetting or thermoplastic resin plates formed with a large number of word lines arranged parallel to one another on one side of each of said resin plates such that one surface of each of said word lines is exposed, and a thermosetting or thermoplastic resin plate formed with a large number of digit wires arranged parallel to one another and embedded in said resin plate, said former two resin plates being laid one over another with the sides thereof on which the word lines are exposed being in face-to-face relationship and said latter resin plate being inserted between said former resin plates with the digit wires and the word lines being disposed in right-angle relationship. The three resin plates arranged in the manner described are then joined integrally with one another.

3,600,801
METHOD OF MANUFACTURING AN ELECTRIC COIL
Walter N. Larsen, Erie, and Kenneth R. Reynolds, Lawrence Park, both of Pa., assignors to General Electric Company
Filed Apr. 14, 1969, Ser. No. 815,993
Int. Cl. H01f 7/06
U.S. Cl. 29-605 6 Claims



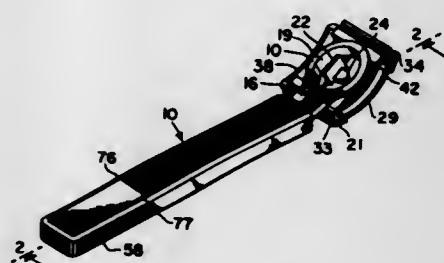
An electric coil which is permeated with an insulating liquid varnish is manufactured by first winding a plurality of turns of insulated magnet wire about a form and then wrapping heat-shrinkable tape spirally around the resulting coil such that space is left between adjacent turns of the tape. Liquid-insulating varnish is then applied to the wrapped coil in an amount which can eventually permeate the coil. The varnished, wrapped coil is then heated to cause the wrapping material to shrink and compress the heretofore loose coil so that the varnish fills the voids between adjacent turns of the coil as it is being at least partially cured.

3,600,802
INSULATED BUS BAR AND METHOD OF MAKING
George N. Jorgensen, and Harris I. Stanback, both of Lexington, Ky., assignors to Square D Company, Park Ridge, Ill.
Continuation of application Ser. No. 518,809, Jan. 5, 1966, now abandoned. This application June 26, 1969, Ser. No. 842,776
Int. Cl. H01b 13/00; H05k 3/00
U.S. Cl. 29-624 6 Claims



Methods of making insulated bus bars using flat, non-self-conforming insulating film as insulation. One or more strips of insulating film are fed through various work stations in which the strips are formed into a generally U-shaped cross section, heated on the inside of the U-shaped cross section, formed into a sleeve corresponding to the shape of a bus bar and having overlapping longitudinal edge portions, heated on the outside, cooled, and cut to length. A bus bar is then inserted transversely in the formed sleeve.

3,600,803
CORN AND NAIL CUTTER
Zolman Nachsi, 613 Bedford Ave., Brooklyn, N.Y.
Filed June 13, 1969, Ser. No. 832,906
Int. Cl. A45d 29/00
U.S. Cl. 30-27 5 Claims



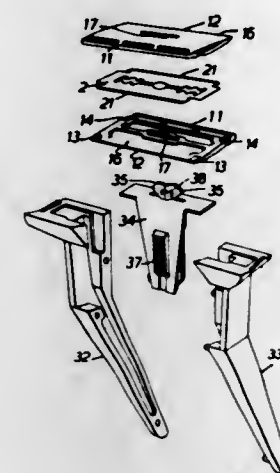
A corn and nail cutter has been provided with a removable blade handle assembly and a handle that has a round head for the securement of the blade assembly thereto. The blade is already retained by the blade parts and assembly provides a self-contained unit for fixing the blade to the handle. The blade assembly and round head are so constructed that the blade assembly can be placed on the round head and retained rigidly in four different 90° angle positions to expose the blade edges either transversely or longitudinally of the handle. In the opposite end of the handle there is provided a slotted and elongated opening in which a liquid-treating device may be stored and which has a partial cover to close the slotted part of the opening of the handle when the device is thrust home into the handle opening. Protuberances and recesses are provided on the handle and the container to hold the same in the handle and also on the partial handle on the container to hold the same aligned with the container over the brush.

3,600,804
SAFETY RAZORS
Norman Joseph Brown, Maldenhead, England, assignor to The Gillette Company, Boston, Mass.
Filed June 17, 1968, Ser. No. 737,554
Claims priority, application Great Britain, June 19, 1967, 28155/67
Int. Cl. B26b 21/00
U.S. Cl. 30-32 1 Claim

A disposable safety razor head comprising a double-edged blade which is permanently secured in molded plastics

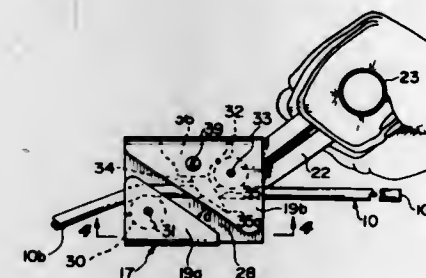
material which extends over a part of each face of the blade, the plastics material applied to each face of the blade being shaped to form a guard for one of the cutting edges and a cap

surgical sutures with a minimum of discomfort to the patient, and with a minimum of infection risks since the articles may be supplied in sterilized packages and discarded after use.



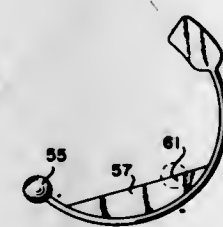
for the other cutting edge, and the head being adapted to be detachably and reversibly secured to a handle, with one cutting edge only of the blade accessible for use in each position of attachment.

3,600,805
TOOL FOR SLITTING TWO-CONDUCTOR CABLE
Robert J. Stuckel, 1210 Greenacres Lane, Mount Prospect, Ill.
Filed July 8, 1969, Ser. No. 839,942
Int. Cl. B21f 13/00; B26b 27/00
U.S. Cl. 30-90.9 13 Claims



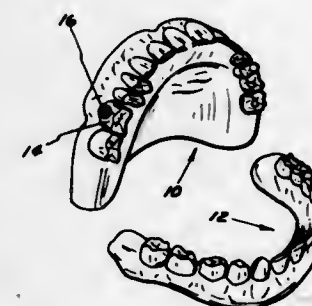
On wide face the tool has a diagonally disposed slot into which a two-conductor cable, heavily insulated and of oval cross section, can be inserted edge first to lie between lead and trailing rollers. Pulling on the handle toward the free end of the cable swings the tool into alignment, thereby piercing the cable with a pointed blade which is carried between the rollers. With continued pulling the leading sharp edge of the blade then slitting the heavy insulation between the two conductors, the angle of the blade edge tending to draw the cable against the lead roller.

3,600,806
SUTURE-REMOVING INSTRUMENT
Edmund P. Naccash, 733 N. Vermont St., Arlington, Va.
Filed Jan. 20, 1970, Ser. No. 4,311
Int. Cl. B26b 27/00; A61b 19/00
U.S. Cl. 30-294 9 Claims



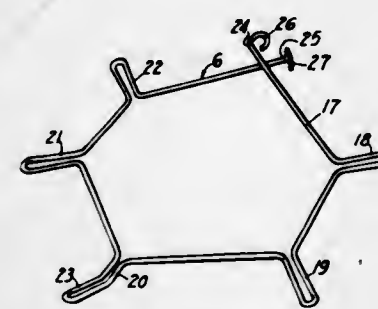
A curved needle is provided with a sharp inner edge or blade and a blunted point whereby it may be used to remove

3,600,807
ODORIFEROUS DENTAL APPARATUS
Samuel Henry Sipos, Garden City, Mich., assignor to Denture Fresh
Filed Apr. 14, 1969, Ser. No. 815,858
Int. Cl. A61c 13/00
U.S. Cl. 32-2 9 Claims



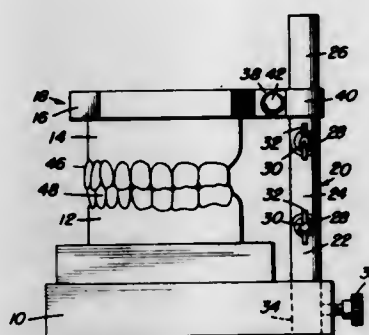
An oral apparatus for making the mouth pleasantly tasteful and exhaled air aromatically pleasant. The apparatus is adapted to be provided in an artificial tooth or other dental appliance and includes an opening therein filled with either absorbent fibrous material saturated with an air-refresant fluid or a removable insert for containing such fluid.

3,600,808
ANTERIOR ROOT-TORQUING AUXILIARY WIRE
James Jackson Reeve, 940 Vistavia Circle, Decatur, Ga.
Filed Jan. 22, 1970, Ser. No. 4,935
Int. Cl. A01c 7/00
U.S. Cl. 32-14 A 7 Claims



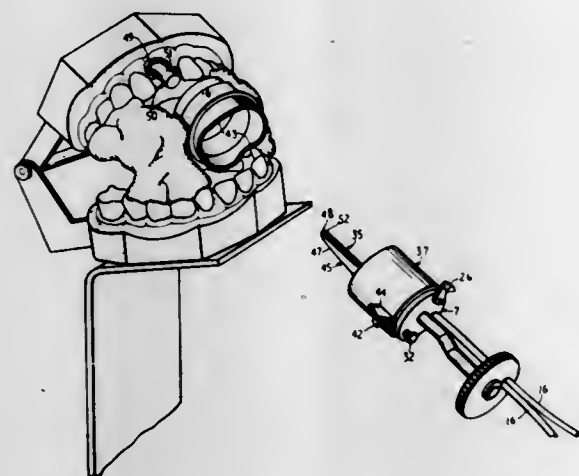
This invention relates to an auxiliary root-torquing wire for use with a main dental arch wire for applying torque to the root structure of a group of teeth. More particular, this invention is an anterior root-torquing auxiliary wire detailed to move the roots of the maxillary or mandibular anterior teeth either lingually or labially. The auxiliary root-torquing wire includes an integrally formed wire having a generally circular configuration and including a series of radially projecting substantially U-shaped bent portions. The radially extending U-shaped bent portions are detailed to be substantially coplanar relative to each other and the ends of the integrally formed wire includes hooked end portions detailed for engagement with a main dental arch wire. The present invention also includes the method of applying the auxiliary root-torquing wire to a main dental arch wire by hooking a first end of the auxiliary torquing wire to the main dental arch wire adjacent to one end, inserting a first one of the U-shaped bent portions behind the main dental arch wire between adjacent teeth in an interdental space, progressively inserting each of the other U-shaped bent portions behind the main dental arch wire between still other adjacent teeth interdental spaces, and hooking the second end of the auxiliary torquing wire adjacent to a second end of the main dental arch wire.

3,600,809
DENTAL CAST ARTICULATOR
 Raymond E. Krueger, 3659 4th Ave., Apt. 6, San Diego, Calif.
 Filed Jan. 3, 1968, Ser. No. 695,529
 Int. Cl. A61c 11/00
 U.S. Cl. 32—32 1 Claim



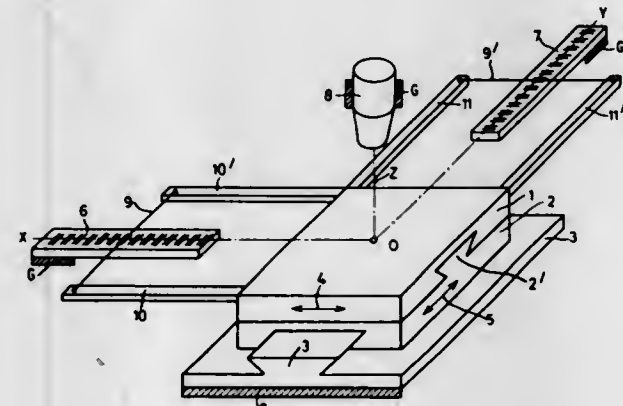
This invention is an articulator for adjustably supporting dental casts (used in making dentures) in a position corresponding to the actual position of the jaws for which the dentures are to be made. This articulator provides a device whereby the upper casting may be moved vertically relative to the lower casting, may be pivoted relative to the lower casting in the same manner that the human jaws pivot, and may be moved forwardly or backwardly along an axis extending from the front to the rear of the castings. In addition, the castings may partake of any two or all three of the above adjustments, as may be necessary to depict the true occlusal planes of the patient's original teeth.

3,600,810
DENTAL INSTRUMENTS
 Kenneth Henry Marshall, Castlegreg; Bruce Bertram Burns, Balgowlah, and Thomas Laidlaw Gregan, Vaucluse New South Wales, all of, Australia, assignors to Premach Pty. Limited, Sydney, New South Wales, Australia
 Filed Sept. 30, 1969, Ser. No. 862,243
 Int. Cl. A61c 3/02
 U.S. Cl. 32—49 9 Claims



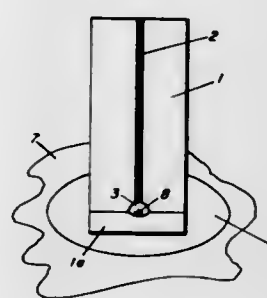
An aid for the dental preparation of a tooth for a jacket crown in which the depth of an axial cut and a circumferential cut of a bur is controlled mechanically, the aid comprising firstly a guide member securable over the bur and having a stem partly enclosing the bur and an outer tip to engage and protect a patient's gum and contacting the base of a tooth to limit the depth of circumferential cut, and secondly a barrel slidably housing a drive motor carrying the bur, the barrel being inserted into a guide sleeve fixable in the patient's mouth and having a follower engageable with a cam on the sleeve to limit the axial insertion of the barrel and bur so that the axial limit of the cut of the bur follows the patient's gum line.

3,600,811
ARRANGEMENT FOR MEASURING OR ADJUSTING TWO-DIMENSIONAL POSITION COORDINATES
 Adolf Weyrauch, Aalen, Germany, assignor to Carl Zeiss Stiftung, doing business as, Carl Zeiss, Heidenheim on the Brenz, Wuerttemberg, Germany
 Filed Aug. 20, 1968, Ser. No. 754,046
 Claims priority, application Germany, Aug. 22, 1967, P 16 23 343.5
 Int. Cl. G01b 9/00; G01d 7/04; G23q 17/00
 U.S. Cl. 33—125 R 6 Claims



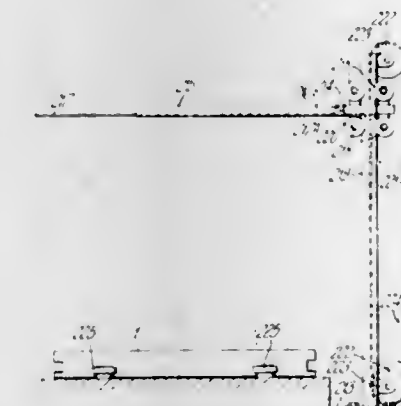
An arrangement for measuring two-dimensional position coordinates of points on an object. It is provided with two unidimensional scales fixed relative to the base and avoids guiding errors which are apt to occur when the worktable or other slidable support carrying the object is rotated somewhat from slide paths precisely parallel to the scale directions. The scale-reading means are fixedly connected to the slidably mounted object support and the axis of the focusing microscope or other object-point-defining device, such as the axis of a tool, passes through the point of intersection of the axes of said scales.

3,600,812
SURVEYOR'S SIGHTING TARGET
 Walter V. Cromoga, 3540 Portland Ave., Tacoma, Wash.
 Filed Oct. 2, 1969, Ser. No. 863,051
 Int. Cl. G01c 15/08; G09f 7/12
 U.S. Cl. 33—74 5 Claims



A surveyor's sighting target for use on a surveying monument comprises a strip of stiff, foldable material including a body portion having a pair of feet connected to one end, an index mark on the body portion, and an opening through the body portion at the line of connection of the feet. In use of the target, the feet are spread apart and affixed to a surveyor's monument having the usual reference cross on its surface. By looking through the view opening and lining the index mark on the target with the cross on the monument, the surveyor is able to locate the target precisely in the proper position.

3,600,813
DEVICES FOR SECURING OR POSITIONING WORKPIECES FOR MACHINING OPERATIONS
 Peter Grant Davis, Deptford, London, England, assignor to Molins Machine Company Limited, London, England
 Filed Apr. 4, 1968, Ser. No. 718,884
 Claims priority, application Great Britain, Apr. 14, 1967, 17,248/67
 Int. Cl. G01b 3/14 3 Claims



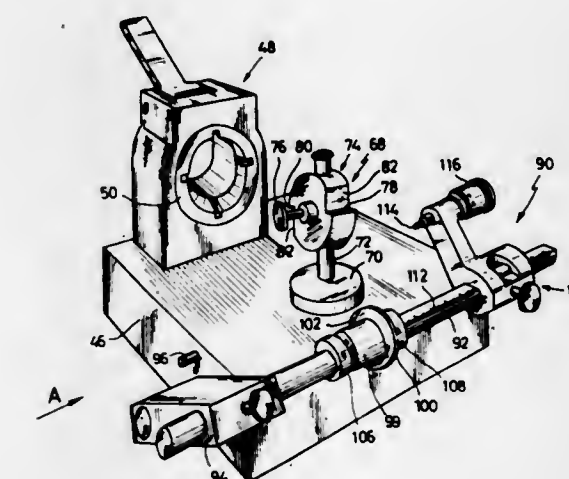
Different workpieces are secured to a common form of pallet for machining by placing a template defining the required positional relationship of supports for a particular workpiece, on a pallet, fitting supports in apertures in the template and fixing the supports to the pallet, and securing the particular workpiece to the supports. The template can further define the required positional relationship of clamps and can be placed on the workpiece, the clamps being fitted in apertures in the template and fixed to the pallet.

3,600,814
BOWSTRING GAGE
 Gene E. Smith, 211 Alexander Street, Plymouth, Ind.
 Filed July 18, 1969, Ser. No. 843,098
 Int. Cl. G01b 3/30 8 Claims



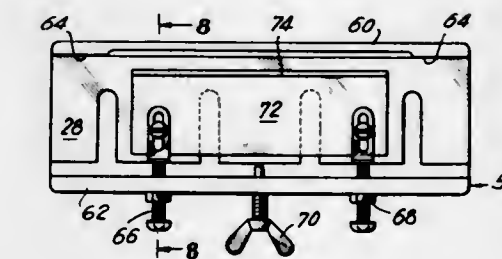
A bowstring gage for locating, checking, and positioning a kisser button and peepsight, having an elongated body with a member slidable along the body for locating the desired points, and a clip means for holding one end of the body at the knocking point and the other end of the body in parallel relation with the string. The means which slides along the body preferably includes a setscrew or the like for retaining the slide means in desired position for locating either of the two points.

3,600,815
SETTING ARRANGEMENT FOR FACILITATING THE POSITIONING OF CROSS-SLIDES IN MACHINE TOOLS FOR TREATMENT OF ROUND WORKPIECES
 Helmut Link, Esslingen-Irchenaeker, Germany, assignor to Index-Werke K. G. Hahn and Tessky, Esslingen (Neckar), Germany
 Filed Sept. 12, 1968, Ser. No. 759,397
 Claims priority, application Germany, Sept. 15, 1967, P 16 02 840.3
 Int. Cl. B27g 23/00 10 Claims



The cross-slide of a turning lathe wherein round workpieces are treated by tools mounted in toolholders movable in the cross-slide radially of the work spindle is pivotable in a plane extending at right angles to the work spindle about an axis which is parallel to the axis of the work spindle. The cross-slide is further movable in parallelism with the axis of the work spindle. The apparatus for properly positioning the cross-slide with reference to a round workpiece in the work spindle comprises a first positioning device including caliper which can facilitate adjustment of the cross-slide in a sense to place the cutting edge of a tool in the toolholder of the cross-slide on the axis of the workpiece, and a second positioning device which facilitates movement of the cross-slide to a position in which the cutting edge of the tool in the toolholder on the cross-slide is located at a desired distance from the front end face of the workpiece in the work spindle.

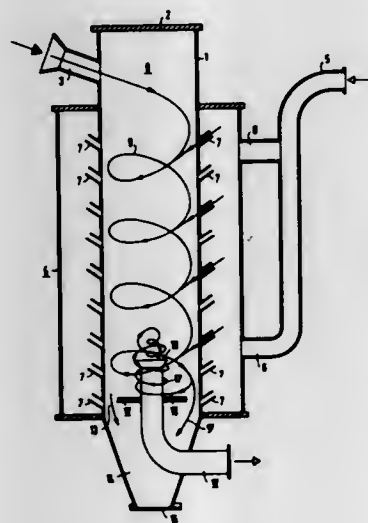
3,600,816
ROTARY CUTTER BLADE-ADJUSTING APPARATUS
 Takashi Watanabe, Nagoya-shi, Japan, assignor to Kabushiki Kaisha Towa Denki, Aichi-ken, Japan
 Filed Mar. 21, 1969, Ser. No. 809,281
 Claims priority, application Japan, Apr. 5, 1968, Apr. 5, 1968, Apr. 5, 1968 and July 30, 1968, 43/22,042; 43/26,699; 43/26,698; 43/53,369
 Int. Cl. B27g 23/00 5 Claims



Apparatus for adjusting a blade of a rotary cutter. The blade is removable from the body of the cutter when an edge of the blade is sharpened. A positioning member is adjustably connected with the blade member, and a gauge is provided for adjusting the positions of the blade member and positioning member one with respect to the other while they are still separate from the cutter body so that the relative positions of the blade and positioning members will situate the cutting

edge of the blade at the proper location with respect to the positioning member. The cutter body has a locating part which locates the positioning member at a predetermined location on the cutter body, so that in this way when the parts are reassembled with the positioning member situated at this predetermined location, the blade will automatically assume its proper cutting position at the cutter body.

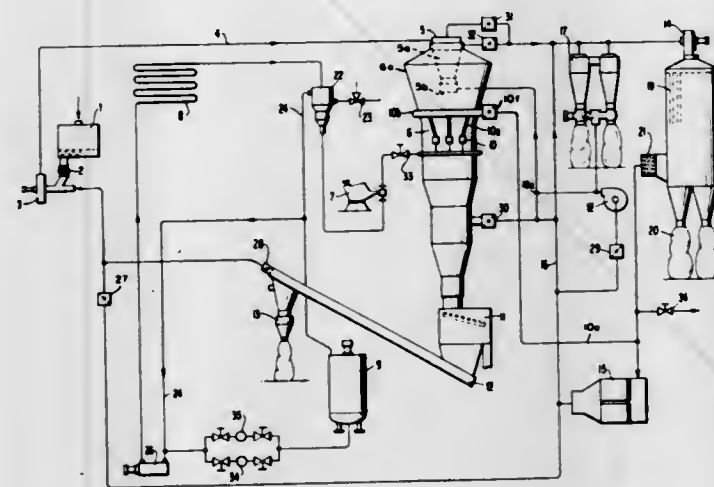
3,600,817
PROCESSING APPARATUS FOR EFFECTING INTERACTION BETWEEN, AND SUBSEQUENT SEPARATION OF GASEOUS AND SOLID OR LIQUID PARTICULATE SUBSTANCES
 Heinrich Klein, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
 Filed Jan. 26, 1970, Ser. No. 5,580
 Claims priority, application Germany, Nov. 28, 1969, P 19 59 699.7
 Int. Cl. F26b 17/10
 U.S. Cl. 34—57 E 9 Claims



An apparatus for drying or otherwise processing solid or liquid particulate substances comprises an axially elongated vessel which forms a cylindrical vortex chamber, an inlet duct communicating with the chamber at one otherwise closed end for supplying the particulate substance in a direction substantially tangential to the vortex chamber and inclined toward the other end of the vessel. The cylindrical portion of the vessel is provided with a number of further inlets for the supply of active medium such as hot air for drying the particulate substance. The entering direction of the further inlets is tangential and inclined in the same direction as the inlet duct for the particulate material. A gas outlet duct protrudes coaxially into the vortex chamber near the other end of the vessel and has a smaller diameter than the chamber so that an annular gap space is formed around the mouth portion of the gas outlet duct. The dried or otherwise processed particulate material passes through the gap space to be collected at, or discharged from, the other end of the vessel. The inlets for the active medium such as drying air are distributed peripherally and lengthwise of the vessel and conjointly form an array which comprises inlets that communicate with the annular gap space at localities between the mouth of the gas outlet duct and the other vessel end. An annular plate member surrounds the gas outlet duct in fixed relation thereto and is axially spaced from the duct mouth to form a constricted annular passage between the plate member and the vessel at a locality within the region of the array of inlets.

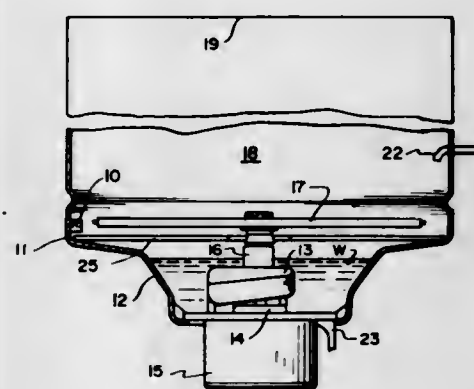
3,600,818
METHOD OF AND APPARATUS FOR TREATING POWDERY OR GRANULAR MATERIALS WITH GASEOUS, LIQUID OR SOLID AGENTS OR STABILIZERS

Franz Lang, Lissberg; Gustav Gruen, Eckartsborn; Kurt Schwalm, Lebach, and Franz Josef Juchem, Lebach, all of Germany, assignors to Gebrüder Grun KG Maschinenfabrik, (Oberhessen), Germany
 Filed Apr. 17, 1969, Ser. No. 816,930
 Int. Cl. F26b 3/10
 U.S. Cl. 34—10 8 Claims



A system including a conically upwardly extended treating chamber into which granular dry material is fed that descends against a rising cold gas stream while being sprayed by a liquid and cold gas mixture. The sufficiently wetted and thus heavy particles leave the chamber through an outlet in its base while the lighter particles are reintroduced by the airstream into the spraying region of the chamber. The cold airstream is divided into a plurality of part streams, one part stream serves as carrier for said dry material and one part stream constitutes said rising stream.

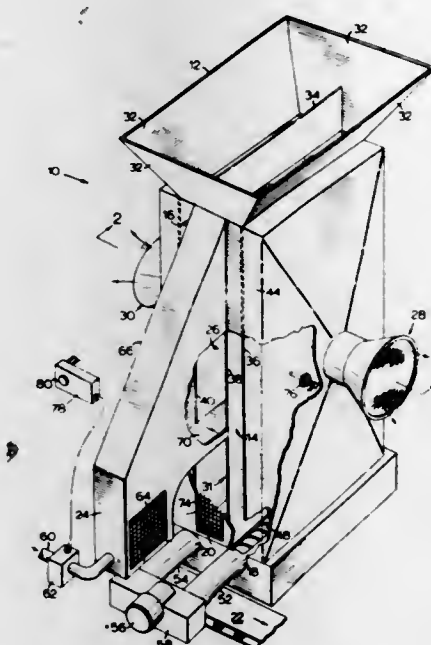
3,600,819
DRYNESS SENSOR
 Edward H. Getz, Watervliet, and Robert T. Wigfall, St. Joseph, both of Mich., assignors to Whirlpool Corporation
 Filed Dec. 15, 1969, Ser. No. 885,118
 Int. Cl. F26d 19/00
 U.S. Cl. 34—48 12 Claims



A liquid holder located within a washing apparatus chamber collects a predetermined amount of liquid during a wash cycle. The collected liquid is evaporated during a dry cycle of the apparatus. A thermistor mounted to the liquid holder bottom rapidly changes resistance upon complete evaporation of the collected liquid. The change in resistance fires an SCR to generate a signal which terminates the dry cycle of the apparatus.

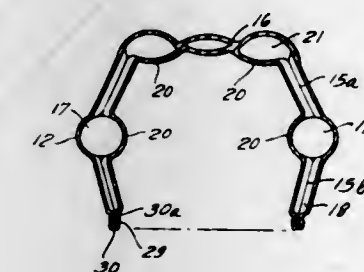
3,600,820
AUTOMATIC CONTROL FOR GRAIN DRIERS
 Lloyd D. Klein, Toronto, Ontario, Canada, assignor to Lloyd D. Klein Industrial Electronics Limited, Toronto, Ontario, Canada

Filed July 8, 1969, Ser. No. 840,002
 Int. Cl. F26b 19/00
 U.S. Cl. 34—48 1 Claim



A grain drier for reducing the moisture content of grain. The drier comprises a vertical column that is supplied with hot air from an air heater, for heating grain which passes downwardly through the column. The grain temperature, and hence the moisture content, is controlled by a temperature control which has a probe for continuously deriving an electronic signal proportional to the grain temperature. An electronic control compares the signal with a reference signal and operates a valve which controls the flow of fuel to the air heater to maintain the grain temperature at a predetermined temperature corresponding to the reference signal.

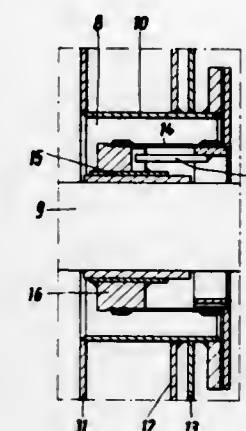
3,600,821
HAIR DRYER HOOD
 Albert E. Simon, Jr., Fort Washington, Pa., and William J. Rakocy, Clifton, N.J., assignors to Ronson Corporation, Woodbridge, N.J.
 Filed Sept. 27, 1967, Ser. No. 670,844
 Int. Cl. A45d 20/04
 U.S. Cl. 34—99 4 Claims



A hair dryer hood formed of a flexible material that is inflatable into a helmet shape, the hood being self-supporting without being carried by or in contact with the user's head, and being collapsible into a small space when not in use. The flexible material comprises inner and outer sheets secured together with primary and secondary air passages between the sheets, and a plurality of apertures in the inner sheet permitting warm air to be distributed to all areas inside the hood.

3,600,822
APPARATUS FOR DRYING AND STEAMING MATERIAL CONVEYED ON ROLLS OR DRUMS
 Heinz Fleissner, Frankfurt am Main, Germany, assignor to VEPA AG, Basel, Schweiz, Germany

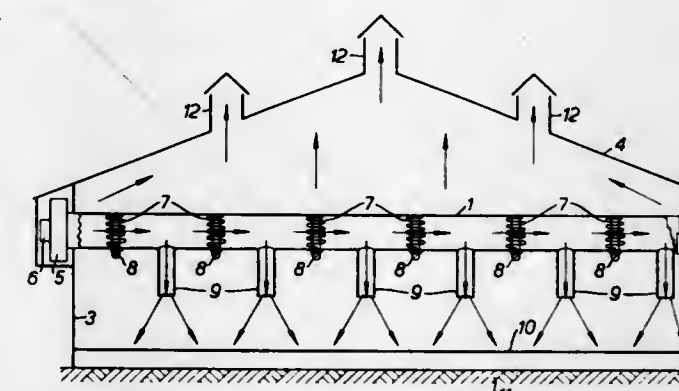
Filed July 22, 1969, Ser. No. 844,247
 Claims priority, application Germany, July 20, 1968, P 17 79 229.9
 Int. Cl. F26b 25/08
 U.S. Cl. 34—121 11 Claims



The present disclosure is directed to an apparatus for drying and steaming material which is conveyed on rolls and/or drums wherein the bearings for the fans are separated from the wall of the treatment chamber and/or the housing of the apparatus.

3,600,823
DRYING AND/OR HEATING DEVICES
 James A. R. Borron, and Roger E. F. Stevens, both of Mago Island, England, assignors to Mago Island Estate Limited, Mago Island, Lau, Fiji Islands

Filed Dec. 23, 1968, Ser. No. 786,105
 Claims priority, application Great Britain, Dec. 29, 1967, 59127/67
 Int. Cl. F26b 25/06
 U.S. Cl. 34—232 1 Claim



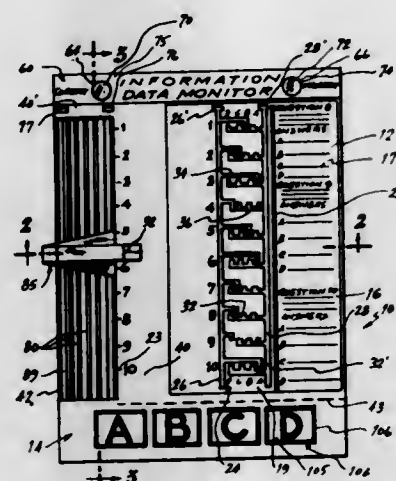
Apparatus for drying and/or heating crops, the apparatus comprising heating means, means for passing air or other nontoxic gas over the heating means and along a duct, and vent means in said duct for directing the heated gas over a harvested crop which is to be dried and/or heated.

3,600,824
EDUCATIONAL QUESTION AND ANSWER CARD-READING APPARATUS

Lafayette A. Robinson, 302 Clinton Ave., Brooklyn, N.Y.
 Filed July 14, 1969, Ser. No. 841,232
 Int. Cl. G09b 7/06

U.S. Cl. 35—9 R 7 Claims
 An educational question and answer card-reading apparatus includes a data card which has a multiplicity of questions with a plurality of answers for each on one side of the card. On the other side is a printed circuit with groups of conductive elements arranged to correspond with correct and incorrect answers for each question. The card fits into a

card-reading device which has a question selector electrically bridging the conductive elements with conductive rails in the device. The rails are connected in circuit with correct and incorrect answer lamps and with answer-selecting pushbutton



switches. Both the answers and printed circuitry may be applied to both sides of the data card. The printed circuit may be concealed or obscured by a layer of plastic, ink or other means so that the pattern of the circuit is not apparent.

3,600,825
SYNTHESIZED NATURAL GEOMETRIC STRUCTURES
Peter J. Pearce, 7657 Coldwater Canyon Ave., North Hollywood, Calif.
Filed Aug. 19, 1968, Ser. No. 753,468
Int. Cl. G09b 23/26
U.S. Cl. 35-18 A 10 Claims

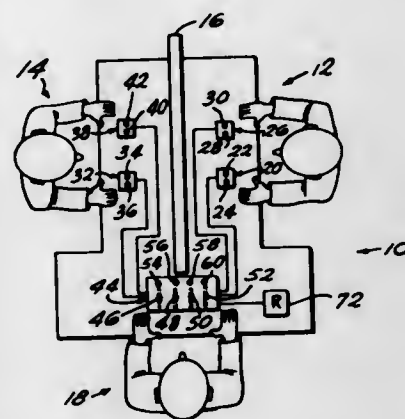


The invention is an assembly, kit, or set of component parts for assembling, erecting or constructing geometric figures or shapes. The set of parts may take the form of a toy or it may be a set designed for purposes of research, scientific studies, mathematical displays and illustrations, architectural studies, etc. The parts include connectors (universal nodes); struts, bond links (coupling members); splices; face links (coupling members); and face or perimeter members. Preferably all parts or components are dimensionally coordinated and color coded so that the erection of forms or figures proceeds in accordance with predetermined patterns. Connectors or nodes include a universal node comprising a central member having spokes arranged in a predetermined array extending outwardly from the center along radii of a sphere. By means of the universal node and other parts (face members) there may be constructed a universal atom and various simulated molecular and other structures as well as geometric space-filling figures identified as nodal polyhedra.

3,600,826
SIGNAL SYSTEM FOR ASSESSMENT AND MODIFICATION OF BEHAVIOR
Edwin J. Thomas, 2224 Vinewood Blvd., Ann Arbor, Mich.; Eileen D. Gambrill, 1250 Westport Road, Ann Arbor, Mich.; and William H. Butterfield, 1215 Washtenaw, Ypsilanti, Mich.
Filed Aug. 8, 1969, Ser. No. 848,624
Int. Cl. G09b 5/00
U.S. Cl. 35-22 R 3 Claims

A system usable for the assessment and modification of human behavior comprising a plurality of client-actuable light-operating switch assemblies, a plurality of light assem-

blies connected to the switch assemblies for operation in response to selective actuation of the switch assemblies for communication purposes, and a therapist controlled switch assembly connected in circuit with the client switch assemblies and the light assemblies enabling a therapist to render the client switch assemblies inoperable and also enabling the

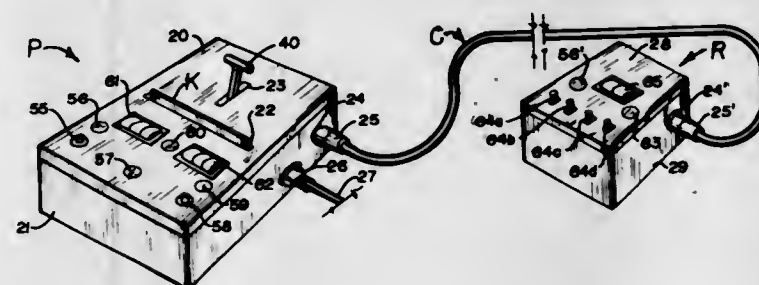


therapist to transmit false information at the lights viewed by the clients and provide for direct intervention by the therapist in the light communication between the clients. The system of this invention enables the therapist to record and evaluate client actions and reactions and intervene for behavioral modification purposes.

3,600,827
METHOD OF DRAWING A DESIGN
Denys Fisher, and Edward M. Goscher, both of Ambleside, Westmoreland, England, assignors to Denys Fisher Toys Limited, Thorp Arch Trading Estate
Filed July 28, 1969, Ser. No. 845,565
Claims priority, application Great Britain, July 26, 1968, Mar. 21, 1969, 35758/68; 14883/69
Int. Cl. G09b 11/04 3 Claims

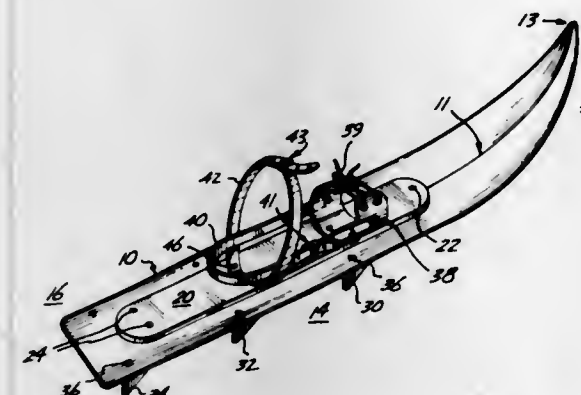
A method of producing a design by applying translucent coloring material repellent by means of a writing instrument to an ink-absorptive surface of a sheet support, said repellent comprising polyalkyl siloxane in a volatile liquid medium which evaporates to leave the design, and thereafter applying a washable ink, water color or spirit soluble ink to color the sheet and to provide a contrasting color background against the design made by the writing instrument. The sheet may be coated with the repellent and coloring material before the written design is applied. The repellent may contain a coloring material which aids in creating different colors in contrast to each other.

3,600,828
TESTING APPARATUS FOR EXAMINATIONS
Leland G. Hodges, Denver, Colo., assignor to Leland G. Hodges, Denver; Arthur R. Wallace, Littleton and Jerald E. Watson, Wheat Ridge, Colo.
Filed Aug. 14, 1969, Ser. No. 849,983
Int. Cl. G09b 7/00 7 Claims



An apparatus for recording correct answers to a multiple choice-answer examination wherein a punch card coding correct answers is used in the apparatus at a control panel. The test is taken at a remote panel with answers being effected by closing circuits through selected switches which are either closed at the punch card or open depending upon whether the answer is correct or incorrect.

3,600,829
SNOWSHOES
Rodney M. La Violette, 14434 Ambaum Blvd. S.W., Seattle, Wash.
Filed Apr. 27, 1970, Ser. No. 31,968
Int. Cl. A43c 13/00 5 Claims
U.S. Cl. 36-4.5

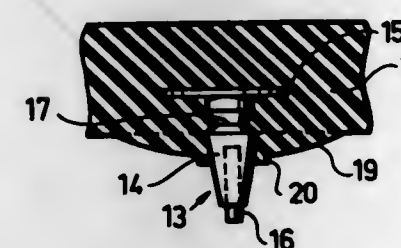


A snowshoe is formed of lightweight sheet material having an upturned prow section, a following load-bearing section, and a rear trailing section. The underside is provided with antislip cleats. Bindings are included to secure the shoe plate to the user's boot.

3,600,830
HOLLOW PELLETS FOR SEED
Bjorn Staffan Artur Hamrin, Bjarred, Sweden, assignor to Svenska Sockerfabriks Aktiebolaget, Malmo, Sweden
Filed July 29, 1969, Ser. No. 847,001
Claims priority, application Sweden, Aug. 16, 1968, 11039/68
Int. Cl. A01n 21/02 4 Claims

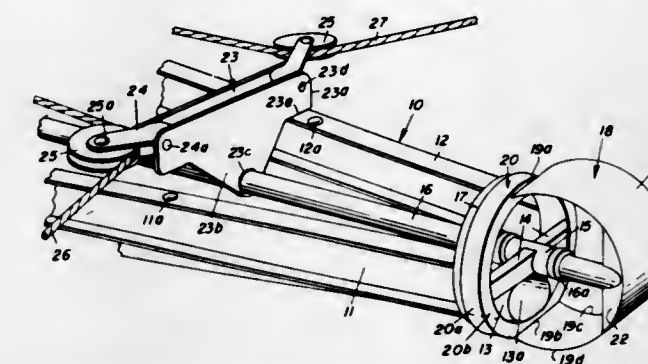
The present invention is concerned with the problem of protecting seed during the initial germination stage. According to the invention it has been discovered that considerable advantages are obtained if the seed is covered with an outer porous shell or pellet within which the seed lies freely in a space allowing an initial development or germination and protecting the seed against surrounding pests and the like until such time when the pellet bursts and the germinated seed is vital enough to withstand attack from such pests.

3,600,831
SHOES, PARTICULARLY GOLF SHOES, AND STUDS THEREFOR
Folke Lennart Olsson; Thure Verner Bolmen, and Karl-Erik Johansson, all of Halsingborg, Sweden
Filed Sept. 22, 1969, Ser. No. 859,934
Claims priority, application Sweden, Sept. 25, 1968, 12,903/68
Int. Cl. A43b 23/28 14 Claims
U.S. Cl. 36-59



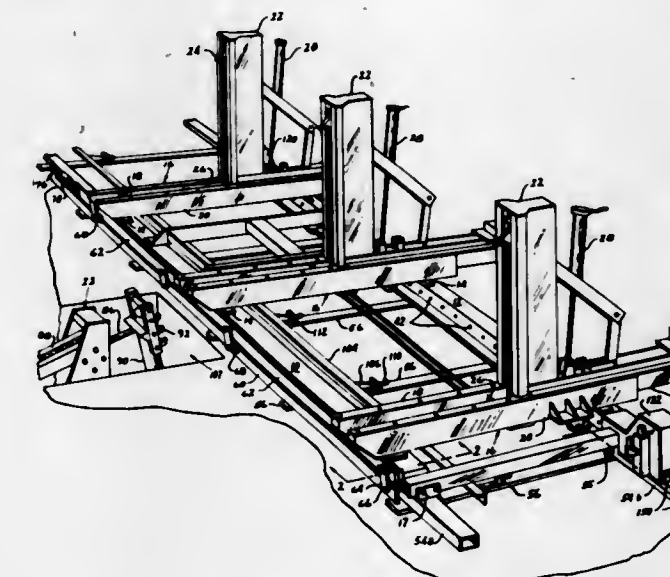
In a shoe having a rubber or plastic material sole there are provided metal studs projecting from the sole, which are retained in the sole by the rubber or plastic material moulded around each stud to enclose part of a length thereof and a flange provided on the stud.

3,600,832
PIVOTED CUTTER AND CONTROL FOR HYDRAULIC DREDGE
Thomas J. Smith, deceased, late of Stratford, Conn. (by James E. Smith, administrator, 1500 Elm St., Stratford, Conn., 06497)
Filed Jan. 20, 1970, Ser. No. 4,334
Int. Cl. E02f 3/92 12 Claims
U.S. Cl. 37-58



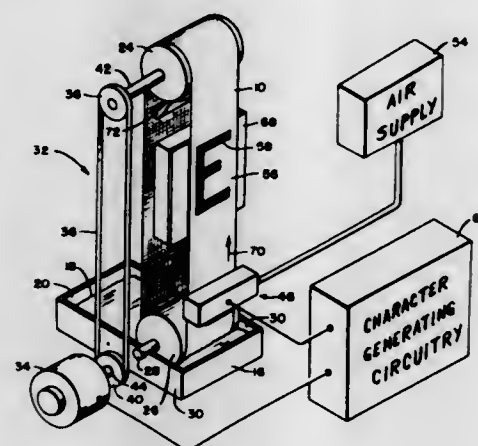
On the outboard end of a hydraulic dredge ladder there is an axially extending stub shaft mounted in spaced-apart bearings. Attached to the outer end of the stub shaft is a circular bearing member that extends transversely to and coaxial about the stub shaft. A cutter member formed of heavy sheet metal material in a circular arc a little greater than a semicircle is welded at its ends to a circular channel iron ring that is received over the circular bearing member for pivotal movement thereon. The inner midportion of the semicircularlike cutter head has a bearing member affixed thereto that is received over the protruding end of the stub shaft. A triangularlike bracket is received over the stub shaft towards its rear end and is welded thereto. The base of the triangularlike bracket is up and above the stub shaft and has a pivotal mounting at each end that carries a sheave. Below each end of the bracket there is a cutaway portion that forms stop portions which strike against stops on the side I-beams of the boom positioned therebelow to limit the tilt of the shaft and the cutter. The usual hauling wire ropes lead from a hauling drum through their respective sheaves to respective anchor position out beyond the side of the boom. By slackening on one rope and hauling on the other with the cutter in the earth, its edges cut into the earth and it tilts so as to loosen the earth that is then sucked up by the mouth of the suction tube.

3,600,833
CARRIAGE GUIDED WHEEL AND RAIL ASSEMBLY
George W. Hartzell, Piqua, Ohio, assignor to Hartzell Industries, Inc., Piqua, Ohio
Filed Mar. 25, 1968, Ser. No. 715,678
Int. Cl. B27g 19/00; B60b 17/00; B61f 19/00 9 Claims
U.S. Cl. 37-194



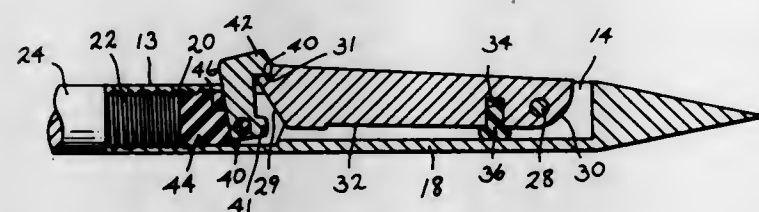
A self-propelled vehicle operating on a two rail track to receive a log at one portion of the track and to reciprocate the log through a cutting saw at another portion of the track.

3,600,834
DISPLAY APPARATUS
 Michael E. Stamer, Chicago, Ill., assignor to Teletype Corporation, Skokie, Ill.
 Filed June 27, 1969, Ser. No. 837,293
 Int. Cl. G09f 11/32
 U.S. Cl. 40-32 6 Claims



Blowing forces are directed through selected compressed air openings toward films of ink held in a regularly perforated carrier, such as an endless mesh, for rupturing selected films and unblocking corresponding interstices to form a succession of characters, outlined in the carrier by the optical contrast between blocked and unblocked interstices.

3,600,835
SPEAR HEAD WITH SWINGABLE BARB
 Grover E. Hendricks, 2241 Lake St., Niles, Mich.
 Filed Dec. 23, 1968, Ser. No. 785,961
 Int. Cl. A01k 81/04
 U.S. Cl. 43-6 4 Claims

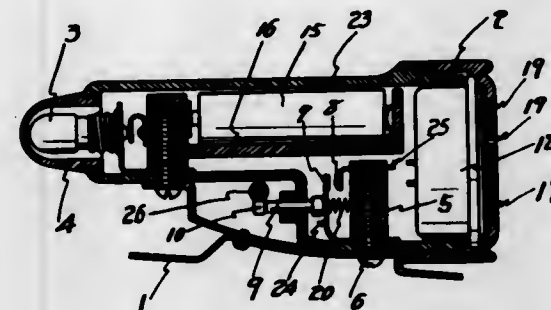


A head for a spear or like weapon having a tip section and a body section. An elongated barb is pivotally connected to the forward end of the body section and is received therein, and is resiliently urged outwardly therefrom. A catch mechanism is provided to retain the barb in the body portion and is provided with a part which projects outwardly of the body portion, and when engaged by a target, releases the catch and allows the barb to pivot to its outward position. In one embodiment the catch is a helical spring mounted about a shoulder on the rear end of the barb. In a second embodiment the catch is a pivotal element which is resiliently urged to engage a shoulder on the rear end of the barb.

3,600,836
ALARM SIGNAL USED IN A FISHING ROD
 Toshiaki Miyamae, 292, Nishi-Iwata, Higashi-Osaka, Osaka-Fu, Osaka City, Japan
 Filed July 6, 1967, Ser. No. 651,554
 Int. Cl. A01k 93/00
 U.S. Cl. 43-17 5 Claims

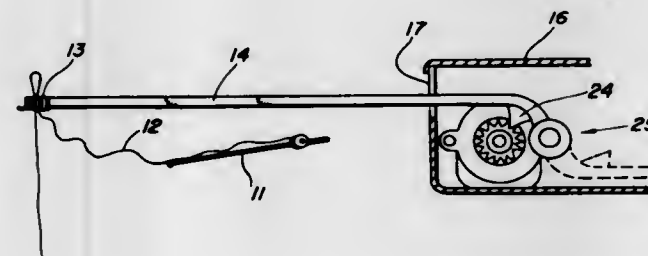
An alarm signal used in a fishing rod comprising a line suspension lever adapted to turn around a shaft provided in a direction substantially perpendicular to the fishing rod. A movable and a fixed connector are provided which contact each other whenever the line suspension lever turns around

causing the electric circuit to actuate the alarm, including a buzzer and a pilot lamp. An electric cell is provided which



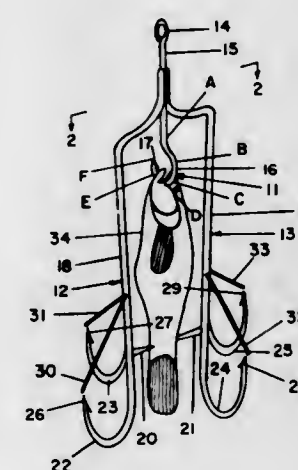
may be closed to produce the signal as soon as a fish is hooked.

3,600,837
FISHING AID
 Howard A. Bristol, 1113 Blouin Drive, Dolton, Ill.
 Filed June 16, 1969, Ser. No. 833,432
 Int. Cl. A01k 87/00
 U.S. Cl. 43-19.2 3 Claims



A device to be used by fishermen to produce a variable selection of jiggging motions in a fishline. Device has a simple motor, preferably battery operated, driving ratchet teeth which in turn activate and cause intermittent or regular controlled motions of a rod member to which the line is instantly removably affixed.

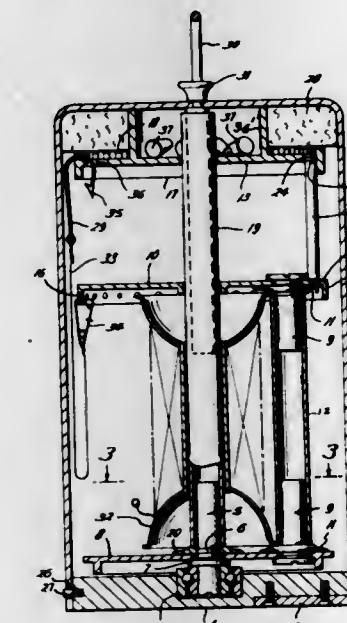
3,600,838
BAIT-HARNESSING FISH HOOKS
 Charles W. Bablick, 233 Sherry Ave., Park Falls, Wis.
 Filed Oct. 29, 1969, Ser. No. 872,039
 Int. Cl. A01k 83/06
 U.S. Cl. 43-44.8 5 Claims



A bait-harnessing fish hook that retains the bait within the confines of a plurality of fish hook members so that a fish cannot strike at the bait without encountering one or more fish hooks. The device has a centrally positioned bait hook

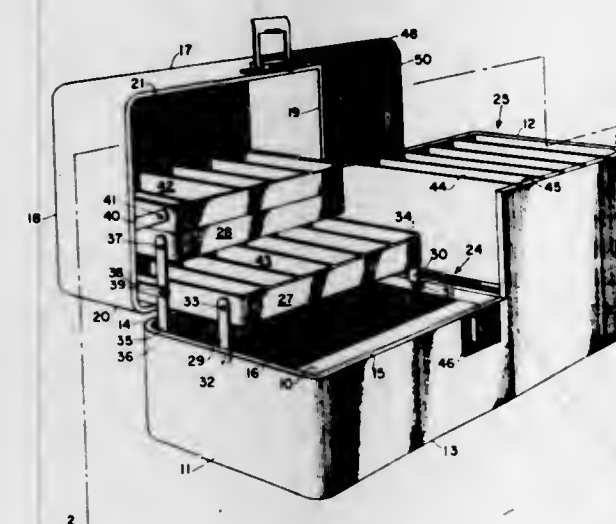
and a plurality of fish hook shanks depending from and surrounding the bait hook. A plurality of hooks are formed at the end of each fish hook shank as are also bait-penetrating spurs, the latter operating in conjunction with the bait hook to retain the bait. The fish hooks have weed deflector means to prevent entanglement with underwater objects.

3,600,839
TROT LINE HOLDER
 Earl H. Waller, 7495 Haywood, Houston, Tex.
 Filed Jan. 20, 1970, Ser. No. 4,229
 Int. Cl. A01k 97/06
 U.S. Cl. 43-54.5 A 5 Claims



A trot line holder for carrying a trot line and the stages to be secured thereto having a base member and a reel and a pair of coaxially mounted rotatable tables thereon, adapted to receive the stages and maintain them ready to be mounted on the line after the line is set, said tables having means for receiving and maintaining the hooks of the respective stages in hook-receiving slots and the connecting pins of the respective stages in pin-receiving ports, preventing a tangle of stages while the line is being transported.

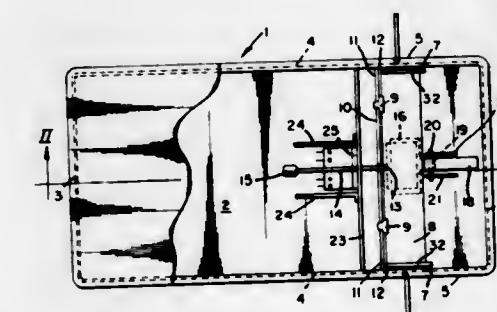
3,600,840
TACKLE BOX
 Norman K. Meyer, 4783 N. Bend Road, Cincinnati, Ohio
 Filed Sept. 4, 1969, Ser. No. 855,130
 Int. Cl. A01k 97/06
 U.S. Cl. 43-57.5 R 1 Claim



A tackle box divided into a pair of separate compartments, wherein fishing lures are hung on removable panels in one

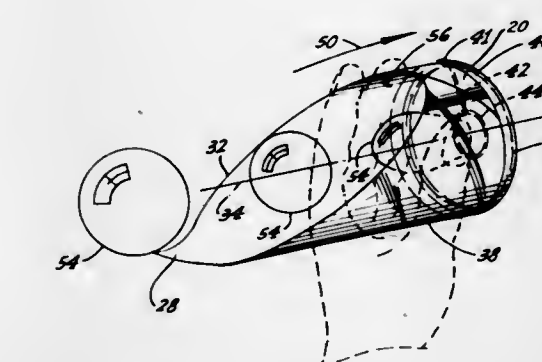
compartment and other fishing gear is disposed in trays in the other compartment. The panel compartment is of greater height than the tray compartment to receive panels of various lengths and the cover over the panel compartment is designed to hold the panels in place. The trays in the other compartment are hinged to the sidewalls and to the cover in a manner to expose the trays when the cover is raised.

3,600,841
ANIMAL TRAP
 Gonzalo O. Catan, Jr., 2628 Alfonso St., Singalong Manila, Philippines
 Filed May 23, 1968, Ser. No. 731,533
 Int. Cl. A01m 23/10
 U.S. Cl. 43-68 2 Claims



A cage has upstanding walls provided with a pair of opposed holes. A balanced tubular member is pivotally mounted within the cage and is normally directed in line with the pair of opposed holes. The tubular member has an opening at the lower side thereof closed by a balanced cover member pivotally mounted on supports within the cage. A transverse wall within the cage is parallel to the tubular member and has an opening, towards which, the opening on the tubular member leads upon tilting of the tubular member and a downwardly slanting flexible barrier, the upper end of which, is secured to the transverse wall immediately above the opening therein, the lower side of said flexible barrier having pins to prevent rodents from going back through the opening on the transverse wall.

3,600,842
BUBBLE-PRODUCING GLIDER TOY
 Harold Bryman, 3285 Coy Drive, Sherman Oaks, Calif.
 Filed July 16, 1969, Ser. No. 842,300
 Int. Cl. A63h 33/28
 U.S. Cl. 46-6 3 Claims



This glider toy is formed of a light plastic hollow cylindrical body the leading edge of which is circular and lies in a plane normal to the cylindrical axis. This leading edge is reinforced by a plastic band which serves to support at least one plastic strut which projects inwardly toward the cylindrical axis and supports a plastic bubble ring slightly forward of the leading edge of the cylindrical body but coaxially therewith. The trailing edge of the body is angularly disposed with respect to the cylinder axis. While the body may be

formed of any lightweight material, such as paper, acetate, etc., thin sheet polystyrene is preferable.

3,600,843 TOY

Joseph T. Becker, 21 West 674 Glenn Valley Drive, Glen Ellyn, Ill.

Filed Nov. 24, 1969, Ser. No. 879,413

Int. Cl. A63h 33/00

U.S. Cl. 46—1 H

10 Claims



A toy which is entertaining and educational in that the toy may be used to teach basic principles of landing an airplane. A model airplane having a pair of supports is slidingly supported on a monofilament support line. One end of the support line is secured to a fixed vertical support, and the other end is attached to a universally movable vertical support, which is modeled after a joystick. A landing surface is positioned below the support line. The model joystick is utilized to regulate the tautness of the support line in order to control the rate of vertical movement of the model airplane.

3,600,844 BLOCK STRUCTURE

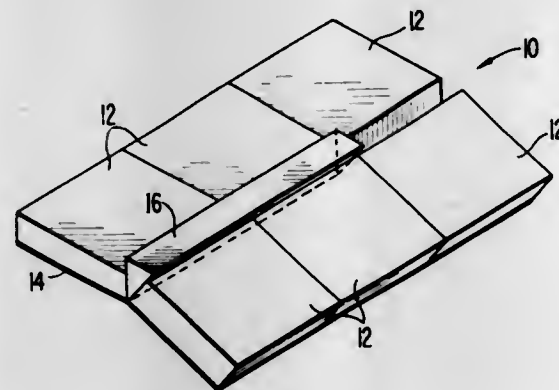
Wesley D. Simpson, 2126 S. Walden Ave., Appleton, Wis.

Filed Oct. 13, 1969, Ser. No. 865,548

Int. Cl. A63h 33/00

U.S. Cl. 46—16

20 Claims



A block structure adaptable for use as a toy and including a plurality of blocks secured in side-by-side relationship to a sheet of flexible material. The geometric attitude of the blocks with respect to each other may be changed by bending the sheet along the junctures between the blocks. The blocks may be temporarily locked in a particular geometric configuration by wedges insertable into such junctures and engageable with the facing sides of adjacent blocks.

3,600,845

ANIMATED TOY FIGURE

Robert Mendigal, Paris, France, assignor to Compagnie Petitcollin, Paris, France

Filed Nov. 18, 1968, Ser. No. 776,460

Claims priority, application France, Feb. 2, 1968, 138,600

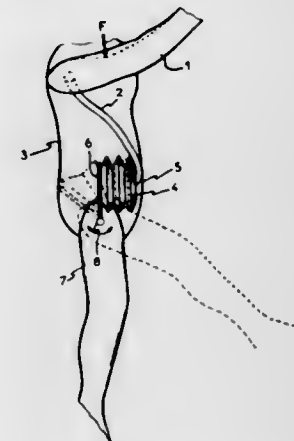
Int. Cl. A63h 29/16

U.S. Cl. 46—44

2 Claims

Animated toy figure, of the doll or puppet type, capable of producing at will the realistic and different movements of the lower limbs comprising, symmetrically relative to the longitudinal axis of said figure, an upper limb which may be articulated, deformable under pressure and playing the role of an air syringe, connected inwardly by a tube to bellows bearing

on the one hand on an inner stationary part of the body of said figure and, on the other hand, on a lever extending, inside said body, the homologous lower limb of the upper limb



beyond its articulation axis. The upper limb, the connecting tube and the bellows are made of a flexible, elastic and airtight material.

3,600,846 VOTING GAME

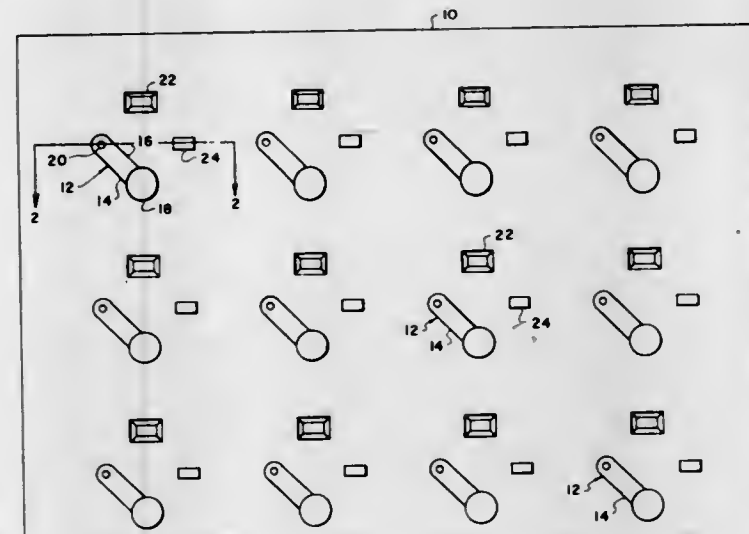
Carmela Peters, 31 E. Gramercy Place, Glen Rock, N.J.

Filed Dec. 18, 1968, Ser. No. 784,636

Int. Cl. A63h 31/00

U.S. Cl. 46—47

5 Claims



A voting game having a ballot box board on which is mounted a plurality of manually operative gear-actuating mechanisms. Each mechanism includes a handle which is depressed to move an integral pinion gear having gear teeth only for a portion of its circumference which in turn mesh with the gear teeth of a larger gear for rotating the larger gear in incremental angular steps. The larger gear having a dial with sequential numerals located around its peripheral face for viewing through a window located on the board. The pinion gear includes a coaxial integral circular wheel on which is located two detents on its circumferential face portion and in which a single-leaf flat spring, connected to the board, extends to drop within these detents to control the movement of the handle from a first to a second position for registering a vote when the handle is depressed. In addition, coaxial to the pinion gear is a main spring permitting continuous rotation of the handle when the flat spring is lifted off the detents.

3,600,847

TOY AMPHIBIOUS BOAT

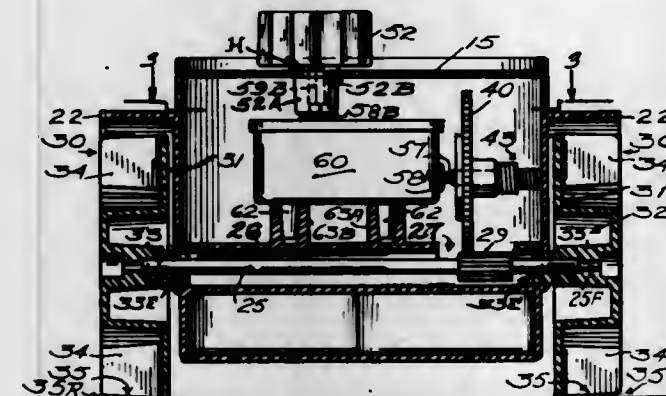
Willis M. Lakin, Sante Fe, N. Mex., assignor to Marlin Toy Products, Inc., Horicon, Wis.

Filed Jan. 31, 1969, Ser. No. 795,604

Int. Cl. A63h 23/10

U.S. Cl. 46—96

10 Claims



A combination pull toy and boat having amphibious wheel structure driven by a motor contained in a watertight barnacle housing with socketed mounting means, and which is preferably also a music box and provides power for water and carriage propulsion with clutch means relieving the motor of counterdrive from the wheels when the toy is pulled.

3,600,848

TALKING TOY VEHICLE

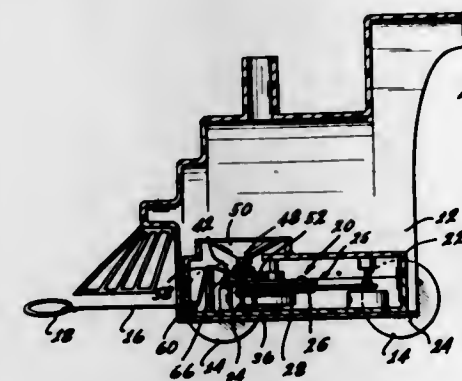
James E. Marshall, Westminster, and Anson Sims, Redondo Beach, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Aug. 8, 1969, Ser. No. 848,661

Int. Cl. A63h 5/00

U.S. Cl. 46—111

6 Claims



A toy vehicle which moves forward along a drawstring toward a stationary pull ring as the phonograph plays, comprising a spring-powered phonograph within the vehicle that is wound by pulling out the drawstring. The drawstring retracts into the phonograph as a record is played, so the phonograph acts like a winch to move it along the drawstring. The phonograph includes a tone arm with a needle for playing the record, and a separate lift arm that lifts the tone arm and needle from the record and carries them to the periphery of the record as the drawstring is pulled.

3,600,849

MODEL VEHICLES

Edwin Faller, Gutenbach, Germany, assignor to Gebr. Faller GmbH, Gutenbach, Germany

Filed Feb. 2, 1970, Ser. No. 7,874

Claims priority, application Germany, Feb. 4, 1969, P 19 05 261.0

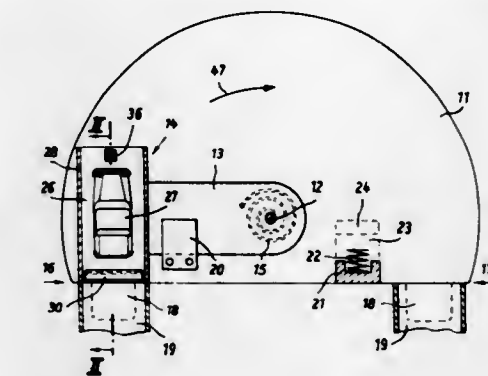
Int. Cl. A63h 11/10

U.S. Cl. 46—202

23 Claims

A device for accelerating model vehicles comprises a track portion movable relative to a base part by resilient means.

The track portion is held in a cocked position by a trigger mechanism and is released when a vehicle entering the track portion from an incoming track trips the trigger mechanism. A movable barrier, displaced by the entering vehicle falls



back behind the vehicle to accelerate the vehicle as the track portion is accelerated by the resilient means. The track portion may be movable in an arc through an angle, e.g. 180° about a vertical axis or in a circle about a horizontal axis or in a straight line.

3,600,850

ENDLESS BELT TOY ACCELERATOR

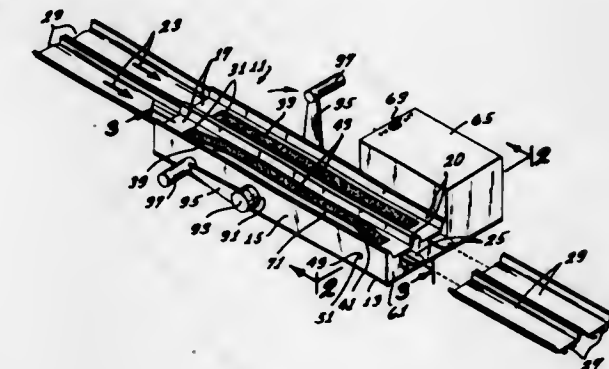
William F. Summerfield, Huntington Beach; Jack L. Barcus, Palos Verdes Peninsula; William R. Baynes, Palos Verdes Peninsula; Emerson W. Brigham, Jr., Hermosa Beach, and James I. Tucker, Jr., Manhattan Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Mar. 24, 1970, Ser. No. 22,269

Int. Cl. A63h 33/26

U.S. Cl. 46—243 M

23 Claims



A continuously moving endless belt is mounted in a housing so that an upper elongated surface of the moving belt is adjacent and in registration with an elongated open channel centrally disposed in a roadway section supported by the housing. Also, a mechanism is provided which raises the upper elongated surface of the endless belt through the channel and into contact with the undersides of selected unpowered toy vehicles traveling on the roadway section in order to provide an acceleration force on the vehicles in the direction of travel. The height of the belt above the roadway section is adjustable to vary the ratio of the vehicles' weight shared by the belt and that of the roadway—the higher the proportion of the vehicles' total weight supported by the belt, the greater will be the acceleration thereof.

3,600,851

TOY VEHICLE

Edwin Nielsen, Oceanside, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.

Filed Apr. 27, 1970, Ser. No. 29,384

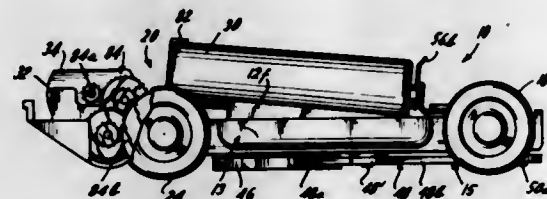
Int. Cl. A63h 29/22

U.S. Cl. 46—244 D

5 Claims

A battery-operated toy vehicle with a programmed automatic front-wheel assembly steering mechanism. The vehicle includes a chassis with an insert plate mounting a motor cradle and a battery cradle, a motor and batteries for driving the

vehicle, a gear train for imparting motion to the rear wheels of the vehicle, a front-wheel assembly and drive train means



for programming and providing steering action to the front-wheel assembly from the motion of the rear wheels.

ERRATUM

For Class 47—57 see:
Patent No. 3,600,830

3,600,852

HARDENABLE PLANT-SEED-CONTAINING COMPOSITIONS AND METHOD FOR ESTABLISHING PLANT GROWTH

William R. Burke, Tonawanda, and Donald R. Kole, Cheektowaga, both of, N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

Filed May 26, 1969, Ser. No. 827,988

Int. Cl. A01c 1/00

U.S. Cl. 47—58

20 Claims

A composition for distributing plant seeds over a soil surface and maintaining them in place until germination and plant growth occur is described comprising a major weight amount of a hardenable binder material and a minor weight amount of plant seeds.

A method for establishing plant growth in a soil surface and concurrently preventing erosion of the soil surface employing a composition as described above.

3,600,853

PARKING FIELD SECURITY DEVICE

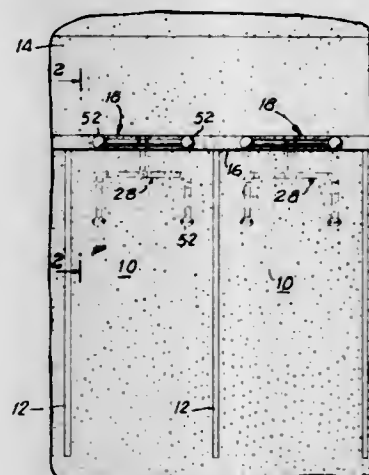
Leonard Goldberg, 11 Sunrise Plaza, Valley Stream, N.Y.

Filed Apr. 13, 1970, Ser. No. 27,600

Int. Cl. E01f 13/00

U.S. Cl. 49—35

6 Claims



A security device for selectively blocking a parking space to prevent unauthorized use of the space. A stationary vertical support post is set into the pavement or ground outside and adjacent to the parking space. A movable barrier portion is pivotally secured to the support post to be swingable from an upper, vertical position in which the space is free for use by a vehicle, to a lower, horizontal position in which the barrier portion extends across a substantial portion of the parking space and blocks use thereof. Locking means may be provided to lock the barrier in either the horizontal or vertical positions, or both, to prevent unauthorized moving thereof.

COUNTERBALANCED WINDOWS FOR CURTAIN WALL SYSTEM

Raymond Dallaire, Levis, Quebec; Dominique Dallaire, Levis, Quebec, and Raymond Cote, Les Saules, Quebec, all of, Canada

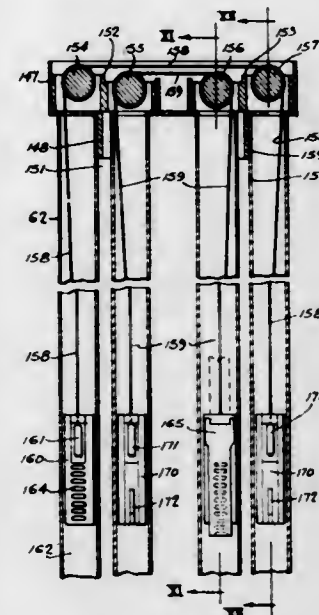
Filed Oct. 31, 1968, Ser. No. 772,263

Claims priority, application Great Britain, Oct. 31, 1967, 49473/67

Int. Cl. E05f 17/00

U.S. Cl. 49—121

4 Claims



A curtain wall system for buildings using a wooden frame in which fixed and movable panels are mounted, and provided with exterior coverings of extruded plastic applied to cover the exposed surfaces of the wooden frame. A counterbalanced double-glazed double-hung window forms a part of the system, and incorporates a novel counterbalanced supporting structure.

3,600,855

WINDOW SASH GUIDE ASSEMBLIES FOR DOUBLE-HUNG TILT-IN WINDOWS

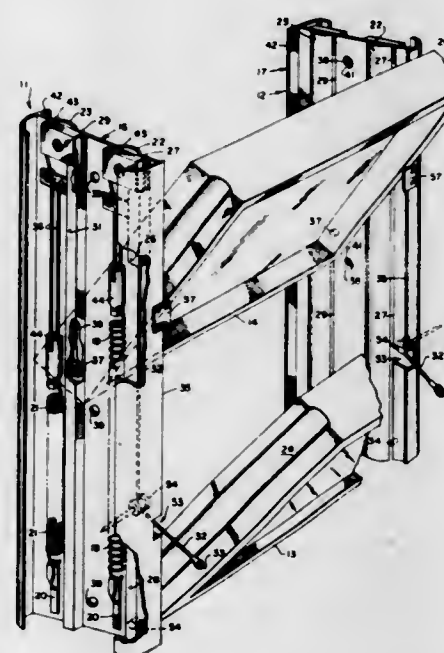
William R. Starck, Greenwich, and Arthur M. Starck, both of c/o A.M.S. Corp. 4 Taft St., South Norwalk, Conn.

Filed Jan. 21, 1970, Ser. No. 4,596

Int. Cl. E05d 15/22

U.S. Cl. 49—151

11 Claims



Economical sash guide assemblies incorporating guideways for the upper sash and the lower sash of double-hung win-

dows, with recessed grooves accommodating sash cords led over stationary top sheaves to connect to extensible helical coil tension balancing springs enclosed in vertically elongated recessed cavities behind the sash guides, for counterbalancing extension and retraction in response to window sash movement by the user. These sash guide assemblies incorporate a sash cord portal permitting tilt-in pivoting movement of the lower sash about its lower edge in its lowermost, closed position. Inwardly extending studs also provide tilted support for the upper sash, which may thus be pivoted inward to an angularly slanted position. The sash guide assemblies also incorporate features permitting both sashes to be tilted down inwardly to a horizontal cleaning position at the lower end of the window sash guide assemblies.

3,600,856

CLOSURE MECHANISM FOR PANEL OPENING

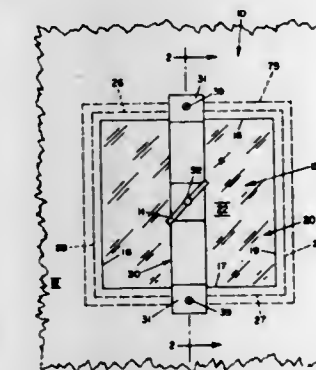
Eldon L. Burn, 2717 S. 107th Ave., Omaha, Nebr.

Filed Feb. 9, 1970, Ser. No. 9,597

Int. Cl. E05f 11/34

U.S. Cl. 49—324

10 Claims



This invention relates to a closure mechanism for panel openings and comprising a plate member, a central portion of which is mounted onto a transversely reciprocable plunger means whereby the plate member is maintained in substantial parallelism with the plane of the panel opening both during the "open" and "closed" conditions of the panel opening.

3,600,857

INSULATED WINDOW ASSEMBLY WITH MOVABLE SASH

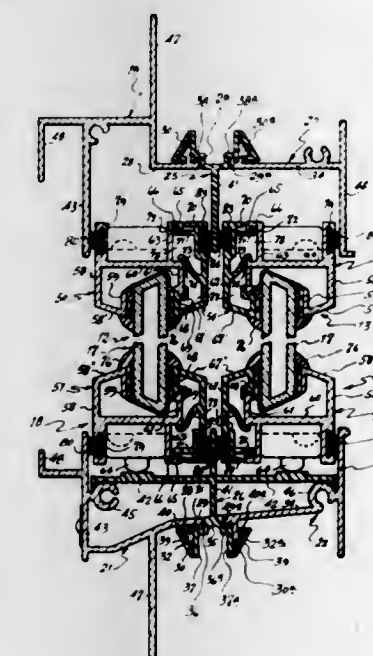
Robert Lewis La Barge, Pittsburgh, and Paul Noble Vosburgh, Lower Burrell, both of, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed June 11, 1969, Ser. No. 832,131

Int. Cl. E06b 1/32

U.S. Cl. 49—404

17 Claims



In a window assembly having an outer frame within which inboard and outboard lapping sashes are mounted for horizontal or vertical relative movement, the outer frame includes interior and exterior metal frame members and a rigid plastic or other nonmetallic thermal barrier member therebetween connecting the metal frame members in thermally insulated relation to each other, each sash includes an inner frame embracing the periphery of a glass or other panel and constituted by a metal frame member and a rigid plastic or other nonmetallic thermal insulating frame member respectively defining the entire opposite lateral surfaces of the frame, and the inboard and outboard sashes have their insulating frame members at their exterior and interior sides, respectively, so as to be adjacent to the thermal barrier member of the outer frame. The insulating frame member of each sash desirably includes a web or webs defining the respective lateral surface of the sash frame and flanges extending therefrom and having free marginal portions interlocking with the metal sash frame member to substantially space the latter from the web and to cooperate with the web and the metal frame member in defining cavities therebetween.

3,600,858

WEATHERSTRIP ASSEMBLY

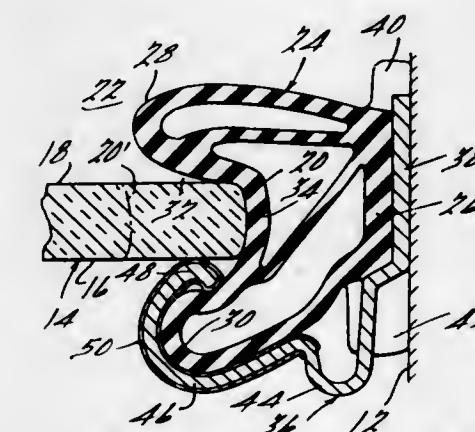
Charles L. Savell, Warren, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 10, 1969, Ser. No. 875,132

Int. Cl. E06b 7/23

U.S. Cl. 49—488

4 Claims



A weatherstrip assembly for a vehicle body rail section defining an edge of a body window opening. A resiliently deformable weatherstrip is secured to the rail section and has a groove formed therein adapted to receive an edge of an unframed window panel. A rigid clip is secured to the rail section, extends about the outboard profile of the weatherstrip and projects into the weatherstrip groove where it bears against the outboard surface of the window panel and prevents window panel outboard movement.

3,600,859

TOOL-SHARPENING APPARATUS

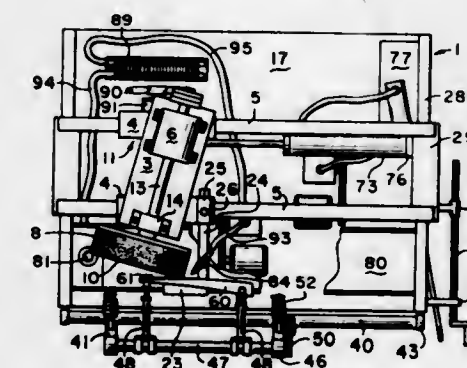
Darwin D. Edgecomb, General Delivery, Avoca, Iowa

Filed June 2, 1969, Ser. No. 829,180

Int. Cl. B24b 3/00, 5/18

U.S. Cl. 51—48 HE

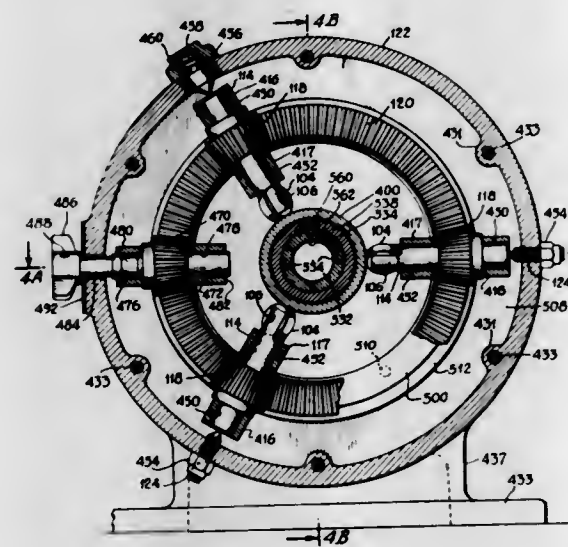
5 Claims



A semiautomatic grinding-sharpening machine for sharpening surfaces with a helical configuration is disclosed. The

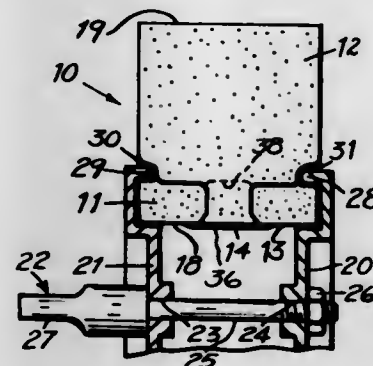
machine is self-supporting, only electric power need be supplied. It includes an adjustable holder for positioning the workpiece being sharpened, a reciprocating grinding mechanism, and a self-contained coolant supply.

3,600,860
ADJUSTABLE ANGLE HELIX GENERATOR FOR EDGE AND RADIAL RELIEF SHARPENING
Warren Harding Liebold, 134 Liberty St., Pawcatuck, Conn.
Filed July 14, 1969, Ser. No. 841,407
Int. Cl. B24b 47/02
U.S. Cl. 51—232 25 Claims



A variable pitch-angle helical-feed jig for supporting, advancing and retracting a supported rod or tube in combined longitudinal and rotational motion along a helical path of travel of predetermined adjustable pitch angle. The mechanism is embodied in a jig device for presenting successive cutting edges of a fluted end mill to a grinding mill for sharpening purposes, and helically traversing the end mill across the grinding face to sharpen the entire length of each cutting edge in turn. The end mill is held within a collet-type chuck that tightens its grip when telescoped within an inner tube which in turn is held inside a carrier tube. The inner tube is rotatable relative to the carrier tube for angularly indexing the end mill so as to present successive cutting edges thereof to the grinding wheel. The entire length of each cutting edge is helically traversed across the wheel by the action of three adjustable pitch rollers which convert manually imparted rotary or longitudinal motion of the carrier tube into a helical advance. The pitch angles of all rollers are adjusted simultaneously, so that the helical pitch of the carrier tube advance can be made equal to that of the end mill cutting edges.

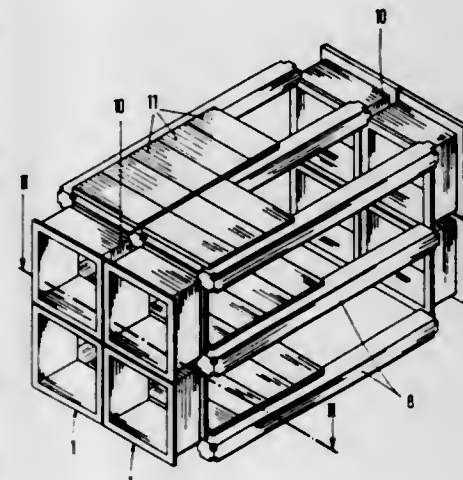
3,600,861
ABRASIVE WHEELS
George L. Haywood, Latham, N.Y., assignor to Norton Company, Troy, N.Y.
Filed Oct. 30, 1969, Ser. No. 872,564
Int. Cl. B24b 9/02
U.S. Cl. 51—334 7 Claims



An abrasive wheel is provided wherein coated abrasive segments are arranged annularly in interlocking pairs. Such

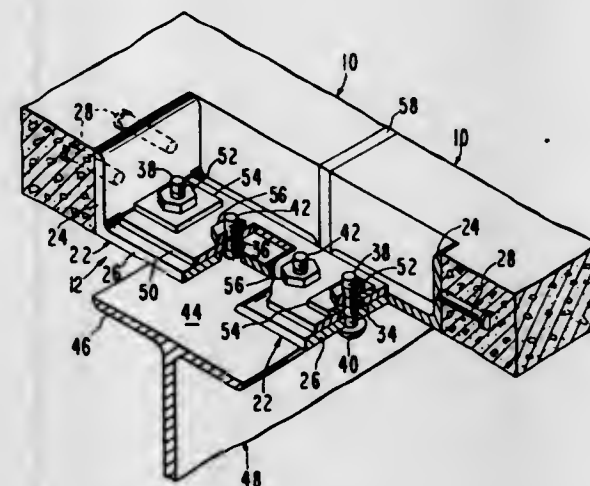
interlocking makes it possible to assemble a greater number of abrasive segments in the wheel thus providing an abrasive wheel of improved performance.

3,600,862
PROCEDURE AND PRECAST BUILDING ELEMENTS MADE OF CONCRETE OR REINFORCED CONCRETE FOR THE CONSTRUCTION OF BUILDINGS OR SKELETONS
Gunther Ludwig Eckert, Hohenschaftlarn, Germany, assignor to Ernst Kirchhoff, Munich-Solln, Germany
Continuation of application Ser. No. 685,772, Nov. 27, 1967, now abandoned. This application Dec. 8, 1969, Ser. No. 878,999
Int. Cl. E04b 2/38, 2/52, 5/08
U.S. Cl. 52—236 15 Claims



A skeleton for a building comprising precast frame-shaped elements and precast horizontal support beams which rest on the frame-shaped elements. The frame-shaped elements are placed along at least two mutually facing outer sides of the building and in adjacent or superposed relationship to form intermediate spaces therebetween. The precast horizontal beams are placed on the intermediate edges of the adjacent frame elements and cast in situ concrete is placed in the intermediate spaces defined between the frame-shaped elements.

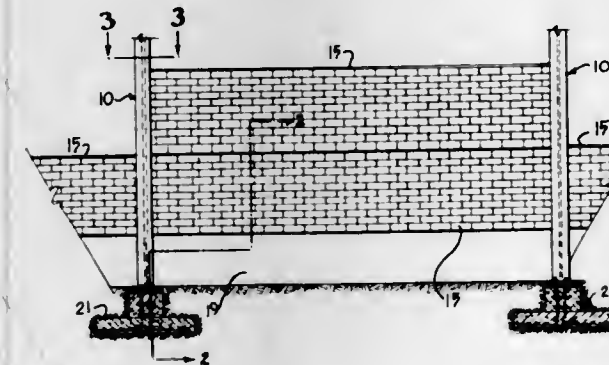
3,600,863
CONCRETE SLAB WITH IMPROVED FASTENING MEANS
Marvin G. Nachtsheim, Palo Alto, Calif., assignor to National Parking Corporation, San Francisco, Calif.
Filed Sept. 8, 1969, Ser. No. 855,915
Int. Cl. E04b 1/41
U.S. Cl. 52—483 11 Claims



A concrete slab having a number of peripheral recesses and fastening means disposed in each recess, respectively. In

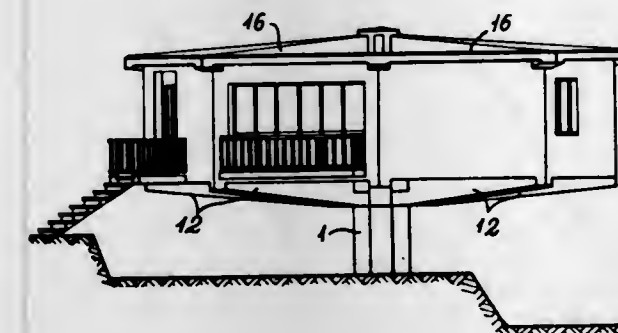
one embodiment, the fastening means includes an angle member having one portion secured to the slab and a second portion with holes therethrough for receiving mounting studs. A connector plate is provided to interconnect the studs passing through the angle members of adjacent slabs. In a second embodiment, the fastening means includes an angle member rigidly secured to the slab and having an angle element rigidly secured thereto to define a space for receiving a bolt. The slab is adapted for use in a number of different building applications and is particularly suitable for use in forming the floor of a building.

3,600,864
PRECAST PANEL, BUILDING WALL CONSTRUCTION AND METHOD
Fred O. Godley, and Fred D. Godley, both of Charlotte, N.C., assignors to Beaul-Brik Corporation, Charlotte, N.C.
Filed July 22, 1969, Ser. No. 843,419
Int. Cl. E04b 2/58
U.S. Cl. 52—495 2 Claims



A precast panel, building wall and method of erecting the same wherein the panels are mounted to extend between adjacent pairs of column members for forming the entire thickness of a building wall intermediate the adjacent column members and with distal end portions of the panels received within a corresponding pair of opposing, facing channels in the column members, the panels being secured in place within the column members by clamping means engaging the panels and the column members.

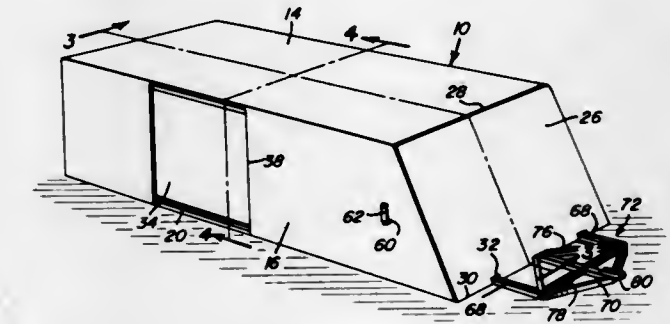
3,600,865
ELEVATED SINGLE COLUMN-BORNE HOUSE OF PRECAST CONCRETE ELEMENTS AND POSTTENSIONED TENDONS
Francesco Vanich, 67, via Chiodo, La Spezia, Italy
Filed Mar. 4, 1969, Ser. No. 812,525
Claims priority, application Italy, Mar. 9, 1968, 6867A/68
Int. Cl. E04b 1/34
U.S. Cl. 52—73 8 Claims



Single column-borne elevated house units are erected by assembling, on a cast-in-situ foundation pillar, column sec-

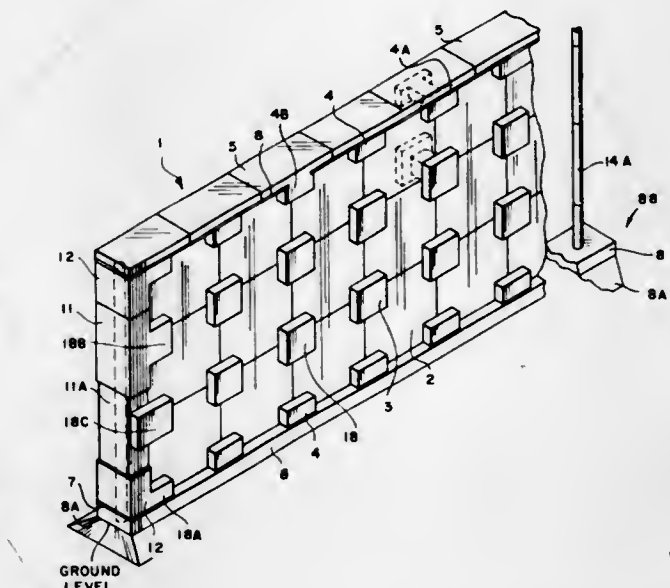
tions provided with means for fastening same together and to the foundation pillar and by fastening to said column sections radially arranged cantilever beams. The assembled parts are fastened together and to the foundation pillar by means of tendon sections which are first coupled together by means of joints, and then tensioned and eventually bonded to the concrete of the assembled parts by forcing grout in the clearance spaces all around the tendon rods.

3,600,866
PORTABLE GARAGE
Edward J. Griffith, 4558 Wentworth Drive, Rapid City, S. Dak.
Filed Mar. 20, 1969, Ser. No. 808,771
Int. Cl. E04h 6/04
U.S. Cl. 52—64 5 Claims



A portable garage for trailer camp and similar use having a bottom firmly supportable atop a suitably flat foundation. It comprises a walled enclosure having a main hinged door at its entrance-exit end, one or more auxiliary sidewall doors, and a linking connection whereby all doors are simultaneously openable and closable. The driver leaves and subsequently reenters the enclosed automobile by way of the sidewall door or doors. The floor-forming bottom is equipped with guide rails and bordering trackways for centering and positioning the automobile. The projecting forward end of the rail means is fashioned into a towing bracket equipped with trailer-type coupling means. Attachable and detachable dolly wheels are installed when the garage is hitched to a towing car for traveling.

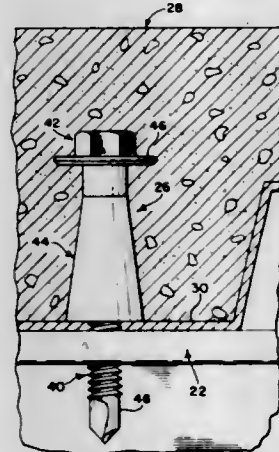
3,600,867
BUILDING BLOCK CONSTRUCTION AND ASSEMBLY
Bernice W. Shuey, 3323 Latham Drive, Dallas, Tex.
Filed Oct. 16, 1969, Ser. No. 866,856
Int. Cl. E04b 1/40, 1/70
U.S. Cl. 52—284 5 Claims



This product is a novel structure for providing an easy to assemble and disassemble masonry or other material wall

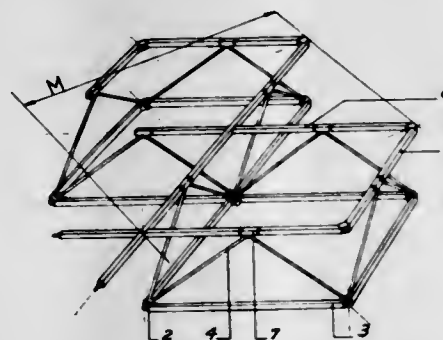
that is virtually free of mortar. This structure may be quickly assembled by unskilled persons, and yet provides the appearance of a continuous professionally laid masonry wall. The individual masonry blocks cooperate with joining elements that provide both holding means and attractive surface display.

3,600,868
SHEAR CONNECTORS
Edgar Clifton Wilson, Jr., Elgin, and Friedrich Karl Knoch, Roselle, both of, Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.
Filed Feb. 28, 1969, Ser. No. 803,222
Int. Cl. E04b 1/48; F16b 43/00
U.S. Cl. 52—336 17 Claims



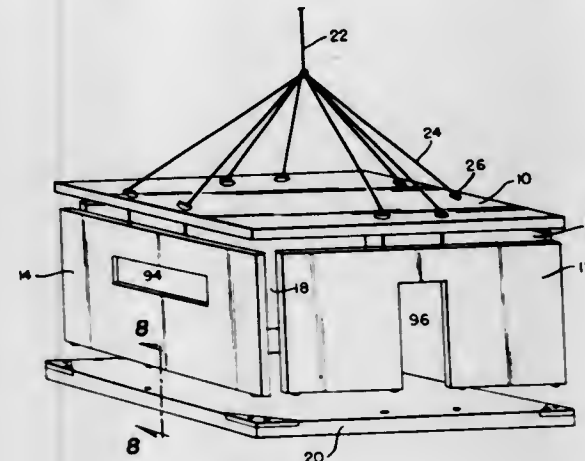
A shear fastener for securing concrete decking relative to a supporting structure in a laminar building structure. The fastener includes a stud, an enlarged means at one end, and a spacer adapted to enclose the stud shank and isolate it in spaced relation from the encapsulating concrete to permit bending moments to be applied to the stud shank rather than a straight shear stress when the decking shifts relative to the supporting structure.

3,600,869
MODULAR FRAMEWORK COMPONENTS
Leon Petroff, 50 rue Felix Merlin 93, Epinay sur Seine, France
Filed Mar. 10, 1969, Ser. No. 805,635
Claims priority, application France, Mar. 12, 1968, PV 143 300
Int. Cl. E04b 5/14; E04c 3/02
U.S. Cl. 52—650 15 Claims



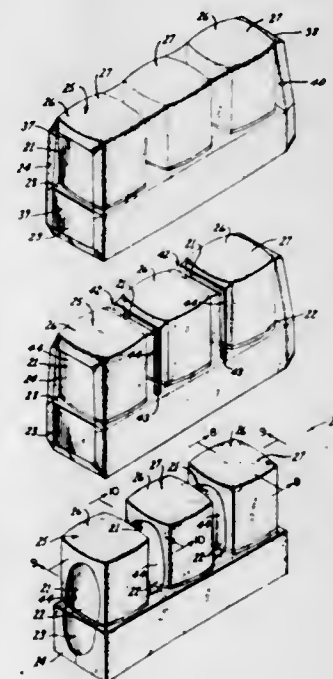
Modular framework components which assemble to provide a three-dimensional framework having a plurality of three-dimensional portions each including a frame having four corners with connecting means of the components at each corner to interconnect the components so that said frames will be arranged corner-to-corner in a matrix formation with the corner-to-corner diagonals of said frames extending in the row and column directions of said matrix formation.

3,600,870
BUILDING ERECTION METHOD
William Greenhalgh, P.O. Box 521, Oshawa, Ontario, Canada
Division of Ser. No. 811,566, Mar. 28, 1969, Pat. No. 3,527,008.
Filed May 6, 1970, Ser. No. 35,158
Int. Cl. E04g 21/14; B66c 1/10
U.S. Cl. 52—745 4 Claims



A method to be used in the erection or disassembling of buildings or quilling frames formed of individual panels. In the method a plurality of winch units are detachably secured to a roof or ceiling panel and are used to raise or lower individual wall panels to a uniform height after they have been raised to nonuniform heights as a result of raising them from a prepared package lying on a floor or foundation, or to raise or lower the vertical panels in an existing structure to nonuniform heights such that the vertical panels can be swung to horizontal positions, in a desired sequence to form a collapsible structure suitable for collapsible structure suitable for collapsing and packaging for removal to another site for erection again.

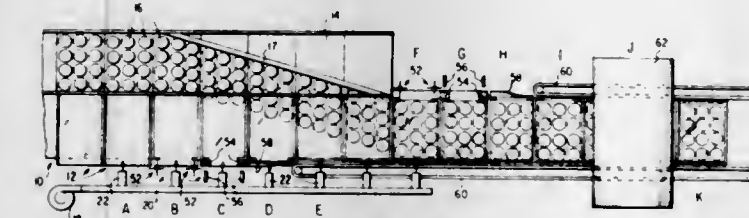
3,600,871
METHOD OF MAKING PACKAGE CONSTRUCTION FOR PLURALITY OF ARTICLES
Melville T. Farquhar, Bon Air, Va., assignor to Reynolds Metals Company, Richmond, Va.
Division of Ser. No. 604,383, Dec. 23, 1966, Pat. No. 3,490,582.
Filed Sept. 9, 1969, Ser. No. 856,318
Int. Cl. B65b 11/00, 53/02
U.S. Cl. 53—3 36 Claims



This disclosure relates to a package construction wherein a plurality of articles are held in a predetermined arrangement

by a filmlike member having a portion thereof engaging against the upper ends of the articles with that portion being separated into a plurality of parts respectively engaging the upper ends of the articles so that the articles can be held in such predetermined arrangement without having the upper ends drawn toward each other and can be serially removed from the package construction by causing relative movement between the respective engaging part of the portion of the filmlike member and the package construction while the remaining articles are being maintained in the predetermined arrangement by the remaining parts of the filmlike member, the filmlike member being heat shrunk to hold and compact the articles in their predetermined arrangement together with or without a support member supporting the other ends of the articles, depending on the shape of the articles, and being compacted against the other ends of the articles by the heat shrunk filmlike member.

3,600,872
METHOD OF MAKING A PACKAGE
Edwin V. Sharpnack, Jr., Somerdale, N.J., assignor to Reynolds Metals Company, Richmond, Va.
Filed Sept. 29, 1969, Ser. No. 861,887
Int. Cl. B65b 39/14, 43/36, 53/02
U.S. Cl. 53—30 1 Claim

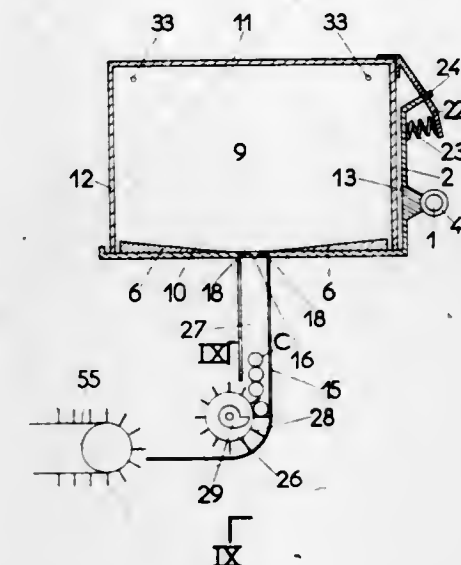


A blank construction for making packages which contain a plurality of articles. The blank comprises a flat, paperboard base member and a sheet of heat shrinkable film secured to one surface of the base member. In accordance with the method of forming the blank, air is blown between the shrinkable film and the base member to provide a sufficiently large opening to permit the lateral insertion of groups of articles. The apparatus includes parallel feeding conveyors whereby packages may be formed continuously with cam means being provided to impart the lateral movement to the groups of articles. After the articles are in place, the heat shrinkable film is shrunk over the tops of the articles as they pass through a shrink tunnel which may be mounted on the conveyor which feeds the blanks.

3,600,873
PROCESS AND DEVICE FOR THE FILLING OF A CONTAINER WITH OBJECTS IN THE FORM OF STICKS
Claude Paul Aime Pirat, Strasbourg-Neudorf, France, assignor to Service D'Exploitation Industrielle des Tabacs et des Allumettes, Paris, France
Filed Mar. 27, 1968, Ser. No. 716,450
Claims priority, application France, Mar. 29, 1967, 100,660
Int. Cl. B65b 5/10, 19/00
U.S. Cl. 53—35 7 Claims

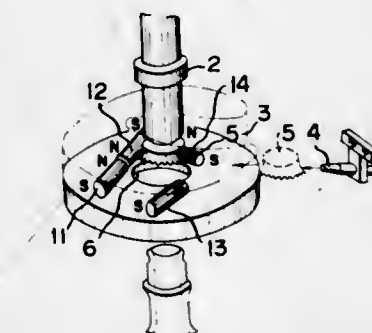
Process for the filling of a container, normally open in its top portion which is tipped downwards in such a way that the objects may be introduced at the bottom, comprising the steps of closing said open portion to prevent the objects in-

duced into said container to escape therefrom, and introducing the objects through at least one intake opening



located substantially in the plane of symmetry of the container inner space fed by said opening.

3,600,874
BOTTLE-STOPPER-SUPPORTING DEVICE
Sadao Noguchi, and Masatoshi Suzuki, both of Nagoya, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 3, 1969, Ser. No. 813,154
Claims priority, application Japan, Apr. 10, 1968, 43/23333
Int. Cl. B65b 7/28; B67b 3/06
U.S. Cl. 53—306 7 Claims

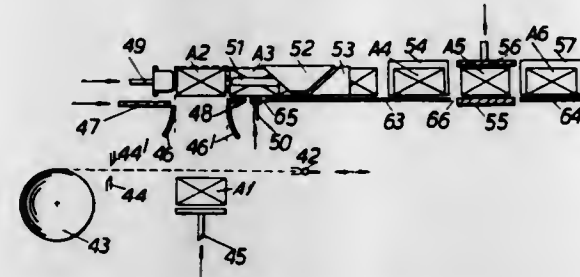


A bottle-stopper-supporting device includes a stopper-fitting head having a stopper inlet opening and a plunger mounted for vertical reciprocation in the head at the inner end of the inlet. One or more horizontally oriented magnets are arranged on the head and are cooperable with bottle stoppers entering the inlet. An air jet nozzle is oriented laterally to move bottle stoppers into the inlet. In one embodiment, there is one horizontally oriented bar magnet and two vertically oriented bar magnets to support a bottle stopper containing magnetic material. In another embodiment, all of several magnets are horizontally oriented.

3,600,875
DEVICE FOR WRAPPING OBJECTS IN THERMOPLASTIC FILMS
Robert Konrad Buob, Como, and Giorgio Giraudi, Milano, both of, Italy, assignors to W. R. Grace & Co., Duncan, S.C.
Filed Oct. 21, 1969, Ser. No. 868,103
Int. Cl. B65b 53/00
U.S. Cl. 53—30 10 Claims

A packaging apparatus and a method in which an object wrapped in a thermoplastics film is subject to three heating steps, each step taking place at a higher temperature than the

previous one. During the first heating step the film is heated only sufficiently to maintain it in a wrapped condition; during



the second the film is shrunk; and during the third the film is completely heat-sealed.

3,600,876

CORN-PICKING MACHINE

Hans Tanzer, Marchtrenk, Austria, assignor to Eppe-Buxbaum-Werke Aktiengesellschaft

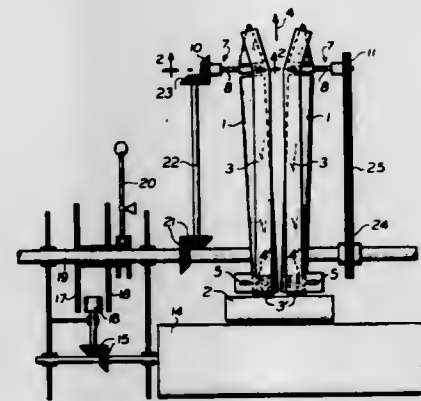
Filed June 27, 1969, Ser. No. 837,131

Claims priority, application Austria, June 27, 1968, A 6194/68

Int. Cl. A01d 45/02

U.S. Cl. 56-11.2

7 Claims



A corn-picking machine having picking rollers and shedding ledges located above the picking rollers. The picking rollers and shedding ledges are pivotally mounted at their rear ends when viewed in the moving direction. The shedding ledges are pivotal relative to the rollers. The front ends of the picking rollers and the shedding ledges are connected with each other, which connection is preferably disengageable. The support of the front bearing of each picking roller is provided with a pivoting device for pivoting the support together with the corresponding shedding ledge, and the pivoting devices of all picking rollers may be operated by one common driving device.

3,600,877

STRIPPING-SHREDDING METHOD AND APPARATUS

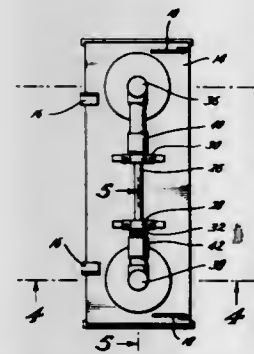
Donald E. McCrary, and James J. Lee, both of Rte. 1, Venus, Tex.

Filed May 2, 1969, Ser. No. 821,225

Int. Cl. A01d 35/26

U.S. Cl. 56-10.3

2 Claims



A method for harvesting an agricultural product such as cotton by removing the product from its plant and concurrently shredding the plant. A shredding apparatus is provided

to be supported and driven by harvesting machinery and comprises a housing for attachment to the harvesting machinery, upright shafts journaled in the housing for rotative movement, a blade secured to the lower end of each upright shaft, a drive shaft journaled to the housing for rotation by the harvesting machinery, gear means transmitting rotative movement from the drive shaft to each upright shaft and clutch means operatively engaged between the drive shaft and each upright shaft.

3,600,878

DEMOUNTABLE, UNITIZED ROW CROP GATHERING UNIT FOR BROADCAST COMBINES

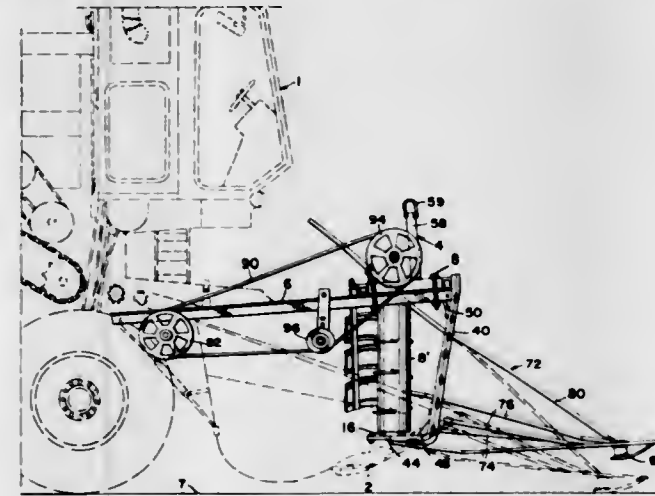
Roy Durward Lynch, 903 Jefferson Drive, Plainview, Tex.

Filed May 13, 1969, Ser. No. 824,112

Int. Cl. A01d 45/02

U.S. Cl. 56-119

9 Claims



A structural frame for use on broadcast combines to support upright, stalk-gathering cylindrical members as a unit, separately and independently of any permanent connections to the combine, and which structural frame may be clamped onto a conventional broadcast combine to enable the combine to be converted into a row-harvesting unit. Four bolt clamps connect the structural frame to the combine and by connecting an endless-drive member having a transverse shaft mounted thereon, enables ready use thereof. Complementary pairs of upright cylindrical members, mounted on the combine, are rotated in opposed relation to direct stalks of row crops, such as maize, kafir corn, corn, legumes and the like, into the sickle of the combine. Provision is made to truss the structural frame to enable the unit to be supported on the combine above the sickle thereof in rigid relation. Further provision is made to enable the removing and replacing the entire unit, by the use of a hoist, in a minimum of time.

3,600,879

LAWNMOWER ATTACHMENT

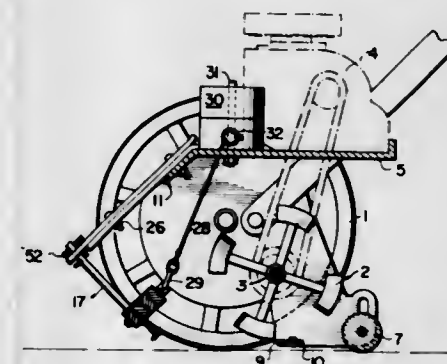
Fred Coffman, 820 Fox Hill Drive, Ruskin, Fla.

Filed Oct. 23, 1969, Ser. No. 868,842

Int. Cl. A01d 55/20

U.S. Cl. 56-249

10 Claims



There is disclosed a racking or combing attachment for a lawnmower having a frame member above and ahead of the

mower's cutting means and which attachment includes a transversely extending crossbar means, a plurality of teeth secured to such crossbar means to extend therefrom in a common plane and means securing the crossbar means to the frame member in such fashion that the common plane containing the teeth is disposed in advance of the cutting means and at a downward and rearward angle that intersects the ground in advance of the cutting means. As a specific aspect, the teeth have heads thereon that facilitate the raising of grass and disruption of matted grass formations.

3,600,880

MOWER GUARD

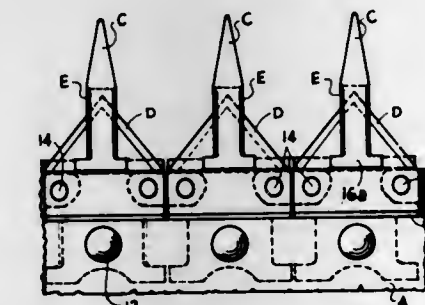
Grover L. Woods, P.O. Box 5612, Greenville, S.C.

Filed Sept. 29, 1969, Ser. No. 861,878

Int. Cl. A01d 55/02

U.S. Cl. 56-298

1 Claim



A cutting apparatus for a mower including an elongated guardrail, and a plurality of cast-iron guards mounted thereon. A plurality of aligned knives are attached to a sickle bar and have their cutting edges alternately facing up and down. Each of the guards has a horizontal slot with a recess provided in opposed sides above and below the slot. A casehardened rectangular plate is carried above the slot on one side of the guard and below the slot on the other side of the guard for providing a cutting surface for the knives.

3,600,881

PUMPKIN HARVESTER

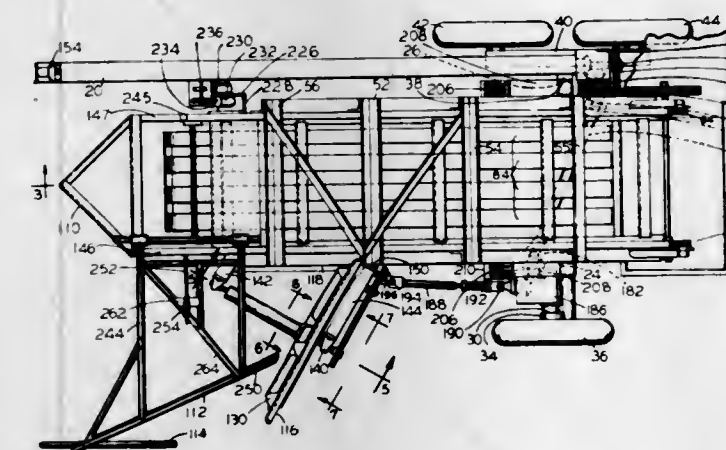
Wellington W. Porter, R. D. #2, Dublin Road, Waterloo, N.Y.

Filed Dec. 15, 1969, Ser. No. 885,154

Int. Cl. A01d 45/00

U.S. Cl. 56-327

8 Claims



Harvester for rows of pumpkins comprising an elevator having a plurality of guide slats disposed in spaced side-by-side relation, with forward portions extending forwardly and horizontally along the ground, and inclined rearward portions extending upwardly to an elevator discharge area, and side parallelogram-like frames having opposed facing conveyor chain member guides, the guides extending along the ground on opposite sides of the forward portions, and the inclined portions extending parallel with the slat inclined portions and disposed at a substantial spacing normal therefrom, endless chains having conveyor pusher bars at evenly spaced

intervals extending transversely across the slats, the bars moving along the forward slat portions to move the harvest toward the inclined portion, and thereafter moving upwardly in spaced relation from the inclined rearward portion of the slats to propel the harvest up the inclined slats to the discharge area, a radially ribbed impeller wheel disposed to one side of the elevator and adapted to move pumpkins laterally onto the forward slat portions.

3,600,882

CUCUMBER HARVESTER

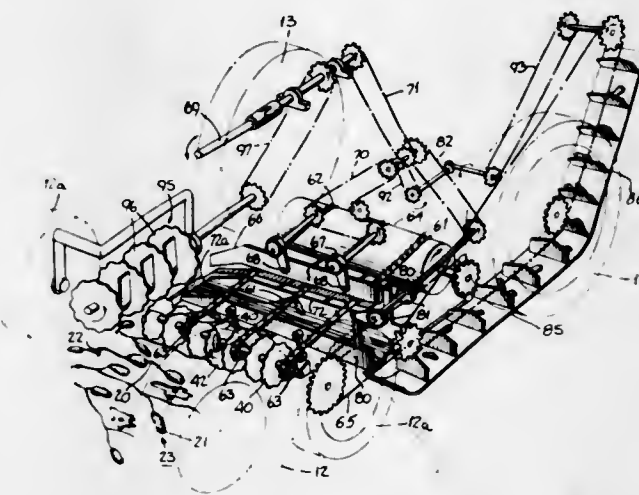
Bernard C. Eisenberg, Rockaway, N.J., assignor to Solbern Corporation, Fairfield, N.J.

Filed Jan. 27, 1969, Ser. No. 794,054

Int. Cl. A01d 45/00

U.S. Cl. 56-327

34 Claims



A method of and apparatus for harvesting cucumbers from a vine wherein means are provided for lifting the vines from the ground and conveying them through the machine at a speed relative to the machine and substantially equal and opposite to the speed of the machine relative to the ground, whereby the vines may be passed through the machine without disturbance of their root end. The vines are engaged and passed through the machine to a reciprocating striking member. As the vines slidably pass through the machine, the striking member engages the matured cucumbers and peels the stem therefrom which attaches the cucumbers to the vines. The severed cucumbers are subsequently conveyed to a storage member toward the rear of the machine.

3,600,883

WORKING MEMBER FOR SHAKING OFF FRUITS TO BE USED IN FRUIT HARVESTERS

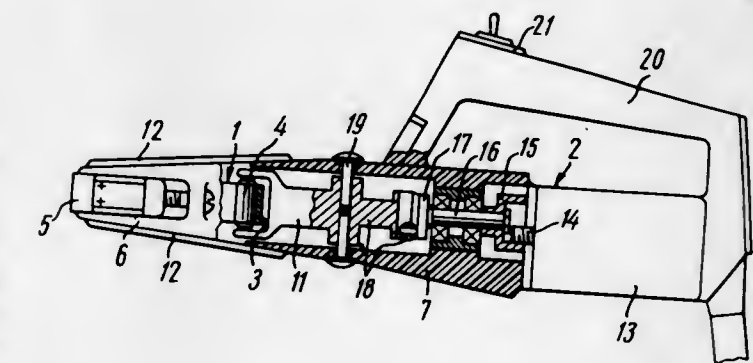
Lev Mikhailovich Pilugin, N121SNP, 14, Kv. 16, Moscow; Albina Demianovna Krivonosova, N121SNP, 9, Kv. 24, Moscow; Nikolai Petrovich Gavriljuk, Benderskaya, 30, Kv. 7, Kishinev, and Jury Andreevich Utkov, N121SNP, 7, Kv. 6, Moscow, all of U.S.S.R.

Filed Mar. 5, 1969, Ser. No. 804,413

Int. Cl. A01g 19/00

U.S. Cl. 56-330

5 Claims



A working member for shaking off fruits for use in fruit harvesters including a flexible elastic V-shaped element con-

nected at its base to a vibrator imparting oscillatory motion thereto, and the ends of the elastic element being immobile relative to the plane of oscillation of the elastic element.

3,600,884

STEEL CORD FOR REINFORCING RUBBER ARTICLES
Akiyoshi Yazawa, Tokyo; Reizo Fujisaki, Tokyo, and Yoshimi Nakamura, Ashiya, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo and Kobe Steel Limited, Kobe, Japan

Filed Mar. 6, 1969, Ser. No. 804,779

Claims priority, application Japan, July 9, 1968, 43/57986

Int. Cl. D02g 3/48

U.S. Cl. 57—139

3 Claims



Steel cords for reinforcing rubber articles comprising four twisted steel wires twisted together into steel cords. Each twisted steel wire consists of seven straight steel wires each having a same diameter and twisted together. The twisting direction of the four twisted steel wires is opposite to that of the seven straight steel wires.

3,600,885

LEVER WINDING FOR ALARM CLOCK STEM-WINDING GEAR

Robert Wolber, Lautenbach/Wurttemberg, and Otto Hettich, Schramberg/Wurttemberg, both of Germany, assignors to Messrs. Gebrüder Junghans GmbH, Schramberg/Wurttemberg, Germany

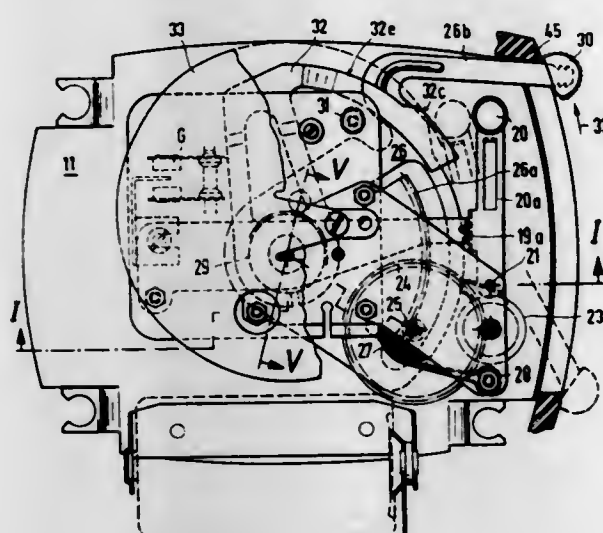
Filed Apr. 17, 1968, Ser. 721,964

Claims priority, application Germany, Apr. 28, 1967, J 33568

Int. Cl. G04b 23/00, 3/00

U.S. Cl. 58—16

3 Claims



A winding lever for the stem-winding gear of an alarm clock in which the movement is mounted on a baseplate with the winding lever mounted thereon and arranged coaxially with the shafts of the hands of the movement.

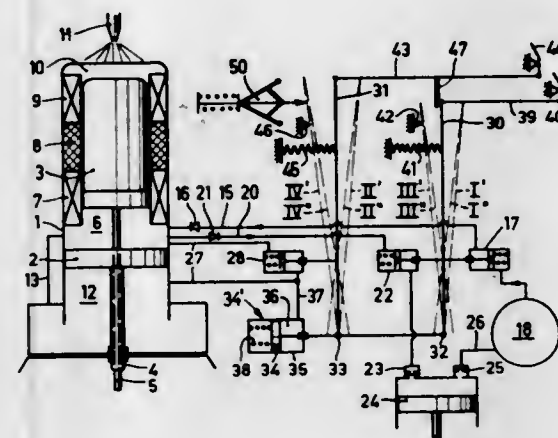
HOT GAS ENGINE
Hendrik Alphons Jaspers, and Gregorius Theodorus Maria Neelen, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.
Filed Sept. 4, 1969, Ser. No. 855,170

Claims priority, application Netherlands, Sept. 7, 1968, 6812816

Int. Cl. F25b 9/00

U.S. Cl. 60—24

11 Claims



A hot gas engine having a buffer space, a working space in communication with a medium supply duct including a controllable inlet valve, a medium outlet duct including a controllable exhaust cock, a communication duct including a bypass valve between the working space and buffer space, a first control device which is movable against the action of a spring for operating the inlet and exhaust valves, and a second control device which is movable against the action of the spring for operating the bypass valve, the control devices being constructed so that during normal operation a movement of the second control device is associated with the same movement of the first control device, while upon braking with the engine the bypass valve is maximally opened and by moving the first control device only the inlet cock can be opened to provide a maximum braking torque.

ELECTRICAL STARTING AND OPERATING SYSTEM FOR GAS TURBINE ENGINE

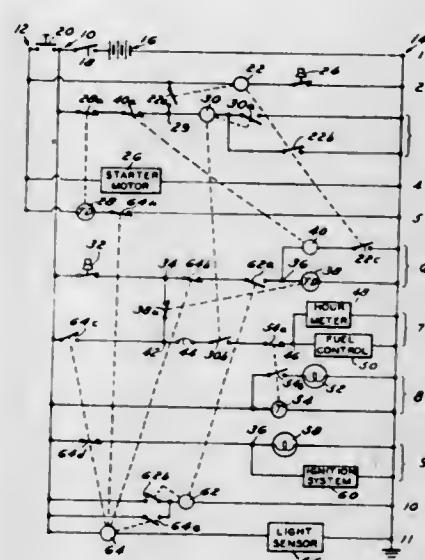
Robert L. Gault, Garden City, and Thomas M. Sebestyen, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Sept. 8, 1969, Ser. No. 856,527

Int. Cl. F02c 7/26

U.S. Cl. 60—39.14

8 Claims



A flame sensor deactivates the ignition system of a gas turbine engine as soon as a flame is detected in the combustion

chamber during engine starting. The starter motor is disengaged automatically when gas generator speed approaches its idling speed. If a flameout occurs before the starter disengages, fuel flow to the engine is halted immediately and the starting cycle is aborted. The starting cycle also is aborted if the initial flame does not appear within a predetermined time. If a flameout occurs at idling speed, one relighting attempt of predetermined time duration is attempted. If a flameout or an overtemperature condition occurs during road load operation, the system immediately stops fuel flow to the engine but resumes fuel flow and attempts one relighting when gas generator speed gas generator speed has declined approximately to idling.

POWER MANAGEMENT CONTROL FOR A MULTIENGINE INSTALLATION

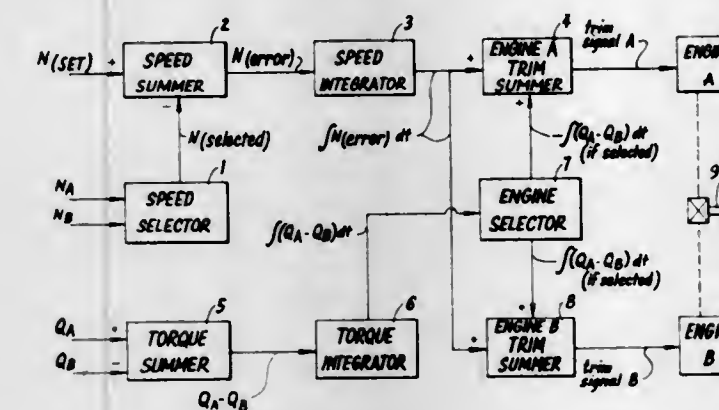
Harley F. Nethken, North Palm Beach, and Thomas R. Warwick, Jupiter, both of Fla., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed May 12, 1970, Ser. No. 36,522

Int. Cl. F02c 7/02

U.S. Cl. 60—39.15

7 Claims



A power management control in which the output of a speed error integrator and the output of a torque balance integrator are summed in such a manner as to selectively "beep," that is adjust, the power of both engines up or down to correct speed error and to "beep" up the power of the engine with the lower torque to equalize the load on each engine. The invention herein described was made in the course of or under a contract with the Department of the Army.

FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINES
Richard J. Ifield, Beecroft, New South Wales, Australia, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

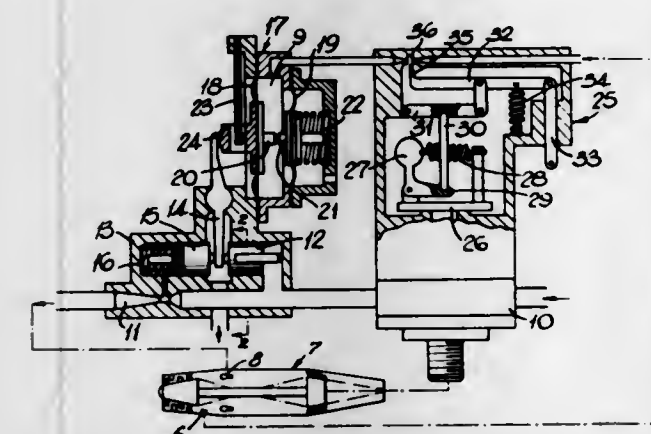
Filed June 17, 1969, Ser. No. 833,921

Claims priority, application Great Britain, June 24, 1968, 29,924/68

Int. Cl. F02c 9/10

U.S. Cl. 60—39.28

9 Claims



A system for controlling the fuel supply to a gas turbine engine includes a valve between the fuel pump and the bur-

ners of the engine and arranged to spill fuel delivered by the pump. Fuel flows to the burners via a venturi and the spill valve is urged in a direction to spill fuel by the pressure upstream of the venturi and in the other direction by a spring-assisted piston subjected to the pressure at the venturi throat. Cooperating with the spring-assisted piston is a lever actuated by a diaphragm forming one wall of a chamber which is subjected to an air pressure signal derived from the output of the engine compressor and modified by a blade movable in a kinetic orifice. The blade is movable by a governor mechanism and a linkage coupled to the engine throttle control, so that the blade is moved to reduce the pressure in the chamber when the desired engine speed is greater than the actual speed, and thereby move the lever so that the spill valve may operate to increase spillage of fuel. The valve is similarly operated to reduce spillage when the desired speed is greater than the actual speed. An opposite wall of the chamber is formed by a smaller diaphragm biased towards the first diaphragm by a spring. Stops on the respective diaphragms maintain them in spaced relationship. These stops separate at a predetermined pressure to ensure that a sufficient margin for acceleration exists at all engine speeds.

3,600,890

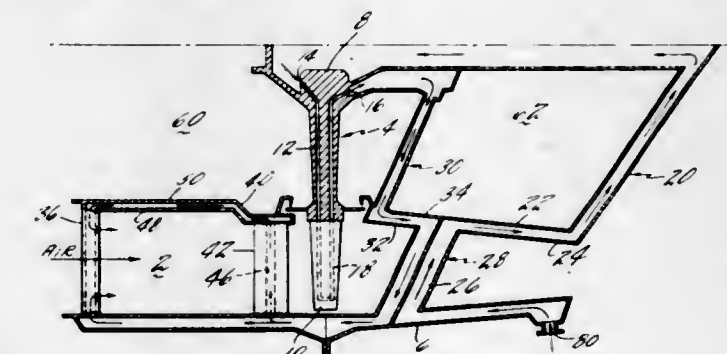
TURBINE COOLING CONSTRUCTION
Loren H. White, East Hartford, Conn., and David K. Dorer, Rochester, Mich., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 29, 1968, Ser. No. 780,944

Int. Cl. F02c 7/12

U.S. Cl. 60—39.66

1 Claim



A turbine cooling construction for use in a gas turbine engine which permits the use of stoichiometric temperatures within the turbine. More specifically, an inlet turbine temperature in excess of 3,000° F. may be utilized.

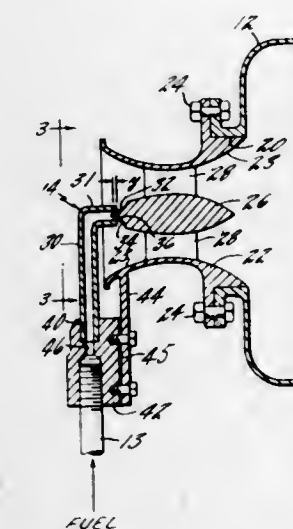
VARIABLE AREA NOZZLE
Richard E. Gordon, North Palm Beach, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 18, 1969, Ser. No. 886,239

Int. Cl. F02c 3/24

U.S. Cl. 60—39.74

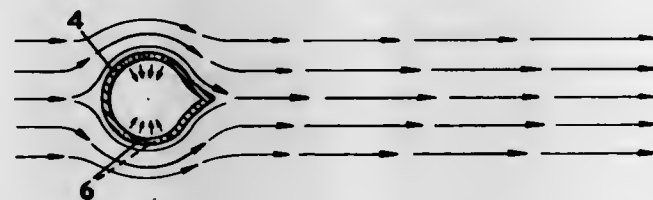
11 Claims



A fuel supply system for turbine engines whereby a plurality of variable area fuel nozzles are placed around the circum-

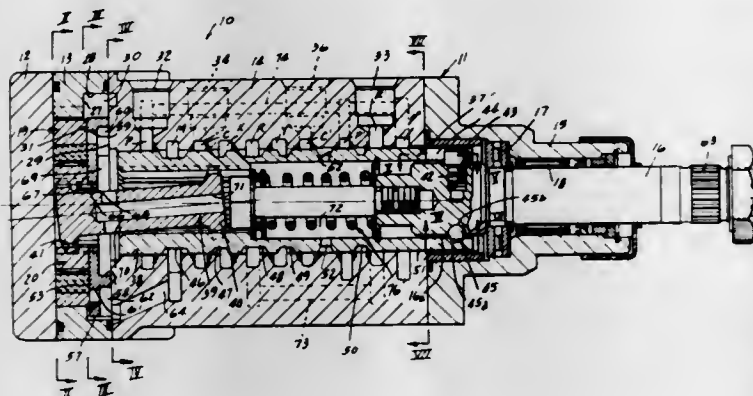
ference of a combustion section. Each nozzle is placed so as to direct fuel therefrom into an inlet passageway. Each inlet passageway generally forms a venturi section and has a fixed valve member positioned therein by a plurality of swirl vanes. Each nozzle has a short tubular member with one open end aligned with the fixed valve member. The adjacent ends of the tubular member and valve member being in contact when there is no flow in the tubular member. The other end of the tubular section is fixed to a radially extending tubular member which is fixed at its opposite end to fixed structure of the engine. The radially extending tubular member is formed to act as a cantilevered spring to provide for a valve action between the adjacent ends of the tubular member and valve member. The spring rate being predetermined so that the exit area of the nozzle will vary to provide for a desired opening size for a given force acting thereon by the fuel passing therethrough.

3,600,892
COMBUSTION DEVICES
William Dean Bryce, Farnham, England, assignor to Minister of Technology in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland
Filed June 4, 1969, Ser. No. 830,394
Claims priority, application Great Britain, June 10, 1968, 27,396/68
Int. Cl. F02g 1/00
U.S. Cl. 60—39.72 14 Claims



A flame stabilizer member is generally of circular cross section with its surface extended in the downstream direction as a faired flap (i.e., "teardrop" shape). The turbulence normally set up by the separation of flow over the member constitutes a flame stabilization zone. Separation can be prevented by applying suction to holes formed in the surface of the stabilizer, the turbulent zone being thereby suppressed and drag reduced. In a typical arrangement, annular stabilizing members are supported by a spider of hollow elliptical struts connected to a suction source and carrying fuel spray tubes upstream of the stabilizing members.

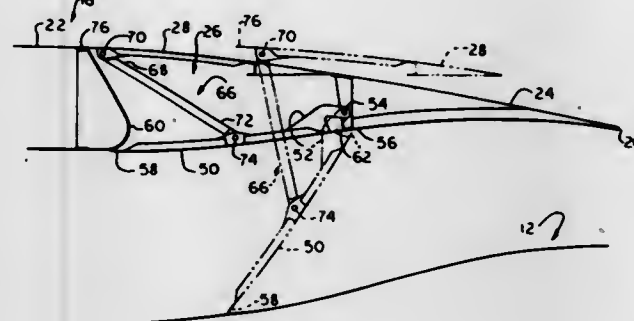
3,600,893
HYDRAULIC DEVICE HAVING PRESSURE DAM VALVE MEANS
Bernard C. Hudgens, West Lafayette, Ind., assignor to TRW Inc., Cleveland, Ohio
Filed Feb. 16, 1970, Ser. No. 11,408
Int. Cl. F15b 15/18
U.S. Cl. 60—52 S 10 Claims



A manually actuated hydraulic meter-pump device for controlling the operation of a hydraulic servomotor. The device includes a cylindrical sleeve valve carried for axial

and rotational movement in a bore wall. The sleeve valve is shifted axially in opposite directions to provide movement of the servomotor in opposite directions and comprises a series of axially spaced circumferential lands and grooves which cooperate with a series of similar lands and grooves in the bore wall to control the flow of fluid through the device. Since the fluid pressure in adjacent grooves may be unequal some of the grooves are arranged to serve as pressure dams to reduce parasitic leakage between the sleeve valve and bore wall. To this end the pressure dam grooves are connected by conduits to high-pressure grooves and poppet-type valves are mounted in the conduits to establish flow therethrough when their respective pressure dam grooves are serving as pressure dams and to block flow therethrough at other times.

3,600,894
THRUST REVERSING APPARATUS
Charles R. McClain, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Apr. 28, 1970, Ser. No. 32,562
Int. Cl. F02k 3/02
U.S. Cl. 60—226 9 Claims

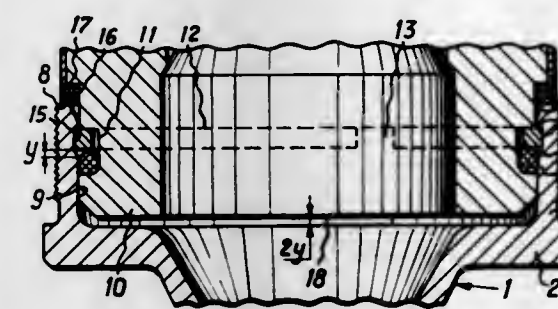


Front fan jet engine has cowl surrounding engine and terminating in jet exhaust nozzle. Elongate shroud surrounds fan and engine to define annular duct for fan air terminating forward of exit end of nozzle. Shroud is divided near aft end into forward section and aft section spaced rearward to define annular outflow passage. Sleeve is stowed position overlies outer end of passage to block flow and deploys axially rearward to permit flow. Blocker doors pivoted at their aft ends to forward end of aft section close inner end of passage when stowed and swing to converge inwardly and contact cowl to block flow through aft section and divert it through passage. Ramps pivoted at their aft ends to intermediate point of doors and at their forward ends to forward end of sleeve act as links to move doors in response to movement of sleeve and deploy to diverge forwardly and redirect airstream with forward component to produce reverse thrust. Leading edge of sleeve forms annular end plate to increase forward flow component of exiting airstream.

3,600,895
MEANS FOR LOCATING A CYLINDRICAL PART IN AN AXIAL POSITION IN A HOLLOW CYLINDRICAL PART, MORE ESPECIALLY FOR A PROPELLANT CHARGE BODY AND A JET NOZZLE
Xaver Suter, Ruschlikon, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland
Filed Nov. 7, 1969, Ser. No. 874,844
Claims priority, application Switzerland, Nov. 11, 1968, 16795/68
Int. Cl. F02k 9/04
U.S. Cl. 60—255 3 Claims

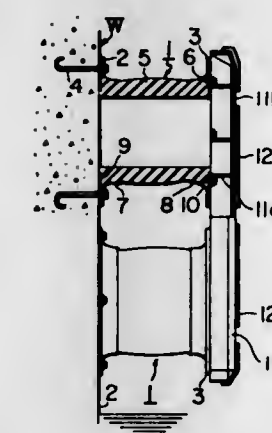
Means for locating a cylindrical part in an axial position in a hollow cylindrical part such as a propellant charge body and a jet nozzle body. A split spring washer grips in a circular groove in the cylindrical part, and in a circular groove in the hollow cylindrical part. A conical groove wall is provided on one of the two circular grooves. The connection of the two parts can be released in one direction, and can be loaded and locked in the other direction. For releasing the connection of both parts in the direction of loading and locking the cylindrical part is arranged in the hollow cylindrical part with

radial play so that a relative tilting of both parts is impossible, and the spring washer upon gliding along on the conical



groove wall is deformed and in the direction of loading and locking projects over the circular groove which contains the conical groove wall.

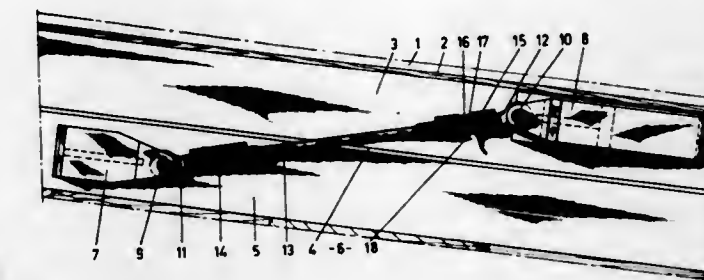
3,600,896
MARINE FENDER ASSEMBLY
Tamotu Tateisi; Akihisa Mori; Takeo Takagi; Masanori Ogino, and Keinosuke Hara, all of Yokohama, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan
Filed Oct. 27, 1969, Ser. No. 869,514
Claims priority, application Japan, Oct. 29, 1968, 78,323/68
Int. Cl. E02b 3/22
U.S. Cl. 61—48 9 Claims



A marine fender assembly for protecting a wall from impact, including a frontal plate spaced from the wall and one or more fender bodies disposed between the frontal plate and the wall. The fender body is made of elastomer and comprises a hollow cylindrical portion and a pair of flanges which are integrally formed with the cylindrical portion at opposite ends thereof. One of the flanges of the fender body is secured to the wall in such manner that the axis of the fender body extends at right angles to the wall. The frontal plate is secured to the other one of the flanges of the fender body.

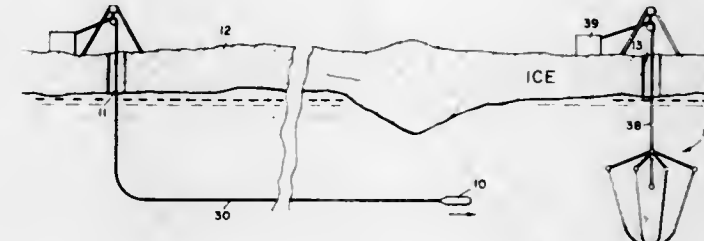
3,600,897
DEVICE FOR LAUNCHING A VESSEL
Jan Anthonie van der Werff, Slikkerveer, Netherlands, assignor to Verolme Machinefabriek IJsselmonde N.V., Rotterdam, Netherlands
Filed Dec. 4, 1969, Ser. No. 881,969
Claims priority, application Netherlands, Dec. 4, 1968, 68-17397
Int. Cl. B63c 3/10
U.S. Cl. 61—67 8 Claims

A plurality of elongated rods connecting a ship carrying slide frame to a chute. The rods are secured to the sides of the slide frame and chute through hinged turnbuckles, and at least one of the turnbuckles for each rod has a



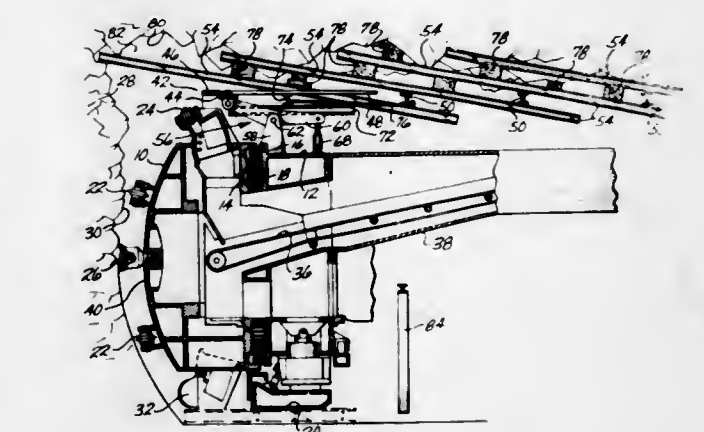
simultaneously detonated, thereby releasing the frame to slide down the chute into the water.

3,600,898
METHOD OF LAYING CABLE UNDER ICE
Edward C. Godfrey, Fern Park, Fla., and Robert A. Rubega, Rochester, N.Y., assignors to Marine Resources, Inc., Rochester, N.Y.
Filed Jan. 26, 1970, Ser. No. 5,677
Int. Cl. F161 1/00
U.S. Cl. 61—72.1 4 Claims



Cable is laid under ice by a self-propelled, submarine vehicle equipped with a reel of cable for paying out as the vehicle proceeds from a launching hole to a destination hole. A gyrocontrol system is set for the course from the launch hole to the destination hole and guides the vehicle on the first part of its travel, and an acoustic homing system is used to home the vehicle on a transmitter lowered into the water beneath the destination hole to complete the trip. The vehicle is retrieved by passing through large, collapsible loops arranged under the destination hole so that the loops, the threaded cable, and the vehicle can be drawn up through the destination hole.

3,600,899
SHIELD TUNNELING APPARATUS
Frank George Watson, 6 Tyne Court Mount Waverly, Victoria, and David Burnet Sugden, 33 Kingston Heights Kingston Beach, Tasmania, both of, Australia
Filed Mar. 24, 1970, Ser. No. 22,205
Claims priority, application Australia, Mar. 26, 1969, Mar. 5, 1970, 52612/69; 0528/70
Int. Cl. E01g 3/03
U.S. Cl. 61—85 15 Claims



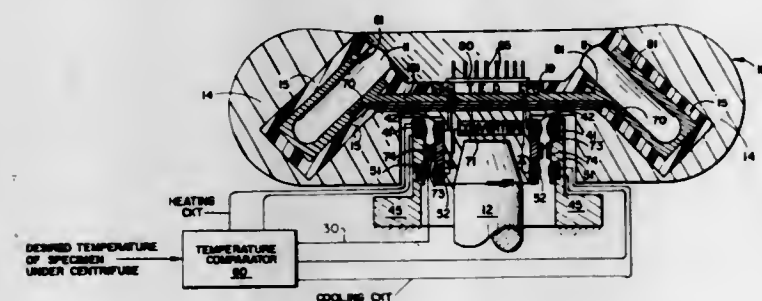
An axially slotted roof shield is supported at its front end on a tunneling machine (or shield) frame. The frame in-

cludes a fulcrum support portion inset from said shield slots. One or more fulcrum members are movably supported on said support portion. A tunnel set or the like is anchored in the tunnel rearwardly of the frame. The fulcrum member(s) is initially positioned forwardly on its support. Elongated support poles are inserted from below the shield upwardly and forwardly through the slots. The forward portions of the poles extend into or under ground ahead of the shield. Intermediate portions of the poles rest on the fulcrum member(s). The rear portions of the poles underlie the tunnel set. The fulcrum member(s) is tied to the tunnel set so that it is axially fixed during forward movement of the frame.

3,600,900
TEMPERATURE CONTROLLED CENTRIFUGE
Charles Lee Buddecke, Fullerton, Calif., assignor to North American Rockwell Corporation
Filed Nov. 3, 1969, Ser. No. 873,286
Int. Cl. F25b 21/02

U.S. Cl. 62—3

11 Claims

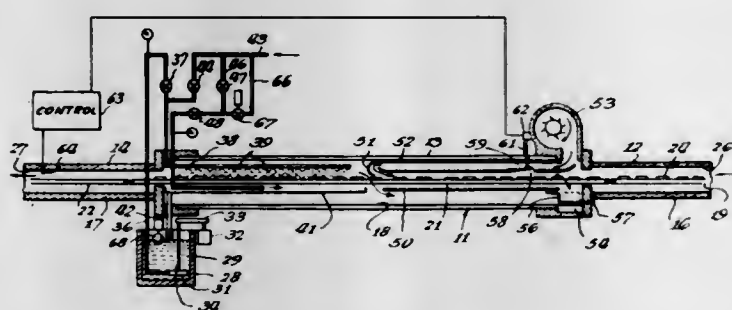


Peltier effect thermoelectric devices are mounted in a rotatable centrifuge head. Thermal conduction paths are attached between the thermoelectric devices and a position adjacent to the specimen being rotated in the centrifuge. A temperature-controlled device responds to the difference between a preselected temperature and the temperature of the specimen for maintaining the fluid at the preselected temperature.

3,600,901
GAS BALANCE CONTROL IN FLASH FREEZING SYSTEMS
Richard C. Wagner, Clarendon Hills, Ill., assignor to Integral Process Systems, Inc.
Filed Mar. 17, 1969, Ser. No. 807,491
Int. Cl. F25d 3/10

U.S. Cl. 62—63

9 Claims

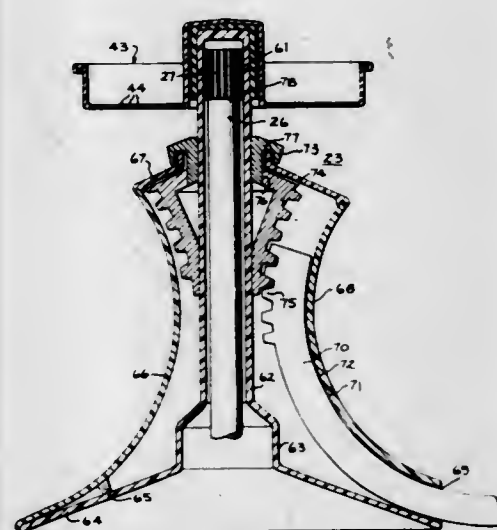


A gas balance method and device are provided in a system for flash freezing in which a high velocity refrigerant gas circulates into, through and out of an open ended tunnel and it is desired to keep refrigerant gas loss through the ends of the tunnel at a minimum without permitting the entry of warm air into the system. The circulation system includes a fan having an inlet and an outlet connected respectively to different points spaced along the length of the tunnel, the outlet being connected through a plenum chamber parallel to the tunnel; and the gas balance is achieved by an adjustable passage from the plenum chamber to the tunnel which permits a portion of the circulating refrigerant gas to short circuit its full circulation path.

3,600,902
ADJUSTABLE AGITATOR FOR FABRIC-CLEANING MACHINES
Thomas W. Williams, Valley Station, Ky., assignor to General Electric Company
Filed Mar. 21, 1969, Ser. No. 809,154
Int. Cl. D06f 17/10

U.S. Cl. 68—134

2 Claims

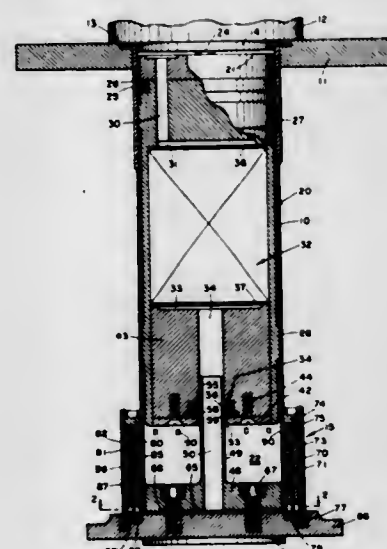


An agitator having variable area vanes is provided for an automatic clothes washer. A plurality of arcuate-shaped vanes are secured to the agitator centerpost for rotation and oscillation therewith, and housed within each of the vanes is an arcuate extendible vane element. A control knob is provided adjacent an upper portion of the agitator centerpost and depending from the control knob is a worm gear which cooperates with a gear rack formed on each of the vane elements to selectively extend or retract the vane elements according to the positioning of the control knob by the operator.

3,600,903
CRYOGENIC HEAT STATION AND APPARATUS INCORPORATING THE SAME
Fred F. Chellis, Manchester, and James A. O'Neil, Bedford, both of, Mass., assignors to Cryogenic Technology, Inc., Waltham, Mass.
Filed Mar. 17, 1969, Ser. No. 807,606
Int. Cl. F25b 9/00

U.S. Cl. 62—6

16 Claims



An improved heat station for cryogenic apparatus comprising one or more narrow fluid passages in heat exchange relationship with a portion of the external walls which enclose a refrigeration chamber of variable volume. The narrow fluid passages provide an extension of the fluid flow path of the apparatus which in turn provides an increase in heat transfer surface without any appreciable increase in void volume.

3,600,904
CONTROL FOR REFRIGERATION SYSTEM
Ralph B. Tilney, Saint Louis, Mo., assignor to Emerson Electric Co.
Filed May 27, 1969, Ser. No. 828,249
Int. Cl. F25b 41/00

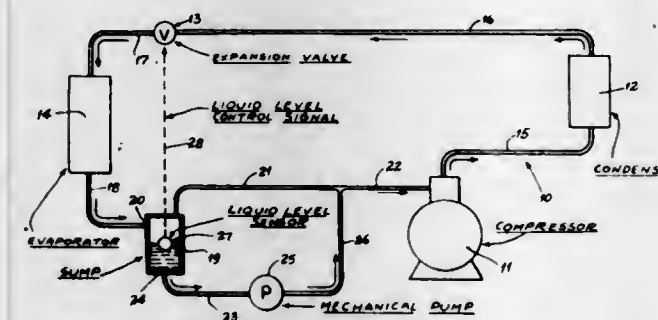
U.S. Cl. 62—196

3 Claims

3,600,906
CONSTANT SPEED DRIVE
Forrest O. E. Schultz, Owosso, Mich., assignor to Midland-Ross Corporation, Toledo, Ohio
Filed July 31, 1969, Ser. No. 846,506
Int. Cl. F16d 7/02

U.S. Cl. 64—30

5 Claims

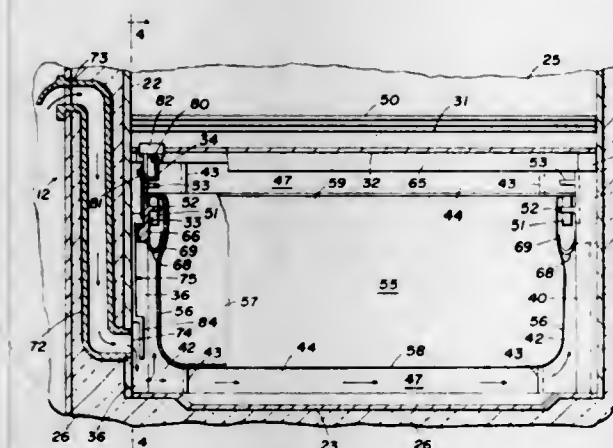


A control in a refrigeration system to control the rate of flow of refrigerant to the evaporator in response to variations in rate of flow of liquid refrigerant from the evaporator. A sump in the suction line between the evaporator and compressor for collecting liquid discharged with vapor from the evaporator. A pump for pumping liquid at a controlled rate from the sump for mixture with the vapor supplied from the upper end of the sump to the compressor. A liquid level sensor for sensing changes in the level of liquid within the sump and for controlling operation of an expansion valve on the inlet side of the evaporator in response to variations of liquid within the sump.

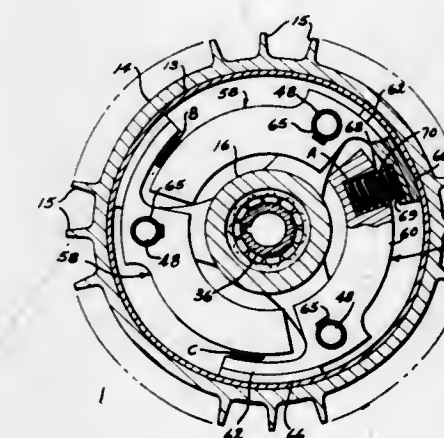
3,600,905
HIGH-HUMIDITY COMPARTMENT FOR REFRIGERATORS
Theodore F. Dymek, and Herbert D. Neudeck, both of Cedar Rapids, Iowa, assignors to Amana Refrigeration, Inc., Amana, Iowa
Filed Aug. 13, 1969, Ser. No. 849,846
Int. Cl. F25d 25/02

U.S. Cl. 62—382

6 Claims



A high-humidity compartment, disposed in the bottom of the refrigerator compartment of a combination freezer-refrigerator, employs a drawer surrounded by a spaced sleeve. In order to permit the use of roller-type suspension so that the drawer can slide freely in and out, the sleeve is sealed against the side, back and front walls of the drawer. Into the space therebeneath cold air, whose flow is controlled by a damper, is ducted from the freezer compartment and bathes the bottom wall and the lower portions of the side and backwalls of the drawer, the air exiting from the sleeve to join the air from the refrigerator compartment returning to the freezer compartment.

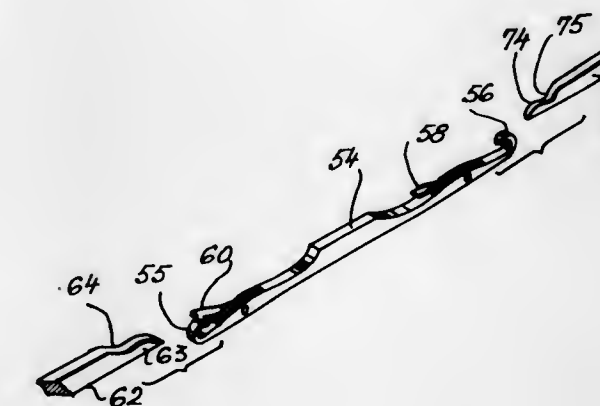


A constant speed drive mechanism wherein a drive member contacts a driven member through frictional surfaces and the frictional force engaging these two surfaces is varied relative to the speed of rotation of the driven member. At low speed, the frictional surfaces are urged into engagement by biasing means acting on a plurality of flyweights and, as the rotational speed of the driven member increases, the flyweights react from centrifugal force to overcome the biasing means, thereby reducing the frictional force on the surfaces.

3,600,907
KNITTING MACHINE HAVING MEANS TO TRANSFER KNITTED LOOPS
Jerry Miskovsky, Hicksville, N.Y., assignor to Marie Lanthier, Greenwood Lake, N.Y.; Richard Zimic; Emil Zimic and Raymond Lanthier, a part interest to each
Filed Nov. 12, 1969, Ser. No. 875,970
Int. Cl. D04b 7/04

U.S. Cl. 66—66

8 Claims



A links and links knitting machine has two spaced needle beds formed with parallel grooves. Jacks and needles are longitudinally slidable in the grooves. Each needle has hooks at opposite ends to engage knitted loops of yarn. Each jack has a latch-opening nose formed with a depression for removing and holding a knitted loop from a needle. Cams move the jacks and needles selectively. The needle beds are movable laterally with respect to each other, so that a jack in one groove in one bed, which has removed a loop from a needle in the bed, can be aligned with a needle in another groove in the other bed for transferring the loop to the other needle.

3,600,908

STRAIGHT-BAR KNITTING MACHINE PROVIDED WITH A LACE DRUM ATTACHMENT

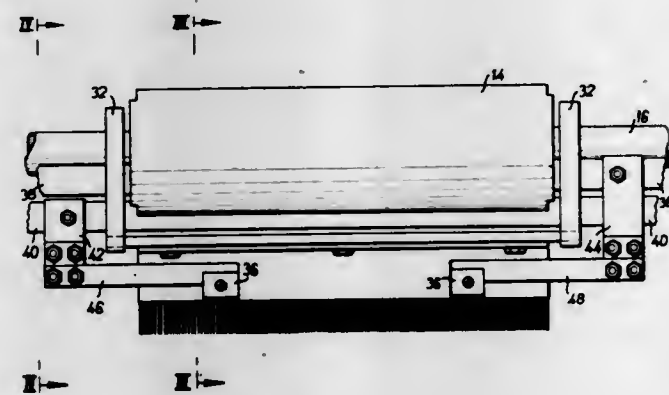
Heinz Biederhauser, Bortlingen, Germany, assignor to Gebrüder Boehringer Gesellschaft Mit Beschränkter Haftung, Goppingen, Germany

Filed July 24, 1969, Ser. No. 844,386
Claims priority, application Germany, July 26, 1968, P 17 60 971.1

Int. Cl. D04b 15/04

U.S. Cl. 66-96

5 Claims



In a straight-bar knitting machine of the type having a plurality of sections for simultaneously knitting a plurality of pieces of goods each section includes a lace drum attachment and a pair of narrowing fingers. The lace drum attachment operates lace points for producing a pattern on the piece of goods. The narrowing fingers operate narrowing points for fashioning the pieces of goods and, for this purpose, are movable in the axial direction of the lace drum. According to the present invention a pair of narrowing fingers of each section are so guided that they may approach each other to a short distance without interference with the lace drum attachment. In event of an interference of the lace points with the narrowing points, an alarm is sounded and/or the machine is stopped.

3,600,909

FOOTLET CONSTRUCTION

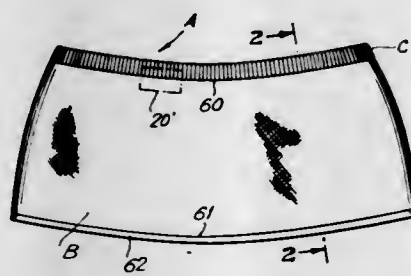
Morris Kaplan, Allentown, Pa., assignor to Sondra Manufacturing Co., Inc.

Filed May 4, 1967, Ser. No. 636,094

Int. Cl. D04b 1/24

U.S. Cl. 66-171

2 Claims



The disclosure describes a footlet construction which involves an integrally knitted upper band fitting around the top of the footlet or socklet which need not be assembled from gores and stitching. The socklet is made on a circular knitting machine by using a turned-over top knitted of Lycra yarn on top of a body of nylon yarn. The loops on the elastic top are provided by knitting 30 to 60 courses and preferably about 50 courses on 200 needles with the intervening or alternating needles holding the initial stitch so that a tubular element will be formed serving as the upper elastic band or selvege of the footlet.

3,600,910

FLUFFY TEXTILE WEB

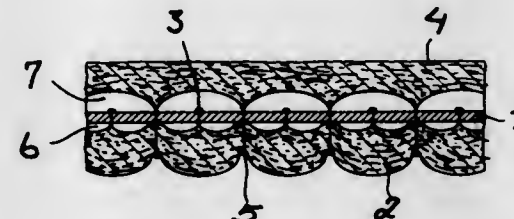
Egon Jahn, Lengsfeld; Rolf Handel, Gera; Siegfried Ploch, Karl-Marx-Stadt, and Karl-Heinz Dietrich, Karl-Marx-Stadt, all of, Germany, assignors to VEB Halbmond Leipzig

Filed Dec. 16, 1969, Ser. No. 885,589

Int. Cl. D04b 23/10

U.S. Cl. 112-438

5 Claims



A base sheet, sandwiched between two piles of filaments, is anchored to one pile by drawing loops of filaments from that pile through the sheet and knotting or interlinking them directly at the sheet surface, loops of filaments from the other pile being drawn through the sheet and the first pile for knotting or interlinking along the surface of the latter pile.

3,600,911

INDUSTRIAL DRYCLEANING SYSTEM

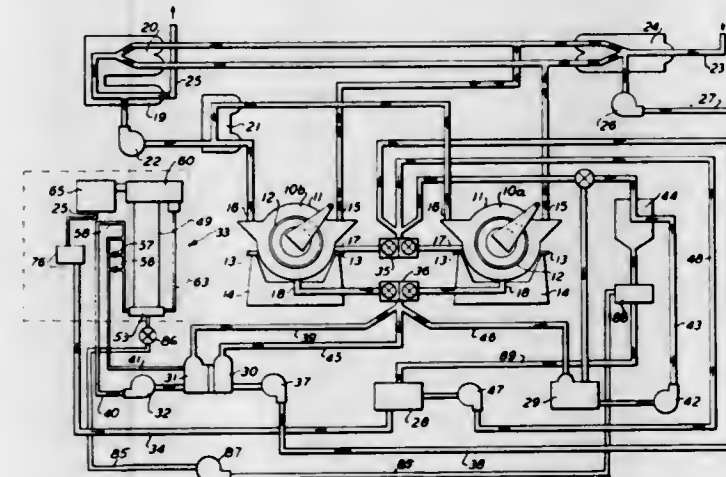
Russell G. McLagan, Milford, Ohio, assignor to McGraw-Edison Company, Elgin, Ill.

Filed May 19, 1969, Ser. No. 825,607

Int. Cl. D06f 43/04, 43/08

U.S. Cl. 68-18 C

3 Claims



An industrial drycleaning system is provided for cleaning dirty oil-soaked work in a cleaning cycle which includes a batch wash using a drycleaning solvent such as perchlorethylene followed at least by one or more batch washes and/or a circulating wash through a filter. To conserve on the amount of solvent required succeeding washes are carried out using respectively cleaner solvents drawn from respective storage tanks of the system, and the solvents from these washes are stored for use in next preceding washes of a subsequent washing cycle. However, the initial batch wash, which removes the bulk of dirt and oil, leaves the solvent in such dirty condition it has to be distilled. A novel distillation apparatus of a tube type connected in the system has a capacity which enables the drycleaning solvent for the first batch to be distilled during the remainder of the cleaning cycle and, also, it has a facility for a continuing run through a whole day's operation without need for pumping off oil and residue.

3,600,912

SCREW-TYPE LOCK ASSEMBLY

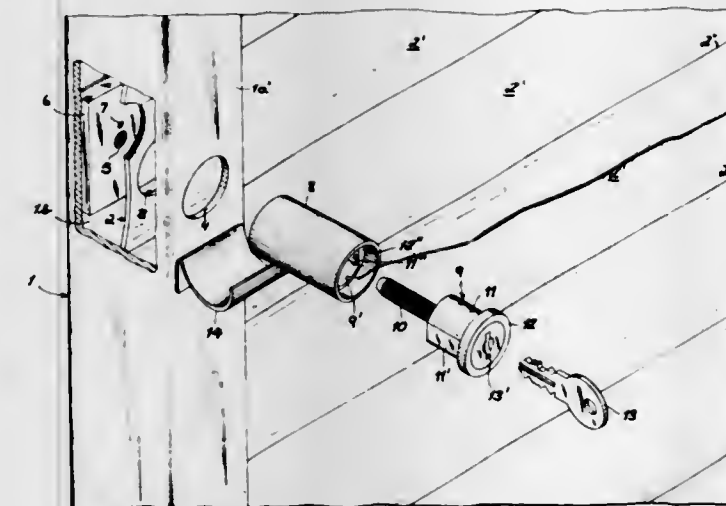
Davis S. Foreman, 2737 Third Ave., Bronx, N.Y.

Filed Feb. 9, 1970, Ser. No. 9,498

Int. Cl. E05b 65/02; E05c 19/18

U.S. Cl. 70-77

10 Claims



A screw-type lock assembly for sliding shutters where the shutter is guided between the flanges of a U-shaped channel, the shutter and one flange having axially aligned openings in the closed position of the shutter. A removable sleeve of the lock assembly is received in the aligned openings to prevent shifting of the shutter. A removable screw-type lock has a rod passing through the sleeve into engagement with the channel and locks against the sleeve.

3,600,913

PILGER MILL DIE ADJUSTMENT

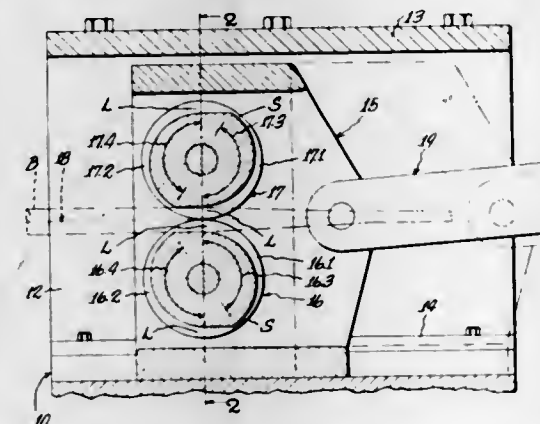
Walter vom Dorp, Rheydt, Germany, assignor to Wean Industries, Inc., Youngstown, Ohio

Filed Sept. 2, 1969, Ser. No. 854,518

Claims priority, application Germany, Sept. 4, 1968, G 67 52 728.0

U.S. Cl. 72-220

10 Claims



A pilger mill construction having an annular die rotatably mounted on a reciprocating carriage and geared to a normally stationary rack by a pinion. While the rack is stationary during normal use, it may be shifted when desired to facilitate selective use of annular die portions which are spaced circumferentially of each other.

3,600,914

THEFT-PREVENTION DEVICE FOR TRACTOR-DRAWN TRAILERS

Marshall A. Johnson, Mundelein, and Herbert J. Kincaid, Libertyville, both of, Ill., assignors to The Illinois Lock Company

Filed Mar. 26, 1969, Ser. No. 810,460

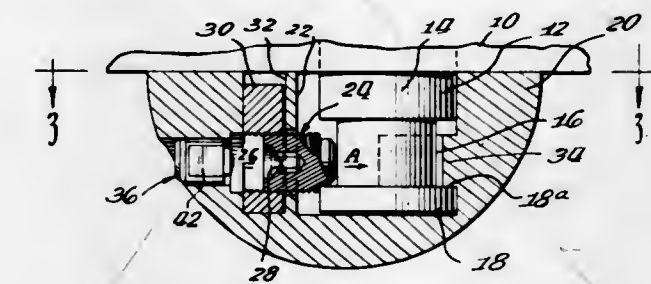
Int. Cl. E05b 65/12; B60r 25/00

U.S. Cl. 70-232

1 Claim

A theft-prevention device for use with a tractor-trailer combination wherein the trailer has a downwardly extending

pin on the bottom thereof adapted to fit an engaging plate on the tractor. The device includes a cover for the pin to prevent the tractor plate from engaging the pin. A threaded studbolt is disposed entirely within the cover with one end of the bolt selectively locking the cover onto the pin. The other



end of the studbolt is exposed in an opening which extends into the cover with the opening providing access to the studbolt for rotating the same into locking engagement with the pin. A lock plug assembly is disposed at the outer end of the opening for selectively closing the opening to prevent access to the studbolt.

3,600,915

STEERING SHAFT LOCK EQUIPPED WITH A LOCKING CYLINDER PARTICULARLY FOR AUTOMOTIVE VEHICLES

Gerhard Corboud, Hahnwald, Germany, assignor to Firma Josef Voss KG, Bruhl Bezirk Cologne, Germany

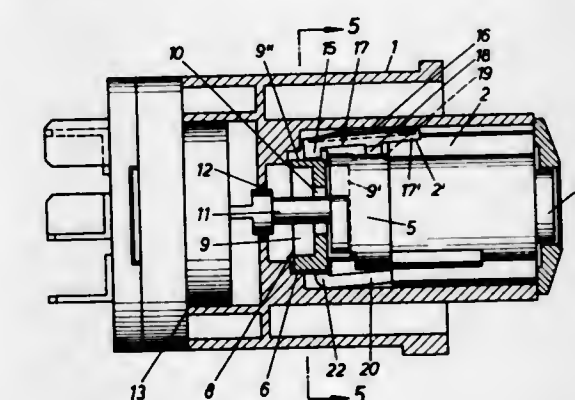
Filed Sept. 25, 1969, Ser. No. 861,014

Claims priority, application Germany, Sept. 28, 1968, Aug. 30, 1969, P 17 80 563.9; P 19 44 207.0

Int. Cl. B60r 25/02; E05b 65/12

U.S. Cl. 70-252

6 Claims



A steering shaft lock equipped with a lock cylinder and an ignition start switch, particularly for automotive vehicles, which comprises a steering column including a steering shaft. A locking latch locks the rotary movement of the steering shaft and a spring urges the locking catch into locking position. A key-operated eccentric has a shaft and the locking latch is withdrawable by the eccentric against the action of the spring and returned into locking position due to the effect of the spring upon release by removal of the key, to lock the locking latch against return pressure. Also a separate locking catch arrests the locking latch against return movement in its locking position and is controllable exclusively by the eccentric into a freeing position.

3,600,916

DOOR LOCK WITH PRISM DISPLAY

Albert L. Ruppert, Crystal Lake, Ill., assignor to Oak Electro/Netics Corp., Crystal Lake, Ill.

Filed May 4, 1970, Ser. No. 34,447

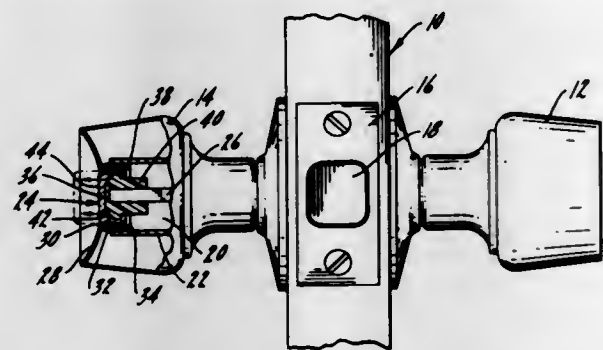
Int. Cl. E05b 17/00, 41/00

U.S. Cl. 70-432

8 Claims

A doorknob assembly of the type wherein a button, generally centrally located in the handle, is effective to lock and unlock a lock mechanism. The button to lock and unlock the door moves within a passage, a portion of which may have a suitable indicia, for example a colored band, positioned on it. The button includes a prism with a reflecting surface, object surface and image surface. When the reflect-

ing surface is positioned adjacent the indicia in the passage, there will be a display visible at the outer transparent area of



the button. Thus, the condition of the lock mechanism is readily apparent to one using the doorknob.

3,600,917

MOLDED KEYHOLDER

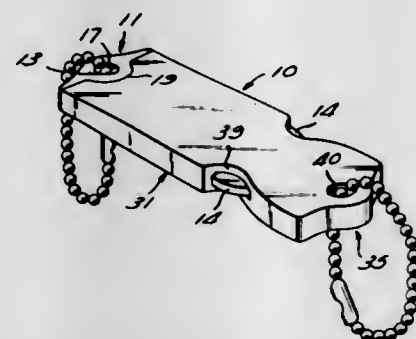
Albert W. Krock, Fremont, Ohio, assignor to The Scott & Fetzer Company

Filed Apr. 8, 1969, Ser. No. 814,280

Int. Cl. A47g 29/10

U.S. Cl. 70-459

1 Claim



A plastic injection-molded releasable keying connector comprises a slab-shaped female member and a male member comprising an elongated web with a flange formed at the trailing end. The side edges of the male web are stepped laterally outwardly to form a pair of detents, and a deep slot extends into the web from the leading end to define a pair of fingers each associated with one of the detents. The detents engage upon full insertion of the male member, and are finger releasable from engagement for withdrawal of the male member.

3,600,918

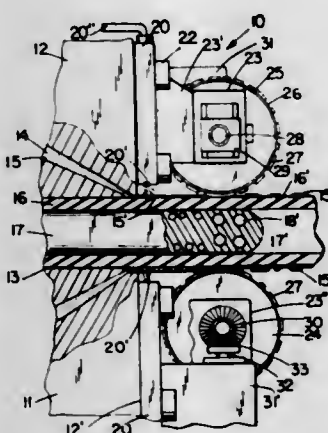
EXTRUSION APPARATUS AND METHOD

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.

Continuation-in-part of Ser. No. 373,482, June 8, 1964, Pat. No. 3,387,330, and a continuation-in-part of 142,405, Oct. 2, 1961, and a continuation-in-part of 691,622, Oct. 2, 1957, now Pat. No. 3,002,615. This application June 5, 1968, Ser. No. 734,686

Int. Cl. B21b 37/14; B21c 23/00; B28b 21/54
U.S. Cl. 72-7

13 Claims



An extrusion apparatus is provided which includes auxiliary means cooperating with the extruder in forming material

to shape. In one form, the auxiliary means employs vibrational means for facilitating extrusion and improving the extruded article.

In another form, the auxiliary means includes a mandrel and means for predeterminedly varying the shape of an extrusion formed on the mandrel.

The invention is also drawn to methods for extruding articles of composite materials and improvements in the art of extrusion.

3,600,919

PROCESS FOR AUTOMATIC CONTROL OF THE HOT ROLLING OF METAL FLATS

Michel Jacques Sindzingre, Cachan, and Guy Eugene Rene Frezon, La Garenne-Colombes, both of France, assignors to Compagnie D'Etudes et De Realisation De Cybernetique Industrielle, Paris, France

Filed June 3, 1969, Ser. No. 829,856

Claims priority, application France, July 5, 1968, 157,998
Int. Cl. B21b 31/00, 37/14

U.S. Cl. 72-8

2 Claims



A process for automatic control of the rolling of metal flats by determination of consecutive roll nips, uses a program in the form of a sequence of intermediate thicknesses for the product devised on the basis of numerical determination of a parameter denoting the plasticity of the metal. The development of such parameter depends on product thickness and a selected rolling force. The invention finds particular, but not exclusive, application in the hot rolling of metal flats.

3,600,920

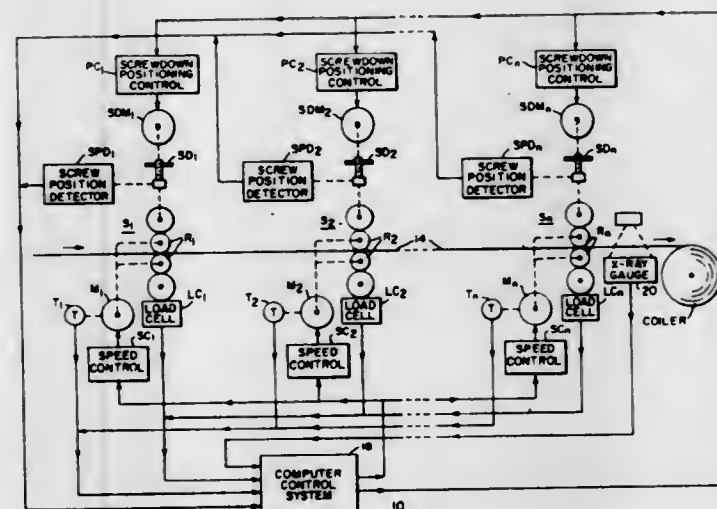
SCREWDOWN OFFSET SYSTEM AND METHOD FOR IMPROVED GAUGE CONTROL

Andrew W. Smith, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation of application Ser. No. 677,308, Oct. 23, 1967, now abandoned. This application Nov. 24, 1969, Ser. No. 872,461

Int. Cl. B21b 37/12

U.S. Cl. 72-8

15 Claims



A screwdown recalibration system is provided for use in a computer-controlled rolling mill. The computer uses the dif-

ference between gauge directly calculated by mass flow concepts and gauge calculated from a measured screwdown unloaded roll opening and roll force at each stand to recalibrate the screwdowns for that stand. The system is adaptable to either providing information to an automatic roll force gauge control system according to a predetermined schedule or to function as an online recalibration scheme which is an integral part of a more comprehensive roll force gauge control system.

3,600,921

DEVICE FOR THE EXPLOSIVE FORMING OF WORKPIECES

Ludwig Schwarz, Kapfenberg, Austria, assignor to Gebr. Böhler & Co. Aktiengesellschaft, Vienna, Austria

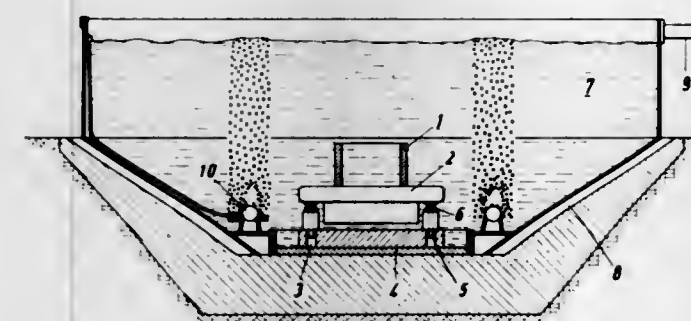
Filed May 19, 1969, Ser. No. 825,895

Claims priority, application Austria,

Int. Cl. B21d 26/08

U.S. Cl. 72-56

7 Claims



A device for explosive forming of workpieces through a fluid comprising a vessel containing liquid (water), a bottom plate, and an anvil spaced from the bottom plate by biasing means (springs). The workpiece is positioned on top of the anvil. Guide means are provided which are operable with the anvil so that when the explosive-forming force strikes the anvil it moves linearly downwardly, and the liquid between the anvil and the bottom plate progressively damps the downward movement as it laterally escapes. The guide means may be a series of pistons and cylinders, and preferably the explosive forming is done completely under water and a wall of bubbles is produced adjacent the anvil. It is possible that the level of water is only equal to the level of the upwardly biased position of the anvil, in which case the explosive forming takes place in air, but the damping is still accomplished by water.

3,600,922

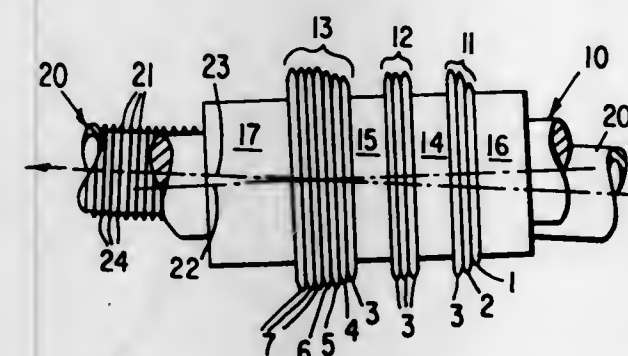
MANUFACTURE OF INTEGRALLY FINNED TUBING
Carl J. Schmeling, Liverpool, and Frank F. Walters, Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Mar. 5, 1969, Ser. No. 804,561

Int. Cl. B21d 13/04

U.S. Cl. 72-98

6 Claims



Apparatus for finning tubes comprising three arbors provided with a multiplicity of finning discs and skewed relative to a reference line representing the path of travel of a tube so that a continuous integral helical fin is produced on a length of tubing. The discs are separated into three groups, the

3,600,923

AUTOMATIC MACHINE FOR THE MANUFACTURE OF STEEL WIRE SPRINGS

Rene Perrenoud, 14, Rue des Sugits, 2114 Fleurier, Switzerland

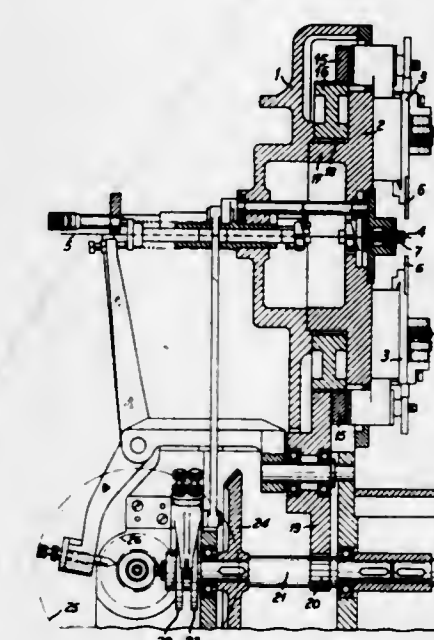
Filed Apr. 23, 1969, Ser. No. 818,685

Claims priority, application Switzerland, Aug. 13, 1968, 012165/68

Int. Cl. B21f 11/00; B21j 7/20; B21f 3/00

U.S. Cl. 72-129

4 Claims



A machine for making steel wire springs particularly intended for the watch-making industry has a tray carrying fanwise-arranged tool holders about the center of the tray and radially slidable towards the center of the tray with tools for shaping a spring from a wire coming out from the center of the tray. A means for actuating the tool holder include a gear mounted parallel to the tray and meshing with pinions distributed about the gear, each of these pinions being secured on a shaft carrying a cam controlling the advance of the tool holder, which is spring urged rearwardly.

3,600,924

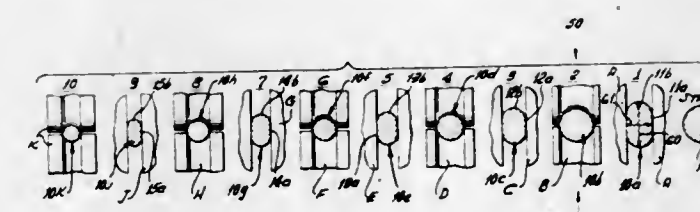
METHOD OF ROLLING TITANIUM AND OTHER RODS
Denzil O. Martin, c/o Rancho Del Rey, Sp. 83, 16222 Monterey Lane, Huntington Beach, Calif.

Filed Mar. 28, 1969, Ser. No. 811,307

Int. Cl. B21b 13/08

U.S. Cl. 72-234

14 Claims



Titanium and similar rods reduced in diameter by heating to a required temperature and then continuously passing a rod through roll stands to progressively reduce its area without intervening reheating being necessary. The roll stands change the shape of the rod alternately between a

round shape and a flat shape, a pair of opposed flat sides of each flat configuration merging smoothly into a pair of opposed rounded sides of relatively large radius of curvature, thereby avoiding the formation of sharp corners as a result of each flattening operation.

3,600,925

EDGER FOR STEEL MILL

Michael Frank Field, Dollard des Ormeaux, Quebec, and John Frederick Barry Wood, Montreal, Quebec, both of, Canada, assignors to Dominion Engineering Work Limited, Montreal, Canada

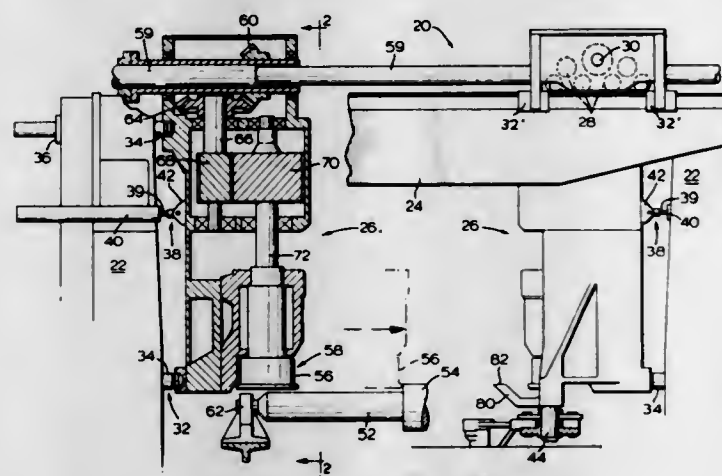
Filed May 7, 1969, Ser. No. 822,564

Claims priority, application Canada, May 21, 1968, 020,424

Int. Cl. B21b 31/00

U.S. Cl. 72-237

10 Claims



This invention is directed to a rolling mill and in particular to a vertical edging mill.

3,600,926

ROLLING STAND IN PARTICULAR FOR THE SHAPING OF A CAST BAR IMMEDIATELY UPON LEAVING A CONTINUOUS-CASTING PLANT

Ernst Hinterholz, Linz, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria

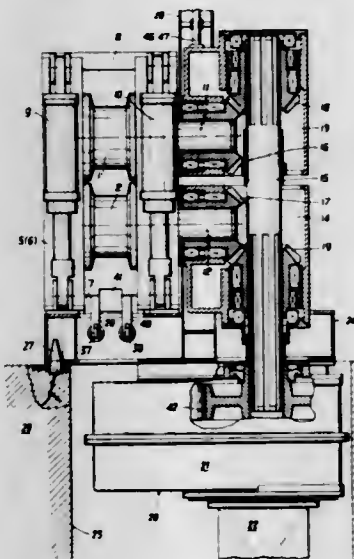
Filed July 24, 1969, Ser. No. 844,410

Claims priority, application Austria, Apr. 23, 1969, A 3910/69

Int. Cl. B21b 35/00

U.S. Cl. 72-249

7 Claims



A rolling stand, particularly destined for shaping a cast bar immediately upon leaving a continuous-casting plant, is described, comprising two upright roll standards having their bottom ends connected by a rigid cross connection and their

top ends connected by a detachable cap connection to form a cage, a pair of insert-mounted horizontal rolls arranged to be vertically displaceable along said standards, and a baseplate on which said rolling stand is detachably mounted. According to the invention, a transmission gear enclosed in a casing is detachably suspended on each roll shaft, said gears cooperating with and displaceable along a common vertical driving shaft connected for rotation with a drive arranged below floor; on separation from the baseplate, said rolling stand together with the suspended transmission gears and the driving shaft is vertically liftable and lowerable as a coherent, replaceable unit to move the driving shaft out of and into engagement with said drive.

3,600,927

NECKING DIE WITH FLOATING CENTER POST

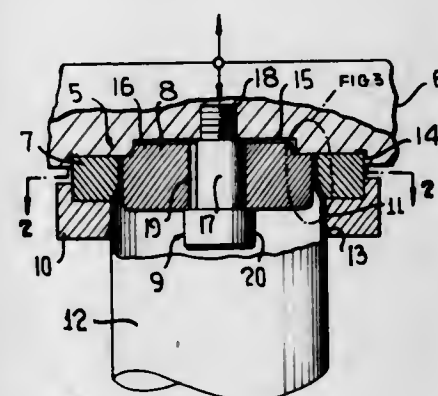
Richard O. Wahler, Rolling Meadows, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Dec. 30, 1968, Ser. No. 787,976

Int. Cl. B21d 19/00

U.S. Cl. 72-353

4 Claims



This disclosure relates to a die assembly for changing the diameter of end portions of cylindrical members having at least one circumferential wall portion of an increased effective thickness. Basically the die assembly is formed of a ring member and a post member with one of the members being floatingly mounted relative to the other member to permit the members to position themselves in accordance with the circumferential position of the wall portion of an increased effective thickness, thereby providing for a tightening up of die clearances which permits keeping the metal of the member being reshaped under better control and eliminating wrinkles. The die assembly is particularly adapted for necking down end portions of can bodies having lap seams.

3,600,928

TOGGLE TIP EXTENSION RIVET SQUEEZER: YOKE

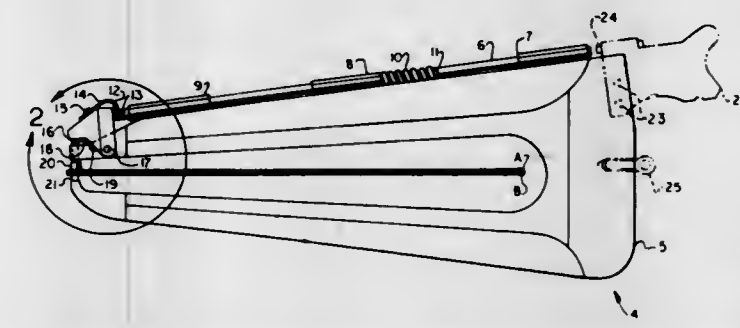
Norman W. Retherford, Riverside, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Dec. 26, 1968, Ser. No. 787,056

Int. Cl. B21j 15/16

U.S. Cl. 72-416

4 Claims



Apparatus for riveting two surfaces together at rivet locations inaccessible to conventional rivet guns includes an air pressure driven elongated guided rod which actuates a bell-crank block operated squeezer adapter for squeezing the rivet.

3,600,929

CONSTANT FLOW LEAK SIMULATOR

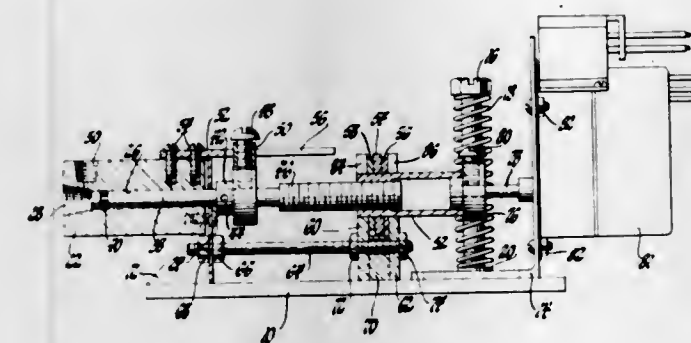
Francis J. Markey, Lewisburg, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 1, 1969, Ser. No. 862,811

Int. Cl. G01m 3/02, 19/00

U.S. Cl. 73-1 R

1 Claim



A controlled displacement leak simulator for calibrating leak-testing machines. The simulator has a constant speed electric motor driving a rotating drive nut that is supported for rotation between a pair of brackets which prevent linear motion of the drive nut. A drivescrew is threadably connected with the drive nut and is connected through a coupling to a guide member and a piston. The guide member prevents rotation of the drivescrew but permits linear motion thereof. The piston is slidably disposed in a flow chamber such that linear motion of the piston and drivescrew cause fluid to flow from the chamber or permit fluid to flow into the chamber at a controlled rate. A flow port in the chamber is adapted to be connected with the leak test machine which is to be calibrated.

3,600,930

BUILT IN TESTING EQUIPMENT FOR FLUID VORTEX DEVICE

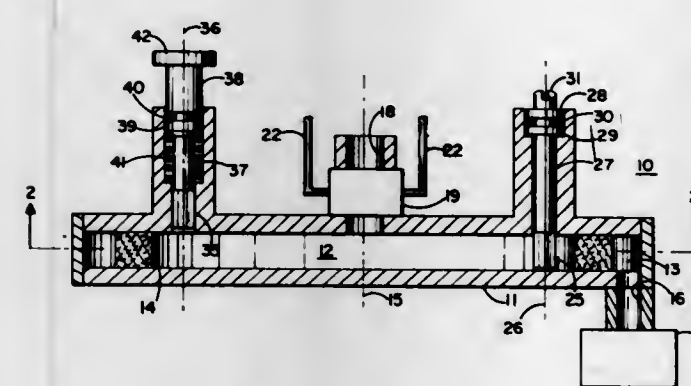
Walter M. Posingies, Edina, Minn., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Oct. 13, 1969, Ser. No. 865,678

Int. Cl. G01p 21/00

U.S. Cl. 73-1 D

6 Claims



Null adjustment and calibration means for a fluid vortex device comprising one or more blade members which are positioned within, or may be inserted into the vortex chamber of the device remote from its central axis. For null adjustment purposes, a blade is permanently positioned within the chamber at such an angle as will provide rotational flow sufficient to compensate for existing null offset. For calibration purposes, a blade is temporarily positioned within the chamber at the angle required to simulate a predetermined input signal.

3,600,931

APPARATUS FOR TESTING LUBRICANTS WITH REGARD TO ROLLING BORE FRICTION ON BEARING BALLS

Anton Albert Bartel, Grafelfing, and Horst Geissen, Munich, both of, Germany, assignors to Dow Corning Corporation, Midland, Mich.

Filed Oct. 29, 1969, Ser. No. 872,082

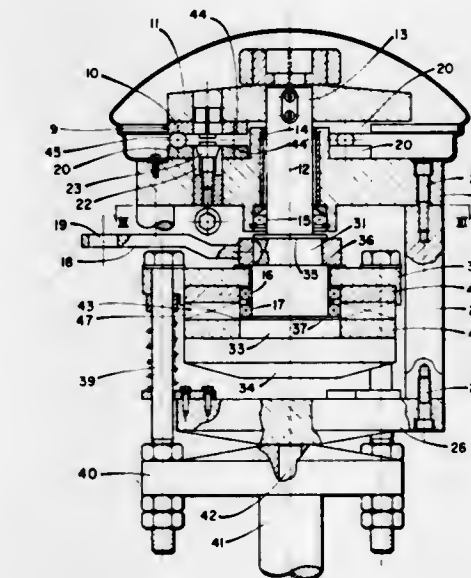
Claims priority, application Germany, Mar. 10, 1967, P 19

12 100.7

Int. Cl. G01n 3/56, 33/30

U.S. Cl. 73-10

6 Claims



Apparatus for testing effectiveness of lubricants in rolling bore friction applications where bearing balls are subjected to both rolling and sliding contact with races. One of a pair of spaced curved bearing races of like radius are made reciprocally pivotable about an axis distant from the races with respect to the other race. This causes the ball between the races to shift with both rolling and sliding motion. Results are observed in the form of wear on the ball and races.

3,600,932

PNEUMATIC SHOCK TESTING MACHINE

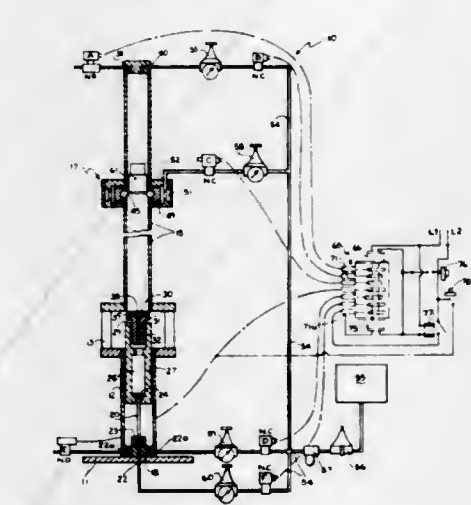
Gilbert F. Hill, Skaneateles; Frederick J. Loetterle, Marietta; Farris Smith, Skaneateles, and Stanley Gray, Skaneateles, all of, N.Y., assignors to Mechanical Technology Incorporated, Latham, N.Y.

Filed Dec. 9, 1969, Ser. No. 883,427

Int. Cl. G01n 3/08

U.S. Cl. 73-12

4 Claims



The machine has a baseplate, a vertically extending cylinder thereon supporting a loading stage with access door and a vertically extending guide tube secured thereon aligned with the cylinder. A tubular seismic mass is slidable upward by means of air pressure in the cylinder and as a tubular stop

therewithin, secured at its lower end in the lower portion of the cylinder. The stop has its upper end in sealed engagement with the passage through the mass, the stop tube being adapted to supply air to the mass passage above the seal. An annular anvil, guided in and supported by the mass, and carrying an annular shock pad thereon, is capable of movement upward beyond the mass when pressure is supplied through the stop tube, the pad then making sealed contact with the lower end of the guide tube, the passage through anvil and pad being capable of delivering air under a cylindrical specimen-carrying carriage carried on the pad for forcing the carriage upward in the guide tube. Latch means secured on the guide tube is operable to detain the carriage in raised position when air from the stop tube is shut off and the anvil and pad are lowered on the mass. The guide tube has vent means and air pressure supply means for firing the carriage downward when the vent is closed and the latch is released, the carriage striking the pad supported on the raised mass. Programming means, operating valves for supplying and venting air under the mass, supplying air through the stop tube, and for supplying air pressure and venting the guide tube above the latch and for operating the latch, may be set for raising the mass and the carriage, firing the carriage downward one or more times and then lowering the mass so that the carriage may be removed through the access door.

3,600,933

APPARATUS FOR DETERMINING THE FREEZING POINT OF A SOLUTION

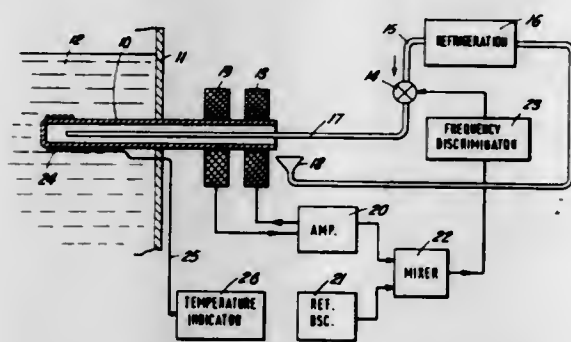
James Stewart Johnston, Bognor Regis, England, assignor to Rosemount Engineering Company Limited, Bognor Regis, England

Filed Mar. 27, 1970, Ser. No. 23,377
Claims priority, application Great Britain, Apr. 1, 1969, 17106/69

Int. Cl. G01n 25/02

U.S. Cl. 73-17 R

19 Claims



Apparatus for determination of the freezing point of a liquid or solution has a probe extending into the liquid which is cooled by a coolant circulated in the probe and with a resistance-type temperature sensor to sense the temperature of the mantle of solid forming on the probe. The probe is mechanically vibrated to prevent supercooling and means are provided for sensing the thickness of the mantle and controlling the coolant circulation to maintain an equilibrium condition with a mantle of constant thickness. The thickness of the mantle may be sensed by measuring an electrical parameter of the solid/liquid material between two electrodes on the probe but preferably it is determined by sensing the change in the mechanical resonant frequency of the probe, the probe being vibrated at its natural resonant frequency.

3,600,934

EDDY CURRENT SYSTEM FOR VIBRATION TESTING OF CANTILEVERED NONFERROUS ARTICLES

Donald E. Hendrix, and Harold A. Kermick, both of Oak Ridge, Tenn., assignors to the United States Atomic Energy Commission

Filed Dec. 23, 1969, Ser. No. 887,695

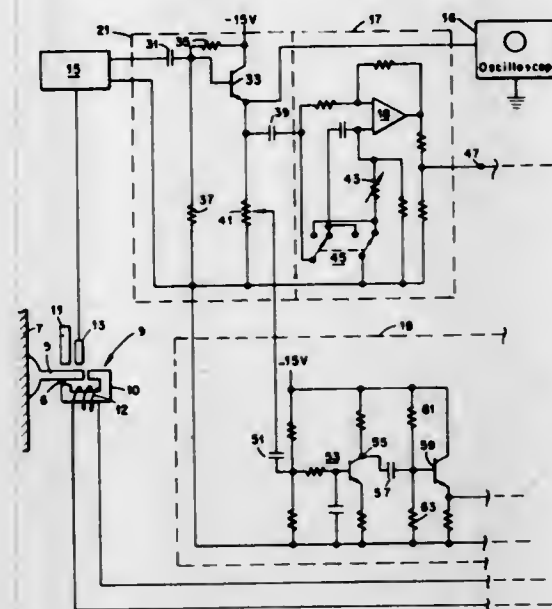
Int. Cl. G01n 24/00

U.S. Cl. 73-67.2

4 Claims

An eddy current-induced vibration testing device has been provided which maintains self-excited resonant frequency vibrations in cantilevered articles such as compressor blades.

The device automatically controls the amplitude of vibration of the blade and is capable of controlling the amplitude



within a wide range for nondestructive testing and is further capable of driving the blade to destruction by fatigue.

3,600,935

METHODS AND APPARATUS FOR PRODUCING A HOLOGRAPHIC LIGHT PATTERN FROM AN ULTRASONIC IMPULSE

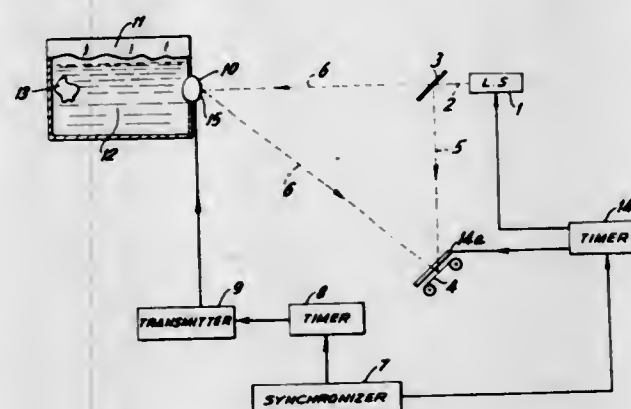
Gilbert Baum, 152 Brite Ave., Scarsdale, N.Y.

Filed Aug. 16, 1968, Ser. No. 753,111

Int. Cl. G01n 29/04

U.S. Cl. 73-67.5 H

33 Claims



A method and apparatus employing an ultrasonic signal to cause an interference pattern between a coherent light reference beam and a second coherent light beam which is ultrasonographically modulated to form recordable interference patterns in the form of a hologram.

3,600,936

TRANSCIEVER ULTRASONIC IMAGE SYSTEM

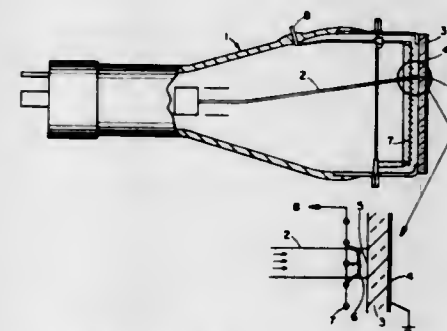
William R. Turner, Silver Spring, Md., assignor to Vitro Corporation of America

Filed Apr. 1, 1968, Ser. No. 718,024

Int. Cl. G01n 29/00

U.S. Cl. 73-67.9

17 Claims



A high conductance cathode-ray tube for ultrasonic applications employing a continuous piezoelectric conversion face

plate capable of generating ultrasonic signals when swept by a cathode-ray beam, as well as accepting reflected ultrasonic echo signals which modulate the cathode-ray beam to obtain electronic manifestations of the received signals, and method of using same. A two-gun tube modification, one gun utilized for signal emission and the other for signal reception, in conjunction with a common piezoelectric plate, is also disclosed.

3,600,937

PROBES FOR TESTING BUTT END OF POLES

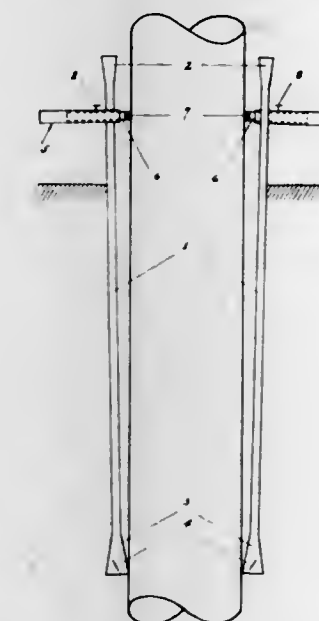
Reinhold Hermann Nilberg, 463 Beachview Drive, North Vancouver, British Columbia, Canada

Filed Oct. 21, 1968, Ser. No. 769,447

Int. Cl. G01n 24/04

U.S. Cl. 73-71.5

1 Claim



This improvement relates to a pair of spike-type ultrasonic probes for testing the soundness of utility poles at any depth below the ground, by the diametral sound transmission method which correlates the increase in signal travel time, around a rot pocket, to the degree of decay. One probe is the sound-transmitting probe and the other probe, on the opposite side of the butt, is the receiving probe. Each probe comprises a conical head used for hammering the probe into the soil, with a lead hammer, closely along the butt, and for mounting of a transducer, a shaft attached at the upper end to the head, a wedge-type blade attached to the lower end of the shaft. The wedge-type blade is designed to push aside the soil along the butt during hammering and also to make pressure contact for sonic coupling of the probe at the desired point of the butt, when the probe is turned into test position by means of a hand-operated lever or handle mounted at the upper end of the probe.

3,600,938

STRESS RELAXATION GAGE

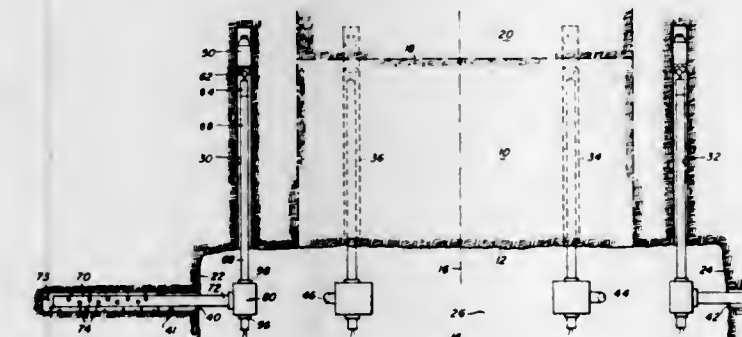
Galen Glen Waddell, Spokane, and Earl Lee Phillips, Newman Lake, both of, Wash., assignors to The United States of America as represented by the Secretary of the Interior

Filed Sept. 16, 1969, Ser. No. 858,427

Int. Cl. G01b 7/18

U.S. Cl. 73-88 E

8 Claims



Contemporaneously with the displacement of underground medium to form an excavation, measurements of deformation

in the medium surrounding the excavation are taken by an arrangement of probe sensors in boreholes drilled in this surrounding medium. Ends of the sensors projecting from the boreholes are referenced to mount structures fixed to a stable substance, such as a distance extension of the surrounding medium, and the opposite sensor ends inside the boreholes are flexibly joined to anchors embedded at the deep ends of the boreholes. Strain gages affixed to cantilevers connected between probe structures and the flexible joints produce signals when shifting of the medium moves the anchors therein with respect to the referenced probe structures. These signals are interpreted as data on deformation during excavation, and subsequently time-dependent deformation.

3,600,939

EXTENSOMETER AND ATTACHMENT

Robert D. Steele, Shingle Springs, Calif., and Richard J. Faris, Salt Lake City, Utah, assignors to Aerojet General Corporation, El Monte, Calif.

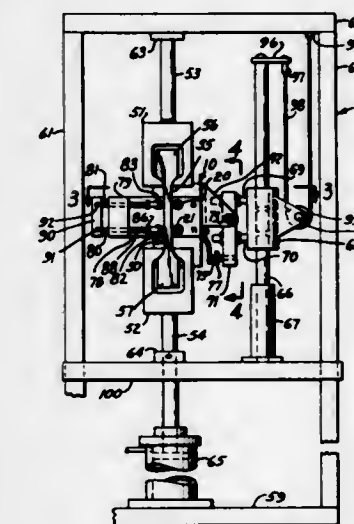
Division of Ser. No. 749,233, May 29, 1968, which is a division of application Ser. No. 592,018, Nov. 4, 1966, now Pat. No. 3,416,233.

Filed Aug. 18, 1969, Ser. No. 850,704

Int. Cl. G01n 3/06

U.S. Cl. 73-95

4 Claims



A means for mounting an extensometer on a tension producing mechanism. The extensometer being a pair of spaced friction wheels mounted on parallel axes, adapted to engage the side of a test specimen held at its opposite ends by gripping jaws movable apart from each other. The mounting means being a rod mounted parallel to the specimen and attached to one of the jaws. The rod carries a sleeve slidably lengthwise along the rod and the sleeve is freely rotatable or the rod. A bar means is supported by the sleeve and is movable toward and away from the specimens. A weight supporting means is anchored to the rod and to the other jaw and is in operable association with the sleeve for maintaining the friction wheels in position relative to the specimen. The extensometer is capable of being pivoted relative to the bar means on an axis parallel to the axes of the friction wheels.

3,600,940

AUTOMATIC BURST TESTER

Fred Schlegel, Wheeling, Ill., assignor to E. J. Cady and Company, Chicago, Ill.

Filed June 9, 1969, Ser. No. 831,396

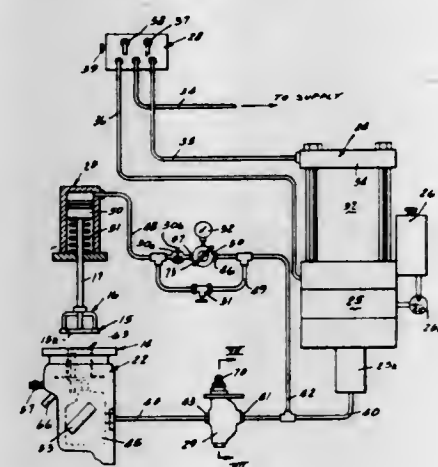
Int. Cl. G01n 3/26

U.S. Cl. 73-102

10 Claims

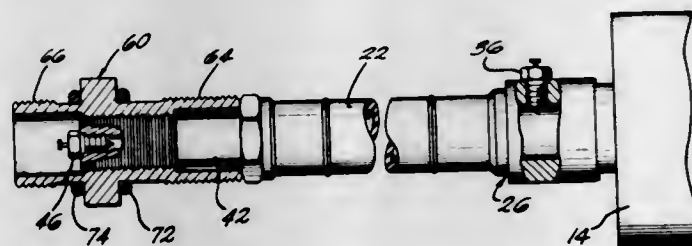
A sheet material burst testing machine which automatically clamps the sheet to be tested between two apertured members under a controlled hydraulic load sufficient to prevent slippage without crushing the sheet, and which then automatically exerts a constantly increasing hydraulic pressure

against the exposed clamped sheet area in the apertures of the members until the sheet bursts, whereupon the pressure drops. A gauge actuated by the increasing pressure stops at the maximum developed pressure and indicates the burst resistance of the sheet material. The machine has a pneumatically operated positive displacement ram servomotor or hydraulic booster which forces the flow of hydraulic liquid in a closed system to first actuate a clamping device and to then expand a rubber diaphragm against the sheet clamped by the



plates until the sheet bursts. The clamping load is automatically proportionally higher than the load on the diaphragm by an amount sufficient to prevent slippage, or alternately a desired clamping load may be predetermined to prevent slipping without crushing of the sheet, and automatically reapplied on subsequent tests. The machine is especially useful in measuring, in pounds per square inch or kilograms per square centimeter, the bursting strength of paper, fiberboard, corrugated board, and shipping containers made therefrom.

3,600,941
COMPRESSION TESTER
John H. Kammeraad, Holland, Mich., assignor to K-Line Tool Co., Holland, Mich.
Filed Dec. 29, 1969, Ser. No. 888,234
Int. Cl. G01m 15/00; G01l 7/00
U.S. Cl. 73-115 11 Claims

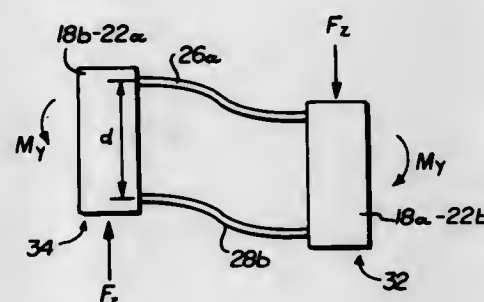


An improved compression tester and novel fittings therefor, the hose of the tester being provided with a nipple concentrically threaded both internally and externally, the internal threads engaging a check valve independent of the mounting of the fittings on the external threads. The two fittings are reversible, both ends of at least one of the fittings being externally threaded for a distance along the length of the fitting, the distance differing for the two ends. The internal threading by which both fittings threadably engage the nipple of the base is along the center portion only of the bore.

3,600,942
LOAD CELL
Albert E. Brendel, Lake Orion, Mich., assignor to Lebow Associates, Inc., Troy, Mich.
Filed Feb. 4, 1970, Ser. No. 8,668
Int. Cl. G01l 5/12
U.S. Cl. 73-141 9 Claims

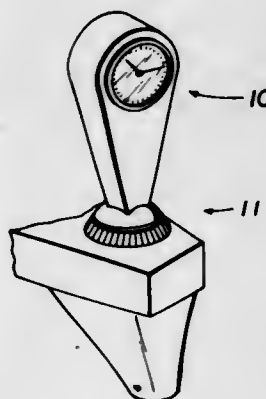
A load cell for isolating and measuring forces along a single preselected axis comprises a pair of identical beam

systems, each beam system consisting of four coplanar beams arranged as the sides of a square, and the plane of each system being oriented perpendicularly to the preselected axis. The two beam systems are spaced from each other along the preselected axis and oriented so that the beams of one system are aligned with respective beams of the other system. The only interconnection between the two beam systems consists of two unconnected substantially rigid auxiliary structures, one of which interconnects the diagonally opposite vertices of one beam system with each other and with the corresponding vertices of the other beam system,



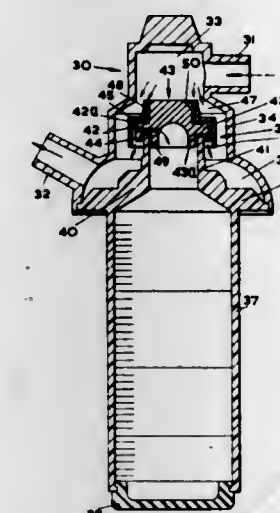
while the second auxiliary structure interconnects the remaining diagonally opposite vertices of both beam systems. The beams are dimensioned to be resiliently yieldable within the range of forces to be measured. Only forces applied to the auxiliary structures along the preselected axis will produce bending strains in the beams, while all extraneous external moments and forces will induce compressive or tensile strains in the beams rather than bending forces. Strain gages on the beams can then be calibrated to measure the unknown force along the preselected axis in terms of such bending strains.

3,600,943
FLOW MEASURING DEVICE
Louis L. Blanchard, Toledo, Ohio, assignor to William C. Blanchard, a part interest
Filed July 24, 1969, Ser. No. 844,562
Int. Cl. G01f 1/02
U.S. Cl. 73-194 12 Claims



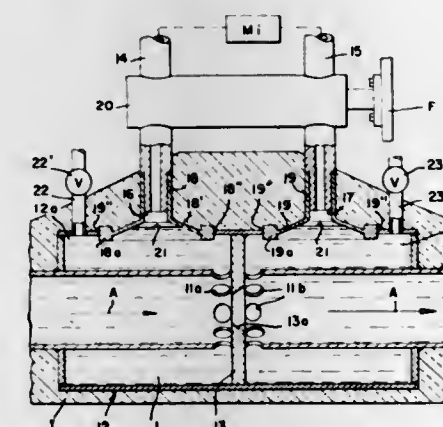
A device for measuring fluid flow, and particularly, liquid flow is described. The invention is constructed from a time-measuring mechanism. When the valve associated with the inventive device is changed in position to initiate the fluid flow the time mechanism begins to run. When the valve is returned to its off position the time measuring mechanism ceases running. Accordingly, the time lapsed while the valve is opened, as recorded by the time measuring mechanism, is indicative of the amount of fluid flow through the valve. Because the inventive device is dependent upon a lapse of time during which fluid flows the device must be calibrated for the particular system in which it is employed.

3,600,944
MILK METERS
William David John Hutchings, Alston Farm, Slapton, Kingsbridge, Devon, England
Filed Nov. 8, 1968, Ser. No. 774,255
Int. Cl. G01f 1/00
U.S. Cl. 73-203 7 Claims



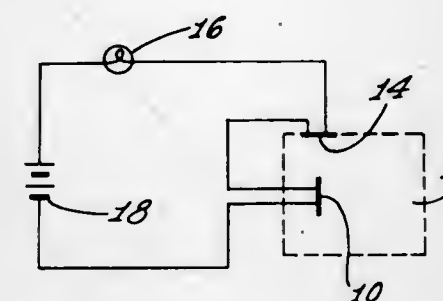
A milk meter in which the incoming milk passes through two channels and which is provided with a floating choke the position of which determines the fraction of milk diverted from one of the channels to a calibrated vessel. The choke is sensitive to the pressure of the milk in the channel through which part of the milk flows and to an opposed pressure due to the part of the milk diverted through the other channel, the opposed pressures operating to maintain substantially constant the fraction directed to the calibrated vessel.

3,600,945
PRESSURE-MEASURING SYSTEM
Heribert Wenzel, and Klaus van Rinsum, both of Munich, Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany
Filed May 1, 1969, Ser. No. 821,559
Claims prior to application Germany, May 2, 1968, P 17 73 337.8
Int. Cl. G01f 1/00
U.S. Cl. 73-205 10 Claims



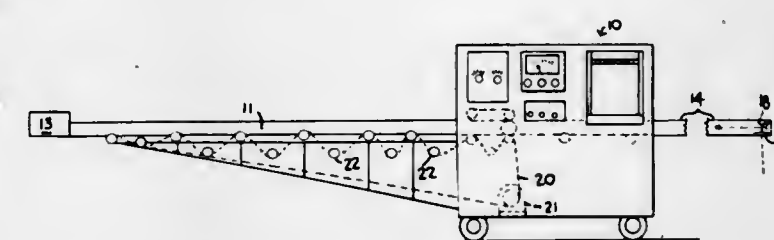
A differential-pressure measuring device for a head flow meter in which the pressure taps on either side of the orifice plate lead to a pressure-measuring device. The pressure taps include ducts of high thermal conductivity (e.g. copper or aluminum) which are maintained at a temperature above the boiling point of the liquid by a heating element, thermal conduction or the like, and inserts of low thermal conductivity between the ducts and the liquid chamber in the region of the point at which the taps are connected thereto. The high temperature gradient across the low-conductivity inserts maintains the phase boundary at a substantially constant position therein in spite of temperature and/or pressure variations in the chamber.

3,600,946
LIQUID LEVEL SENSOR
Francis P. Ziemba, Granada Hills; John R. Moross, Whittier, and Henry S. Katzenstein, Pacific Palisades, all of, Calif., assignors to Solid State Radiations, Inc., Los Angeles, Calif.
Filed July 10, 1969, Ser. No. 840,747
Int. Cl. G01f 23/00
U.S. Cl. 73-295 10 Claims



An improved liquid level sensor is provided which includes a first semiconductor element exhibiting particular resistance/temperature characteristics so as to have a first resistance value when the element is submerged in a liquid and a second resistance value when the liquid level drops to expose the element to the ambient temperature, and which includes a second element in series with the first element and exhibiting a positive resistance/temperature characteristic so as to render the sensor essentially independent of ambient temperature conditions.

3,600,947
TEMPERATURE SCANNER
Aloysius W. Farabaugh, Verona, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed June 9, 1969, Ser. No. 831,386
Int. Cl. G01j 5/04; G01k 1/12, 13/04
U.S. Cl. 73-343 R 2 Claims

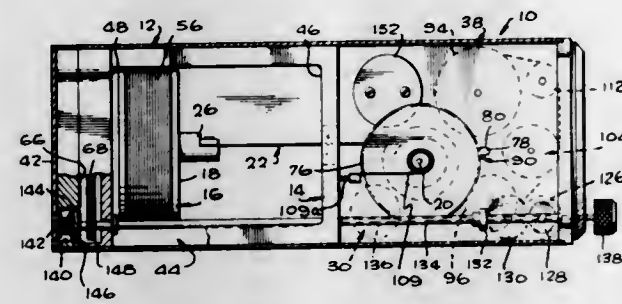


A temperature scanner with an extensible boom is mounted upon a mobile carriage for extending the scanner over a hot glass ribbon; a rotatable mirror is mounted near the end of the boom for conveying radiation from the glass surface to a temperature-recording device aside from the glass ribbon.

3,600,948
FLUID PRESSURE-ACTUATED TRANSDUCER AND AIRCRAFT ALTITUDE MONITORING INSTRUMENT EMBODYING SAME
Carl T. Luce, 23259 Collins St., Woodland Hills, Calif.
Filed Mar. 13, 1970, Ser. No. 19,358
Int. Cl. G01l 7/12 20 Claims

A fluid pressure-actuated transducer and an aircraft altitude monitoring instrument embodying the transducer. The transducer has a fluid pressure sensor, such as a bellows, having a pressure wall which is urged in one direction by the fluid pressure force being monitored and in the opposite direction by a shaped spring force, such that the pressure wall is positioned according to a predetermined function of monitored pressure. An output shaft is drivably coupled to the pressure wall for rotation through an angle proportional

to the displacement of the pressure wall resulting from a change in the monitored pressure. The shaft may drive a readout mechanism for providing a visual, mechanical, or electrical readout representing the pressure force, and a tachometer generator for generating an electrical voltage



representing the rate of pressure change. The aircraft altitude monitoring instrument of the invention employs the transducer to provide a linear readout representing altitude and vertical speed, an altitude alert signal, an input signal to an autopilot or altitude transponder, or the like, and to perform other control functions.

3,600,949 PRESSURE GAUGE

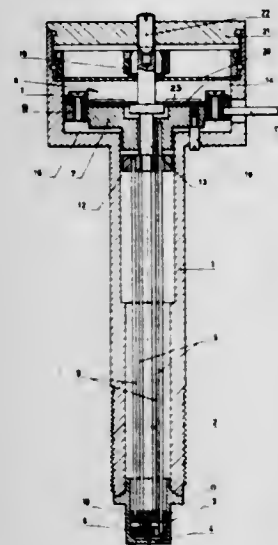
Hermann R. K. N. Janeschitz-Kriegl, Delft, and Johannes Schiff, The Hague, both of, Netherlands, assignors to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve Van Nijverheid, Handel En Verkeer

Filed June 27, 1969, Ser. No. 837,167
Claims priority, application Netherlands, July 1, 1968,
6809280

U.S. Cl. 73-395

Int. Cl. G011 7/00

2 Claims



In a pressure gauge for extruders a pressure-sensitive and a pressure-insensitive place of the pressure feeler are connected to the input member and to the body of a displacement meter by two identical sets of rods, to make the pressure gauge insensitive to temperature changes.

3,600,950 FLUID PRESSURE RESPONSIVE TRANSDUCER

Rudolph Bergsma, Ann Arbor, Mich., assignor to Chrysler Corp., Highland Park, Mich.

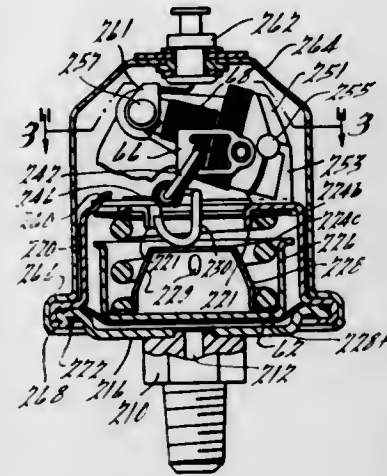
Filed Aug. 5, 1969, Ser. No. 847,593
Int. Cl. G011 9/02

U.S. Cl. 73-398 AR

5 Claims

A fluid pressure responsive transducer of the variable impedance or rheostatic type operative over a wide range of fluid pressures and exhibiting an enhanced or increased sensitivity and response characteristic over a low-pressure por-

tion of the operating range thereof. The device includes a displaceable diaphragm member exposed to a source of variable fluid pressure and variable impedance means operatively responsive to displacement of said member and features a



multiple rate spring in the form of a Belleville spring and a coil spring acting upon said member to provide a different rate of response to displacement of said member to low fluid pressures than that presented thereby to higher fluid pressures within the operating range of the device.

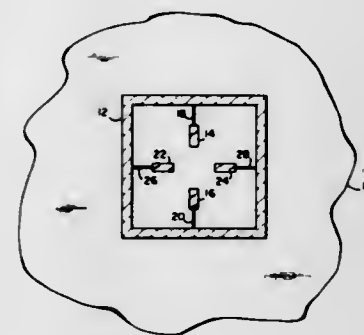
3,600,951 ARRANGEMENT TO MEASURE AND COMPENSATE FOR CRYSTAL ORIENTATION CHANGE

Roger L. Easton, Oxon Hill, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 12, 1969, Ser. No. 806,640
Int. Cl. G01v 7/04

U.S. Cl. 73-382

5 Claims



Method and apparatus for symmetrically arranging two or more crystals so that changes of orientation can be measured but will not disturb the frequency of an ultrastable crystal oscillator.

3,600,952 PRESSURE TRANSMITTER

Howard R. Jaquith, Rochester, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Oct. 28, 1969, Ser. No. 871,874
Int. Cl. G011 7/08

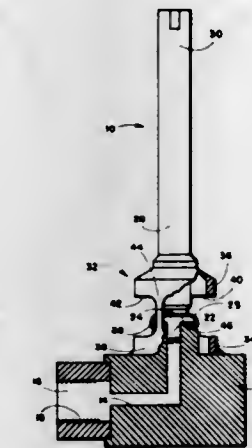
U.S. Cl. 73-406

2 Claims

Disclosed is a pressure transmitter having a sealing diaphragm fixed about a high pressure opening with a force

beam upstanding from the sealing diaphragm, the flexures provided for absorbing axial thrust of the diaphragm being

the displacement is indicative of the magnitude of the external influence. Magnets are provided to restrain the movement of the mass, the position of the magnets relative to the



offset from the axis of the beam so that the beam is angularly deflected responsive to expansion of the diaphragm.

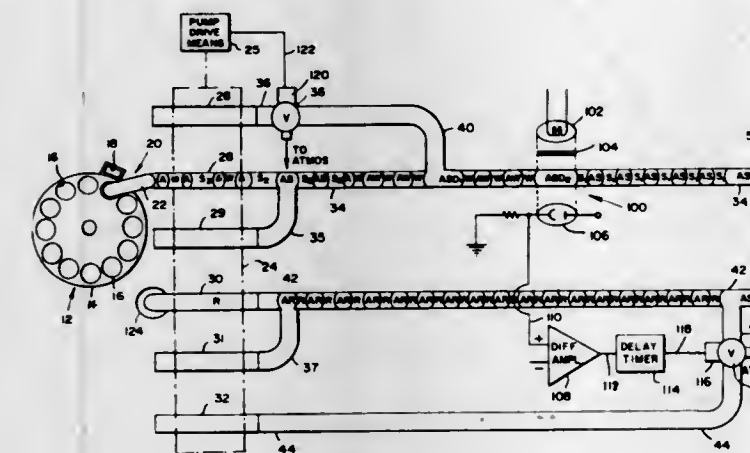
3,600,953 METHOD AND APPARATUS FOR THE INTRODUCTION OF AUXILIARY SEPARATING FLUID IN FLUID SAMPLE ANALYSES MEANS

Jack Isreeli, Mamaroneck; Aaron Kassel, Brooklyn, and Richard H. Heimann, Flushing, all of, N.Y., assignors to Technicon Corporation, Tarrytown, N.Y.

Filed July 25, 1969, Ser. No. 854,337
Int. Cl. G01n 1/10

U.S. Cl. 73-423 A

20 Claims



New and improved means for the introduction of an auxiliary separating fluid to fluid sample analysis means are provided and comprise means to introduce a series of spaced bubbles of said separating fluid to a stream of successive fluid sample portions flowing in a fluid sample analysis means conduits substantially at the respective beginning and end of each of said fluid sample portions to delineate the same, means to introduce a series of substantially phased spaced bubbles of said separating fluid to another fluid stream flowing in another fluid sample analysis means conduit, and means to flow parts, at least, of at least one of said series of separating fluid bubbles through the flow cell of said fluid sample analysis means.

3,600,954 APPARATUS INCORPORATING MAGNETIC RESTRAINT MEANS

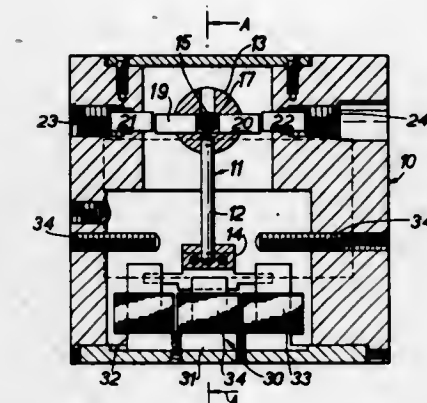
Walter W. H. Clarke, Eversley, England, assignor to C. B. Associates Limited, London, England

Filed Feb. 5, 1969, Ser. No. 796,879
Int. Cl. G01p 15/08

U.S. Cl. 73-517 R

6 Claims

An apparatus having a movable mass which is displaced upon the application of an external influence. The extent of



mass being adjustable whereby to vary the response of the apparatus to the external influence. The apparatus is particularly suited as an accelerometer.

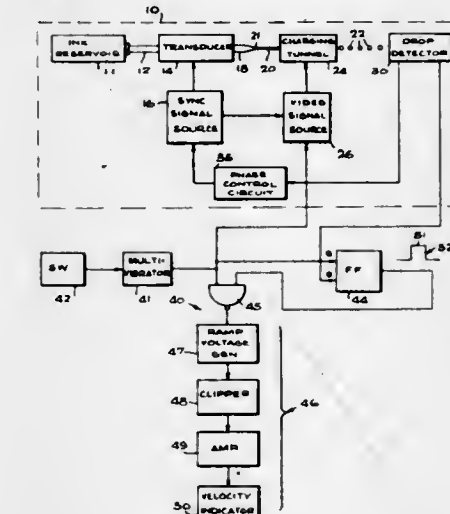
3,600,955 INK DROP VELOCITY INDICATOR

Vincent Ernest Bischoff, River Grove, Ill., assignor to A. B. Dick Company, Chicago, Ill.

Filed Oct. 16, 1969, Ser. No. 867,054
Int. Cl. G01d 15/18

U.S. Cl. 73-518

10 Claims



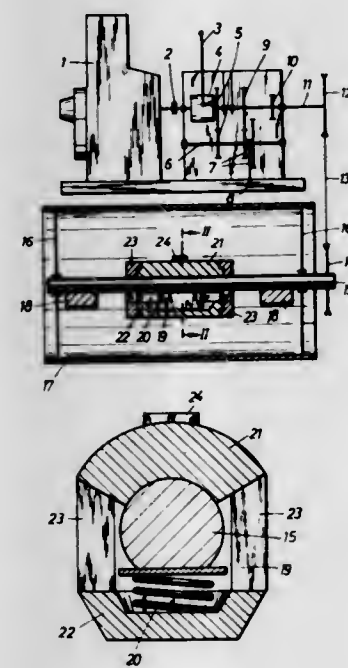
For use in an ink jet printing system a drop velocity measuring circuit comprising an astable multivibrator and a flip-flop. The multivibrator and the flip-flop are interconnected with each other and with the charging tunnel and the drop detector of the printing system so that for each pulse of the multivibrator, the flip-flop produces an output pulse whose width represents the transit time required for drops to travel from the charging tunnel to the drop detector. The output pulses of the flip-flop are supplied to a pulse width measuring circuit whose output represents the monitored or measured drop velocity. The pulse width measuring circuit includes a gated ramp generator, followed by a clipper and current amplifier which is used to drive a recorder or meter, the reading of which represents drop velocity. The meter scale is preferably calibrated to indicate the specified limits between which the drop velocity must lie for the proper operation of the ink jet printing system.

3,600,956
APPARATUS FOR PRODUCING VIBRATIONS FOR
VIBRATORS FOR USE IN CONNECTION WITH
CONSTRUCTION WORK

Kurt Boguth, Duisburg-Wanheimerort, Germany, assignor to Wilhelm Weller, Herstellung und Vertrieb von Strassenwalzen, Gesellschaft mit beschränkter Haftung, Düsseldorf, Germany

Filed Apr. 14, 1969, Ser. No. 815,913
 Claims priority, application Germany, Apr. 13, 1968, P 17 59 255.1

Int. Cl. F16h 33/00; B07b 1/44
 U.S. Cl. 74—61 2 Claims



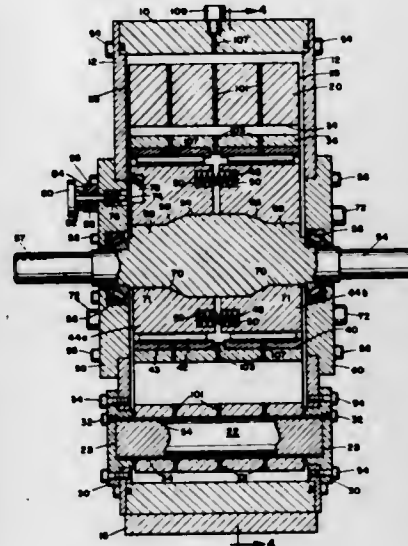
An apparatus for producing vibrations in vibrators for use in construction work, especially in connection with the building of streets and highways, in which the torque of a driving motor is through a change gear transmission with at least two transmission ratios conveyed to an exciter shaft which in addition to a fixed rotary weight has arranged thereon at least one radially displaceable centrifugal weight connected to a counter weight and supported by the exciter shaft through the intervention of spring means in such a way that the center of gravity of the unbalance producer composed of the centrifugal weight and counter weight will at the smaller transmission ratio be located approximately on the axis of rotation of the exciter shaft but will be spaced to a greater extent therefrom at the higher transmission ratio.

3,600,957
OSCILLATING POWER UNIT
 Olly O. Stoffel, San Diego, Calif., assignor to Stoffel Engineering Corporation, San Diego, Calif.
 Filed Sept. 18, 1969, Ser. No. 859,089
 Int. Cl. F16h 33/02; B06b 1/16

U.S. Cl. 74—87 17 Claims

An oscillating power unit for use with a variety of tools and equipment that are vibrated in their operation. An inertial mass rocking about a fixed pivot is driven by an orbital motion eccentric mechanism in such a manner that the effective power is concentrated along one axis of motion and minimized in all other directions. The eccentric drive has a

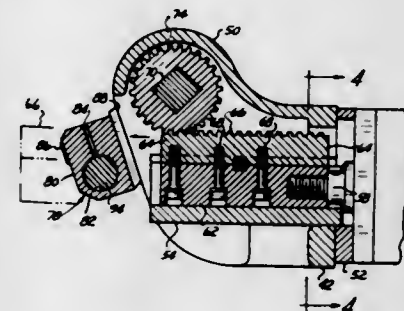
variable throw that is easily adjusted to selectively vary the oscillating power output when the unit is installed in an



operating assembly without dismantling the structure, although all moving parts except the drive shaft are fully enclosed.

3,600,958
ROTATING TURNOVER ASSEMBLY
 Leland F. Blatt, Grosse Pointe Woods, Mich., assignor to ISI Manufacturing, Inc., Warren, Mich.
 Filed Dec. 8, 1969, Ser. No. 882,962
 Int. Cl. F16h 27/02; B25j 3/00

U.S. Cl. 74—89.17 2 Claims



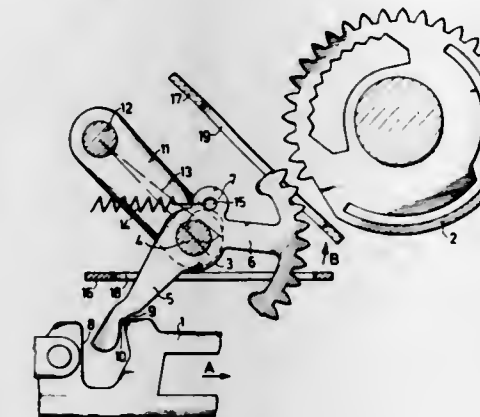
In a rotating turnover apparatus of the rack and pinion type, a novel means including a U-shaped yoke block for removably mounting a rodlike member of a turnover means on the pinion shaft, whereby the turnover means will be rotated around the axis of such shaft as such shaft is rotated axially by the pinion.

3,600,959
DEVICE FOR TRANSFER OF VALUES IN
CALCULATING MACHINES
 Andreas Metschnabl, Nürnberg, Germany, assignor to DIEHL, Nürnberg, Germany
 Filed Aug. 6, 1969, Ser. No. 847,995
 Claims priority, application Germany, Aug. 24, 1968, P 17 74 743.2

Int. Cl. F16h 29/02; G06c 29/00
 U.S. Cl. 74—89.19 5 Claims

An arrangement for transferring reciprocatory motion of a pin carriage controlled rack member of a calculating machine to a toothed control disc which is connected to a value roller of the machine. The arrangement takes the form

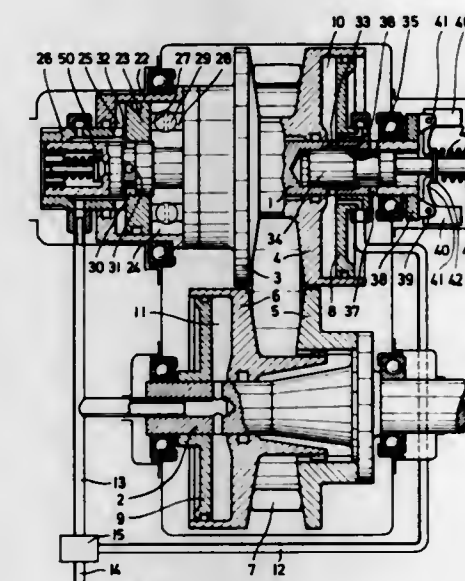
of a transfer element pivoted on a shaft and having one arm abuttingly engaging the rack member and another arm in the form of a gear segment. Reciprocation of the rack member will oscillate the transfer element. The shaft is carried by a



control arm and is movable to cause the gear segment to mesh with and separate from the teeth of the control disc. A spring biases the transfer element toward abutment with the rack member.

3,600,960
INFINITELY VARIABLE CONE PULLEY TRANSMISSION
 Erhardt Karig; Otto Dittrich, and Manfred Rattunde, all of Bad Homburg, Germany, assignors to Reimers Getriebe A. G., Zug, Switzerland
 Filed Dec. 22, 1969, Ser. No. 887,007
 Claims priority, application Germany, Dec. 24, 1968, P 18 16 950.1

Int. Cl. F16h 55/22
 U.S. Cl. 74—230.17 F 16 Claims

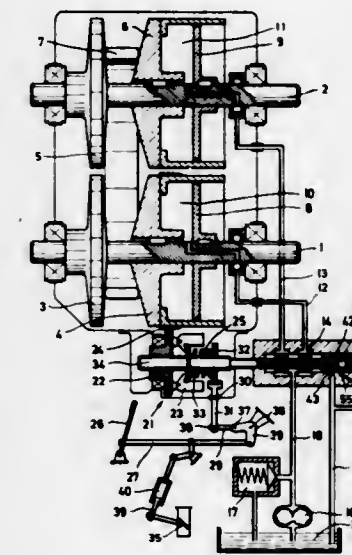


A fully hydraulic control mechanism for an infinitely variable cone pulley transmission in which the axially movable conical disk of each pulley is pressed against an endless belt or chain running between the pulleys with a different contact pressure than the corresponding disk of the other pulley. The control mechanism acts at the same time upon the axially movable disks on the driving and driven shafts of the transmission, and the contact pressure of all disks is load-responsive.

3,600,961
INFINITELY VARIABLE CONE PULLEY TRANSMISSION
 Manfred Rattunde, and Otto Dittrich, both of Bad Homburg, Germany, assignors to Reimers Getriebe A. G., Zug, Switzerland

Filed Dec. 22, 1969, Ser. No. 887,009
 Claims priority, application Germany, Dec. 24, 1970, P 18 16 951.2

Int. Cl. F16h 55/22
 U.S. Cl. 74—230.17 F 11 Claims

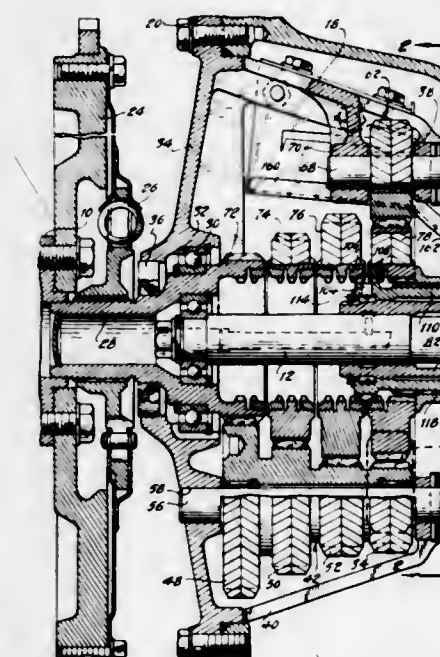


A fully hydraulic control mechanism for an infinitely variable cone pulley transmission in which the axially movable conical disk of each pulley is pressed against an endless belt or chain running between the pulleys with a different contact pressure than the corresponding disk of the other pulley. The control mechanism acts at the same time upon the axially movable disks on the driving and driven shafts of the transmission, and the contact pressure of all disks is load responsive.

3,600,962
MULTIPLE RATIO, MANUALLY CONTROLLED POWER
TRANSMISSION MECHANISM WITH SELF
ENERGIZING NEUTRAL CLUTCH
 Peter G. Ivanchich, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 13, 1969, Ser. No. 865,841
 Int. Cl. F16h 3/08

U.S. Cl. 74—331 8 Claims



A power transmission mechanism having coaxially arranged power output gears, a clutch sleeve shaft surrounding

the power output shaft and adapted to slide on the output shaft into selective engagement with the output gears and a multiple disc neutral clutch connecting drivably the clutch sleeve shaft with the power output shaft including self energizing cam means for engaging the clutch with a clamping force that is proportional in magnitude to the driving torque, provision being made for manually disengaging and engaging the multiple disc assembly during speed ratio changes.

3,600,963

COUNTERSHAFT GEAR-SHIFT TRANSMISSION

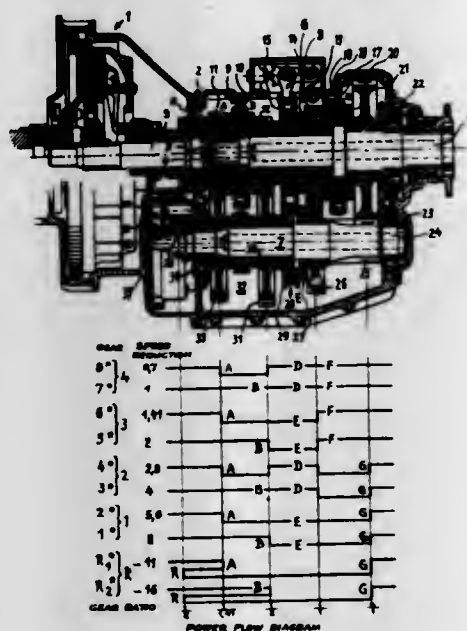
August Thomas Portmann, Arbon, Thurgau, Switzerland, assignor to Adolph Saurer Ltd., Arbon, Thurgau, Switzerland
Filed Aug. 27, 1969, Ser. No. 853,316

Claims priority, application Switzerland, Sept. 11, 1968, 13567/68

Int. Cl. F16h 3/08, 5/16

U.S. Cl. 74—360

10 Claims



A countershaft gear-shift transmission with constantly meshing gear pairs includes a drive shaft, a main shaft coaxial with the drive shaft and a countershaft parallel to the main and drive shafts. A first countershaft gear is fixed to rotate with the countershaft and a first main shaft gear is rotatable on the main shaft and constantly meshes with the first countershaft gear. An additional countershaft gear or gears are rotatably mounted on the countershaft and constantly mesh with gears rotatable on the drive shaft and on the main shaft. Shifting clutch means are operatively associated with the gears and are selectively operable to couple the first countershaft gear to the drive shaft through either the first main shaft gear or one or more of the additional countershaft gears. Operating means are provided for the shifting clutch means, and pneumatically actuated interlocking means are provided to assure proper operation of the operating means. The transmission may have eight forward speeds and two reverse speeds or may have 12 forward speeds and two reverse speeds. The reverse speed gearing includes a center gear and a ring gear meshing with at least one idler gear mounted between the center and ring gears.

3,600,964

OPTIONALLY AUTOMATIC TWO SPEED DRIVE FOR A FISHING REEL

Thomas F. Sarah, Akron, Ohio, assignor to Shakespeare of Arkansas, Inc., Fayetteville, Ark.

Filed Mar. 5, 1970, Ser. No. 16,761

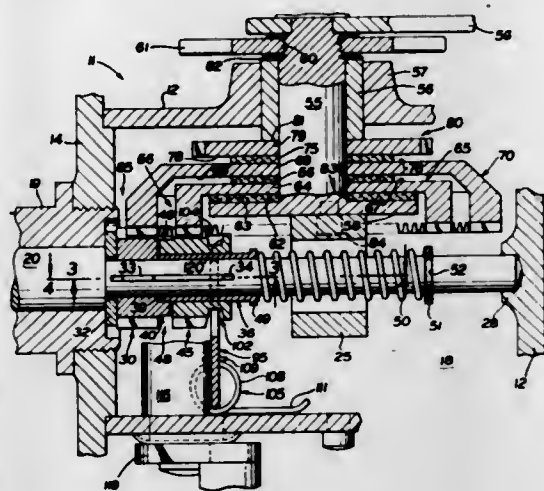
Int. Cl. F16h 3/08, 5/06, 37/06

U.S. Cl. 74—369

18 Claims

A variable drive for fishing reels—adaptable with equal facility to spinning, spin-casting, bait casting and trolling type reels—to provide a high and low speed transmission ratio. Each speed ratio has a corresponding gear train operatively connected between a driving rod and a driven shaft. The two

gear trains each have a driving gear carried on the driving shaft. The driving gear for at least the high speed ratio is rotatably mounted on the driving shaft, and a coupling means engages the driving gear to permit it to slip with respect to the driving shaft in response to a predetermined torque loading. The second driving gear in two of the three embodiments depicted herein is also rotatably mounted on the driving shaft and engaged by the coupling means so that the second driving gear is permitted rotatably to slip with respect to the driving shaft only in response to a predetermined, greater torque loading. In the third embodiment the second driving gear is



secured to the driving shaft for rotation only therewith, and the coupling means, in that embodiment, is connected between the two driving gears. The first and second driving gears mesh with corresponding first and second pinions carried on the driven shaft. The first pinion is connected to rotate only with said driven shaft, but the second pinion is mounted so as to be movable with respect to the driven shaft. A unidirectional clutch means operatively connects the two pinions so that the first pinion can overrun the second pinion but not vice versa. A selector means is also disclosed whereby the automatic selection of the speed ratios in response to the torque loading can be manually overridden.

3,600,965

POWER STEERING GEAR

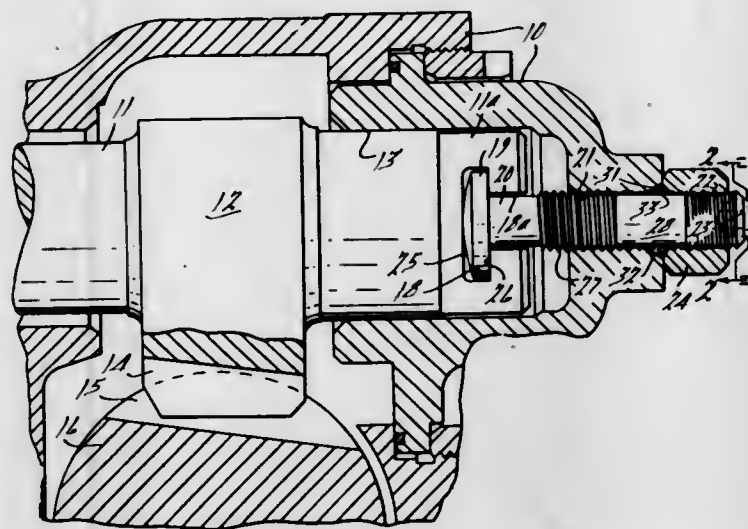
Walter E. Folkerts, Hazel Park, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Sept. 19, 1969, Ser. No. 859,382

Int. Cl. F16h 55/18; B62d 1/20; B65d 53/00

U.S. Cl. 74—409

8 Claims



An axially adjustable cross shaft for the sector gear of an automobile power steering mechanism is mounted within a housing subject to high pressure fluid. A threaded adjusting bolt secured to the cross shaft to adjust the same screws axially through and is locked in axially adjusted position by a

nut tightened against the housing. The threads of the nut and housing are truncated to receive an unthreaded sealing portion of the bolt shank spaced between and having a diameter approximately equal to the pitch diameter of the bolt threads engaging the housing and nut. An O-ring around the unthreaded bolt shank is confined by and forced into sealing engagement with the shank and the housing by cooperating portions of the bolt and nut.

3,600,966

COMPOUND MOTION TRANSMITTING CABLE MECHANISM

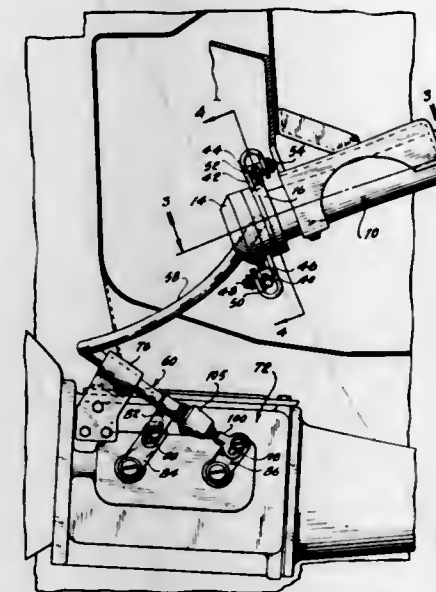
Alan P. Anderson, Grosse Ile, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 9, 1970, Ser. No. 17,658

Int. Cl. G05g 9/00

U.S. Cl. 74—473 SW

4 Claims



A motion transmitting cable mechanism adapted to move the shift control levers of a manually operated power transmission mechanism in an automotive vehicle driveline wherein the cable comprises two relatively movable parts, one being operatively received within the other, one part being connected to one shift lever and the other part being connected to the other shift lever, and manually controlled shift linkages operatively connected to the end of each of the cable parts whereby a shift controlling motion pattern for the shift linkages can be transmitted through the cable mechanism to the transmission shift levers to effect transmission ratio changes.

3,600,967

VARIABLE-ORIENTATION MECHANISM

Bernard Auguin, Epinay-sur-Seine; Pierre Noe, Palaiseau; Richard Riwan, Massy, and Georges Viel, Orsay, all of France, assignors to Commissariat A L'Energie Atomique, Paris, France

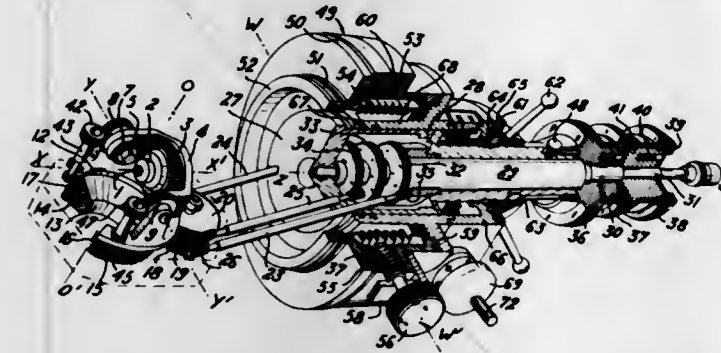
Filed May 13, 1969, Ser. No. 824,050

Claims priority, application France, May 31, 1968, 153,565

Int. Cl. G05g 11/00

U.S. Cl. 74—479

4 Claims



A variable-orientation mechanism which provides 6° of freedom for positioning samples. A sample-holder block is

mounted to rotate about a first axis carried by a yoke which is pivoted about a second axis located at right angles to the first. The yoke is in turn carried by a support of revolution which rotates about a third axis located at right angles to the other two axes. The movements of the sample-holder about the three axes are controlled independently by a set of differential pinions and a movement produced by three concentric shafts carried by a support sleeve and driven in rotation by means of engageable operating knobs being transmitted to the differential pinions by means of a set of three rods having terminal helical screws. Means are additionally provided for displacing the support sleeve with respect to an outer cylindrical casing and independently in the direction of their common axis, in a direction at right angles to said axis and in rotation about said axis.

3,600,968

ADAPTER ASSEMBLY FOR STANDARD HAND-LEVER OPERATED MACHINES

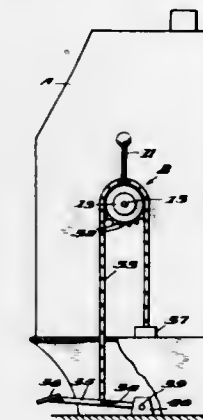
Anthony T. D'Andrea, 121 S. Kenwood St. #20, Glendale, Calif.

Filed Oct. 23, 1969, Ser. No. 868,847

Int. Cl. G05g 11/00

U.S. Cl. 74—481

5 Claims



An adapter assembly for a laterally extending actuator shaft of a machine, which normally hand-lever operated, said assembly including foot pedal connecting means for operating the actuator shaft of the machine independently of and without effecting movement of the hand lever and vice versa.

3,600,969

STEERING CONTROL MECHANISM

Alfred Pitner, Paris, France, assignor to Rueil Nadella, Malmaison, France, a part interest

Filed July 16, 1969, Ser. No. 842,241

Claims priority, application France, July 29, 1968, 160,938

Int. Cl. B62d 1/16

U.S. Cl. 74—492

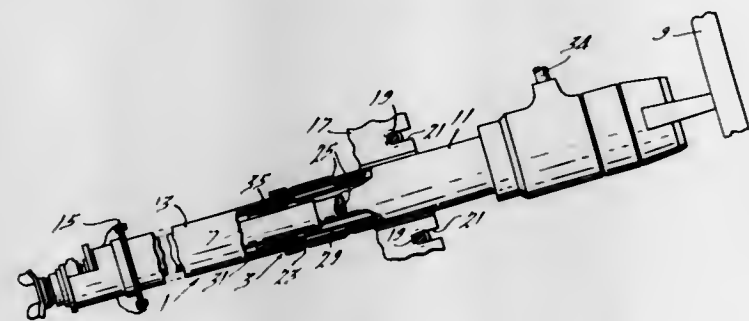
7 Claims



A steering control mechanism in which the steering wheel is carried by a steering shaft element which is connected to

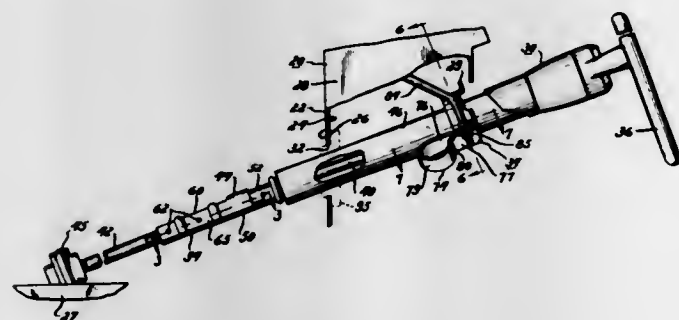
the rest of the steering control shaft structure through a universal joint. This joint has a sealing ring interposed between each cross trunnion shoulder and a flange on a needle bearing cup engaged in the corresponding yoke branch. The sealing ring is so arranged and adapted as to perform the function of a shock absorber for transverse vibrations and shocks.

3,600,970
STEERING COLUMN
Alan G. Loofbourrow, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Aug. 22, 1969, Ser. No. 852,361
Int. Cl. B62d 1/18
U.S. Cl. 74-492



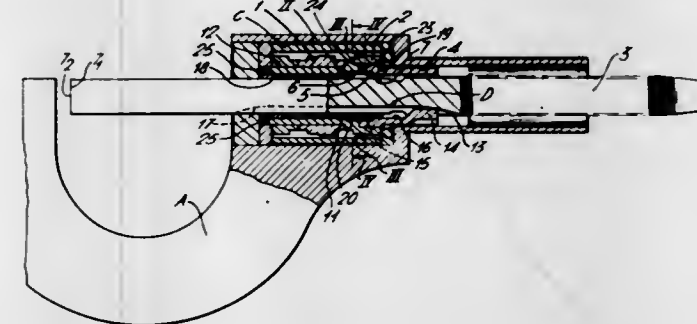
Energy absorbing steering column for a vehicle, including a pair of telescoping tubular members. One of the members has depressions or ridges formed therein in interference with the other member. The depressions or ridges cause the other tubular member to deform upon collapse. Holes may be provided in the depressions or ridges to vary the load under which the column will shorten.

3,600,971
STEERING COLUMN MOUNTING ARRANGEMENT
John Scarvellis, Southfield, and Dean A. Green, Milford, both of, Mich., assignors to American Motors Corporation, Kenosha, Wis.
Filed Sept. 8, 1969, Ser. No. 855,869
Int. Cl. B62d 1/18
U.S. Cl. 74-492



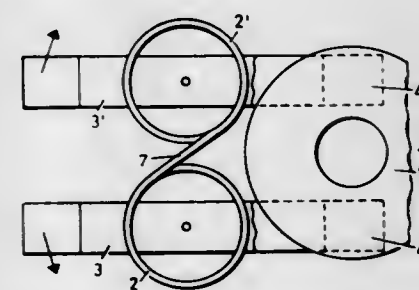
In a vehicle a mount arrangement having restraint members normally supporting the upper end of a collapsible steering column having a coupling arrangement adapted, on occurrence of a collision impact on the column, in separating the column into independently movable upper and lower columnar sections at a load less than being needed to overcome the restraint members to yield in movement the attached upper columnar section, the yield being had by the members deforming and reforming, without detachment from the column or vehicle, in absorbing the energy of the impact occurring on the steering wheel.

3,600,972
DEVICE INCLUDING MEANS FOR SETTING A FIRST ROTATABLE MEMBER RELATIVE TO A SECOND ROTATABLE MEMBER
Eric John Elliott, St. Albans, England, assignor to English Numbering Machines Limited, London, England
Filed Jan. 9, 1970, Ser. No. 1,756
Claims priority, application England, Jan. 18, 1969, 3,050/69
Int. Cl. G05g 5/06; F16h 27/02
U.S. Cl. 74-527



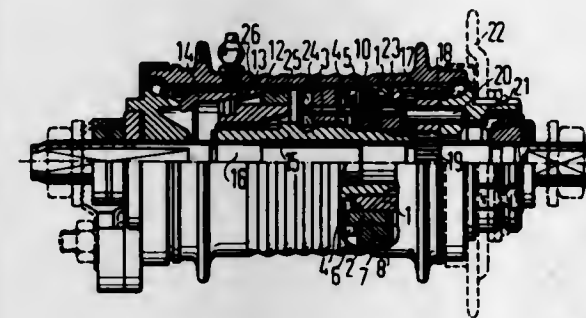
A first annular member keyed to a shaft is provided internally with regularly spaced axial grooves, and a second annular member concentric with the shaft is provided internally with regularly spaced axial grooves. The angular positions of the individual annular members are determined and their resulting relative angular setting accurately effected by arranging a ridge on the circumference of a sleeve to engage aligned grooves on the first and second annular members. The number of grooves on the first and second annular members differs to give a Vernier effect. One the sleeve effects the setting, the shaft and the second annular member are coupled to be rotatable relative to a common reference point.

3,600,973
OSCILLATING SYSTEM
Albrecht Haag, Schwenningen am Neckar, Germany, assignor to Kienzle Uhrenfabriken GmbH, Schwenningen am Neckar, Germany
Filed Oct. 16, 1969, Ser. No. 866,973
Claims priority, application Germany, Oct. 29, 1968, P 18 05 777.7
Int. Cl. F16f 15/12
U.S. Cl. 74-574



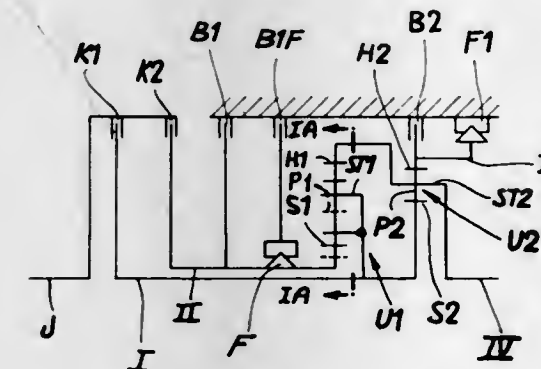
An oscillating system includes two identical rotary oscillators each having a rotating mass and a vibratory spring. The rotating masses oscillate in phase opposition, and the two rotary oscillators have respective shafts mounted in spaced parallel relation in working plates. One end of each vibratory spring is connected to the associated rotating mass, and the opposite ends of the two vibratory springs are interconnected by an elastic intermediate spring part, and the two vibratory springs are wound in the same sense. The intermediate spring part extends substantially perpendicular to the shafts and is integral with the two springs. The springs may be helical springs or flat coil springs.

3,600,974
MULTIPLE-SPEED DRIVE ARRANGEMENT WITH CENTRIFUGAL GOVERNOR
Hans-Joachim Schwerdhofer; Manfred Lutz, and Horst Schulz, all of Schweinfurt am Main, Germany, assignors to Fichtel & Sachs AG, Schweinfurt am Main, Germany
Filed Nov. 12, 1969, Ser. No. 876,019
Claims priority, application Germany, Nov. 15, 1968, P 18 09 141.3
Int. Cl. F16h 5/42
U.S. Cl. 74-752 E



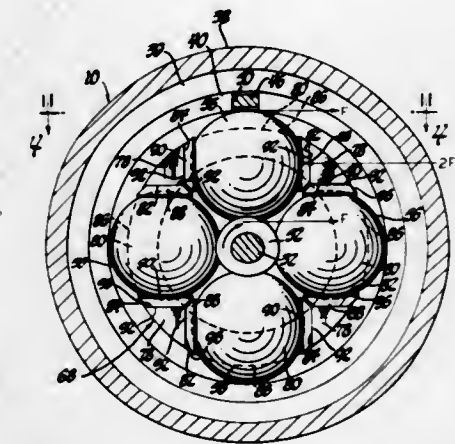
A dual-speed hub for a bicycle is equipped with planetary gearing and with first and second pawl-and-ratchet clutches respectively connecting the hub shell with the driver and planet carrier of the hub, and with the faster turning ring gear. The second clutch is normally disengaged by a centrifugal governor having spring-loaded, elongated flyweights. The motion for engaging the second clutch and for thereby shifting the hub into higher gear is derived from bosses or pins near the longitudinal end of each flyweight which is pivoted to a rotating carrier coupled to the driver.

3,600,975
PLANETARY-GEAR TRANSMISSION WITH ALTERNATELY DRIVEN SUN GEARS
Anton Ott, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Germany
Filed Sept. 4, 1969, Ser. No. 855,136
Claims priority, application Germany, Sept. 6, 1968, Z 12 080; Z 12 081
Int. Cl. F16h 57/10
U.S. Cl. 74-761



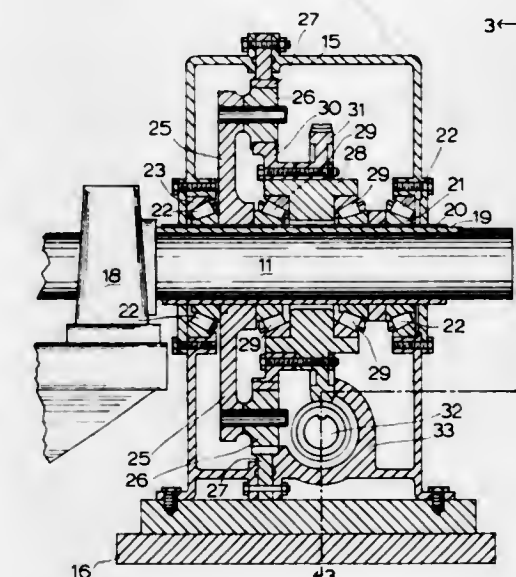
An automotive transmission with two cascaded planetary gear trains has the ring gear of one gear train and the planet carrier of the other gear train rigidly connected with each other and with the output shaft, the input shaft being connectable with the sun gear of the last-mentioned gear train during forward driving and with the sun gear of the first-mentioned gear train during reverse driving. The sun gear driven in the several forward speeds has a larger radius than the one driven in reverse, the corresponding ring gears being of substantially identical diameters.

3,600,976
FRICTION DRIVE MECHANISM
Lubomyr O. Hewko, Port Clinton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Feb. 26, 1970, Ser. No. 14,299
Int. Cl. F16h 13/06, 15/50
U.S. Cl. 74-798



A power-transmitting and speed-reducing friction drive mechanism including a housing, input and output shafts, an outer ring member, an inner ring member, an axially extending cylindrical carrier member intermediate the outer and inner ring members and driven by ball planets frictionally contacting both ring members, the carrier member having a plurality of equally spaced radial slots formed therein for receiving oppositely disposed hydrodynamic bearing inserts or shoes. The bearing inserts are conical at their outer peripheries, and each includes one flat bearing face for axial, radial and/or rotational movement on one of the sides of each of the radial slots, and one partial-spherical or concave bearing face for receiving a portion of each of a plurality of ball planets to transmit force from the ball planets to the carrier, and provide for rotation of the ball planets relative to the bearing insert and movement of the bearing insert relative to the carrier.

3,600,977
SHAFT-MOUNTED REDUCTION DRIVE MECHANISM
Nelson H. Bogie, Rte. 1, Gilbertsville, Ky.
Filed Apr. 10, 1970, Ser. No. 27,363
Int. Cl. F16h 1/28; B65g 13/02; B66d 1/12
U.S. Cl. 74-801



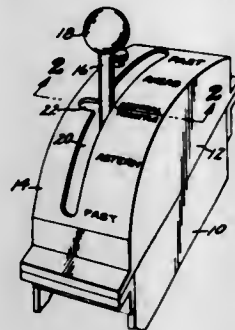
A drive mechanism including a frame suspended upon a driven roller shaft, and a two-stage reduction assembly and drive motor mounted on the frame. The first reduction stage comprises a worm wheel and a worm driven by the motor, and the second reduction stage comprises a planetary gear assembly coupled to the worm wheel and the roller shaft.

3,600,978 CLUTCH AND THROTTLE CONTROL FOR OUTBOARD MOTORS

John W. Turner, 2021 North Ross, Santa Ana, Calif.
Filed Aug. 13, 1969, Ser. No. 849,709
Int. Cl. B60k 21/00

U.S. Cl. 74-875

13 Claims



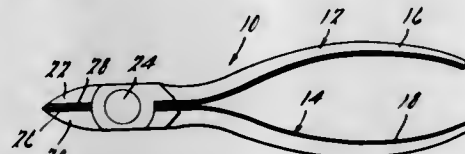
Controller mechanism in which the position of two rotationally displaceable output elements is controlled from a single displacing or operating member in coordinated fashion through the medium of a motion translating structure employing two cams rotatable on a single shaft and formed so that one output member is rotated in a direction and degree determined by the direction and degree of movement of the displacing member over a midregion only of its total displacement range and so that the other control element is repositioned in a degree determined by the position of the operating element outside that midrange.

3,600,979 METHOD AND APPARATUS FOR MANUFACTURING PLIER-LIKE TOOLS

Walter J. Rozmus, Hubbardsville, N.Y., assignor to Utica Tool Company, Inc., Orangeburg, S.C.
Filed Dec. 4, 1968, Ser. No. 781,018
Int. Cl. B21k 21/00

U.S. Cl. 76-101 R

20 Claims



A method and apparatus for manufacturing plierlike tools, with the apparatus consisting of a support structure disposed adjacent an associated machine tool; clamping means adapted to removably secure the plierlike tool components on the support structure, and means for supporting the aforesaid clamping means on the support structure for selective rotational indexing movement, whereby the tool components may be oriented in a first position wherein the associated machine tool can perform a first machining operation thereon and thereafter, the tool component may be rotationally indexed to a second position wherein the machine tool can perform a second operation thereon; the tool components being initially partially machined and thereafter subject to a hardening operation such as a heat treating operation, with a final machining operation being performed by the aforesaid apparatus subsequent to the hardening operation and prior to final assembly of the components.

3,600,980 DEVICE FOR POSITIONING A SAW IN A MACHINE FOR OPERATING ON THE TEETH OF THE SAW

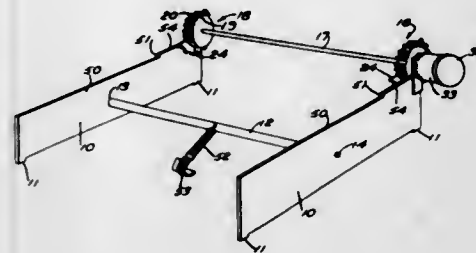
Sulo A. Aijala, Attleboro, Mass., assignor to Intricate Machine & Engineering Inc.
Filed Dec. 1, 1969, Ser. No. 881,011
Int. Cl. B23d 63/00

U.S. Cl. 76-25

6 Claims

A device separate from a machine for retreating or sharpening a saw which device is to be used for locating a saw

with respect to a saw holder and with respect to the means to perform a particular operation on the teeth, after which the saw is clamped on the saw holder and the holder and saw are



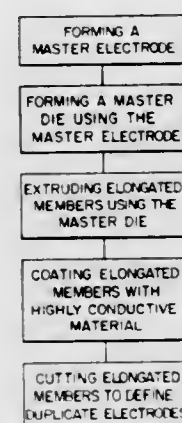
removed from the device and placed in the machine for operating on the saw. Selective means are provided for abutting the saw teeth for one of a plurality of operations or for different sizes of saws.

3,600,981 ELECTRODES FOR ELECTRICAL DISCHARGE MACHINING AND OF MAKING SUCH ELECTRODES AND ASSOCIATED DIES

Nicholas A. Wagner, Chester, Va., assignor to Reynolds Metal Company, Richmond, Va.
Filed Nov. 13, 1969, Ser. No. 876,531
Int. Cl. B21k 5/20

U.S. Cl. 76-107 R

13 Claims



Electrodes for use in electrical discharge machining, and method of making same, are provided wherein a plurality of substantially identical electrodes are made from sections cut from elongated members extruded through a master die. The elongated members may be coated with a highly electrically conductive material which assures each electrode has optimum wear resistance.

3,600,982 JAR COVER REMOVER

John G. Tholen, 27 Ospery Drive, Toms River, N.J.
Filed Nov. 12, 1969, Ser. No. 876,008
Int. Cl. B67b 7/18

U.S. Cl. 81-3.4

5 Claims

A screw cover remover having a handle at one end thereof with a cavity at the opposite end thereof adapted to encompass the cover of the jar to be removed and containing therein gripping means to frictionally retain the screw cover remover fixed relative to the jar cover to remove the latter. The gripping means in accordance with one aspect of the in-

vention includes spaced apart members having a threaded sleeve is fitted over the core and is struck to drive the wrench face extending in a substantially horizontal plane to bind up down on the taper to expand the slotted end of the wrench



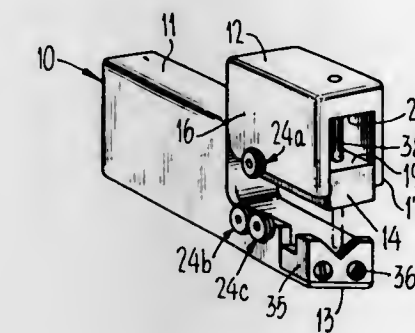
against the side or corner of the cover. In another form the members contain teeth extending substantially vertical for engagement with the jar cover.

3,600,983 CUTTING AND DEFORMING DEVICE FOR WIRE INSULATION

Robert B. Hendry, 45833 Warm Springs Blvd., Fremont, Calif.

Filed Feb. 7, 1969, Ser. No. 797,573
Int. Cl. H02g 1/12; B21f 13/00; B26h 97/00
U.S. Cl. 81-9.5

13 Claims



A cutting and deforming device for scoring or partially severing the outer insulation of wire or wire cables and for deforming the severed length of insulation along its length to enable the same to be removed from such wire. The device includes a pair of jaw elements movable relative to each other between open and closed positions and equipped with a plurality of cutting blades operative to cut such insulation upon closure of the jaw elements and angular displacement of the device and cutting blades relative thereto. The device is equipped with depth-limiting structure adjacent each cutting blade and engageable with the insulation to limit penetration of the blades thereinto; and it further includes an anvil and a deforming blade respective carried by the jaw elements and cooperative to deform a cut or severed length of insulation to facilitate removal thereof from the wire.

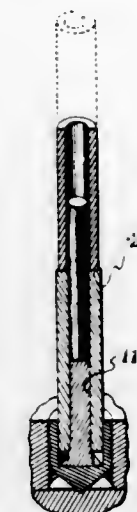
3,600,984 EXPANSIBLE ALLEN SETSCREW WRENCH

John D. Bihlmaier, 1735 W. Haskell St., Tulsa, Okla.
Filed Apr. 28, 1969, Ser. No. 819,633
Int. Cl. B25b 13/48

U.S. Cl. 81-72

4 Claims

An expansible Allen setscrew wrench is bored centrally to receive a tapered core and is slotted at its end that enters the noncircular recess of the setscrew. A removable driving

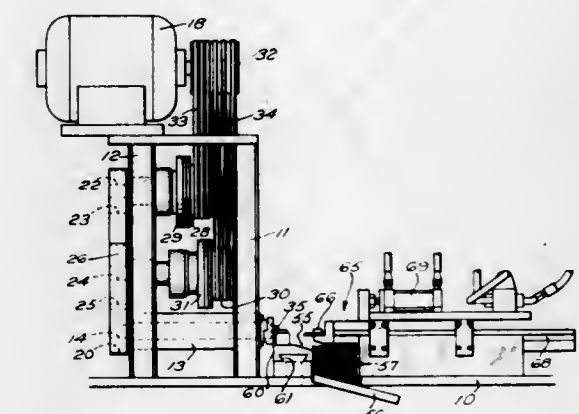


3,600,985 APPARATUS FOR MACHINING A PLURALITY OF LIKE ARTICLES SIMULTANEOUSLY

Lucien W. Carignan, East Providence, R.I., assignor to New England Malleable Iron Company
Filed Oct. 10, 1968, Ser. No. 766,595
Int. Cl. B23b 3/34

U.S. Cl. 82-3

4 Claims



A finishing machine for the male section of a pipe union in which a plurality of threaded spindles are manually loaded with a threaded pipe union section and then the sequential operations of cross slide and end slide machine the section, stop the rotation of the workpiece and reverse the spindles to unthread the workpiece from the spindles and whereupon they fall into a chute and are conveyed into a tote box, all automatically with no manual labor after the loading of the spindles with the work.

3,600,986 SELF-ADJUSTING LOCKING WRENCH

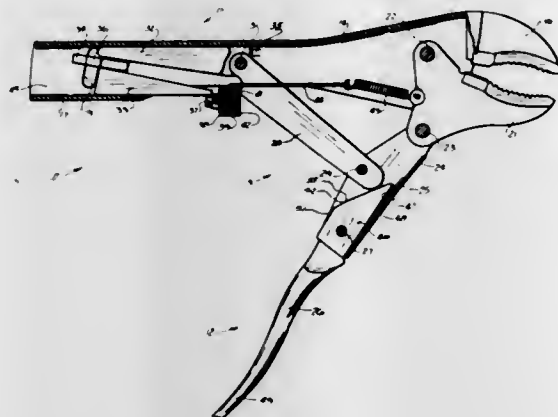
Earl M. Baldwin, Jr., Box 68, Glenvil, Nebr., assignor to Leverage Tools, Incorporated, Glenvil, Nebr.
Filed Aug. 27, 1968, Ser. No. 755,698
Int. Cl. B25b 7/12, 7/14, 5/12

U.S. Cl. 81-370

2 Claims

This invention pertains to a self-adjusting locking wrench, having plierlike handles, which firmly and securely grips an object of any size or thickness, within predefined limits, with substantially the same amount of pressure. The wrench,

utilizing a pair of wedges and toggle link, has a pressure adjustment means for varying the pressure; a quick release



lever and an improved toggle link for opening the wrench when it is securely gripping an object, the lever also serving as one of the handles of the wrench.

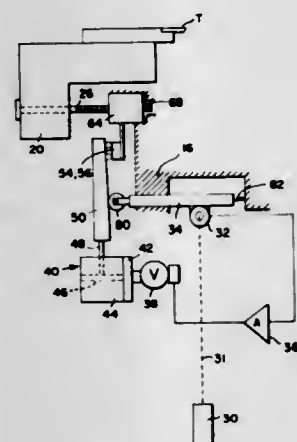
3,600,987
APPARATUS FOR COMPENSATING FOR DEVIATIONS IN THE STRAIGHTNESS OF THE BED OF A MACHINE TOOL

Frank Kvasnicka, Mount Lebanon, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa.

Filed Mar. 13, 1969, Ser. No. 807,023
Int. Cl. B23b 3/00

U.S. Cl. 82-1

5 Claims



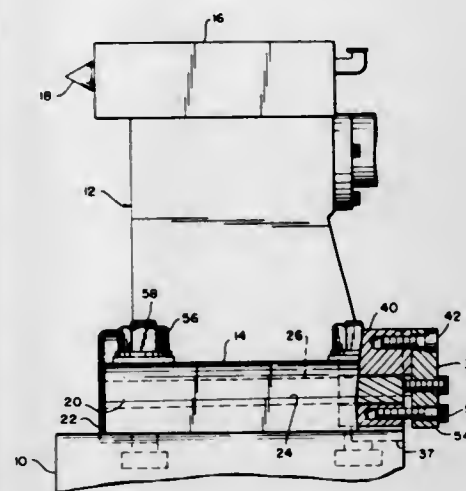
An apparatus for compensating for deviations in the straightness of the bed of a machine tool including a laser means providing the reference of straightness. A laser transmitter directs a laser beam which serves as the reference of straightness and a receiver is mounted on the carriage for movement therewith and is arranged to detect misalignment of the carriage from the reference of straightness and to provide an error signal which is received by a control means which moves a tool supporting means on the carriage to compensate for the bed deviation.

3,600,988
MULTIPLE ADJUSTABLE STOCK
Kenneth J. Davis, Warren, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed July 7, 1969, Ser. No. 839,575
Int. Cl. B23b 23/00

U.S. Cl. 82-31

6 Claims



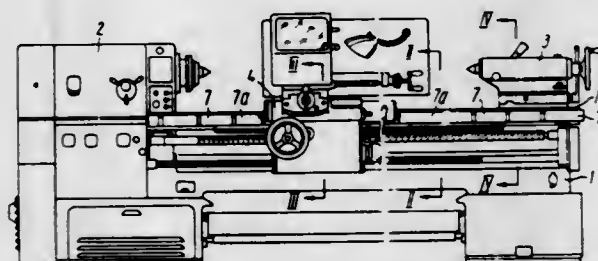
Means for adjusting one of a pair of stocks both vertically and laterally to bring it into exact alignment with the other stock.

3,600,989
METAL-CUTTING MACHINE
Jury Stepanovich Valkov, ulitsa Belinskogo, 8, kv. 5, Frunze, U.S.S.R.

Filed June 24, 1969, Ser. No. 836,044
Int. Cl. B23b 3/06

U.S. Cl. 82-34

2 Claims



A metal-cutting machine in which a carriage is mounted for movement along guides having a lubricating film on their working faces and telescopically parting plates serve as a protective means for the guides. The plates are assembled in groups at both sides of the carriage so that in each group, the first plates are connected with the carriage and the last plates mechanically connected with a stationary member of the machine. The carriage has passages for forced lubrication of the guides working faces and protective strips located above the plate groups and along the guides pass through slots with the coupling between the last plate of each group with the stationary member including a mechanism for periodical connection of the plates with the carriage during its movement to the extreme positions.

3,600,990
MACHINE-TOOL
Pierre E. Renoux, Colombes, France, assignor to Cri-Dan, Paris, France

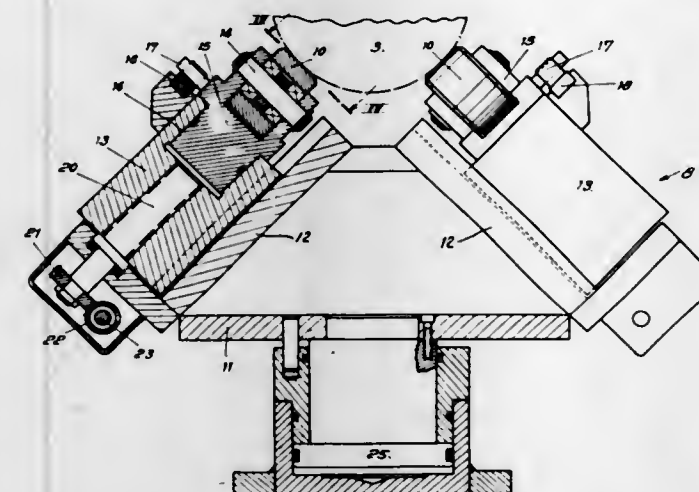
Filed June 20, 1969, Ser. No. 834,968
Claims priority, application France, Aug. 1, 1958, 161,420
Int. Cl. B23b 25/00

U.S. Cl. 82-38

8 Claims

A feed support device for use in conjunction with a machine-tool, particularly a lathe, for permitting a workpiece to be selectively supported for either translational or rota-

tional motion. The feed support device includes a pair of cylindrical support rollers rotatably mounted on independent swivel members which are rotatable about axes which converge toward one another. Suitable actuating devices are connected to the swivel members for permitting the swivel members and the cylindrical rollers mounted thereon to be



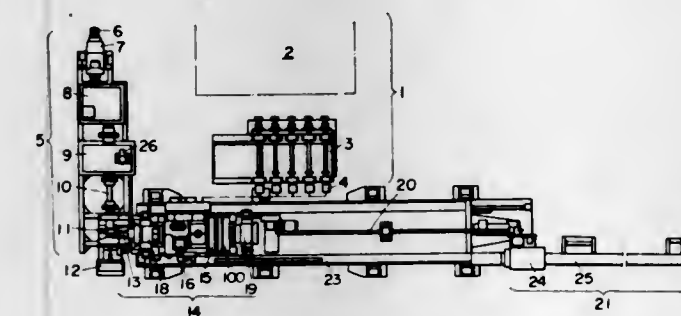
angularly displaced between a first position wherein their axes are substantially parallel to the axis of the workpiece so as to be disposed in rotational contact with the workpiece, and a second position wherein the rotational axes are substantially perpendicular to the axis of the workpiece so as to permit translational movement of the workpiece.

3,600,991
FLYING PIPE CUTTING APPARATUS
Shigeo Kojima; Tsutomu Nishi; Tetsunoko Ogo, and Tetsuo Sasaki, all of Kawasaki-shi, Japan, assignors to Nippon Kokan Kaishiki Kaisha

Filed Oct. 14, 1968, Ser. No. 767,234
Claims priority, application Japan, Oct. 14, 1967, 42/65,892
Int. Cl. B23b 5/14

U.S. Cl. 82-53.1

7 Claims



In a flying pipe cutting apparatus a carriage carrying a cutting machine is started by means detecting the speed of a continuously running pipe being cut and a plurality of clamping mechanisms are operated to clamp the pipe when the cutting machine attains the same speed as the running pipe. Thereafter the cutting machine is moved by the running pipe and a cutter is urged against the pipe at an incremented speed provided by a differential gear mechanism located between clamping mechanisms.

3,600,992
DEVICE FOR THE SCORING OF A GLASS SHEET
Jacques Max Dryon, Auvclais, Belgium, assignor to Ateliers Heuze, Malevez & Simon Reunis Societe Anonyme, Auvclais, Belgium

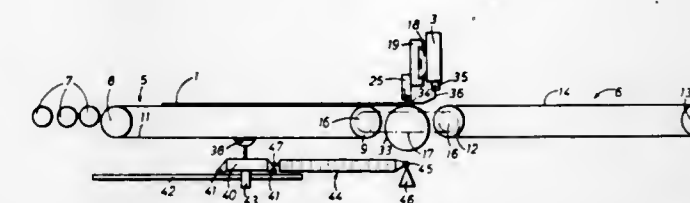
Filed Oct. 27, 1969, Ser. No. 869,510
Claims priority, application Belgium, Dec. 9, 1968, 67.231/68
Int. Cl. B26d 3/08

U.S. Cl. 83-12

6 Claims

An apparatus for scoring a sheet of glass wherein the tool carriage moves along a fixed gantry located over the glass.

The glass is moved into scoring position using initially a pri-



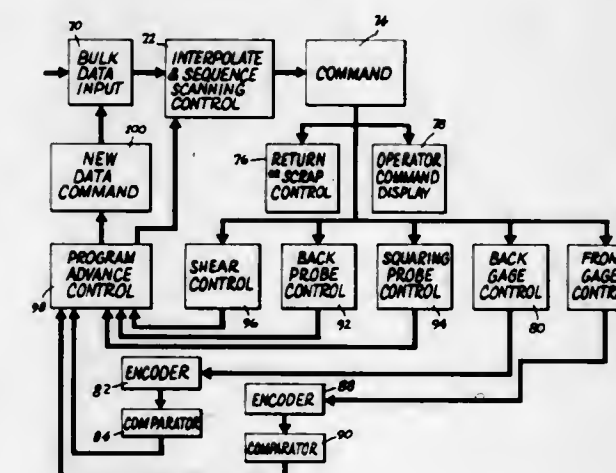
mary and then a secondary power means for the work moving conveyor.

3,600,993
SHEARING APPARATUS
Ronald S. Williams, Knoxville, Tenn., and John J. Erhart, Cincinnati, Ohio, assignors to Cincinnati Incorporated, Cincinnati, Ohio

Division of Ser. No. 713,088, Mar. 14, 1968.
Filed Jan. 9, 1970, Ser. No. 1,796
Int. Cl. B26d 5/30

U.S. Cl. 83-71

3 Claims



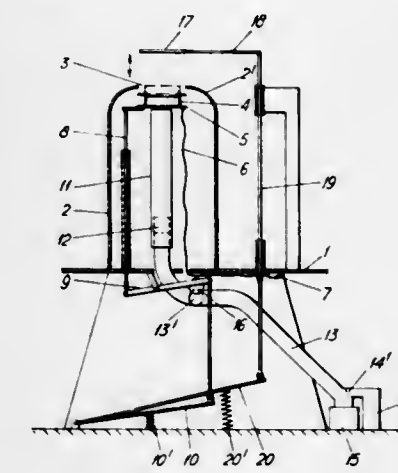
The apparatus for shearing a stated quantity of each of a number of different sized parts from sheet stock including a shear having gauges set automatically to determine the amount of cutoff, controlled means for returning predetermined cutoffs to the operator for further processing, and a control structure to indicate to an operator the orientation of stock feed for the next cut.

3,600,994
APPARATUS FOR CUTTING OUT A NECK-PORTION OPENING FROM AN ARTICLE OF CLOTHING
Jean Zapater, Ganges, France, assignor to Societe Rhodiacta, Paris, France

Filed Nov. 14, 1969, Ser. No. 876,878
Claims priority, application France, Nov. 15, 1968, 173992
Int. Cl. B26d 7/06

U.S. Cl. 83-100

6 Claims



Apparatus for cutting the neck portion opening of an article of clothing, e.g. a pullover, of thermoplastic material in-

cluding a hollow, bust-shaped former having an aperture in the flattened upper portion thereof. A transparent reference plate is used to locate the pullover on the former, and a heated cutter within the former is raised to cut out the neck portion. The waste material is removed downwardly through a suction tube.

3,600,995
PLATE SHEARS
Eduard A. Hanni, Zofingen, Switzerland, assignor to Hammerle A.G., Zofingen, Switzerland
Filed Nov. 17, 1969, Ser. No. 877,187
Claims priority, application Austria, Nov. 15, 1968, A11161/68
Int. Cl. B26d 7/06
U.S. Cl. 83-157 4 Claims

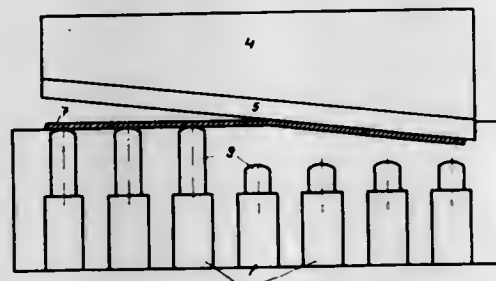
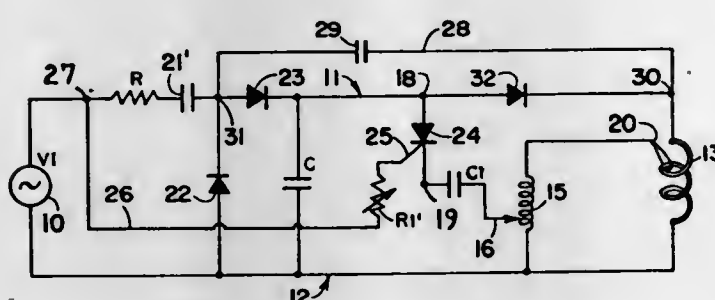


Plate shears having a frame, lower and upper, reciprocable knives, spaced-apart groups of support members in the track in which the upper knife is movable, a locking device for some of the support members, for holding them with their upper contact surfaces flush with the table of the shears, and control means for unlocking the locking device after the upper knife has reached a predetermined position as it moves along the track.

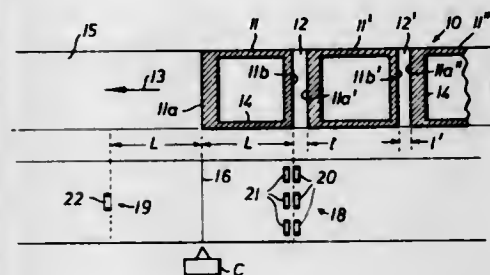
3,600,996
STROBOSCOPIC LAMP CIRCUITS
Henry N. Switsen, Los Angeles, Calif.
Filed Nov. 5, 1969, Ser. No. 874,098
Int. Cl. H05b 37/00
U.S. Cl. 315-200



A voltage boosting means is provided in a stroboscopic lamp firing circuit for substantially increasing the available voltage for firing the lamp at the point in time that the normal striking means is operated to ready the lamp for firing. The substantial increase in voltage for firing the lamp is provided by a capacitor which is charged to or partly to the normal firing voltage prior to initiation of the striking means for the lamp. A switch means utilized to initiate the striking means is able to sense the points in time at which the boosted voltage appears at the lamp, and will initiate the striking means at the proper time to utilize this boosted voltage. Since the operation of the switch means, which operation also operates the striking means, occurs when the boosted

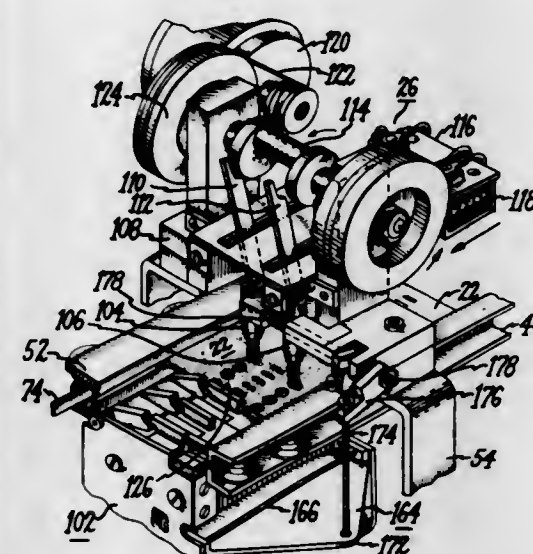
voltage is available to the lamp, substantially increased voltage is provided at the proper time for assuring firing of the lamp.

3,600,997
METHOD OF AND APPARATUS FOR EFFECTING SEVERANCE OF WEBS IN RESPONSE TO CHANGES IN TRANSPARENCY ALONG THEIR LENGTH
Werner Schmidt, Cologne-Sulz, Germany, assignor to Rheinische Braunkohlenwerke AG, Cologne, Germany
Filed July 30, 1969, Ser. No. 846,075
Claims priority, application Germany, Aug. 2, 1968, P 17 61 993.1
Int. Cl. B26d 5/34
U.S. Cl. 83-364 8 Claims



In order to automatically cut to size nonuniformly spaced photographs arranged serially to constitute a continuous web, a cutting mechanism to sever the web transversally is operated upon sensing the change in the transparency of the web between a dark margin that frames each photograph and a light strip separating each margin from that of an adjacent photograph. There are provided a first photoelectric sensing station which generates a control signal to stop the web feed and effect cutting when the leading edge of a photograph coincides with the severing path of the cutting mechanism and a second photoelectric sensing station which generates a control signal to stop the web feed and effect cutting when the trailing edge of the same photograph coincides with said severing path.

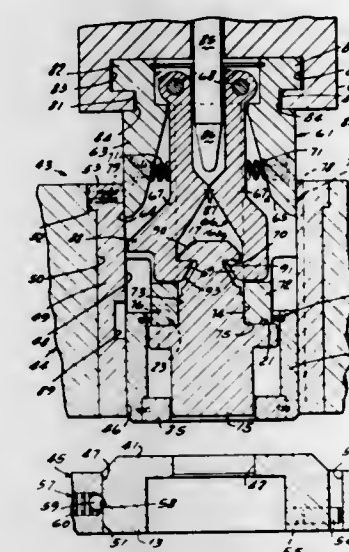
3,600,998
A TICKET PUNCHING MECHANISM AND STOP ASSEMBLY
Ansell W. Palmer, Hampton, N.H., assignor to General Electric Company
Division of Ser. No. 729,615, May 16, 1968, Pat. No. 3,530,968
Filed Dec. 29, 1969, Ser. No. 1,936
Int. Cl. B26d 5/02, 7/16
U.S. Cl. 83-391 2 Claims



A ticket punching mechanism and stop assembly especially useful in a ticket transport device. The ticket punching

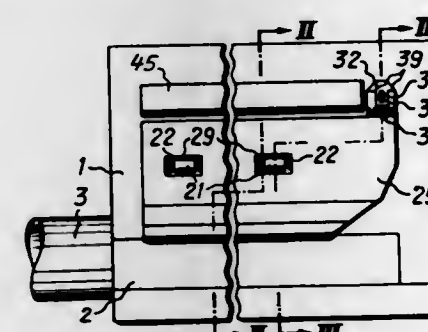
mechanism has a punch member moved into ticket punching engagement by means of a crank device. The stop assembly includes a plurality of slide bars actuated by solenoid devices to place a predetermined slide bar in stopping position with a ticket to provide for a predetermined punching of the ticket.

3,600,999
PUNCHING TOOL ASSEMBLY
Dennis Daniels, Williamsville, N.Y., assignor to Houdaille Industries, Inc., Buffalo, N.Y.
Division of Ser. No. 696,027, Jan. 5, 1968, Pat. No. 3,530,750, which is a continuation-in-part of application Ser. No. 629,335, Feb. 6, 1967, now Pat. No. 3,449,991, which is a continuation-in-part of application Ser. No. 528,856, Feb. 21, 1966, now abandoned
Filed Feb. 16, 1970, Ser. No. 11,639
Int. Cl. B26f 1/14
U.S. Cl. 83-686 5 Claims



A punch-member holder and drive assembly for being reciprocated in a guide portion of a punch press, said assembly comprising a body guided by said guide portion for reciprocation, the body having a lower surface engageable with the punch member and an inner locating surface also engaging the punch member, and releasable gripping means carried by the body for latching onto a head of the punch member.

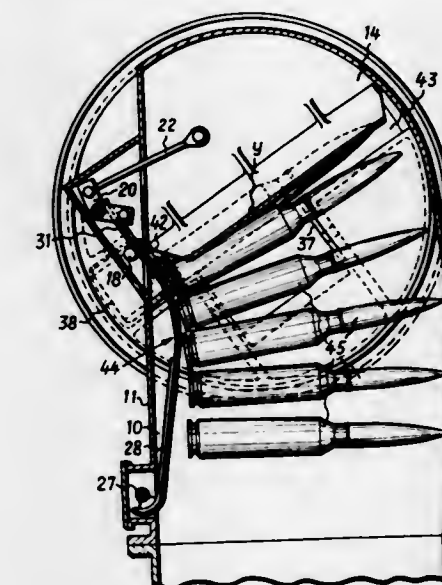
3,601,000
ROCKET LAUNCHER
Albert Schneider, Zurich, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland
Filed Nov. 28, 1969, Ser. No. 880,757
Claims priority, application Switzerland, Nov. 29, 1968, 17887
Int. Cl. F41f 3/04
U.S. Cl. 89-1.801 5 Claims



A rocket launcher having a magazine chamber which houses a loading tray which terminates into a launcher tube. A conveyor roller for feeding the rockets laterally into the loading tray. An apertured closure member having a

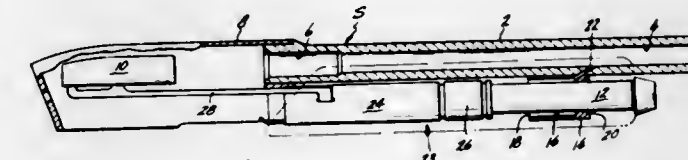
backscattering surface for the emerging rocket propelling gases and an apron member which acts as a further backscattering surface for the chamber arranged on the magazine chamber. In this way the torques which are exerted, in operation, on the magazine chamber and which are caused by the pressure of the rocket propelling gases on the two backscattering surfaces are of substantially equal size and are directed in opposite directions. The apron member forms a part of a flap member, which can be swung out under the pressure of the escaping rocket propelling gases.

3,601,001
ARRANGEMENTS FOR GUIDING CARTRIDGE BELTS
Erich Jenny, Dubendorf, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland
Filed Sept. 22, 1969, Ser. No. 859,735
Int. Cl. F41d 9/00 4 Claims



Means for guiding a cartridge belt from a first duct into a second duct pivotable relatively to the first duct through an aperture in a rotatable disc arranged parallel to the cartridges of the belt present in the ducts. A guide rail is arranged on a wall of the first duct and the wall is behind the end surfaces of the cartridges of the belt. The guide rail can be shaped in accordance with the position of the second duct relatively to the position of the first duct. A part of the guide rail, adjacent an aperture in the rotatable disc, is in each position of the disc arranged substantially parallel to the end surface of the cartridge passing through the aperture in the disc. The said part is pivotably mounted on a lever which is pivotable about an axis stationary relative to the first duct and a further part of the guide rail is pivotably mounted on the first duct. A rod is pivotably mounted, at or near one end, on the disc and, at or near the respective other end, on the lever.

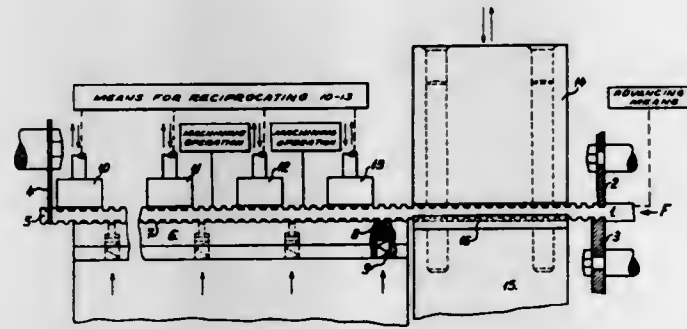
3,601,002
GAS PISTON FOR SHOTGUN
Stefan Kenneth Janson, New Haven, Conn., assignor to Olin Mathieson Chemical Corporation
Filed Feb. 14, 1969, Ser. No. 799,380
Int. Cl. F41d 5/10 7 Claims



A gas piston for use with a shotgun having a gas cylinder disposed externally on a tubular magazine, the piston being slidably mounted on the magazine. The piston includes a

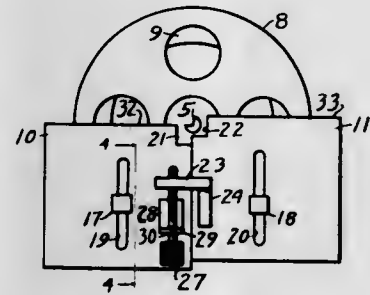
piston sleeve loosely mounted on the magazine and a piston head flexibly connected to the piston sleeve. The piston head may be longitudinally split for radial flexure, and a split ring may be interposed between the piston head and the piston sleeve for opposite radial flexure.

3,601,003
DEVICE FOR IMMOVABLY HOLDING A ROD DURING A MACHINING OPERATION
 Roland Guyot, Cortaillod, Switzerland, assignor to Lamex S.A., La Chaux de Fonds, Switzerland
 Filed Feb. 25, 1969, Ser. No. 802,140
 Claims priority, application Switzerland, May 29, 1968, 7947/68
 Int. Cl. B23c 3/00, 9/00
 U.S. Cl. 90—11 R 3 Claims



A device for immovably holding a rod during a machining operation comprises means for forming surface contours on the rod before the rod is advanced through a machining zone and a movable profiled surface coating with the surface contours on the rod to releasably hold the rod in place during the machining operation. A plurality of reciprocating holding members cooperate together to immovably hold the contoured rod against the profiled surface during the machining operation.

3,601,004
COMBINATION OF A ROUTER AND JOINTER
 Yasuo Oshiro, 99-138 A Waipao Place, Aiea, Hawaii
 Filed Aug. 27, 1969, Ser. No. 853,457
 Int. Cl. B23c 1/20; B27c 5/10
 U.S. Cl. 90—12 4 Claims

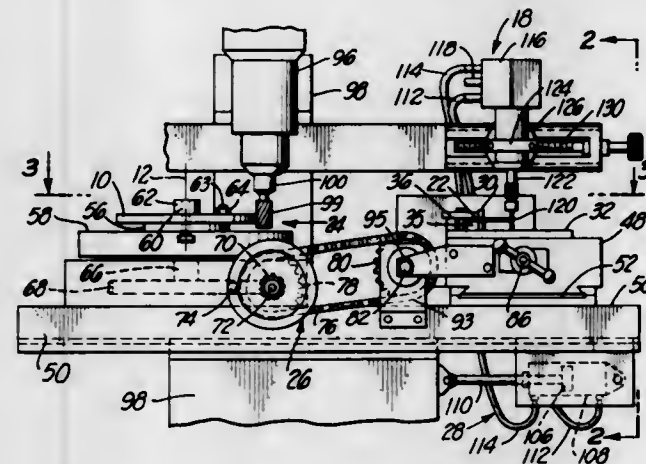


The combination of a router and jointer which is so arranged that the cutter thereof is aligned with the joint line of a pair of base plates which is coupled together for sliding relationship; and wherein the movable plate is microadjustable with the cutter.

3,601,005
CAM-FORMING METHOD AND APPARATUS
 John C. McKusick, 3495 E. Pico Blvd., Los Angeles, Calif.
 Filed Aug. 13, 1968, Ser. No. 752,217
 Int. Cl. B23c 1/18
 U.S. Cl. 90—13.9 11 Claims

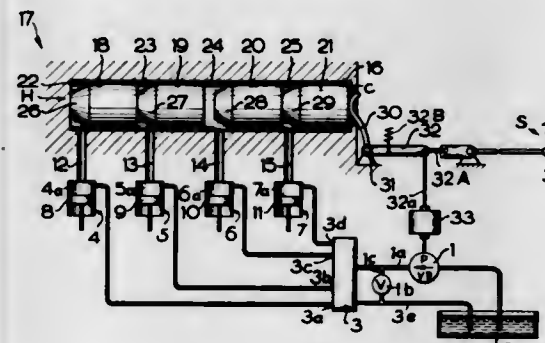
A method and apparatus wherein a predetermined linear pattern is scanned at a given rate while a cam blank is

rotated at a related rate and cut or marked at a radial distance which varies instantaneously with lateral changes in



the linear pattern whereby the outer edge of or marking on the finished cam corresponds to the linear pattern.

3,601,006
FLUID-PRESSURE-TRANSMITTING CONTROL ASSEMBLY
 Gunther Schwerin, Fellbach, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
 Filed Aug. 22, 1969, Ser. No. 852,337
 Claims priority, application Germany, Aug. 24, 1968, P 17 51 959.4
 Int. Cl. B23f 1/00
 U.S. Cl. 91—1 12 Claims

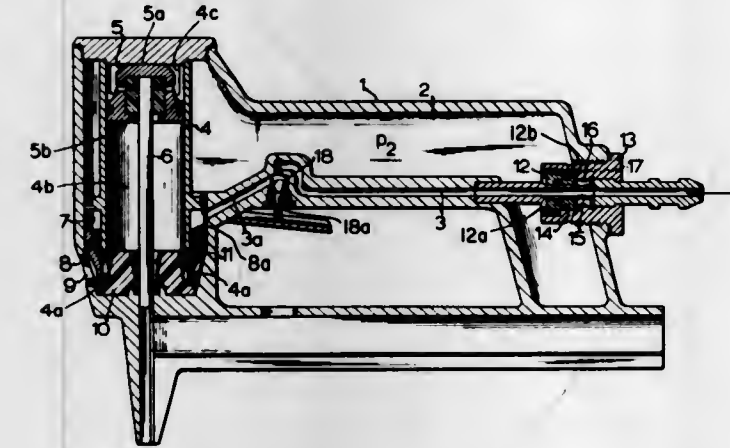


A control assembly which can adjust a regulator, gage, switch, potentiometer or another output device as a function of changes in fluid pressure comprises a housing whose chamber accommodates a row of coaxial plungers defining with the housing a series of compartments each communicating with a fluid-operated cylinder and piston unit wherein the pressure of fluid varies. The positions of plungers with reference to each other and with reference to the housing are indicative of fluid pressure in that compartment wherein the pressure is highest whereby a diaphragm, a lever or a like element directly or indirectly detects such positions of the plungers and adjusts the output device as a function of the highest fluid pressure.

3,601,007
PNEUMATICALLY OPERATED FASTENER DEVICE
 Jurgen Korth, 7 Birkenweg, 3001 Berenbostel, Germany
 Filed Nov. 25, 1968, Ser. No. 778,389
 Claims priority, application Germany, Nov. 24, 1967, P 16 03 847.4
 Int. Cl. F15b 15/17, 11/08, 13/042
 U.S. Cl. 91—165 7 Claims

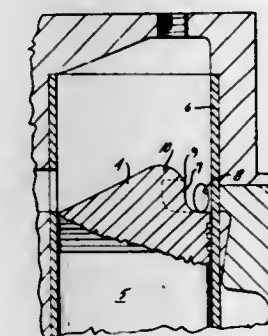
In a pneumatically operated fastener device with a movable piston which is returned by compressed air to its initial position, a differential piston valve means is provided to cause a pressure difference between compressed air supplied to one side of the piston and compressed air supplied to the

other side of the piston for moving the piston from an extended position to its initial position. The difference in pres-



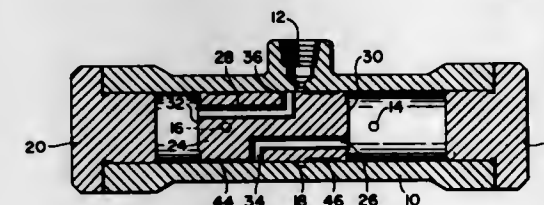
sure is obtained by a control element which slides in a supply passage and is guided in a bushing engaging the housing of said device.

3,601,008
ENGINE PISTON
 Charles F. Alexander, Jr., Oshkosh, Wis., assignor to Brunswick Corporation, Chicago, Ill.
 Filed Sept. 10, 1969, Ser. No. 856,584
 Int. Cl. F02f 3/24
 U.S. Cl. 92—141 8 Claims



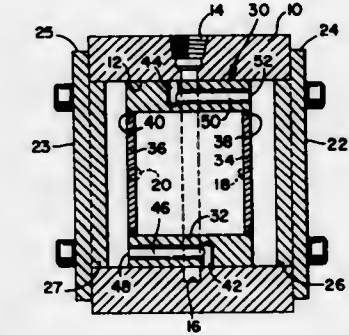
The baffle on the piston for a two-cycle engine has a sharp upper edge formed by an obtuse angle and a crowned top constructed to prevent overheating and destruction of the upper edge of the baffle.

3,601,009
PNEUMATICALLY DRIVEN SMALL DIAMETER PISTON STRUCTURE
 Warren C. Burgess, Jr., Avon Lake, Ohio, assignor to Burgess & Associates, Inc., Lakewood, Ohio
 Filed June 20, 1969, Ser. No. 835,003
 Int. Cl. F01l 21/02
 U.S. Cl. 91—234 5 Claims



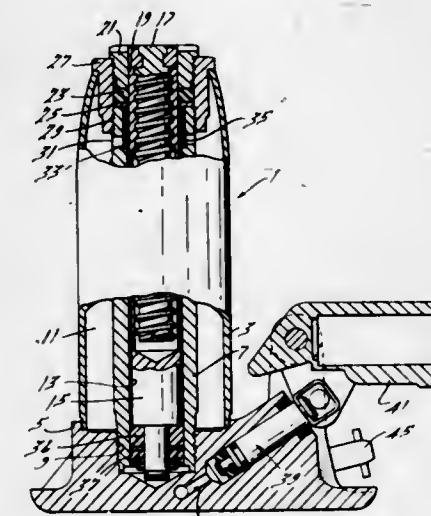
There is provided an improved structure for a small diameter piston used in a pneumatically driven free-piston vibration-inducing device. Such devices are subject to "surging" or variation in frequency. "Surging" is controlled or eliminated in such pistons by including means for restricting the piston surface area at minimum clearance from the cylinder wall, e.g. the provision of a peripheral groove or recess.

3,601,010
PNEUMATIC VIBRATION-INDUCING DEVICE
 Warren C. Burgess, Jr., Avon Lake, Ohio, assignor to Burgess & Associates, Inc., Lakewood, Ohio
 Filed Apr. 16, 1969, Ser. No. 816,497
 Int. Cl. F01l 21/02
 U.S. Cl. 91—234 5 Claims



There is provided an improved piston structure enabling the attainment of higher frequencies of vibration without sacrifice of piston diameter characterized by a cylindrical piston having a density which is less than the density of the housing. In a specific embodiment, the piston is hollow.

3,601,011
DIFFUSION RING FOR LIMITING HYDRAULIC RAM TRAVEL
 Lyle L. Arnes, Racine, Wis., assignor to Tenneco Inc., Houston, Tex.
 Filed July 22, 1969, Ser. No. 843,366
 Int. Cl. F15b 15/22, 21/04; F01b 31/18
 U.S. Cl. 91—402 5 Claims

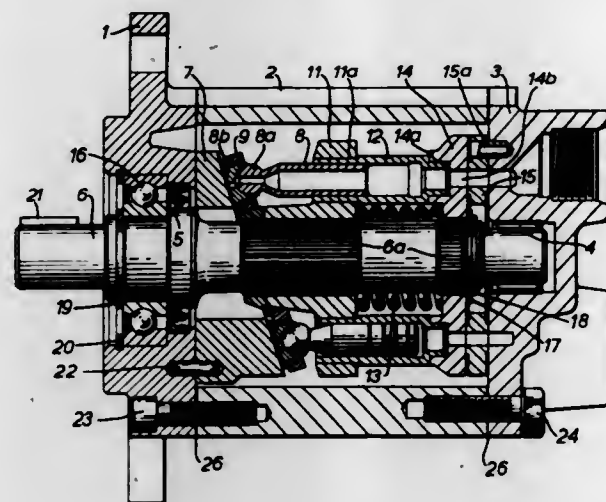


A porous sintered metal diffusion ring is used with one or more drain holes in a hydraulic jack to limit the power stroke of the ram.

3,601,012
FLUID PRESSURE DEVICES
 Harold George Oram, 285 Hangleton Road, Hove 4, Sussex, England
 Filed May 21, 1969, Ser. No. 826,504
 Claims priority, application Great Britain, May 24, 1968, 24,951/68
 Int. Cl. F04b 1/02
 U.S. Cl. 91—499 2 Claims

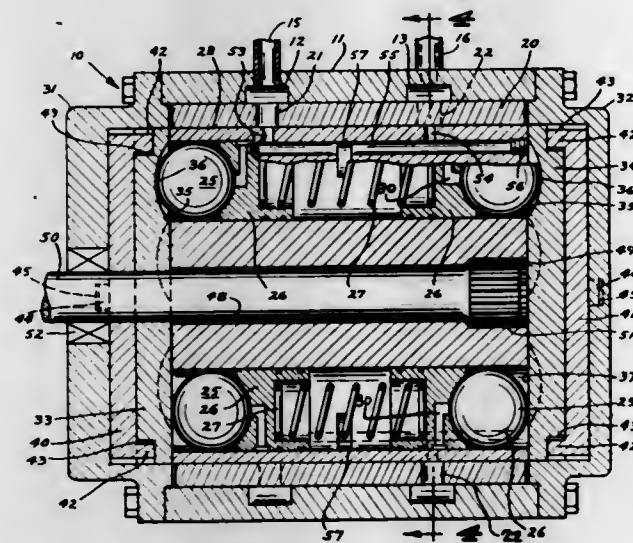
The present invention is concerned with fluid pressure pumps or motors of the type having a rotatable cylinder and a plurality of reciprocal pistons which abut a thrust plate inclined to the axis of rotation of the barrel. In order, among other things, to enhance such abutment a fluid pressure device of the invention is so constructed that the barrel is connected to a port plate by a plurality of sleeves in each of

which sleeves is reciprocally mounted a said piston. Sealing means are provided between each sleeve and the port plate holes provided along its length. The piston comprises two identical separate cast metal semicircular pieces which have



and in a preferred embodiment the port plate is associated with a stationary valve plate.

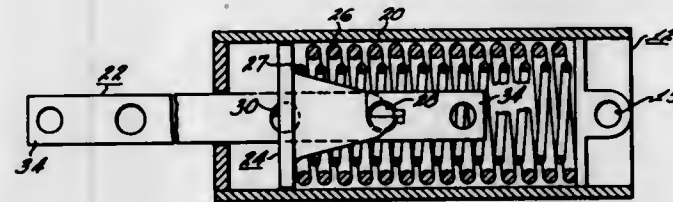
3,601,013
FLUID MOTOR OR PUMP
Victor N. Albertson, 4349 Browndale Ave., Minneapolis, Minn.
Filed Oct. 13, 1969, Ser. No. 865,889
Int. Cl. F04b 1/02
U.S. Cl. 91-501 8 Claims



A fluid motor utilizing axially reciprocating pistons acting in power cylinders against cam type tracks to cause rotation to a rotor as the pistons are moved in and out by alternately subjecting them to pressure or relieving them of pressure. Alternatively, the device may be used as a motor when external power is applied to the carrying member and the cylinders are moved in and out to cause a pumping action. Self-aligning mounting plates for the cam tracks are provided to insure ease of alignment under all operations, without binding or causing excessive wear. Unique porting is also utilized and adjustability in one form of the invention is provided for wear on the exterior of the rotating member.

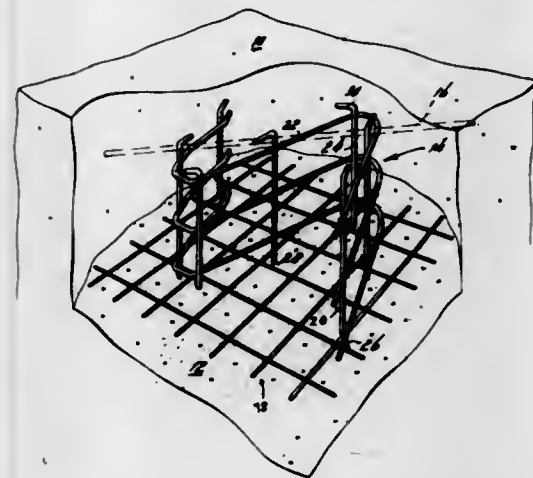
3,601,014
TWO-PIECE PISTON
Calvin E. Redfern, Portland, Oreg., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Oct. 13, 1969, Ser. No. 865,733
Int. Cl. F16j 1/00
U.S. Cl. 92-59 7 Claims

A counterbalancing device for use with an electrical disconnect switch comprises a cylinder which houses a piston, a piston rod and a biasing spring which bears against the piston. The cylinder is a length of standard metal pipe or tubing. The piston rod is a flat bar stock having one or more



reentrant projections on one face thereof which engage a hole in the piston rod.

3,601,015
COMPOSITE SPACER SEAT FOR REINFORCING FABRIC AND BARS
Lorin H. Kilstofte, 1840 Bonforte Blvd., Pueblo, Colo.
Filed May 22, 1969, Ser. No. 826,820
Int. Cl. E04c 5/16
U.S. Cl. 94-8 4 Claims



A composite spacer seat for reinforcing elements for paving construction including a base grid and a superposed vertically disposed geometrically configured spacer element connected to the base grid, the composite unit adapted to vertically support and position reinforcements in the construction, the grid and spacer element providing mutual stiffening for transmission of vertical loadings to a unit-supporting surface and the composite having positional stability.

3,601,016
IMPROVED PROCESS FOR LAYING DOWN AN ASPHALT LAYER ONTO PAVEMENT
Jacobus Pieter van der Ploeg, Velp, and Antoni Reinirus Harmsen, Rheden, both of, Netherlands, assignors to Algemene Kustzijde Unie, N.V., Arnhem, Netherlands
Filed May 7, 1969, Ser. No. 822,688
Claims priority, application Netherlands, May 16, 1968, G806900
Int. Cl. E01c 21/00
U.S. Cl. 94-23 1 Claim

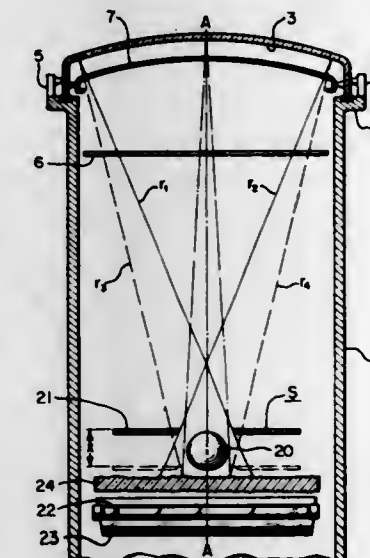
An improved process is provided for laying down an asphalt layer onto a cool asphalt pavement layer which comprises placing a preformed solid film on said cool asphalt pavement layer to placing hot asphalt on said cool pavement layer, said preformed solid film becoming adhesive when treated with said hot asphalt to bind said hot asphalt to said cool asphalt pavement layer wherein said film comprises a member selected from the group consisting of montan resin, tall oil resin, rosin, a synthetic polymer having a softening point above 50° C., and bitumen having a softening point above 50° C.

3,601,017
METHOD OF SUPPRESSING INTERFERENCE FRINGES IN PHOTSENSITIVE MATERIAL
Gotthard Glatzer, Hamburg, and Rolf Linde, Wedel/Holstein, both of, Germany, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 21, 1969, Ser. No. 878,756
Claims priority, application Germany, Nov. 23, 1968, P 18 10 627.9
Int. Cl. G03c 1/84 8 Claims

There is disclosed a method of suppressing unwanted interference fringes which are produced at interfaces of photosensitive information carriers, for example, holograms or interferograms, by reflection of light. The typical carrier of the hologram information consists of a photosensitive layer bounded on one side by air, on the other by a transparent support such as glass.

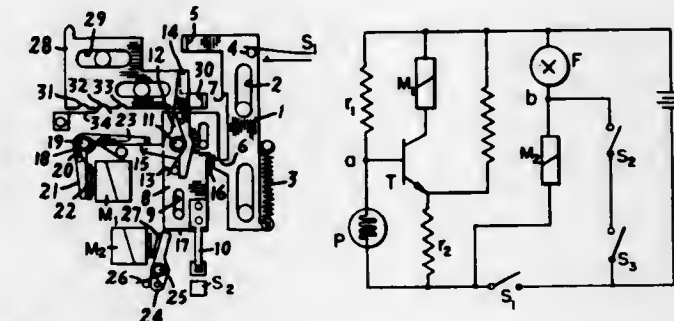
The recording of interference fringes is produced by two coherent beams which are simultaneously incident on the photosensitive layer. Unwanted interference fringes are removed by the application of an immersion layer to the photosensitive surface or to its transparent support, the thickness of which being varied in time during exposure.

3,601,018
METHOD AND APPARATUS FOR EXPOSING CURVED SUBSTRATES
Howard G. Lange, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Aug. 26, 1968, Ser. No. 755,156
Int. Cl. G03
U.S. Cl. 95-1 13 Claims



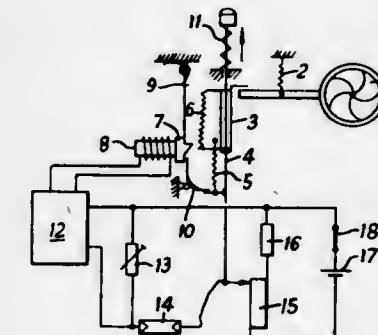
The internal surface of the curved faceplate of a color picture tube is coated with a photosensitive material to be selectively exposed through an aperture mask which has the same general configuration as the coated surface and is positioned in approximately spaced parallel relation thereto. The exposing light source is comprised of a planar source of diffused light disposed across a simulated color axis of the color picture tube, a spherical light stop concentric with that axis and defining the internal diameter of an annulus of light, and a planar light stop having a central aperture concentric with the spherical light stop and defining the external diameter of the annulus of light. The planar light stop is movable between a first position in which one half of the annulus of light is imaged on the peripheral portions of the substrate through the aperture mask and a second position in which the remaining light source is imaged on the same portions of the faceplate. The entire annulus of light is imaged on the central portion of the faceplate in each exposure step. The dimensions and shape imposed on the annulus of light by the dimensioning and configuration of the two light stops compensates the tendency to elliptical distortion introduced to the exposure light projected onto the substrate where that distortion is attributable to the curvature of the substrate and to the fact that the light source is displaced from the center of curvature of the faceplate.

3,601,019
CAMERA MECHANISM FOR AUTOMATIC EXPOSURE BY AMBIENT OR FLASH ILLUMINATION
Kiyoshi Kital, 13-13, 2-chome, Takasago, Katsushika-ku, Tokyo, Japan
Filed Sept. 24, 1969, Ser. No. 860,517
Claims priority, application Japan, Sept. 24, 1968, 43/68528
Int. Cl. G03b 9/00, 17/18; G01j 1/44
U.S. Cl. 95-10 C 4 Claims



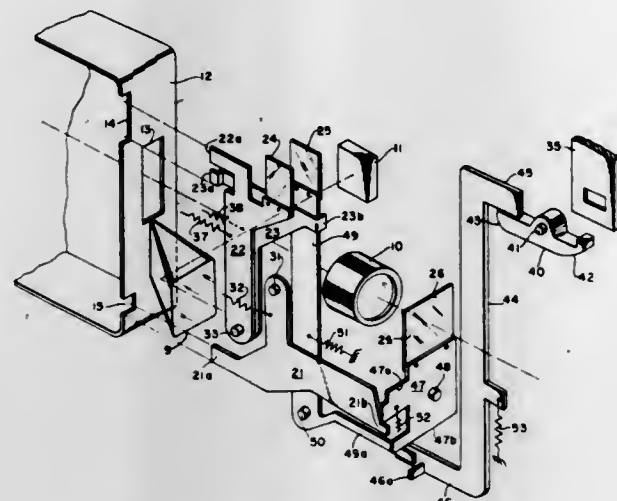
Camera shutter control device having a photoresponsive element detecting brightness of a field of exposure and control elements responsive thereto for programming or setting the camera for automatic control of flash and flashless exposures as a function of the brightness detected. The control device sets the camera for flashless exposures if the brightness is above a predetermined value and for flash exposures if the brightness is below this level. A lock automatically locks the control device to preclude taking of an exposure by flash photography, even if the brightness calls for use of a flash, in the event that the camera flash unit is not operative for whatever reason. A manual release will release this lock so that flashless exposures can be taken as timed exposures.

3,601,020
PHOTOGRAPHIC CAMERA
Hubertus Reimann, and Hans-Joachim Daeche, both of Dresden, Germany, assignors to SVEB Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany
Filed Feb. 26, 1968, Ser. No. 708,171
Int. Cl. G03b 7/08, 9/06, 17/18
U.S. Cl. 95-10 C 8 Claims



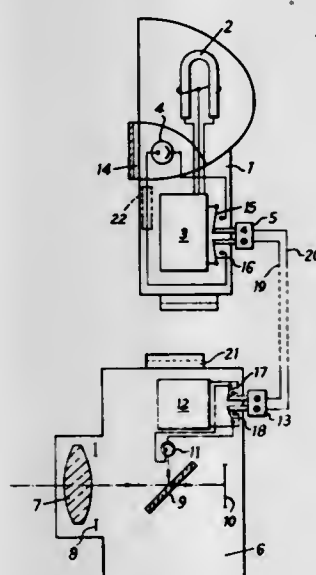
A photographic camera having an automatic exposure control circuit including a photoelectric resistance in which an exposure factor setting control influences the operation of a switching means which operates a magnetic-locking device. The locking device when operated locks the exposure factor-setting control in a position required for accurate exposure. A light indicator includes at least one lamp connected in circuit with a switch device operated by the switch means, a first switch closed by the initial movement of the exposure factor-setting control and a second switch closed by the exposure factor-setting control when it reaches its maximum exposure setting. The switches and switching device are effective to connect a lamp of the light indicator to a source of supply current to indicate a danger of incorrect exposure.

3,601,021
CAMERA EXPOSURE CONTROL
 Donald Oscar Easterly, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed July 22, 1968, Ser. No. 746,615
 Int. Cl. G03b 7/18, 11/00, 17/26
 U.S. Cl. 95—10 C



An exposure control system in a camera adapted to receive a film cartridge having tactile indicia representative of film speed and film type, including movable filters for varying the intensity and color balance of light incident on a photocell in the system in response to detected tactile indicia. The system also includes movable filters for varying the intensity and color balance of light transmitted through the objective of the camera in response to the detected film type indicia, and independent control means for removing the color balance filters away from the photocell and the objective.

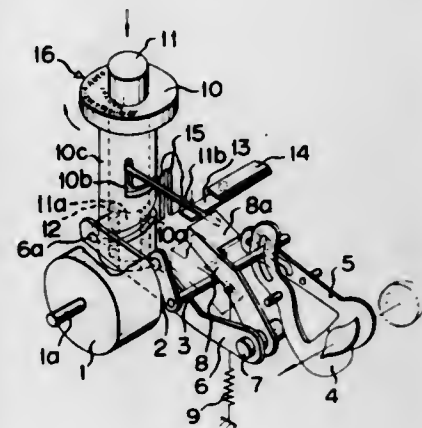
3,601,022
PHOTOGRAPHIC CAMERA
 Kurt Langnau, Dresden, Germany, assignor to VEB Pentacon Dresden Kamera-und Kenowerke, Dresden, Germany
 Filed Dec. 5, 1968, Ser. No. 781,481
 Int. Cl. G03b 7/08, 15/05
 U.S. Cl. 95—10 C



The photographic camera is provided with a flash apparatus which can be mounted on the camera housing or used at a remote position from the camera. The flash apparatus is provided with a photoelectric cell and a flash timing control device. The camera housing contains a photoelectric cell positioned in the optical path through the camera and normally used to control the shutter or diaphragm mechanism. An extension lead is provided for coupling the camera to the flash apparatus so that the photoelectric cell in

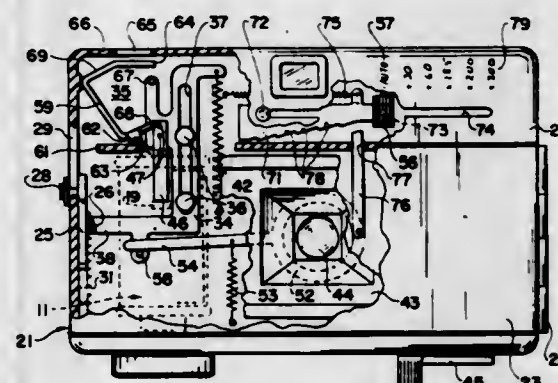
the camera housing influences the control device of the flash apparatus whilst at the same time rendering the cell of the flash apparatus inoperative.

3,601,023
MANUAL DIAPHRAGM SETTING DEVICE FOR A CAMERA HAVING AUTOMATIC EXPOSURE ADJUSTING DEVICE
 Yozo Iida, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan
 Filed June 12, 1969, Ser. No. 832,623
 Claims priority, application Japan, June 26, 1968, 43/54,196
 Int. Cl. G03b 7/12, 9/02
 U.S. Cl. 95—10 C



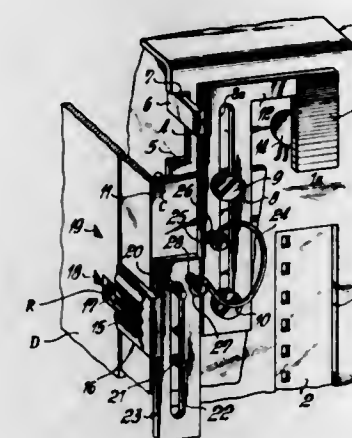
A manual control for the diaphragm of a camera is provided to override the automatic setting of the diaphragm by an exposure meter built into the camera. By a scissoring, or pinching action of two levers pivoted on a common shaft, a rocker actuating shaft controlling the automatic setting of the aperture blades is moved into and held in a desired aperture setting position upon depression of a pushbutton and rotation of an aperture setting sleeve. An operating rod movable upon depression of the pushbutton permits biased movement of one lever and also opens the exposure meter circuit. A cam groove in the aperture setting sleeve positions the other lever to the desired aperture setting positions.

3,601,024
EXPOSURE-ADJUSTING SYSTEM FOR STILL OR MOTION-PICTURE CAMERAS
 Armin B. Pagel, Janesville, Wis., assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed May 21, 1968, Ser. No. 730,792
 Int. Cl. G03b 19/04, 17/20
 U.S. Cl. 95—31 FS



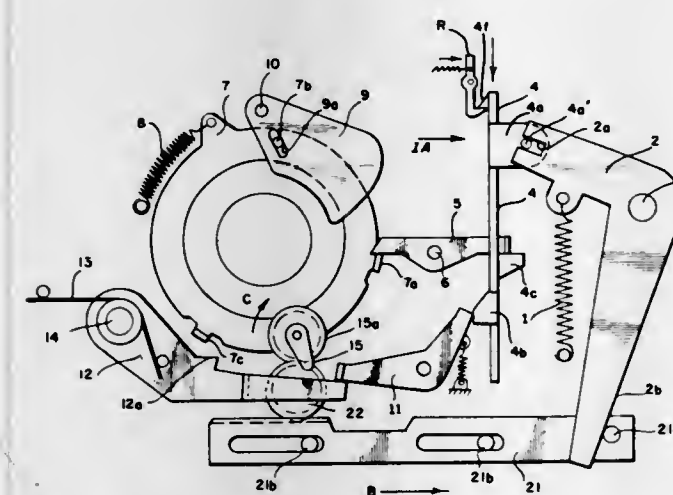
A photographic or cinematographic camera including a mechanism adjustable by coding means on a film container includes means for also adjusting that mechanism manually and a signal device for alerting the operator of the necessity for such manual adjustment whenever the film container loaded into the camera is not coded in a manner compatible with such automatic adjustment.

3,601,025
APPARATUS FOR ADJUSTING EXPOSURE CONTROLS OF PHOTOGRAPHIC CAMERAS
 Albert Stierlinger, Calmbach, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart Untertuerkheim, Germany
 Filed Mar. 7, 1969, Ser. No. 805,227
 Claims priority, application Germany, Mar. 27, 1968, P 12 78 223.9-51
 Int. Cl. G03b 09/18, 19/04
 U.S. Cl. 95—31 FS



A photographic camera which utilizes magazines provided with markers indicating the sensitivity of film therein. The marker of a magazine which is inserted into the camera is scanned by a scanning member which is coupled to the door-locking device of the camera by a looped snapover spring. When the locking device is moved by hand to an inoperative position in which the user can open the door to gain access to the magazine in a camera housing, the spring biases the scanning member to a predetermined starting position. When the door is closed and the user moves the locking member toward operative position, the spring snaps over and shifts the scanning member into engagement with the marker of the inserted magazine. The spring then biases the scanning member against the marker and simultaneously opposes movement of the locking member from operative position.

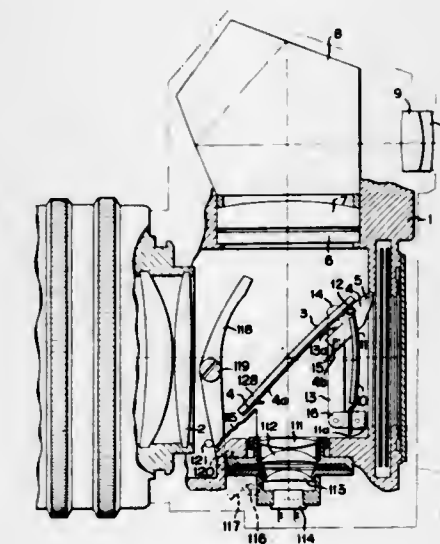
3,601,026
SINGLE-LENS REFLEX CAMERA
 Helmut Ettischer, Ruit/Krs. Esslingen, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed July 15, 1968, Ser. No. 744,968
 Int. Cl. G03b 19/12
 U.S. Cl. 95—42



An operating mechanism for a single-lens reflex camera has a slidable control member to which are coupled a shutter setting mechanism, a mirror-actuating mechanism, and a

shutter blade retaining lever. Displacement of the control member from an initial position synchronously effects the closing of the shutter and the movement of the mirror to a viewing position prior to exposure, the operation of the shutter to make an exposure, and the activation of the previously deactive retaining lever to prevent rebounding of the shutter blades. The control member is then returnable to its initial position whereby it resets the operating mechanism.

3,601,027
VIEWING MIRROR AND LIGHT SHIELD ARRANGEMENT FOR A SINGLE LENS REFLEX CAMERA
 Shigeo Ono, Yokohama-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan
 Filed Aug. 1, 1968, Ser. No. 749,526
 Claims priority, application Japan, Aug. 11, 1967, 42/69265
 Int. Cl. G03b 19/12
 U.S. Cl. 95—42

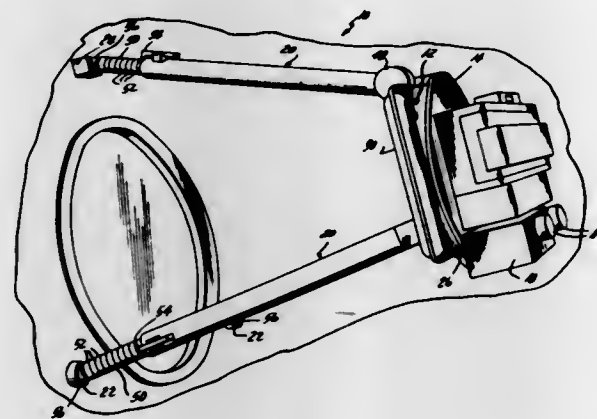


An arrangement for the viewing mirror of a single lens reflex camera having a through-the-lens photometric system, is provided for effectively shielding the photocell from light rays entering the objective lens during viewing and exposure operations. A pivotable baffle plate is provided within the mirror compartment of the camera, which is pivoted between the two light shielding positions upon movement of the viewing mirror to its raised and lowered positions by the mirror mechanism of the camera. In addition to the viewing mirror, a concave mirror is disposed behind and pivoted to the viewing mirror to direct the image light rays back to the rear of the viewing mirror where they are then reflected onto the photocell surface. The pivotal connection between the concave mirror and the viewing mirror is such that a large aperture or window is provided for the viewing mirror so that a large bundle of image rays will pass through the semitransparent viewing mirror and be directed onto the surface of the photocell through a relay lens system. The concave mirror effectively seals the aperture or window in the viewing mirror when the mirrors are in their raised positions.

3,601,028
CAMERA TRIPOD
 Everett A. Tertocha, Burbank, Calif., The United States of America as represented by the Secretary of the Navy
 Filed Feb. 12, 1970, Ser. No. 10,833
 Int. Cl. G03b 17/56
 U.S. Cl. 95—86

A stationary baseplate having a large centralized opening therein and supported by three spaced leg members. A camera ring with a camera mounting block positioned on one edge thereof is rotatably mounted on the upper surface of the baseplate and encompasses the centralized opening therein.

This camera mounting device is adapted to position a camera inlet opening. By way of example, the invention is disclosed so as to focus on an object through the baseplate opening. It as used for maintaining that degree of vacuum in a poultry



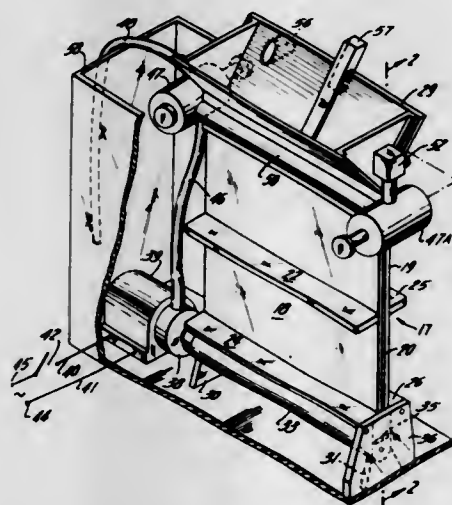
permits accurate photography without any blurring, yet is instantly removable to permit other functions.

3,601,029
PHOTOGRAPHIC FILM AND PAPER PROCESSING APPARATUS

Samuel Needleman, 177 Louis St., Maywood, N.J.
Continuation-in-part of application Ser. No. 751,861, Aug. 12, 1968, now Patent No. 3,538,835. This application May 21, 1969, Ser. No. 826,501
Int. Cl. G03d 3/02

U.S. Cl. 95—89 R

7 Claims



A photographic sheet material processing apparatus. The apparatus comprises an upright vessel of flat configuration having a narrow chamber filled with processing solution in which the material may be inserted. An applicator nozzle, below the level of the solution and in communication with the chamber and operated by a pump, directs a stream of the processing solution in the chamber against the emulsion side of the material, resulting in a laminar flow.

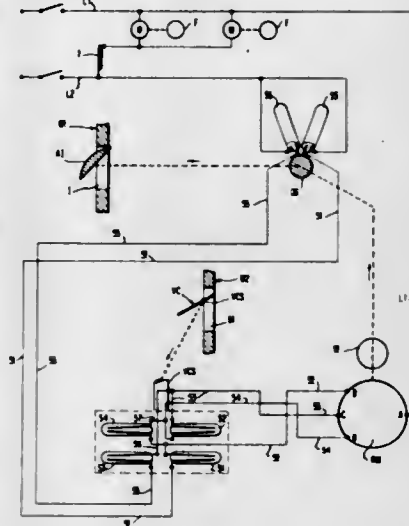
3,601,030
APPARATUS FOR MAINTAINING A DESIRED VACUUM WITHIN AN ENCLOSURE

Omar W. Bryant, R.F.D. #2, Brooks, Maine
Filed Aug. 15, 1969, Ser. No. 850,363
Int. Cl. F24f 13/00

U.S. Cl. 98—32

16 Claims

The vacuum within an enclosure from which air is exhausted for, e.g., ventilation, is maintained at a desired degree by controlling the effective size or area of an air inlet opening in one wall of the enclosure in dependence upon the degree of vacuum in a region adjacent to a different wall of the enclosure, preferably a wall opposite that having the air

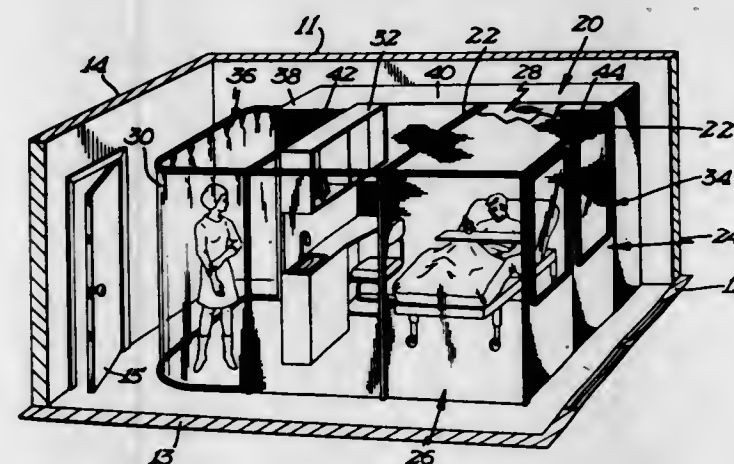


house believed to be most conducive to feed conversion and growth of poultry.

3,601,031
PATIENT ISOLATOR ROOM
Kenneth Abel, New Brighton; Arnold W. Blomquist, St. Paul; Richard K. Olson, Minneapolis, and Keith A. Ufford, Minneapolis, all of, Minn., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Filed Sept. 22, 1969, Ser. No. 859,994
Int. Cl. F24f 13/00

U.S. Cl. 98—33

1 Claim



The invention relates to a patient isolator room which is designed and adapted to be assembled within the confines of an ordinary hospital room. The isolator room is equipped with an airflow and filtering system which functions to isolate a patient from micro-organisms present in a hospital environment and, vice versa, to isolate a patient having an infectious disease.

3,601,032
MOUNTING STRUCTURE FOR DUCTBOARD PLENUM CHAMBER ASSEMBLY

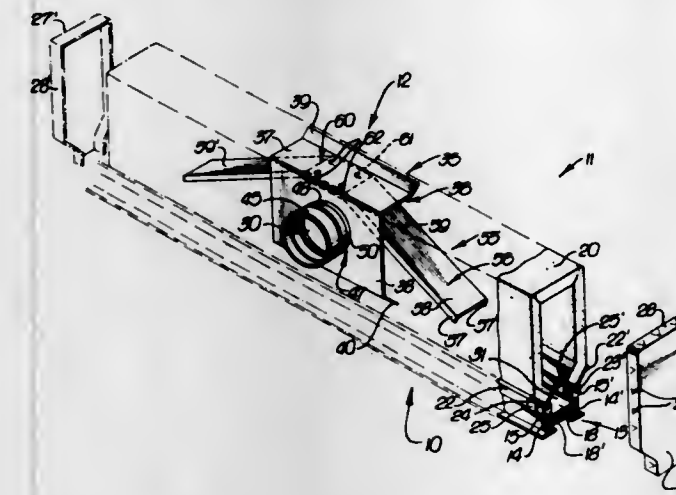
Robert R. Lambert, Glendora, Calif., assignor to Air Factors, Inc., Covina, Calif.
Filed Aug. 7, 1969, Ser. No. 848,202
Int. Cl. F24f 13/04

U.S. Cl. 98—40 D

9 Claims

A mounting structure means for mounting air-directing means within an air plenum chamber duct assembly of folded ductboard, mounted upon an air diffuser assembly, comprising a support body of preformed sheet metal formed in the general shape of the interior of the duct to be held in fixed relation therein by the interengagement of corresponding

surfaces. The body has flanges which extend under clips or into slitlike openings in the duct to aid in maintaining the body in position. The body mounts an air inlet collar and/or

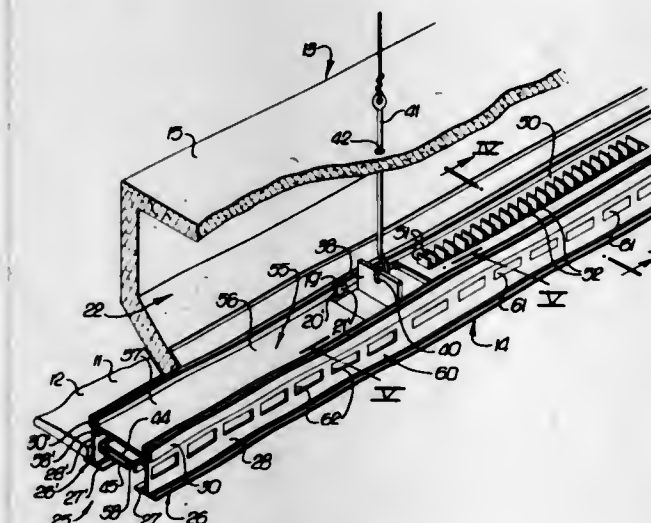


air vanes of either channel or angle cross section to direct the air from the inlet to the outlet of the plenum chamber duct assembly and through the air diffuser assembly.

3,601,033
AIR DIFFUSER ASSEMBLY WITH INTEGRAL AIR RETURN
Robert R. Lambert, Glendora, Calif., assignor to Air Factors, Inc., Corina, Calif.
Filed Sept. 4, 1969, Ser. No. 855,108
Int. Cl. F24f 7/00

U.S. Cl. 98—40 D

13 Claims



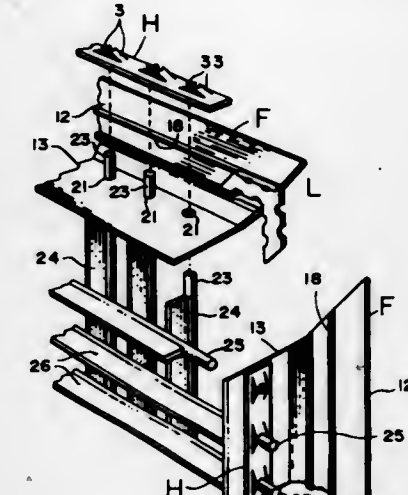
A suspended-ceiling integrated air distribution system air diffuser assembly of spaced inverted T-bar support members has a blank-off channel mounted therein for blanking off a portion of the assembly from a continuous outlet of an air plenum chamber, and a series of openings through the members at the portion of the assembly for venting air from a room into an attic space above the ceiling and outside the plenum chamber. The openings are initially closed by removable knock-out plates and the openings may be selectively closed after once being opened by plates removably mounted to the members to selectively change the flow of air in the room.

3,601,034
DIFFUSER STRUCTURE
John G. Thorne, Hollywood, Fla., assignor to Miller Industries, Inc., Miami, Fla.
Filed Nov. 21, 1969, Ser. No. 878,819
Int. Cl. F24f 13/08

U.S. Cl. 62—110

1 Claim

A diffuser having a frame made of L-shaped members corner lock means securing the L-shaped members together, a plurality of louvers extending between the L-shaped mem-

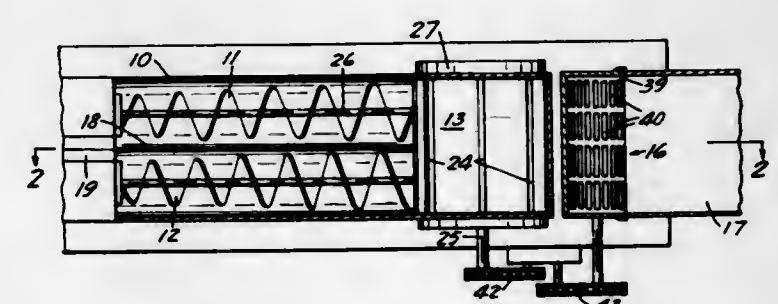


bers, the louvers having pins mounted at their end portions extending through openings in the frame members and an elongated flat multiblade-holding strip extending along the

3,601,035
APPARATUS FOR TREATMENT OF PLASTIC MATERIAL
Charles T. Linder, Harris, Minn., assignor to Land O'Lakes, Inc., Minneapolis, Minn.
Filed Feb. 4, 1970, Ser. No. 8,628
Int. Cl. A23d 3/02

U.S. Cl. 99—244

4 Claims



New apparatus is taught for feeding and moving plastic material into and through a conduit. The apparatus has a hopper with an open mouth for receipt of plastic material. The discharge end of the hopper is connected to the entrance of a conduit wherein treatment of the plastic material takes place.

At least one rotatable helical screw is located in the bottom of the hopper. Normally two such screws rotatable in opposite directions are in the bottom. Above the screws, in a spaced relationship from them, is a rotatable drum. This drum is disposed on an axis transverse to the axis of the screws. It has in its periphery a plurality of axially aligned radially extensible and retractable vanes. At least a portion of the periphery of the drum is exposed to the interior of the hopper adjacent the discharge end of it. Radially extended vanes of the drum press plastic material in the hopper toward the helical screws.

A shoeplate member is interposed in the space between the drum and helical screws. The shoeplate has a blunt leading edge substantially parallel to the axis of the drum. This blunt leading edge lies adjacent the periphery of the drum. It is located, in terms of a drum radial angle, between 5° and 30° toward the hopper from a base plane perpendicular to the helical screws within which the drum axis lies.

Means are provided for radially extending the drum vanes outwardly from the drum periphery so as to place them in a position to press plastic toward the helical screws in the portion of drum rotation exposed to the interior of the hopper.

Also, means are provided for retracting the vanes prior to passage of the drum periphery over the blunt leading edge of the shoeplate member.

3,601,036 BARBECUE

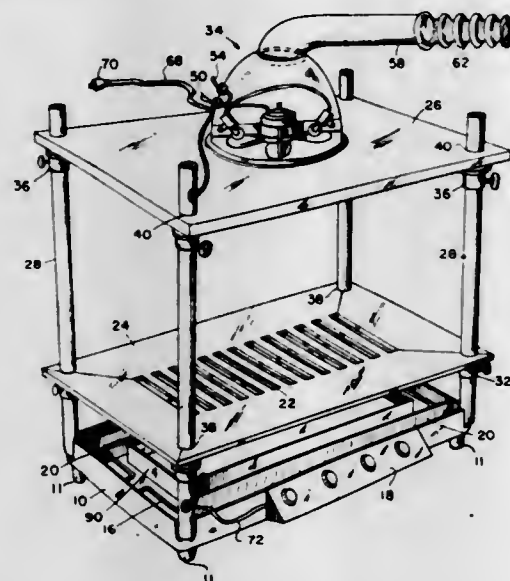
Henry Von Kohorn, Pecksland Road, Greenwich, Conn.

Filed Jan. 26, 1970, Ser. No. 5,683

Int. Cl. A47j 37/07

U.S. Cl. 99—339

9 Claims



A portable barbecue having a central open grill and a surrounding hot plate or griddle adjustably positioned above a housing accommodating a source of heat. A compartment is formed in the bottom of the housing to accommodate food drippings and partitions surround the compartment to prevent direct radiation from the heating elements toward the food drippings. A fume- and exhaust-removing device is adjustably secured in a spaced warming shelf and conducts the exhaust fumes laterally away from the barbecue.

3,601,037

CONTINUOUSLY OPERATING REVOLVING BROILER

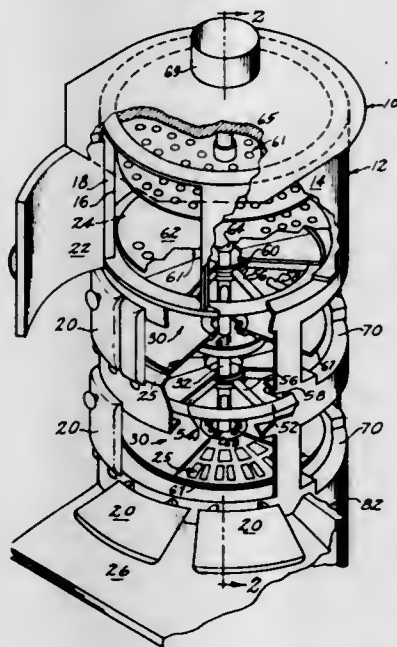
Basil H. Giaretta, Decatur, Ga., assignor to Broil-O-Matic Corporation, Stone Mountain, Ga.

Filed Mar. 20, 1969, Ser. No. 808,834

Int. Cl. A47j 37/06

U.S. Cl. 99—443

15 Claims



A broiler for restaurants, clubs and the like, for cooking meat on both sides simultaneously on a series of spaced broiler shelves by means of intense infrared reflective heat, therefore virtually without carbon monoxide, whereby steak, chicken, fish and other foods can be cooked within a few minutes, say 3 to 12 minutes depending upon the size and

type of food being cooked, and each food being cooked in an individual aluminum pan or casserole. Provision is made for adjusting both the temperature in the cooking zone, and the speed of rotation of the revolving shelves for varying the length of cooking time. A wall-insulated body or cabinet of black steel construction has an array of spaced shelves therein which are power driven respectively about a center shaft. Steel brackets on the interior of said cabinet support in fixed position gas burners, each constructed like a wheel with the burner orifices spaced along the spokes thereof. Segmented fire bricks constructed from refractory ceramic material absorb the direct flame coming from the burner rings, so that cooking is done by infrared reflected heat at temperatures as high as 800° Fahrenheit. Loading doors for each shelf provide access whereby items may be placed on the shelf and automatically removed with the aid of an ejector bar feeding onto a conveyor.

3,601,038

FIREHOSE RETRACTOR

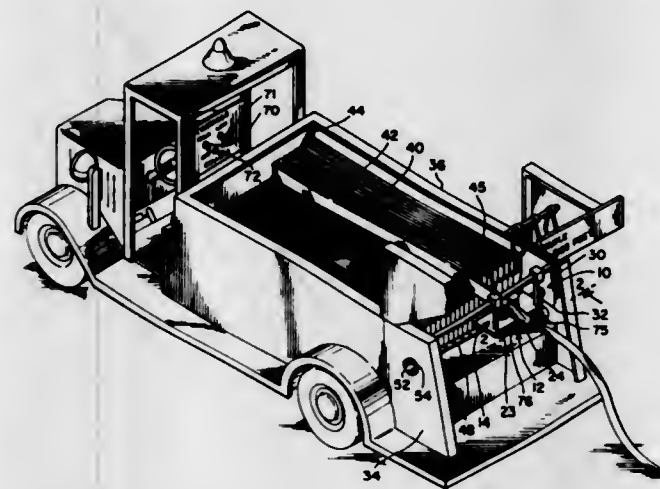
Robert Henry Hayes, Parkway Beach Court Lot 23, Pomona, N.Y.

Filed Sept. 22, 1969, Ser. No. 859,886

Int. Cl. B30b 3/04

U.S. Cl. 100—100

8 Claims



An automatic retractor for a fire hose has laterally juxtaposed axially vertical rollers mounted on a laterally movable carriage. A hose guide ring is mounted on the carriage to guide the hose between the rollers. Individual electric motors drive the rollers. The motors are laterally connected by a spring. One motor is laterally movable on the carriage so that rollers can separate against spring bias when a hose coupling is encountered. The carriage is driven by a motor-driven shaft having a double helical groove. A groove follower carried by the carriage is engaged in the groove to move the carriage laterally in opposite directions.

3,601,039

SLUDGE-DEWATERING APPARATUS

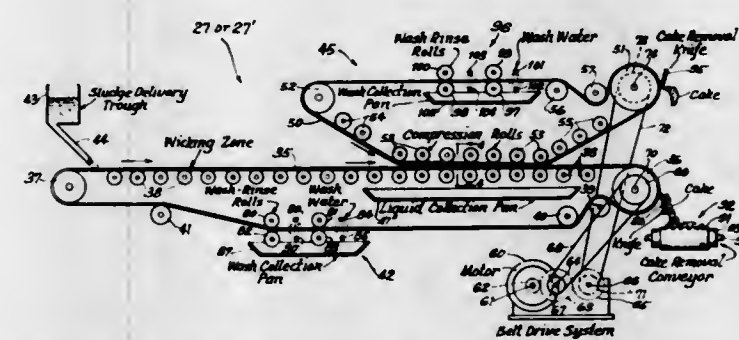
Donald S. Schover, Highland Park, Ill., assignor to General American Transportation Corporation

Filed Nov. 4, 1968, Ser. No. 773,204

Int. Cl. B30b 9/24

U.S. Cl. 100—118

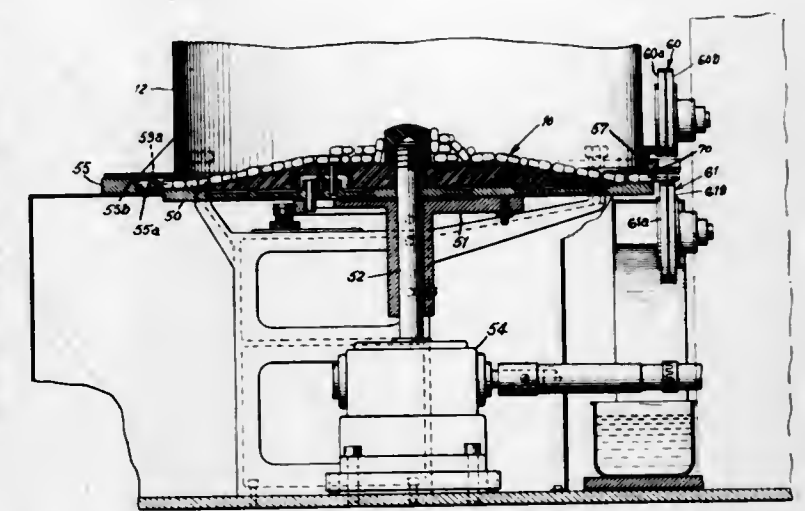
12 Claims



A process and an apparatus, for continuous operation of the process, dewater sludges and mixtures of sludges. An illustrative sludge is secondary or activated sludge that is ob-

tained after biological flocculation and settling of aqueous liquid that remains after separation of primary sludge in the treatment of domestic sewage solely or admixed with industrial sewage. In the process sludge is fed to the top surface of a suitable, compressible, resilient sheet of porous cellular material, preferably hydrophilic. A downward pressure, preferably through an overlaying sheet of such material, forces liquid at least through the bottom sheet, from which it is separated. When using the second sheet, sludge is trapped between the sheets prior to and during the pressure application. After that separation of liquid, pressure is released. De-watered sludge cake is removed from the bottom sheet. In the apparatus an endless belt of such cellular material is moved past a sludge feeder and then under a compression device using a moving endless belt to apply the pressure. Advantageously the latter belt is of such material, but it may be a liquid-imperious belt relatively nonadherent with respect to sludge cake. Preferably the first belt is also compressed just prior to sludge addition.

these slotted paths. A pair of opposed printing members are positioned over the peripheral edge portion of the rotating



3,601,040

COMPRESSION PACKER APPARATUS HAVING A DOOR

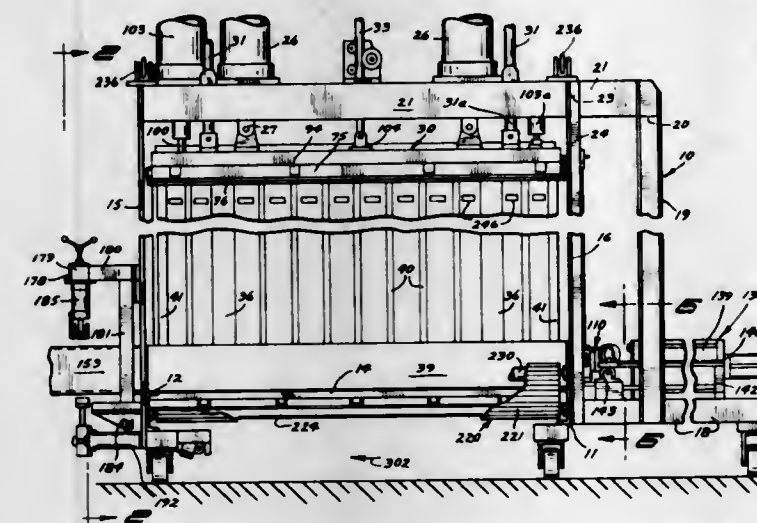
Leslie A. Steinberg, Minneapolis; Jack D. Helm, Maple Plains, and Thomas F. Shovlin, Minneapolis, all of, Minn., assignors to Bemis Company, Inc., Minneapolis, Minn.

Filed Mar. 19, 1970, Ser. No. 20,990

Int. Cl. B30b 1/32

U.S. Cl. 100—179

39 Claims



Compression packing apparatus having a bottom press plate, sidewalls, a transversely movable backwall assembly for varying the width of the loading chamber, a vertical ram assembly, a horizontal ram assembly, a spout assembly and drive mechanism for translating the backwall assembly for selectively varying the width of the loading chamber. Each of the vertical ram, horizontal ram and spout assemblies have extensible portions connected to the backwall assembly to be moved thereby between extended and retracted positions. Further, there is provided a horizontally slatted-type door for closing the loading opening that may be moved to a closed position by selected increments for progressively more nearly closing the loading opening, the door being movable vertically upwardly toward a closing position. Additionally, there is provided a precompression assembly.

3,601,041

APPARATUS FOR FEEDING AND PRINTING TABLETS AND CAPSULES

Andrew G. Perre, Jr., North Swanzy, and Frank W. Sawtelle, Keene, both of, N.H., assignors to Markem Corporation, Keene, N.H.

Filed Apr. 22, 1969, Ser. No. 818,339

Int. Cl. B41f 17/36

U.S. Cl. 101—37

11 Claims

Apparatus for orienting and selectively printing capsules or tablets on one or two sides at rates of 10,000 or more units per minute, comprised of a hopper for carrying a bulk supply of capsules which is set over a rotating disc having slotted radial paths. As the capsules fall on to this rotating disc, they are centrifugally thrown toward the outer periphery along

disc so that the capsules are passed between these printing members and then discharged into a hopper by an air jet.

3,601,042

METHOD AND APPARATUS FOR PRINTING TAGS

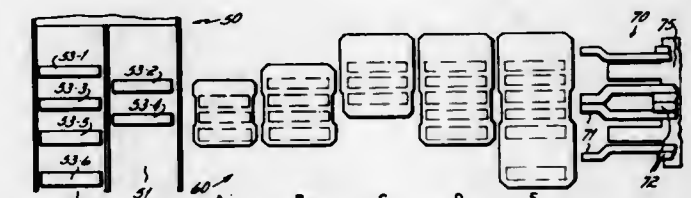
Paul H. Hamisch, Sr., Dayton, Ohio, assignor to The Monarch Marking System Company, Dayton, Ohio

Filed July 6, 1970, Ser. No. 52,651

Int. Cl. B41f 15/14

U.S. Cl. 101—69

41 Claims



A method and apparatus for printing closely spaced lines of characters on a series of tag parts, with a minimum of printing strokes and without the printing of extra tag parts, using a two section printhead having a plurality of band-set lines staggered between the two sections. Each tag part is fed part each printhead section and is partially printed by each section to be completed in two printing strokes. Adjacent tag parts are printed simultaneously by different sections of the printhead. One print stroke more than the total number of tag parts is employed. The feeding of blanks is inhibited during the last feed cycle. Counters control the printing of a selected number of single or multiple part tags through solid-state circuitry, and control the printing, feeding and cutting of tags, and the starting and stopping of the machine which prints them. The controls employ a combination of electrical and mechanical signals for driving, synchronizing, conditioning and enabling the various operations. A portion of the guideway is depressible to expose a cutting edge of the platen, a two section printhead structure with telescoping dials, and selective tag guides which retract into the guideway for accommodating various tag sizes are also provided.

3,601,043

ADJUSTABLE CHECK WRITER WITH PLURAL PRINTING STATION

Vernon W. Cook, Jr., P.O. Box 266, Pearson, Ga.

Filed June 2, 1969, Ser. No. 829,517

Int. Cl. B41f 19/04; B41f 1/04

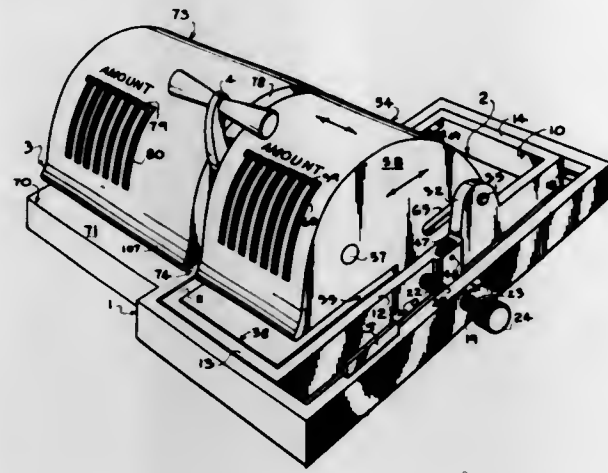
U.S. Cl. 101—90

8 Claims

This invention relates to a check-writing machine provided with two print stations supported for both lateral and fore and aft adjustment relative to each other. One of the print stations is provided with a signature block and each of the print stations include a series of print elements selectively

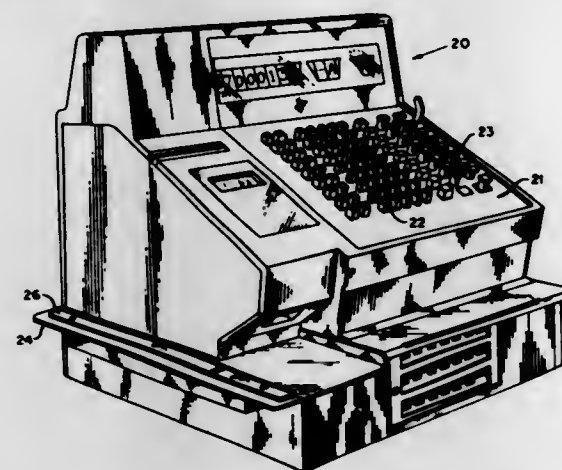
settable relative to a print line. A platen mechanism is provided on the check writing machine for effecting a simultaneous

several operating elements of the press and carrying a single control knob in such a manner that the machine is started and operated by turning the knob stepwise in one direction



ous print out of information set in the print elements and contained in the signature block.

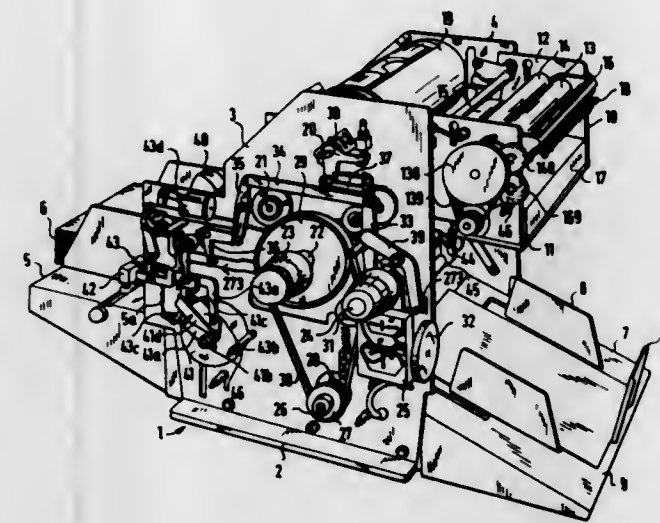
3,601,044
PRINTER MECHANISM
Anthony W. Nosil, Jr., Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed June 30, 1969, Ser. No. 837,689
Int. Cl. B41j 19/00
U.S. Cl. 101-93 MN



A cash register feed mechanism for positioning a record form during a printing operation in which the preceding printed line and the next print line to be printed on are visible to the operator at the end of the printing operation. A drive member operating a feed mechanism conditions a stop member when operating the feed mechanism during a first feed operation to limit the movement of the drive member during a second feed operation whereby the next print line of the record form is positioned for a subsequent printing operation.

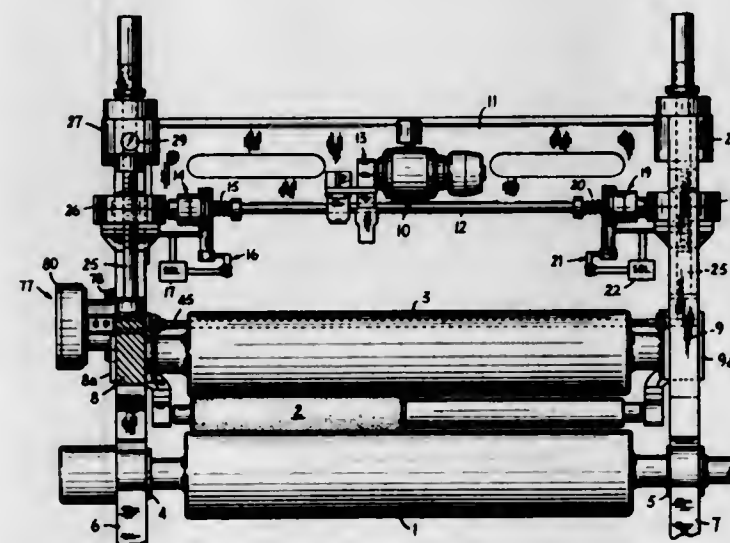
3,601,045
OPERATING CONTROLS FOR AN OFFSET PRINTING PRESS
Heinz Joachim Schinke, Unterkirnach, and Hermann Raible, St. Georgen, both of, Germany, assignors to Math. Bauerle GmbH, St. Georgen, Germany
Continuation-in-part of application Ser. No. 705,656, Feb. 15, 1968, now abandoned, Continuation-in-part of application Ser. No. 707,624, Feb. 23, 1968, Continuation-in-part of application Ser. No. 716,141, Mar. 26, 1968, now Patent No. 3,517,613, Continuation-in-part of application Ser. No. 721,861, Apr. 16, 1968, now Patent No. 3,552,312. This application Dec. 26, 1968, Ser. No. 786,986
Int. Cl. B41f 7/06, 7/40, 31/30
U.S. Cl. 101-144

All normal operating controls of a small offset printing press or office duplicator are combined in a single control shaft connected by cams and cam follower trains to the



3,601,046
AUTOMATIC LEVELING SYSTEM FOR AN IMPRESSION ROLLER IN A PRINTING PRESS
John C. Motter, York, Pa., assignor to John C. Motter Printing Press Co., York, Pa.
Filed Dec. 31, 1968, Ser. No. 788,194
Int. Cl. B41f 13/40
U.S. Cl. 101-247

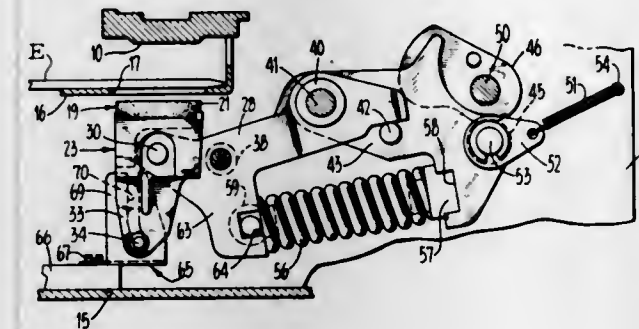
10 Claims



A system for automatically maintaining a desired relation between the axes of a printing cylinder and an impression roller movable toward and away from the printing cylinder by sensing the relative positions of the ends of the impression roller, and adjusting the relative displacement of the impression roller ends to attain the desired axial relationship between the printing cylinder and the impression roller.

3,601,047
RECIPROCATING PLATEN PRINTER WITH SPRING BIASED PLATEN CONTROL ARMS
Helmut K. Walbel, San Lorenzo, Calif., assignor to The Singer Company
Filed June 9, 1969, Ser. No. 831,327
Int. Cl. B41f 1/06, 1/54
U.S. Cl. 101-316

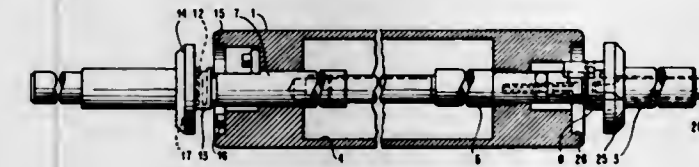
1 Claim



An adjustable guide member for maintaining a parallel relationship between the planar surface of a platen and the printing surface of an indicium, or printing, plate. The platen is normally spaced from, and is rockable in a vertical path toward, the printing plate to press mail matter to be printed, such as envelopes, against the printing plate to receive an impression.

3,601,048
DEVICE FOR MOUNTING FRICTION CYLINDERS IN INKING AND MOISTENING APPARATUS OF PRINTING MACHINES
Hermann Beisel, Wiesloch, Germany, assignor to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany
Filed Nov. 25, 1968, Ser. No. 778,657
Claims priority, application Germany, Nov. 24, 1967, 64 559 V116/15d
Int. Cl. F16c 35/08
U.S. Cl. 101-348

5 Claims



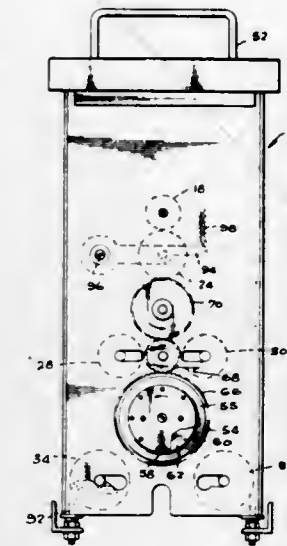
Device for removably mounting a hollow friction cylinder in inking and moistening apparatus of a printing machine includes clamping means comprising a clamping screw and nut threaded thereon located within the friction cylinder, respectively at opposite ends thereof, and being mutually threadably rotatable for varying the length of the clamping means, bearing pins for the friction cylinder having a receiving shell wherein respective end portions of the screw and nut are received form lockingly in axial direction and removably in radial direction thereof, each bearing pin having a flange substantially conforming to a guide bore formed in the friction cylinder, the clamping means being actuatable externally to the friction cylinder to force the flanges into the respective guide bores.

3,601,049
INK TRAIN CARTRIDGE
Wesley D. Hamilton, Englewood Cliffs, N.J., assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy
Filed May 21, 1969, Ser. No. 826,623
Int. Cl. B41f 31/34, 31/02
U.S. Cl. 101-350

3 Claims

A cartridge for use in a printing press which allows the inking rollers to be cleaned or replaced without disassembling

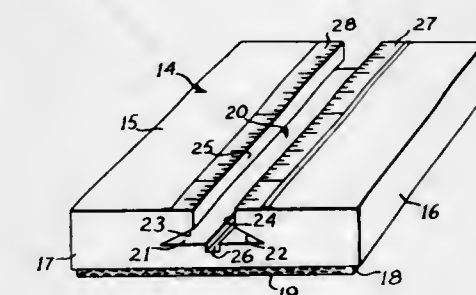
the press. The cartridge comprises an ink fountain and a train of rollers ending in a pair of form rollers, all of which are



contained in a cartridge housing that can be inserted into a printing press and removed therefrom.

3,601,050
CUSHIONED-BASE RUBBER STAMP MOUNTS
Miguel A. Puerta, 1164 Alta Ave. Apt. 13, NE, Atlanta, Ga.
Filed July 11, 1969, Ser. No. 848,385
Int. Cl. B41k 1/02
U.S. Cl. 101-368

4 Claims



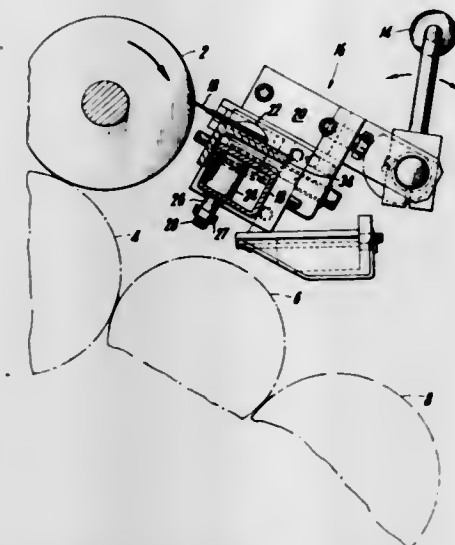
A hand stamp for applying print to a flat surface which includes a base having a bottom surface with a yielding surface, printing plate secured thereto. The upper surface of the base defines a rectilinear slot and a scale is imposed on the upper surface adjacent the slot. A handle is inserted in the slot at a position centered between the ends of the slot as determined by the scale.

3,601,051
FLEXIBLE BLADE CONSTRUCTION FOR A ROLLER-CLEANING DEVICE
Harold W. Gegenheimer, Darien, and Karlheinz Arnolds, Stamford, both of, Conn., assignors to Baldwin-Gegenheimer Corporation, Stamford, Conn.
Filed July 2, 1969, Ser. No. 838,559
Int. Cl. B41f 35/04
U.S. Cl. 101-425

2 Claims

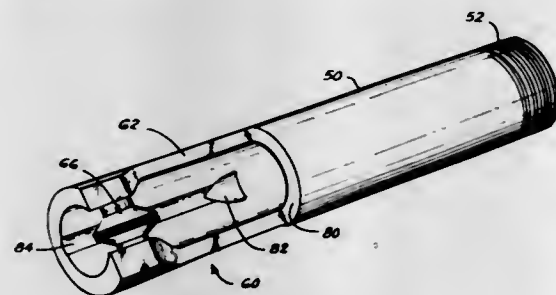
The invention relates to a printing device having a roller-cleaning apparatus which includes a flexible blade which is maintained in line contact with a roller with substantially uniform pressure to remove caked-in dirt from the roller. The flexible blade is supported by a plurality of adjustable

engaging means which can transversely bow the blade in any desired amount, depending on the size of the press involved.



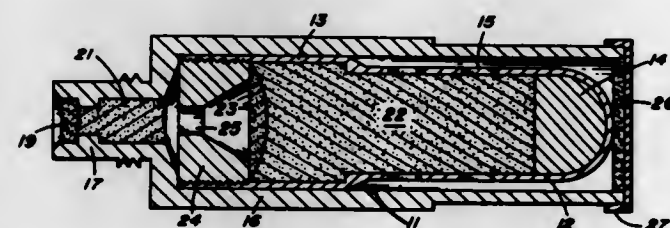
to insure that uniform pressure will be maintained between the roller and the blade throughout the entire line of contact.

3,601,052
UNDERWATER CHARGE LAUNCHER
John C. Mollere, San Marino, Calif., assignor to Western Geophysical Company of America, Houston, Tex.
Filed June 12, 1969, Ser. No. 832,727
Int. Cl. F42d 3/06
U.S. Cl. 102-22 4 Claims



This invention relates to an underwater charge launcher for consecutively firing percussion-initiated, explosively operated charges under a body of water to generate therein seismic waves useful in seismic prospecting operations. The launcher includes a casing adapted to receive water-propelled charges and a percussion member which while arresting the motion of the charge also percussion initiates the blasting cap of the charge. A lateral window for ejecting the percussion-initiated charges from the casing, and at least one cavity in the casing opposite the window to develop a relatively high-pressure zone for facilitating the ejection of the charge through the window.

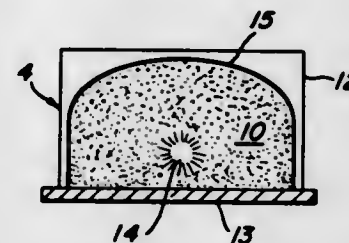
3,601,053
SIGNAL PROJECTILE CONFIGURED FOR IMPROVED PENETRABILITY OF FOLIAGE
Kenneth J. Grall, and Ambrose A. Fulkerson, both of Evansville, Ind., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 27, 1969, Ser. No. 869,528
Int. Cl. F42b 13/44
U.S. Cl. 102-32 4 Claims



A signal projectile having an outer container adaptable for mounting to a launching projector and an inner container

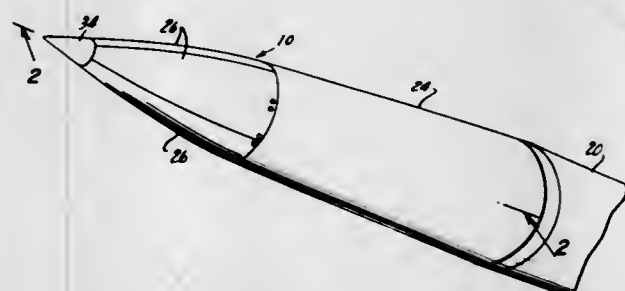
having a quantity of pyrotechnic material therein for generating a smoke trail when the inner container is launched from the outer container. The inner container has a stepped configuration and a weighted forward end to permit passage of the inner container through jungle canopy.

3,601,054
METHOD AND APPARATUS FOR ELECTROMAGNETICALLY INITIATING ORDNANCE
William O. Christanson, Litchfield Park, Ariz., assignor to Unidynamics/Phoenix, Goodyear, Ariz.
Filed Mar. 17, 1969, Ser. No. 807,727
Int. Cl. F42b 9/08
U.S. Cl. 102-46 4 Claims



In order to obviate the necessity for using firing pins or electrical probes for initiating ammunition, a cluster of conductors are enclosed within a mass of pyroignition material, and means are provided to subject the cluster of conductors to control electromagnetic radiation such that they are heated into an incandescent state to ignite the pyroignition material.

3,601,055
PROTECTIVE NOSE COVER AND IN-FLIGHT REMOVAL MEANS
Sydney R. Crockett, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy
Filed Feb. 25, 1969, Ser. No. 802,075
Int. Cl. F42b 15/08
U.S. Cl. 102-49.4 5 Claims



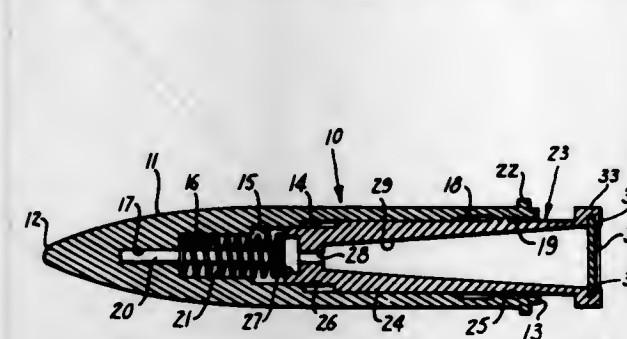
An expendable nose shield for use in a multistage missile arrangement wherein a second stage is encapsulated within a first stage and is launched from such location upon burnout of the first stage. It comprises an ogive-shaped shell formed of four petallike quadrants with their bases secured to the leading edge of the first stage and their tips held together by a common clip. Forward movement of the second stage releases the clip and the quadrants separate and break off in the slipstream. The shield may also house a stabilizing fin assembly including a sleeve through which the second stage passes and which becomes attached to the slightly enlarged tail portion of the second stage when the latter emerges.

3,601,056
ROCKET PROJECTILE CARTRIDGE
Morris Roger Nicholson, 955 S. Christine Road, Wichita, Kans.
Filed Oct. 3, 1969, Ser. No. 863,452
Int. Cl. F42b 13/28
U.S. Cl. 102-49.7 5 Claims

A rocket projectile cartridge in which an ejector groove is provided on the rear of the cartridge for ejecting a faulty

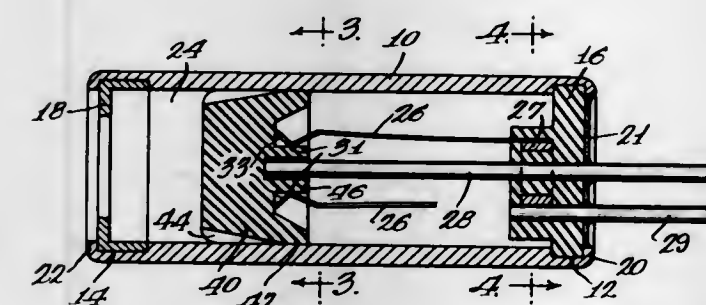
round. All of the propellant, the firing pin and primer are contained within the cartridge and move outwardly therewith as the cartridge is fired. The firing of the cartridge is accom-

plished by (a) the closing of the breach bolt in an open bolt weapon, (b) striking by a hammer contained in the breach block, or (c) the rearward movement of a barrel assembly against a stationary or semifloating breach block.



plished by (a) the closing of the breach bolt in an open bolt weapon, (b) striking by a hammer contained in the breach block, or (c) the rearward movement of a barrel assembly against a stationary or semifloating breach block.

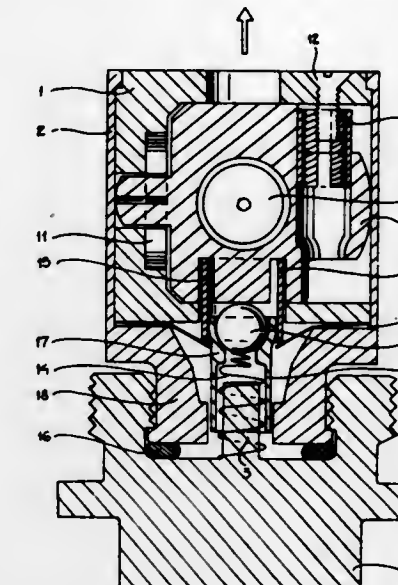
3,601,057
ARMING SWITCH
Ralph S. Kline, Janesville, Wis., assignor to Gibbs Manufacturing and Research Corporation, Janesville, Wis.
Filed Feb. 11, 1969, Ser. No. 798,390
Int. Cl. F42c 19/06, 11/00; F24c 5/00
U.S. Cl. 102-70.2 R 5 Claims



An arming switch for making an electrical circuit through connections thereto upon a sudden reduction in ambient pneumatic pressure. A pair of parallel connected contact blades spring loaded toward a stationary contact are held separated therefrom by a skirted piston in a cylinder. The cylinder behind the piston normally fill to ambient pressure around the skirt. Whenever there is a sudden reduction in ambient pressure, the pressure differential across the piston moves the piston away from the blades and permits the blades to close against the stationary contact. Inherent leakage around the piston prevents gradual ambient pressure changes from producing arming action.

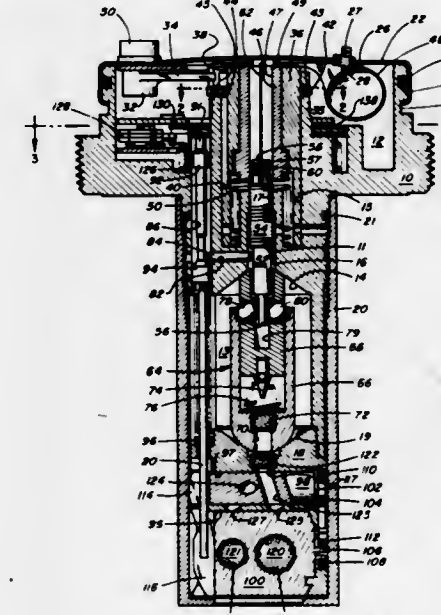
3,601,058
FUSE WITH PRIMER SAFETY COMPRISING A ROTOR
Anders B. Arnell, Eskilstuna, and Rolf W. Grahn, Torshälla, both of, Sweden, assignors to Forsvarets Fabriksverk, a Swedish Government Dept. under Swedish Ministry of Defense, Eskilstuna, Sweden
Filed Apr. 29, 1969, Ser. No. 820,139
Int. Cl. F42c 15/18, 15/24, 11/06
U.S. Cl. 102-70.2 R 3 Claims

A fuse safety device for a nonspinning shell containing a primer such as a squib, located in a spring-loaded rotor that is turned from a safety position to an armed position after the shell has left the barrel, the fuse having a safety means comprising a short tube partly inserted in the rotor, said tube being able, upon acceleration, to pierce a central hole in a thin resilient disc fitted to the bottom of the rotor casing. The



prises a gross acceleration sensitive friction-operated tube contained in the rotor.

3,601,059
SELF-DUDDING ORDNANCE FUZE
George S. Briggs, Adelphi, Md., assignor to The United States of America as represented by the Secretary of the Navy
Filed Sept. 17, 1969, Ser. No. 858,670
Int. Cl. F42c 1/00, 15/12
U.S. Cl. 102-74 15 Claims

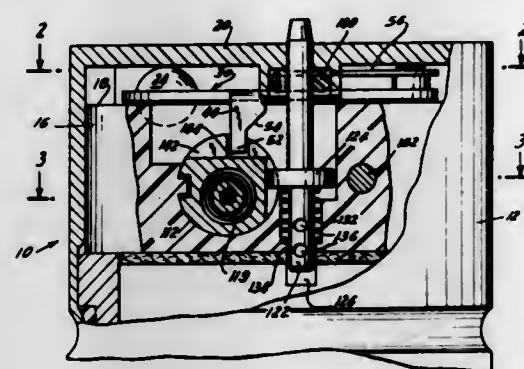


An ordnance fuze having a selector rotor and an arming rotor initially held in an unarmed position by a rod which can be released by the rotation of a wind vane to move clear of the arming rotor and thus free the arming rotor to rotate to an armed position. A timer revolves a plate to block the movement of the rod after a predetermined time lapse if the vane has not already released it, thus preventing the arming of the fuze. An externally operated control limits the movement of the rod to either permit or prevent rotation of the selector rotor to direct the blast of the primer to either an instantaneous detonator or a delay detonator.

3,601,060
ANTIDISTURBANCE DEVICE
Torbjorn Thuen, Roseland, N.J., assignor to P.A.O.D. Inc., Fairfield, N.J.
Filed Apr. 29, 1969, Ser. No. 820,105
Int. Cl. F42c 7/00, 15/24
U.S. Cl. 102-76 P 12 Claims

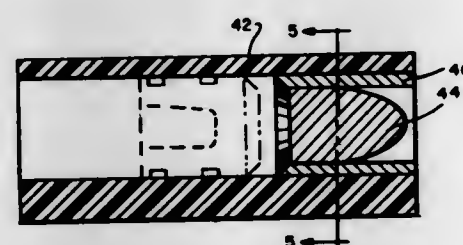
A disturbance-sensitive device adapted to be actuated when the device is subjected to a shock above a predeter-

mined threshold limit or when the angle which the device makes with the ground is varied. The device is provided with a timer adapted to initially arm the device for disturbance ac-



tuation after a first predetermined period and to thereafter trigger the device after a second predetermined period in the event that no intervening disturbance occurs between the first and second periods.

3,601,061
AMMUNITION FOR HIGH FIRING RATE, LIGHT GAS HYPERVELOCITY GUN
David Dardick, Palos Verdes Estates, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Division of Ser. No. 664,882, Aug. 31, 1967, Pat. No. 3,496,827
Filed Jan. 30, 1969, Ser. No. 795,212
Int. Cl. F42b 9/30
U.S. Cl. 102-92.1

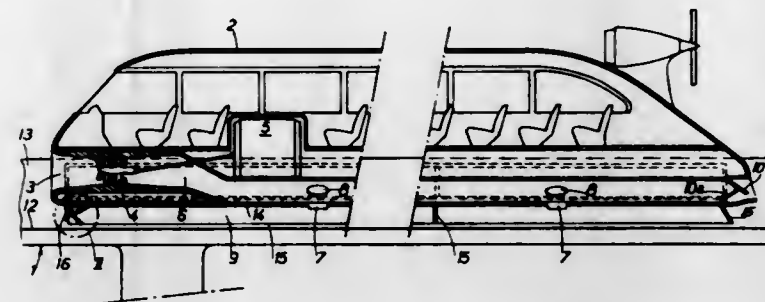


Secondary ammunition for a high firing rate, light gas hypervelocity gun secondary ammunition having a hollow open inlet case containing a projectile. The gun has the primary and the secondary breech mechanisms spaced along a barrel containing a bore for successively transporting in unison to firing position, a primary ammunition round containing a propellant charge and a piston and a secondary ammunition piece, and means for introducing a gas under pressure into the bore between the breech mechanisms, whereby when the primary round is fired its piston is propelled forwardly through the bore to a terminal position within the secondary breech mechanism to compress the gas between the piston and the projectile of the secondary ammunition and thereby effect expulsion of the projectile from the gun at a hypervelocity. The piston and secondary ammunition core are from the gun during subsequent operation of the breech mechanisms to transport the next primary and secondary ammunition to firing position.

3,601,062
GROUND EFFECT MACHINES
Jean Henri Bertin, Neuilly-sur-Seine; Paul Francois Guienne, Paris, and Francois Gilbert Paris, Bayonne, all of, France, assignors to Bertin & Cie, Plaisir, France
Filed Oct. 8, 1969, Ser. No. 864,685
Claims priority, application France, Oct. 10, 1968, 169,477
Int. Cl. B61b 13/08

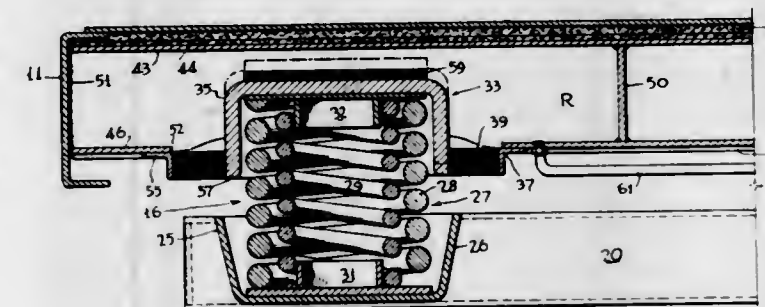
U.S. Cl. 104-23 FS
A ground effect machine having a control system by means of which, when machine speed increases, the gap or daylight clearance at the front of the machine between the structure

thereof and the surface along which the machine travels, is progressively reduced, so as to reduce the direct ramming in-



flow feed to the cushions by the dynamic pressure set up by the speed of the machine.

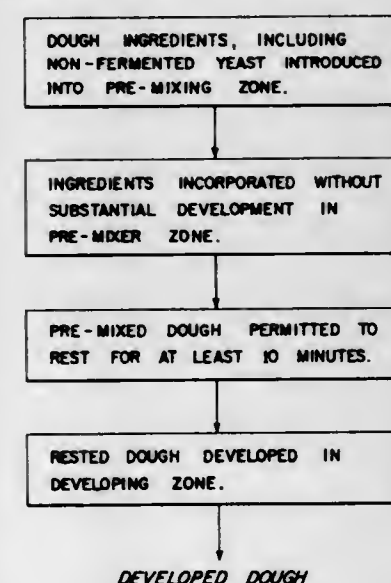
3,601,063
COMPOUND RAILWAY SPRING ASSEMBLY
Albert G. Dean, Narberth, Pa., assignor to The Budd Company, Philadelphia, Pa.
Filed June 23, 1969, Ser. No. 835,698
Int. Cl. B61f 1/14, 5/04, 5/10
U.S. Cl. 105-199 R



Air spring apparatus including a metal housing with an elastomer shear ring sealing a reserve air volume in the body bolster of a vehicle. The air spring is arranged in series with a coil spring which has an elastomeric bumper pad and is supported on a truck bolster.

3,601,064
METHOD OF PREPARING DOUGH
Simon S. Jackel, Westport, Conn.; Kenneth R. Rand, Short Hills, N.J.; Fred T. Letterman, Allendale, N.J., and Volodymyr R. Diachuk, Rutherford, N.J., assignors to Baker Research Development Services Inc., New York, N.Y.
Filed May 15, 1969, Ser. No. 824,884
Int. Cl. A21d 8/02

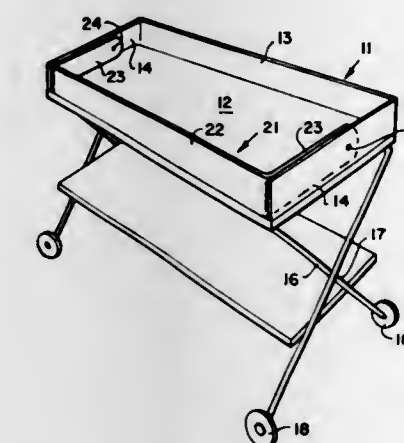
U.S. Cl. 107-54 B



A continuous method of preparing dough including a premixing step and a development step. Prior to develop-

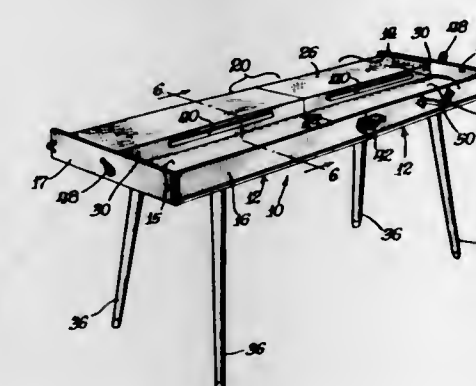
ment, the premixed dough is rested for at least 10 minutes. The requirement for setting the broth can be entirely eliminated if a relatively long rest period is employed.

3,601,065
RETRACTABLE GUARD FOR INFANT'S TABLE
Mary J. Sargent, 205 Margarita Drive, San Rafael, Calif.
Filed Mar. 23, 1970, Ser. No. 21,920
Int. Cl. 47b 17/00
U.S. Cl. 108-27



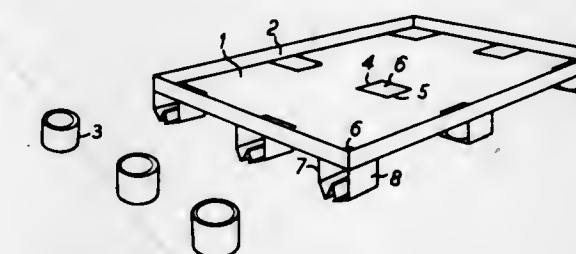
To prevent infants from falling off the front edge of a dressing table a U-shaped guard is provided. The base of the U extends along the front edge and the sides extend rearwardly about halfway along the side edges of the table. The inner ends of the sides are pivoted to the upstanding sides of the table top. Where no sides are provided as original table structure, sides may be clamped thereto and the sides of the guard pivoted to such sides. To reduce the effort required to reach the infant or lift him from the table, the guard pivots upward, out of the way.

3,601,066
GAME BOARD
Frank Duncan Daniel, 5129 Harper Ave., Chicago, Ill.
Filed May 21, 1969, Ser. No. 826,455
Int. Cl. A47b 3/00
U.S. Cl. 108-34



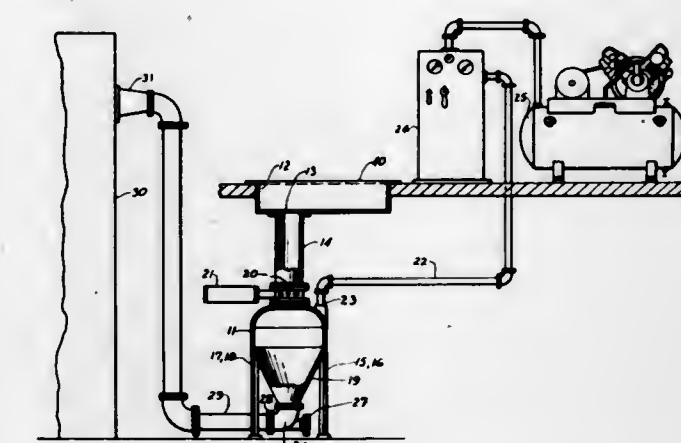
A collapsible game board having two sections, each section having an open end adapted to be abutted against the corresponding open end of the other section to define a playing area having an upper surface and a lower surface. One of the sections when inverted can be superimposed on the other section with the upper surface of one section disposed adjacent to the lower surface of the other section, each section being formed in a complementary fashion to prevent relative sidewise, perpendicular and endwise movement of the two superimposed sections.

3,601,067
DEVICE FOR FIXING PALLET LEGS TO A PALLET PLATFORM OR DIRECT TO THE BOTTOM OF A CONTAINER, AND ALSO PALLETS WITH SUCH LEG FIXTURES
Torger Rovig Olsen, Radhusgaten 2B, 3200, Sandefjord, Norway
Filed Apr. 3, 1969, Ser. No. 813,237
Claims priority, application Norway, Apr. 16, 1968, 1429/68
Int. Cl. B65d 19/18
U.S. Cl. 108-51



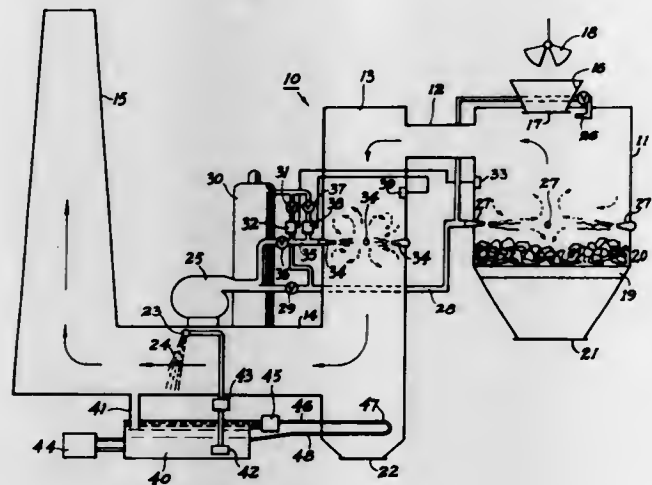
The invention relates to pallets and containers, preferably of the disposable type. A device for fixing pallet legs to a pallet platform or direct to the bottom of a container is provided in the form of a strip member, the center part of which is on the upper side of the leg and the ends of which are bent down along the leg, in under the leg and up into the leg. The center part of the strip member may be nailed, tacked or stapled to the platform or container bottom or may be arranged on the upper side of the platform or container bottom, the two ends being threaded through slots in the platform or container bottom.

3,601,068
SYSTEM AND PROCESS FOR CONVEYANCE AND INCINERATION OF WASTE MATERIAL
Charles P. Claffone, Sturbridge, Mass.; Charles A. Richmond, Montclair, N.J., and Arthur W. Grahame, Jr., West Hempstead, N.Y., assignors to Nichols Engineering & Research Corporation, New York, N.Y., by said Richmond
Filed Sept. 17, 1969, Ser. No. 858,632
Int. Cl. F23g 5/00
U.S. Cl. 110-8 R



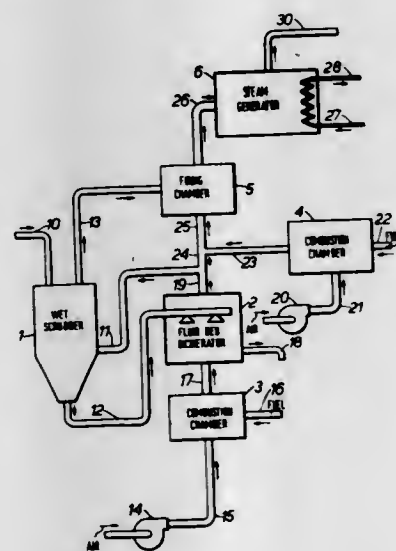
A process for conveying and incinerating waste material which comprises subjecting the waste to pneumatic pressure so as to convey it through a connecting pipe to an incinerator and an apparatus directed thereto which comprises means for receiving the waste; a pneumatic ejector situated beneath the receiving means, which is a generally cylindrical vessel terminating in a conical bottom section, having an inlet valve suitable for closing off the inlet to make the vessel airtight, and an air inlet for admitting compressed air to the ejector, the air inlet being connected by a pressure air line to a control panel which, in turn, is connected to a source of compressed air; and a discharge pipe leading from the bottom of the ejector to an incinerator and connected thereto by means of a flared adapter.

3,601,069
INCINERATOR
 Thomas P. Mancuso, 130 Ackerman St., Rochester, N.Y.
 Filed Sept. 25, 1969, Ser. No. 861,052
 Int. Cl. F23g 5/12
 U.S. Cl. 110—8 C



An incinerator having a primary furnace, a combustion chamber and a stack is improved by having a blower force air through nozzles arranged in the primary furnace and the combustion chamber so that blasts of air from the nozzles extend to the central region of the primary furnace and collide in the combustion chamber to produce a turbulent region substantially slowing the passage of gasses through the combustion chamber. Also, a supply of fuel is adjustably mixed with the forced air in proportions up to the optimum fuel-air ratio for complete combustion of the fuel to make the air blasts from the nozzles into flame blasts for maintaining desired temperatures in the primary furnace and the combustion chamber. The amount of fuel mixed with the forced air is preferably regulated automatically, and the turbulence form the blasts in the combustion chamber facilitates complete combustion and acts as a fly ash precipitator.

3,601,070
TOTAL INCINERATION PROCESS
 John Lambiris, New York, N.Y., assignor to Richard George Reimus, Warren, Pa. and Struthers Scientific and International Corporation
 Filed Aug. 22, 1969, Ser. No. 852,351
 Claims priority, application Great Britain, Aug. 27, 1968, 40870/68
 Int. Cl. F23g 5/02
 U.S. Cl. 110—10

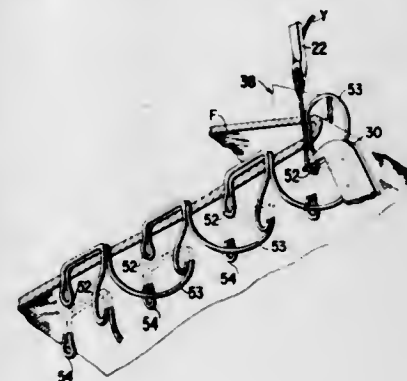


Waste water is cycled through a wet scrubber and a fluid bed incinerator fed by a first combustion chamber so that the waste water is concentrated in the wet scrubber as it removes

8 Claims

solid particles from gases introduced from the fluid bed incinerator, the fluid bed incinerator removing inorganic solids at relatively low temperatures, gaseous effluent from the wet scrubber and hot gases from a second combustion chamber passing to a second firing chamber to oxidize organic matter entrained in the gaseous effluent at a higher temperature, the gaseous effluent passing through a steam boiler for heat recovery.

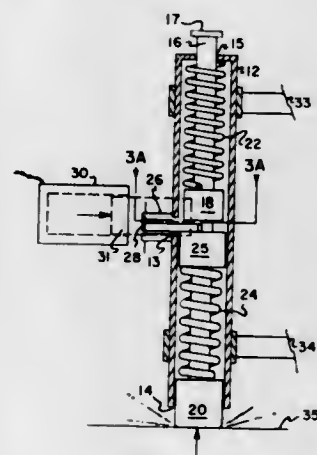
3,601,071
MULTIPLE-PILE-TUFTING MACHINES, METHOD AND PRODUCT
 Charles William Watkins, Hixson, Tenn., and William M. Gaines, Lafayette, Ga., assignors to The Singer Company, New York, N.Y.
 Filed Apr. 3, 1969, Ser. No. 813,132
 Int. Cl. D05c 15/16, 3/02, 17/02
 U.S. Cl. 112—79 R



This disclosure relates to tufting apparatus of the type for producing pile fabrics such as carpets and the like. The disclosure further teaches a novel use of a novel apparatus for producing a pile fabric wherein efficient use is made of the yarn so that maximum usage of the yarn is utilized for the pile surface and a minimum for the backstitch.

23 Claims

3,601,072
CONTROLLED FORCE APPLICATOR
 Donald M. Husted, Wilton, Conn., assignor to Ivanhoe Research Corporation, New York, N.Y.
 Filed Mar. 25, 1970, Ser. No. 22,624
 Int. Cl. D05b 21/00
 U.S. Cl. 112—121.15

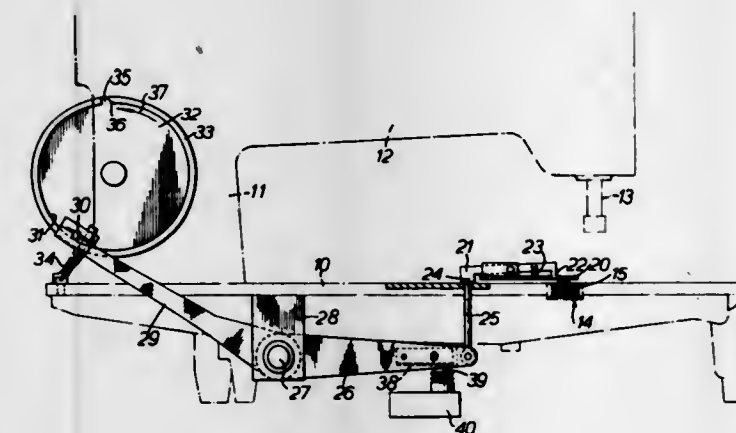


A device for applying a controlled or predetermined force at a point of contact on a surface, comprising a contact member or shoe carried on the end of a shaft, a housing member adapted to carry the shaft allowing the shaft to move along the axis of the housing, a pair of springs, in series arrangement, positioned about the shaft each adapted to act upon the shoe, (and the shaft) with respect to the housing, a spring activating means or spring selector adapted to restrict movement of one of the springs, when in closed position and

7 Claims

to allow free movement of such spring when in an open position, a carrier means for repeatedly moving the housing toward a workpiece with the shoe contacting the surface of the workpiece and, after contact is made, to cause the housing to further descend toward the workpiece and a means for actuating the spring selector or spring-activating means. By use of the described apparatus the dead pressure, which may be of unlimited force, exerted by the carrier means to bring the applicator into contact with the surface of a workpiece, is converted to a firm, resilient force of predetermined pressure, the magnitude of such pressure being selectable.

3,601,073
SEWING MACHINES
 William Leslie Simpson, Birmingham, England, assignor to Newey Goodman Limited, Birmingham, England
 Filed June 20, 1969, Ser. No. 835,148
 Claims priority, application Great Britain, June 22, 1968, 29,879
 Int. Cl. B65h 63/02
 U.S. Cl. 112—218



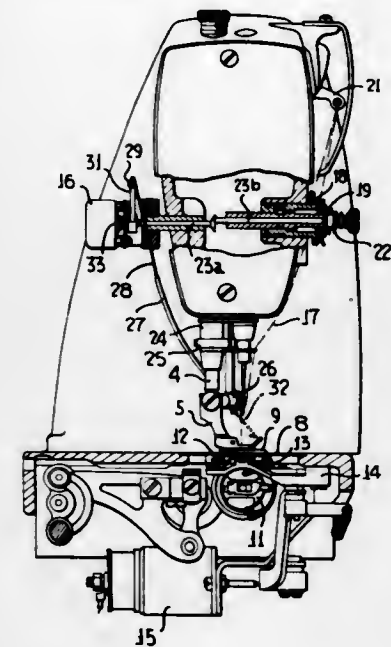
A lockstitch sewing machine including a bobbin holder capable of receiving a bobbin with a part movable to a signalling position when there is little or no thread on the bobbin but held in a normal position by the thread when there is more than a little thread on the bobbin, the machine being characterized in that it is provided with sensing means capable of sensing the position of the movable part of such a bobbin and operative to produce a characteristic signal when the part is in its signalling position.

3,601,074
THREAD WIPER FOR SEWING MACHINES INCLUDING A THREAD-SEPARATING ARRANGEMENT
 Wolf-Rudiger Von Hagen, Grotzingen, Germany, assignor to Union Special Maschinenfabrik, GmbH, Stuttgart, Germany
 Continuation of application Ser. No. 710,555, Mar. 5, 1968, now abandoned. This application Feb. 27, 1970, Ser. No. 14,775
 Int. Cl. D05b 65/02
 U.S. Cl. 112—252

There is disclosed a thread wiper or deflector means for sewing machines having therein a thread-severing device and a thread tensioning and releasing means, the thread wiper means being mounted for projection and retraction and coupled with a rotary solenoid effective upon energization to release the thread tension for the needle thread during the automatic process of severing the threads, and also for projecting the thread wiper to move it into thread-trapping position during said releasing of thread tension, and upon deenergization to return the wiper to its starting position after the

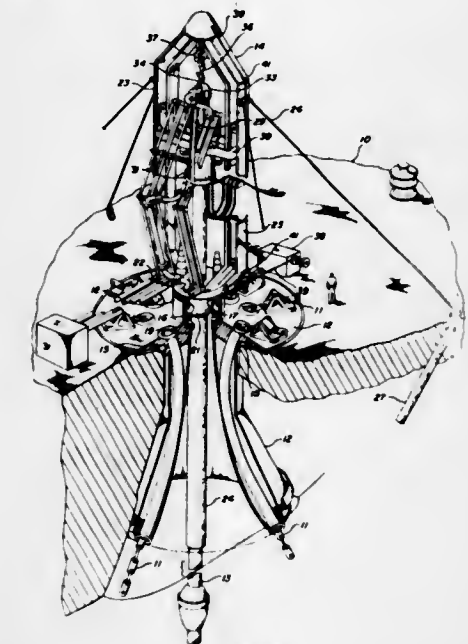
5 Claims

restoration of the thread tensioning, thus to deflect the needle thread part extending down from the needle eye and



prevent objectionable clamping thereof under the presser foot.

3,601,075
RISER SUPPORT STRUCTURE
 John M. Deslierres, Rolling Hills, Calif., assignor to North American Rockwell Corporation
 Filed July 2, 1969, Ser. No. 838,513
 Int. Cl. 175 7; B63b 35/00; E21b 43/01
 U.S. Cl. 114—0.5



A ship is described which is useful for recovery of liquid minerals from the ocean floor. A rotatable plug through an aperture in the ship's hull is moored to the ocean floor with a riser pipe from the ocean floor passing through the center of the plug and connected to a substantially vertically extending tower above the ship to permit the ship to "weather-vane." The tower, supporting the upper end of the riser, rotates with the ship, and vertical translation of the upper end of the riser relative to the length of the tower is permitted. The tower is mounted on gimbals near its base for tilting relative to the deck of the ship to remain aligned with the riser end. A tube connected to the tower extends below the gimbals and surrounds the riser. Rollers at the lower end of the tube engage the riser to permit longitudinal motion of the tube relative to the riser, and transfer some of the tilting force between the riser and the tower. The tube is rotatable about its axis to remain fixed relative to the riser while the ship rotates.

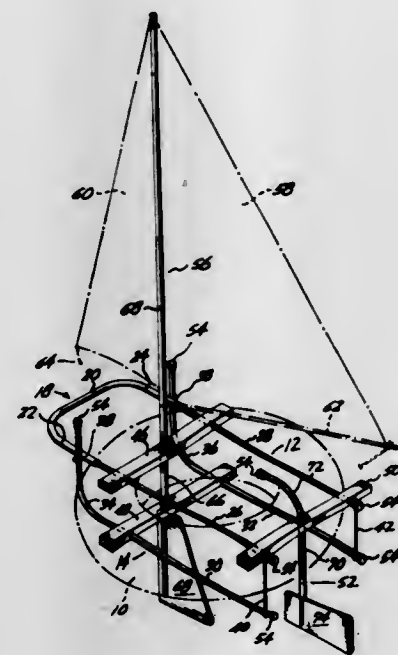
2 Claims

3,601,076 SAIL BOAT

Ward W. Meeks, 1900 1st Ave. S. First South and Halgate, Seattle, Wash.

Filed June 18, 1969, Ser. No. 834,279
Int. Cl. B63b 7/00, 35/00

U.S. Cl. 114—39



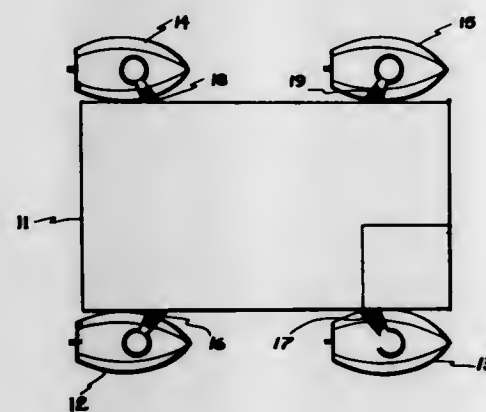
An inflated annular tube (e.g. a truck tire inner tube) is clamped between upper and lower parts of a sail and rudder carrying frame. Each such frame part comprises a pair of laterally spaced longitudinal members. The lower longitudinal members include upwardly turned forward portions which meet and are secured to the forward end portions of the upper longitudinal members. Tension members are vertically interconnected between the upper and lower longitudinal members at the rear of the frame. Crosstie members extending between the longitudinal members support a sail mast generally at a location intermediate the ends of the boat. A rudder is supported by a crosstie at the rear of the boat.

3,601,077 WATERCRAFT-STABILIZING SYSTEM

Samuel W. Valenza, Jr., 1405 Farrell Ave., Cherry Hill Township, Camden County, N.J.

Filed Apr. 20, 1970, Ser. No. 30,142
Int. Cl. B63b 1/10

U.S. Cl. 114—61



The craft is supported on a plurality of legs extending from its body to a plurality of pontoons on which are mounted elements of the stabilizing system including two sets of shock absorbers operative respectively to minimize the transmission of pontoon pitch and roll movements to the legs. Other elements of the stabilizing system include another set of shock

absorbers coupled between the upper ends of the legs and the craft body and operative to eliminate substantially entirely the transmission of pontoon movements to the craft body.

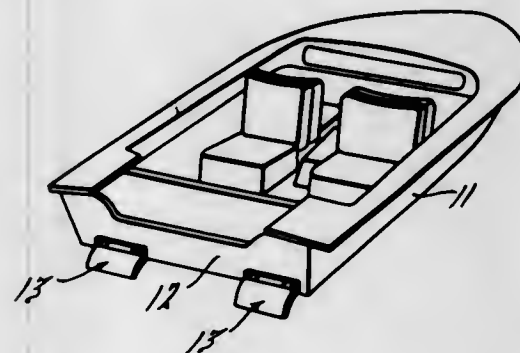
3,601,078 AUTOMATIC TRIM TAB

William A. Bedford, Jr., Longboat Key, Fla., assignor to William A. Bedford, Jr. and Ann M. Bedford, a part interest to each

Filed Jan. 19, 1970, Ser. No. 3,814
Int. Cl. B63b 1/22

U.S. Cl. 114—66.5

6 Claims



A pair of spaced trim tabs are supported at the bottom of the transom of a boat to extend therebelow when the boat is at rest and when operating at a low speed. Each tab is a like unit element made of a suitable plastic material which is deflectable and which has memory to return to its original position when pressure is removed therefrom. A securing flange has an extending portion of arcuate shape tapering from the flange to the free edge which extends below the bottom of a boat when the boat is at rest. As the speed of the boat increases the extending portion moves upwardly until the boat reaches planing speed at which point the arcuate portion will straighten out and extend rearwardly of the boat.

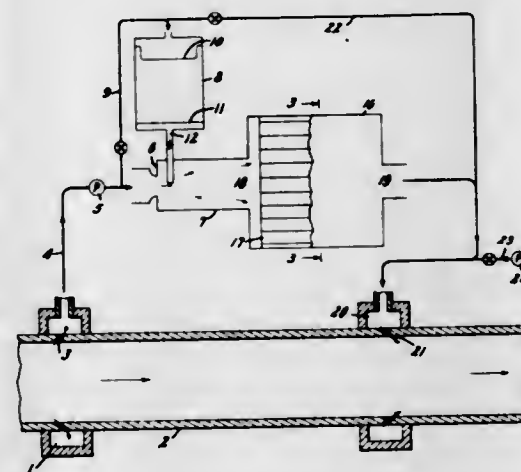
3,601,079 METHOD AND APPARATUS FOR APPLYING DRAG-REDUCING ADDITIVES

Walter B. Giles, and William T. Pettit, III, both of Scotia, N.Y., assignors to General Electric Company
Continuation-in-part of application Ser. No. 786,510, Aug. 2, 1968, which is a continuation-in-part of application Ser. No. 642,961, June 1, 1967, now abandoned. This application Oct. 24, 1969, Ser. No. 869,314

Int. Cl. B63b 1/34

U.S. Cl. 114—67

7 Claims



A water-soluble polymeric material is mixed with water rapidly in the mixing chamber. In the mixing chamber polymer and water are thoroughly mixed at a high velocity of water to produce turbulence whereupon the mixed solution passes from the mixing chamber to a hydration tank where it

is hydrated dynamically to provide a uniform polymer solution. From the hydration tank the hydrated polymer is diluted with bypass flow to a desired concentration for injection or it may be injected directly into the main flow of water which may be along the sides of a conduit or along the sides of a moving vessel.

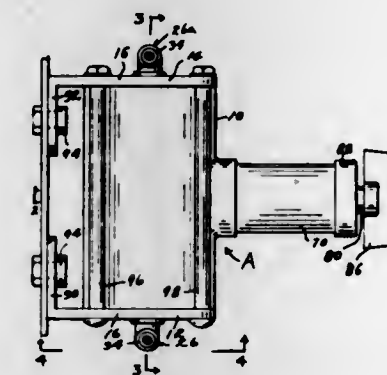
3,601,080 TIRE-PRESSURE-WARNING DEVICE

William O. Nygard, Rte. 1 Box 27, Meadowlands, Minn.

Filed Apr. 15, 1970, Ser. No. 28,628
Int. Cl. B60e 23/06

U.S. Cl. 116—34

9 Claims



A cylinder for attachment to an outboard dual wheel, a free member slidably mounted in said cylinder and dividing the cylinder into sealed compartments, a plate sealing off each end of the cylinder, springs urging the free member centrally of the cylinder, air-actuated signal means mounted on the cylinder, the cylinder having an air escape hole centrally thereof and normally covered by said free member and communicating with the signal means when the free member is moved not to cover the air hole, first inlet means communicating with one of said compartments, and second inlet means communicating with the other of said compartments.

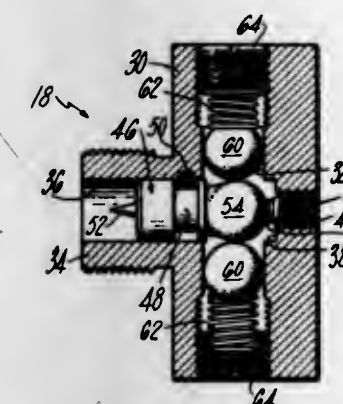
3,601,081 TRIGGER MECHANISM FOR PASSENGER-RESTRAINING SAFETY DEVICE

William M. Smkh, and Francis N. Wroble, both of Wetherfield, Conn., assignors to The Ensign-Bickford Company, Simsbury, Conn.

Filed Jan. 21, 1970, Ser. No. 6,162
Int. Cl. G01p 15/00

U.S. Cl. 116—114 AH

3 Claims U.S. Cl. 116—115



A directional trigger mechanism responsive to a predetermined decelerating or impact force for explosively deploying a passenger-restraining safety device in a vehicle comprises a compact housing having first and second passages intersecting at substantially a right angle with the second passage extending laterally from the first passage at a point intermediate the ends thereof. A slidable weight positioned within the second passage carries a firing pin on one end thereof and a spherical cam portion on the opposite end thereof, the cam portion being disposed within the intersection of said

first and second passages when the weight is in its retracted cocked position. A pair of weight retaining and driving spheres are positioned within the first passage and are biased into engagement with opposite sides of the spherical cam portion to releasably retain the firing pin in its cocked position and positively drive the weight toward its actuating position upon release from the cocked position.

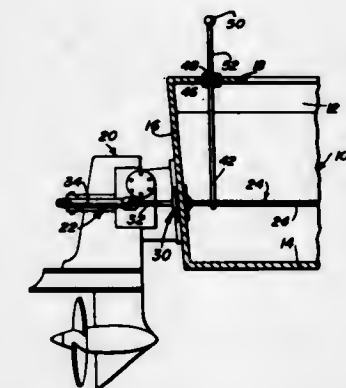
3,601,082 REMOTE READING OUTDRIVE TILT INDICATOR

Kenneth W. Wise, P.O. Box 309, Walla Walla, Wash.

Filed Feb. 26, 1970, Ser. No. 14,569
Int. Cl. G01d 21/00

U.S. Cl. 116—114

6 Claims



An upright staff whose lower end is attached to the inboard end of an outdrive-steering cable assembly of the type including a transom-mounted ball-and-socket joint through which the cable assembly passes. The lower staff end is attached to the cable assembly adjacent but spaced from the ball-and-socket joint and raises and lowers as the adjacent portion of the steering cable assembly raises and lowers in response to tilting of the outdrive assembly. The upper end of the staff projects through a small opening in a deck portion of the transom and may have indicia thereon for registry with the upper surface of the transom deck portion for indicating the tilt of the outdrive unit.

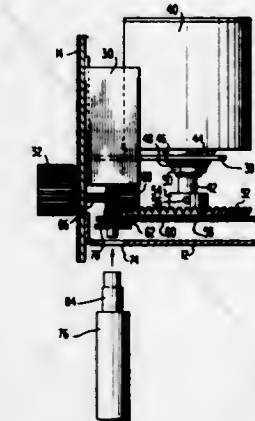
3,601,083 SET POINT INDICATOR

Clifford Douglas Stone, Plantation, Fla., assignor to Airpax Electronics, Inc., Fort Lauderdale, Fla.

Filed Mar. 25, 1969, Ser. No. 810,165
Int. Cl. G01p 13/00

U.S. Cl. 116—115

6 Claims



Disclosed is a combination electrical control device and indicator particularly adapted for use as a set point indicator for a furnace controller. The unit comprises a potentiometer and digital counter coupled by a gear train to a manually adjustable control knob. One of the gears of the gear train is releasably mounted so that the reference point of the counter can be readily adjusted to indicate different temperature ranges.

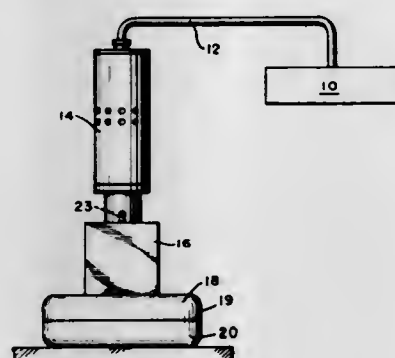
3,601,084

ULTRASONIC-VIBRATION-TRANSMITTING MEMBER
Tamas A. Biro, and Jeffrey R. Sherry, both of Danbury, Conn., assignors to Branson Instruments, Incorporated, Stamford, Conn.

Filed Nov. 21, 1969, Ser. No. 878,605
Int. Cl. B06b 3/00

U.S. Cl. 116-137 A

7 Claims



A vibration-transmitting member having large dimensions in planes perpendicular to the direction of vibration transmitted and adapted to be resonant in the sonic or ultrasonic frequency range is provided with internal bores to interrupt Poisson couplings between portions of such member. The bores are parallel to the direction of the vibration transmitted by the member.

3,601,085

PIPE-COATING APPARATUS

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.

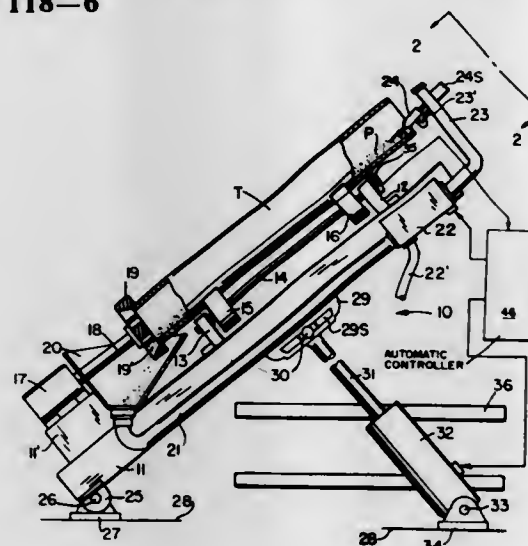
Continuation-in-part of Ser. No. 305,002, Aug. 27, 1963, abandoned, which is a continuation-in-part of Ser. No. 589,300, June 4, 1956, abandoned, which is a continuation-in-part of Ser. No. 589,848, May 28, 1956, Pat. No. 3,166,829

Filed Oct. 14, 1968, Ser. No. 767,378

Int. Cl. B05c 5/00, 7/02, 11/08

U.S. Cl. 118-6

1 Claim



An apparatus and method are provided for coating sections of tube or pipe while the pipe is inclined to the horizontal. In one form of the invention, sections of pipe of equal length are individually fed to the apparatus along a horizontal transfer device such as a flight conveyor and, after being received by the coating apparatus, are tilted at an angle to the horizontal and are thereafter rotated about the longitudinal axis of the pipe while coating material is fed to the upper end. As a result, the handling of the pipe and the coating of the inside of same is relatively simple and may be effected immediately.

3,601,086

TABLET-COATING APPARATUS

Van B. Hostetler, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

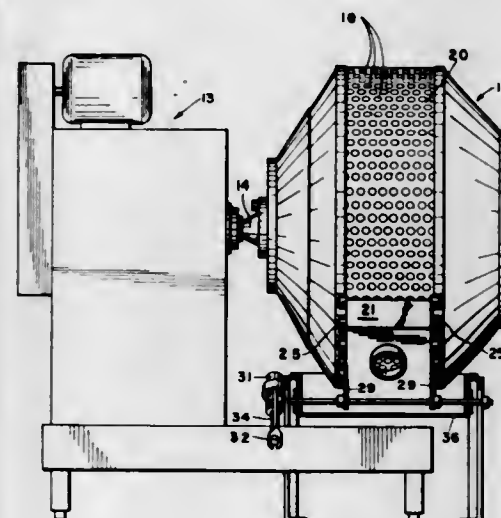
Division of Ser. No. 3,213, Jan. 15, 1970, which is a division of Ser. No. 708,261, Feb. 26, 1968, abandoned

Filed Aug. 12, 1970, Ser. No. 63,126

Int. Cl. A23g 3/26

U.S. Cl. 118-19

3 Claims



A tablet-coating apparatus is provided having a vented area about the periphery of a rotary tumbling drum. Exhaust means is removably positioned adjacent a portion of the drum's vented section in a manner which draws air and the coating material through the bed of tumbling tablets.

3,601,087

SURFACE TREATING

John W. Pearson, West St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

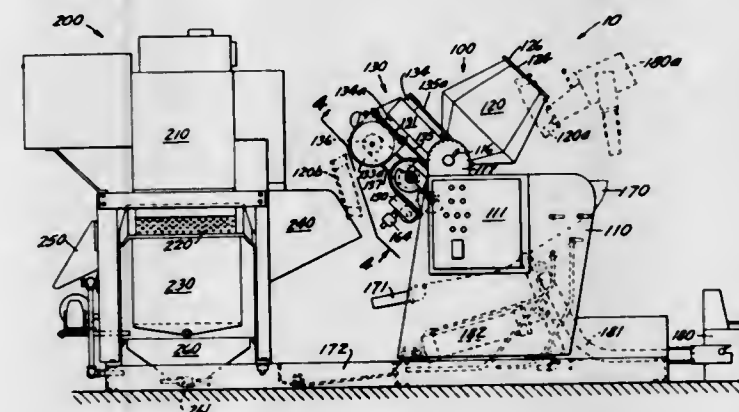
Division of Ser. No. 712,884, Jan. 22, 1968, abandoned, which is a division of Ser. No. 312,220, Sept. 27, 1963, Pat. No. 3,494,327

Filed Oct. 2, 1969, Ser. No. 863,066

Int. Cl. B05c 11/12

U.S. Cl. 118-56

3 Claims



Mechanical plating is carried out in container which is simultaneously slowly rotated and rapidly axially reciprocated. The container may be mounted at one end of a cantilevered leaf spring, a single motor simultaneously rotating the container and driving eccentric weights which sinusoidally deflect the spring. Plated parts, liquid, impact media, and other barrel contents may be discharged into one end of an operatively connected open end separating or post-treating drum which tumbles the parts when rotated in one direction and discharges them from the other end when rotated in the opposite direction.

3,601,088

APPARATUS FOR TREATING SMALL PARTS, SUCH AS SLIDERS FOR SLIDING FASTENERS

Guy Serge Pierre Lacam, Paris, France, assignor to La Fermeture Ailee, Alaines, France

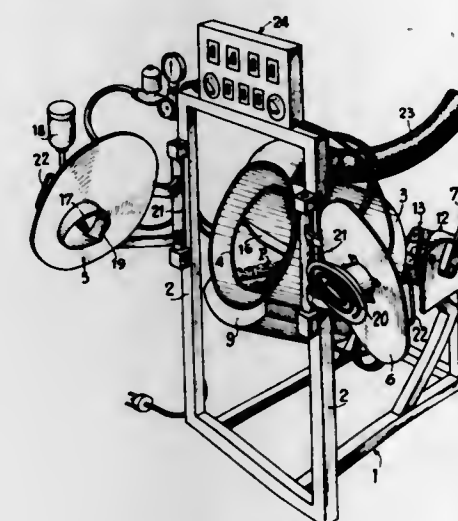
Filed June 19, 1969, Ser. No. 834,786

Claims priority, application France, Aug. 30, 1968, 164,664

Int. Cl. B05c 5/00

U.S. Cl. 118-64

7 Claims



Apparatus for applying paint on metal parts, and especially sliders for sliding fasteners. The apparatus comprises a container for the metal parts which is rotated by driving means inside an enclosure. Two covers are adaptable in succession on the enclosure. One cover has paint-spraying means and the other heating means for baking the paint sprayed onto the sliders. The enclosure comprises heating means.

3,601,089

SPRAY BOOTH

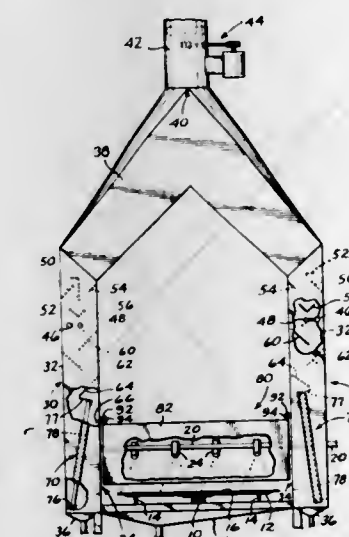
James P. Petermann, Eugene; Robert J. Slagle, Springfield; Russell W. Wilson, Eugene, and Leslie M. Steffensen, Springfield, all of, Oreg., assignors to Georgia-Pacific Corporation, Portland, Oreg.

Filed Nov. 17, 1967, Ser. No. 684,012

Int. Cl. B05c 11/16

U.S. Cl. 118-326

4 Claims



A spray booth includes spray means mounted above a support and arranged for spraying work thereon with the production of attendant overspray. At least one enclosed overspray collecting chamber is located beside the support. The chamber has an air inlet port at its lower inner end and an air exhaust port at its upper end. An exhaust fan entrains the overspray and passes it through the chamber. A wash liquid spray cooperates with baffles and a contact screen in

absorbing the overspray in the wash liquid. Combination shield and guide elements positioned on both sides of the support transversely of the chamber shield the booth and guide the flow of air into the chamber.

3,601,090

CONTINUOUS IMPREGNATION PLANT OF CARDBOARD OR LIKE SUPPORT

Roger Vallon, Rouen, France, assignor to Societe Anonyme: O.F.I.C. Omnium Francais Industriel Et Commercial, Paris, France

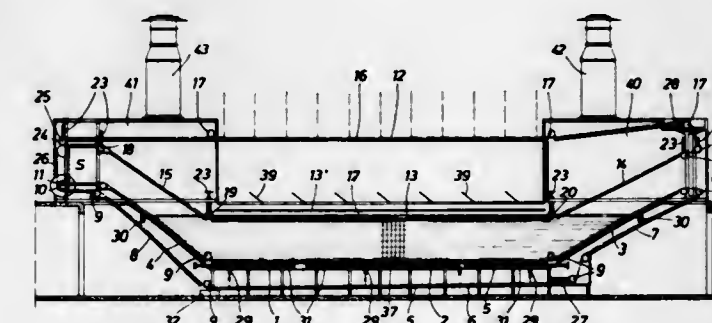
Filed June 17, 1969, Ser. No. 834,069

Claims priority, application France, July 16, 1968, 159386

Int. Cl. B05c 3/00

U.S. Cl. 118-423

6 Claims



Installation for the continuous impregnation of cardboard, felt, or other similar products, in corrugated or noncorrugated sheets comprising a tank of generally parallelepipedic shape, the two end walls of which are inclined so as to permit progressive ingress and egress of sheets or boards of card, felt, or other similar material in continuous succession into and out of the impregnation product, which is liquid or brought to and kept in the liquid state and which is introduced into said tank, said sheets or boards being held vertical between two pairs of conveyor chains, namely a bottom pair and a top pair, which carry them from an end for the entry and introduction of the sheets or boards between the chains to the other end, which is the outlet and where the sheets are unhooked after having been entirely immersed over a large part of their travel in the impregnation bath.

3,601,091

MAGNETIC PRINTOUT EQUIPMENT

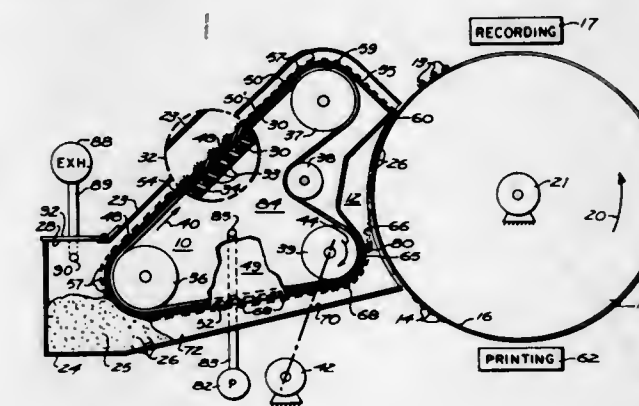
George G. Preckshot, Altadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Aug. 18, 1969, Ser. No. 850,958

Int. Cl. G03g 13/00

U.S. Cl. 118-636

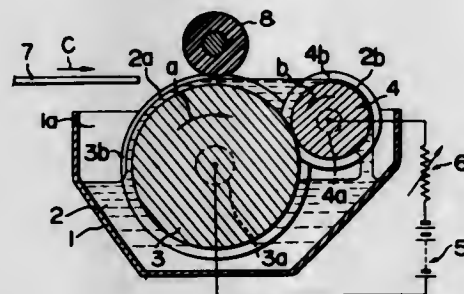
15 Claims



Apparatus for conveying magnetizable toner particles from a toner supply to a toning region for toning magnetic images have a magnetic conveyor belt for advancing toner particles from the toner supply to the toning region. A toner guide shields the conveyor belt and guides the advancing toner particles, and a mechanism maintains the magnetic conveyor belt in spaced relationship to a portion of the toner guide in the vicinity of the toning region to reduce magnetic interference with magnetic images.

3,601,092
DEVELOPING DEVICE FOR WET PROCESS
ELECTROPHOTOGRAPHY
 Toyokazu Satomi, Kawasaki, Japan, assignor to Kabushiki Kaisha Ricoh, Ota-ku, Tokyo, Japan
 Filed Feb. 26, 1970, Ser. No. 14,290
 Claims priority, application Japan, Feb. 28, 1969, 44/15574; 44/18662
 Int. Cl. D05b 5/00

U.S. Cl. 118-637

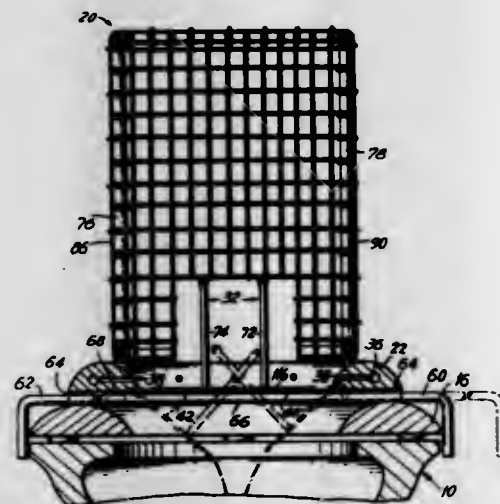


A developing device for a wet process electrophotography wherein within a developing solution chamber are disposed a wetting roller whose lower portion is immersed in the developing solution and a developing roller in parallel with the wetting roller in such a manner that a developing solution reservoir may be produced between the two rollers upon rotation thereof, the wetting roller being applied with a potential having the polarity same as that of the tonner in the developing solution while the developing roller, a potential having the polarity opposite to that of the tonner; and a sensitized member is fed with its surface facing against the two rollers through the developing chamber. The device may be made in compact in size even though it is provided with means for prewetting the sensitized member.

3,601,093
PET ACCESSORY FOR ATTACHMENT TO A
COMMODE
 Floraine Cohen, 9838 57th Ave., Lefrak City, Queens, N.Y.
 Filed Aug. 27, 1969, Ser. No. 853,258
 Int. Cl. A01k 29/00

U.S. Cl. 119-1

8 Claims



A pet accessory for attachment to a commode is provided which rests atop a conventional commode and is held thereon by hooks which prevent horizontal displacement. The accessory includes an oval support having a center opening disposed above the commode, there being a trap door arrangement which can be controllably operated for purposes of discharging waste material. The oval support is provided with an interior channel having radially disposed ports opening inwardly towards the trap door arrangement. Additionally, there is provided a collapsible and detachable cage

which can be mounted on the support to hold the pet therein. A hose arrangement is provided for connection with the aforesaid interior channel and in the hose is arranged a dispenser of a disinfectant. A disposable paper mat is positioned on the trap door arrangement.

3,601,094
ARTIFICIAL PRODUCTION OF THE YOUNG OF
COASTAL CRUSTACEA
 Ziro Kittaka, 719, Higashikata, Ibusuki-shi, Kagoshima-ken, Japan
 Filed Nov. 19, 1968, Ser. No. 777,189
 Claims priority, application Japan, Nov. 22, 1967, 42/75034
 Int. Cl. A01k 61/00

U.S. Cl. 119-2

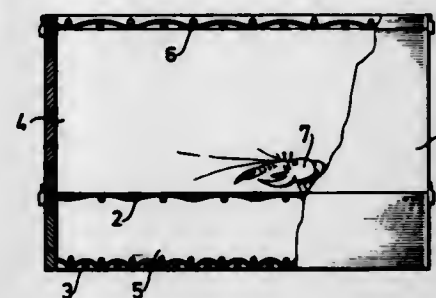
7 Claims

Larvae of a crustacean are caused to hatch and develop in a body of natural sea water into which inorganic and organic nutritive substances are added in accordance with the properties of the water, thereby inducing live food organisms required by the larvae according to their development to multiply successively in the water, whereby raising of the larvae and the culturing of food necessary for the larvae are carried out simultaneous in the same body of water under a stably maintained natural food chain.

3,601,095
EQUIPMENT AND METHOD TO FACILITATE THE
REARING OF THE YOUNG OF SPAWN-PRODUCING
CRUSTACEANS
 Hans Olof Lennart Olsson, Simontorps Sateri, Sweden, assignor to AB Vapor, Lund, Sweden
 Filed Sept. 12, 1969, Ser. No. 857,313
 Claims priority, application Sweden, Sept. 26, 1968, 12,964/68
 Int. Cl. A01k 61/00

U.S. Cl. 119-2

5 Claims



Apparatus to facilitate rearing of the young of spawn-producing crustaceans, particularly crayfish, comprises a boxlike structure which includes an enclosure having a foraminous floor upon which one or more mother crayfish are supported and through which the young drop, after hatching, into a collection compartment which is also provided with a foraminous floor. The foraminous floor which supports the mother crayfish is constituted by a wire netting having a mesh size small enough to prevent passage of the mother crayfish but large enough to permit free passage of the newly hatched young into the underneath collection department, and the floor of the collection department is also a wire netting having a mesh size small enough to prevent escape of the young. The enclosure for confining the mother crayfish is provided with a cover also made from wire netting and through which food can be passed.

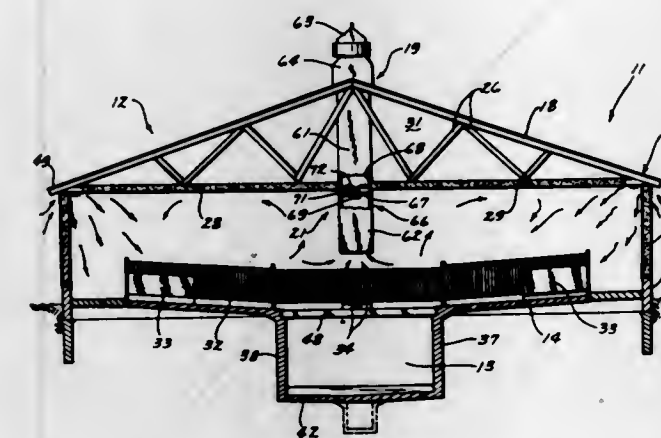
3,601,096
VENTILATING AND TEMPERATURE CONTROL
SYSTEM
 Dwayne C. Rutherford, Vail, Iowa
 Filed Aug. 4, 1969, Ser. No. 847,372
 Int. Cl. A01k 1/00

U.S. Cl. 119-15

3 Claims

A ventilating and temperature control system for a closed, rectangular swine house, the swine house having a manure sump filled with water disposed centrally and longitudinally

therein. Air inlets, with suitable baffles, are formed longitudinally through the sidewalls into the swine house proximate the juncture of the sidewalls and the roof and a plurality of air outlet ducts are formed through the roof in space-apart

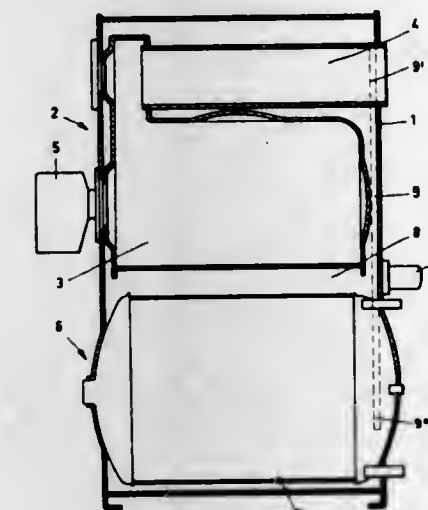


relation over the manure sump. The ducts extend downwardly of the roof and are equipped with blowers. The blowers are electrically connected into at least two separate, thermostatically controlled, electrical circuits.

3,601,097
BOILER
 Hans Viessmann, 3559 Battenberg im Hain, Germany
 Filed Oct. 21, 1969, Ser. No. 868,158
 Claims priority, application Germany, Oct. 24, 1968, P 18 04 845.8
 Int. Cl. F22b 33/02

U.S. Cl. 122-37

8 Claims



A boiler comprising a housing adapted to contain water. A combustion chamber located in the upper portion of the housing and a heat exchanger located in the lower portion of the housing. The heat exchanger holds a quantity of water for consumption. A duct is located within the housing connecting the space above the combustion chamber and the space below the heat exchanger. A pump is provided to circulate the water in the housing through the duct.

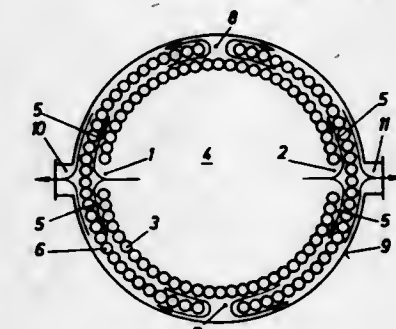
3,601,098
WATER TUBE BOILER
 Willibald Kraus, Grebenstein, Germany, assignor to Rhein-stahl Wenschel Aktiengesellschaft, Germany
 Filed Feb. 20, 1970, Ser. No. 12,936
 Claims priority, application Germany, Feb. 25, 1969, P 19 09 393.7
 Int. Cl. F22b 21/00

U.S. Cl. 122-235

3 Claims

A water tube boiler with circular, rectangular or polygonal cross section, and with two or more cage heating surfaces, each of which comprises vertical pipes or tubes, and upper and lower annular or polygonal headers and/or bends, in

which the cage-heating surfaces are coaxially arranged one within the other while flue gas passes in a horizontal direction through narrow high passages or lanes between the cage-heating surfaces and between the outermost cage and the flue gas chamber mantle in circumferential direction of said cages. The arrangement is such that with predetermined dimensional data such as gas flow and pressure loss on the gas side, the geometric dimensions of the lanes passed

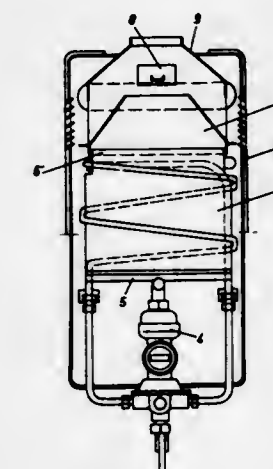


through by the flue gas are so selected that the ratio of the mutual distance of each two adjacent tubes from adjacent cages in a direction transverse to the flow direction of the flue gas to the pipe or tube diameter is less than 1.5 while the number of the passages or gases passed through in a parallel manner by the flue gas is determined by the flow off of the flue on one or both sides by one or more slots at the circumference or between two or more cages.

3,601,099
GAS-HEATED ONCE-THROUGH POSITIVE FLOW
WATER HEATERS
 Karl-Ernst Vaillant; Helmut Schmidt, and Robert Lehnartz, all of Remscheid, Germany, assignors to Joh. Vaillant KG., Remscheid, Germany
 Filed May 19, 1969, Ser. No. 825,554
 Claims priority, application Germany, Aug. 2, 1968, P 17 79 360.1
 Int. Cl. F22b 37/36

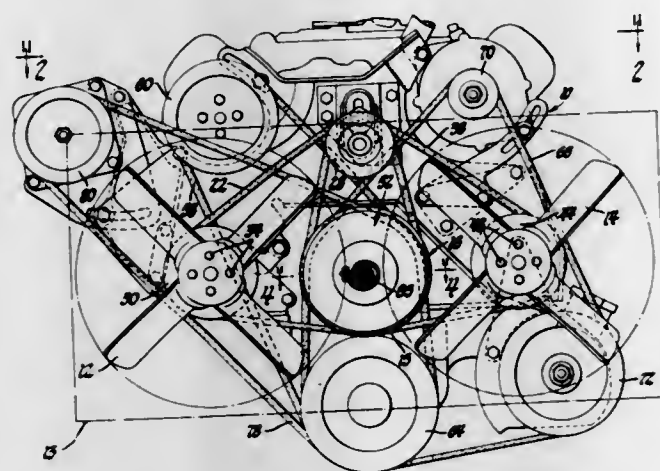
U.S. Cl. 122-494

10 Claims



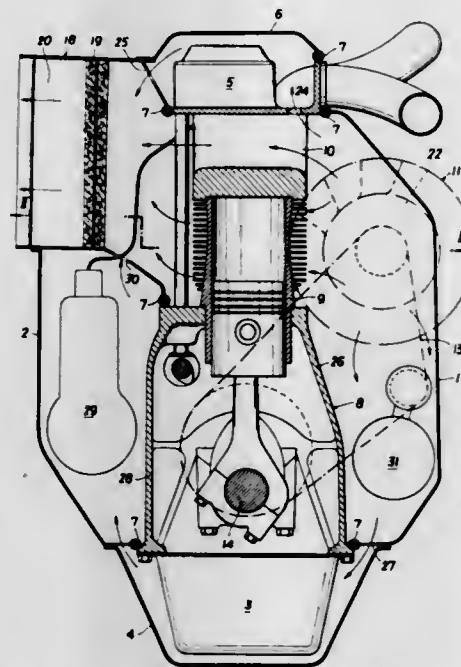
A gas water heater has a heater shaft terminating in a fin block. A pair of exhaust hoods are used interchangeably on the water heater. Each of these hoods has a bottom portion fitting the top of the fin block. One of the hoods incorporates a back-draft-flow-preventing apparatus. The other incorporates a centrifugal blower with a vertical shaft and a vertically extending intake with a horizontally extending discharge.

3,601,100
ENGINE-COOLING SYSTEM
 Theodore N. Louckes, Lansing, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed May 12, 1969, Ser. No. 823,591
 Int. Cl. F01p 7/12
 U.S. Cl. 123—41.12 4 Claims



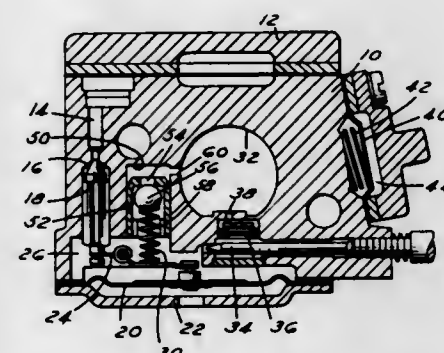
An engine-cooling system including dual low-configuration, side-by-side cooling fans whose pulleys may be operated by the same endless belt, or by two separate belts, from a single- or multigroove pulley, respectively, secured to a single thermostatically controlled viscous fluid, shear-type clutch for variable speed ratios with respect to engine speed, in response to varying ambient temperatures.

3,601,101
AIR-COOLED INTERNAL COMBUSTION ENGINE WITH SOUNDPROOFING ENCLOSURE
 Gerhard Thien; Heinz Fachbach, and Bernd Nowotny, all of Graz, Austria, assignors to Hans List, Graz, Austria
 Filed May 15, 1969, Ser. No. 824,899
 Claims priority, application Austria, June 6, 1968, A5,433/68
 Int. Cl. F01p 1/02
 U.S. Cl. 123—41.70 6 Claims



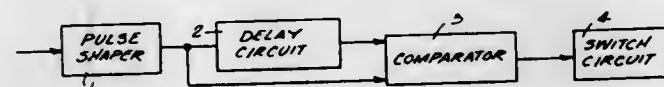
An air-cooled internal combustion engine having a cooling air blower driven by the crankshaft and the soundproof enclosure surrounding the outer surface of the engine. A distributing chamber is provided in the cavity formed within the soundproof enclosure and cooling air is supplied by the blower inside the cavity and into the distributing chamber which from there passes over the cylinder cooling areas and various parts of the engine.

3,601,102
VIBRATION-RESPONSIVE FUEL SUPPLEMENT VALVE
 Kenneth C. Schneider, and Charles E. Holm, both of Cass City, Mich., assignors to Walbro Corporation, Cass City, Mich.
 Filed Jan. 16, 1970, Ser. No. 3,439
 Int. Cl. F02d 33/00, 31/00, 19/02
 U.S. Cl. 123—97 4 Claims



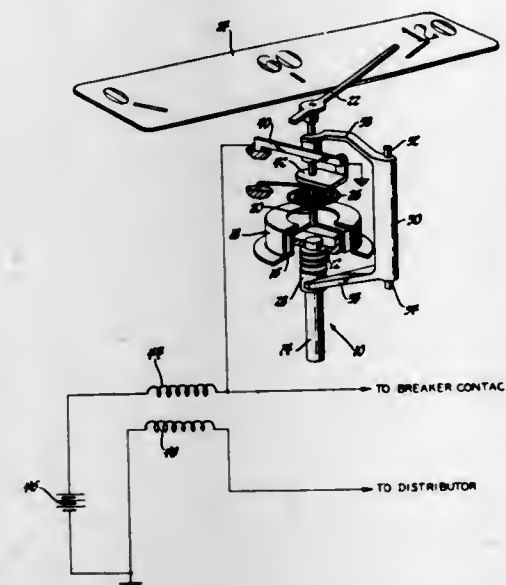
A diaphragm carburetor with a fuel valve controlled by a lever responsive to the position of the diaphragm with standard fuel jet and idle jet openings controlled by needle valves and an overrun protector valve to prevent engine runaway consisting of a fuel passage leading from the diaphragm chamber to the mixing passage and a ball seat in that passage with a spring-pressed ball in the seat, the spring bearing at one end on the ball and at the other end on the diaphragm lever. Thus, the spring normally acts to close the fuel valve and the ball valve but under open throttle conditions, the vibration of the engine on which the carburetor is mounted will move the ball valve from its seat and allow bleeding of fuel to the mixing passage with a consequent overrich fuel condition and slowing of the engine.

3,601,103
ENGINE-CONDITION-RESPONSIVE CUTOFF APPARATUS
 LaDell Ray Swiden, 1608 S. 1st, Sioux Falls, S. Dak.
 Continuation-in-part of application Ser. No. 780,441, Dec. 2, 1968, now abandoned. This application Oct. 13, 1969, Ser. No. 868,973
 Int. Cl. F02p 11/00
 U.S. Cl. 123—102 7 Claims



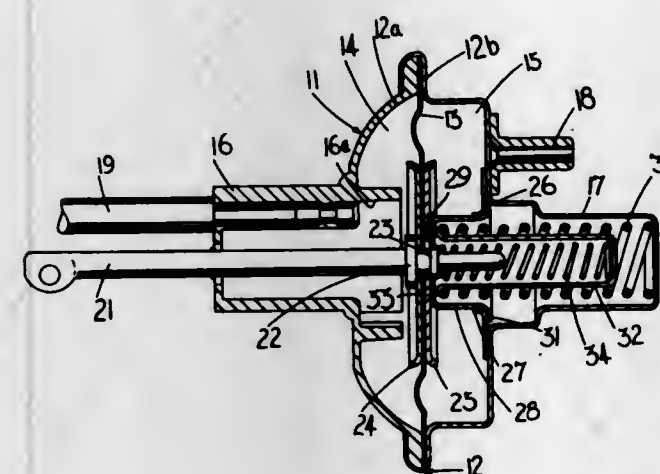
Apparatus for inhibiting the operation of an engine in response to engine speeds which exceed a preset number of revolutions per minute employs a cutoff circuit for detecting and shaping firing signals and a switch interposed in either the ignition powering circuit, or the fuel circuit of a diesel, which is operable upon a detected predetermined overlap of a shaped signal and the previous signal delayed a predetermined interval. The apparatus also utilizes temperature and pressure-sensing devices which are effective to operate the cutoff circuit in response to the detection of adverse temperature or pressure conditions within the engine. An engine cutoff device, i.e. a relay, is operated in response to a true output from an OR gate which has as its inputs the overlap detection circuit and the individual sensing devices. The cutoff device and the OR gate are also provided as a separate package for applications which require engine conditions detection other than overspeed detection.

3,601,104
PROPORTIONAL CONTROL TOP SPEED LIMITER
 Mark Newton Culver, and Douglas E. Mark, both of Davison, Mich., assignors to General Motors Corporation, Detroit, Mich.
 Filed Feb. 25, 1970, Ser. No. 14,078
 Int. Cl. F02p 5/08
 U.S. Cl. 123—117 2 Claims



A motor vehicle proportional control top speed limiter for providing a smooth entry into the speed limiting mode. A flexible contact secured at one end is oscillated by an eccentric cam driven by the speedometer drive cable. A movable contact is moved in conjunction with the indicated speed of the speedometer such that the movable contact moves into the flexible contact so as to periodically complete an electrical circuit between the movable contact and the flexible contact as the flexible contact is oscillated. The percentage time period during which the movable contact and the flexible contact complete the electrical circuit increases as the vehicle speed increases. The vehicle ignition system is disabled by the closure of the movable contact and the flexible contact to provide for proportional control top speed limiting.

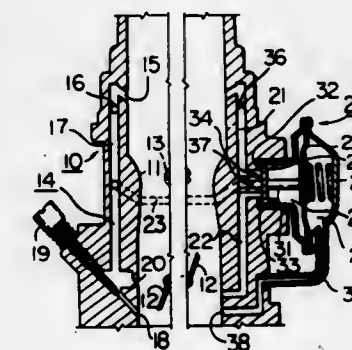
3,601,105
VACUUM-OPERABLE UNITS FOR USE WITH IGNITION DISTRIBUTORS
 William Harold Cooksey, Walsall, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
 Filed Aug. 4, 1969, Ser. No. 847,254
 Claims priority, application Great Britain, Aug. 12, 1968, 38426/68
 Int. Cl. F02p 5/10
 U.S. Cl. 123—117 A 4 Claims



A vacuum-operable unit for use with an ignition distributor includes a casing which is divided into first and second chambers by a diaphragm. A plunger is slidably received in the first chamber, and is connected at one end to the diaphragm, and extends at its other end from the first chamber for connection to the distributor.

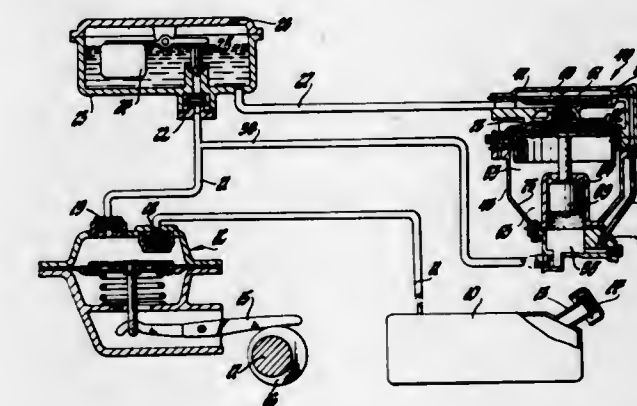
nection to the distributor, so that axial movement of the plunger varies the ignition timing of the distributor. The first chamber is vented to atmosphere, and the second chamber includes a conduit through which vacuum can be applied to the second chamber. A spring arrangement acts on the diaphragm to urge the diaphragm from a first position wherein, in use, the ignition timing of the distributor is advanced, to a second position wherein the ignition timing of the distributor is in a minimum advance position for normal operation. The spring arrangement is capable of urging the diaphragm from the second position to a third position wherein the ignition timing of the distributor is retarded beyond the minimum advance position, when opposite sides of the diaphragm are subject to equal pressures.

3,601,106
INTAKE MANIFOLD VACUUM CONTROL SYSTEM
 Yasuo Nakajima, Yokosuka, Japan, assignor to Nissan Motor Company Limited, Yokohama, Japan
 Filed Mar. 18, 1969, Ser. No. 808,262
 Claims priority, application Japan, Mar. 23, 1968, 43/18541
 Int. Cl. F02m 23/04; F02d 9/00; F02m 23/00
 U.S. Cl. 123—124 4 Claims



Disclosed herein is a carburetor for reducing the amount of hydrocarbons contained in exhaust gases emitted from an automotive gasoline-powered engine during deceleration of the automobile. Such reduction is accomplished by lowering the vacuum at the intake manifold of the engine through introduction of a proper amount of air-fuel mixture into the intake manifold by way of an additional bypass passageway and in response to the drop of the vacuum at the intake manifold.

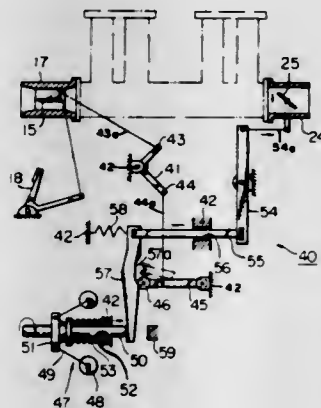
3,601,107
FUEL EVAPORATIVE LOSS CONTROL SYSTEM WITH ACCUMULATOR
 Earl W. Rohrbacher, Troy, and Donald B. Elfes, Royal Oak, Mich., assignors to General Motors Corporation, Detroit, Mich.
 Filed Feb. 26, 1970, Ser. No. 14,270
 Int. Cl. F02m 37/10
 U.S. Cl. 123—136 8 Claims



A fuel evaporative loss control system in which fuel is drained from the carburetor fuel bowl of the carburetor of an internal combustion engine into an accumulator when the engine is not in operation, the fuel thus drained into the accumulator.

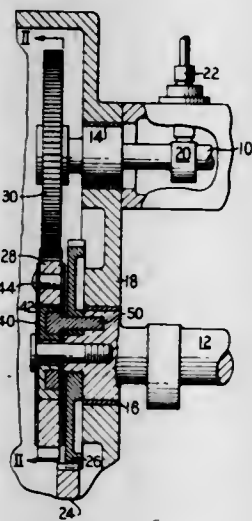
mulator being returned to the fuel bowl upon resumption of engine operation by fuel pump pressure.

3,601,108
INTAKE MANIFOLD FOR AUTOMOTIVE FUEL INJECTION SYSTEM
Shuya Nambu, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Filed Aug. 8, 1969, Ser. No. 848,637
Int. Cl. F02m 39/00; F02b 3/00; F02m 23/04
U.S. Cl. 123—139 BG 8 Claims



An intake manifold for fuel injection system of an internal combustion engine having a main throttle valve, and an auxiliary throttle valve each communicating with the atmosphere. The suction inertia effect (ram effect) of the intake manifold contributes to the improvement of the engine torque by operating the auxiliary throttle valve in relation to the opening of the main throttle valve and engine speed.

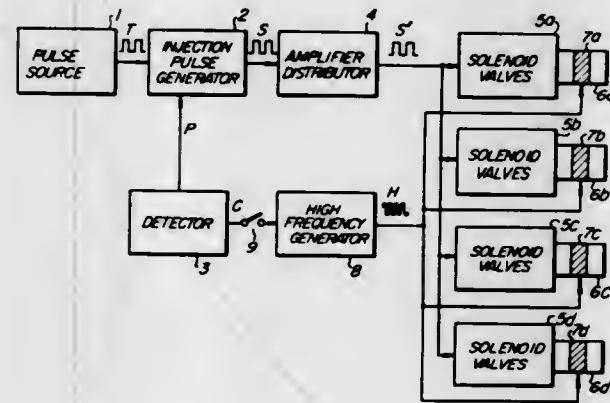
3,601,109
ENGINE FUEL PUMP TIMING MECHANISM
James S. Barton, Morton; Robert B. Bunting, Peoria Heights; Richard A. DeKeyser, Peoria; Marion R. Joy, Peoria, and Dennis M. Ruttle, East Peoria, all of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed June 25, 1969, Ser. No. 836,413
Int. Cl. F02m 59/20
U.S. Cl. 123—139 AP 7 Claims



Timing mechanism for adjusting the angular disposition of an engine fuel pump cam shaft in response to changes in engine speed which comprises flyweight means to adjust the angular relationship of two rotating elements. In the present case, these elements are not coaxial with the fuel pump cam shaft, but one is connected thereto by a gear train to isolate

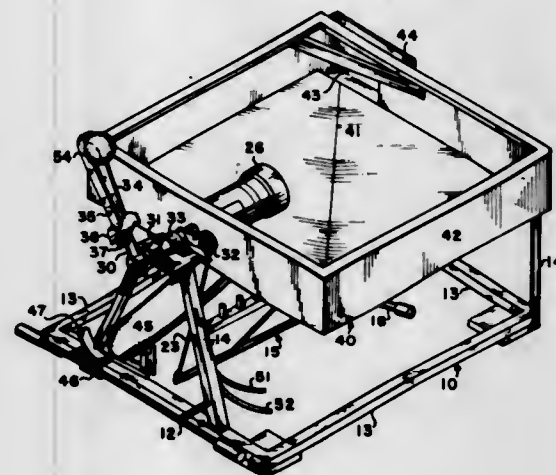
the flyweight means from shock or impulse forces which are transferred through the cam shaft and to increase inertia without undue increase in mass and complexity.

3,601,110
FUEL INJECTION SYSTEM
Isezi Kamazuka, Kariya-shi, Japan, assignor to Nippondenso Kabushiki Kaisha, Aichi-ken, Japan
Filed Jan. 12, 1970, Ser. No. 2,091
Claims priority, application Japan, Jan. 24, 1969, Jan. 30, 1969, 44/5,397; 44/6,940
Int. Cl. F02b 3/00; F02n 17/00; F02m 31/00
U.S. Cl. 123—179 L 3 Claims



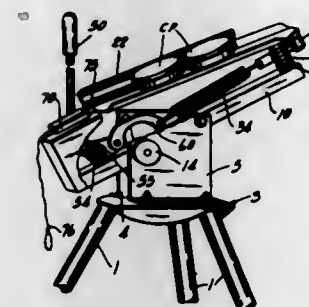
A fuel injection system for an internal combustion engine provided with solenoid injection valves wherein in order to ensure a positive starting of the engine in cold weather, high frequency heating means are provided for heating the injection valves such that when the engine is at a low temperature, a high frequency generator for said heating means automatically operates to heat the injection valves.

3,601,111
TENNIS BALL-THROWING TRAINING DEVICE
James G. Embry, 409 Zephyr Drive, San Antonio, Tex.
Filed Aug. 27, 1970, Ser. No. 67,364
Int. Cl. F41b 15/00
U.S. Cl. 124—7 8 Claims



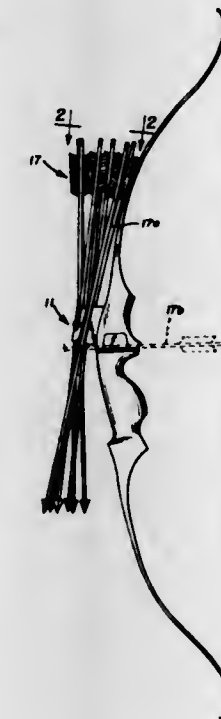
An electric-powered tennis ball-throwing device having a feed hopper and ball chute for supplying individual tennis balls to a spring-propelled throwing arm, oscillating components mounted on resilient feet vibrate the entire machine to facilitate the ball feed function, the throwing arm incorporate adjusting means for varying the height of the ball trajectory and the speed of propulsion.

3,601,112
TARGET TRAP HAVING AN OVERCENTER COCKING LEVER
Vernon F. Dale, Onalaska, Wis.
Filed Dec. 5, 1969, Ser. No. 882,676
Int. Cl. F41b 7/00
U.S. Cl. 124—8 5 Claims



A target trap having a trigger operated throwing arm and an overcenter cocking lever for cocking the spring that swings the throwing arm. The arrangement is such that the throwing arm can be swung to its operative position and then loaded before the spring is cocked, thus preventing accidental tripping of the throwing arm during its loading operation.

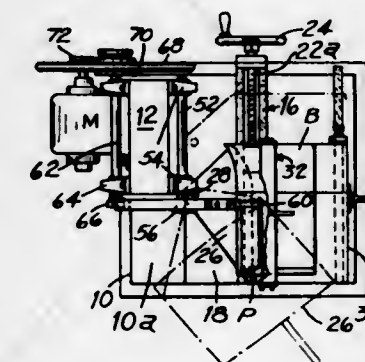
3,601,113
ROTARY BOW QUIVER
Marvin L. Wilkie, 8115 W. 62nd Avenue, Arvada, Colo.
Filed Aug. 12, 1969, Ser. No. 849,375
Int. Cl. F41c 25/00
U.S. Cl. 124—48 15 Claims



Bow quiver supports a plurality of arrows on a bow with the arrows being obliquely inclined to one another and to the longitudinal axis of the support body and disposed in a balanced generally circular array. The quiver has a support body with a plurality of circumferentially spaced individual arrow support stations. A leading arrow in the discharge position preferably extends diagonally across the back of the bow and falls directly into the shooting position when released from its support station. The arrows are successively advanced to a discharge position by the rotation of the support body. One form of support body is essentially cylindrical and has a plurality of slots extending along and through the outer periphery of the body in which the arrows are releasably supported. Another form has upstanding end walls with cooperative offset slots therein together with a central stop member

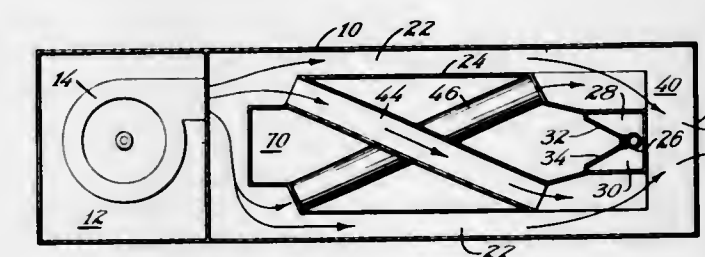
against which the arrow pivots to release the arrow through the slot openings in a pivotal action.

3,601,114
METHOD AND APPARATUS FOR CUTTING COMPLEX SHAPES
Arnold M. Cook, Holden, Mass., assignor to Norton Company, Worcester, Mass.
Filed Jan. 21, 1969, Ser. No. 792,702
Int. Cl. B28d 1/02; B27b 19/02
U.S. Cl. 125—19 14 Claims



Mold plates of complex shape used for making hot pressed ceramic plates of similar configuration are cut out of a block of graphite with a saw blade preshaped lengthwise to a curvature of one radius or of different radii; oscillated a relatively short distance in a vertical plane and in an arc of fixed radius, about a horizontal axis. The block is supported on a member that can be fed horizontally into and pivoted about a vertical axis relative to the saw blade to produce a plate with straight and curved portions having a surface of substantially the curvature of the blade.

3,601,115
HEAT EXCHANGERS
Richard N. Weatherston, St. Paul, Minn., assignor to Weather-Rite Manufacturing, Ramsey County, Minn.
Filed Feb. 5, 1970, Ser. No. 8,876
Int. Cl. F24h 3/08
U.S. Cl. 126—110 R 10 Claims

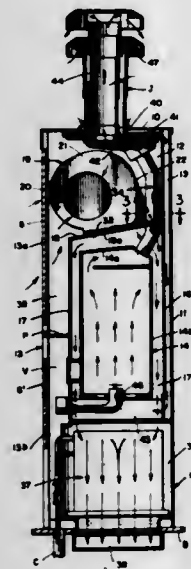


A high-flame facing area heat exchanger in which the air passageways pass both around and through the combustion chamber in a repetitive crisscross pattern. Some of the passageways which pass through the chamber are isolated and connected to feed the burner with preheated combustion air.

3,601,116
MOBILE HOME FURNACE WITH AIR CIRCULATOR OUTLET MEANS
Richard L. Davis, and James C. Goodgion, both of Wichita, Kans., assignors to The Coleman Company, Inc., Wichita, Kans.
Filed Feb. 6, 1970, Ser. No. 9,264
Int. Cl. F24h 3/02
U.S. Cl. 126—110 AA 10 Claims

A compact sealed combustion furnace adapted to be mounted within a closet or alcove of a mobile home is equipped with a downflow air circulator or blower characterized by auxiliary air outlet means oriented to direct the air

discharged therefrom, first against one or more flue connection tubes, and then downwardly into the space between the combustion chamber casing and the rear wall of the exterior casing. The auxiliary air means may include passage-defining extensions on each side of the rear wall of the blower scroll, which are arranged to at least partially straddle the flue con-

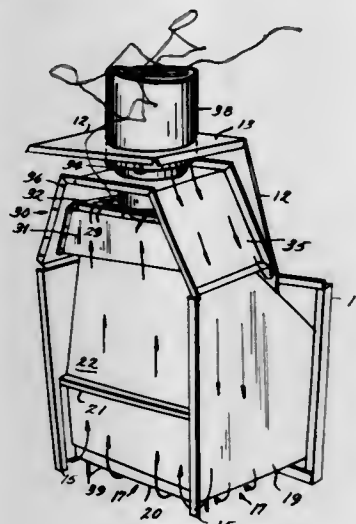


nection tube means. One or more slots can also be provided in the rear wall of the blower scroll in combination with or instead of the passage-defining extensions. In one preferred embodiment, a plurality of flue connection tubes are employed in combination with a plurality of transversely aligned slots in the rear wall of the blower scroll, the slots being oriented to direct air against and around the flue tubes.

3,601,117
COUNTERFLOW FIREPLACE
Walter C. Carson, P.O. Box 1381, Savannah, Ga.
Filed Aug. 1, 1969, Ser. No. 846,911
Int. Cl. F24b 7/04

U.S. Cl. 126-121

7 Claims



The double-walled fireplace is described which is adapted to be connected to a counterflow chimney arrangement designed to introduce cold air into the fireplace through an outer duct while the heated air is drawn out through an inner duct and discharged to the atmosphere simultaneously with flue gases from the firebox. At the point of attachment of the chimney to the firebox, a diaphragm or baffle assembly is provided which directs the cold air down the sides of the firebox. By providing suitable baffling on one side of the front and the opposite side at the rear, the air flowing down one side can be made to pass up the firebox, and the cold air from the other side can be made to pass up the rear wall of the firebox. In order to accommodate different fireplace configurations it is possible to modify the baffle structure so that different flow patterns will occur.

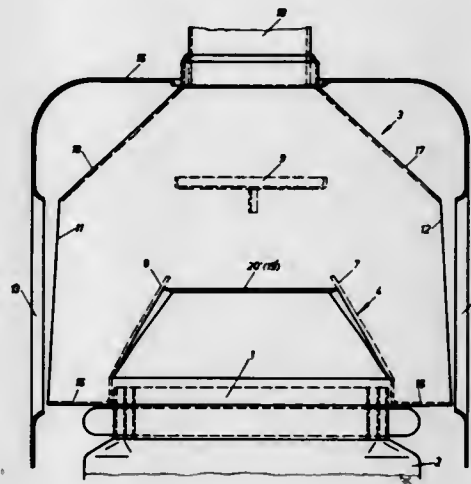
3,601,118
DOWNDRAFT SAFETY DEVICE FOR COMBUSTION GAS FLUES

George Hein, Huckschagen, and Erich Tropp, Sellscheld, both of, Germany, assignors to Joh. Vaillant KG
Filed Oct. 20, 1969, Ser. No. 867,439
Claims priority, application Germany, Dec. 3, 1968, P 18 12 361.0

Int. Cl. F23j 11/00

U.S. Cl. 126-307 A

2 Claims

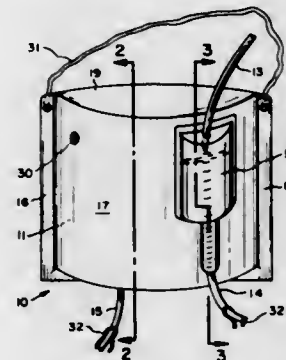


This invention relates to an improvement in a downdraft safety device, e.g., for a gas-heated liquid heater. The device is arranged inside of a cowl provided with lateral outlets, and includes a lower flue gas collecting hood defined in front and in the rear by the front and back panels of the downdraft safety device, and a baffle arranged above the flue gas collecting hood in the vicinity of the outlet connected between front and back panels. The hood defining, inwardly inclined portions of the front and back panels, each provide an opening at their tops for venting the device through the respective front and back panels.

3,601,119
BODY FLUID DRAINAGE APPARATUS
Harvey J. Engelsher, Yonkers, N.Y., assignor to Horizon Industries, Ltd., Bronx, N.Y.
Filed Dec. 23, 1968, Ser. No. 786,161
Int. Cl. A61b 5/10; A61f 5/44

U.S. Cl. 128-2

5 Claims



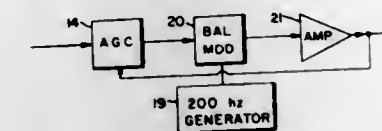
A container for the drainage of body fluids such as urine has a partition defining and separating inlet and storage chambers for measuring and then storing the fluid, with the partition being open at its upper part to provide an interconnecting passage between the chambers. An inlet tube extends downward, slightly into the inlet chamber where its discharge end terminates with a one-way valve which is spaced below the chamber's upper surface and generally above the passage for preventing backflow of fluid and bacteria. Fluid draining through the inlet tube drips first into the inlet chamber which is calibrated for accurate measurements, and can later be transferred to the storage chamber via the passage.

3,601,120
ULTRASONIC DOPPLER BODY SURFACE MOVEMENT DETECTOR

Harold Lee Massie, Trenton, N.J., assignor to Hoffmann-LaRoche Inc., Nutley, N.J.
Filed Apr. 14, 1969, Ser. No. 815,724
Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 S

4 Claims

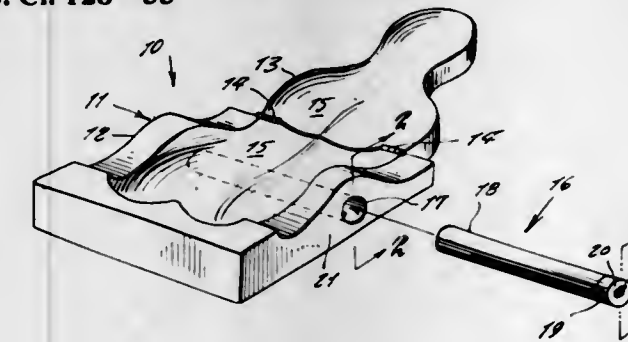


A device for utilization with an ultrasonic system for internal exploration of living organisms, enabling improved measurement of low blood pressure values by audible monitoring including modulating an audible tone frequency with the signals to be detected to generate a distinct audible signal rhythm which can directly be detected by human ear and distinguished from noise.

3,601,121
CONTOUR AID CUSHION VIBRATOR
Shepard D. Roberts, P.O. Box 136, Brevoort Station, Brooklyn, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,727
Int. Cl. A61h 1/00

U.S. Cl. 128-33

3 Claims

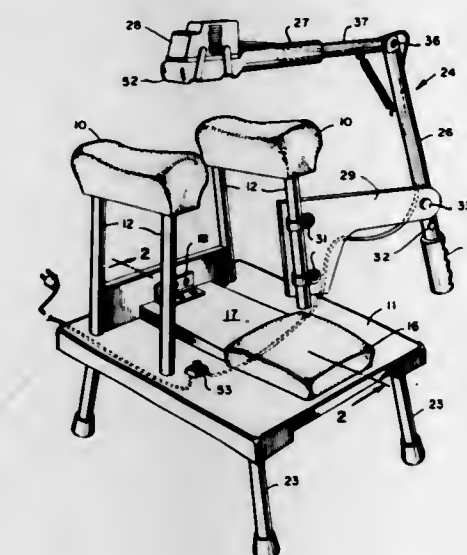


A contoured cushion incorporating a vibrator mechanism so to exercise the muscles of a person while reclined thereupon. The cushion is formed in two parts hinged together. The top of the cushion is contoured to fit the human body.

3,601,122
POSTURAL DRAINAGE ASSISTER
Gilbert J. Guertin, 39 Pembroke Road, Danbury, Conn.
Filed May 23, 1969, Ser. No. 827,231
Int. Cl. A61h 23/00

U.S. Cl. 128-55

8 Claims



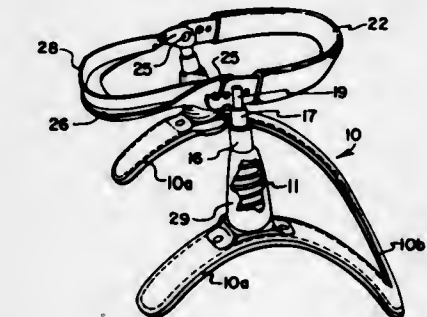
Supporting devices for comfortably positioning the head and shoulders of a human patient in diagonally inverted posi-

tion to facilitate drainage of fluids from the patient's lungs. Relative adjustment of the supported positions of the head and shoulders and selective height adjustment of the overall assembly are provided, and a movable vibratory percussion arm positioned for operation and movement by the patient further aids in the treatment of the patient.

3,601,123
DYNAMIC CERVICAL SUPPORT
Harold A. McFarland, Salt Lake City, Utah, assignor to H. C. Burton, Bountiful, Utah, a part interest
Filed May 16, 1969, Ser. No. 825,295
Int. Cl. A61h 1/02

U.S. Cl. 128-75

13 Claims

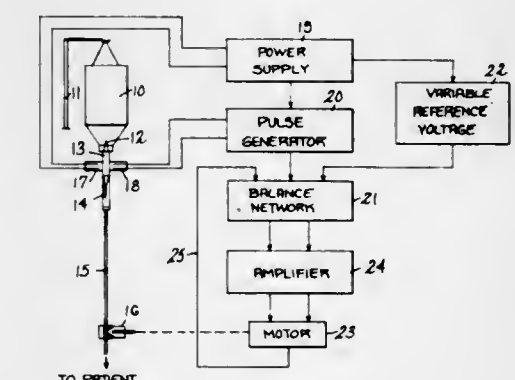


A cervical support wherein traction is constantly maintained even though the wearer has almost full normal mobility of his head and wherein increased traction can be readily obtained on a temporary basis. A head frame is universally connected to upwardly biased, telescoping members, the lower ends of which are adjustably fixed to the small ends of tapered springs. The large ends of the tapered springs are anchored to a shoulder harness. A removable and adjustable chin member cooperates with the head frame to provide full support for the wearer's head in an attitude of flexion or extension as necessary for best treatment of the wearer's cervical disease.

3,601,124
FLUID FLOW REGULATOR
Frank L. Petree, 387 Westmoreland, Idaho Falls, Idaho
Filed Aug. 29, 1968, Ser. No. 756,202
Int. Cl. A61m 5/00

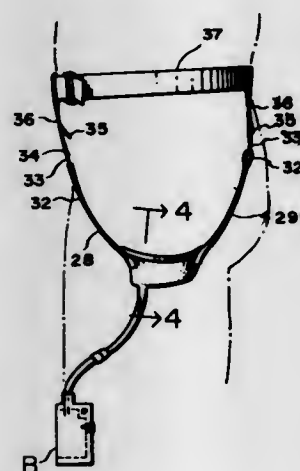
U.S. Cl. 128-214

8 Claims



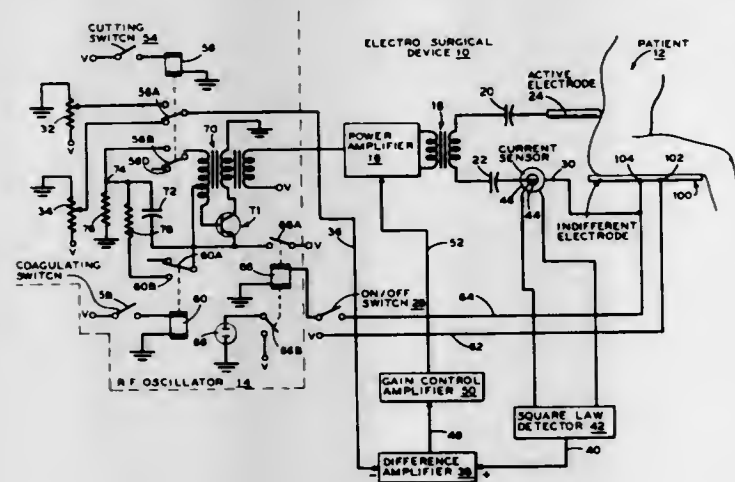
An intravenous fluid flow regulator wherein a clamp is motor operated to either constrict or open a tube in response to a rate reference signal and a fluid drop signal. A tube clamp is moved toward an unclamped position and a rate responsive to the rate reference signal and then is moved toward a clamping position in response to a fluid drop system.

3,601,125
BODY-WORN URINAL FOR FEMALES
 David H. Moss, 10295 Collins Ave., Bal Harbour, Fla.
 Filed May 23, 1969, Ser. No. 827,327
 Int. Cl. A61f 5/44
 U.S. Cl. 128—295



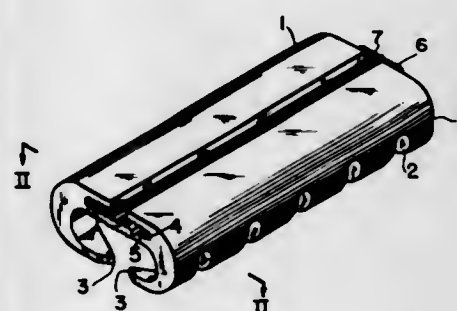
A body-worn urinal for females having an open pouch with a cylindrical member lined along its upper circumference with adjustable straps secured to the ends of the pouch and extending to a belt for positioning the pouch snugly against the flesh of the groins. The pouch having a drain pipe connected thereto and extending to a nozzle inserted into a funnel-shaped sheath and flutter valve forming the inlet of a disposable plastic bag. The nozzle is provided with an enlarged shoulder limiting the positioning of the nozzle in the flutter valve and upon wrapping the sheath about the nozzle with an O-ring slipped thereon against the shoulder a leak-proof connection is effected. The plastic bag being placed in a pocket positioned on a garment worn by the person whereby a person may utilize the urinal while walking, sitting and standing as well as reclining.

3,601,126
HIGH FREQUENCY ELECTROSURGICAL APPARATUS
 Jerry R. Estes, Boulder, Colo., assignor to Electro Medical Systems, Inc., Englewood, Colo.
 Filed Jan. 8, 1969, Ser. No. 789,716
 Int. Cl. A61b 17/36
 U.S. Cl. 128—303.14



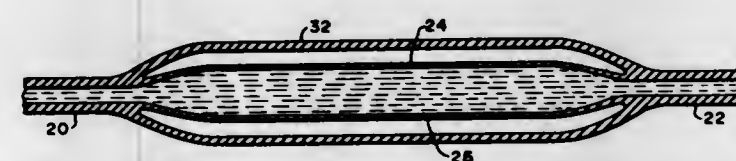
Electrosurgical apparatus including electrodes powered by high frequency electric current, wherein the amplitude of the current flowing through the circuit is monitored and compared with a reference amplitude so that the current source can be regulated to transmit power of a desired amplitude. Further, the waveform of the current can be selectively switched from a sinusoidal waveform to a pulsed waveform. Also, there is provided an indifferent or return electrode whose conductivity controls the operation of the power source.

3,601,127
SURGICAL CLAMP
 Aaron N. Finegold, 1143 Shady Ave., Pittsburgh, Pa.
 Filed Sept. 15, 1969, Ser. No. 857,696
 Int. Cl. A61b 17/08
 U.S. Cl. 128—337



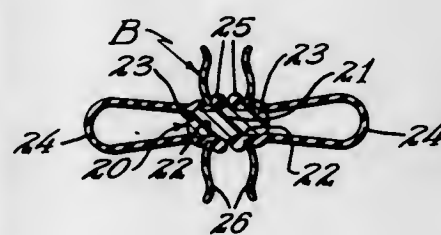
An adjustable clamp comprising a pair of substantially U-shaped clamp members having the edge of one leg formed with serrations and a continuous longitudinal groove formed in the other leg, a connector extending between the clamp members into the grooves and continuous longitudinal teeth formed on surfaces of the grooves and on surfaces of the connector to hold the clamp members in the desired position.

3,601,128
VENTRICULOATRIAL SHUNT ACCUMULATOR
 Salomon Hakim, Carrera 13, No. 48—26, Bogota, Colombia
 Filed Dec. 26, 1968, Ser. No. 786,928
 Int. Cl. A61m 27/00; F16I 55/04
 U.S. Cl. 128—350



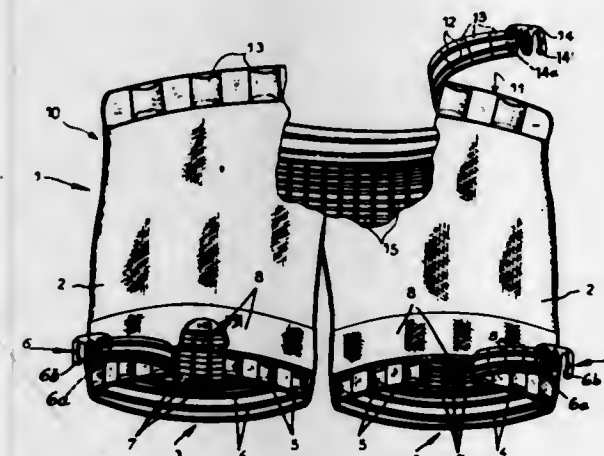
In a ventriculoatrial shunt, a fractional backflow of cerebrospinal fluid into the ventricular cavity is provided by a resilient accumulator chamber which responds to the pressure fluctuations of the cerebrospinal fluid. This backflow is effective to discourage clogging of the ventricular catheter by the choroid plexus, or other matter.

3,601,129
PACIFIER
 Sharon A. Seidl, 149 Garbe Ave., ST. Paul, Minn.
 Filed Feb. 18, 1969, Ser. No. 800,128
 Int. Cl. A61j 17/00
 U.S. Cl. 128—360



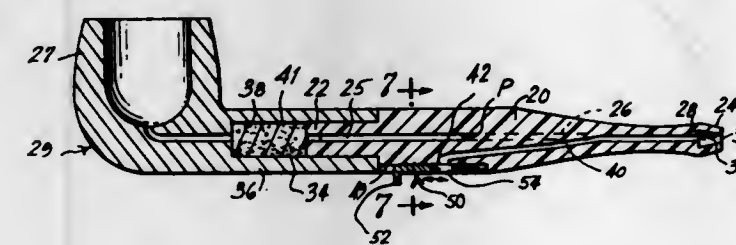
A pacifier is provided having two nipples supported on opposite ends of a supporting shank. One nipple serves as a handle when the other is in the infants mouth. Retaining discs hold the nipples secured to the shank.

3,601,130
UNDERGARMENT PROVIDED WITH ELASTIC-FIXING MEANS OF ADJUSTABLE LENGTH
 Joseph Pepo Saktiel, Saint-Quentin, France, assignor to Wimbleton Organization Ltd., Luxembourg, Grand Duché de Luxembourg
 Filed June 25, 1969, Ser. No. 836,401
 Int. Cl. A41c 1/04
 U.S. Cl. 128—535



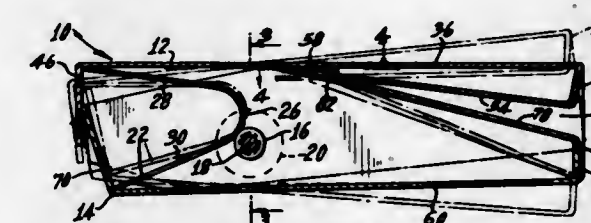
A panty comprising elastic-fixing means of adjustable length provided with retaining means ensuring frictional adherence and further provided with internal additional elastic means, located in the proximity of said adjustable elastic-fixing means, for imparting increased suppleness to said panty.

3,601,131
BIT FOR SMOKING ARTICLE HAVING SMOKE AND AIR PASSAGES
 Eugene T. Reggio, 60 Hamilton Ave., Valley Stream, N.Y.
 Filed Feb. 12, 1970, Ser. No. 10,945
 Int. Cl. A24f 5/04
 U.S. Cl. 131—198 A



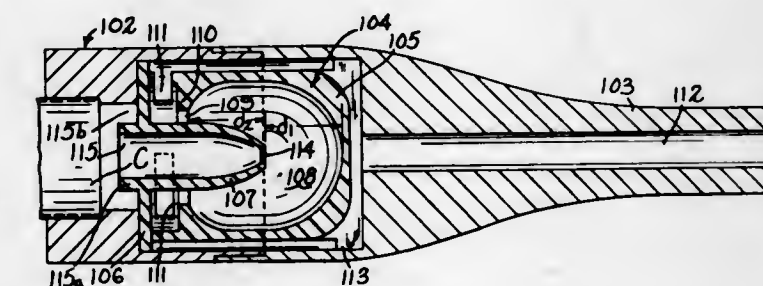
A smoking article which may be a pipe, cigar or cigarette holder has a removable stem or bit. The bit has a mouthpiece and tenon at opposite ends and is provided with separate air and smoke passages terminating at a mixing chamber at the mouthpiece end of the bit. The air passage extends from one side of the bit where there is a lateral opening. A movable slide valve member covers the lateral opening for adjusting the size of the opening and consequently the relative amount of air and smoke drawn through the bit. One smoke passage extends axially through the tenon end of the bit and is then divided into two branch passages which open into the mixing chamber. The air passage is located between the two branches. A slide valve carried upon the bit has a tapered opening operable over the air passage inlet to control not only the passage of air but the amount of air delivered. There is no mixture of air with smoke until it reaches the mouthpiece end of the bit, when it mixes, and cools and dilutes the hot smoke. The bit thus provides a cool and dry smoke.

3,601,132
CIGARETTE EXTINGUISHER
 G. H. Etheridge, 6059 Hyde Park Circle, Jacksonville, Fla.
 Filed May 12, 1969, Ser. No. 823,867
 Int. Cl. A24f 13/18
 U.S. Cl. 131—256



An extinguisher for cigarettes including an upper boxlike member having top, rear and sidewalls and a downwardly facing jawlike forward end portion, and a lower boxlike member having bottom, rear walls and sidewalls and an upwardly facing jawlike forward end portion. The extinguisher includes a hinge pin assembly connecting the upper and lower boxlike members together in operative pivotal relationship with the members being freely pivotable about the pin assembly and is further provided with a spring device positioned between the members for biasing the jawlike forward end portions together for extinguishing the lighted end of a cigarette placed therebetween.

3,601,133
TOBACCO SMOKE FILTERING DEVICE
 William F. Van Eck, 228 Main St., East Haven, and Warren R. Jewett, Orange, both of, Conn.
 Filed Mar. 3, 1969, Ser. No. 803,712
 Int. Cl. A24d 01/04; A24f 07/04, 13/06
 U.S. Cl. 131—261 B

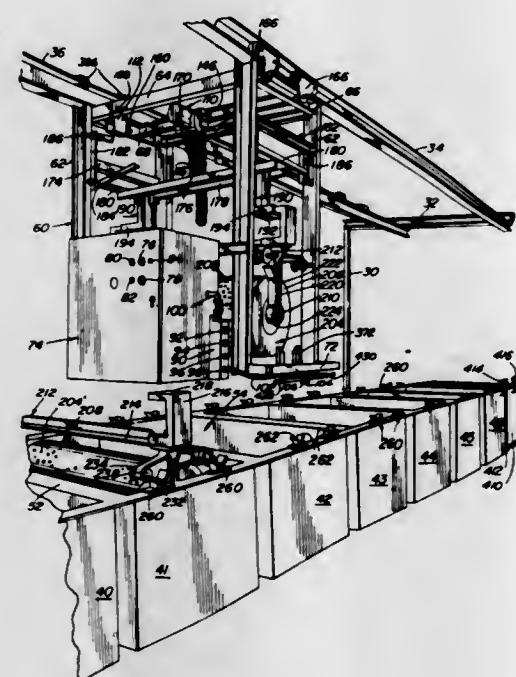


This disclosure relates to a tobacco smoke filter which removes tars through condensation and precipitation. An inlet nozzle protrudes into a smoke expansion chamber of predetermined size. Smoke exits from the nozzle at high velocity and disperses and expands in the chamber with a resultant turbulence and temperature drop. Water vapor precipitates on the chamber surfaces and tars coalesce thereon. The filter is constructed and arranged to prevent blockage by coalesced tars and to operate within a predetermined range of pressure loss while efficiently removing tars from the tobacco smoke.

3,601,134
AUTOMATIC AND MANUAL PLATING MACHINE
 Albert Benjamin, Skokie, Ill., assignor to Clinton Supply Company, Chicago, Ill.
 Filed Apr. 29, 1968, Ser. No. 724,745
 Int. Cl. B08b 3/06
 U.S. Cl. 134—46

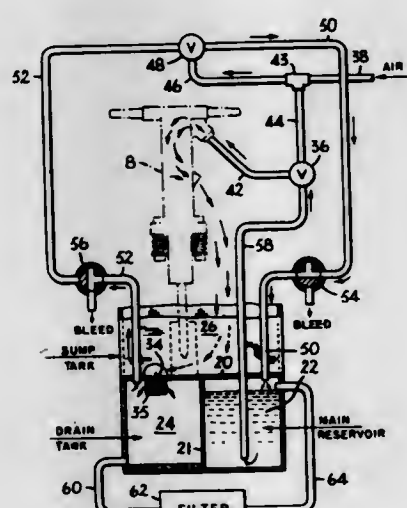
An electroplating machine adapted to move parts to be plated through one or more timed process steps sequentially or intermittently with either manual or automatic control as desired. In one embodiment, means are provided to sequentially engage, lift, convey, lower and release one or more baskets of parts to be plated through a series of metal preparation and electroplating baths. A longitudinally reciprocable carriage characterized by having a remotely controlled hoist, a cradle operated by the hoist to engage and disengage the parts baskets, which have means adapted to be

engaged by the carriage and also alignment means for placing the baskets into their proper position in each treating tank. A control panel is also provided whereby the electroplater controls the machine through a series of manually operated switches or as desired can place the machine on fully automatic and closely timed operation. Included in the electrical control system are means to actuate the various timed move-



ments of the hoist through a punched tape for completely controlled programmed and automatic operation so that each motion or cycle or combination is precisely repeated to insure uniform operation and results. Means are provided to sense the presence of a basket in a treating tank so that the hoist cannot place one basket on the top of another, to provide automatic shut-off or safety features in the system and to prevent undue wear of parts.

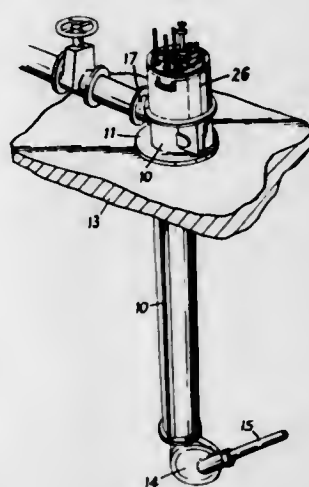
3,601,135
PNEUMATIC TOOL CLEANER
Richard Marlow, Ridgewood, N.J., and McKenzie D. Cook, San Diego, Calif., assignors to Nortech Corporation, Midland Park, N.J.
Filed Nov. 21, 1968, Ser. No. 777,623
Int. Cl. B08b 9/00
U.S. Cl. 134-102



A device for cleaning pneumatic tools such as, paving breakers and jackhammers, comprising a cabinet structure provided with a shock absorbing mount to receive the tool and having its lower end divided into a main reservoir and a drain tank. A source of compressed air communicates with a hose connection to the air inlet of the tool, with the main

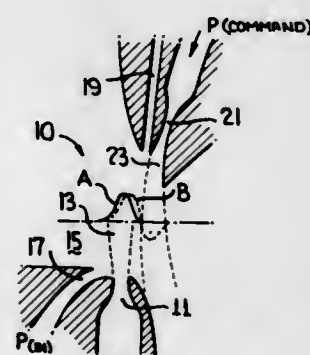
reservoir, and with the drain tank, and includes suitable valving to direct the airflow into the reservoir where it pressurizes a cleaning solvent, causing it to flow through a conduit, into the hose connection through the tool and into the drain tank; or, to direct the airflow to the hose connection and through the tool to flush the dirt therefrom and to dry the interior thereof; or, to direct the airflow to the drain tank where it pressurizes the dirty solvent, causing it to flow through a filter and back into the main reservoir.

3,601,136
TANK-WASHING EQUIPMENT
James Sydney Marcham, Woodford Green, England, assignor to Samuel Hodge & Sons Limited, Rainham, Essex, England
Filed Dec. 8, 1969, Ser. No. 883,083
Claims priority, application Great Britain, Dec. 12, 1968, 59235/68
Int. Cl. B08b 9/08
U.S. Cl. 134-167 R



A tank-washing apparatus for use in tanker ships has a first part which is fixed in the tank and includes a rotatable turret with a swinging nozzle and a water turbine driven by the wash water supplied to the nozzle and a second part which is transferable from one first part to another and contains the transmission gear for driving the turret and nozzle from the turbine.

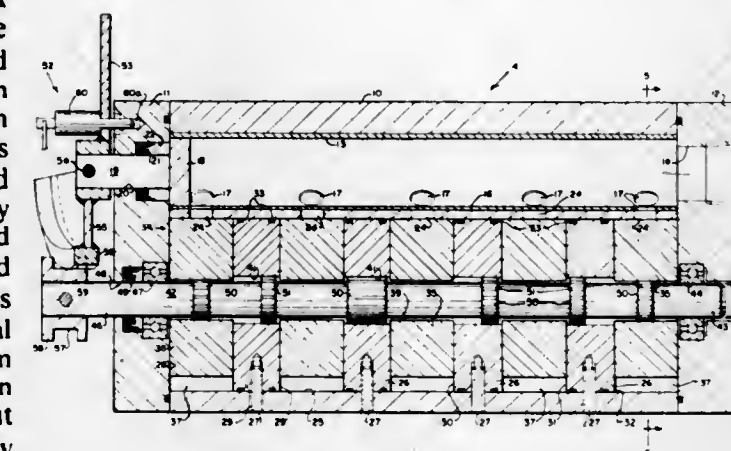
3,601,137
APP. AND METHOD FOR PROVIDING VARIABLE FUNCTION GENERATION IN FLUIDIC SYSTEMS
Peter Bauer, Germantown, Md., assignor to Bowles Corporation, Silver Spring, Md.
Filed July 10, 1968, Ser. No. 743,711
Int. Cl. F15c 1/04
U.S. Cl. 137-81.5



Techniques are disclosed whereby fluid output signals are provided as selectively variable functions of fluid input signals. One technique employs a fluidic amplifier wherein a fluid output signal varies as a function of the deflection of the amplifier power stream and of the transverse velocity profile of the power stream, the function being rendered variable by

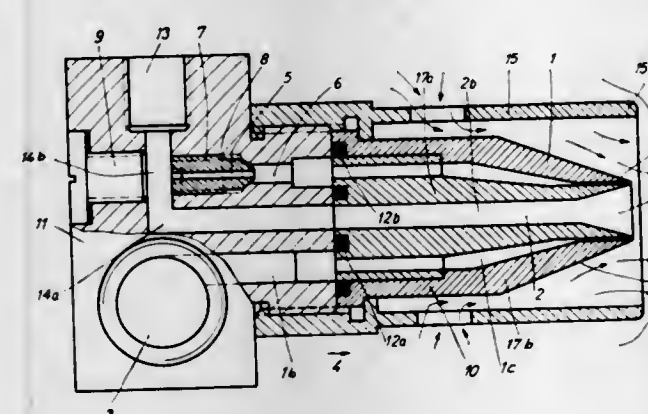
providing a fluid stream flowing adjacent to and in a direction opposite to the power stream whereby to selectively modify the power stream velocity profile. Alternatively, a substantially wedge-shaped wall is disposed adjacent the undeflected power stream with the apex of the wedge pointing generally transversely of the direction of the power stream. A command stream of fluid is directed so as to deflect the power stream against the upstream side of the wedge-shaped wall whereby the power stream bounces off the wall at an angle dependent upon the point at which the power stream impacts against the wall. A still further alternative comprises a fluidic circuit in which a variable pressure gain command signal is converted to a correspondingly variable-frequency oscillatory signal which is amplitude modulated by a fluid input signal. The amplitude-modulated signal is then passed through a filter network having a variable amplitude versus frequency characteristic in the range of the oscillatory signal frequency. The amplitude modulation envelope is then recovered by a detector and filter combination to provide an output signal at an amplitude which differs from the input signal amplitude as a function of the gain versus frequency characteristic of the filter. Still other alternatives are disclosed wherein variable pressure input signals are converted to correspondingly variable frequency oscillatory signals, the frequencies of which are varied in accordance with desired gain changes for the input signal and then reconverted to pressure signals at correspondingly varied pressure levels.

of fluid to be discharged therefrom. Valves are provided for selectively enabling or disabling the admission of fluid to any one or more of the compartments and adjustment of a valve



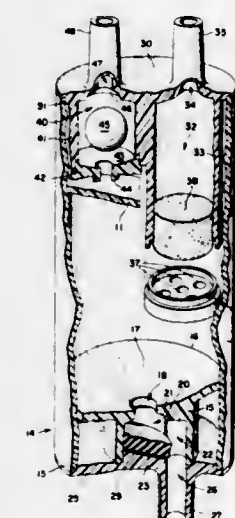
to disable the admission of fluid to any compartment automatically effects disablement of the associated metering device.

3,601,138
FEELER AND CONTROL DEVICE
Hansheirich Glatli, Seestrasse 252, Kusnacht, and Jan Richard Peter De Fries, Allenmoosstrasse 124, Zurich, both of, Switzerland
Filed June 19, 1969, Ser. No. 834,836
Claims priority, application Germany, June 20, 1968, P 17 74 446.6
Int. Cl. F15c 4/00
U.S. Cl. 137-81.5



A feeler and a control device formed of a nozzle and a reflecting surface or plate determining the presence or absence on body surface within the control area includes a nozzle having an inner passage emitting an inner control jet and an outer passage surrounding the inner passage and terminating in an annular part of substantial length. Gas under pressure is supplied to both the passages. A signal device for measuring the pressure is connected to the inner passages.

3,601,140
LIQUID TRAP
Robert Edward Hooper, Oakville, Ontario, Canada, assignor to Torginol Industries Incorporated
Filed June 3, 1969, Ser. No. 830,072
Int. Cl. F16t 1/18
U.S. Cl. 137-107



Liquid trap for use in vacuum systems where liquid flow is induced by the application of a vacuum, for the purpose of preventing accidental flow of liquid to the vacuum source. The trap incorporates a chamber connected in the vacuum line, and having an automatic drain valve closed by the application of the vacuum and opening when the vacuum is terminated, the chamber being also provided with an additional safety valve closing the vacuum line if any small quantity of liquid should escape from the chamber into the vacuum line.

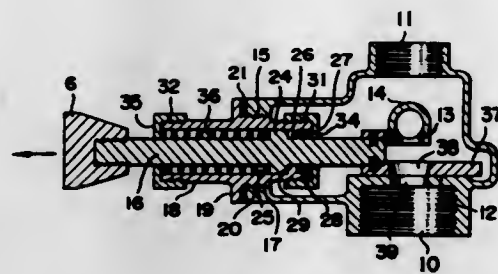
3,601,139
FLUID DISTRIBUTING APPARATUS
Edward S. Kontranowski, Bay City, Mich., assignor to Aerospace America, Inc., Bay City, Mich.
Filed Feb. 24, 1970, Ser. No. 13,330
Int. Cl. G05d 1/100
U.S. Cl. 137-99

Apparatus for distributing fluid from a source thereof in predetermined volume to each of a plurality of fluid operated mechanisms comprises a body having a plenum chamber into which the fluid is admitted and from which the fluid passes into any one of a number of separate compartments in each of which is a rotary metering device operable in response to the admission of fluid thereto to enable a measured amount

3,601,141
CHANGEOVER VALVE
Nobutoshi Kishu, Kitakyushu-shi, Japan, assignor to Toyo Toki Co., Ltd., Kitakyushu-shi, Japan
Filed Mar. 26, 1969, Ser. No. 810,480
Int. Cl. A47k 3/22
U.S. Cl. 137-119

A valve casing is formed with at least one inlet, two outlets and a hole for receiving a liner member, and a valve seat having an opening is formed in a portion of the valve casing adjacent one of the outlets. A partition tube is formed integrally with the valve casing in communication with the inlet, the tube having an opening at the portion opposite to the open-

ing of the valve seat. An operating rod is supported by the liner member fitted in the liner hole, and a valve element provided with a through hole in alignment with the opening of the valve seat is fitted to the operating rod in such a way

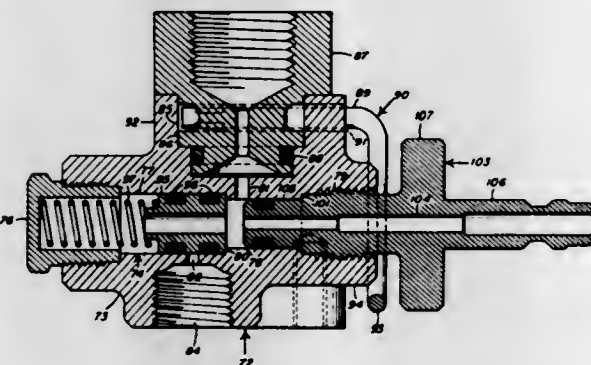


as to be freely slidable over the valve seat. A spring maintains the valve element pressed at a point where the through hole of the valve element remains in alignment with the opening of the valve seat.

3,601,142
GAUGE-TESTING FITTING
Virgil L. Frantz, Salem, Va., assignor to Graham-White Sales, Salem, Va.
Division of Ser. No. 767,631, Sept. 15, 1968
Filed May 20, 1970, Ser. No. 39,074
Int. Cl. G01 17/00

U.S. Cl. 137-269

4 Claims



A fitting for mounting a pressure gauge or other pressure-sensing member for use in a testing system with a testing gun or other testing device. The fitting is ported for connection to a pressure line and is so valved and so locks the sensing member in place as automatically to disconnect the sensing member from the pressure line on and prevent unlocking of the sensing member except on removal of a plug normally closing the fitting's testing port.

3,601,143
VALVE SERVICE BOXES
Joseph T. Glennon, 127 Lincoln Ave., Elizabeth, N.J.
Filed Jan. 23, 1969, Ser. No. 793,424
Int. Cl. F16 5/00

U.S. Cl. 137-364

7 Claims

A valve service box comprises an erect telescopic pipe structure whose sections made of plastic having resilient quality, are in frictional engagement. The upper end of the upper section has a collar holding a closure plate. The lower section is provided with two aligned diametrically opposite keyhole-shaped notches, starting from its lower rim edge, so that upon downward movement of said pipe structure in a trench or excavation leading to a sunken valve interposed in

a gas or water pipeline, the valve's inlet and outlet tubular members are entered in said notches respectively whereupon

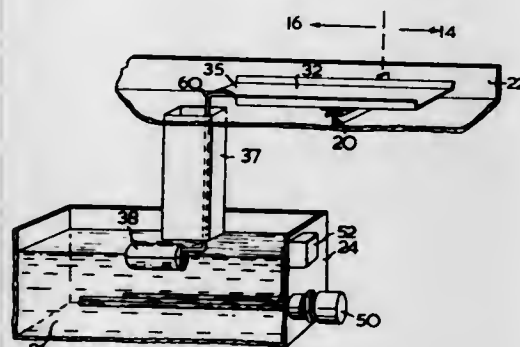


the lower pipe section is snapped on to the plumbing, thus anchoring said lower section against upward movement.

3,601,144
LEVEL CONTROL DEVICE
William A. Hansen, Winnipeg, Manitoba, Canada, assignor to The Paul Moore Company Limited
Filed Sept. 16, 1969, Ser. No. 858,317
Int. Cl. F16k 31/26

U.S. Cl. 137-386

3 Claims



A liquid level controlling device is described which is particularly suited for use in conveyor- or straight-through types of glass washers and dish washers. A float indicates the liquid level of wash solution in a tank, and is operatively connected to a diverter trough which effects the transfer of liquid to the tank in response to an indicated low level, and from the tank in response to an indicated high level of wash solution. A simple mechanical linkage, or a fluid connection using an incompressible fluid or the like, is employed in order to cause a corresponding movement of the diverter trough to any movement of the float due to a change in the level of wash solution in the tank.

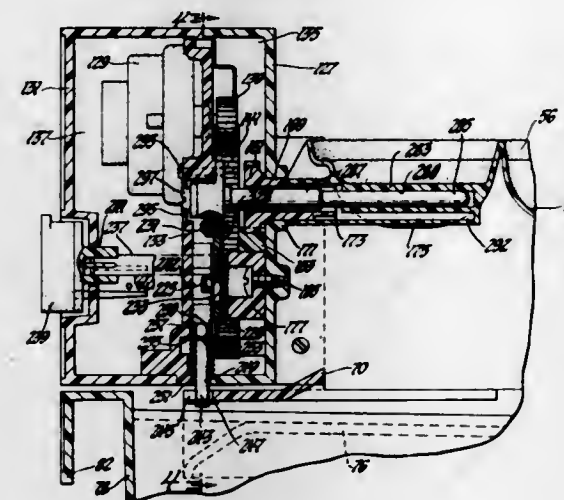
3,601,145
AUTOMATIC FREEZER
Charles W. Eyman, Jr., Dayton; Floyd O. Moody, Dayton, and Harold M. Snyder, Springfield, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Division of Ser. No. 774,786, Nov. 12, 1968, Pat. No. 3,540,227
Filed Jan. 28, 1970, Ser. No. 6,467
Int. Cl. G05d 9/12

U.S. Cl. 137-408

2 Claims

In the preferred form an electric motor drives a large gear which operates a Scotch yoke type cam having an interrupted rack connected to it for turning an interrupted pinion which is operably connected to one end of a flexible mold for inverting and twisting the mold about the axis of a double

throw hydraulic thermostat switch. A commutator is provided on the large gear. Cooperating with this commutator and thermostat are spring contacts controlling the filling, freezing and ejection periods. One of these commutator contacts is pivoted into and out of contact with a wedge shaped contact by the movable bin carrier under the control of a

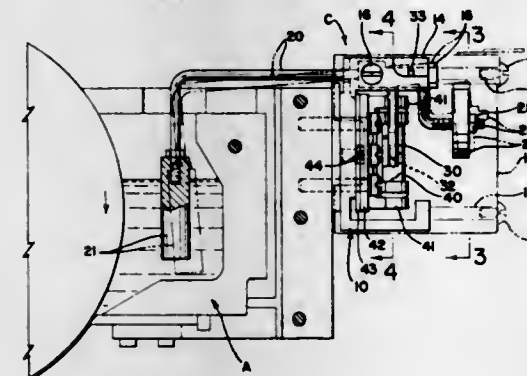


weak and stronger spring arrangement to stop the operation whenever the bin is removed or when it is filled to a measured amount. A manual adjustment moves this wedge shaped contact relative to this pivoted contact to vary the mass of frozen pellets or ice cubes which may be deposited in the bin before the operation is stopped.

3,601,146
LIQUID LEVEL CONTROL
Alan B. Reighard, Bay Village, and John Sharpless, Amherst, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio
Filed May 8, 1969, Ser. No. 822,878
Int. Cl. G05 9/00

U.S. Cl. 137-413

7 Claims



A device for sensing and controlling a liquid level in a reservoir or container. The device uses a counterbalanced sensing element in the form of a displacer adapted to enter the liquid through the surface and displace a certain volume thereof. The displacer is mounted on an arm of the lever, the lever being counterbalanced to respond to a liquid head. The lever also carries a switch-actuating mechanism which is moved in response to change in the liquid level so that the switch controls the supply of liquid to the reservoir to maintain the desired level.

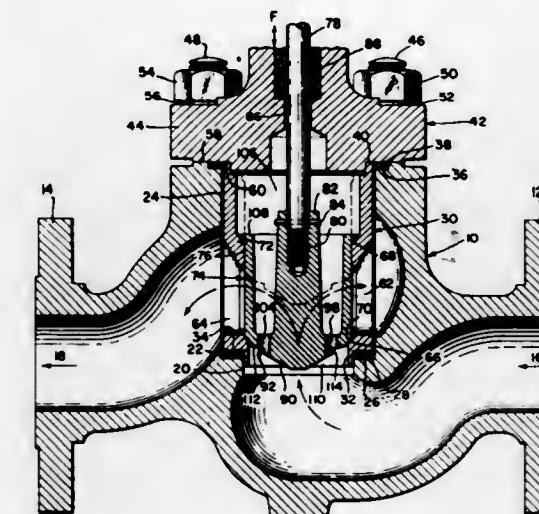
3,601,147
SEMIBALANCED PLUG VALVE
Edward B. Myers, Oreland, Pa., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 28, 1969, Ser. No. 811,433
Int. Cl. F16k 51/00

U.S. Cl. 137-484.2

1 Claim

A semibalanced plug for a double seated cage valve having a bottom end surface thereof provided with a nonspinnable in-

verted frustum-shaped surface, an annular recess formed in this surface and a plurality of the spaced-apart passageways extending from this annular recess to the top of the plug so that a low pressure fluid suction condition will be created along the recess that will effect a pulling action on the fluid

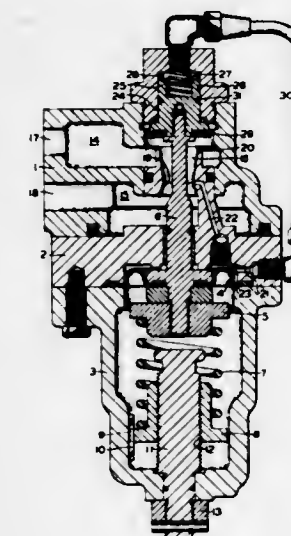


from the top to the bottom of the plug into the recess to thereby continuously reduce the pressure of the fluid acting on the top of the plug, the force that is required to move the plug to different operating positions and the size of the actuator that is required.

3,601,148
FLUID-PRESSURE-REGULATING VALVE DEVICE
William B. Jeffrey, Irwin, and William H. Reno, Monroeville, both of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Oct. 7, 1969, Ser. No. 864,358
Int. Cl. G05d 16/06

U.S. Cl. 137-484.8

1 Claim

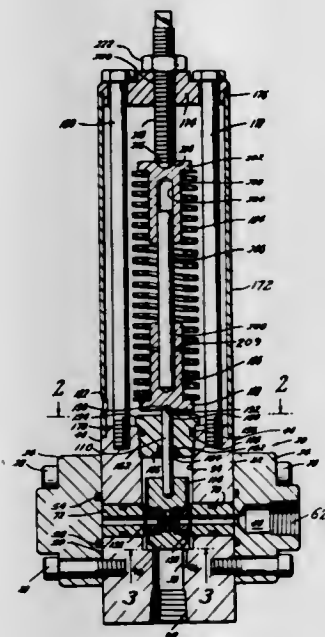


A fluid-pressure-regulating valve device including adjusting means for setting the device to deliver fluid at a selected pressure, piston-operated valve means for controlling and maintaining delivery of fluid at the preselected pressure level, the piston for operating said valve means being normally biased in one direction by an adjustable force for opening said valve means and being subject to supply fluid pressure acting thereon in opposition to said adjustable force for closing said valve means when the delivered pressure attains said preselected pressure sufficient for overriding said adjustable force venturi means in the supply communication for causing the pressure of supply fluid acting on the piston to be reduced to a lesser degree than the delivered pressure for thereby affecting the piston to maintain the valve means in its fully open position until the preselected pressure is attained,

and means for effecting balance of pressure on both sides of the valve means for rendering the piston more sensitive to any change in the degree of delivered pressure when the valve means is closed.

3,601,149
RELIEF VALVE
Samuel E. Gilmore, P.O. Box 265 Bellaire, Houston, Tex.
Filed Sept. 18, 1969, Ser. No. 859,121
Int. Cl. F16k 31/36
U.S. Cl. 137—494

12 Claims

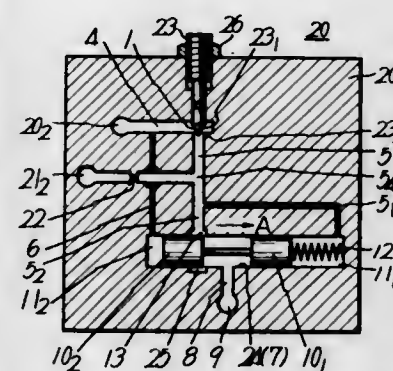


Valve closure means comprises conduit means movable in valve body between a closed position against a stop and an open position away from stop. Stem connected to conduit means extends through body to a spring that urges conduit means to closed position. Upstream pressure from inlet port in valve body is effective over cross-sectional area of stem to urge conduit means to open position. Valve opens when upstream pressure overcomes spring force. Conduit means has passage therethrough in which are telescoped tubes sealingly bridging between valve body and conduit means. In closed position of valve closure one tube surrounds outlet in valve body whereby outlet is sealed off from interior of valve body except over parallel area where other tube contacts valve body. The latter area is provided with a blank seat or a blind second seat to seal with tube. Therefore, downstream pressure acting on closure is balanced as far as components in direction parallel to plane of valve seat is concerned. Inner diameter of tubes where they engage carrier. Therefore, downstream pressure acting on closure is balanced as far as components acting in direction perpendicular to plane of valve seat is concerned. With the construction downstream pressure creates no friction force between closure and body and upstream pressure at which valve opens is independent of downstream pressure. Valve body has alternative outlet port beneath blank seat or blind second seat. Effective are of tubes subject to upstream pressure is such as to cause tubes to seal more tightly against seat means as upstream pressure increases so long as valve is in closed position.

3,601,150
FLOW CONTROL VALVE
Akio Mito, Tokyo, Japan, assignor to Kabushikikaisha Tokyo Kelki Seizosho (Tokyo Kelki Seizosho Co., Ltd.), Tokyo, Japan
Filed Jan. 23, 1970, Ser. No. 5,294
Claims priority, application Japan, Jan. 27, 1969, Jan. 28, 1969, Jan. 27, 1969, 44/5899; 44/7484; 44/5900
Int. Cl. F16k 17/22, 31/163
U.S. Cl. 137—501

6 Claims

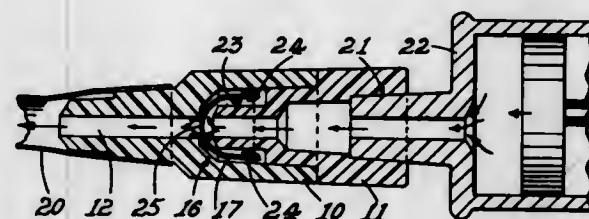
A flow control valve having a branch duct line provided in



duct line thereby to permit constant supply of a suitable amount of a fluid to the pressure adjustment unit.

3,601,151
NONRETURN VALVES FOR MEDICAL USES
Ronald Winnard, Johannesburg, Transvaal, Republic South Africa, assignor to Latex Products (Proprietary) Limited, Johannesburg, Transvaal, Republic South Africa
Filed Jan. 8, 1968, Ser. No. 696,244
Claims priority, application South Africa, Mar. 29, 1969, 1810/67
Int. Cl. F16k 15/14
U.S. Cl. 137—525

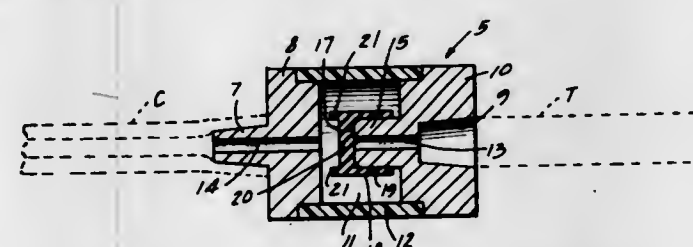
1 Claim



A medical valve used with arrangements to pass fluids into and from the body. The valve member is constituted by a chamber into which a stem portion protrudes, the stem portion being provided with a bore which passes fluid into the chamber and through the valve. The stem acts as a seat for the valve closure member which is an elasticlike sock which opens by expansion under pressure exerted from the stem side of the valve. The valve is closed when the pressure is removed and the sock contracts under its own elasticity around the stem. The valve can also be operated by causing a needle to pierce the sock member, the sock material is of a nature that it is self-sealing when the needle is removed.

3,601,152
UNIDIRECTIONAL FLOW VALVE
Grant F. Kenworthy, 1688 Chestnut, Des Plaines, Ill.
Filed Aug. 15, 1969, Ser. No. 850,436
Int. Cl. F16k 15/14
U.S. Cl. 137—525

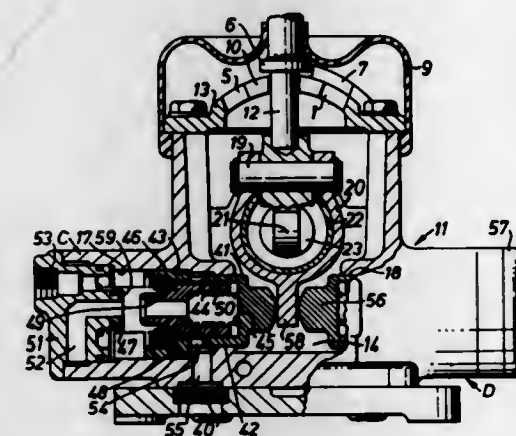
7 Claims



A nipple is engaged by a generally cup-shaped elastomeric one-way flow control member to block flow of fluid in reverse through the discharge end of the nipple but permits fluid flow from the discharge end of the nipple by elastic expansion of a nipple-embracing sleeve. During flow from the nipple the control member is retained in position relative to the nipple to enable quick resumption of reverse flow blocking engagement with the nipple.

3,601,153
GEAR CHANGE MECHANISMS
Wilbur Mills Page, and Ralph Coupland, both of Lincoln, England, assignors to Clayton Dewandre Company Limited, Lincoln, England
Filed Jan. 23, 1969, Ser. No. 793,456
Claims priority, application Great Britain, Jan. 26, 1968, 4,175/68
Int. Cl. F16k 11/18; G05g 13/00
U.S. Cl. 137—596.2

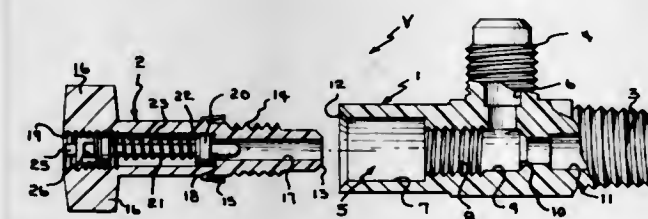
5 Claims



A manual control device for a fluid-pressure actuated gear change mechanism, said device comprising a hand lever, movable in at least two directions in a valve housing containing at least four valves, and a casing adapted to be secured to a gearbox and housing at least four cylinders, each of said cylinders being connected via one of said valves to a source of pressure fluid; wherein movement of the hand lever to a position to select a gear is effective to exhaust the pressure fluid from at least one of the cylinders and the pressure fluid acting on pistons in the remaining cylinders being effective to select the said gear and to maintain the hand lever in the selected bar position.

3,601,154
SEALING MEANS FOR PRESSURE RESPONSIVE VALVE OR VALVES
Henry William Dermer, Sr., Lebanon, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 23, 1968, Ser. No. 769,786
Int. Cl. F16k 17/04
U.S. Cl. 137—612.1

10 Claims



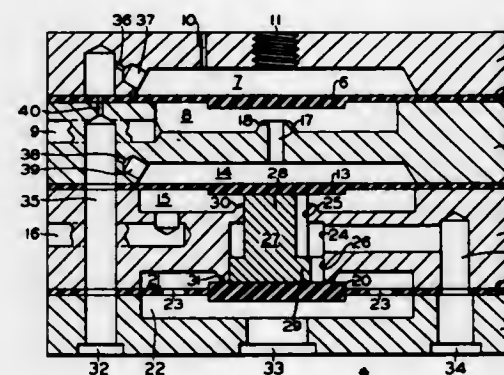
A valve has a body provided with a passageway therethrough. A valve seal is located along the passageway. A valve member is movably disposed in the passageway, and it is provided with a valve head sealingly mateable with the valve seat and a unitary annular sealing skirt in sealing engagement with the section of the passageway along which it moves.

3,601,155
PNEUMATIC LOGIC VALVE DEVICE
Donald Brown, Monroeville, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Feb. 2, 1970, Ser. No. 7,892
Int. Cl. F16k 11/02, 31/12
U.S. Cl. 137—625.66

8 Claims

A pneumatic logic valve device characterized by a back

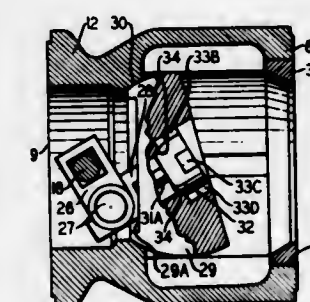
pressure sensing arrangement for piloting rapid responsive operation of the device by closing a sensing port or "touch



hole," said touch hole requiring a minimum of effort in closing or keeping it closed.

3,601,156
FLUID CONTROL VALVE
William C. Hookway, Jr., 5 Catalpa, Convent Station, N.J.
Filed May 4, 1970, Ser. No. 34,020
Int. Cl. F16k 31/52, 1/16
U.S. Cl. 137—630.14

11 Claims



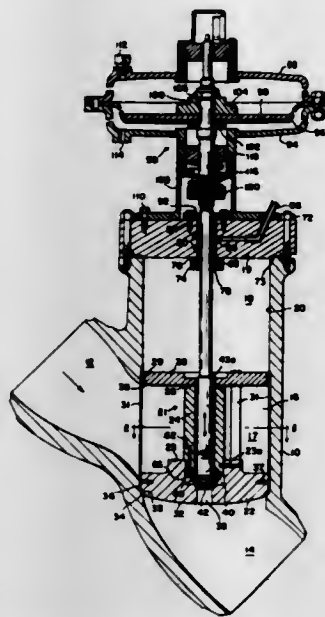
An in-line fluid control valve for use over a wide range of fluid flow rate and fluid pressure requirements. The valve includes a movable main valve member having a spherically shaped segment. In operation, the main member simultaneously translates and rotates while being guided within a cylindrical cage formed by the inner faces of a plurality of riblike members interposed between the outer valve casing and the main valve member and disposed longitudinally with respect to the flow axis. Simple actuating linkage includes a clevis pivotally coupled to the main valve member or to a piston which extends through a cylindrical cavity in the main valve member to provide a pilot valve for facilitating opening and closing the valve under relatively high fluid differential pressure conditions.

3,601,157
PRESSURE BALANCED VALVE
Bertram J. Milleville, Pittsburgh; Ralph W. Tartaglia, Bethel Park, and Harry E. Eminger, Valencia, all of Pa., assignors to Rockwell Manufacturing Company, Pittsburgh, Pa.
Filed Feb. 17, 1969, Ser. No. 799,692
Int. Cl. F16k 11/14
U.S. Cl. 137—630.14

9 Claims

A pressure-balancing valve construction in which upstream line pressure is used to maintain a main valve closure member in a closed position. An auxiliary valve connected to the valve stem and positioned within the main valve is first opened to balance the pressures across the main valve before the main valve is opened through a lost motion connection

between it and the stem. The critical valve components, i.e., the main valve and auxiliary valve closure members, are



readily removable to permit quick and economical repair of the overall valve assembly.

3,601,158

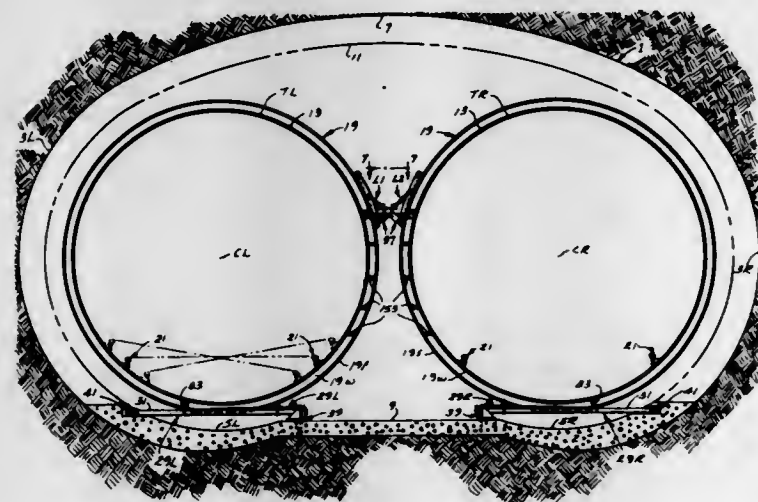
HIGH-SPEED GROUND TRANSPORTATION SYSTEM
Lawrence Knight Edwards, Palo Alto, Calif., assignor to Tube Transit Corp., Palo Alto, Calif.

Filed Feb. 27, 1970, Ser. No. 15,057

Int. Cl. F161 3/08, 5/00

U.S. Cl. 138—106

26 Claims



A spring suspension for a pair of tubes of a high-speed ground transportation system, each tube having rails for travel therethrough of a wheeled vehicle. The tubes extend side-by-side normally through a tunnel with a space between the tubes. Each tube is supported for vertical springing on a resilient bed comprising a series of resilient crossbeams, and for horizontal springing by means of a laterally resilient keel underneath the tube bearing on the crossbeams, the keel being laterally adjustable on the crossbeams. Two sets of adjustable-length spring compression links are interposed between the tubes, the links of the two sets being oppositely inclined, and alternating with one another along the length of the tubes.

3,601,159

TUBULAR MEMBRANE AND MEMBRANE SUPPORT MANUFACTURING PROCESS

Murray Marks, Los Angeles; Harry A. King, Covina, and Paul A. Longwell, San Gabriel, all of, Calif., assignors to The United States of America as represented by the Secretary of the Interior

Filed Feb. 7, 1968, Ser. No. 703,776

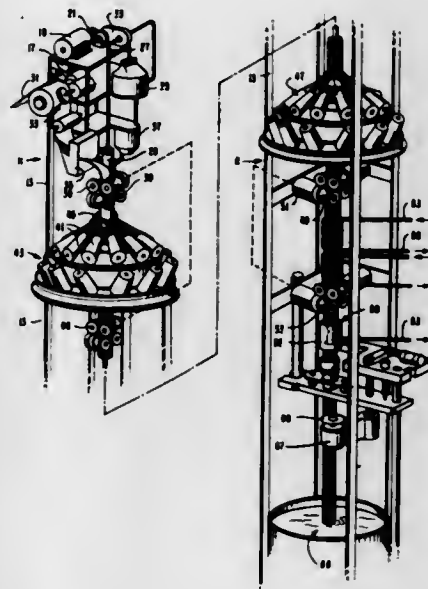
Int. Cl. F161 9/14

U.S. Cl. 138—141

3 Claims

Reverse osmosis tubes, and a method for forming them including the steps of: wrapping a porous paper strip about a

mandrel; sealing the porous paper strip at its edges to form a porous paper tube; moving the porous paper tube along the mandrel; winding resin-impregnated glass fibers over the outer surface of the moving tube to produce a porous glass fiber coating; heating the glass fiber coating to cure the resin as it moves with the tube; cooling the glass fiber coating; coating the inner surface of the moving porous paper tube



with a thin layer of reverse-osmosis-membrane-forming solution; drawing a slight vacuum around the outer surface of the porous glass fiber coating in an area overlapping the axial position where the membrane-forming solution is applied, causing the membrane-forming solution to closely adhere to the inner surface of the porous paper tube; and, immersing the coated porous paper tube in a gelation bath to gel the film to a useable membrane state.

3,601,160

MAGNETIC LATCH HOLDING MEANS FOR A SELVAGE KNITTING NEEDLE IN A NARROW WARE LOOM

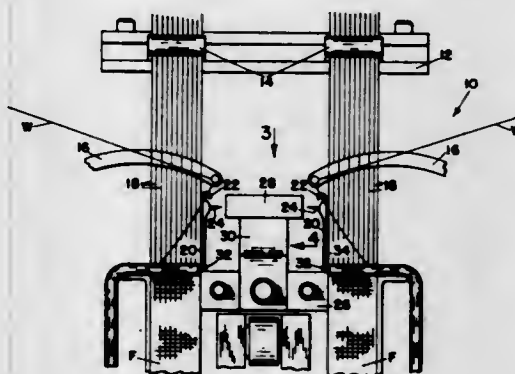
Ashokkumar S. Chetty, Worcester, Mass., assignor to Crompton & Knowles Corporation, Worcester, Mass.

Filed Sept. 11, 1969, Ser. No. 857,093

Int. Cl. D03d 47/42

U.S. Cl. 139—124 A

5 Claims



A holding means for the latch of a reciprocating selvage knitting needle in a narrow ware needle loom in which the knitting needle has a hook and a latch movable between an open position and a closed position with respect to the hook. The holding means is a magnet positioned for reciprocation with the knitting needle and positioned adjacent to the latch for holding the latch in the open position.

3,601,161
METHOD AND APPARATUS FOR DOSING TWO TYPES OF MOLDING SAND INTO THE MOLDING BOX OF A FOUNDRY MOLD

Erwin Buhner, Breitenstrasse 164, and Emil Maurer, both of Schaffhausen, Switzerland

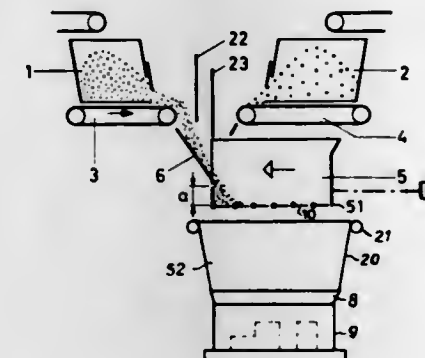
Filed July 9, 1968, Ser. No. 743,399

Claims priority, application Switzerland, Aug. 16, 1967, 11,509/67

Int. Cl. B22c 5/12

U.S. Cl. 141—9

21 Claims



An apparatus for, and method of dosing two types of molding sand into a molding box of a foundry mold disposed beneath an intermediate container placed between a respective discharge device for each type of molding sand and the molding box. A relative movement occurs between at least one of the discharge devices and the intermediate container in order to continuously deposit a layer of a first type of molding sand into and substantially throughout the entire length of the intermediate container and with a width substantially corresponding to the width of the intermediate container. Then with a shift in phase there is simultaneously or during a further relative movement between the intermediate container and the discharge device continuously deposited into the intermediate container a layer of the second type of molding sand substantially over the entire length of the first layer of molding sand and with a width substantially corresponding to that of the intermediate container. The intermediate container is then brought into alignment with a filling frame placed upon the molding box and thereafter the contents of the intermediate container are emptied.

3,601,162

WIPER

Victor John Page, Saltdean, England, assignor to Neumo Limited, Peacehaven, Sussex, England

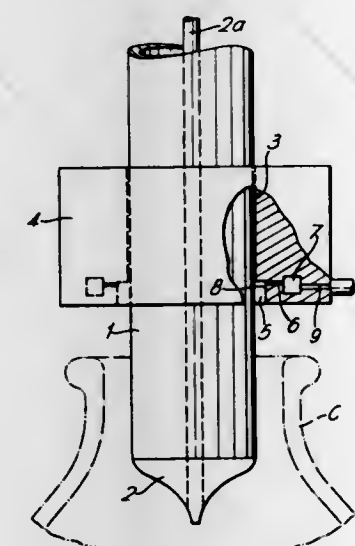
Filed Aug. 4, 1969, Ser. No. 847,212

Claims priority, application Great Britain, Aug. 7, 1968, 37703/68

Int. Cl. B65b 3/04

U.S. Cl. 141—90

6 Claims



Wiping apparatus for use with a tubular probe for filling containers with liquids comprising a wiper block formed with a bore within which the probe is slidable, the block being

formed with a plurality of radially inwardly directed jets opening into the bore which jets are connected to a source of pressurized gas, usually air. The probe is closed at its lower end with an enlargement into which the jets open and preferably also the block is formed with an annular chamber disposed radially outwardly of and in fluid communication with the jets, the chamber being connected to the source of pressurized gas. When the probe is withdrawn from a filled container, air issuing from the jets forces liquid adhering to the outside of the probe into the container, thus wiping the probe clean.

3,601,163

SEMI-AUTOMATIC CHAIN LINK FENCE WEAVING MACHINE

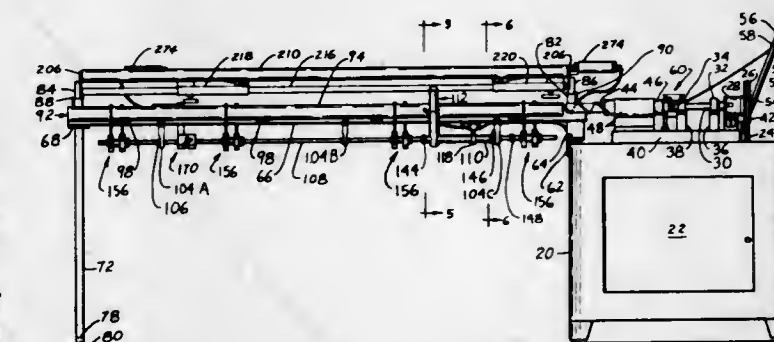
Peter H. Ellis, 545 Parkway Apt. 18, Chula Vista, Calif.

Filed Nov. 18, 1969, Ser. No. 877,704

Int. Cl. B21f 27/04

U.S. Cl. 140—92.7

8 Claims



Chain link fence weaving apparatus includes manually shuttled shaft mounted for reciprocation along its longitudinal axis and also rotatable thereabout, a handle extending laterally from the shaft for use in moving the latter. Wire bent into zigzag shape is advanced into a guide tube parallel with the shaft, this tube being formed of two concave sections hinged together along longitudinal edges thereof. One section of the tube is swung toward and away from the other section by rotating the handle about the shaft. Movement of the shaft along its axis causes it to rotate between two angular positions, in one of which a first set of hooks on the shaft engage chain link fabric held between the longitudinal edges of the tube sections and in the other of which a second set of hooks on the shaft engage the fabric. Thus, the fabric is permitted to move upwardly from the tube when the movable section of the latter is swung away from the fixed section, but one set of hooks always limits the distance the fabric moves. Shaft is shuttled after each strand of fabric wire is woven so that the next strand will engage the fabric. A switch on the handle initiates feed of fabric wire into the tube, and a switch inside tube stops feed when the wire reaches a predetermined point.

3,601,164

APPARATUS FOR INJECTING PROPELLANT INTO A DISPENSING CONTAINER

Roger K. Bruce, Costa Mesa, Calif., assignor to Sterigard Company, Burbank, Calif.

Continuation-in-part of application Ser. No. 638,114, May 12, 1967, now abandoned. This application Mar. 3, 1969, Ser. No. 813,794

Int. Cl. B65b 31/08

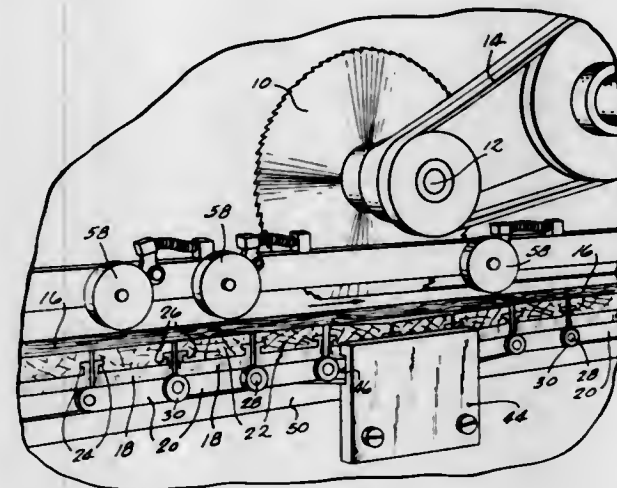
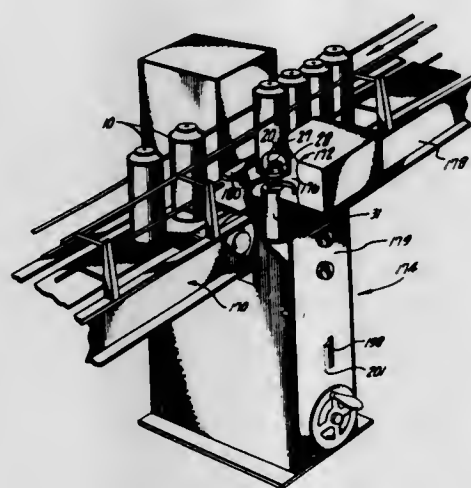
U.S. Cl. 141—20

6 Claims

An apparatus for injecting propellant into a dispensing container has a ram which advances a cylinder toward the container to be injected through a fluid coupling provided by propellant in a propellant chamber. A normally closed injector valve is mounted on the cylinder and opens by engagement with a dispenser to be filled to communicate the interior of the dispenser through an axially hollow injection needle with the propellant chamber. The volume of the propellant chamber is varied by varying the stroke of the ram. Propellant injection is accomplished in conjunction with an index-

ing star wheel and control means which accurately positions each dispenser for injection, prevents operation until such

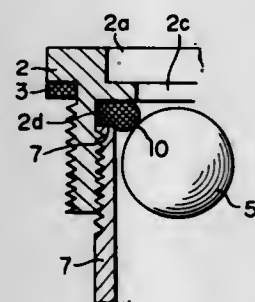
a saw, while the supporting slats (other than those carrying propelling dogs) are cammed down to a level below the teeth



of the tool. Arrangement is made for bridging the normally depressed area under special circumstances.

positioning, and prevents other dispensers from interfering with the dispenser being injected.

3,601,165
LIQUEFIED-GAS-FUELED LIGHTERS
Hirokazu Obata, 5588, Kawarashimachi, Ryugasaki, Ibaragi, Japan
Continuation-in-part of application Ser. No. 508,722, Nov. 19, 1965, now abandoned. This application June 24, 1968, Ser. No. 747,065
Int. Cl. B65b 1/04, 3/04
U.S. Cl. 141—302



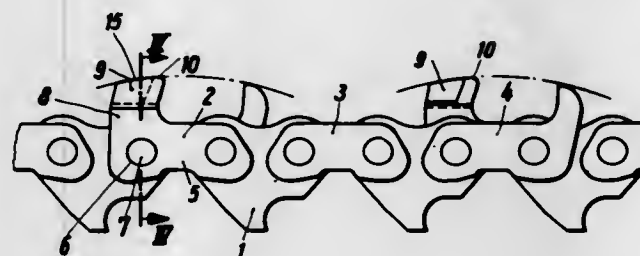
Cigarette lighter tanks are here equipped with novel valves for refilling the tanks with liquefied gas such as butane. The nozzle of a supply container presses a movable valve member away from an O-ring valve seat, initially allowing gas to vent from the tank. Then the nozzle bears against a fixed part of the valve, opening the valve in the supply container and allowing the tank to fill. The O-ring is squeezed between an outer flange and an inner tube, giving it a tensioned surface that guards against leaks by ejecting dirt particles to which the valve is exposed. The outer flange overlies the outer side of the O-ring, protecting the O-ring from thrust engagement by the filling nozzle. In a preferred valve, the movable valve member is a ball, the outer flange is immediately adjacent the tank exterior, and there is no dirt cover.

3,601,166
WORK FEED SLAT CONVEYOR FOR A SAW
Walter J. Kohler, III, Kohler, Wis., assignor to Kohler General, Inc., Sheboygan Falls, Wis.
Filed May 12, 1969, Ser. No. 823,777
Int. Cl. B27b 25/04

U.S. Cl. 143—49

Work is held normally level as advanced past a tool such as

3,601,167
MOTOR SAW CHAIN WITH COMPLETE TOOTH LINKS
Hans Dolata, Waiblingen-Neustadt, Germany, assignor to Andreas Stihl Maschinenfabrik, Waiblingen-Neustadt, Germany
Filed Sept. 25, 1968, Ser. No. 762,405
Claims priority, application Germany, Sept. 27, 1967, P 16 28 916.0
Int. Cl. B27b 33/14
U.S. Cl. 143—135

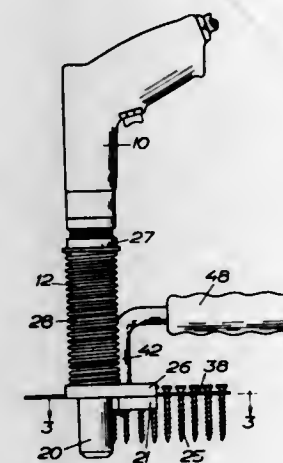


A tooth link for a motor saw chain which comprises a plate section having bores therethrough for receiving bolt means for the pivotal connection of the complete tooth link with other links of a motor saw chain, and a roof section merging with the respective adjacent outer lateral surface of the complete tooth link through a rounded longitudinal edge portion, said rounded portion extending over more than a quarter of a circle, said roof section having a cutting edge extending at least up to the laterally outermost mantle line of said rounded section.

3,601,168
DRIVING TOOL FOR FASTENERS
Gustaf Harry Fernstrom, Klinten, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden
Filed July 2, 1969, Ser. No. 838,515
Claims priority, application Sweden, July 8, 1968, 9364/68
Int. Cl. B25b 23/10; B25c 1/00
U.S. Cl. 144—32

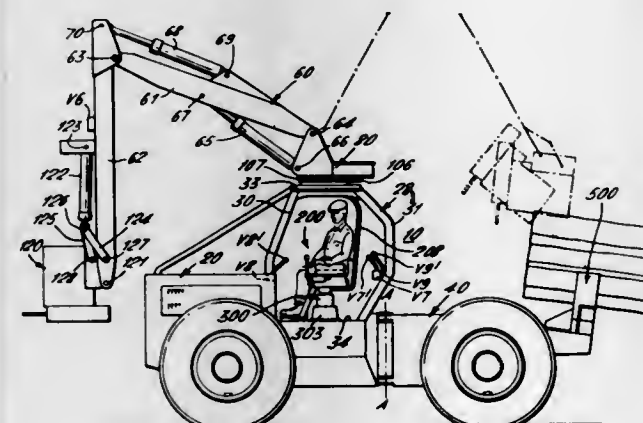
In a driving tool for fasteners a driver has guide jaws releasably clamped thereagainst for holding a fastener in frontal alignment therewith. During driving movement of the driver together with said fastener towards a workpiece, the guide jaws, in response to said fastener striking against the workpiece, are arrested in spaced relation to the workpiece and knocked loose from the driver for releasing the fastener from the guide jaws while the driver continues its driving movement. The driving tool may be provided with a magazine for band-supported fasteners, which by an ejector are forced to break out laterally one by one from the band in between the guide jaws and by a feeder are moved together

with the band one after the other to the ejector, said ejector and feeder being pivotally supported on a rocker member



such as to alternately actuate the fasteners as the arm is rocked alternately in one direction and the other.

3,601,169
TREE-HANDLING VEHICLE
Douglas D. Hamilton, Mount Royal, Quebec, and Joseph J. R. Bolvin, Montreal, Quebec, both of, Canada, assignors to Canadian International Paper Company, Quebec North Shore Paper Company, Montreal, Quebec and Abitibi St. Anne Paper Ltd, Beupre, Quebec, Canada
Filed Sept. 17, 1968, Ser. No. 760,274
Claims priority, application Canada, Sept. 22, 1967, 000,751
Int. Cl. A01g 23/02
U.S. Cl. 144—34 R



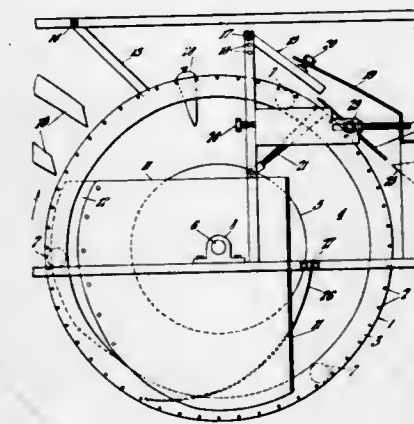
A tree felling and skidding machine which includes a self-propelled mobile articulated vehicle having a cab on one chassis providing an enclosed and protected area for the operator with a boom pivotally mounted on the roof of the enclosure and vertically above the operator for continuous pivotal movement through a 360° arc. A bunk on the other chassis is operable from the cab selectively to engage and release the butt ends of logs placed thereon. The operator is supported on a pivotally mounted chair or seat having hydraulic control valves for use in manipulating the boom and accessories mounted thereon. A power source on the front chassis provides fluid pressure for the hydraulic components and is conducted through a pair of rotary couplings, one of which provides a pivotal mounting for the operator's support and the other a pivotal mount for the boom assembly on the roof of the cab. Attached to the free end of the boom is a felling head consisting of a grapple and shear mechanism rigidly attached to a frame and each having movable jaws for engaging a tree at positions spaced longitudinally therealong.

3,601,170
SPRING-DRIVEN TOOL
Peter D. Sciascia, 3 Parkview Road, Woburn, Mass., and Sing C. Chin, 22 Muriel Road, Chelmsford, Mass.
Filed Apr. 29, 1969, Ser. No. 820,187
Int. Cl. B25g 1/00; B25b 21/00
U.S. Cl. 145—66



A tool for rapidly rotating threaded fastenings such as machine screws and nuts, utilizing a spring as a power source for revolving the fastening engaging part of the tool. A detent automatically locks the part driven by the spring against rotation while applying torque manually to the tool for initially loosening a fastening or for effecting the final tightening of a fastening. A manually actuated release member disengages the detent from its locking position to permit the fastening engaging part to be revolved by the spring.

3,601,171
VEGETABLE-TOPPING MACHINE
Michael William Farrow, "Seagavin," Brick Farm Drayton Norwich, Norfolk, England
Filed Apr. 8, 1969, Ser. No. 814,420
Claims priority, application Great Britain, Apr. 8, 1968, Mar. 5, 1969, 16716/68; 11763/69
Int. Cl. A23n 15/04
U.S. Cl. 146—81 R



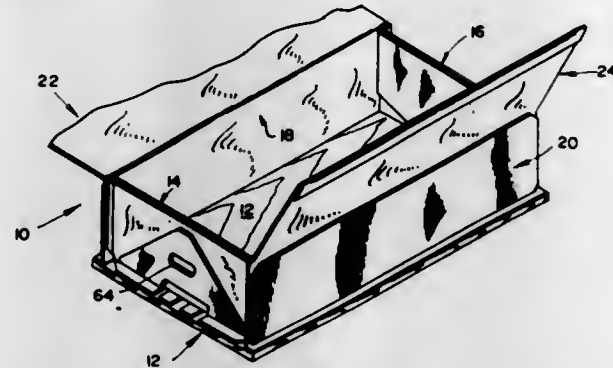
A machine for topping vegetables such as carrots in which the vegetables are delivered to the outside of a rotating cage formed with spaced circumferential bars through which undersize vegetables fall onto a chute interiorly of the cage for discharge while oversize vegetables are aligned and trapped between the bars and then passed across a cutting knife which severs the tops and the topped vegetables are then pressed out from the bars.

3,601,172
COLLAPSIBLE WEATHERPROOF TRAY OR BASKET FOR CROPS AND THE LIKE
Maurice A. Bourquin, Granby, Conn., assignor to The M. A. B. Machine Corporation
Filed Sept. 26, 1969, Ser. No. 861,352
Int. Cl. B65d 11/18

U.S. Cl. 150—50

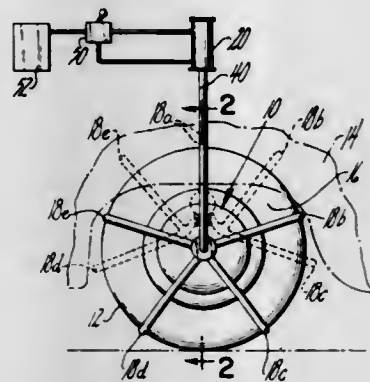
Collapsible basket in the form of a rectangular tray especially useful in harvesting of fragile crops such as leaf tobacco. Bottom wall of rigid plywood has side and end walls of composite structure, including panels of plastic laminate and canvas, the canvas serving to hinge sidewalls to bottom and, optionally, being extended to form flexible top closure flaps. End walls have triangular plastic laminate panels secured to canvas and defining the fold lines along which canvas may be folded inwardly to collapse empty basket. End walls have

supplemental plastic laminate flaps separately hinged to bottom wall to be swung into reinforcing position against the inner surface of the end walls when basket is erected, thereby



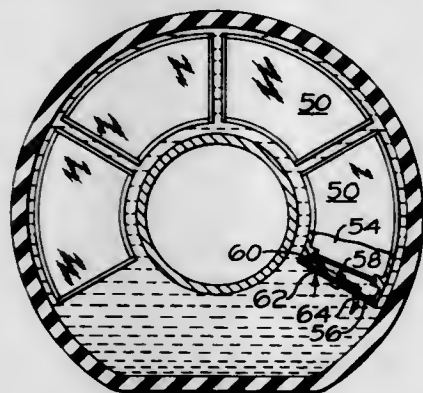
holding basket in open position. Bottom wall has flanges on all four sides extending beyond side and end walls will carry vertical loading when several filled baskets are stacked for storage or transportation.

3,601,173
AUTOMATIC ANTISKID DEVICE
Richard Edgar Anderson, 365 Arch St., New Britain, Conn.
Filed July 10, 1969, Ser. No. 840,716
Int. Cl. B60c 27/14
U.S. Cl. 152-214 12 Claims



An antiskid device for a wheel of a motor vehicle or the like having a plurality of antiskid elements and means for retaining the elements in an inactive or storage position and for moving the elements between said inactive and an active or operative position wherein the elements engage the peripheral surface of the wheel for rotation therewith. The antiskid elements are connected to the retaining and moving means for rotation relative thereto in said active position and are movable into and out of operative engagement with the wheel without jacking the vehicle or otherwise raising the wheel above ground level.

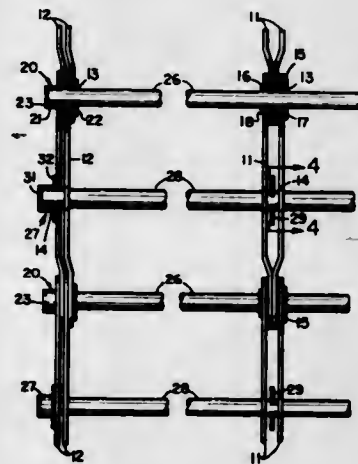
3,601,174
MEANS FOR DAMPING BOUNCE IN VEHICLE TIRES
Daniel B. Shotwell, Washington, and James C. Barton, Peoria, both of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 10, 1969, Ser. No. 856,617
Int. Cl. B60c 5/00
U.S. Cl. 152-331 10 Claims



A vehicle tire is inflated with water and is associated with one or more hollow vessels of rigid construction each con-

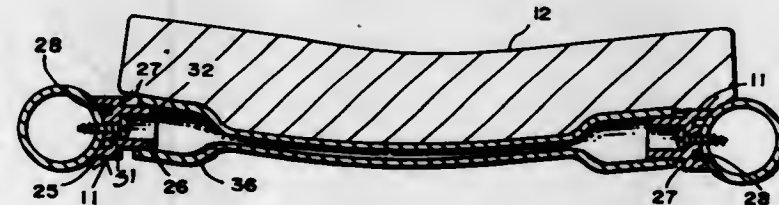
taining a compartment for a gas such as air, the compartment having at least one flexible wall. The vessels have ports which admit water when the tire is compressed as in bouncing or riding over an object in the road. Some of the ports may be valved to prevent escape of water so expansion of the air, after it has been compressed by deformation of the flexible wall when the water enters the vessel, is retarded and the normal bounce of the tire is damped.

3,601,175
ARTICULATED GRILLE
Russell Wardlaw, San Rafael, Calif., assignor to The Cookson Company, San Francisco, Calif.
Filed Aug. 18, 1969, Ser. No. 850,710
Int. Cl. E06b 9/01, 9/02
U.S. Cl. 160-133 4 Claims



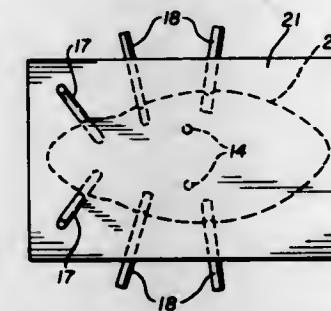
Articulated grille has identical links arranged in pairs as end links and intermediate links. Spoollike connectors loosely unite ends of intermediate links and hatlike connectors unite the end links and receive horizontal link-connecting rods loosely therethrough. Link-positioning rods extend through medial holes in the links and hat-shaped end keepers and retaining ring keepers positioning rods maintain the grille assembly.

3,601,176
FLEXIBLE SUPPORT APPARATUS
Anthony P. Savickas, Miami Beach, Fla., assignor to Whitecraft Industries, Inc., Miami, Fla.
Continuation-in-part of application Ser. No. 858,329, Sept. 16, 1969. This application Feb. 20, 1970, Ser. No. 13,047
Int. Cl. B25g 1/04
U.S. Cl. 160-327 3 Claims



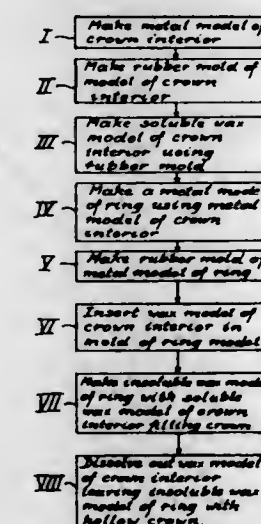
A cushion-supporting flexible apparatus for chairs, lounges and other furniture having a pair of spaced-apart crossmembers with a plurality of flexible members constituting the cushion-supporting flexible apparatus extending between the crossmembers. Each of the flexible members consisting of an elongated resilient hollow member having cylindrical end portions and a flattened arcuate cross section therebetween upon which the cushion rests. Cylindrical fittings are fastened to the crossmembers at one end portion and the other end is telescopically received by the hollow cylindrical end portions of flexible members so that when a person sits on the cushion, the elongated resilient members are flexed downwardly as their end portions slide in a direction away from the crossmembers without becoming disengaged therefrom.

3,601,177
PROCESS FOR DUPLICATING NATURAL OBJECTS
Robert C. Hall, Box 544, Rollinsville, Colo.
Filed Jan. 31, 1969, Ser. No. 795,523
Int. Cl. B22c 7/00
U.S. Cl. 164-45 6 Claims



A method for producing copies of natural objects including the steps of applying an electricity-conducting coating to a specimen natural object, electrolytically plating a metal shell about the object, attaching auxiliary mounting or fastening element to said object either after or before said plating step, development of a flexible mold element on the surfaces of the plated natural object, and subsequently utilizing said flexible mold in connection with conventional casting operations to obtain one or more copies of the natural object. Fine features of the natural object are simulated by separately applied components or decorations.

3,601,178
METHOD OF MAKING A WAX MODEL OF A RING WITH HOLLOW CROWN
Gaston Martikorena, 316 W. Madison Ave., Dumont, N.J.
Filed Nov. 3, 1969, Ser. No. 873,575
Int. Cl. B22c 7/02
U.S. Cl. 164-45 9 Claims

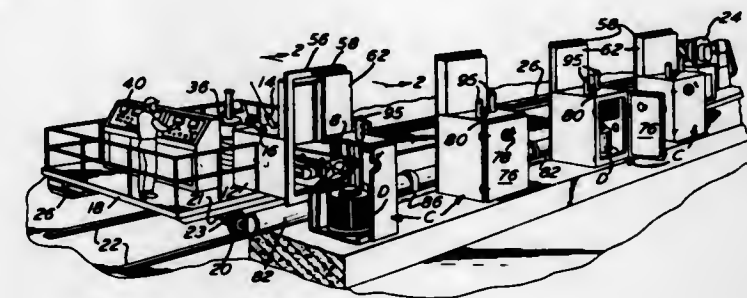


A hard, relatively insoluble wax form of jewelry such as a finger ring with hollow, framelike crowns is made by first making a metal model of the interior of the crown. A mold is made from the metal model and a soluble wax model of the interior of the crown is then cast by use of the mold. A metal model of the crown is then used in making a metal model of the ring with the metal model of the crown filling the crown of the model of the ring. A mold is made of the metal model of the ring. The soluble wax model of the crown interior is then inserted in the mold of the ring and then relatively insoluble wax is poured into the mold. The wax cast of the model of the ring is then removed from the mold and the wax form of the crown interior is dissolved out.

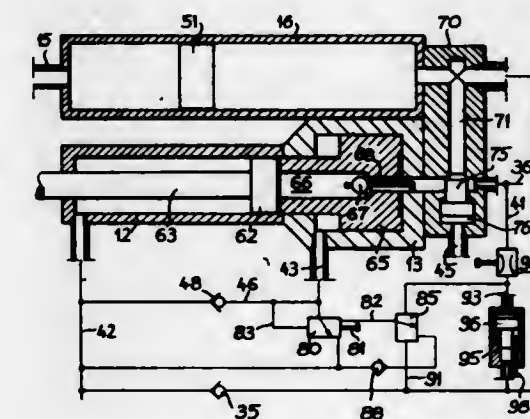
3,601,179
MULTICHAMBER DIRECTIONAL SOLIDIFICATION VACUUM CASTING FURNANCE
Kendrick C. Taylor, Erdenheim, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed Jan. 23, 1970, Ser. No. 5,245
Int. Cl. B22d 27/16
U.S. Cl. 164-254 10 Claims

A vacuum melting and casting apparatus for directional solidification of metallurgical castings which employs a single

traveling melting chamber and a plurality of molding chambers. By successively coupling the melting chamber with one of the mold chambers at a time, the cast components may be



3,601,180
PRESSURE-CASTING MACHINE
Alfred Nef, and Siegfried Erhard, both of Uzwil, Switzerland, assignors to Gebrueder Buehler AG, Uzwil, Switzerland
Filed Sept. 24, 1969, Ser. No. 860,557
Claims priority, application Switzerland, Sept. 30, 1968, 14609/68
Int. Cl. B22d 17/10
U.S. Cl. 164-315 11 Claims



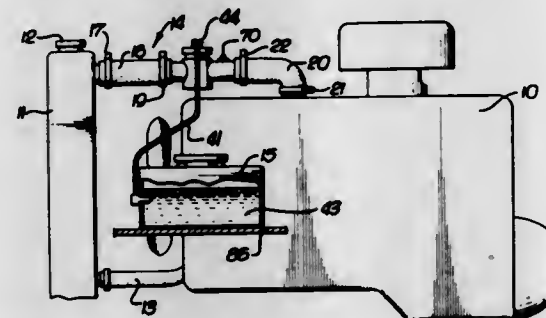
A pressure casting machine includes a chill mold, mold-closing means, a filling bush opening into the mold and a pressing ram displaceable in the filling bush. A hydraulic pressing unit is associated with the ram and includes a shot cylinder, a hydraulically operated shot piston, and a multiplier cylinder connected with the shot cylinder and having a multiplier piston which is hydraulically loadable on both sides and hydraulically connectable to the shot piston. An accumulator is chargeable by a pressure medium source, and hydraulic components interconnect the pressure medium source, the accumulator, the shot cylinder and the multiplier cylinder. A hydraulic line connects the multiplier cylinder, on the side of the multiplier piston facing the pressing ram, to the pressure medium source. An overflow valve is interposed in this line and is adjustable as to operating pressure. A controllable shutoff valve is connected to the overflow valve and acts as a precontrol for the overflow valve. The overflow valve is in the range of influence of the hydraulic pressure effective on that side of the shot piston facing away from the pressing ram. A switching device, operable in dependence on the pressure, is in controlling connection with the shutoff valve and operative to effect hydraulic connection of the multiplier piston and the shot piston in accordance with the operating pressure of the overflow valve and within the pressure range limited by the accumulator. The pressure-responsive control means may be purely hydraulic or may be a combination of electrically and hydraulically operated components.

3,601,181
METHOD AND APPARATUS FOR PURGING AIR FROM
INTERNAL COMBUSTION ENGINE COOLING
SYSTEMS

Walter C. Avrea, Placentia, Calif., assignor to Saf-Gard Products, Inc.
 Continuation of application Ser. No. 813,800, Mar. 24, 1969, Pat. No. 3,499,481, which is a continuation-in-part of Ser. No. 683,223, Nov. 15, 1967, abandoned
 This application Mar. 9, 1970, Ser. No. 17,844
 Int. Cl. F01p 11/02

U.S. Cl. 165-1

6 Claims

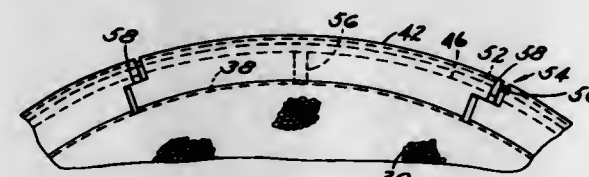


A pressurized cooling system for a conventional internal combustion engine, wherein the cooling system includes an overflow passage communicating with the highest point in the radiator system in which there is an outflow check valve so that liquid expansion unseats the check valve and excess liquid passes through a passage to an accumulator tank; and when the radiator system cools and a low pressure suction condition is created, the liquid in the tank is drawn back through the same passage through a second check valve which opens inwardly toward the radiator to allow the liquid to be returned to the radiator.

3,601,182
RIM CONSTRUCTION FOR GAS TURBINE ROTATING
HEAT EXCHANGERS
 Vemulapalli Duraganageswar Rao, Woodhaven, Mich.; John J. Trudeau, Avon, N.C., and Jerry E. White, Dearborn Hts., Mich., assignors to Ford Motor Company, Dearborn, Mich.
 Filed Sept. 2, 1969, Ser. No. 854,398
 Int. Cl. F28d 19/00

U.S. Cl. 165-9

14 Claims



Inserts of low-friction material such as boron nitride or graphite are positioned in an undercut on the periphery of a circumferentially continuous disc type regenerator and are bonded to the regenerator by a resilient adhesive such as a silicone rubber. The inserts preferably protrude beyond the outer circumference of the regenerator and the adhesive is applied to the outer circumference and the projecting surface of the inserts. Joints at the ends of the inserts attach the inserts together to form a substantially continuous rim capable of absorbing thermal expansion without opening radial leakage paths.

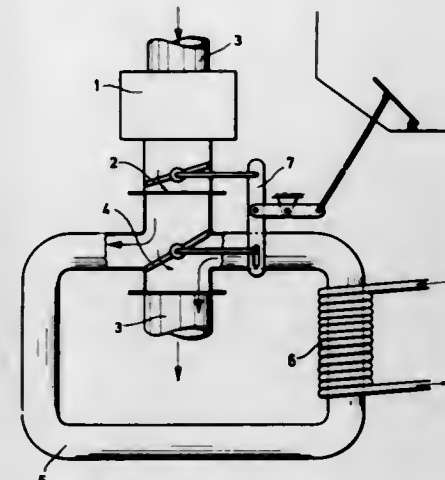
3,601,183
DEVICE FOR HEATING GAS MIXTURES
 Ingolf Ottomar Eugen Lohner, 33 Flatowstrasse 8,, Braunschweig; Andre Jeno Tary, 318 Graf Bernadotte-Weg 1,, Wolfsburg; Eckhart Hoffmann, 3183 Rischfeldweg 5,, Fallersleben, and Hermann Eckhard Kiefer, 318 J. F. Kennedy Allee 78, Wolfsburg, all of, Germany
 Filed Sept. 17, 1969, Ser. No. 858,806
 Claims priority, application Germany, Sept. 20, 1968, P 17 76 096.2
 Int. Cl. B60h 1/00

U.S. Cl. 165-35

6 Claims

A device for the intensive and regulated heating of gas mixtures in a suction tube having a carburetor located

therealong, the suction tube being connected to an engine and the device comprising a bypass tube connected with the

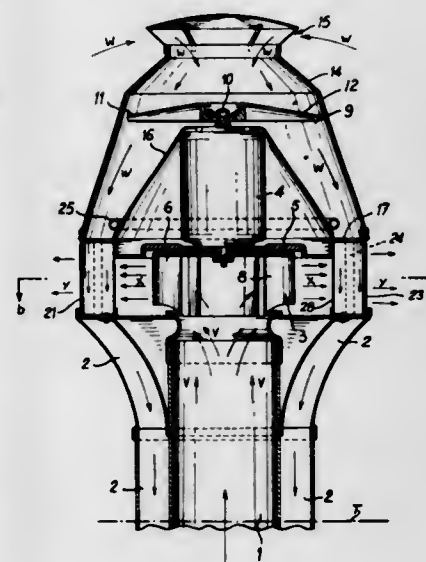


suction tube, means associated with the bypass tube to heat the gas mixture passing therethrough, and flap valve means located in the suction tube.

3,601,184
AIR EXCHANGING AND CONDITIONING DEVICE
 Jean Hauville, 25, Place Jules Ferry, F92, Montrouge, France
 Filed June 5, 1969, Ser. No. 830,727
 Int. Cl. F24h 3/02

U.S. Cl. 165-125

4 Claims



Air exchanger and conditioning device comprising a device for introducing fresh air and a device for extracting air contained in a given area, and a motor connected to both of said devices for driving the same at the same speed.

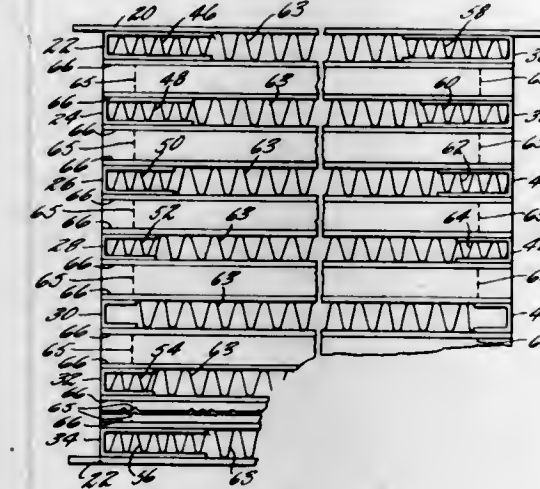
3,601,185
HEAT EXCHANGER CONSTRUCTION
 Edward A. Rothman, South Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
 Filed Nov. 4, 1969, Ser. No. 873,872
 Int. Cl. F28f 3/00

U.S. Cl. 165-166

4 Claims

A heat exchanger construction for maximum thermal fatigue life having C-shaped closure bars on the cool fluid side, the C-shaped closure bars being made from a material

having a lower coefficient of thermal expansion than the head. The upper joint links the riser to a vertically extensible remainder of the core, and having cooling fins therein and joint which is in turn pivotally connected to the drilling ves-

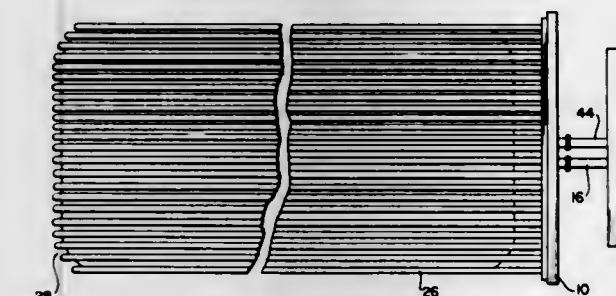


having hot fluid fins cut back from the inlet face of the core to reduce the heat input to the closure bars.

3,601,186
MODULAR HEADER SYSTEMS
 Clay D. Smith, P. O. Box 35, Lafayette, N.Y., and Guy H. Mishoe, 103 Wooded Heights Drive, Camillus, N.Y.
 Filed Apr. 17, 1970, Ser. No. 29,578
 Int. Cl. F28d 7/06; A63c 19/10

U.S. Cl. 165-176

9 Claims U.S. Cl. 166-.5



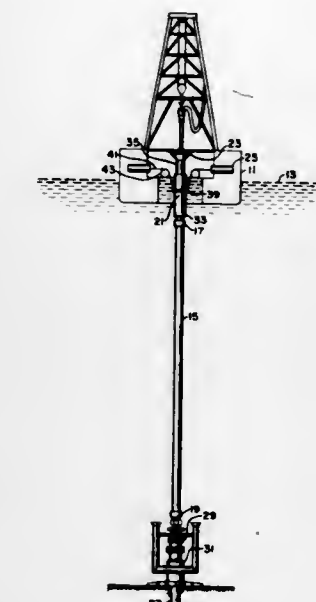
A header system of modular design capable of delivering a flow of fluid through each of a plurality of geometrically equidistant paths and of equivalent hydraulic lengths from a supply to a return point, said paths or circuits forming a multicircuit system for use in artificial ice-skating rinks and other heat exchange systems. Also the arrangement provides for self-venting of air or gases from the supply end generally upward until such gases are removed from the system.

3,601,187
DRILLING RISER
 Danny R. Tidwell, Houston, Tex., assignor to Esso Production Research Company
 Filed May 2, 1969, Ser. No. 821,173
 Int. Cl. E21b 7/12

U.S. Cl. 166-.5

7 Claims

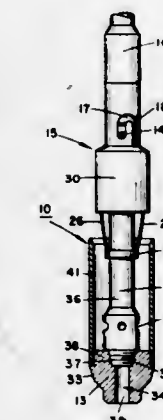
A marine riser, for use with floating drilling equipment, that has flexible joints attached to its upper and lower ends. The lower flexible joint connects the riser to a subsea well-



sel. A tensioning device aboard the vessel maintains the riser in tension, preventing it from buckling.

3,601,188
SHIELDING AN UNDERWATER WELLHEAD HUB
 Robert G. McGlamery, New Orleans, La., and Thomas W. Childers, Los Angeles, Calif., assignors to Esso Production Research Company
 Filed May 19, 1969, Ser. No. 825,613
 Int. Cl. E21b 33/035

23 Claims



Method and apparatus for protectively shielding the attachment hub of an underwater wellhead structure. Expandable means, mounted on a support member adapted to be inserted into the bore of an underwater wellhead structure, for shieldingly covering the attachment hub of such structure when the hub is exposed underwater, are installed in the bore before the hub is so exposed.

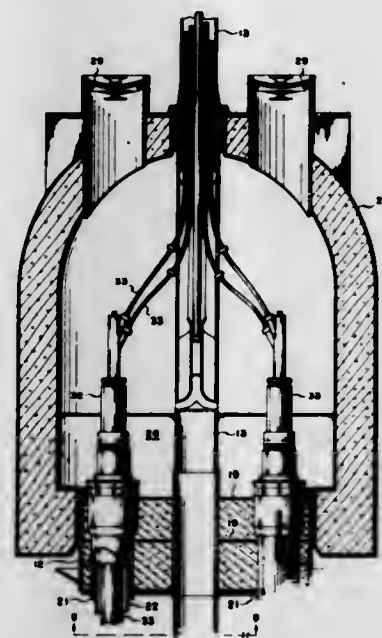
3,601,189
UNDERWATER MULTIPLE WELL INSTALLATION
 Folker H. Weiss, Los Altos, and John W. Hopkins, Saratoga, both of, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
 Filed Feb. 10, 1969, Ser. No. 797,850
 Int. Cl. E21b 33/035, 15/02

U.S. Cl. 166-.5

4 Claims

Clustered underwater wells are used as anchor piles for a production platform floating at the water surface. A drilling

template transmits tension loads from the well-anchor piles to a tension member which connects to the floating platform



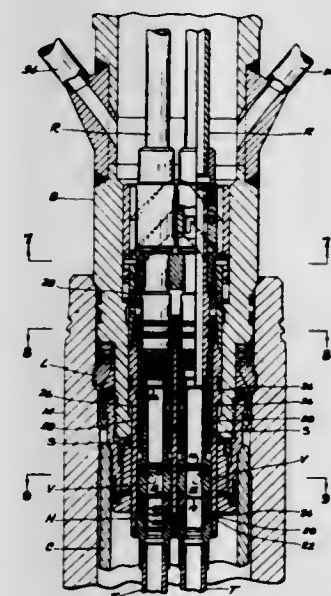
and also serves to index drilling, completion and reworking operations on the wells in the cluster.

3,601,190 WELL PRODUCTION APPARATUS WITH FLUID OPERATED VALVE

James D. Mott, Houston, Tex., assignor to Brown Oil Tools, Inc., Houston, Tex.
Filed May 15, 1969, Ser. No. 824,835
Int. Cl. E21b 33/04

U.S. Cl. 166-85

3 Claims



A well production apparatus including an improved valve adapted to be positioned in a well production string and operated responsive to a pressure fluid from the wellhead to open and close flow through the production string. The valve is positioned in the tubing hanger and is retained in open position during running by engagement with the running string.

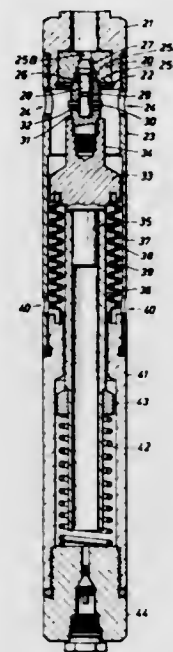
3,601,191
GAS-LIFT SYSTEM AND METHOD
Everett D. McMurry, and Bolling A. Abercrombie, both of Houston, Tex., assignors to McMurray Oil Tool Specialties, Inc., Houston, Tex.
Filed Mar. 19, 1970, Ser. No. 20,923
Int. Cl. E21b 33/00

U.S. Cl. 166-224

14 Claims

A gas-lift system is provided with a multiple valve arrangement, wherein a plurality of gas-lift valves which are each actuated by a pressure-responsive member, are installed in the

tubing string at each lifting depth in the borehole wherein only a single valve is conventionally mounted. Thus, each of the valves will independently respond to the same injection pressure, and will thereby independently perform the same function in the system as the other valves at each lifting

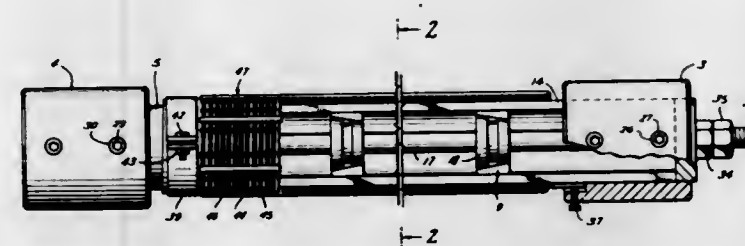


3,601,192 WELDED WELL STRAINER

Max E. Layne, and Theodore W. Munhausen, both of Houston, Tex., assignors to The Layne & Bowler Company, Houston, Tex.
Continuation-in-part of application Ser. No. 789,652, Dec. 26, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 367,473, May 14, 1964, now abandoned.
This application Aug. 18, 1969, Ser. No. 860,142
Int. Cl. E03b 3/18

U.S. Cl. 166-232

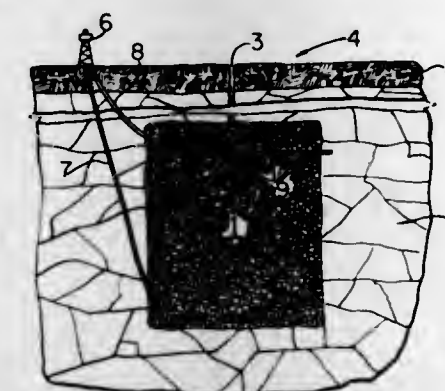
2 Claims



A wound wire well strainer having an elongate hollow cylindrical screen of helical wire windings axially spaced from one another by separating lugs formed therein and disposed in circumferentially spaced longitudinal rows, the windings being secured to one another by elongate weld beads disposed longitudinally between rows of lugs along the outer surfaces of the windings without protruding beyond the inner surfaces thereof such that the structural integrity of the screen is maintained in situ without a perforated central pipe or interior protrusions. One end of the screen is disposed within an annular recess in a tubular end fitting adaptable to couple the screen to a tubing string, and the screen is secured to the fitting by external and internal annular weld beads. Apparatus for and a method of making such a well strainer are also disclosed.

3,601,193
IN SITU RETORTING OF OIL SHALE
Guido O. Grady, Tulsa, Okla., assignor to Cities Service Oil Co., Tulsa, Okla.
Filed Apr. 2, 1968, Ser. No. 718,115
Int. Cl. E21b 43/24, 43/26
U.S. Cl. 166-245

12 Claims



Initiation and support of the in situ retorting of oil shale is accomplished by injecting the retorting fluid at a multiplicity of points along a substantially horizontal plane in the chimney created by a nuclear explosion. The retorting fluid is injected through an injection well extending generally horizontally in the chimney, preferably in the uppermost portion thereof. A series of such injection wells may be employed in order to provide for the distribution of the retorting fluid substantially across the cross-sectional area of the chimney.

3,601,194
LOW FLUID LOSS WELL-TREATING COMPOSITION AND METHOD
Julius P. Gallus, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
Continuation-in-part of application Ser. No. 511,374, Dec. 3, 1965, now Patent No. 3,455,390, dated July 15, 1969. This application July 14, 1969, Ser. No. 841,522
Int. Cl. E21b 43/26, 43/27

U.S. Cl. 166-283

23 Claims

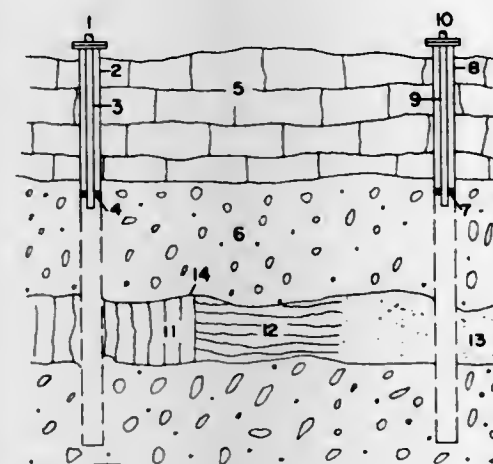
A low loss well-treating composition comprising an aqueous mixture of solid wax or wax-polymer particles and a surfactant specifically selected for its ameliorating effect upon the low fluid loss properties of the solid particles, and a process employing this composition in well drilling and treating.

3,601,195
SELECTIVE PLUGGING BY HOT FLUID INJECTION
Charles L. Hearn, Tulsa, Okla., assignor to Cities Service Oil Company

Filed Jan. 19, 1970, Ser. No. 3,882
Int. Cl. E21b 33/138

U.S. Cl. 166-288

6 Claims



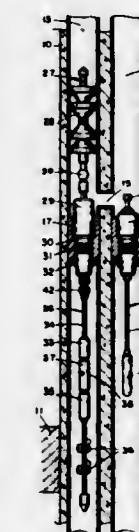
This is a method of controlling selective plugging of a reservoir when it is desired to place a plug some distance into the reservoir. By this method, plugging is accomplished by in-

jecting into a permeable zone a hot fluid which, on cooling, sets up into a gel or solid, or increases greatly in viscosity, thereby effectively plugging the permeable zone. The reservoir is preheated by injecting a hot fluid which does not contain a plugging material. The radial distance of plugging can be controlled by the amount of preheating fluid and plugging agent injected. When the preheating fluid is hot water and the plugging agent is an aqueous solution these amounts can be estimated by simple equations.

3,601,196
REMOTE PERFORATING IN DUAL COMPLETION WELLS
Thomas W. Childers, Los Angeles, and Carl E. Reistle, III, Chatsworth, both of Calif., assignors to Esso Production Research Company
Filed June 27, 1969, Ser. No. 837,248
Int. Cl. E21b 43/119

U.S. Cl. 166-297

10 Claims



Method for perforating in a dual, parallel pipe string tubingless well. A crossover passage or port connects these pipe strings. Each pipe string is provided with a landing nipple at about the same depth below the crossover port. A radioactive source tool, which includes a radioactive pill for transmitting radiation in angular directions and a seating member for seating the radioactive source tool in the landing nipple arranged in one of the pipe strings, is pumped through the one pipe string until the seating member is landed in the landing nipple. The radioactive pill is suspended from the seating member a predetermined distance which is approximately the level at which it is desired to perforate. A perforating assembly, which includes a directional perforating gun, a directional radiation detector, a radioactivity-sensitive gun-firing mechanism including a source of electrical power for causing actuation of the perforating gun, a rotation device for causing the perforating gun to rotate, a seating member for seating the perforating assembly in the landing nipple arranged in the other pipe string, and a locomotive device for moving the perforating assembly through the other pipe string, is then pumped through the other pipe string until the seating member lands in the landing nipple. The detector of the perforating assembly is suspended a predetermined distance from the seating member so that it is positioned at the same level as the radioactive pill in the adjacent pipe string. The firing mechanism utilizes a switch which is actuated when the radioactive count detected by the radiation detector reaches a predetermined level. The directional gun is aimed so as to fire in a predetermined angular direction when the directional detector is facing the radioactive pill. The perforating assembly is rotated by circulating fluid in the pipe strings. After the perforating gun has fired, the perforating assembly is removed from the other pipe string. The radioactive source tool is then removed from the one pipe string. The perforating gun may be reloaded and the perforating procedure repeated at a different level in the well bore after repositioning the radioactive source tool and perforating assembly.

3,601,197 TREATMENT OF FORMATIONS WITH ARYL SULFONIC ACID

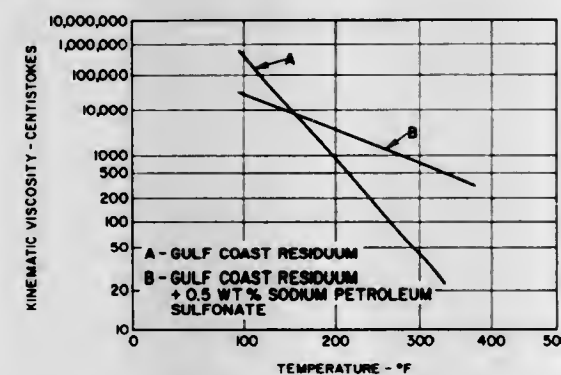
Robert C. Ayers, Jr., and Bert B. Williams, both of Houston, Tex., assignors to Esso Production Research Company
Continuation-in-part of application Ser. No. 812,349, Apr. 1, 1969, now abandoned. This application Apr. 29, 1970, Ser. No. 33,057
Int. Cl. E21b 43/27

U.S. Cl. 166—307 18 Claims
A method for improving the permeability of a subterranean formation surrounding a wellbore wherein an aqueous solution containing an aryl sulfonic acid, such as *p*-toluene sulfonic acid, as the principal active constituent is injected into the formation to dissolve carbonates and similar materials. The solution may contain an organic polar compound or a minor amount of an inorganic acid.

3,601,198 HYDRAULIC FRACTURING OPERATIONS

George P. Ahearn, and Othar M. Kiel, both of Houston, Tex., assignors to Esso Production Research Company
Filed Jan. 27, 1969, Ser. No. 794,061
Int. Cl. E21b 43/26

U.S. Cl. 166—308

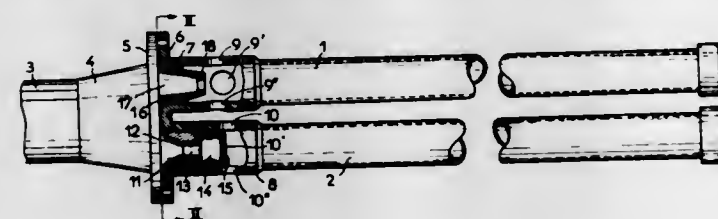


A hydraulic fracturing operation wherein a viscous residual petroleum fraction or similar hydrocarbon oil containing an oil-soluble anionic surface-active agent in a concentration sufficient to increase the viscosity index of the oil is used as a fracturing fluid.

3,601,199 PROCESS AND DEVICE FOR PRODUCING EXTINGUISHING FOAM

Georges Rotvand, 9 bis rue Le Conte de Lisle, Paris, France
Filed May 1, 1969, Ser. No. 820,800
Claims priority, application France, May 3, 1968, 150450
Int. Cl. A62c 31/12

U.S. Cl. 169—15



The present invention is concerned with a method of producing a jet of extinguishing foam containing air, comprising producing a first jet of foam exhibiting more expansion above a more dense and more liquid second jet, the second jet forming a carrier vehicle for the first jet.

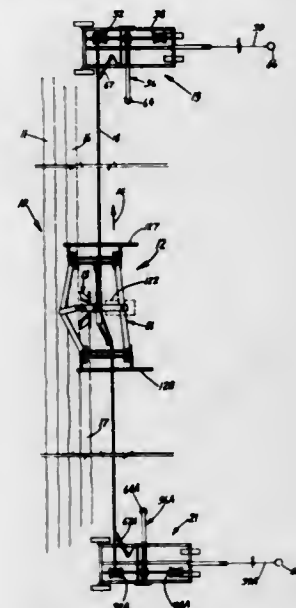
3,601,200 AUTOMATIC APPARATUS

Maurice L. Peterson, Kerkhoven, Minn., assignor to Russell C. Bauman, Kerkhoven, Minn., a part interest
Filed Mar. 13, 1969, Ser. No. 806,812
Int. Cl. A01b 3/68

U.S. Cl. 172—23

An automatic plowing apparatus having a self-propelled vehicle carrying facing plows guided by a cable extended

across a field. Opposite ends of the cable are attached to movable anchoring units which index across the field as the

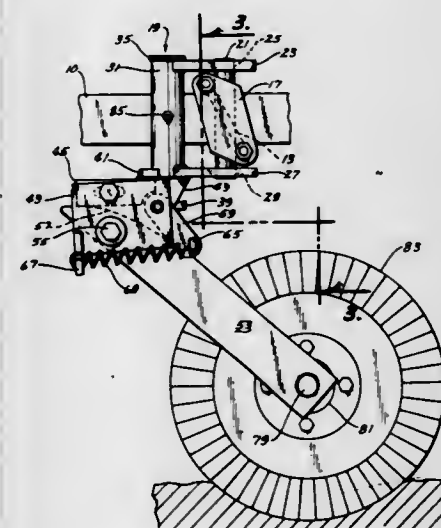


plowing advances. The self-propelled vehicle follows the cable extended between the anchoring units, advances the anchoring unit, and then automatically reverses itself.

3,601,201 PLOW COLTER

Vincent O. Schmitz, Rte. 1, Clear Lake, Iowa
Filed Nov. 12, 1968, Ser. No. 774,979
Int. Cl. A01b 61/00

U.S. Cl. 172—269



A plow colter assembly including a vertically disposed first shaft adapted to be operatively connected to the horizontally disposed plow beam and having a hollow bearing secured to and spaced from the first shaft. The second shaft is rotatably mounted in the bearing means and has a disc support arm operatively pivotally secured thereto which extends downwardly and rearwardly therefrom. A spring-loaded locking means yieldably maintains the disc support arm in an operative pivotal position with respect to the second shaft. The locking means is overcome or disengaged when the disc strikes a rock or the like to permit the disc support arm to pivot upwardly so that the disc will pass over the rock without damaging the colter assembly. The spring-loaded locking means returns the disc support arm to its operative position when the disc has passed over the rock.

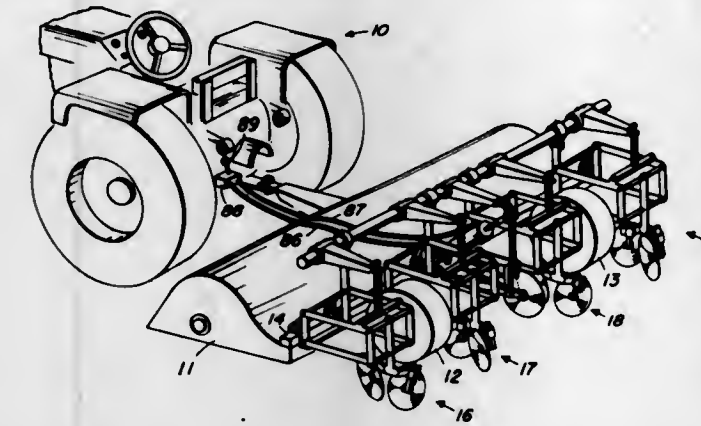
3,601,202 RIDGE LEVELER AND STALK COVERER

Harlan Steffe, R.F.D., Boyden, Iowa
Continuation of application Ser. No. 622,500, Mar. 13, 1967, now abandoned. This application Jan. 21, 1970, Ser. No. 4,451
Int. Cl. A01b 63/00, 5/00

U.S. Cl. 172—462

A machine which mounts a number of pairs of colters be-

hind a stalk cutter. The pairs of colters are positioned such that they cover material shredded by the stalk cutter and also



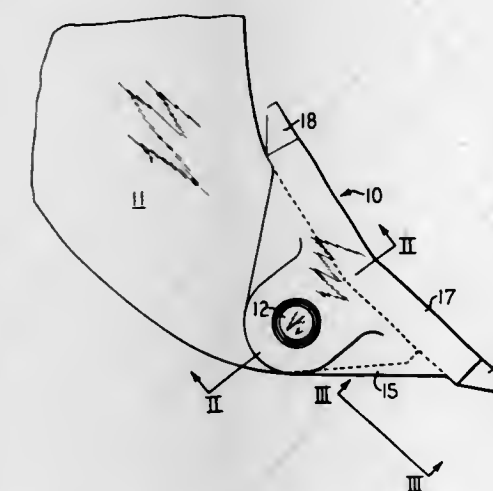
level the ground by moving the soil which had been placed in rows by the prior years cultivation.

3,601,203 REVERSIBLE RIPPER TIP

William L. Holmstrom, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Oct. 22, 1968, Ser. No. 769,538
Int. Cl. A01b 15/02

U.S. Cl. 172—719

3 Claims



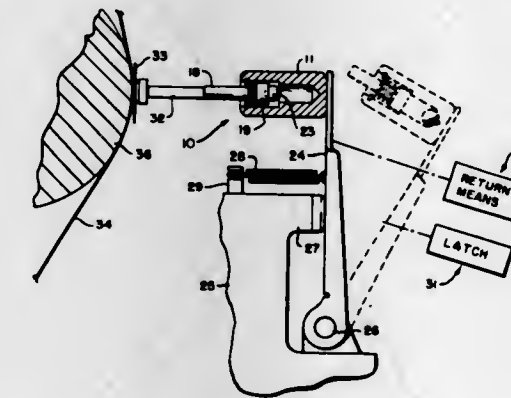
A ripper tip is removably attached to an end of a shank and has a point formed on each end thereof to facilitate reversal after one point has worn. Two pairs of apertures may be formed in a saddle mount portion of the ripper tip to align with respective bores formed in the shank to provide four adjusted positions therebetween.

3,601,204 DYNAMIC HAMMER AND METHODS OF STRIKING WORKPIECES

Ronald S. Denley, Niles, Ill., assignor to Teletype Corporation, Skokie, Ill.
Filed July 11, 1969, Ser. No. 840,948
Int. Cl. B41j 9/26; B25d 15/02

U.S. Cl. 173—1

8 Claims



A printing hammer includes a striker and a weight, both slidably mounted within a housing. To hammer a workpiece,

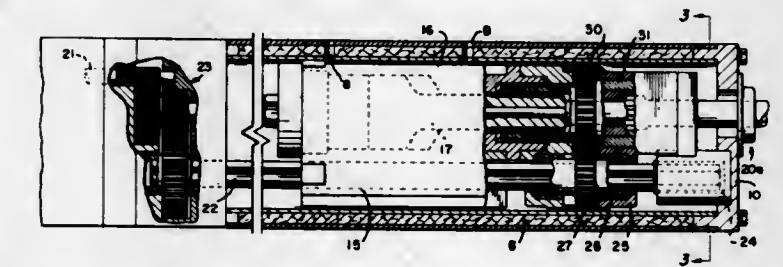
the housing is moved to advance the striker toward the workpiece, and the motion of the housing is suddenly arrested. When motion of the housing is arrested, the momentum of the weight drives the striker, forward into engagement with a workpiece.

3,601,205 ROCK DRILL

Ewald H. Kurt, Phillipsburg, N.J., assignor to Ingersoll-Rand Company, New York City, N.Y.
Filed Apr. 7, 1970, Ser. No. 26,364
Int. Cl. E21c 1/00

U.S. Cl. 173—105

7 Claims



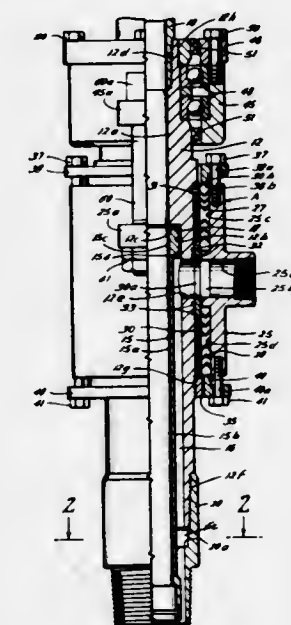
A rock drill assembly which includes a drilling machine mounted within a sound-absorbing container. The container is longer than the length of the drilling machine so that the container acts as the guide for the drilling machine as the machine is advanced into the material being drilled. The drill is provided with bearings which engage the inside of the container for guiding the movement of the drill within the container. Apparatus is provided for advancing and retracting the drilling machine relative to the container. There may be apparatus for independently rotating the drill steel relative to the container.

3,601,206 SIDE INLET SWIVEL

Charles A. Grant, Houston, Tex., assignor to King Oil Tools
Filed Sept. 15, 1969, Ser. No. 857,953
Int. Cl. E21b 21/02; E21c 7/10

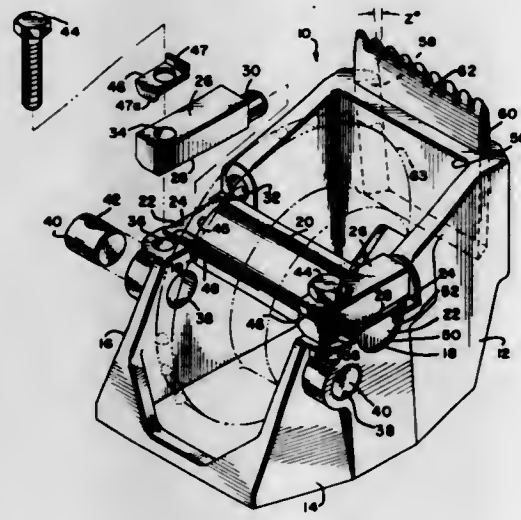
U.S. Cl. 175—215

6 Claims



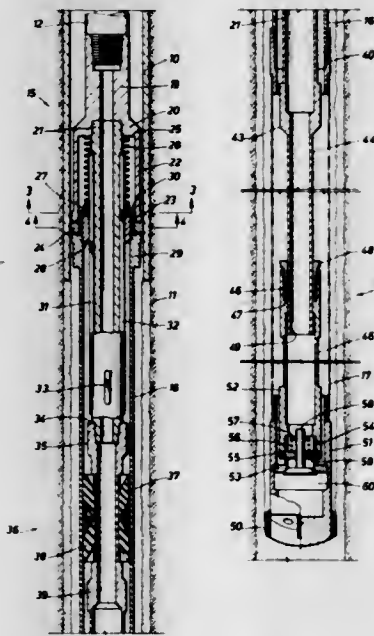
A new and improved swivel having an inlet on the side thereof for admitting fluid to the bore of the swivel to admit fluid in addition to fluid flowing longitudinally through the bore of the swivel, or to admit a second differential fluid from that flowing longitudinally through the swivel, or to admit fluid beyond a solid drive connection such as used in road boring.

3,601,207
CUTTER ASSEMBLY
 William D. Coski, Mercer Island, and William H. Hamilton, Seattle, both of, Wash., assignors to Lawrence Manufacturing Company, Seattle, Wash.
 Filed May 19, 1969, Ser. No. 825,654
 Int. Cl. E21b 9/08
 U.S. Cl. 175—313 24 Claims



A cutter assembly comprising a cage support in which a cutter is rotatably mounted on a shaft, the shaft and support having surfaces which are mutually engageable, and/or arranged for receiving penetrating hardware, to restrain the shaft against rotation. The cage support carries on integral socket for replaceably securing a scraper.

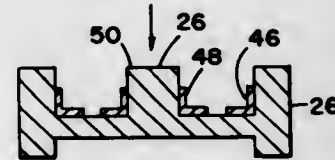
3,601,208
SETTING TOOL
 James K. Greer, and Marvin G. Kemp, both of Kilgore, Tex., assignors to Davis-Kemp Tool Co., Inc.
 Filed May 27, 1969, Ser. No. 828,252
 Int. Cl. E21b 43/10
 U.S. Cl. 175—314 8 Claims



For use in placing a sand filter and liner in a well obstructed with sand, a setting tool adapted to support a liner and screen as the tool is run into the well bore, there being a fluid path through the tool and out a sand bit at the bottom for advancing through the sand on rotation in a particular direction, the sand being removed by rotation of the sand bit and the jetting action of the fluid flow to position the sand screen and liner at a desired elevation in the well bore, the apparatus further including a seal means adapted to be

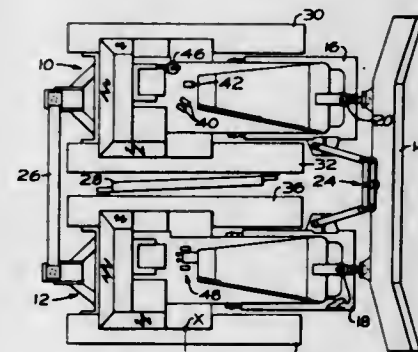
shaped by expansion to join the liner to the cased well bore on repeated reciprocation or pounding, the tubing string pulling free and retrieving the setting tool while leaving the liner and sand screen.

3,601,209
VEHICLE-WEIGHING SYSTEM
 Owen Paellian, 1315 Woodmont Ave. S.E., Huntsville, Ala.
 Division of Ser. No. 765,259, Oct. 4, 1968 Patent No. 3,533,481
 Filed May 25, 1970, Ser. No. 40,310
 Int. Cl. G01g 19/02, 31/4
 U.S. Cl. 177—134 1 Claim



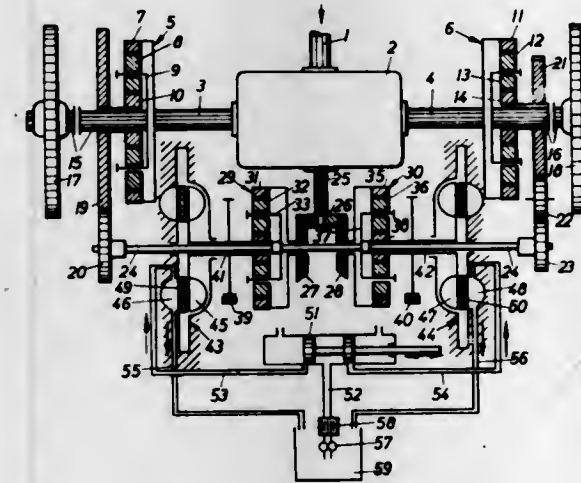
A weighing system for weighing trucks while in motion having a plurality of adjacent but independent weighing platforms for each wheel or set of wheels wherein a portion of wheel loading of one wheel may be applied to one platform and a portion to another platform, or all to one platform without introducing weighing errors.

3,601,210
METHOD AND APPARATUS FOR STEERING FOUR-TRACK TRACTORS
 Robert N. Stedman, Chillicothe; Donald E. Sunderlin, Washington; Frederick R. Leggett, Peoria, and Willis R. Daft, Peoria, all of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
 Filed June 12, 1969, Ser. No. 832,655
 Int. Cl. B62d 11/06
 U.S. Cl. 180—6.7 7 Claims



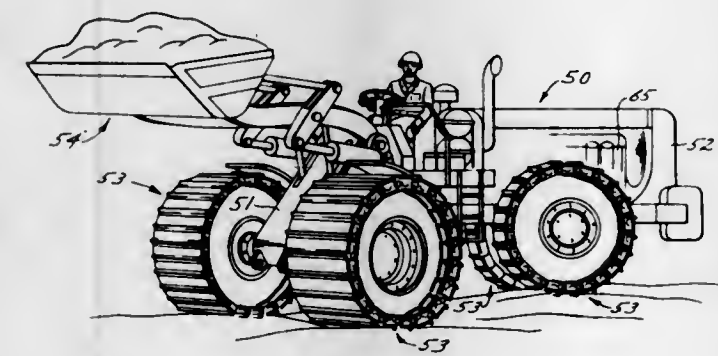
A steering system for a tractor or combined tractors having four tracks in side-by-side relationship in which power to one track only, wither extreme right or extreme left is interrupted while full power to all other tracks continues to drive. Brake means for braking all tracks simultaneously is included, and means effective when power to one track is interrupted, to direct the braking force exclusively to that track.

3,601,211
STEERING ARRANGEMENT FOR A TRACK-LAYING VEHICLE
 Ernst-Gunter Finke, Heidenheim, Germany, assignor to Volth Getriebe KG, Heidenheim (Brenz), Germany
 Filed Dec. 22, 1966, Ser. No. 605,529
 Claims priority, application Germany, Dec. 22, 1965, V 30 002 II/63c
 Int. Cl. B62d 11/00
 U.S. Cl. 180—6.66 3 Claims



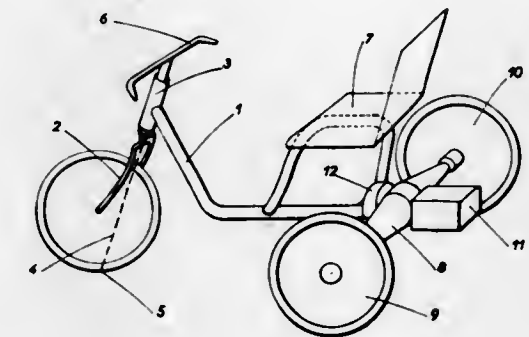
Differential transmissions control the differential drives of the endless tracks for a vehicle, and are selectively braked to cause relative speed changes of the differential drives and tracks so that the vehicle turns.

3,601,212
CUSHIONED TRACK
 Robert A. Peterson, San Leandro, Calif., and Norman E. Risk, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
 Filed Dec. 15, 1969, Ser. No. 884,903
 Int. Cl. B62d 55/08
 U.S. Cl. 180—9.44 60 Claims



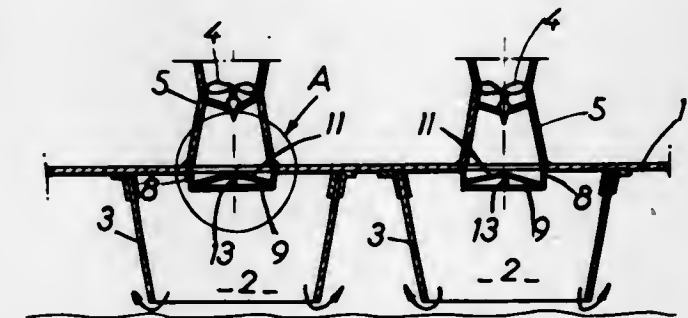
A machine is supported by four ground-engaging cushioned tracks. Each cushioned track comprises an annular resilient spacer having an endless track assembly mounted therearound. The track assembly comprises a plurality of shoes having flat inner surface portions surrounding and compressing the outer periphery of the spacer to normally define a substantially continuous, polygonal-shaped surface contact therebetween. The shoes extend laterally across the spacer and are connected together by laterally spaced link assemblies each positioned at a respective side of the spacer to form a unitized cushioned track.

3,601,213
STABILIZED THREE-WHEEL VEHICLE
 Pierre Patin, 58, rue de Sevres, Boulogne-sur-Seine, France
 Filed Feb. 20, 1969, Ser. No. 800,860
 Claims priority, application France, Feb. 22, 1968, Feb. 7, 1969, 140,891;6902980
 Int. Cl. B60k 23/04
 U.S. Cl. 180—27 1 Claim



This invention is concerned with a stabilized three-wheel vehicle having a steering wheel at the front and two driving wheels at the back, wherein the vehicle comprises a chassis carrying the front steering wheel mounted on a fork with positive play, a rear framework having two driving wheels, and a member which will pivot around the substantially horizontal axis and is disposed between the chassis and the rear framework, a device being provided to enable the pivotal member to be locked.

3,601,214
DEVICES FOR SUPPLYING FLUID UNDER PRESSURE TO GROUND EFFECT MACHINES
 Jean Henri Bertin, Neuilly-sur-Seine, and Maurice Paul Berthelot, Issy-les-Moulineaux; both of, France, assignors to Bertin & Cie, Plaisir, France
 Filed Mar. 24, 1969, Ser. No. 809,761
 Claims priority, application France, Mar. 22, 1968, 145064
 Int. Cl. B60v 1/00
 U.S. Cl. 180—118 6 Claims

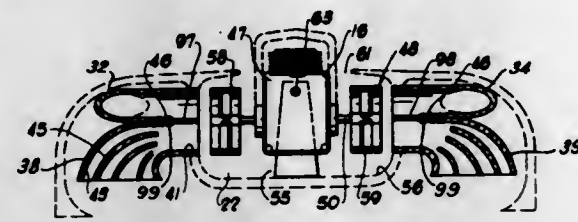


A device for supplying a chamber confining a cushion of fluid under pressure from a pressure fluid source through a duct extending into said cushion-confining chamber, comprising at the outlet port of said duct into said chamber a nonreturn valve so devised as to close automatically and seal off said duct outlet responsively to any notable overpressure occurring in said chamber.

3,601,215
AIR-CUSHION VEHICLE
 Roland N. Nissen, P.O. Box 183, Cawker City, Kans.
 Filed Apr. 7, 1969, Ser. No. 813,980
 Int. Cl. B60v 1/14
 U.S. Cl. 180—120 3 Claims

This invention is an air-cushion vehicle adapted to be used over the water as well as land having propulsion through a pair of blower members and operable through baffle structures to divide the output air flow between the functions of lift and propulsion. More particularly, this invention is an air-

cushion vehicle having gyroscopic control means utilizing the power means to provide torque characteristics for turning the



same and having additional means for propelling and directing the vehicle while in direct contact with land surfaces.

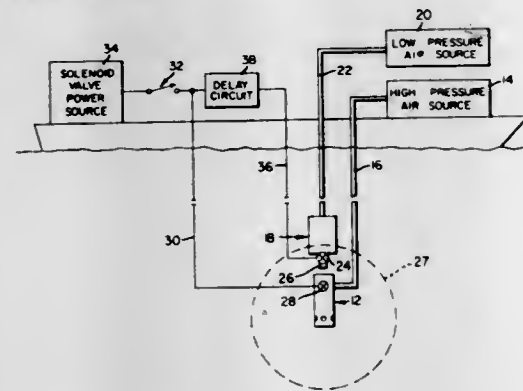
3,601,216 SYSTEM FOR SUPPRESSING MULTIPLE PULSE IN MARINE SEISMIC SOURCES BY INJECTION OF ADDITIONAL AIR

Lewis M. Mott-Smith, Houston, Tex., assignor to Mandrel Industries, Inc., Houston, Tex.

Filed Oct. 23, 1967, Ser. No. 677,279
Int. Cl. G01v 1/04, 1/38

U.S. Cl. 181-0.5 H

5 Claims



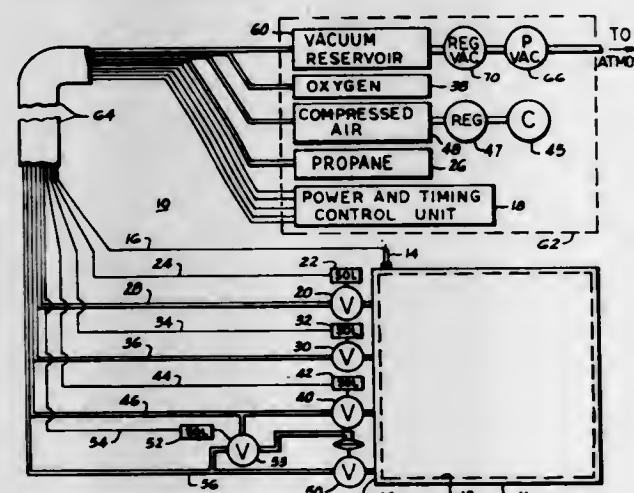
Apparatus and method for suppressing the initial and subsequent contractions of an air bubble used to generate a seismic signal, wherein the preferred embodiment a source of suppressor air is located immediately adjacent to the air valve source which creates the bubble, whereby the source of suppressor air is located within the expanded bubble when it approaches its largest diameter to allow the sudden and rapid release of suppressor air into the bubble to retard the contraction of the bubble. In a second embodiment, the air valve source itself defines the source of suppressor air.

3,601,217 AIR-OPERATED SEISMIC GAS EXPLODERS Ben B. Thigpen, and Carl H. Savit, both of Houston, Tex., assignors to Western Geophysical Company of America, Houston, Tex.

Filed May 16, 1969, Ser. No. 825,377
Int. Cl. G10k 11/00

U.S. Cl. 181-.5

7 Claims



This invention relates to marine seismic gas exploders and to methods for operating them. A seismic gas exploder typi-

cally includes a housing having an expansible combustion chamber to which is periodically supplied a charge of a combustible gas mixture. The charge is detonated and the spent gases are preferably exhausted by a vacuum-operated exhaust system. The combustible gas mixture in accordance with this invention generally includes oxygen, a fuel gas, and an inert gas or preferably a fuel gas, oxygen and air. The partial air pressure is selected to allow the oxygen to completely burn the fuel gas and the nitrogen portion of the air is selected to obtain a prefire pressure equal to or less than the ambient pressure of the water.

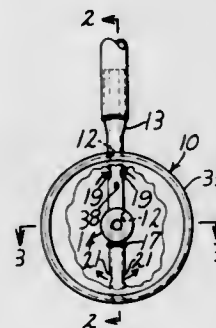
3,601,218 STETHOSCOPE

Walker Reynolds, Jr., 327 E. 10th Street, Anniston, Ala.
Filed Mar. 23, 1970, Ser. No. 21,824

Int. Cl. A61b 7/02

U.S. Cl. 181-24

8 Claims



Stethoscope having chest piece with air chamber therein. Sound delivery tube communicates with one side of chamber and sound-receiving passageway communicating with other side conveying sound through chamber from opposite side to said one side then to delivery tube. Chest piece rotatable to selected positions on tube permitting use of diaphragm and bell-type pieces.

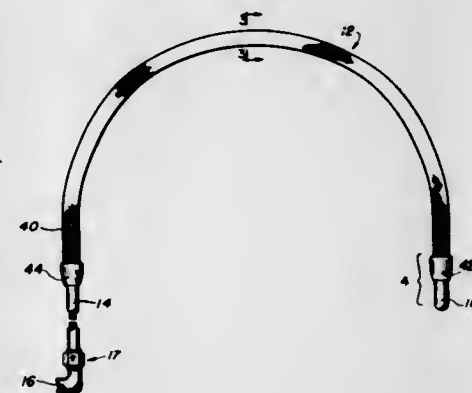
3,601,219 AIR DISTRIBUTION PLENUM WITH SILENCER FOR HEAD ENCLOSURES

Herbert A. Raschke, Greenbrae, and Anthony L. Moretti, San Rafael; both of, Calif., assignors to E. D. Bullard Company, Sausalito, Calif.

Filed June 1, 1970, Ser. No. 42,367
Int. Cl. A42b 3/00; F01n 1/08, 7/08

U.S. Cl. 181-36 R

11 Claims



A plenum adapted to be mounted in a head protective hood for distributing respiration air to the interior of the hood. The plenum is formed by an air distribution tube that has a plurality of air jet openings in the wall thereof and spaced along the tube to achieve a desired distribution. Fabric in the form of a sleeve disposed within the tube and overlying the air jet openings in the tube so as to break up

the airflow through the jet openings to reduce noise level. A fabric sleeve disposed on the outer surface of the tube for breaking up airstreams exiting the jet openings in the tube. Structure for supporting the fabric sleeves in their respective positions.

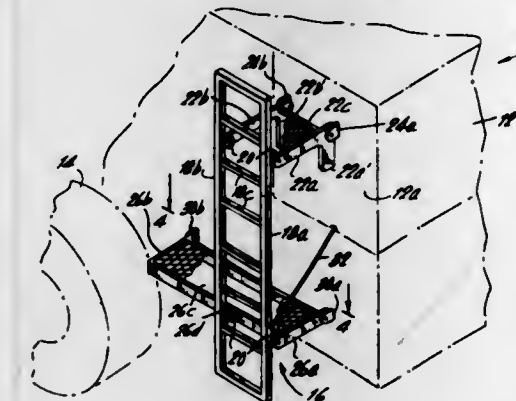
3,601,220 RETRACTABLE LADDER

Richard Saucier, 79 Debbie Drive, Southington, Conn.
Filed Jan. 5, 1970, Ser. No. 565

Int. Cl. E06c 5/22

U.S. Cl. 182-84

3 Claims



A retractable ladder for attachment to a vertical support. The ladder is attached by two legs each of which is hinged to both a wall and the ladder. The resulting arrangement is a parallelogram-type linkage. A spring is provided tending to pull the ladder in toward the wall. When the ladder is in the open position, the torque in the direction to open the ladder is at a maximum and the spring force is insufficient for retracting the ladder. When the ladder is in the closed or retracted position, the opening torque is at a minimum and the spring force is sufficient to keep the ladder closed.

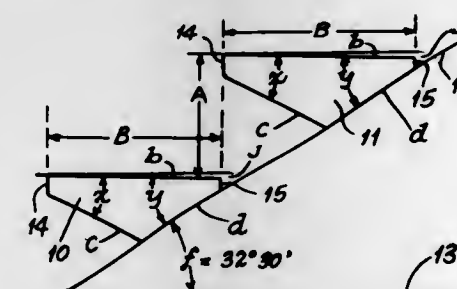
3,601,221 STAIRS

Guillermo Fuentes, 7014 Stanford Ave., St. Louis, Mo.
Filed Dec. 10, 1969, Ser. No. 881,885

Int. Cl. E04f 11/00

U.S. Cl. 182-93

13 Claims



A staircase and method of constructing it wherein steps of generally triangular cross section have angles formed by the three sides determined in accordance with a prescribed formula, the steps mounted to a stringer with one side of the step substantially horizontal and a selected one of the two other sides mounted to the top of the stringer. The step mountings are located in accordance with the prescribed formula. The stringer is mounted between two floors inclined within a range of angles.

3,601,222 STAGING

William Charles Coombs, The Cottage Woodland Iver., Buckinghamshire, England

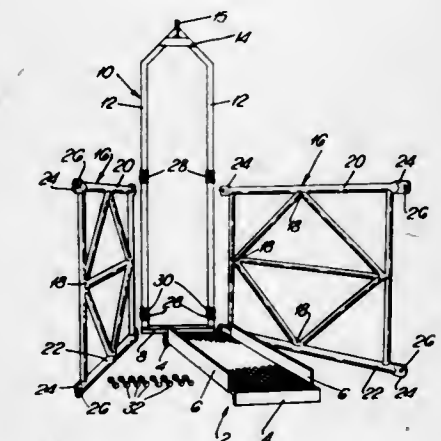
Filed Apr. 1, 1969, Ser. No. 811,876

Claims priority, application Great Britain, Apr. 11, 1968, Jan. 29, 1969, 17,737/68; 5,059/69

Int. Cl. E04g 3/10

U.S. Cl. 182-150

4 Claims



This invention relates to staging, preferably articulated staging, of the kind which is suspended from a support along the side of or around a work piece: the staging is generally formed of floor sections and upright side sections attached to the floor sections and also has hanger members, each hanger member having a top crosspiece to receive means from which the staging can hang.

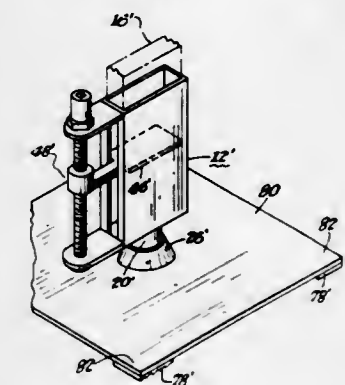
3,601,223 LADDER SUPPORT

Thomas J. Lyons, 1252 Superior Ave., Pittsburgh, Pa.
Filed Jan. 6, 1970, Ser. No. 863

Int. Cl. E06c 7/44

U.S. Cl. 182-204

15 Claims



A ladder support comprising a receptacle member shaped to receive an end portion of a stile of a ladder through an open end of said receptacle member, the other end of said receptacle member being shaped into a universal joint component, a base member for said support, said base member having a cooperating universal joint member extending from a central area thereof, and means for joining said receptacle member to said base member in cooperative engagement of universal joint components.

3,601,224 SCAFFOLDING

Robert Barras, "Tuck-a-Way", Hilton, Republic of South Africa

Filed Dec. 1, 1969, Ser. No. 881,124

Claims priority, application, Republic of South Africa, Dec. 11, 1968, 68/8161

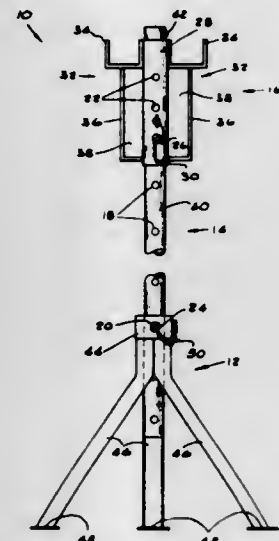
Int. Cl. E04g 1/32; F16m 11/00

U.S. Cl. 182-225

5 Claims

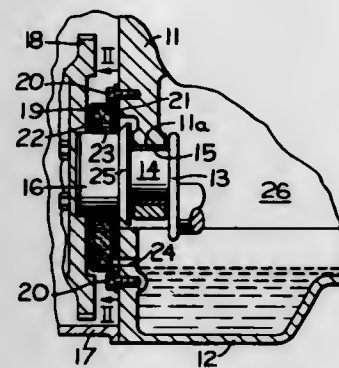
A scaffold element comprising a sleeve adapted to be mounted on a scaffold standard, the sleeve having at least

two locating brackets for locating scaffold members on the sleeve, the brackets being spaced about the periphery of the sleeve and/or at different elevations along the sleeve. A scaffold standard having a scaffold element of the kind described



slidably mounted thereon. A scaffold trestle comprising a base portion and a scaffold trestle comprising a base portion and a scaffold standard as described slidably mounted thereon.

3,601,225
PLASTIC FOAM CRANKSHAFT SEAL
Thomas V. Wahl, North Pekin, and Ernest W. Landen, Peoria, both of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 3, 1970, Ser. No. 16,059
Int. Cl. F01m 1/10; B01d 50/00
U.S. Cl. 184-1 R 3 Claims

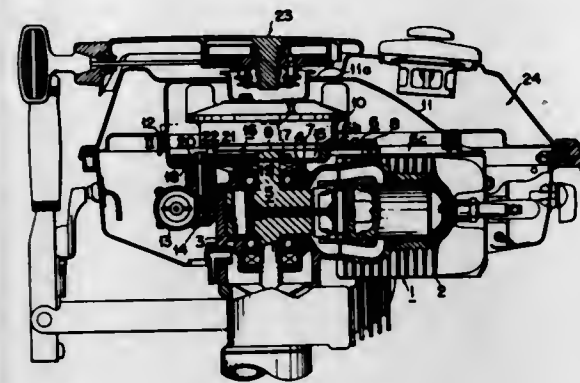


A crankshaft seal comprises a foam member, positioned adjacent the crankcase and extending around the opening from which a portion of the crankshaft extends to function as a demister for oil vapor escaping from the crankcase. A wick member extends around the crankshaft adjacent the foam layer and returns oil to the crankcase.

3,601,226
COMPACT LUBRICATING PUMP AND ENGINE ARRANGEMENT FOR AN OUTBOARD MOTOR
Yutaka Masaoka, and Masanori Takahashi, both of Hamakita-shi, Japan, assignors to Yamaha Watsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-ken, Japan
Filed Aug. 27, 1969, Ser. No. 853,444
Claims priority, application Japan, Sept. 3, 1968, Sept. 30, 1968, 43/75869; 43/84388
Int. Cl. F01m 1/02 12 Claims

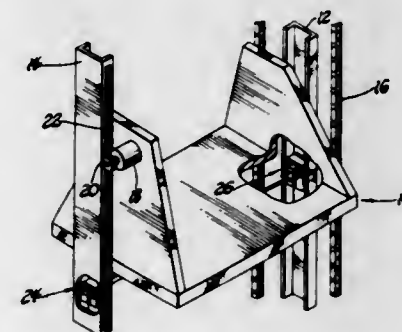
An outboard motor wherein the fitting arrangement of a lubricating pump for lubricating an internal combustion en-

gine is so designed to be simple and compact and a transmission gear mechanism for connecting the crankshaft of an en-



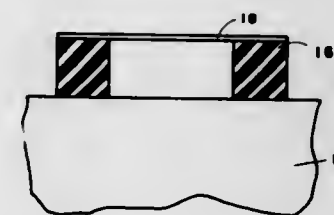
gine to said pump is saved from the deposition of water drops or water scales by said arrangement.

3,601,227
EMERGENCY BRAKE CONTROL SYSTEM FOR ELEVATORS
Arthur R. Burch, Plainwell, Mich., assignor to Clark Equipment Company, Buchanan, Mich.
Filed June 15, 1970, Ser. No. 46,165
Int. Cl. B66b 5/06 12 Claims



An emergency brake control system for elevator cars is disclosed. The system is adapted to be carried in its entirety on the elevator car and requires no external source of energization. An electrical generator is operatively connected between the elevator car and frame for developing a voltage corresponding to the speed of the car. Control means is connected to the generator and is responsive to a predetermined voltage for applying brakes to the car. A permanent magnet direct current generator is used with a control means including a unidirectionally conductive voltage responsive device such as a silicon controlled rectifier so that the brakes are applied only when the polarity of the generator voltage corresponds to downward travel of the elevator car.

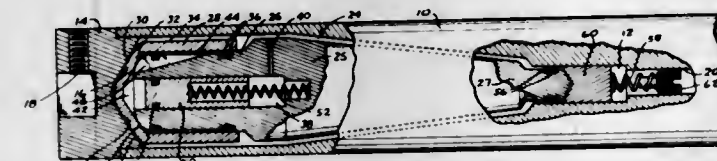
3,601,228
RESONANT-BEAM/TUNED DAMPER
Ahid D. Nashif, Kettering, Ohio, assignor to University of Dayton
Filed May 22, 1968, Ser. No. 731,340
Int. Cl. F16f 7/08 13 Claims



This invention relates to a method and means of reducing vibration damage to components or component parts ex-

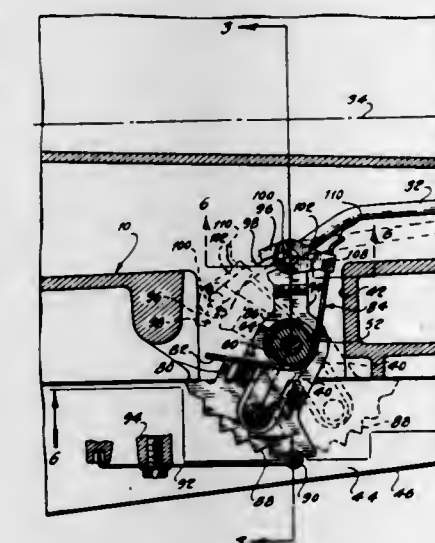
posed to and having a cylindrical response. Specifically, the invention determines the resonant period of vibration and utilizes a tuned-damping device for shifting the resonance peak of the supporting structure and reducing its amplitude. The tuned-damping device is of the beam type and can be extremely small relative to the component and may actually be integrated therein.

3,601,229
HYDRAULIC VIBRATION DAMPER
Norval E. Shurtliff, 908 1st Place, Springfield, Oreg.
Filed June 9, 1969, Ser. No. 831,415
Int. Cl. F16f 11/00, 7/10 12 Claims



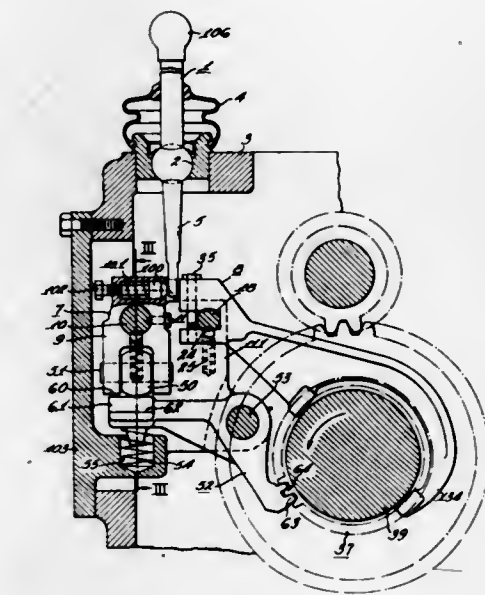
An hydraulic vibration damper arrests vibration of a boring bar, lathe chuck, or other support. It comprises an inertia member adapted to be mounted on the support for vibration-induced movement. A case is mounted for relative movement on one end of the inertia member with its walls spaced from the walls of the latter. Seal means divide the space between the walls into two chambers. Both chambers are filled with mercury or viscous oil. Upon vibration of the support, the liquid is driven from one side to the other, providing an hydraulic vibration damping effect which supplements the inertia damping effect of the inertia member. In addition, frictional engagement of the end of the inertia member with the case provides a frictional damping effect.

3,601,230
PARKING BRAKE FOR A VEHICLE DRIVELINE
Edward F. Platz, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed July 1, 1970, Ser. No. 51,483
Int. Cl. B60t 1/00 4 Claims



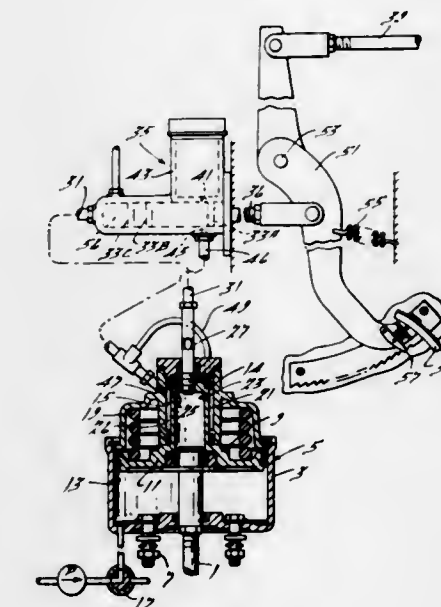
A parking brake for an automatic power transmission in an automotive vehicle driveline comprising a personally operable brake lever adapted for oscillation in the transmission housing about an axis that is disposed transversely with respect to the axis rotation of the torque output shaft, a brake pawl pivoted on the transmission housing, a cam rod adapted to be moved into engagement with the pawl to effect application of the brake, a linkage connection between the brake lever and the cam rod and an overload spring means for maintaining the brake lever and the cam rod in assembled relationship.

3,601,231
PARKING BRAKE MECHANISM
Ferdynand Kolacz, and Donald W. Longshore, both of New Berlin, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Mar. 28, 1969, Ser. No. 811,325
Int. Cl. B62c 7/02 7 Claims



A vehicle mechanism for operating a positive parking brake and shifting a transmission which includes an interlock to prevent shifting into a driving ratio when the brake is engaged. A safety switch 34 prevents starting of the engine when the brake is released and the transmission is engaged.

3,601,232
MOTOR VEHICLE BRAKING SYSTEM
Albert H. Elias, Cranham, Essex, England, assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 21, 1968, Ser. No. 777,558
Claims priority, application Great Britain, Dec. 1, 1967, 54,830/67
Int. Cl. F16d 65/24 9 Claims



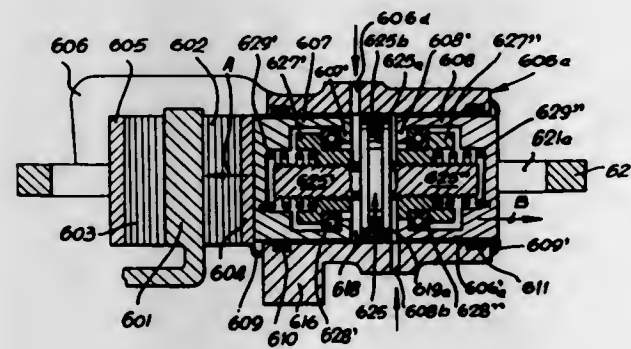
A vehicle brake system having a brake control device that is spring actuated to apply the vehicle brakes. A pneumatic pressure-responsive piston and a hydraulic pressure-responsive piston are both constructed to release said brake against the force of the spring.

3,601,233 PISTON ASSEMBLY FOR DUAL-NETWORK DISK-BRAKE SYSTEM

Helmut Marschall, Frankfurt am, Main; Wolfgang Kammermayer, Frankfurt, Fechenheim; Hans Albert Beller, bad Vilbel; Heinz Hahn, Walldorf, Hessen, and Juan Belart, Frankfurt am, Main, all of, Germany, assignors to Alfred Teves GmbH, Frankfurt am, Main, Germany
Division of Ser. No. 681,330, Nov. 8, 1967, Pat. No. 3,490,565
Filed June 9, 1969, Ser. No. 831,400
Int. Cl. B60t 11/20

U.S. Cl. 188—345

5 Claims



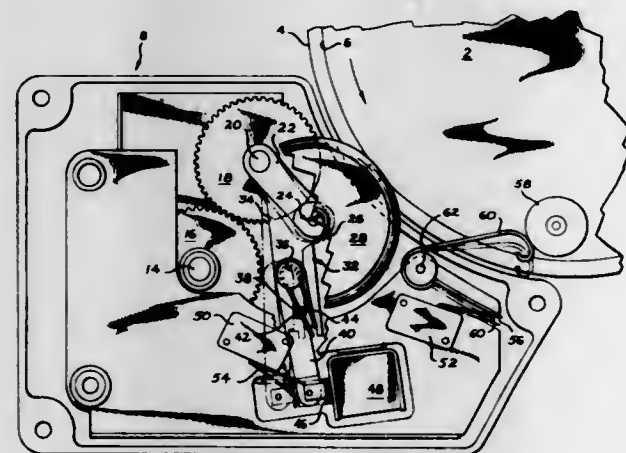
A vehicle-brake system having a tandem or twin master cylinder for delivering the brake fluid to independent transmission networks each connected with one compartment of a disk brake whose actuating cylinder is located on one side of the brake disk and receives at least one piston defining its working compartments or chambers therein. A pair of pistons are provided, so that the chambers are disposed to one side of the direct-acting piston while the other piston applies pressure to the brake housing or to a force transmission frame extending around the disk. A double-acting valve maintains the effective cross section of the actuating assembly in spite of loss of pressure in one of the transmission networks.

3,601,234 MICROTOME ELECTRIC DRIVE

Chester S. Ingraham, East Aurora, N.Y., assignor to American Optical Corporation, Southbridge, Mass.
Filed Aug. 4, 1969, Ser. No. 847,051
Int. Cl. F16d 71/00

U.S. Cl. 192—.02

4 Claims



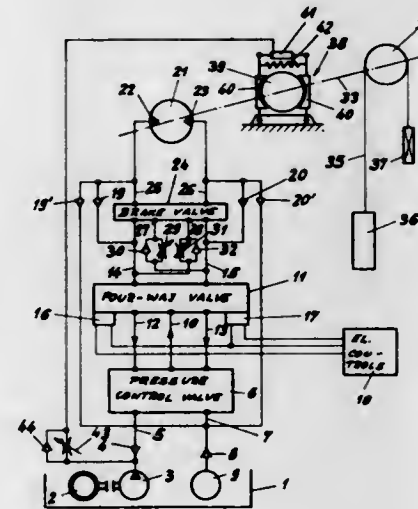
A microtome having an electric drive in conjunction with its hand wheel by which the microtome can be driven continuously or cyclically as well as by hand.

3,601,235 HYDRAULIC ELEVATOR DRIVE

Hans Hermann Huf, Schaffhausen, Switzerland, assignor to Aufzuge AG, Schaffhausen, Schaffhausen, Switzerland
Filed Dec. 2, 1969, Ser. No. 881,516
Claims priority, application Switzerland, Dec. 4, 1968, 18126/68
Int. Cl. F16d 43/28, 43/286

U.S. Cl. 192—3 R

10 Claims



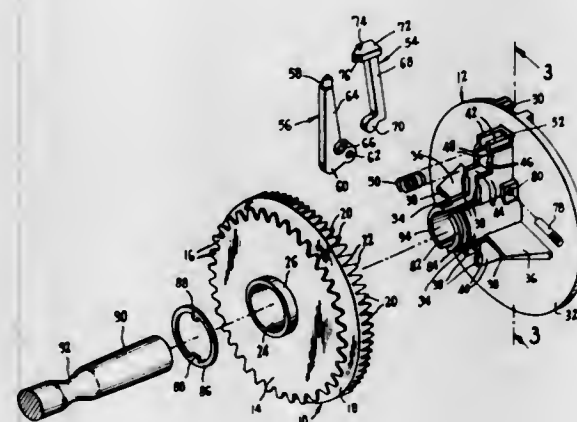
The hydraulic drive motor for the cable drum of an elevator is supplied with pressure fluid through a pressure control valve, a reversing valve, and a brake valve. The pressure control valve adjusts the liquid pressure in response to the torque transmitted between the motor and the cable drum, the reversing valve controls the direction of flow through the motor and also the flow rate, and the brake valve controls the return of liquid from the motor in response to the magnitude and the direction of the transmitted torque.

3,601,236 GEAR-LOCKING MECHANISM

Tom Stephenson, 64 Secret Lake Road, Avon, Conn.
Filed Apr. 6, 1970, Ser. No. 25,835
Int. Cl. F16d 11/12

U.S. Cl. 192—71

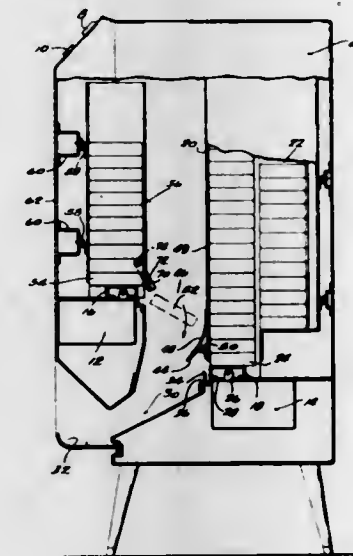
10 Claims



A gear-locking mechanism includes a rotatable gear and a locking assembly mounted adjacent to the gear and having a set of pawls thereon. The pawls are movable successively toward the teeth and have elements thereon that are engageable therebetween. Offset shoulders are provided on either the teeth of the gear or the engageable portion of one of the pawls, so that the set of pawls may cooperate to lock the gear in any of a large number of rotated positions relative to the locking assembly.

3,601,237
CIGARET DISPENSER WITH CONVERSION KIT
Walter C. Ovsienko, 4332 N. Morris Blvd., Milwaukee, Wis.
Filed Apr. 23, 1969, Ser. No. 818,622
Int. Cl. G07f 11/10; B65g 59/06; B65h 3/44
U.S. Cl. 194—2

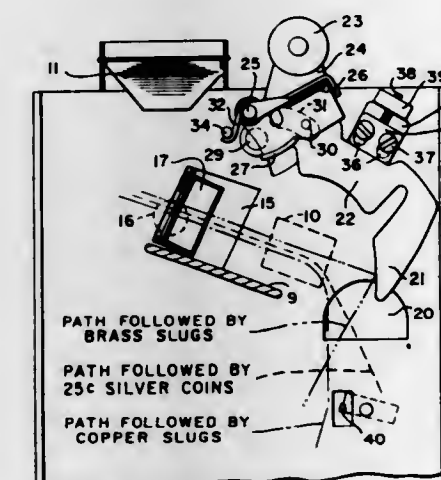
1 Claim



A conversion kit applicable on location to a conventional cigarette dispenser adapts it without externally visible change for vending packages of increased length. The required larger magazine extends into and somewhat restricts the internal dispensing passage. A change in form and function of the package actuated switch deflects the ejected pack downwardly to avoid clogging the restricted passage. Other deflector means cooperates to direct the pack through the discharge slot.

3,601,238
COIN SORTER ANVIL MOUNTING
Wilson M. Stewart, assignor to Vendall Machines Limited, both of Ottawa, Ontario, Canada
Filed Aug. 12, 1969, Ser. No. 849,313
Claims priority, application Canada, Apr. 14, 1969, 48,656
Int. Cl. G07f 3/02
U.S. Cl. 194—101

6 Claims

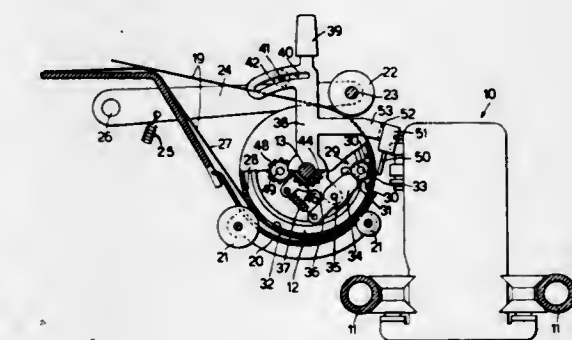


In a coin sorter in which coins and slugs roll down a runway past a magnet which affects their speeds an anvil is provided above the path of genuine coins leaving the runway, so that is struck only by slugs which leave the runway at a greater speed than the genuine coins, such slugs bouncing off the anvil into a rejection path which is also followed by slugs which leave the runway at a slower speed than genuine coins, the genuine coins alone following an acceptance path. This is particularly useful in coin sorters which have a separate, parallel runway for all-nickel coins, the latter entering the

separate runway via an aperture in a plate and eventually passing through another aperture in the plate to follow the acceptance path. The all-nickel coins are drawn through the first-mentioned aperture by a magnet against the resilient action of a spring-urged gate and stops are provided for limiting both inward and outward swinging movements of the gate.

3,601,239
LINE-FINDING FEED DEVICE FOR CONTINUOUS FORMS FOR TYPEWRITING AND SUCH MACHINES
Attilio De Ambrogio, Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy
Filed Mar. 3, 1969, Ser. No. 803,659
Claims priority, application Italy, Mar. 7, 1968, 50823-A/68
Int. Cl. B41j 15/00
U.S. Cl. 197—133

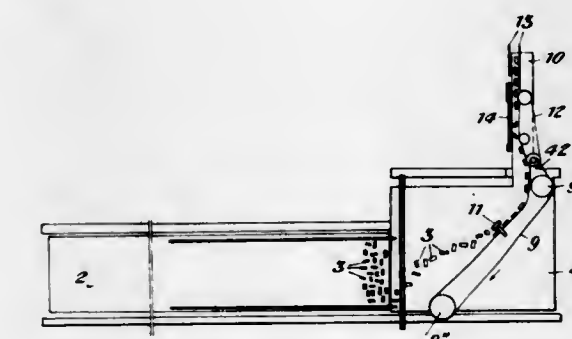
18 Claims



Feed apparatus in a printing machine for feeding forms having registration apertures to a printing position comprising a rotatable platen, a star wheel operating in conjunction with said platen to sense said apertures by entering said apertures and rotating with the movement of said apertures, and electrical means responsive to the sensing of said apertures to halt said platen at predetermined writing lines relative to said apertures.

3,601,240
DEVICE FOR ALIGNING AND DISPOSING ACCORDING TO THEIR LONGER DIMENSION ARTICLES INCOMING IN AN UNORDERED ROW
Antonio Dominici, 8, Via Ruggero d'Andreatte, Perugia, Italy
Filed Feb. 3, 1970, Ser. No. 8,338
Claims priority, application Italy, Feb. 3, 1969, July 18, 1969, 34670A/69; 38776A/69
Int. Cl. B65g 47/00
U.S. Cl. 198—20

14 Claims



The device aligns a large number of randomly spaced articles being fed continuously or discontinuously along a wide or narrow front. An intermittently operating conveyor transfers a group of randomly spaced articles to a second continuous conveyor, on which the articles can be moved forward only on consent of a barrier which retains said articles upon the second conveyor and lets them free to proceed only one after the other, towards a movable guide which directs them in a row to a last conveyor which aligns and orients them definitely.

3,601,241 APPARATUS FOR TRANSPORTING BOTTLES OR THE LIKE

Joachim Kuhn, Dortmund, and Joachim Clongwa, Dortmund-Wambel, both of, Germany, assignors to Holstein & Kappert Maschinenfabrik Phonix, GmbH, Dortmund, Germany

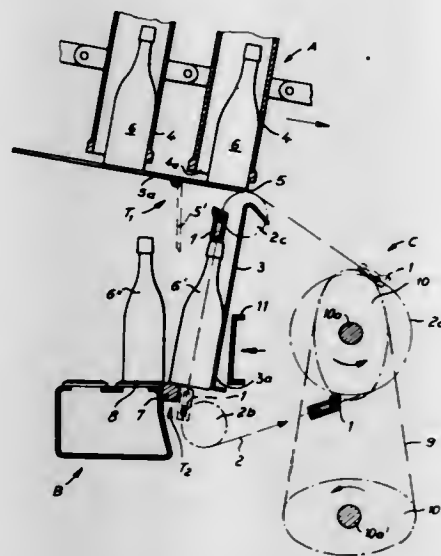
Filed July 17, 1969, Ser. No. 842,466

Claims priority, application Germany, July 20, 1968, P 17 82 119.1

Int. Cl. B65g 47/00

U.S. Cl. 198—20

10 Claims



Apparatus which transports bottles between a platform and the cells of a continuously or intermittently moving endless cell conveyor comprises a pair of endless chains which carry spaced transversely extending supporting bars travelling upwardly from the platform toward successive cells of the endless conveyor or vice versa to engage bottles from below and to transport such bottles along an upwardly inclined guide plate. A set of oval gears drives the chains in such a way that the speed of the supporting bars increases during travel toward or away from the cells so that the speed of a supporting bar which actually supports a bottle is higher when such bar is adjacent to a cell and lower when such bar is adjacent to the platform.

3,601,242 WORK TRANSFER SYSTEM

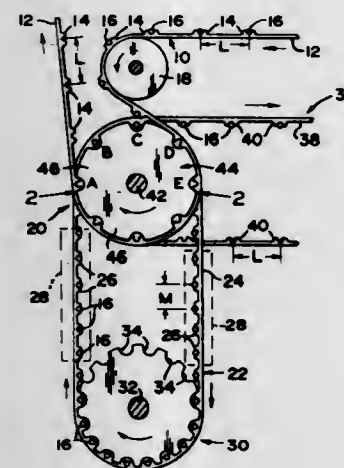
George Horst Reinemuth, Clifton Heights, Pa., and Mark Joseph Connor, Wilmington, Del., assignors to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed July 3, 1969, Ser. No. 838,875

Int. Cl. B65g 47/00

U.S. Cl. 198—25

17 Claims



A system utilizing endless flexible members for transferring workpieces between processing stations. The members are

provided with work holders uniformly spaced throughout their length. Transfer means are arranged and related to the spacings of the work holders so that transfer can take place between members having holders at different spacings.

3,601,243 TRANSFER MECHANISM

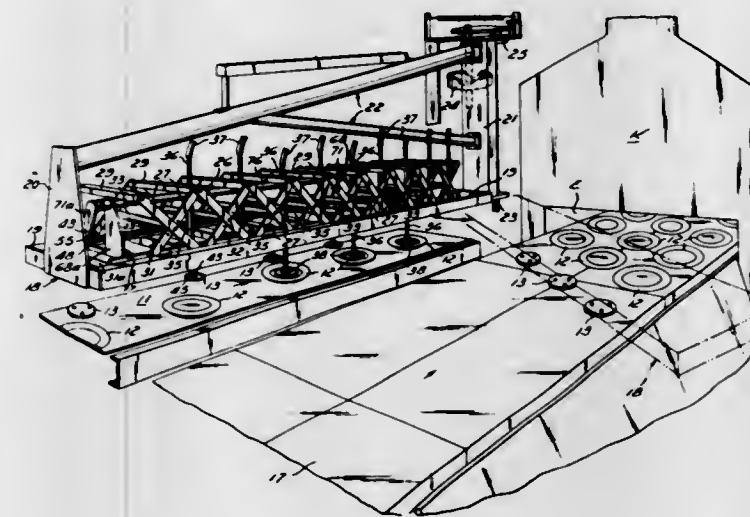
Stanley S. Gurgacz, New Castle, Pa., assignor to Interpace Corporation

Filed May 29, 1969, Ser. No. 828,929

Int. Cl. B65g 47/32

U.S. Cl. 198—30

3 Claims



The present kiln loader transfer mechanism has first and second parallel rows of pickup spindles for respectively picking up ware pieces and ware support discs arranged in parallel rows extending lengthwise of an inlet conveyor. The transfer mechanism is turned horizontally to deposit the ware pieces and ware support discs in rows on a kiln conveyor at 60° to the latter. While being turned, the transfer mechanism reduces the spacing between the articles in each row and reduces the spacing between the two rows by a predetermined adjustable amount which insures that the discs will be aligned with the ware pieces lengthwise of the kiln conveyor.

3,601,244 COMBINATION STOCKPILER RECLAIMER

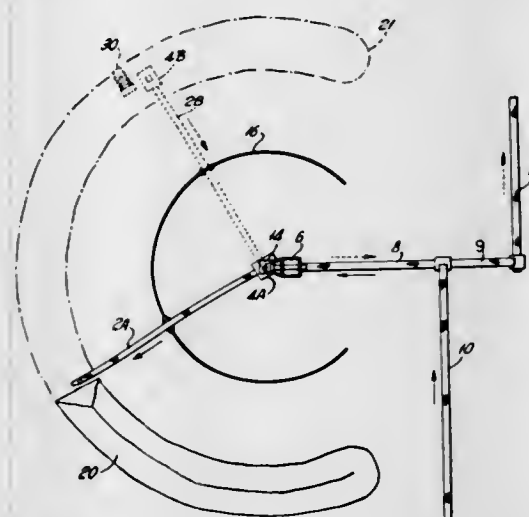
George F. Ort, Murray Hill, and William T. Holzhauer, Basking Ridge, both of, N.J., assignors to Esso Research and Engineering Company

Filed June 30, 1969, Ser. No. 837,815

Int. Cl. B65g 65/28

U.S. Cl. 198—36

7 Claims



An inclined conveyor which is loaded with bulk material at its low end and discharged at its high end is disposed in a first

position with the low end under a bulk material feed source when said conveyor operates as a stockpiler and a second position with the low end in communication with a bulk material feeder, when said conveyor operates as a reclaimer. A first means is provided for movement of the inclined conveyor between said first and said second position. A second means is provided for pivotable movement of said inclined conveyor about one of its ends.

3,601,245 OXYGEN-FURNACE-LINING APPARATUS

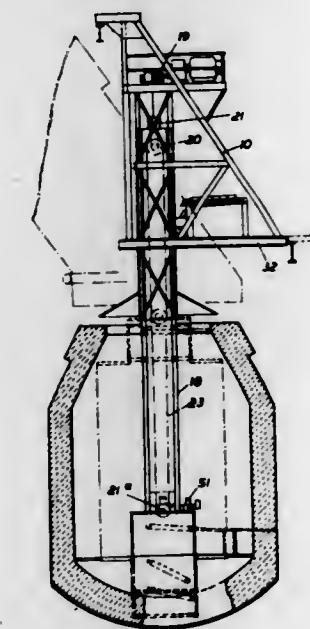
Robert Munroe, 104 Ambleside Drive, Ross Township, Allegheny County, Pa.

Filed Feb. 24, 1969, Ser. No. 801,416

Int. Cl. B65g 37/00

U.S. Cl. 198—101

8 Claims



There is disclosed an apparatus for use in lining basic oxygen furnaces. Refractory blocks are carried by a conveyor to an automatic loader that transfers the blocks one by one to successive flights on a vertically traveling endless conveyor. This conveyor is carried in a cage that is vertically movable in a supporting frame, and the frame may be moved from one furnace to another. There is a foldable and collapsible unloading platform rotatably suspended from the bottom of the conveyor cage, and a receiving conveyor above the platform receives blocks from the flight conveyor and carries them radially to the wall in which they are to be placed, distributing them around the furnace as the platform rotates. The radial conveyor may also discharge blocks downwardly for first lining the bottom of the furnace; collapsing and folding arrangements provide for accommodating the apparatus to operation at the bottom of the furnace and to the restricted upper end of the furnace, as well as the eventual withdrawal from a furnace after the lining is completed and for entrance into a furnace to be relined.

3,601,246 VARIABLE-SPEED DRIVE SYSTEM

Jacques Dubois, Lyon, France, assignor to Regle Autonome Des Transports Parisiens (and) Automatisme Et Technique, Arcueil, France

Filed July 18, 1969, Ser. No. 843,152

Claims priority, application France, July 23, 1968, PV 160,264

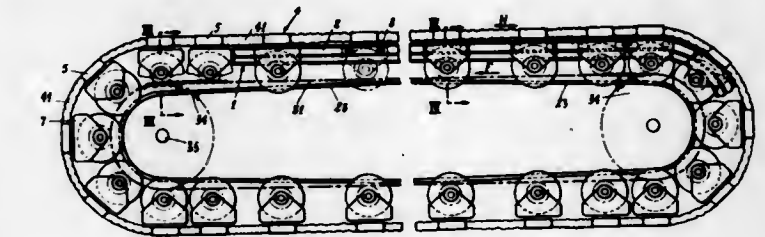
Int. Cl. B65g 23/06, 23/08, 23/30

U.S. Cl. 198—110

13 Claims

A variable-speed drive system comprising at least one device movable along a guide path, wherein a rotating drive member is provided which is rotated at a constant speed and rolls on a bearing surface associated with said guide path. Means are provided to vary the rolling radius of the rotating member on the bearing surface in dependence upon the position of the moving device along the guide path so that the linear speed of said device may vary according to a predeter-

mined law. The rotating member may be a pulley having a slidable flange and associated with a constant width bearing



surface or a one-piece pulley associated with a variable section bearing surface.

3,601,247 LIVE ROLLER CONVEYOR

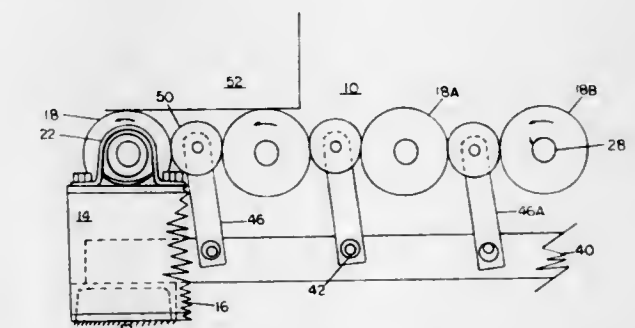
Richard W. Lowrie, Clearwater, Fla., assignor to Navigate, Inc., Clearwater, Fla.

Filed Mar. 23, 1970, Ser. No. 21,961

Int. Cl. B65g 13/02

U.S. Cl. 198—127

5 Claims



In a live roller conveyor wherein rollers each with an axle are held between a pair of rails, with drive means in engagement with the rollers, an arrangement to stop all or a group of previous rollers should one roller stop, to prevent excess pressure due to the bunching of material carried by the conveyor, comprising, live rollers generally spaced apart a distance less than the roller diameter; a guide rail under the live rollers; an arm connected to said guide rail having a free end; and at least one brake wheel disposed between succeeding live rollers and held by said arm, the center of the brake wheel being above the centerline of the live rollers, whereby, when one live roller is stopped, the brake wheel will wedge between the stopped roller and the roller immediately preceding it causing a chain reaction between all preceding brake wheels and the corresponding rollers.

3,601,248 WALKING SEAL HAVING LIQUID SEALED SLIDING CONNECTIONS

Milan E. Gerard, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

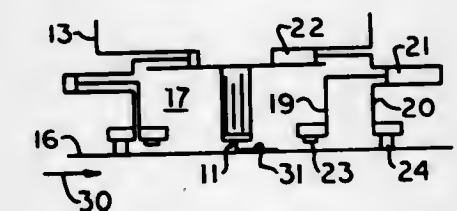
Division of Ser. No. 520,002, Jan. 11, 1966, Pat. No. 3,435,185

Filed Aug. 16, 1968, Ser. No. 848,765

Int. Cl. B65g 25/04

U.S. Cl. 198—218

8 Claims



Open ended inner and outer walking chambers have a liquid sealed sliding connection between them, and the outer chamber has a similar liquid sealed sliding connection with

the high vacuum chamber of an electron beam gun whose beam passes through the liquid sealed chambers to impinge upon the surface of a workpiece.

The open ends of the walking chambers have inflatable seals which, upon being inflated, move to engage the work surface in releasable locking engagement therewith. The walking chambers also have pneumatic motors and metering devices to index the chambers relative to the beam.

A walking seal system, including the pneumatic motors, metering devices, valves, and associated elements and circuitry, operates cyclically to alternately inflate the chamber end seals, evacuate the walking chambers, and actuate the indexing motors to advance the chambers relative to the beam while maintaining therewithin the required low order vacuum environment for the beam as it moves relative to the workpiece.

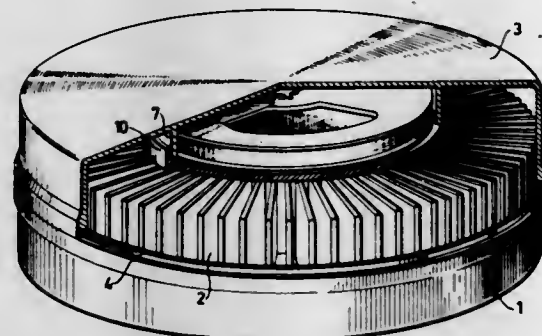
3,601,249 CYLINDRICAL STORAGE BOX WITH A LID, FOR DIAPOSITIVES IN RADIALLY ARRANGED COMPARTMENTS

Sven Anders Larsson, 3 Frejavegen 4, Sundbyberg, Sweden
Filed Nov. 6, 1969, Ser. No. 874,434
Claims priority, application Sweden, Dec. 16, 1968,
17221/1968

Int. Cl. A45c 11/00

U.S. Cl. 206-1 R

6 Claims



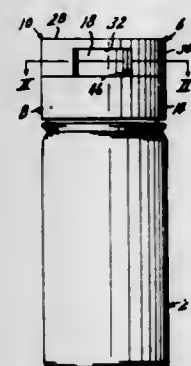
A cylindrical storage box for diapositives arranged in radially directed compartments of the box is provided with a lid or cover. The inner side of the lid facing the compartments is provided with a cylindrical wall coaxial with the lid. The cylindrical wall and the lid form a storage space for at least one magnetic tape reel and is provided with retaining means to detachably retain the reel in the storage space.

3,601,250 DISPENSING CAP FOR PILL BOTTLES

John B. Merila, 6706 Lane, Raytown, Mo.
Filed June 5, 1969, Ser. No. 830,684
Int. Cl. B65d 83/04

U.S. Cl. 206-42

8 Claims



A dispensing cap for pill bottles having a hollow pill chamber with first and second passages communicating respectively with the interior of said bottle and with the exterior atmosphere, means normally maintaining said first passage open and said second passage closed, at which time

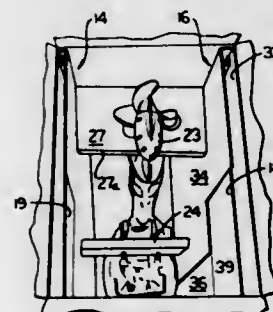
any desired number of pills may be shaken from said bottle into said cap chamber, and operating means for simultaneously closing said first passage and opening said second passage, whereupon the pills in said chamber may be shaken into the palm of the hand.

3,601,251 CONTAINER FOR MARINE MOTOR

Jon M. Schwaner, Indianapolis, Ind., assignor to Inland Container Corporation, Indianapolis, Ind.
Filed Dec. 10, 1969, Ser. No. 883,817
Int. Cl. B65d 85/54

U.S. Cl. 206-46 M

4 Claims



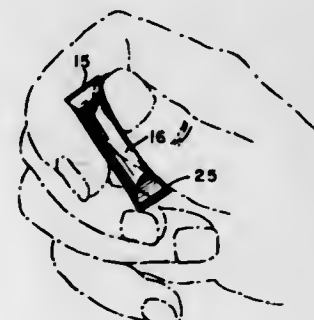
Disclosed is a container assembly in which an outer container has its opposed sidewalls provided with rectangular reinforcing panels, the panels, themselves having reinforcing members spanning the panel width. The reinforcing members support a transverse beam on which a marine outboard motor is suspended by its mounting clamp. A transverse wedge-shaped member extends between the reinforcing members and engages the skeg portion of the marine motor.

3,601,252 BURST PACK

Thomas B. Sager, Plymouth Valley, Pa., assignor to Kleer-Vu Industries, Inc., New York, N.Y.
Filed Aug. 1, 1969, Ser. No. 846,840
Int. Cl. B65d 77/12, 77/38

U.S. Cl. 206-56 AA

5 Claims



A container having a tubular portion of heat-sealable material which is sealed at one end in such a manner that such seal will rupture when a predetermined pressure is applied to the opposite ends thereof.

3,601,253 CONTAINER-PACKAGING DEVICE AND METHOD

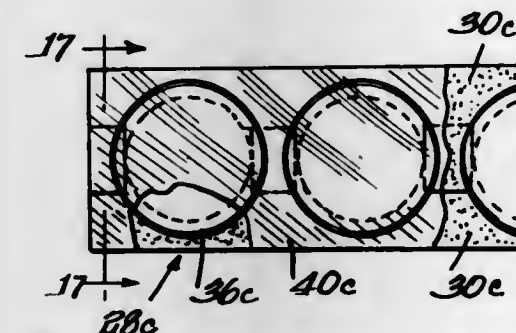
Ougljesa Jules Poupitch, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed June 6, 1969, Ser. No. 831,013
Int. Cl. B65d 71/00, 85/62

U.S. Cl. 206-65 E

11 Claims

This invention relates generally to means and methods for packaging containers, and more particularly to means and methods for packaging a plurality of containers having a circumferential shoulder or bead at the upper end thereof, as for example capped jars and conventional beaded cans. The embodiments of the invention disclosed in the present application include paperboard sheet material having container-accommodating apertures, the upper surfaces of such sheet

material being treated as by spraying to condition said surface for subsequent attachment thereof to a flexible, elastic, plastic film or membrane. By subjecting the adjacently positioned film and previously treated paperboard to heat, these parts become firmly adhered to each other. The marginal edges defining each of the apertures in the paperboard un-



derlie the shoulder of a bead or jar cap of a complementary container. The elastic film encapsulates the upper extremity of the container and thus the film serves both as a protective coating for the end surface of the container as well as means for maintaining the marginal edge of the paperboard or fiberboard in underlying contact with respect to the shoulder of an associated container.

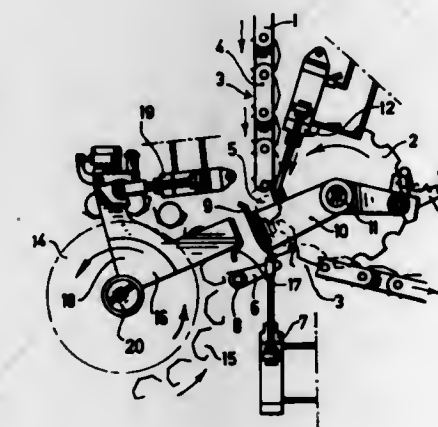
3,601,254 METHOD FOR DISCHARGING CONTAINERS, PACKED WITH COMMODITIES LIKE FOODSTUFFS, FROM A CONTINUOUSLY ADVANCING ENDLESS CONVEYOR AND A DEVICE FOR PERFORMING THIS METHOD

Jan Reede, Weesp, Netherlands, assignor to Stork Amsterdam N.V., Amsterdam, Netherlands
Filed Jan. 30, 1970, Ser. No. 7,053
Claims priority, application Netherlands, Feb. 10, 1969,
6902050

U.S. Cl. 209-71

Int. Cl. B07c 5/36

6 Claims



Method for discharging containers out of a carrier from an endless conveyor of a continuous sterilizer or pasteurizer in which an intermediate sill or surface is used upon which the containers roll or glide towards a second conveyor; the sill can be tilted into a steeply inclined position between two subsequent discharging operations, in order to remove damaged or broken containers which did not pass to the second conveyor.

3,601,255 DIALYSATE DELIVERY SYSTEM

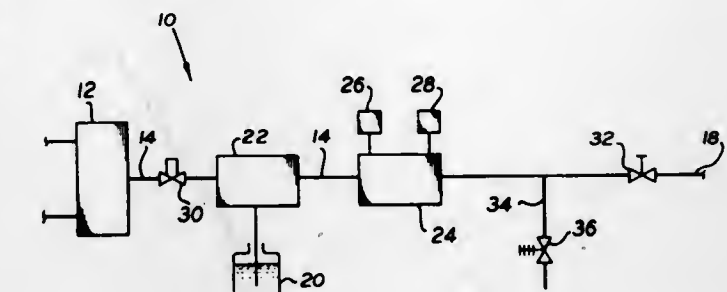
Edwin A. Pecker, Los Angeles; Thomas B. Quinn, Pacific Palisades, and Philip A. Wenger, Grenada Hill, all of, Calif., assignors to Vernitron Corporation, New York, N.Y.
Filed Apr. 21, 1969, Ser. No. 817,882
Int. Cl. B01d 13/00; C02b 1/82

U.S. Cl. 210-321

1 Claim

A system for delivering a dialysate to an artificial kidney device. The system includes a unique valving and control ar-

rangement for bypassing a sensor device which senses and controls the flow of dialysate to the kidney device whenever



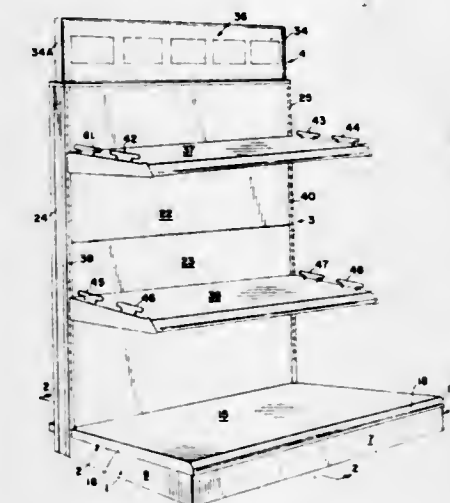
it is desired to rapidly adjust the temperature and conductivity of the dialysate to a predetermined operating range.

3,601,256 DISPLAY STAND

Melvin C. Bowers, Jr., and Joseph J. Clement, both of Atlanta, Ga., assignors to The Mead Corporation
Filed Feb. 11, 1970, Ser. No. 010,523
Int. Cl. A47h 9/14; A47i 5/10

U.S. Cl. 211-148 R

6 Claims



A display stand primarily for use in merchandising includes a base, a back affixed to the rear of the base, an article-supporting element including a frame and a planar element affixed atop said frame and arranged for horizontal adjustment relative to the back so as to vary the supporting surface of said planar element. A front kick panel is interconnected with the base by a lost-motion connection and adjustable feet are disposed on the base whereby adjustment of the base can be effected without imparting vertical movement to the kick plate. A pair of spaced-apart vertically disposed elongated elements are telescopically related with corresponding spaced-apart tubular elements forming portions of the back and adjustably secured sign means mounted thereon and securing means holds the sign means in a predetermined position.

3,601,257 FILE APPARATUS HAVING MOVABLE RACKS AS SUPPORTS FOR BINDERS

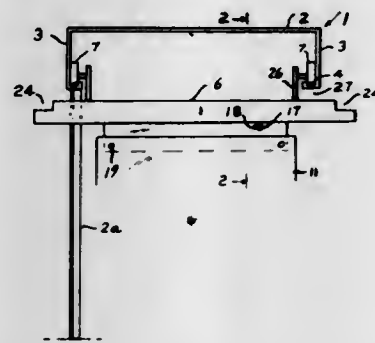
Frank Potter, 97 Birchwood Park Drive, Syosset, N.Y.
Filed June 4, 1969, Ser. No. 830,442
Int. Cl. A47i 5/00

U.S. Cl. 211-162

6 Claims

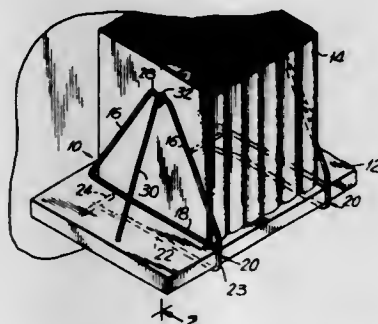
Apparatus having parallel tracks between which racks supporting looseleaf binders are suspended by rollers movable along the tracks. The rack is tubular and has an open ended channel in which a T-bar is disposed. A plate stem depending from the T-bar through a slot lengthwise of the bottom of the rack carries a binder. The T-bar is slidably inserted or removed through an end of the channel as a unit with the binder. A nameplate clipped to an end of the rack identifies the contents of the binder. A cutaway at each end of the rack

allows easy insertion or removal of the T-bar. The apparatus may be formed to carry tracks extending in a longitudinal as well as in a lateral direction, permitting selective use of either set of tracks to support the racks. The apparatus may also be



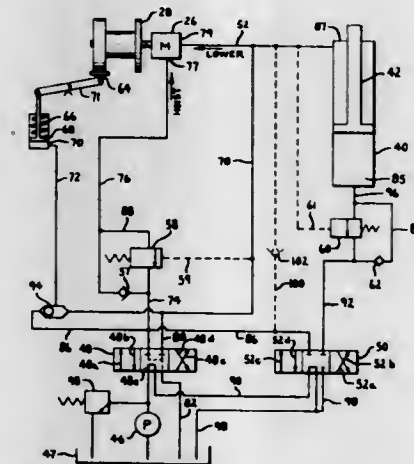
formed of groups of posts supporting tracks at various levels between them. The latter construction is extensible to include additional levels of tracks; and is of a knockdown nature permitting ready assembly or disassembly of its component parts.

3,601,258
BOOK END FOR SHELVES
Robert R. Stein, Mamaroneck, N.Y., assignor to Instrument Systems Corporation, West Nyack, N.Y.
Filed July 23, 1969, Ser. No. 844,093
Int. Cl. A47b 65/00; A47i 5/13
U.S. Cl. 211-184 10 Claims



A book end for use with open end shelves and formed from a single strip of material in a generally triangular shape with a U-shaped base. The upper leg of the U is the base of the triangle. A support arm has one end pivotally attached to the apex of the triangle and the other end engaging the upper surface of the shelf remote from the base of the triangle. The support arm is pivotable to both sides of the plane containing the triangle.

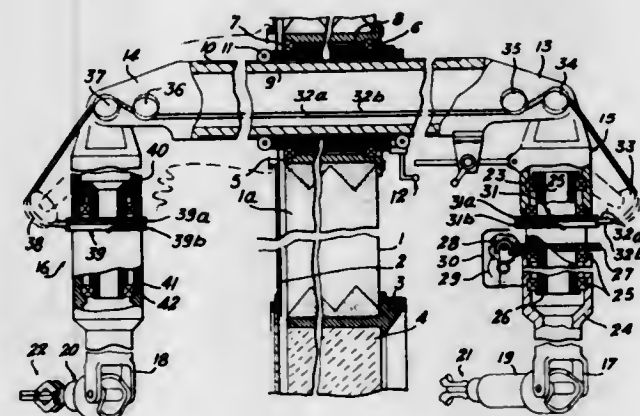
3,601,259
CRANE CONSTRUCTION
John E. Olson, Portland, Oreg., assignor to Hyster Company, Portland, Oreg.
Filed Dec. 26, 1968, Ser. No. 786,983
Int. Cl. B66c 23/06
U.S. Cl. 212-55 3 Claims



A crane having an extensible boom with a hydraulic cylinder for extending and retracting the boom and a hydra-

lic winch motor on a nonextensible portion of the boom controlling the paying-out and taking-in of cable which suspends a load block and hook from the outer end of the extensible boom portion. The boom extension cylinder and winch motor are series connected in the same hydraulic circuit in a manner so that line is automatically paid out simultaneously and coextensively with the extension of the boom and at least at the same rate, whereby drawing up of the load block against the boom is prevented.

3,601,260
REMOTE MANIPULATORS
Rene Le Guennec, Villepreux, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed Mar. 9, 1970, Ser. No. 17,503
Claims priority, application France, Mar. 31, 1969, 6909743
Int. Cl. B25j 3/00
U.S. Cl. 214-1 CM 2 Claims

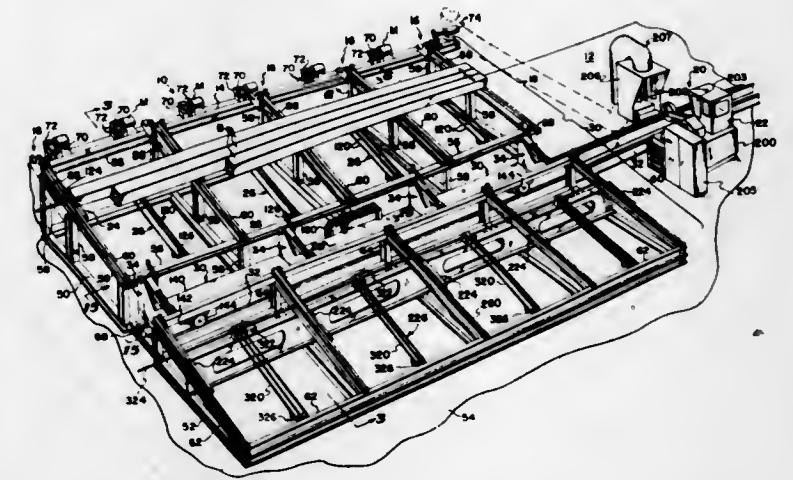
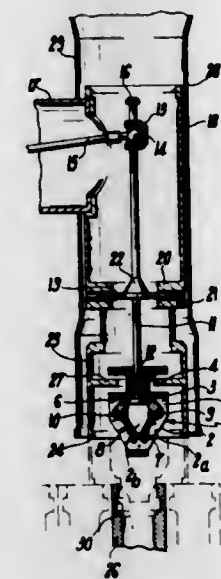


In a master-slave manipulator comprising a wall-traversing tube, two normally horizontal arms each constituted by two coaxial tube elements so arranged that one element is pivotally coupled to one end of the wall-traversing tube and the other element is pivotally coupled to a forearm, an internal sleeve is capable of pivoting within both coaxial tube elements of the master arm about the common axis thereof. The sleeve is associated with an external pulley and cable system and driven by a reduction-gear motor in order to produce the relative rotational motion of the tube element which is pivotally coupled to the slave forearm without thereby producing any relative rotational motion in the master arm between the two corresponding tube elements.

3,601,261
HANDLING GRAB, ESPECIALLY FOR NUCLEAR REACTOR FUEL ELEMENTS
Gilbert Michot, Pertuis, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed Jan. 23, 1969, Ser. No. 793,281
Claims priority, application France, Feb. 15, 1968, PV140027
Int. Cl. B25j 15/00
U.S. Cl. 214-1 3 Claims

A handling grab comprising a body of revolution of generally conical shape, grappling claws pivotally mounted in said body, an axial operating rod having a terminal cam which can be displaced axially within said body so as to cause the pivotal movement of said claws between a position of withdrawal within said body and an outwardly projecting position, a cylindrical sleeve surrounding said operating rod and said body and having a terminal annular shoulder which is intended to be applied against fuel elements adjacent to the element to be engaged. The operating rod is connected to

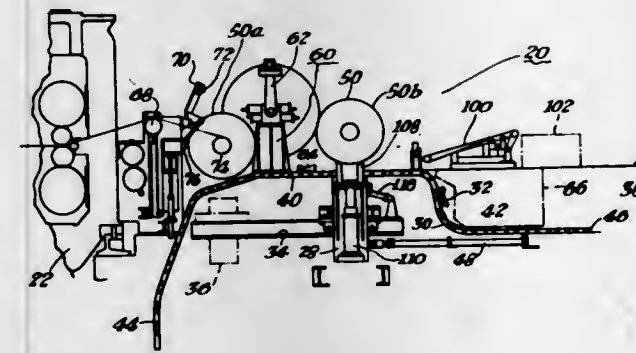
a positioning arm by means of a ball joint assembly so that the grab can be readily oriented about its axis and automatically withdrawal of the billets and the formation of another stack is initiated. Such billet stacking and withdrawal of billets is



continuous so that at no time is there a lack of billets for the grinding operation.

cally realigned with any fuel element to be engaged in the event of misalignment of said grab.

3,601,262
CORE REMOVAL APPARATUS
Andrew J. Petros, and Clement S. Rybar, both of Pittsburgh, Pa., assignors to Mesta Machine Company, Pittsburgh, Pa.
Filed Apr. 23, 1969, Ser. No. 818,498
Int. Cl. B66c 1/06
U.S. Cl. 214-1 BB 18 Claims

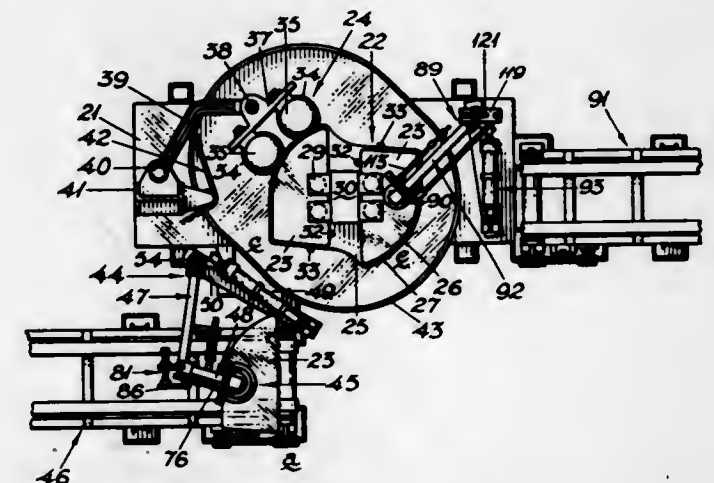


We disclose in a rolling mill having at least one rolling mill stand and a coil entry section for said stand disposed adjacent thereto, said entry section including a coil feed reel, a scrap core removal mechanism mounted adjacent said feed reel and having scrap core pickup means engageable with a scrap core on said reel and movable to a scrap core release position, a movable scrap core receptacle, and means for moving said receptacle between said release position and a repository for said scrap core.

3,601,263
BILLET-HANDLING APPARATUS
Robert R. Stratton, Park Ridge, and Robert J. Kaszuba, Chicago, both of Ill., assignors to Pettibone Corporation, Chicago, Ill.
Filed Oct. 24, 1969, Ser. No. 868,998
Int. Cl. B65g 47/24
U.S. Cl. 214-1 OG 20 Claims

Billet handling and treating apparatus wherein successive billets emanating from a billet-spotting station are supplied to and stacked upon a charge table from which they are withdrawn, one at a time and deposited upon a manipulating car which conducts them to a grinding station for treatment. While the billets are being withdrawn from the stack, the charge table continues to be supplied with fresh billets which are formed into a reserve stack. When the original stack is exhausted, the reserve stack moves into position for

3,601,264
LOADING AND UNLOADING APPARATUS
George F. Ritter, Jr., Toledo, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio
Filed Nov. 17, 1969, Ser. No. 877,263
Int. Cl. B65g 61/00
U.S. Cl. 214-1 BH 9 Claims



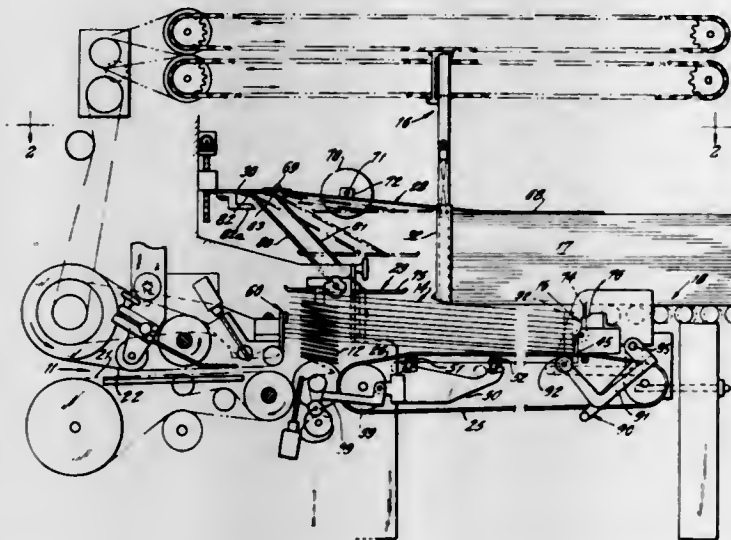
Apparatus for automatically loading flat workpieces from a horizontal conveyor onto a constantly rotating worktable on which the workpieces are clamped. The invention includes a vacuum pickup device carried by articulate transfer means capable of deflecting in two directions to permit the pickup device to move in an arc about the axis of the worktable when the workpiece is simultaneously clamped on the worktable and gripped by the pickup device. The transfer means comprises a primary arm and a secondary arm resiliently held in a predetermined angular relationship, and a spring-loaded hinge mounting the pickup device to the secondary arm.

3,601,265
BLANK STACKING, STRAIGHTENING AND DELIVERY MEANS
Albert F. Shields, Forest Hills, N.Y., assignor to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y.
Filed Nov. 27, 1968, Ser. No. 779,459
Int. Cl. B65g 57/30
U.S. Cl. 214-6 BA 7 Claims

Apparatus for stacking and straightening folded tubular boxes is constructed with a front barrier, which arrests forward box movement, having offset upper and lower vertical portions with the lower portion having a downward and rearwardly inclined section at the bottom thereof. A longitu-

dinally oscillating slapper bar for engaging the rear of the stack is positioned opposite the vertical sections of the barrier and is disposed above the incline in the barrier. The inclined portion of the front barrier serves to prevent excessive buildup of weight in the stack from impeding the entry of boxes being fed to the bottom of the stack. Lift screws prevent excessive buildup of weight at the rear of the stack while oscillating roller means engaging the stack from below prevent excessive buildup of weight at the front of the stack.

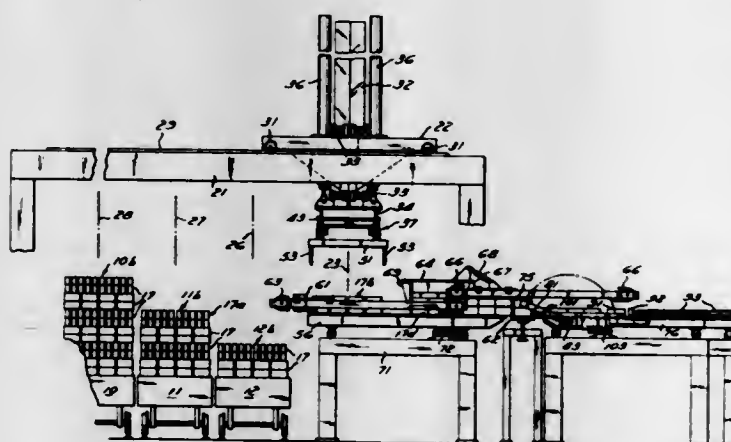
A roller device movable with the front barrier supports the continuous belt means which delivers folded boxes to the stacking section and supports the upper flight of this belt means in the critical area adjacent the front barrier. Additional roller means are selectively positionable to support ad-



ditional portions of the delivery belt as required. Mounting for the roller means is such that they are automatically moved to retracted positions as the barrier means moves past in adjusting the apparatus for operation on shorter boxes.

A slat hinged at one end thereof and supporting a roller acts to exert a downward force on the stack of boxes in the stacker with the roller being positioned toward the rear of the stack to prevent the portion of the stack engaged by lift screws from rising faster than the leading edge of the stack and thereby tipping the leading edge downward to impede takeoff. Another member also exerts a downward force on the stack primarily at the rear thereof. This member is maintained in a horizontal position by means of parallel linkages in an effort to maintain the folded boxes in the stack in horizontal position.

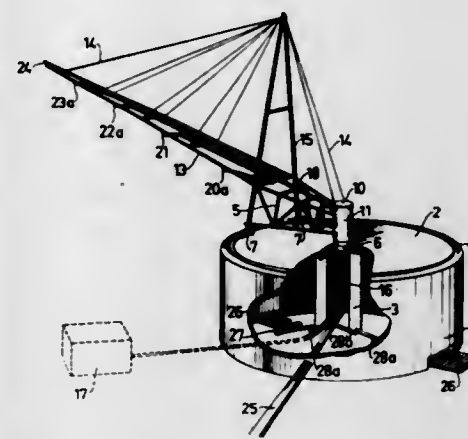
3,601,266
UNLOADER BLENDER
Florentin J. Pearne, Whittier; Frank S. Pearne, San Gabriel, and Frederick G. Robson, Long Beach, all of Calif., assignors to Aircraft Mechanics, Inc., Los Angeles, Calif.
Filed Apr. 22, 1969, Ser. No. 818,240
Int. Cl. B65g 59/02
U.S. Cl. 214-8.5 C 11 Claims



An unloader blender is disclosed for handling bricks or the like. The unloader is operable to grip grids of brick from selected stacks of grids and transfer such grids to a platform.

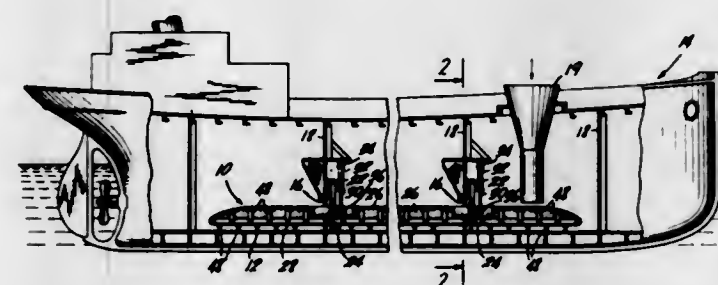
By programming the machine to sequentially grip and transfer grids from selected stacks it is possible to blend the bricks so that different types of brick are delivered to the platform in predetermined ratios of numbers. The machine also includes a second transfer for moving the bricks from the platform to a conveyor. Here again, blending is provided so that groups of brick delivered to the conveyor are not necessarily in the same order they appear on the platform. The grids include double superposed rows of brick and the second transfer operates to separate the upper and lower layers and delivers the brick to the conveyor as a single layer.

3,601,267
INSTALLATION FOR STORING WOOD CHIPS
Rune Axling, and Karl Brandstrom, both of Alfreðshem, Sweden, assignors to Mo och Domsjö Aktiebolag, Örnsköldsvik, Sweden
Filed June 4, 1969, Ser. No. 830,284
Claims priority, application Sweden, June 7, 1968, 7742/68
Int. Cl. B65g 65/28
U.S. Cl. 214-10 9 Claims



An installation for storing wood chips is provided, which includes a cylindrical support centrally positioned within and extending upwardly from the center of a generally circular chip storage space. A chip delivery arm carrying pneumatic chip delivery conduits is rotatably mounted on the support above the storage space and extends radially beyond the wall of the support so as to overhang the storage space and deposit the wood chips for storage around the wall of the support. Means for removing the chips which have been stored for a predetermined time are also provided. The support prevents the stacked chips from interfering with the operation of the chip delivery and removal mechanisms and serves as a central core for the installation through which are conveyed the chips to be stored and chips being removed from the storage space.

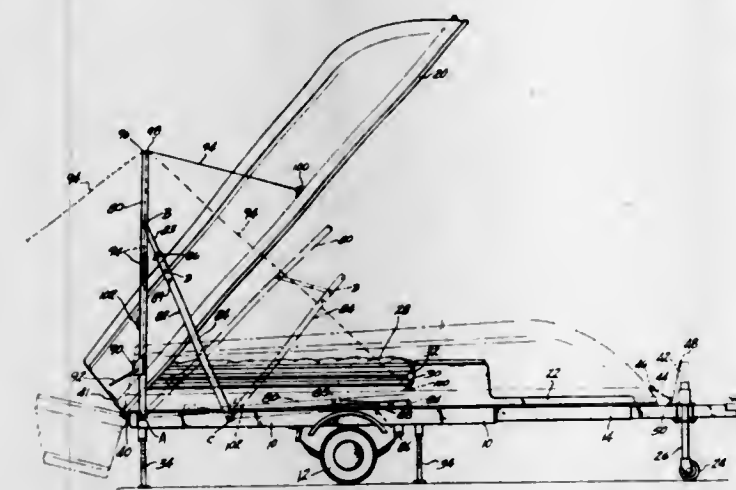
3,601,268
BULKHEAD CONVEYER BELT DOOR
Victor W. Bethge, Glen Head, and Wilbur C. Weiland, Churchville, both of N.Y., assignors to Walz and Krenzer, Inc., Rochester, N.Y.
Filed Nov. 17, 1969, Ser. No. 877,220
Int. Cl. B63b 27/22
U.S. Cl. 214-15 D 8 Claims



A gate for installation on the bulkhead of a ship, for closing against a continuous conveyor belt which passes through

an opening in the bulkhead. The gate is formed by upper and lower sections, mounted respectively above the upper belt of the continuous conveyor belt, and between the upper and lower belts of said conveyor. The gate sections move independently of each other, the upper portion slidably mounted to the bulkhead to move vertically upward and away from the conveyor belt, or downward into a sealed position against the upper surface of the upper belt. The lower section of the gate is pivotally mounted in the bulkhead opening to swivel between a vertically disposed closed position, wherein its upper surface engages the lower face of the upper belt and its lower face forces the lower belt against the floor of the bulkhead opening, and an open position in which the lower section of the gate is pivoted on its mounting to lie in a horizontal plane intermediate the vertical distance between the upper and lower belts. Sealing plugs are slidably mounted at the sides of the bulkhead opening adjacent the lower belt to function as plungers for extending into said opening to seal against the lower belt, thereby compensating for lateral displacement of the belt which makes other types of seals ineffective.

3,601,269
BOAT AND TRAILER COMBINATION HAVING HOISTING MEANS FOR INVERTING THE BOAT AS IT IS LOADED AND UNLOADED
Edward F. Heinig, North Haven, Conn., assignor to O. F. Mossberg & Sons, Incorporated, North Haven, Conn.
Filed Mar. 9, 1970, Ser. No. 17,396
Int. Cl. B60p 1/44
U.S. Cl. 214-75 11 Claims

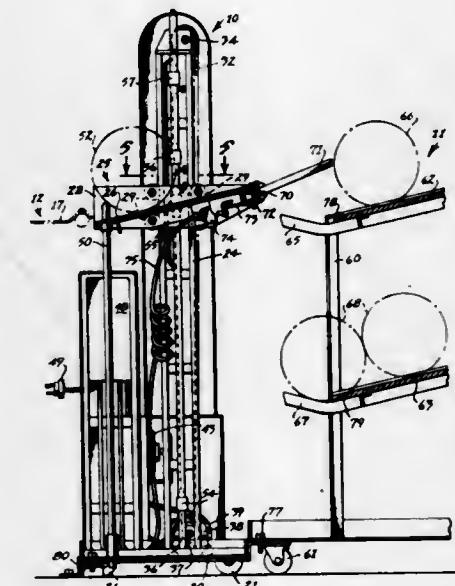


A boat and trailer combination in which a hoisting attachment is provided for pivoting the boat either end-over-end or sideways about detachable hinges, by which the boat is connected to the trailer, from an inverted position on the trailer to an upright position beside the trailer. The hoisting attachment includes a mast which provides an elevated position from which to lift the boat about the hinges and a winch which is desirably designed so that the cable can be paid out only by reversing the operating input to the winch, as by reversing the direction in which the handcrank is rotated. By locating the mast near the axis of the hinges, rotation of the crank on the winch in one direction raises the boat up to the mast, and then after the boat swings past the mast, the crank on the winch is reversed so that the boat is gently lowered from the mast to a position adjacent the trailer or onto the trailer, depending on whether the boat is being unloaded or loaded.

3,601,270
ELEVATOR WITH ROLL HANDLING APPARATUS
Thomas W. Martin, Sr., Nashville, Tenn., assignor to Cutters Machine Company, Inc., Nashville, Tenn.
Filed June 10, 1969, Ser. No. 831,848
Int. Cl. B65g 1/06
U.S. Cl. 214-95 R 2 Claims

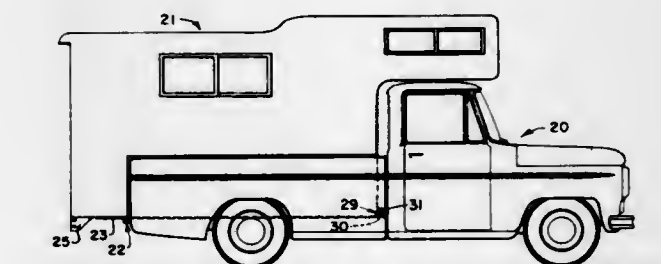
An automatic cloth roll loading apparatus including an inclined roll supporting platform, a stationary barrier

cooperating with the lower end portion of the platform, and means for raising the platform to a dumping or discharging position above the barrier and for lowering the platform to a roll storage position in cooperation with the barrier.



A further feature of the apparatus is a cloth roll storage truck having at least one roll supporting cradle adjacent the upper end of the platform, and pivotal fingers projecting from the rear of the platform adapted to interdigitate with the cradle in order to lift and remove one roll at a time from the truck to the platform on each upward movement of the platform.

3,601,271
CAMPER LOADING AND RETAINING SYSTEM
John L. Margetts, 2182 Berkeley, Salt Lake City, Utah, and George Philip Margetts, 3196 Millcreek, Salt Lake City, Utah
Filed Mar. 21, 1969, Ser. No. 809,252
Int. Cl. B60p 1/64
U.S. Cl. 214-516 10 Claims



A camper-loading system wherein a single drive gear mounted on a truck bed is adapted to drive a pair of driven gears and their associated load gears or one of the driven gears and its load gear individually, to thereby drive the load gear or load gears in meshing engagement with racks on the bottom of a camper body; extensible front legs, pivoted on a support shaft fixed to a weight-distributing mounting plate on the sidewall of a camper body, are movable between a camper-supporting position and a stowed position; wheel-carrying rear legs are attachable to either the camper body or to an adjustable bumper secured to the camper body and are movable between an extended support position beneath the camper body and an easily accessible stowed position; and an easily released lock is provided to automatically secure the camper body against sliding off of the truck bed after it has been loaded thereon.

3,601,272

FEEDING APPARATUS

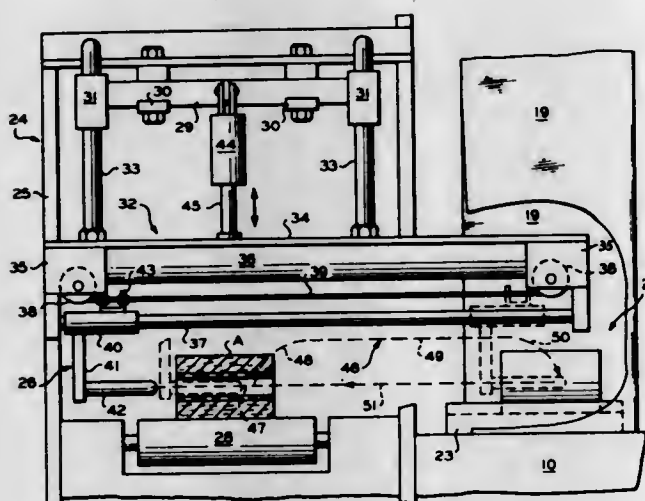
Willard B. Black, Cincinnati, Ohio, assignor to Phillips Petroleum Company

Filed Feb. 26, 1969, Ser. No. 802,394

Int. Cl. B66f 9/14

U.S. Cl. 214-730

2 Claims



An article feeding apparatus for automatically depositing articles within the packaging zone of a plastic film packaging machine.

3,601,273

PILFERPROOF CLOSURE WITH VERTICAL WEAKENING LINES

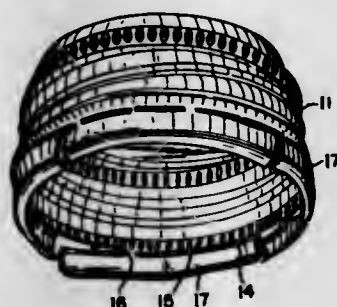
Howard R. Kutcher, Allison Park, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 31, 1969, Ser. No. 795,636

Int. Cl. B65d 41/20; A61l 1/00; B65d 55/02

U.S. Cl. 215-7

12 Claims



The subject matter relates to a pilferproof closure for a container in which the closure is threadably engaged with the thread of the neck of the container and is of the type which includes a locking band at its lower end having its lower edge turned under a shoulder on the container neck, with the locking band being separated from the main body of the closure by a circumferential line of lancing and spaced bridges, with the bridges being the sole means of attachment of the band to the main body of the closure. The locking band is provided with several circumferentially spaced vertical weakening lines, preferably four equally spaced, which rupture on unscrewing of the closure to produce outwardly flared sectors in said locking band, whereby the entire closure, including the locking band, is completely removable from the container neck. The bridges do not fracture for the most part, but instead function to provide bend lines for the outwardly flared sectors.

3,601,274

BOTTLE AND SAFETY CAP FOR USE THEREWITH

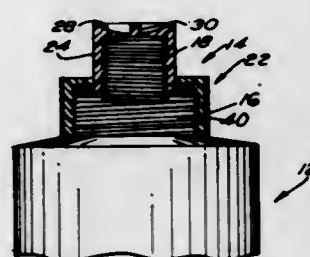
Earl H. Johnson, 4 Kanatha St., Blackstone, Mass.

Filed Aug. 27, 1969, Ser. No. 853,293

Int. Cl. B65d 55/02

U.S. Cl. 215-9

7 Claims



A bottle on which a double-cap assembly is applied, an outer cap member of the safety cap assembly threadably engaging a lower neck portion of the bottle and encircling an inner cap member, the inner cap member threadably engaging an upper neck portion of the bottle and the neck portions being oppositely threaded so that removing the cap members from the bottle requires some manipulation, thereby preventing easy removal of the cap assembly from the bottle by a child.

3,601,275

CAPSULE FOR BOTTLES

Rene Lorieux, Cachan, France, assignor to Societe de Conditionnement en aluminium SCAL GP, Paris, France

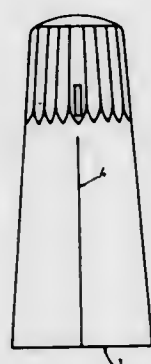
Filed Mar. 4, 1970, Ser. No. 16,351

Claims priority, application France, Mar. 7, 1969, 69.06350

Int. Cl. B65d 41/02

U.S. Cl. 215-38 B

4 Claims



A capsule top or crown for bottles of sparkling wine or champagne in which the capsule or crown has a skirt portion of frustoconical shape with one or more crests formed along a generatrix in the skirt portion to enable proper orientation of the capsule with respect to printed matter thereon so that folds formed in the skirt during attachment will be properly oriented with respect to the printed matter.

3,601,276

PROTECTIVE COVER FOR ELECTRICAL RECEPTACLE BOXES

Edward R. Culpepper, 1028 Pennsylvania Ave., Suffolk, Va.

Filed Nov. 26, 1969, Ser. No. 880,055

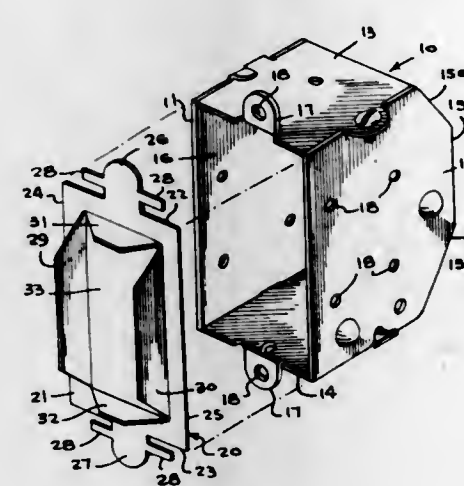
Int. Cl. H02g 3/14

U.S. Cl. 220-3.8

8 Claims

A removable protective cover for an electrical receptacle box or switch box in a building wall to protect the box against entry of plaster during plastering of the building wall, wherein the cover is formed as an integral body of deformable sheet material having a rectangular panel portion for covering the front opening of the box with its lateral edges

fitting within the opening, and including extensions which weakening line is formed by initially molding the panel or the cover the conventional mounting ears of the receptacle box strip portion to form one of the faces at the interface and



and have bendable fastening means for fastening the cover to such mounting ears.

3,601,277

DISPOSABLE FOOD TRAY

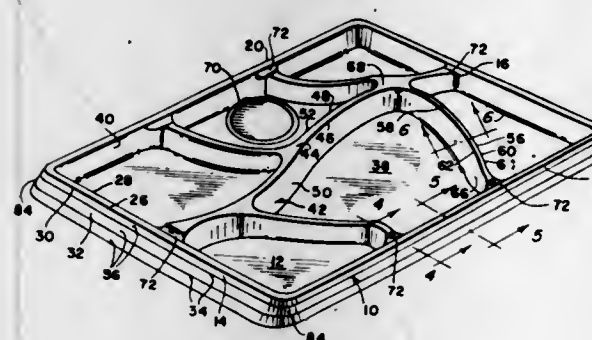
James M. Andrews, and George H. Sollenberger, both of Pittsburgh, Pa., assignors to Sinclair-Koppers Company

Filed Aug. 20, 1969, Ser. No. 851,681

Int. Cl. B65d 1/24

U.S. Cl. 220-20

2 Claims



A disposable food tray of thermoplastic material having a main body portion and a rim surrounding the body portion, the rim having first and second pairs of opposed portions and the main body portion having a bottom wall connected to the rim by a rising wall. A first divider wall has sides that converge upwardly from the bottom wall and that merge with a flat top portion. The first divider wall has a nonlinear reversely curving configuration and is connected between one of the pairs of the opposed portions and to the bottom wall. A second divider wall, also, has sides that converge upwardly from the bottom wall and that merge with a flat top portion. The second divider wall has a nonlinear configuration and transversely intersects the first divider wall intermediate its ends and is connected between the second pair of opposed portions and to the bottom wall to form a food tray having at least four compartments. The tray is made of a thermoplastic material which decomposes under moderate heat so that after use the tray may be disposed of by burning.

3,601,278

SEPARABLE MOLDED ARTICLE

Edmund H. Merz, Palos Park, and Howard M. Turner, Oak Forest, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

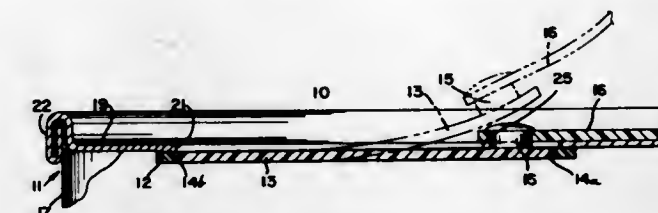
Continuation-in-part of application Ser. No. 750,230, Aug. 5, 1968, now abandoned. This application Nov. 14, 1969, Ser. No. 876,623

Int. Cl. B65d 17/24, 41/00

U.S. Cl. 220-53

22 Claims

An article of manufacture including a panel and a tear portion joined at an interface which forms a seal and a weakening line along which the tear is separable from the panel. The



using this preformed face as a mold surface to form the complementary sealing face of the other.

3,601,279

SCORE-LINE STRUCTURE

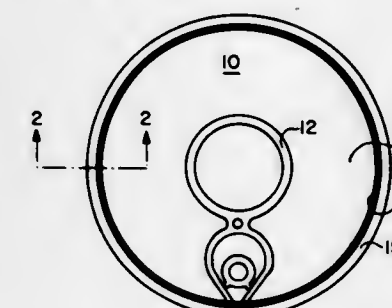
David C. O'Neill, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed June 30, 1969, Ser. No. 837,532

Int. Cl. B65d 17/24

U.S. Cl. 220-54

4 Claims



A score line impressed into a container wall to define a dispensing opening. The score line has a radius along at least one edge of the bottom wall thereof to insure that tearing of the strip takes place along a predetermined path and so that the lower, flat portion of the score line is removed to thereby preclude the formation of a thin, sharp fin and thus reduce the cut hazard around the dispensing opening.

3,601,280

DISPOSABLE ALUMINUM LINER FOR BARBECUE

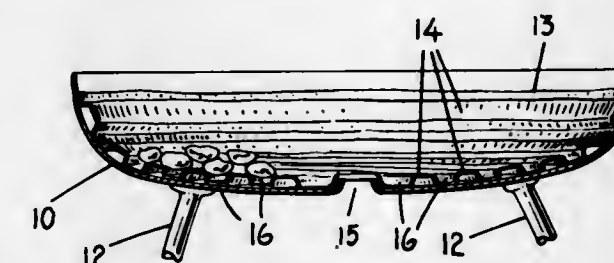
James R. Mills, 51 Glencairn Ave., Toronto 12, Ontario, Canada

Filed Feb. 27, 1969, Ser. No. 802,953

Int. Cl. B65d 25/14

U.S. Cl. 220-63 R

1 Claim



A flexible fire-resistant disposable liner for a portable barbecue, the liner being made of aluminum foil which is ribbed and shaped to fit snugly into the barbecue, the spaces between the ribs forming passages below the fuel.

3,601,281

VENDING MACHINE WITH SCREW CONVEYOR-TYPE CELLULAR MAGAZINE

Stanley O. Schlaf, Rte. 1 Box 233, Winfield, Mo.

Filed Feb. 18, 1969, Ser. No. 800,181

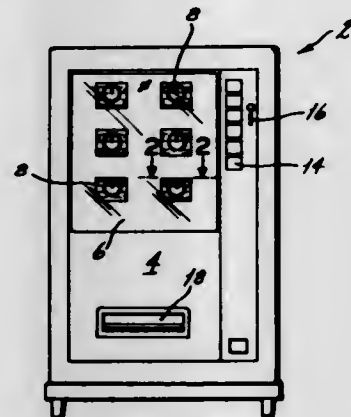
Int. Cl. G07f 11/00

U.S. Cl. 221-75

18 Claims

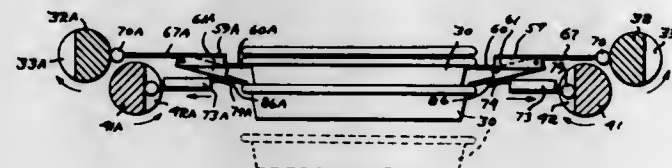
A vending machine having dispensing modules provided with upper and lower shelves. Each upper shelf is encircled

by the convolutions of a helical dispensing spindle. Items rest on both shelves intermediate the convolutions of the spindle, and, as the spindle revolves, items are discharged alternately from the ends of the upper and lower shelves with each 180° of rotation for the spindle. The spindle is connected with a



drive unit through a drive rod which extends beneath the upper shelf and merges into the last convolution at the discharge end of the spindle. With slight modifications the dispensing module can be adapted to fit existing vending machines.

3,601,282
APPARATUS FOR DISPENSING FLANGED ELEMENTS FROM A STACK THEREOF
Leo G. Vogel, Box 227, Downingtown, Pa.
Filed June 23, 1969, Ser. No. 835,362
Int. Cl. B65g 59/06
U.S. Cl. 211-251 19 Claims

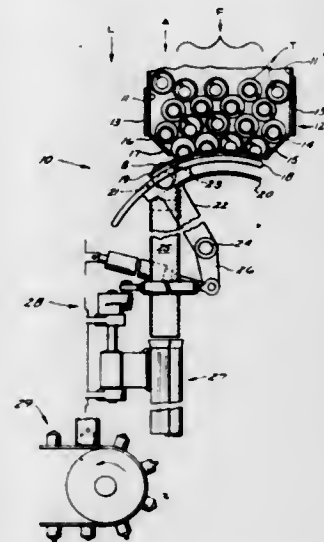


Apparatus is disclosed for dispensing such flanged elements as trays and plates from a stack thereof. The apparatus has a pair of units spaced apart to receive the stack between them and each unit includes a pair of blades vertically spaced by a distance equal to the thickness of the margins of the elements and movable into and out of margin supporting position. Operating means provide a cycle in which the stack is first supported by the upper blades, then by the lower blades, the upper blades then returned to their supporting position and the lower blades retracted to release the lowermost element. When the lowermost elements may adhere to the stack, pry means are provided to become operative when the lower blades are retracted. Fluid-pressure and cam-operated embodiments of the apparatus are detailed.

3,601,283
BOBBIN TUBE FEED APPARATUS
Carey A. Glazener, Seneca, and Lester W. Pray, Clemson, both of, S.C., assignors to Maremont Corporation, Chicago, Ill.
Continuation-in-part of application Ser. No. 798,389, Feb. 11, 1969, now Patent No. 3,531,016. This application Oct. 15, 1969, Ser. No. 866,660
Int. Cl. B65h 3/00
U.S. Cl. 221-264 6 Claims

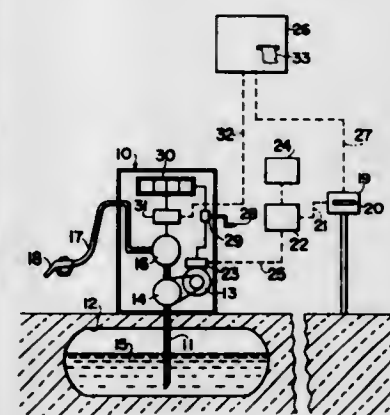
An improved bobbin tube feed apparatus is disclosed comprising a slope-walled hopper for containing tubes in an axially horizontal orientation and having at its bottom a slot of size sufficient to present a plurality of tubes exceeding three to a cradle therebeneath. The cradle has a convex nonslippery surface and is adapted for pivotable traverse across the hopper slot and therebeyond to a tube discharge position, and is formed with a receiving slot therethrough intermediate

its ends for receiving one tube in horizontal position from the hopper. The received tube is retained within the cradle slot during traverse by a fixed member therebeneath which terminates at the discharge position and fixed guide members



on each side of the cradle below the hopper slot and extending therebeyond to overextend the discharge position. Strips of nonslippery material are provided on the convex confronting face of the cradle to aid in the deposition of a tube in the cradle slot.

3,601,284
FUEL SUPPLY CONTROLLING APPARATUS
Shunro Yamawaki, Tokyo, Japan, assignor to Tokico Ltd., Kawasaki, Japan
Filed Sept. 24, 1969, Ser. No. 860,616
Claims priority, application Japan, Jan. 20, 1969, 44/3997
Int. Cl. B67d 5/10; G07f 13/00
U.S. Cl. 222-2 7 Claims

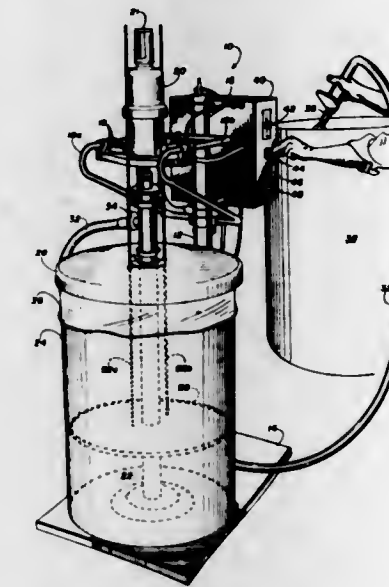


A fuel supply controlling apparatus comprising a fuel supply controlling unit including a code number detection means into which a code board member having a shape corresponding to a specified code number is inserted whereby a fuel-supplying stand is activated to supply fuel, and a fuel supply recording unit in which the amount of supplied fuel and code numbers are automatically recorded after fuel is supplied.

3,601,285
METHOD AND SYSTEM FOR DISPENSING METERED AMOUNTS OF FLUID SUBSTANCES FROM BULK CONTAINERS
Asa L. Leger, 813 Glasgow Drive, Dallas, Tex.; Lee R. McElhaney, 7703 Bearden Lane, Dallas, Tex.; and Jack D. NeSmith, 1431 Summit St., Mesquite, Tex.
Filed May 14, 1969, Ser. No. 824,595
Int. Cl. B67d 5/30
U.S. Cl. 222-20 8 Claims

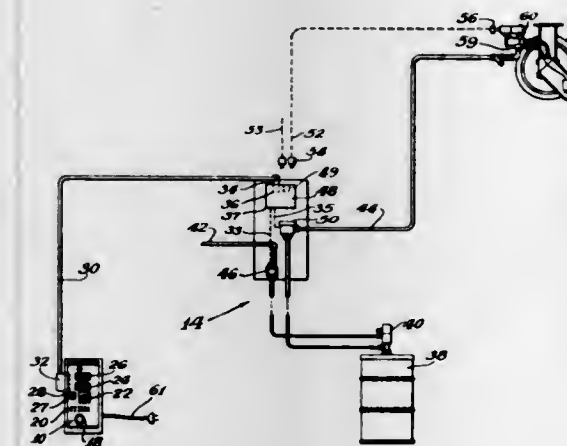
A metered fluid-pumping system includes an upright support which may be selectively raised or lowered between two

extreme positions. An air-operated pump is attached to the upper portion of the support and is adapted to be lowered within an open-topped bulk fluid container. A flexible hose is attached to the output of the pump to enable selective dispensing of metered amounts of fluid from the bulk container. Structure is provided to meter selected amounts of fluid pumped from the container according to a preselected



stored count and then to automatically shut off the pump. Structure is also provided which continuously senses the level of the fluid within the bulk container while providing a nonimpinging wiping action on the interior walls of the bulk container, and then automatically shuts the pump off when the fluid is substantially exhausted from the container without losing the stored count.

3,601,286
FLUID INVENTORY CONTROL SYSTEM
Wilbert G. Kautz, West Unity, Ohio, assignor to The Aro Corporation, Bryan, Ohio
Filed May 7, 1969, Ser. No. 822,425
Int. Cl. B67d 5/08
U.S. Cl. 222-27 3 Claims

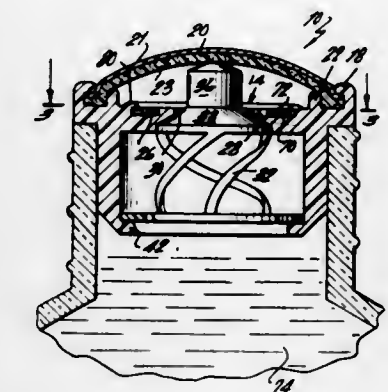


A fluid inventory control system is manufactured in modular sections and interconnected by single, multiwire cables having plugs attached to either end for the purpose of cooperating with plug receptacles incorporated with each section of the fluid inventory control system.

3,601,287
APPLICATOR FOR HEATED FLUIDS
Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y.
Filed Dec. 12, 1968, Ser. No. 783,194
Int. Cl. B67d 5/62
U.S. Cl. 222-146 H 4 Claims

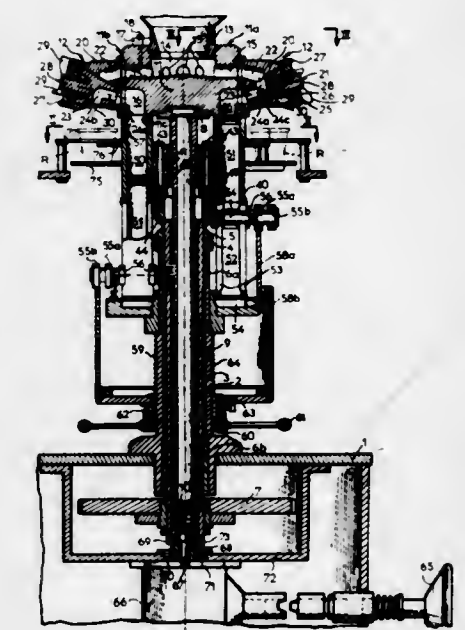
An applicator for applying heated or foamed fluids includ-

ing an applicator body having a retaining ring provided with a valve for controlling fluid flow. A substance for chemical



reaction with the fluid being dispensed to heat or foam the fluid is disposed outwardly of the valve.

3,601,288
VOLUMETRIC DRAWING-OFF ROTARY APPARATUS
Jean-Luc Berry, Mesnil-Sur-L'Estree, and Edgar J. Dardaine, Sorel-Moussel, both of, France, assignors to E. P. Remy & Cie, Dreux, France
Filed Oct. 2, 1969, Ser. No. 863,141
Claims priority, application France, Oct. 18, 1968, 170,469
Int. Cl. B67d 5/64
U.S. Cl. 222-168.5 16 Claims

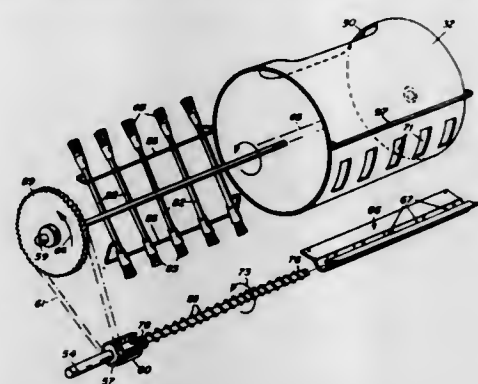


The apparatus comprises a revolving assembly on which are mounted dispensing devices arranged below a tank and each comprising a pump arranged vertically in which slides a piston controlled by a rail rigid with a stationary frame and a distributing member connecting the pump with the tank and setting up a communication between the tank and the pump or between the pump and the receptacle, said revolving assembly being formed of two elements adapted to rotate bodily and separable from one another, the distributing members being mounted on one of these elements while the pumps are mounted on the other element.

3,601,289
APPARATUS FOR DISTRIBUTING CHEMICALS
August W. Gustafson, Corpus Christi, Tex., assignor to Gustafson Manufacturing Company, Inc., Corpus Christi, Tex.
Filed Aug. 6, 1969, Ser. No. 848,044
Int. Cl. G01f 11/20
U.S. Cl. 222-238 3 Claims

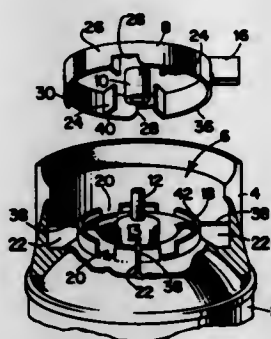
Apparatus for distributing minute quantities of pulverulent chemical materials in a uniform manner to the soil to inhibit

growth of certain types of vegetation and for distribution of chemicals for destroying organisms which attack agricultural crops. The chemical material moves from a hopper into a



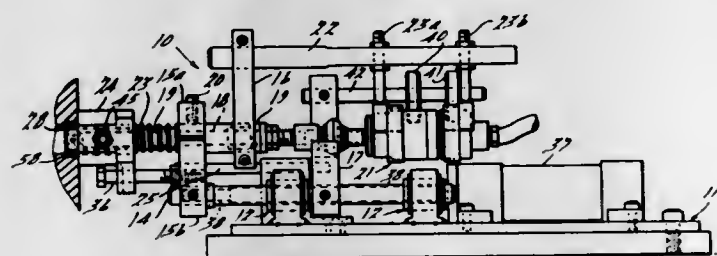
feed barrel and is discharged therefrom only when a helical member shifts the pulverulent material lengthwise of the barrel. A rod in the helical member has a flat face and serves to control the rate at which the chemical material is discharged.

3,601,290
AEROSOL DISPENSER ACTUATOR
Louis V. Nigro, Saugus, Mass., assignor to The Gillette Company, Boston, Mass.
Filed July 11, 1969, Ser. No. 841,029
Int. Cl. B65d 83/14
U.S. Cl. 222-402.11 6 Claims



An aerosol dispenser actuator including a button movable in a tilting fashion to open a valve to exhaust contents of an aerosol container, and means associated with the button and rotatable to a first position in which the button may be tilted and to a second position in which the button is prevented from being tilted, whereby to inhibit unintended operation of the valve.

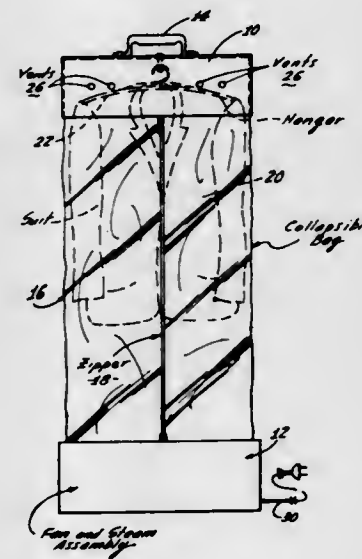
3,601,291
APPARATUS FOR APPLYING A METERED QUANTITY OF ADHESIVE TO CLOSURES
Edward A. Tessmer, 17103 Keppen, Allen Park, Mich.
Filed July 31, 1969, Ser. No. 846,494
Int. Cl. B67d 3/00
U.S. Cl. 222-519 11 Claims



A rotary member having a discharge orifice for dispensing an annular bead of puttylike material upon rotation; the rotary member is mounted for reciprocal movement into and out of a retainer thereby closing and opening the orifice. A material receiving recess in the rotary member is connected to the orifice by a transfer passage. The recess is connected

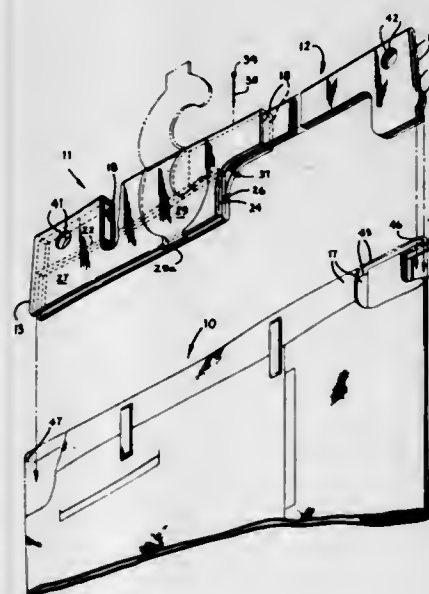
to a supply of material which fills it when the orifice is positioned inside the retainer. It is disconnected from the supply when the orifice is outside the retainer for dispensing at which time any material contained in the recess flows through the transfer passage and is dispensed at the orifice upon rotation of the rotary member.

3,601,292
GARMENT-TREATING APPARATUS
William W. Bliss, Los Angeles, Calif., assignor to BKG Incorporated, Los Angeles, Calif.
Filed Jan. 19, 1970, Ser. No. 3,881
Int. Cl. A41h 43/00
U.S. Cl. 223-51 1 Claim



A garment-treating apparatus is provided which has a top and a bottom, and which also has sides defining a chamber between the top and bottom in which a suit, or other garment to be pressed, is hung. The apparatus includes a steam generator at the bottom which fills the chamber with steam to moisten and take the wrinkles out of the garment in the chamber, and it also includes a fan in the bottom which subsequently blows warm air through the chamber to dry out the steamed garment.

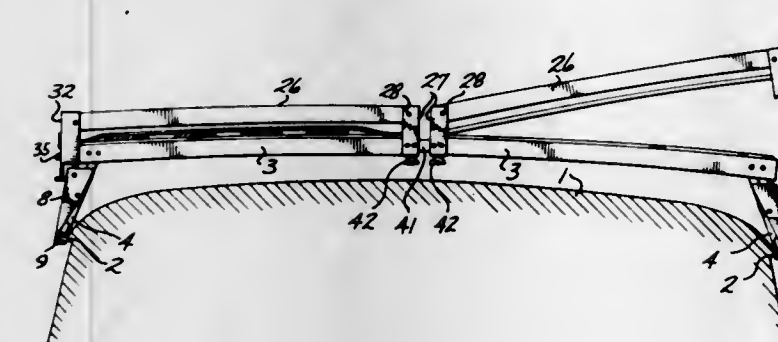
3,601,293
GARMENT HANGER CONSTRUCTION
Jerry J. Sargent, Walnut Creek, Calif., assignor to Levi Strauss & Co., San Francisco, Calif.
Filed Dec. 5, 1969, Ser. No. 882,658
Int. Cl. A47j 51/097
U.S. Cl. 223-95 5 Claims



A garment hanger construction formed of corrugated cardboard folded in two pieces, one of which forms a sheath and

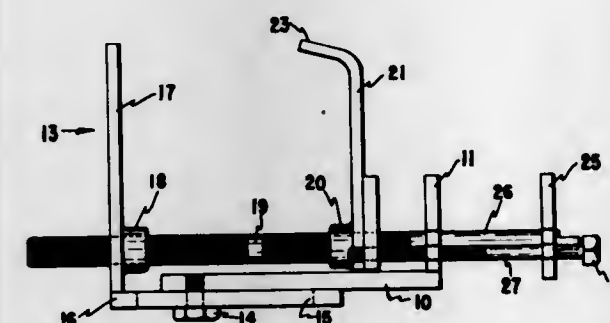
the other of which forms an extensible arm whereby the two pieces can be extended within the waistband of a garment, extended to tighten the waistband of a garment, and then locked in position by means of a straight pin to hold the garment in that form. The sheath includes a foldable hook portion which serves to support the garment from a transverse support rod of conventional type.

3,601,294
CAR TOP SKI RACK
Donald J. Gjesdahl, 320 West Republican, Seattle, Wash.
Filed Apr. 18, 1969, Ser. No. 817,383
Int. Cl. B60r 9/04
U.S. Cl. 224-42.1 F 3 Claims



Opposite ends of a lower rack bar are supported in gutters of a car top by feet inserted in the gutters. Each foot is secured in place by a clamping cover having a flange engaged beneath the gutter and slid into clamping engagement with the gutter by a screw between the leg and cover and having a head above the lower rack bar. An upper rack bar can be locked to the lower rack bar in a position covering the clamping screwhead to prevent access to it.

3,601,295
CLAMPING DEVICE
Lynn L. Lowe, 517 Dakota Ave., South Sioux City, Nebr.
Filed Mar. 6, 1969, Ser. No. 804,970
Int. Cl. B60r 9/00
U.S. Cl. 224-42.45 R 6 Claims

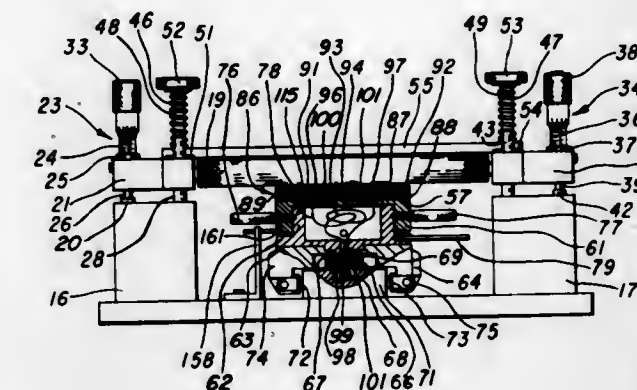


A clamp including two clamping members joined by opposite hand screws. One of the clamping members carries an additional clamp so that by clamping the first two members to an automobile, a carrier device can be carried by the automobile by means of being clamped in the second clamp.

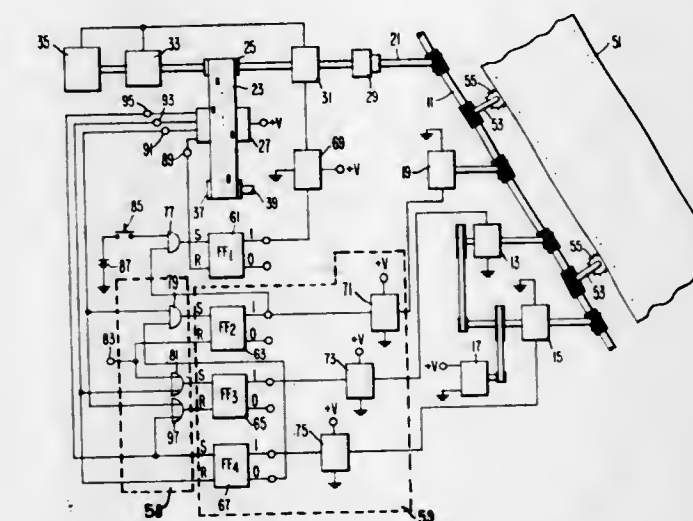
3,601,296
DEVICE FOR BREAKING SCRIBED SLICES OF SEMICONDUCTOR MATERIAL
Eric G. Pick, Dallas; Jerry B. Medders, Van Alstyne, and Lawrence T. Loftus, Jr., Garland, all of, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 30, 1968, Ser. No. 787,834
Int. Cl. B26f 3/00
U.S. Cl. 225-103 15 Claims

A device for breaking scribed slices of semiconductor material to produce individual bars of the semiconductor

material by moving a force applying member, the force exerted by which is predetermined, such as an adjustable spring



3,601,297
DUAL SPEED PAPER ADVANCE SYSTEM WITH SKIP TO FORMAT HEADING
John W. Funk, Dearborn; Dean P. Scott, Livonia, and James S. McCoy, Detroit, all of, Mich., assignors to Burroughs Corporation, Detroit, Mich.
Filed Dec. 18, 1968, Ser. No. 784,685
Int. Cl. B65h 25/00
U.S. Cl. 226-9 16 Claims



A mechanism for controllably advancing web material of indeterminate length, such as paper from a roll, according to a predetermined format and at different speeds. The format information is carried by an endless tape which is normally driven in synchronism with the web and which controls electromagnetic drive clutches and a brake through electronic circuitry. The operation of the brake and clutches controls the distance that the web travels from the generation of a stop signal until the web is actually stopped, and also regulates the longitudinal force on the paper, by controlling the acceleration and deceleration, to prevent tearing when the web is started, stopped, or when the speed of the web is changed. The format tape may be advanced to the format heading independently of the web drive by clutch means for disengaging the format tape from the synchronous drive and by engaging a small motor for independently driving the tape. The tape stops at its format heading automatically as a result of a control signal developed from the tape itself.

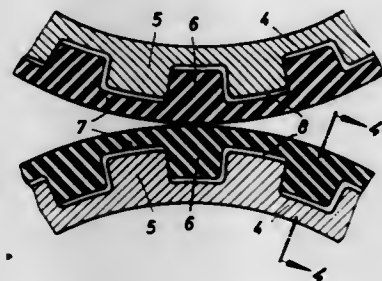
3,601,298

APPARATUS FOR UNIFORMLY PULLING FORWARD INDIVIDUAL LAYERS OF A MULTILAYER WEB OF PAPER, CARDBOARD OR THE LIKE MATERIALS
Peter Schulze, Düsseldorf-Wersten, and Walter Heidepriem, Dorsten, both of, Germany, assignors to Jagenberg-Werke AG, Düsseldorf, Germany

Filed Jan. 22, 1969, Ser. No. 792,977
Claims priority, application Germany, Jan. 24, 1968, Sept. 19, 1968, P 16 11 768.3; P 17 86 341.1
Int. Cl. B65h 17/20

U.S. Cl. 226—191

7 Claims



Apparatus for uniformly pulling forward or feeding individual layers of a multilayer web of paper, cardboard and the like materials which includes cooperative roller means that engage opposite surfaces of the web and which roller means are provided with elastic jackets and means establishing an air cushion beneath the jackets so that during pulling forward or feeding relative displacement in the feeding direction of the individual layers of the multilayer web is prevented by reason of the improved contact relationship in the feeding zone between the jackets and the opposite surfaces of the multilayer web.

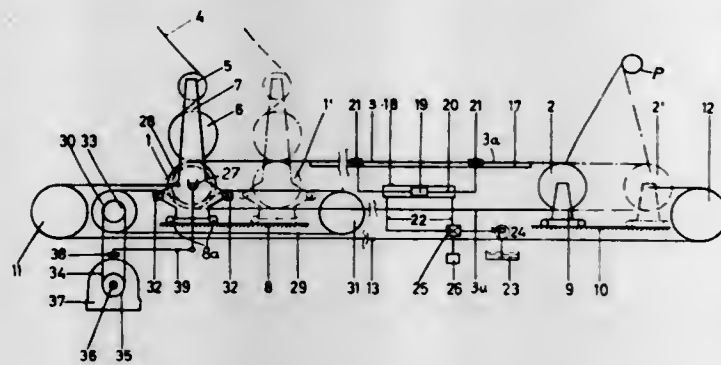
3,601,299

CONTINUOUSLY OPERATING THERMOPLASTIC ADHESIVE APPARATUS
Richard Murer, Wiler near Utzensdorf, and Hermann Leiser, Lohn, SO, both of, Switzerland, assignors to Fritz Buser AG Maschinenfabrik, Wiler near Utzensdorf, Switzerland
Continuation-in-part of application Ser. No. 559,627, June 22, 1966, now abandoned. This application Feb. 16, 1970, Ser. No. 11,463

Claims priority, application Switzerland, July 2, 1965, 9302/65
Int. Cl. B65h 17/24

U.S. Cl. 226—96

11 Claims



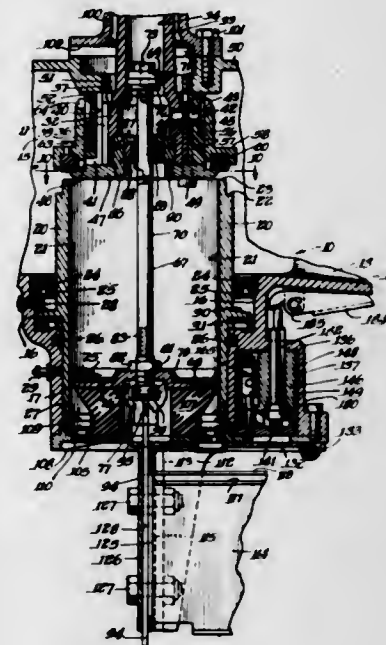
A continuously operating apparatus for advancing a web by adhesively securing the same to a transport band such as a conveyor belt, coated on one side with a layer of thermoplastic adhesive which includes a pair of guide roll means over which such a transport band is trained with the layer of adhesive exposed, means for feeding a textile web onto said transport band, a heating roll means for heating said layer of adhesive, means for applying a contact pressure between said band and textile web to bond the band and web to one another as the web passes said heating roll means and means for controlling the contact pressure between the textile web and the transport band as a function of the speed of movement of said textile web past said heating roll means in order to achieve a substantially uniform adhesive force between said web and said layer of adhesive on said transport band.

3,601,300

PNEUMATICALLY OPERATED NAILING MACHINE
Edgar P. Anstett, 21 Lakewood Place, Highland Park, Ill.
Filed Jan. 23, 1970, Ser. No. 5,195
Int. Cl. B27f 7/02

U.S. Cl. 227—8

37 Claims



A pneumatically operated nailing machine includes a reciprocable blade for driving nails when advanced and a reciprocable differential piston unit connected to the blade advances and retracts the blade. A cylinder member reciprocatingly receives the upper small diameter piston of the differential piston unit and a reciprocable cylinder sleeve reciprocatingly receives the lower large diameter piston thereof. Sealing means seals the cylinder for the lower large diameter piston from the cylinder for the upper small diameter piston. Valving means for the differential piston unit include an annular upwardly facing valve seat on the cylinder sleeve, a stationary annular upwardly facing valve seat adjacent the valve seat on the cylinder sleeve, and a valve sleeve having a downwardly facing annular valve ring adapted to engage said valve seats. Means including passageways supply air under pressure beneath the upper small diameter piston and vent to atmosphere air above the lower large diameter piston to drive the differential piston unit upwardly and retract the blade when the cylinder sleeve is moved upwardly to engage its annular valve seat with the annular valve ring and to disengage the annular valve ring from the stationary annular valve seat. Said means including passageways interrupt the venting of air to atmosphere from above the large diameter piston and supply air under pressure above the large diameter piston to drive the differential piston unit downwardly and advance the blade when the cylinder sleeve is moved downwardly to engage the annular valve ring with the stationary annular valve seat and to disengage its annular valve seat from the annular valve ring. Means including control valve means selectively move the cylinder sleeve and valve sleeve upwardly and downwardly.

3,601,301

FURNITURE PIECE FABRICATING MACHINE
Alfred J. Backus, Oshkosh, Wis., assignor to Medalist Industries, Inc., Milwaukee, Wis.

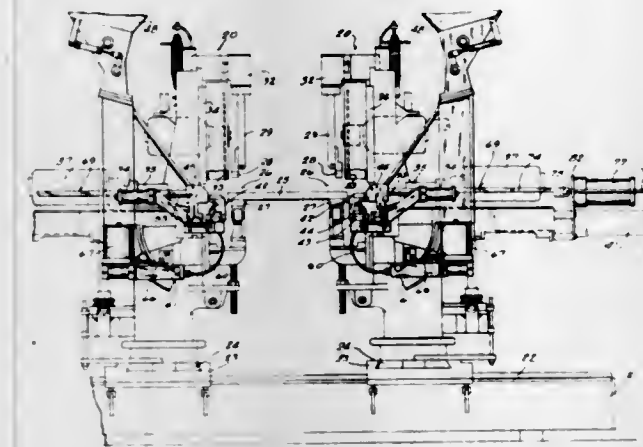
Filed Apr. 16, 1969, Ser. No. 816,488
Int. Cl. B27f 4/00

U.S. Cl. 227—14

12 Claims

This disclosure relates to a furniture piece fabricating machine having a piece clamping station at which the piece is cut off, dowel-receiving holes bored therein, glue injected

into the bores, and dowels set into the bores, all in successive operations at the same station and without requiring any material after the shuttle has compressed it. In the embodiment described in detail the pistons are of the differential



manual manipulation of the piece intermediate the various successive steps.

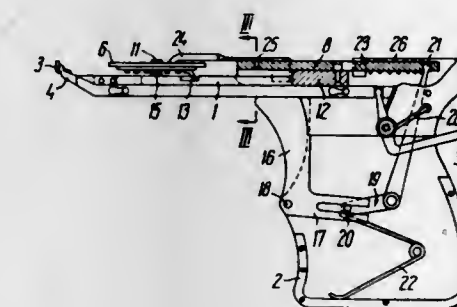
3,601,302

SURGICAL INSTRUMENT FOR STITCHING SOFT TISSUES BY MEANS OF STAPLES
Lidia Alexandrovna Potekhina, Orlovo-Davydovsky pereulok, 2/5 kv. 34; Georgy Vasilievich Astafiev, Rizhsky proezd, 7, kv. 108; Svetoslav Ivanovich Babkin, ulitsa Dmitriya Ulyanova, 9/11, korpus I, kv. 16, and Ivan Alexandrovich Korolkov, Prospekt Mira, 186, kv. 14, all of Moscow, U.S.S.R.

Filed Oct. 22, 1968, Ser. No. 769,619
Claims priority, application U.S.S.R., Oct. 23, 1967, 1192182
Int. Cl. B25c 5/02

U.S. Cl. 227—120

7 Claims



A surgical instrument for stitching soft tissues by means of staples in which the magazine for the staples is made in the form of a turning disk provided with circumferentially arranged slots for storing the staples and equipped with a mechanism for automatic rotation of the disk, thus providing for dependable delivery of the staples to the section of the tissue being stitched.

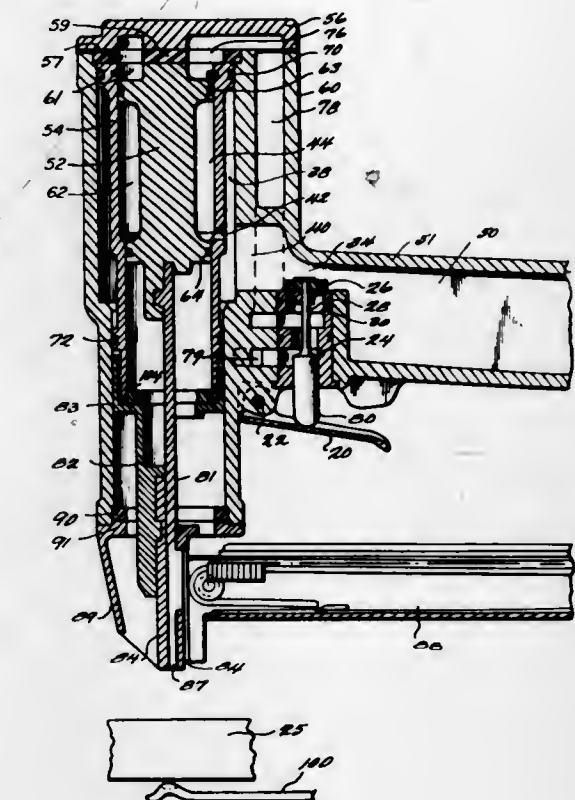
3,601,303

SHUTTLE NOSE PNEUMATIC FASTENER DRIVER
Earl G. Leach, deceased, late of Framingham, Mass. (by Ruth H. Leach, Administratrix), and Edward I. Fisher, Westerly, R.I., assignors to Textron Inc., Providence, R.I.
Filed July 26, 1968, Ser. No. 749,916
Int. Cl. B25c 5/02

U.S. Cl. 227—124

10 Claims

The invention relates to a fluid-pressure-operated device for driving fasteners through material whereby a shuttle piston pushes a shuttle towards the material to compress the material against a fixed clincher and a driver piston pushes a driver blade towards the material to drive a fastener into the



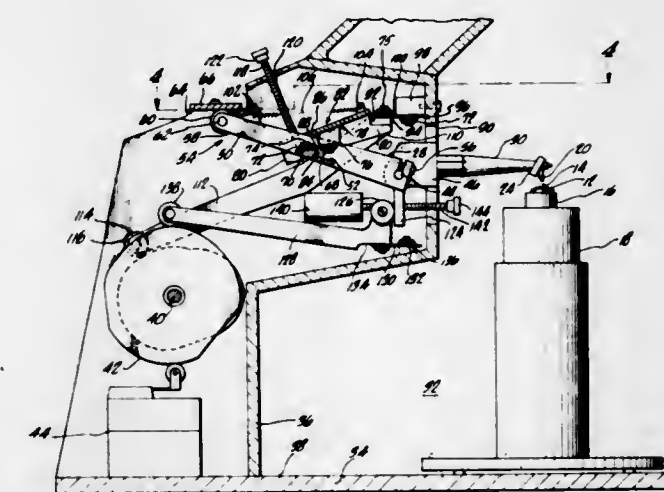
type and move linearly and with a constant angularity with respect to the clincher.

3,601,304

WIRE BONDER
Mortaz Nossbi Mansour, Duarte, Calif., assignor to Unitek Corporation, Monrovia, Calif.
Filed July 19, 1968, Ser. No. 746,229
Int. Cl. B23k 1/06, 5/20

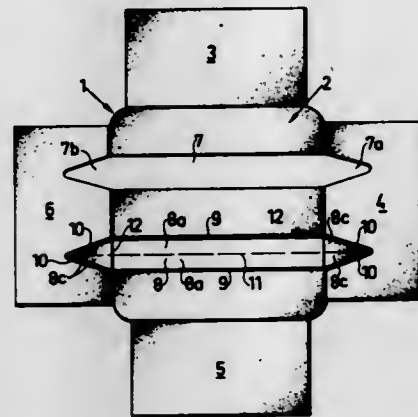
U.S. Cl. 228—1

11 Claims



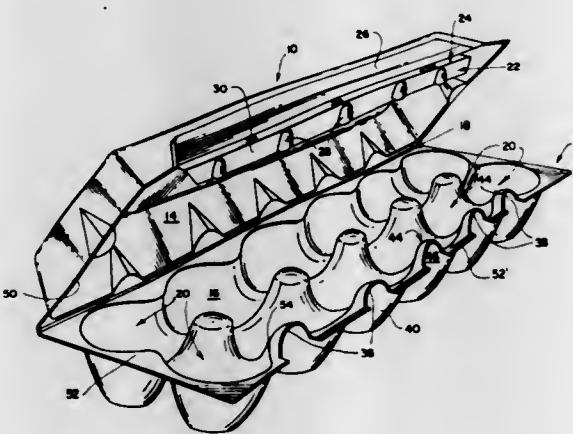
A wire bonder having a housing, a manipulator workpiece-mounting post secured to the housing and a bonding tip reciprocally movable relative to the mounting post. The bonding tip is secured in a holder connected to an ultrasonic transducer and the assembly is in turn operatively engaged with a drive mechanism for reciprocating the bonding tip which includes a first linkage which is secured to a first leaf spring flexibly attached to the housing. Flexibly attached to the first linkage by a second leaf spring is another linkage, one end of which movably engages a planar surface of the housing and another end of which mounts the transducer and tip assembly.

3,601,305
PACKAGE PREFERABLY INTENDED FOR ICE CREAM
AND SIMILAR PRODUCTS
 Boye Benzon-Petersen, Lund, Sweden, assignor to AB Akerlund & Rausing, Lund, Sweden
 Filed Oct. 27, 1969, Ser. No. 869,465
 Claims priority, application Sweden, Nov. 25, 1968, 15994/68
 Int. Cl. B65d 5/56
 U.S. Cl. 229--14 6 Claims



A container for ice cream and similar products provided with depressions or indentations in the bottom thereof to facilitate the dividing the ice cream cake after it has been turned upside down on a plate for smaller servings.

3,601,306
LOCKING MECHANISM FOR EGG CARTONS
 Theodore P. Martens, Pittsburgh, Pa., and James R. Patton, Houston, Tex., assignors to Sinclair-Koppers Company, Pittsburgh, Pa.
 Filed July 15, 1969, Ser. No. 841,721
 Int. Cl. B65d 1/36
 U.S. Cl. 229--44 R 7 Claims

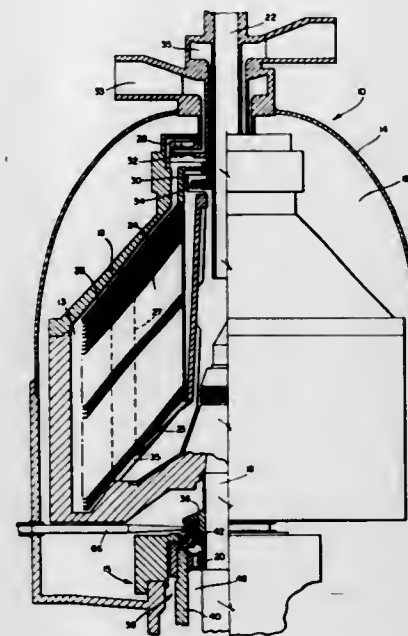


A locking mechanism for an egg carton having an integrally hinged tray and cover. The locking mechanism includes a locking flap hingedly connected to the cover and foldable into overlapped relation with the inside of the cover's front wall and locking detents projecting inwardly from the inner surface of the folded flap. The carton is secured shut by interlockingly engaging the locking detents with the underside of a raised lip on the front wall of the carton's tray.

3,601,307
CENTRIFUGE WITH SPINDLE-SEALING MEANS
 Leonard Shapiro, Upper Darby, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.
 Filed Mar. 19, 1970, Ser. No. 20,955
 Int. Cl. B01d 21/26, 43/00, 45/12
 U.S. Cl. 233--1 10 Claims

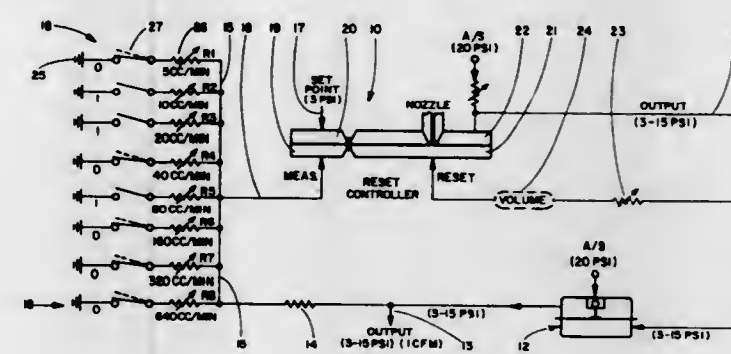
A sealing structure is provided between a centrifuge bowl

and its surrounding cover to prevent process fluids existing



between the centrifuge bowl and the cover from vibrating lubricant surrounding the bearings for the main spindle.

3,601,308
DIGITAL TO PNEUMATIC ANALOG CONVERTER
 Richard W. Hatch, Jr., Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
 Filed June 19, 1969, Ser. No. 835,312
 Int. Cl. G06d 3/00
 U.S. Cl. 235--200 1 Claim

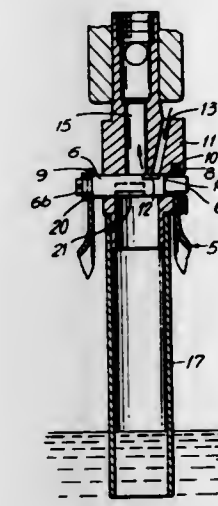


The combination of a digital input matrix of fluidic resistances and a pneumatic analog controller, with a manifold supply to the resistances maintained at constant pressure by the controller, and a pneumatic analog output to a valve established by the controller change necessary to maintain the manifold pressure.

3,601,309
STEAM TRAP WITH A FLOAT-OPERATED SLIDE VALVE
 Hans Richter, 28 Bremen, Reinthalerstrasse, 6, Bremen, Germany
 Filed Oct. 30, 1969, Ser. No. 872,533
 Int. Cl. F16t 1/08
 U.S. Cl. 236--59 14 Claims

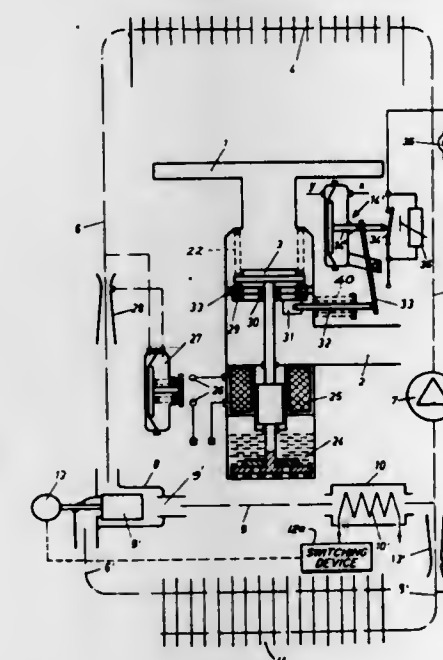
A steam trap employs a rotatable and slidable valve to open and close the outlet of a condensate chamber and to vent the outlet at low temperature. The valve is connected to a float which controls opening and closing of the outlet by

rotating the valve, the connection between the float and the valve being made by a pair of arms at least one of which is



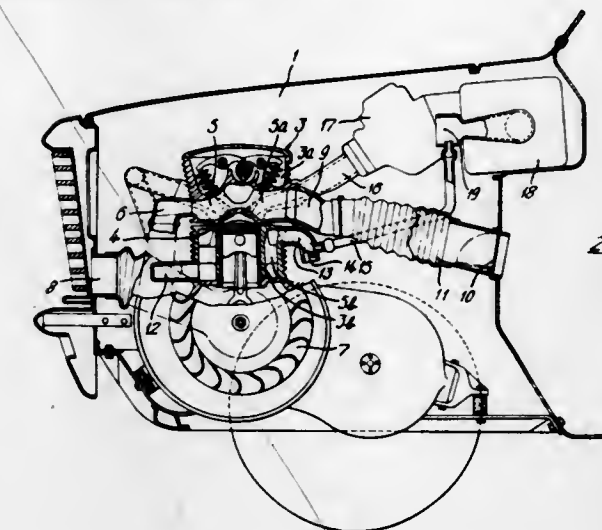
bimetallic so as to respond to temperature differences and laterally shift the valve to control the venting.

3,601,310
APPARATUS FOR CONTROLLING THE SUPPLY OF GAS
TO INSTANT WATER HEATERS IN CIRCULATION
HEATING SYSTEMS
 Georg Hein, Remscheid, Germany, assignor to Joh. Vaillant KG, Remscheid, Germany
 Filed Oct. 28, 1969, Ser. No. 871,937
 Claims priority, application Germany, Nov. 26, 1968, P 18 10 900.7
 Int. Cl. F24d 3/08
 U.S. Cl. 237--8 R 1 Claim



A pump circulates hot water in a system including a gas fired heater and a radiator. A bypass is across the radiator and includes a heat exchanger for heating domestic water. A flow control in the system opens the bypass and shuts off flow to the radiator when domestic water is drawn. A gas rate of flow control provides full gas supply when the radiator is cut off and reduced gas supply when water flows through the radiator. The motor for the blower for removing gaseous products of combustion is at relatively high speed when there is full gas supply and at a comparatively lower speed when there is reduced gas supply.

3,601,311
ENGINE COOLING AND PASSENGER COMPARTMENT
HEATING APPARATUS
 Soichiro Honda, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Oct. 9, 1969, Ser. No. 865,000
 Claims priority, application Japan, Oct. 9, 1968, Oct. 12, 1968, 43/73,144;43/74, 511
 Int. Cl. B60h 1/16
 U.S. Cl. 237--12.3 A 3 Claims



An engine of a motor vehicle has a passage for the flow of fresh cooling air in heat exchange relation with the engine, the passage being closed and isolated from a joint between the engine block and the cylinder head to preclude entry into the passage of gases leaking past the joint. The passage leads to a passenger compartment of the vehicle for heating the interior thereof.

3,601,312
METHOD OF INCREASING THE LIKELIHOOD OF
PRECIPITATION BY THE ARTIFICIAL INTRODUCTION
OF SEA WATER VAPOR INTO THE ATMOSPHERE
WINDWARD OF AN AIR LIFT REGION
 Orval R. Feather, 2464 Bunker Hill, Ann Arbor, Mich.
 Filed Apr. 28, 1969, Ser. No. 819,625
 Int. Cl. A01g 15/00
 U.S. Cl. 239--2 7 Claims

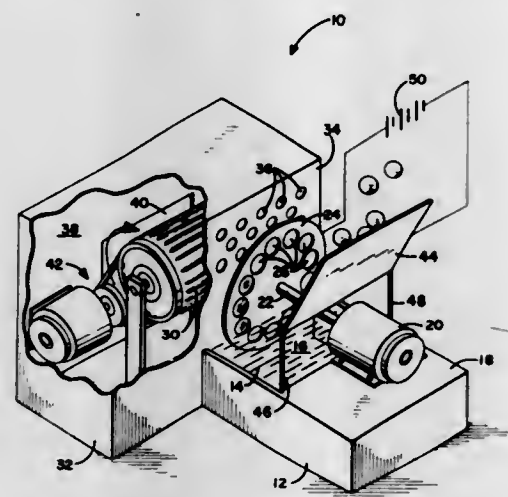


The invention pertains to a method of producing fresh water utilizing modification of air mass conditions by injecting sea water into solar-heated air to evaporate sea water into the atmosphere and increase the air water vapor content, and thereby greatly increase the capacity of the so modified air mass for absorbing the available radiant energy for warming the air by solar and terrestrial radiant energy to increase the ability of the air to absorb increased quantities of water vapor and ambient temperature, and thereafter lift the treated air to sufficient altitudes to produce convective instability, cumuloform clouds and precipitation. Preferably, the injection of sea water into the atmosphere, and the solar heating thereof, occur at alternate land areas disposed windwardly of a mountain or other natural orographic barrier wherein the treated air is lifted orographically.

3,601,313
METHOD AND MEANS FOR THE REMOVAL OF LIQUID
OR SOLID PARTICLES FROM A VOLUME OF GAS
 T. G. Owe Berg, 14361 Deanann Place, Garden Grove, Calif.
 Filed June 17, 1969, Ser. No. 833,993
 Int. Cl. A01g 15/00
 U.S. Cl. 239--2 14 Claims

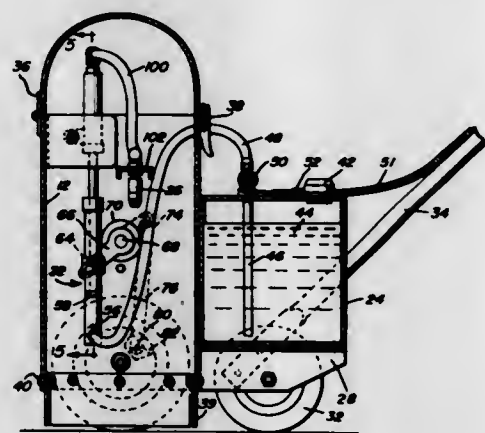
There is disclosed a method for the removal of liquid or solid particles from a volume of gas by generating a mul-

tiplicity of charged, individual bubbles, the bubbles being predetermined quantity of liquid as a spray by actuation of a substantially larger than the particles, and introducing the charged bubbles into the volume of gas. The bubbles are either hollow liquid bodies or hollow solid bodies. Means are also disclosed for generating and electrically charging bubbles. According to a first embodiment of the invention, the particles are fog droplets and the method and means are used to disperse the fog. According to a second embodiment, the



particles are dust particles which exist in the atmosphere, and the method and means are used to collect and remove the dust. According to a third embodiment, the method and means are used to clean dust particles from effluent gases such as those resulting from combustion processes. According to a fourth embodiment, the method and means may be used to collect particles during chemical manufacturing processes.

3,601,314
SPRAYING APPARATUS WITH CONFINING SHIELD
Arthur A. Hurt, 1608 E. 4th Ave., Spencer, Iowa
Filed Aug. 25, 1969, Ser. No. 852,726
Int. Cl. B05b 9/06
U.S. Cl. 239—157
6 Claims

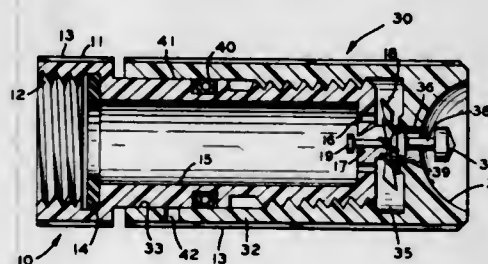


A wheel-mounted housing having an open underside confronting a supporting surface to be treated with material. A pump is mounted to the housing and a crank and pitman assembly connect one wheel to the pump to cause operation thereof. A storage tank with treating material is connected to the housing and conduit means provides passage of material from the tank to the pump. The output of the pump is connected to a spraying nozzle toward the supporting surface upon which the wheeled housing rides.

3,601,315
POCKET SUPPORTABLE ATOMIZER DEVICE
George H. Montalbo, 1667 W. 208th St., Torrance, Calif.
Filed Jan. 21, 1970, Ser. No. 4,617
Int. Cl. B05b 1/00
U.S. Cl. 239—211
A pocket supportable atomizer device for dispensing a

plunger that forms a part of the device, and the device in appearance simulating that of a conventional fountain pen.

3,601,316
COMBINED NOZZLE AND SPRINKLER
Jerome L. Murray, 652 1st Ave., New York, N.Y.
Filed Apr. 17, 1969, Ser. No. 817,084
Int. Cl. B05b 3/04
U.S. Cl. 239—222.17
2 Claims



A nozzle with a tubular body forming a waterway with an orifice at its forward end and a tubular member telescoping over the body and having a forward portion to receive liquid and a backward portion surrounding said body and formed with an inwardly facing cylindrical surface of greater diameter than the portion of the body opposite said surface, means at the forward end to control the liquid discharge through said orifice, the tubular member being movable along the body to adjust the position of the orifice relative to the control means and thereby vary the discharge of the liquid, and an elastic sealing ring surrounding and held in a relatively fixed position on the body.

3,601,317
ATOMIZERS SPRAYING IN ALL DIRECTIONS
Anthony Genantonio, Teaneck, N.J., assignor to George X. Batlas, Astoria, N.Y.; Curtis F. Pearl, Teaneck, N.J. and Vincent Longo, Long Island, N.Y., part interest to each
Filed Mar. 9, 1970, Ser. No. 17,743
Int. Cl. B65d 1/32
U.S. Cl. 239—327
4 Claims

A resilient squeeze bottle has a relatively very short stopper provided with a stepped central bore whose upper end is a spray discharge nozzle leading from a mixing chamber. Said stopper mounts a slim tube which extends downwardly to very near the bottle's floor and is communicative with the mixing chamber. Said stopper also mounts a main air tube which is about and spaced from said slim tube, and extends downwardly to a bit below the halfway mark of the space available in the bottle when the device is assembled. Stopper construction affords a duct system making the upper part of the main air tube communicative with the mix-

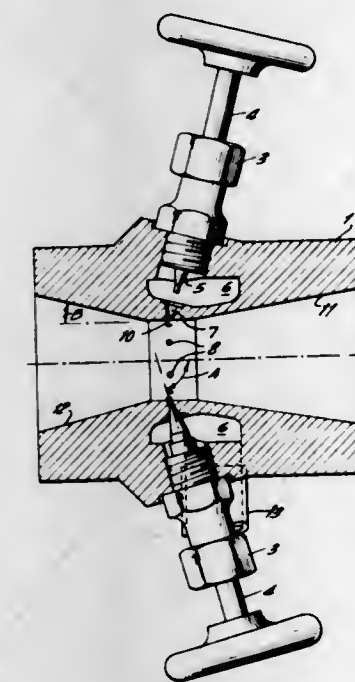


ing chamber, and included in such system, are ducts opening in the bottom of the stopper, making the upper end of said main air tube communicative with the bottle's interior at bottleneck region. Bottle shape is such that the level of the liquid supply therein, which is below the air tube when the



bottle is erect, shall always be below said air tube regardless of the position the bottle is held in hand. Bottle height is relatively tall so there is an appreciable distance between the bottom ends of said tubes, and also an appreciable distance between the bottom end of said air tube and the lower end of the stopper.

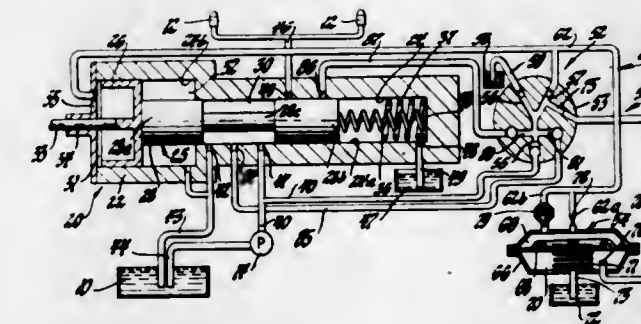
3,601,318
METHOD AND APPARATUS FOR CONTINUOUS MIXING OF LIQUIDS
Albert Gehring, Tamins/Gr.; Max Kugler, Domat-Ems/Gr., and Hans-Joachim Schultze, Chur/Gr., all of, Switzerland, assignors to INVENTA AG für Forschung und Patentverwaltung, Zurich, Switzerland
Filed Apr. 3, 1969, Ser. No. 813,149
Claims priority, application Switzerland, Apr. 11, 1968, 5504/68
Int. Cl. B05b 7/12
U.S. Cl. 239—416.2
12 Claims



Apparatus and method for mixing of a feed liquid with a process liquid comprising a pipe having a cylindrical bore, said process liquid flowing in the pipe, a throat in the bore, the portion of the bore downstream of the throat and forming an angle between said portion and the axis of said bore of up to about 15°, at least one feed nozzle for injection of said

feed liquid disposed in said pipe and extending between a source of feed liquid and the bore, the nozzle opening into the bore at the throat and being cylindrical in cross section, the axis of the nozzle forming a second angle with a portion of the axis of the bore upstream of the nozzle, the second angle being from 30°-90° whereby said feed liquid is injected at a velocity of from 2 to 15 times the velocity of the process liquid.

3,601,319
FLUID AMPLIFIER CONTROLLED WINDSHIELD WASHER SYSTEM
David L. Jones, Jr., Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Jan. 26, 1970, Ser. No. 5,718
Int. Cl. B05b 1/10; B60s 1/46
U.S. Cl. 239—284
5 Claims



In a preferred form, this disclosure relates to a washer system for delivering washer fluid to transparent surface areas such as different areas of a windshield or headlamps of an automotive vehicle. The washer system includes a reservoir containing a supply of washer fluid, nozzle means adapted to be positioned adjacent the transparent surface areas to be cleaned, a pump means for supplying washer fluid under pressure from the reservoir to the nozzle means, and a selectively operable control means including a fluid amplifier for controlling communication between the pump and the nozzle means and which is selectively operable to provide either a demand wash cycle or a programmed wash cycle of a predetermined duration.

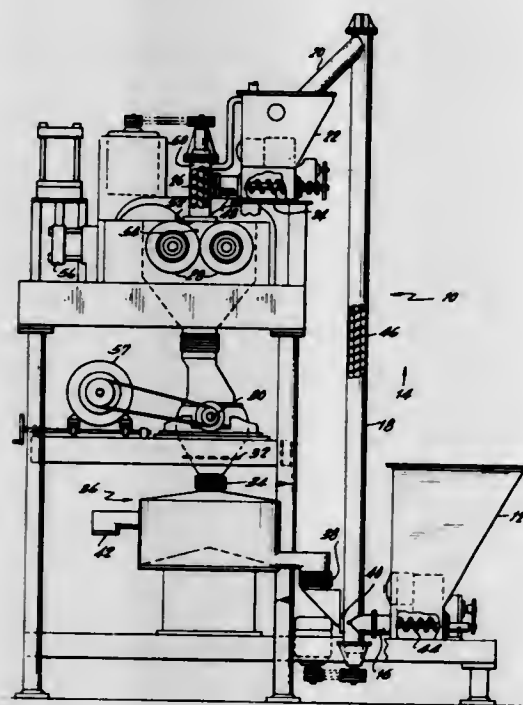
3,601,320
APPARATUS FOR BREAKING UP A DIRECTIONAL FLUID STREAM
Neil M. Du Plessis, Sesde laan 2, Boston, Bellville, Cape Province, South Africa
Filed June 11, 1969, Ser. No. 832,070
Claims priority, application South Africa, June 26, 1968, 68/4093
Int. Cl. B05b 15/00
U.S. Cl. 239—542
2 Claims



The apparatus comprises a passage for inflow of a fluid into a volume surrounded by a wall having a plurality of holes in it which admit the fluid to a second volume also surrounded by a wall having a plurality of holes in it in positions which are other than in the direct flow direction of fluid issuing from the holes in the walls surrounding the first volume.

The preferred embodiment comprises two tubes, both closed at one end by a single closure component and the volume between them closed at the other end by a component which also incorporate an internally threaded passage for the inflow of fluid adapted to be screw connected on to a source of the fluid. The holes in the two pipes are staggered both axially and angularly in such a manner that if the angular staggering is carried out incompletely or not at all due to prior assembly during manufacture the axial staggering nevertheless provides that the holes of the two pipes are still in positions other than the direct flow direction.

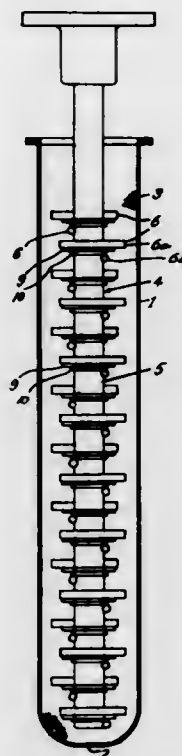
3,601,321
PROCESS FOR PREPARING GRANULAR DENTURE CLEANSER
 Jordan B. Barth, East Brunswick, and Phillip A. Ouellette, Rahway, both of, N.J.
 Filed Apr. 14, 1969, Ser. No. 815,635
 Int. Cl. B02c 13/13, 21/00
 U.S. Cl. 241—3 3 Claims



Process for preparing a granular denture cleanser composition of the effervescent gas liberating-type which when dissolved in water will remove oral deposits and stains from removable dentures soaking in the solution. The process comprises homogenizing and levigating the powdered components of the composition, extruding the composition mixture into a dense sheet of material and grinding the sheet of material into granules of a desired particle size. Granules of the desired size are then separated from oversized and undersized particles and collected as product while the oversized and undersized particles are reprocessed.

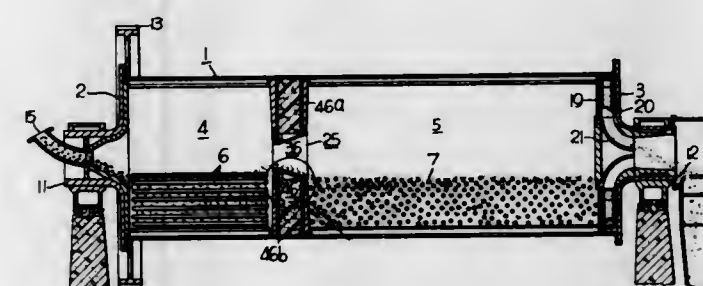
3,601,322
FINE GRINDING APPARATUS
 Andrew Szegvari, 201 Castle Blvd., Akron, Ohio
 Filed July 16, 1968, Ser. No. 745,150
 Claims priority, application Great Britain, July 17, 1967, 32770/67
 Int. Cl. B02c 17/16 17 Claims
 U.S. Cl. 241—46
 An apparatus for fine grinding using spherical agitating elements maintained in kinetically activated condition within

a liquid by agitating means comprising arms or the like attached to a central vertical shaft, discs are provided around



the shaft at intervals to prevent liquid containing the agitating elements from rising adjacent the shaft.

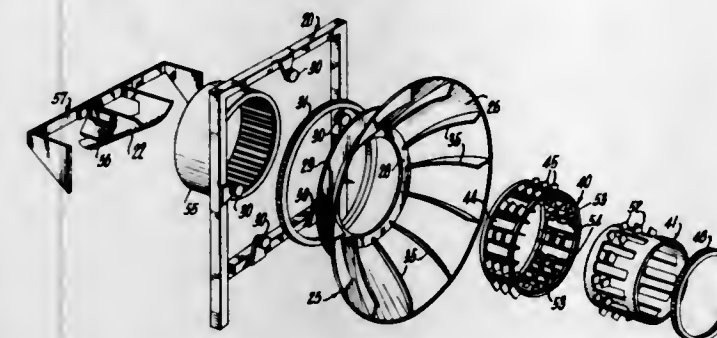
3,601,323
FILLER MATERIAL FOR GRINDING MILLS AND THE LIKE
 Donald P. Giencke, Milwaukee, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
 Filed Dec. 11, 1969, Ser. No. 884,148
 Int. Cl. B02c 17/06 4 Claims
 U.S. Cl. 241—70



A grinding mill is disclosed having a cylindrical shell and a division head that divides the interior of the shell into axially disposed compartments. The division head is an assembly of elements and filler material, with at least a pair of the elements being spaced apart and the filler material therebetween. The filler material comprises hardened epoxy resin containing a dispersement of glass fibers in an amount of between about 0.4 to 0.7 grams per cubic inch of epoxy resin. The glass fibers are preferably at least about one-fourth inch long and may be up to three inches in length, although a maximum length of one-half inch is preferred. The material may also include about 0.6 to 1.0 cubic inches of silica sand per cubic inch of epoxy resin.

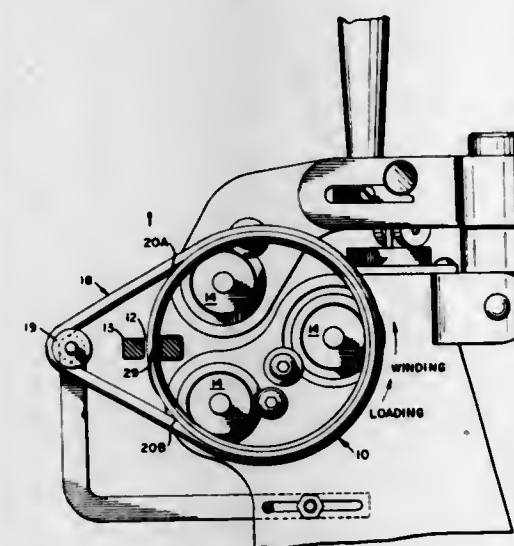
3,601,324
REFUSE-REDUCING MACHINE
 George B. Brown, 63 Oxford Street, Glen Ridge, N.J.
 Filed Mar. 9, 1970, Ser. No. 17,604
 Int. Cl. B02c 13/10 19 Claims
 U.S. Cl. 241—163
 The invention contemplates refuse-reducing mechanism employing relatively rotating coaxial structures to achieve a succession of stages of progressive size reduction, as refuse is

conveyed through or shredded in the mechanism. At one general axial span, plural reduction stages proceed radially inwardly, from a load in zone at maximum diameter. After such reduction, the reduced material may be axially transposed to a second general axial span for further reduction, of rotations of the drum per unit of time and the number of reciprocations of the tube is substantially equal to an integral multiple of one-half, so that the limp material is laid up inside the drum in a series of figure-8 bights. The relative speeds of rotation and reciprocation are varied at one point in each



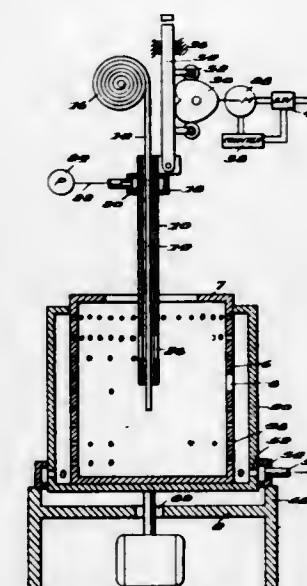
again with radially inward progression. Thus reduced, the material may be delivered for storage or for still further reduction or other processing, as desired. The entire multistage reducer is conveniently built into a vehicle body or trailer, or it may be used in stationary applications, as for apartment houses, hospitals, grocery stores and the like.

3,601,325
COIL WINDER BELT GUIDE SHUTTLE SYSTEMS
 Vilmos Havasi, and Leon Yarrish, both of Danbury, Conn., assignors to The Jovil Manufacturing Co., Inc., Danbury, Conn.
 Filed June 5, 1969, Ser. No. 830,790
 Int. Cl. H01f 41/08 9 Claims
 U.S. Cl. 242—4



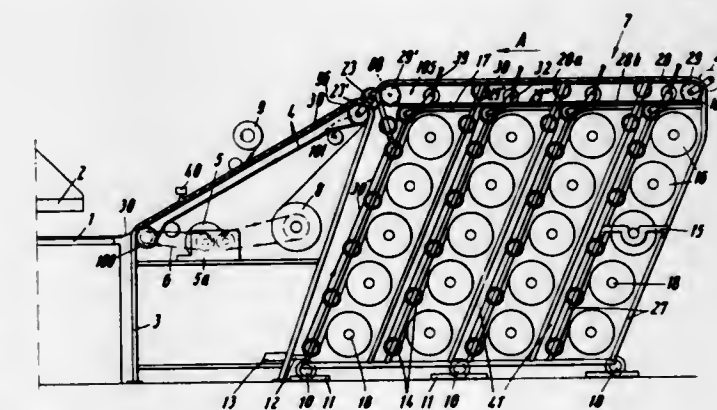
Methods and apparatus for winding electrical conductor wire of moderate to heavy sizes on small and miniature toroidal cores utilizing a sliderless shuttle having storage coil of wire wound in a peripheral groove and held therein by a belt encircling a substantial part of the shuttle groove periphery. To permit mounting, loading and coil winding operations, the belt diverges from the shuttle periphery at the point where it passes through the toroidal core. Loading and winding rotation of the shuttle occur in the same direction, significantly minimizing flexure and bending distortion of the conductor wire as it is drawn from the shuttle groove.

3,601,326
WINDING LIMP FLEXIBLE MATERIAL
 William F. Gordon, Yonkers, N.Y., assignor to Windings, Inc.
 Filed July 17, 1969, Ser. No. 842,521
 Int. Cl. B65h 54/80, 55/00 5 Claims
 U.S. Cl. 242—18
 A package of limp material is wound on the inside of a rotating drum or container having an opening in its wall substantially centrally of its length by feeding the material while conveyed by a current of air through and out of a tube which extends into an opening in one end of the drum which is reciprocated back and forth. The ratio between the number



layer of bights so as to leave a radial hole in the package opposite the hole in the container through which the inner end of the material is paid out for twistless payout. The container is foraminous and a suction is applied to the outside to assist in laying the material in the inside of the wall.

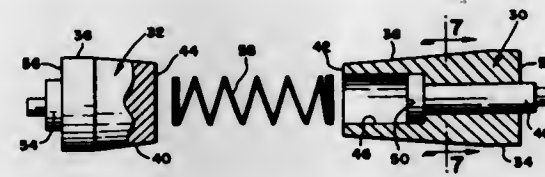
3,601,327
APPARATUS FOR STORING AND FOR TRANSPORTING WEBS TO A CUTTING DEVICE
 Wilfried Baumann, Bredenweg 134a, 4801 Hoberge-Uerentrup, Germany
 Filed Mar. 21, 1969, Ser. No. 809,157
 Int. Cl. B65h 75/00 31 Claims
 U.S. Cl. 242—55



An apparatus for storing webs, especially fabric webs and for transporting such webs superimposed upon each other to a cutting device, wherein the webs are wound up on a plurality of rolls carried by a frame and wherein the webs are withdrawn by withdrawing means from the rolls and guided in superimposed position onto an endless conveyor which transports the superimposed webs to the cutting device.

3,601,328
ROLLER ASSEMBLY FOR PAPER ROLLS
 Beach McClung, 1428 Amsterdam Road, Park Hills, Covington, Ky.
 Filed June 20, 1969, Ser. No. 835,065
 Int. Cl. A47k 10/22, 10/32; B65h 19/00 2 Claims
 U.S. Cl. 242—55.2
 A roller assembly is disclosed for use with paper rolls. The

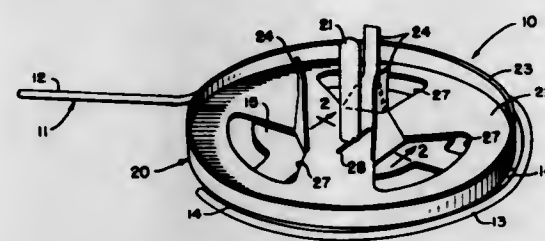
rollers are shaped for ease in insertion in the paper rolls even



if the inner core is deformed out of round. Use of the rollers assures a smooth pull in dispensing of the paper.

3,601,329
CENTER UNWINDING MECHANISM
Arthur A. Hagstrom, Hoffman Estates, and Robert J. Ramig, Jr., Niles, both of, Ill., assignors to Teletype Corporation, Skokie, Ill.

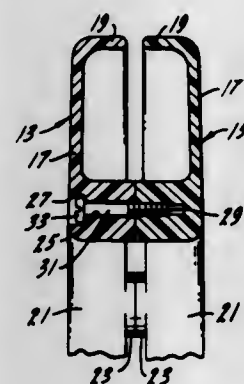
Filed Aug. 29, 1968, Ser. No. 756,158
Int. Cl. B65h 17/48
U.S. Cl. 242-55.18 9 Claims



A center unwinding mechanism including a tape reel comprised of a pair of separable flanges and a winding hub attached to one of the flanges and a rotatably supported turntable having three fingers extending cantilever from it for receiving the reel with the fingers extending through the hub and for permitting removal of one of the flanges and the hub from the reel while the reel is mounted on the turntable.

3,601,330
FISH TAPE WITH ADJUSTABLE TAPE ENGAGING LIPS
Mickey M. Minobe, Banning, Calif., assignor to Ideal Industries, Inc., Sycamore, Ill.

Filed Dec. 12, 1968, Ser. No. 783,388
Int. Cl. B65h 75/36
U.S. Cl. 242-85.1 5 Claims



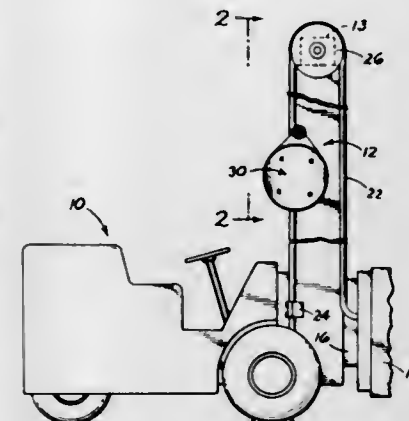
An electrician's fish tape reel which is adjustable to accommodate fish tapes of various widths. The spacing between the outer peripheral lips of the reel sections may be varied for tapes of varying widths. This is accomplished by changing the alignment of the reel sections relative to each other to position projections on the inner peripheral walls of the reel sections in or out of contact with one another.

3,601,331
APPARATUS INCLUDING MIDLINE TAKEUP DEVICE
Max Frey, Portland, and Donald M. Faust, Estacada, both of, Oreg., assignors to Cascade Corporation, Portland, Oreg.

Filed June 13, 1969, Ser. No. 833,117
Int. Cl. B65h 75/48
U.S. Cl. 242-107.11 7 Claims

Apparatus including multiple lines extending between spaced locations where a midline takeup device is supported

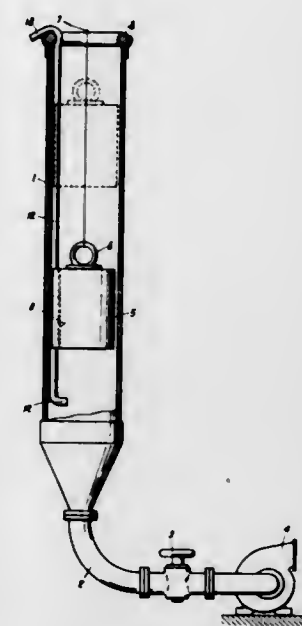
on said lines between said locations constructed to pay out and take in such lines to accommodate slackening and tensioning effects in such lines between said two locations. The device includes a collector holding stored portions of the lines, and is constructed so that parallel reaches of the lines extend out in opposite directions from the collector. The col-



lector may comprise axially spaced mating reel sections, with one holding stored portions of one line and the other holding stored portions of the other line, and a helical spring located between and housed within the reel sections urging rotation of the collector in a direction producing simultaneous takeup of both lines.

3,601,332
DEVICE FOR ELIMINATING YARN SLACK IN KNITTING MACHINES
Alois Kubelka, and Frantisek Svoboda, both of Brno, Czechoslovakia, assignors to Vyzkumny ustav pletarsky, Brno, Czechoslovakia

Filed June 25, 1969, Ser. No. 836,392
Claims priority, application Czechoslovakia, June 27, 1968, 4723-68
Int. Cl. B65h 59/00
U.S. Cl. 242-147 A 9 Claims

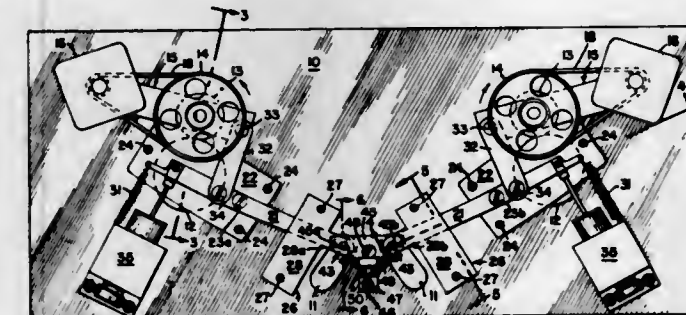


A device to be used in knitting machines for eliminating slack in yarn. The yarn travels from a suitable source of supply to a part of the machine where the yarn is acted upon. In the path of travel of the yarn is located a hollow cylinder having opposed open ends, and the yarn extends into the cylinder at one of the open ends thereof. A piston is freely movable within the cylinder and carries an eye through which the yarn passes before travelling out of the cylinder through the same end at which the yarn enters the cylinder. An evacuating structure communicates with the interior of the cylinder at the side of the piston which is directed away from the yarn guiding eye, so as to create in this part of the cylinder a lesser pressure tending to draw the piston further into the cylinder so as to eliminate any slack in the yarn.

3,601,333
TAPE-REELING SYSTEM HAVING TAPE TENSION CONTROL

Edwin O. Du Bois, Pearl River, N.Y., and Carl Bayer, Jr., Park Ridge, N.J., assignors to Mohawk Data Sciences Corporation, Herkimer, N.Y.

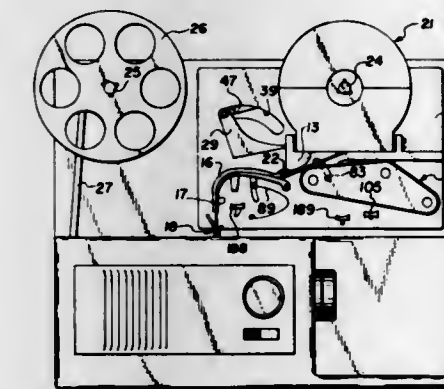
Filed Feb. 19, 1969, Ser. No. 802,754
Int. Cl. B65h 59/38; G03b 1/04; G11b 15/38
U.S. Cl. 242-189 15 Claims



A tape-reeling system having a tension-control arm which is pivotable in response to a change in tension in the tape, and a motor for applying a takeup torque to the reel through a continually driven roller in frictional contact with a drum mounted on the reel's shaft. Movement of the tension-control arm moves a link which effects a movement of the roller. The frictional force between the roller and drum is thus changed and the takeup torque applied to the reel controlled. In a system having two tension-control arms associated with takeup and payout reels, rapid winding is achieved by locking one of the tension-control arms in a position to provide non-slipping contact between a drum and roller, while stopping the other arm from moving to such a position.

3,601,334
REVIEW MECHANISM FOR SELF-THREADING MOTION PICTURE PROJECTORS
Daniel J. Stark, and Leslie J. Bunting, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

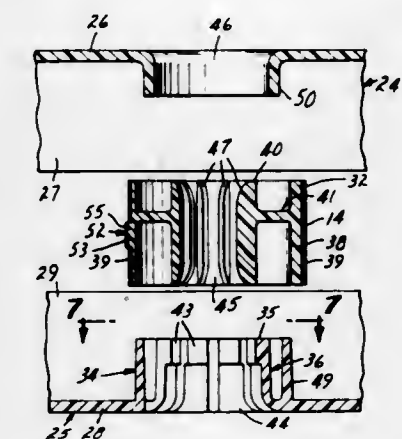
Filed May 15, 1969, Ser. No. 824,759
Int. Cl. G11b 15/32, 15/66
U.S. Cl. 242-192 6 Claims



In a motion picture projector of the type provided with film-threading members operable by a rotatable cam member, a review mechanism includes means for disabling movement of the threading members so that rotation of the cam member can be employed to recock a spring-actuated film rewinding mechanism after the film has been only partially rewound, thereby allowing repetition of a selected scene sequence.

3,601,335
FILM CARTRIDGE
Charles W. Dopkins, Cottage Grove, and Richard Alan DeVries, New Brighton, both of, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

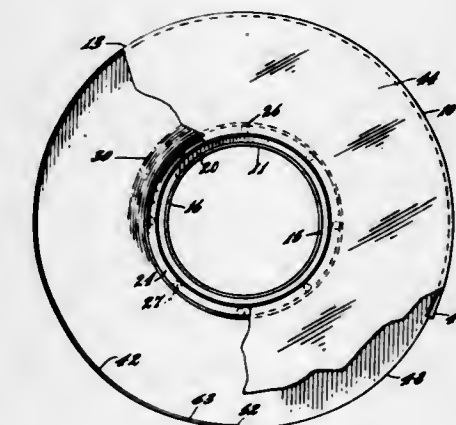
Filed Feb. 2, 1970, Ser. No. 7,530
Int. Cl. G03b 1/04; G11b 15/32, 23/04
U.S. Cl. 242-199 9 Claims



A film cartridge in which the rotation of spools on which supply and takeup rolls of film in the cartridge are wound is restrained to cause controlled, uniform advancement of the film and to maintain compact supply and takeup rolls. In one embodiment, a central spindle of the spools is rotatably mounted within a hub that comprises spring fingers arranged as a segmented cylindrical bearing. The spindle is larger in diameter than the bore through the segmented cylindrical bearing, so that the spindle slightly displaces the spring fingers from their normal position. As a result, the spring fingers exert a pressure on the spindle that restrains rotation of the spool. In a preferred embodiment, supply and takeup rolls of film are reliably attached to the spools by placing an aperture in the ends of the film over a tab on the spools' film-winding surface that has a dimension in the film-winding plane that is larger than the aperture.

3,601,336
MAGNETIC COMPUTER TAPE REEL
Larry T. Preston, 4023 Haverford Ave., Philadelphia, Pa.

Filed Jan. 21, 1969, Ser. No. 792,297
Int. Cl. G11b 23/10
U.S. Cl. 242-197 6 Claims



This magnetic tape reel has a hub portion which turns with the drive on which it is mounted, bearings including a rolling surface contact which are on the hub portion, and an outside portion on the bearings. The outside portion has identification matter on its outer edge and in part of its outer edge there is an opening through which the magnetic tape can go, and the outside portion will remain stationary while the hub portion is turning during the rolling and unrolling of the tape.

3,601,337 TERMINAL STATION FOR PNEUMATIC CARRIER SYSTEM

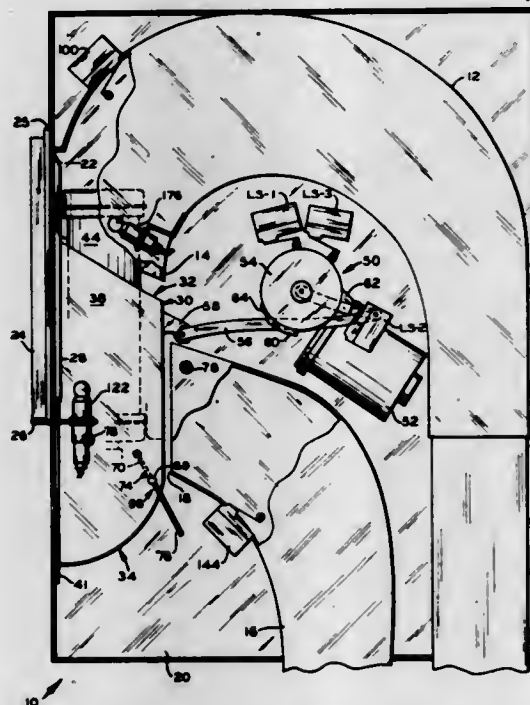
K. G. Bullock, Grand Rapids, Mich., and Alfred G. Hawkins, Swanton, Ohio, assignors to Mellink Steel Safe Company, Toledo, Ohio

Filed Aug. 8, 1969, Ser. No. 848,654

Int. Cl. B65g 51/32, 51/34

U.S. Cl. 243-24

14 Claims



A terminal station for receiving, holding or removal of, and dispatching pneumatically propelled carriers having a motor-operated, three-position, pivoted door equipped with a carrier receiver which receiver retains the carrier when the door is in a closed position and one of two open positions. The carrier-retaining means is stationary when the door is in its closed position for receiving the carrier and may be stationary or movably mounted on the door when the door is in its first open position for holding or retaining the carrier in the receiver. This retaining means is automatically removed when the door is moved to its other or further open position for permitting a carrier to be dispatched by passing through the receiver on the door. This movement of the door into its further open position is controlled automatically by sensing means when the carrier is removed from the receiver in the door's first open position, or this further movement of the door may be controlled manually from a remote station as can all other of its movements.

3,601,338 APPARATUS FOR CONTROLLING THE ATTITUDE OF A SATELLITE

Masamichi Shigehara, Yokohama-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

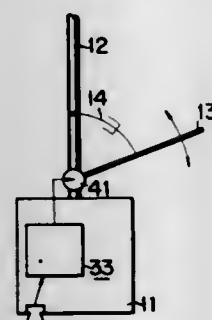
Filed Nov. 14, 1968, Ser. No. 775,605

Claims priority, application Japan, Nov. 17, 1967, Nov. 17, 1967, 42/73605; 42/73606

Int. Cl. B64g 1/00

U.S. Cl. 244-1 SA

4 Claims



An attitude-control apparatus for a satellite includes a main rod extending from the satellite body and having a

weight at the outermost end thereof, and a rotatable damping rod supported on the satellite body. Damping control is effected by detecting the deflection of the satellite body from the standard direction in an inertial space thereby to vibrate the damping rod in the direction opposite to that of the deflection.

3,601,339 AIRCRAFT-LANDING SYSTEMS

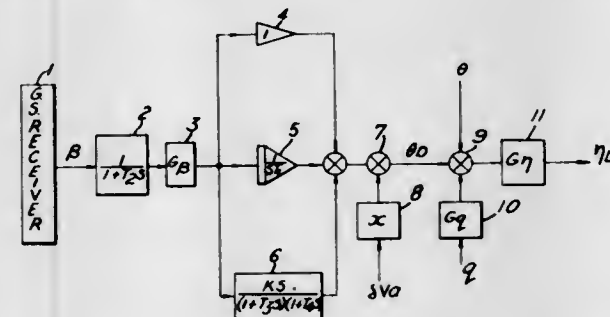
Ian A. Watson, Lewisham, London, England, assignor to Elliott Brothers (London) Limited, London, England

Filed June 3, 1968, Ser. No. 734,056

Int. Cl. B64c 13/18

U.S. Cl. 244-77 A

6 Claims



The present invention resides in a system employing a modified glide slope control law to give a more precise control over the glide slope made in landing and also over the flare or flareout thereof. The modified law which defines a pitch attitude demand signal (θ_D) reads:

$$\theta_D = G \left[1 + \frac{1}{ST_1} + \frac{Ks}{(1+T_{3s})(1+T_{4s})} \right] \frac{\beta}{(1+T_{2s})}$$

in which:

θ_D = pitch attitude demanded by the control law;

G = glide slope gearing ratio viz: the number of degrees of pitch attitude demanded per degree of deviation from the glide slope;

β = glide slope deviation;

T_2 = the lag time constant afforded by the provision of smoothing capacitors on the glide slope receiver output; and

K , T_3 and T_4 are constants for the aircraft in which the system is installed.

3,601,340 METHOD AND APPARATUS FOR AUGMENTING AND REVERSING THRUST AND REDUCING NOZZLE BASE DRAG AND NOISE OF AN AIRCRAFT JET ENGINE

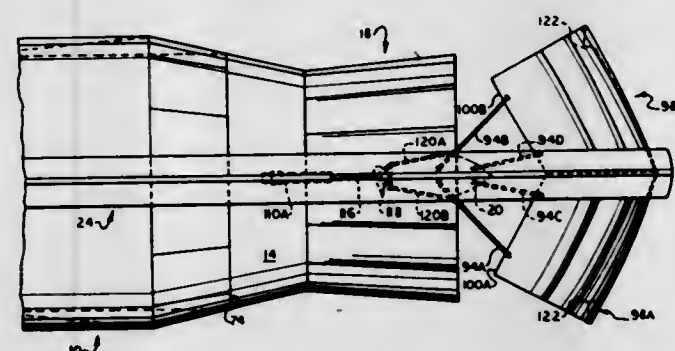
Jack H. Hilbig, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed May 28, 1969, Ser. No. 828,694

Int. Cl. B64d 33/04

U.S. Cl. 244-53

6 Claims



In a retracted position a pair of deflectors are disposed in spaced relation adjacent the periphery of the aft end of an aircraft housing, so that air flowing past the housing is deflected toward and around the exhaust gas discharged from a jet engine in the housing. A tubular ejector is movable from a position around the housing to a downstream position

wherein said exhaust gas flows through the housing. When the ejector is deployed downstream the deflectors are moved to a partially deployed position wherein they intercept a larger volume of air flowing past the housing and deflect the same into the ejector. In a fully deployed position the deflectors are disposed downstream from the housing and deflect exhaust gas in the forward direction, the ejector being at this time retracted to its position around the housing.

3,601,341 COMPARTMENTAL FUSELAGE

Heinrich Hertel, Tannenberglallee 36, Berlin, Germany

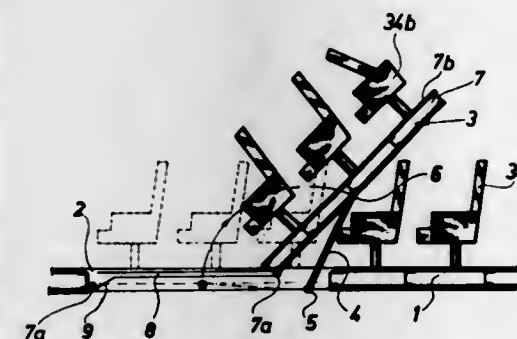
Filed Nov. 27, 1968, Ser. No. 779,574

Claims priority, application Germany, Nov. 29, 1967, P 15 31 423.5

Int. Cl. B64c 1/18

U.S. Cl. 244-119

8 Claims



The outer shell of a fuselage is divided by a floor wall into an upper pressurized passenger compartment and a lower compartment in which jet engines and other machinery are located. A service opening is provided in the floor wall and is normally closed by closure means to which seats are secured. When the closure means is open, access from the passenger compartment to the machinery in the lower compartment is possible through the service opening.

3,601,342 CARGO HOIST SYSTEM FOR HELICOPTERS

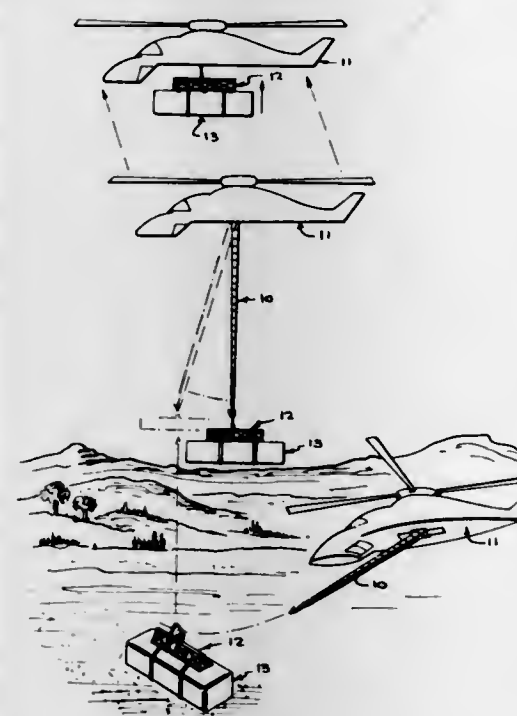
Frank N. Piasecki, Haverford, Pa., assignor to Piasecki Aircraft Corporation, Philadelphia, Pa.

Filed June 20, 1969, Ser. No. 835,049

Int. Cl. B64d 9/00

U.S. Cl. 244-137

35 Claims



A cargo hoist system for a helicopter including a boom extensible along its length, operatively connected at one end thereof to the helicopter, carrier means detachably connecta-

ble to a cargo unit to be hoisted, means disposed on the free end of the boom detachably connectable to the carrier means, and means for retracting the extensible boom.

3,601,343 STRAIN-FREE MOUNT

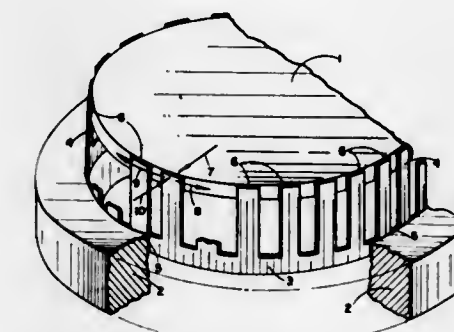
Armen H. Sivasian, Newport Beach, Calif., assignor to North American Rockwell Corporation

Filed Sept. 5, 1969, Ser. No. 855,500

Int. Cl. F16f 15/06; F16m 13/00

U.S. Cl. 248-2

1 Claim



A strain-free mount, for supporting an object, such as a synchrostat or an optical element, relative to a base such as to allow only radial (volumetric) relative expansion or contraction and to prevent rotation or overall translation of the supported object relative to the base. This mount provides a circumferentially arranged set of thin, wide, beamlike support elements, fixedly attached to both the supported object and the base to accommodate differential radial expansion or contraction of the supported object by bending of the beams in their thin dimension, while rotation or overall translation of the supported object is resisted by the shear stiffness of the beams in their thick dimension. By suitably proportioning the beam dimensions the mount can be made to have negligible resistance to purely radial expansion or contraction of the supported object and very high resistance to rotation or overall translation. The invention herein described was made in the course of or under a contract or subcontract thereunder, with the Air Force.

3,601,344 CANOE MOTOR MOUNT

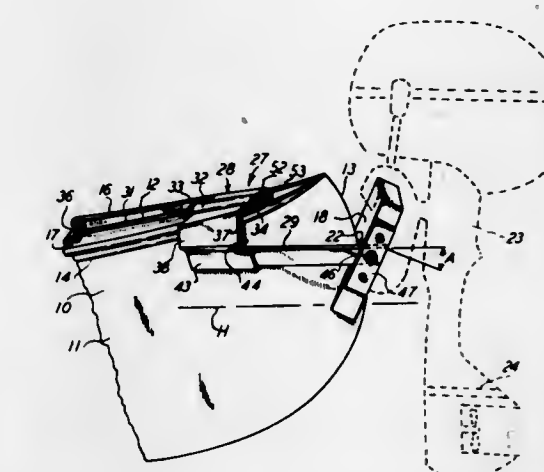
Jack T. Nourse, Kenosha, Wis., assignor to NO-Mad Marine, Inc., Racine, Wis.

Filed Apr. 18, 1969, Ser. No. 817,404

Int. Cl. B63h 21/26

U.S. Cl. 248-4

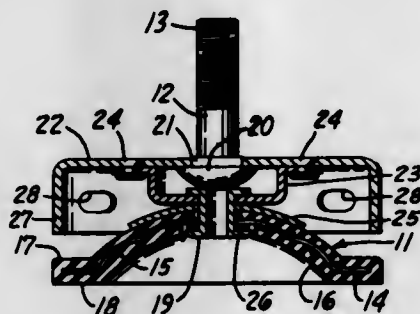
7 Claims



A canoe motor mount having a motor mount member positionable at the stern of the canoe and being held there by attachment means connected to the canoe. The motor mount member includes a V-shaped notch for resting the member

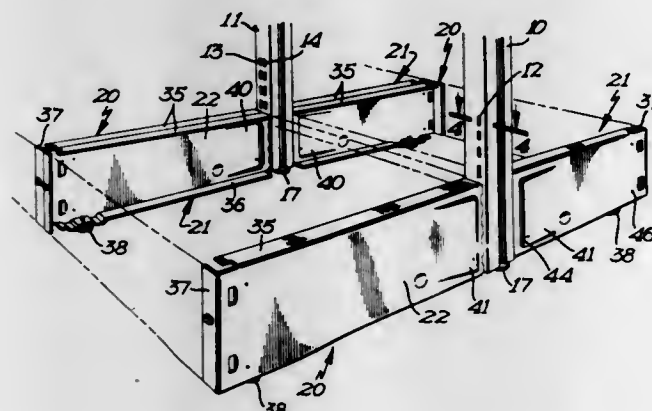
downwardly onto the keel at the canoe stern. The attachment means includes a wedge-shaped portion which can be snugly disposed at the upper edges of the canoe sides and is for various sizes of canoes. Adjustable connectors are included in the attachment means and extend to the motor mount member so that the motor mount member and the wedge-shaped portion can both be in snug contact with the canoe. This renders the entire structure adaptable to canoes of different sizes.

3,601,345
ADJUSTABLE VIBRATION ISOLATER
Kenneth W. Johnson, 4113 Lakeshore Drive, Rte 1, Jamestown, Ohio
Continuation-in-part of application Ser. No. 665,133, July 21, 1967, now Patent No. 3,417,950, dated Dec. 24, 1968, which is a division of application Ser. No. 564,351, July 11, 1966, now Patent No. 3,337,167, dated Aug. 22, 1967, which is a continuation-in-part of application Ser. No. 402,587, Oct. 8, 1964, now Patent No. 3,288,405, dated Nov. 29, 1966, which is a continuation-in-part of application Ser. No. 177,037, Mar. 2, 1962, now abandoned. This application June 13, 1968, Ser. No. 736,745
Int. Cl. F16f 3/10
U.S. Cl. 248-24 3 Claims



A vibration isolating and friction gripping device having resilient spring elements in frictional interengagement during operating conditions including means for changing the spring rate either through the use of resilient elements of differing spring rates or the use of concave washers of differing sizes. The device also includes a movable dial to provide leveling adjustability of an object mounted on the device without requiring lifting of the object by other means.

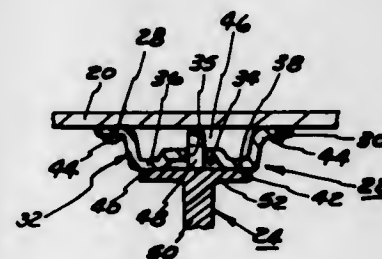
3,601,346
DISPLAY FIXTURE FRAME
Jay G. Fenwick, Earl Christensen, and Carl A. Wettlaufer, all of Albert Lea, Minn., assignors to Streater Industries, Inc., Albert Lea, Minn.
Filed May 15, 1969, Ser. No. 824,998
Int. Cl. F16m 1/20
U.S. Cl. 248-188.8 2 Claims



The invention relates to a frame for a display fixture or the like. Frames of this type have vertical posts or standards and extending laterally from each standard and connected

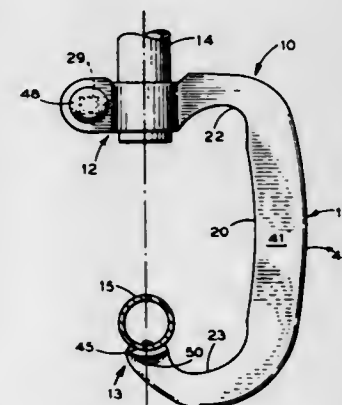
thereto with hooks are a pair of structural members known as base arms. The hooks are subjected to relatively heavy compressive and tensile forces due to loads applied to the base arms. The base arms are dished on their inboard ends to effectively redirect the forces applied to the hooks to minimize or reduce the effect of the loading on the hooks.

3,601,347
PERFORATED STRUT MEMBER
James W. Attwood, and Henry A. Podedworny, both of Wayne, Mich., assignors to Unistrut Corporation, Wayne, Mich.
Filed Sept. 30, 1969, Ser. No. 862,220
Int. Cl. A47j 5/00
U.S. Cl. 248-242 10 Claims



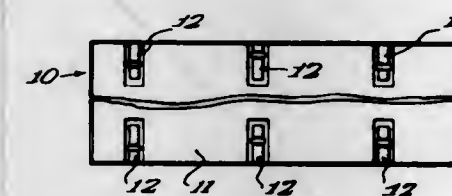
A strut member for attachment to a surface or between surfaces and which has at least one longitudinally depressed surfaces and which has at least one longitudinally depressed mounting surface, with perforations within the recess at a plurality of spaced locations for attachment of fasteners, brackets or other support members. The strut member may be constructed of a variety of cross sections or shapes from a simple L-section to U-channels and polygonal shapes. The internal ridges on either side of the depression form flanges for the attachment of connecting elements and the like. In one form, the perforations are provided with knockouts which, when in place, substantially retain the original strength of the strut member.

3,601,348
RAIL SUPPORT FOR OVERHEAD CONVEYORS
George E. Gonsalves, and Felice Dosso, both of 623 Bergen Street, Brooklyn, N.Y.
Filed Sept. 17, 1969, Ser. No. 858,836
Int. Cl. E01b 25/22
U.S. Cl. 248-300 11 Claims



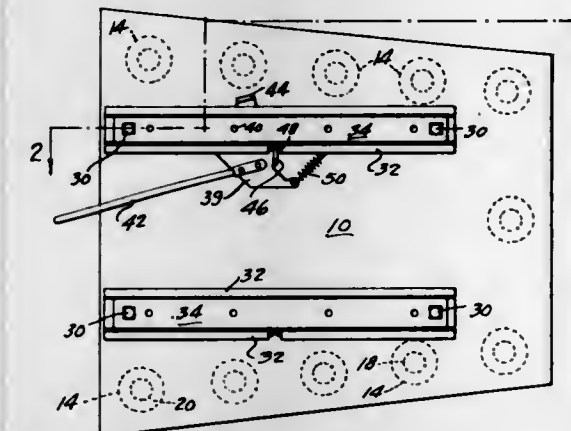
A rail support for overhead conveyors in the form of a one piece metal stamping derived from a flat metal blank having an edge configuration which allows the blank to be progressively bent to provide a bifurcated clamping portion and a rail seat portion.

3,601,349
TIEDOWN LUG
James E. Murphy, Jr., Flossmoor, Ill., assignor to Thrall Car Manufacturing Company, Chicago Heights, Ill.
Filed June 12, 1969, Ser. No. 832,644
Int. Cl. B65j 1/22
U.S. Cl. 248-361 6 Claims



Disclosed is a tiedown device for use in tying a load in place on a truck or railroad car. The tiedown device has an elongated plate with a series of indentations in each side edge, a lug body slidably mounted on the plate topside and having a shoulder portion and a pair of arms downwardly and inwardly depending from the shoulder portion and terminating in nose portions adapted to contact the underside of the plate upon upward displacement of the lug body, an upwardly extending tooth on at least one of the arms adapted to extend into an indentation in the plate when the nose portions contact the underside of the plate, and means on the lug body for attaching a tiedown strap or line.

3,601,350
RESILIENT MOUNTING FOR VEHICLE SEATS
Elwood Fry, 1818 Pennsylvania Ave. W., Warren, Pa.
Filed Aug. 8, 1969, Ser. No. 848,631
Int. Cl. F16m 1/00
U.S. Cl. 248-399 4 Claims

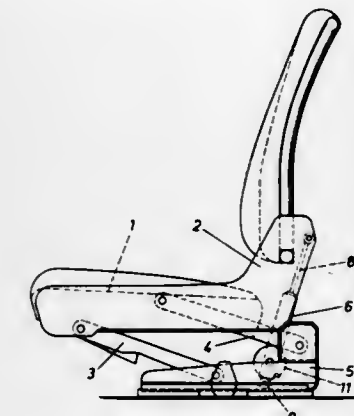


A device to be interposed between the seat of a vehicle such as a lift truck and the frame of the vehicle, said device comprising a metal plate having rows of apertures, said plate being covered with molded rubber which also fills said apertures, said rubber having projections on one side, each projection being centered on an aperture.

3,601,351
SEAT FOR AUTOMOTIVE VEHICLES
Manfred Ambrosius, Langenfeld-Richrath, Germany, assignor to Bremshey & Co., Solingen-Ohligs, Germany
Filed Nov. 21, 1968, Ser. No. 777,800
Claims priority, application Germany, Nov. 22, 1967, B 73 567
Int. Cl. A47c 3/30
U.S. Cl. 248-400 1 Claim

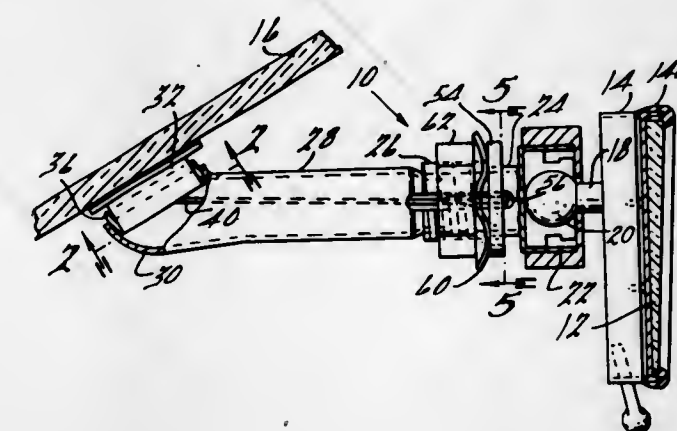
A seat for an automotive vehicle having a supporting surface suspended on swingable members and adjustable in ver-

tical direction, which comprises means for displacing the bearing surface hydropneumatically in a shock-absorbing manner, and a single-acting hydraulic cylinder is arranged which defines a pressure chamber and which supports the seat. A hydraulic accumulator is also arranged which includes a reduced passage cross section. The hydraulic



cylinder communicates with the hydraulic accumulator. A pressure auxiliary cylinder and a piston movable in the auxiliary cylinder are provided. The auxiliary cylinder is variable as to its volume by the piston, the latter mechanically and forcibly adjusting its position in the auxiliary cylinder. The pressure chamber is also in communication with the auxiliary cylinder.

3,601,352
BREAKAWAY REARVIEW MIRROR MOUNTING ASSEMBLY
Peter L. Jensen, Livonia, and Richard H. Miller, Wayne, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Jan. 13, 1969, Ser. No. 790,642
Int. Cl. B60r 1/04
U.S. Cl. 248-481 13 Claims

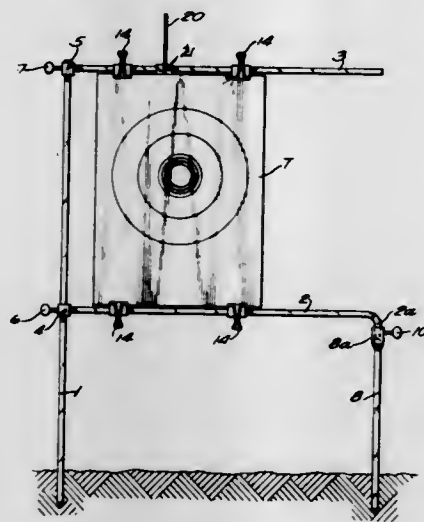


A mounting assembly for releasably securing a rearview mirror to motor vehicle body structure. The mirror is operatively secured to the body structure by an elongate frangible member adapted to fracture upon an impact load being applied to the mirror. Also, the mirror is interconnected with the body structure by a friction coupling that allows manual mirror position adjustment. Means are provided to preload the frangible member in tension and to adjust the friction force present at the friction coupling.

3,601,353
ADJUSTABLE TARGET HOLDER
Vernon F. Dale, Onalaska, Wis.
Filed Mar. 27, 1970, Ser. No. 23,293
Int. Cl. A63b 69/00; A45j 3/44
U.S. Cl. 248-470 5 Claims

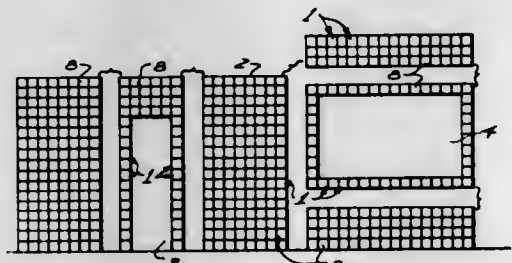
An adjustable holder for replaceable targets and which is adapted to be set into the ground or alternately, hung from an overhead support. The holder has an extension for its

main leg and by means of which targets of varying heights can be accommodated. A secondary leg is spaced from the



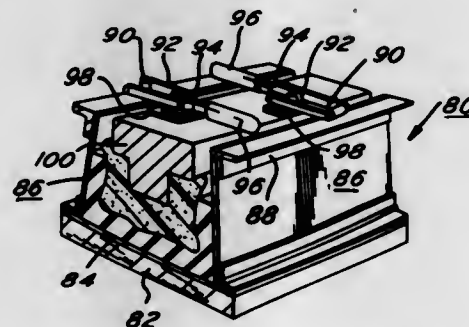
main leg so as to prevent inadvertent swinging of the target and a pair of vertically spaced rods are provided and have clamp means which accommodate targets of various widths.

3,601,354
VACUUM UNITED FORM STRUCTURE
Robert W. Rogers, 562 E. Hyde Park Blvd., Inglewood, Calif.
Filed Oct. 30, 1969, Ser. No. 872,484
Int. Cl. E04g 11/08
U.S. Cl. 249—27 19 Claims



A form comprising a plurality of bricklike elements which, when arranged in rows and columns, provides a form surface; the confronting sides of the bricklike elements being recessed and in sealing contact to form a series of cavities arranged for connection to a vacuum source so that the bricklike elements may be temporarily held together until the wall is completed, then dismantled for reuse; the bricklike elements also being adapted for permanent connection so that any selected number of the bricklike elements may be permanently joined together to provide form modules which may be vacuum secured to other modules or individual bricklike elements.

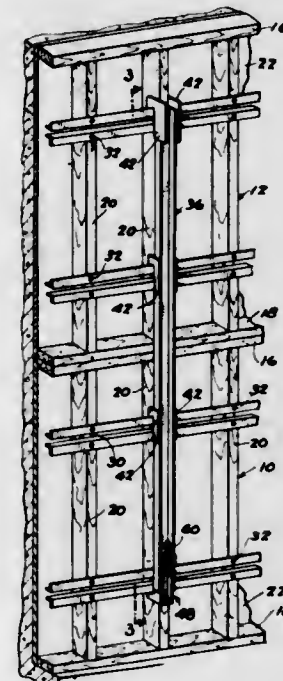
3,601,355
APPARATUS FOR MOLDING ARTICLES
Paul H. Fleck, Melrose Park, Pa., assignor to Urethane Fabricators, Inc., Camden, N.J.
Division of Ser. No. 760,414, Sept. 18, 1968
Filed Mar. 17, 1969, Ser. No. 807,620
Int. Cl. B22d 5/00
U.S. Cl. 249—91 9 Claims



Apparatus for molding articles having a base, a pair of side plates hinged thereto for movement to and from a lowered

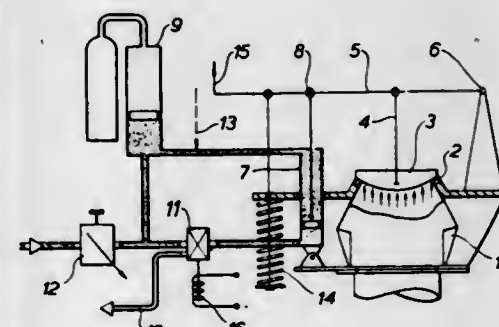
position and a raised position in opposed relation, said base and side plates forming a mold cavity when said side plates are raised, and means for retaining said side plates in raised position to provide said cavity. In one form, an end plate may also be provided hinged to said base for movement to and from a lowered and a raised position. When said side and end plates are in raised position, they may be interlocked in the latter position to maintain said cavity.

3,601,356
VERTICAL STIFFENING ARRANGEMENT FOR WALL FORMS
Emil Yurick, Ferndale, Mich., assignor to Kwik Lock Form Co., Northville, Mich.
Filed Sept. 9, 1969, Ser. No. 856,355
Int. Cl. E04 9/06
U.S. Cl. 249—192 8 Claims



A wall form arrangement of the type used in forming composition walls, such as concrete walls, which includes a pair of vertically stacked wall forms. Each wall form has horizontally extending angle iron walers on its outer side. The stacked wall forms are reinforced by a vertically extending channel positioned against the outer side of the forms and having downwardly facing hooks thereon engaging the angle iron walers and drawing the channel against the walers. A hook at the lower end of the channel is adapted to be drawn upwardly to interengage the bottom waler on the lower wall form to secure the two wall forms in rigidly clamped vertically aligned relation.

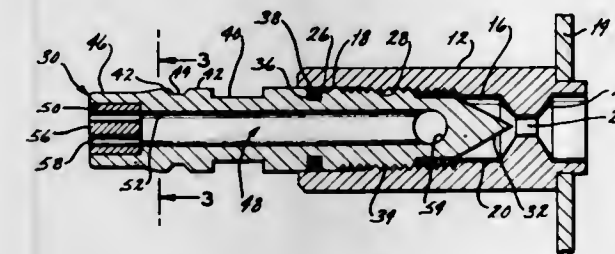
3,601,357
ACTUATORS FOR PRESSURE LOADED VALVES
Edouard Legille, Luxembourg (Grand Duchy of Luxembourg), assignor to S. A. Des Anciens Etablissements Paul Wurth, Luxembourg, Luxembourg
Filed Aug. 18, 1969, Ser. No. 850,914
Claims priority, application Luxembourg, Aug. 19, 1968, 56,736
Int. Cl. F16k 31/163 2 Claims



Hydromechanical control devices for valves which are normally held in the closed position against applied fluid pres-

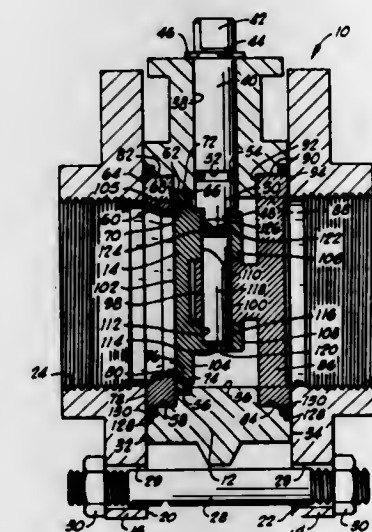
sure are disclosed. The control devices include a differential area piston mechanically linked to the valve and acted upon by fluid furnished from an accumulator system. The force resulting from the application of system pressure to the small area end of the piston counterbalances the normal applied pressure thereby holding the valve closed and valve opening is achieved by placing the large area end of the piston in communication with the accumulator system.

3,601,358
CHARGING VALVE CONNECTOR
Lee H. Cruse, Springfield, Mo., assignor to Foster Manufacturing Co. Inc., Springfield, Mo.
Filed Sept. 2, 1969, Ser. No. 854,655
Int. Cl. F16k 5/02, 31/44
U.S. Cl. 251—144 3 Claims



A charging valve connector is comprised of a cylindrical receptacle body mounted in the wall of a tank and providing communication between the interior and exterior of the tank. A movable valve element is threaded within the receptacle body and is rotatable for causing its movement from an open position, wherein it is spaced from a valve opening in the receptacle body, to a closed position wherein it closes the valve opening to prevent flow of fluid between the interior and exterior of the tank. A bore extends through the valve element and provides communication from the exterior of the tank to the valve opening when the valve element is in its open position, thereby providing a line of communication from the exterior of the tank to its interior through the valve opening.

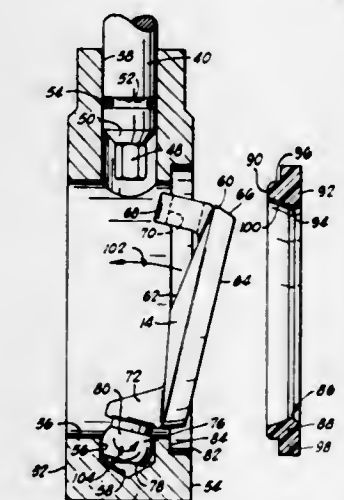
3,601,359
DISC VALVE ASSEMBLY WITH REPLACEABLE DISC AND SEATS
Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla.
Filed Aug. 5, 1969, Ser. No. 847,628
Int. Cl. F16k 1/22 18 Claims



A disc valve assembly, particularly useful between flanges, which has a removable and replaceable disc valve member and removable and replaceable seat. The disc valve member is journaledly supported in the valve body such that the thrust created by a pressure differential across the disc valve member is carried by the valve body, and yet the rotational

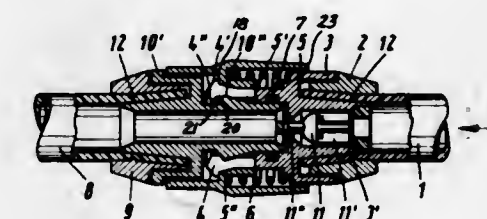
interconnecting elements of the disc valve member are also replaceable.

3,601,360
DISC VALVE ASSEMBLY WITH TILT IN VALVE MEMBER
Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla.
Filed Aug. 6, 1969, Ser. No. 848,414
Int. Cl. F16k 1/20 15 Claims



A disc valve assembly having valve stems adapted to cooperate with the disc valve member and the valve body, such that the disc valve member is installed by being tilted and inserted axially into the valve body, and wherein the seat is also inserted axially in the valve body.

3,601,361
PLUG-IN COUPLING FOR GARDEN AND OTHER HOSES
Eckard Hundhausen, and Walter Kolb, both of Betzdorf, Sieg, Germany, assignors to Wolf-Gerate GmbH, Betzdorf, Sieg, Germany
Filed July 28, 1969, Ser. No. 845,280
Claims priority, application Austria, Aug. 9, 1968, 7844/68
Int. Cl. F16l 37/28, 37/26 7 Claims



A hose coupling with male and female parts; the male part having a double conical bead for being engaged by fingers on the female part; the fingers have notches formed of cooperatively sloped surfaces which receive the bead; the external surfaces of the fingers are obliquely sloped; a sleeve surrounds the female part; it has a cooperatively sloped surface engaging the outer surface of the fingers; as the hose coupling parts are pressed together, the male part forces the fingers outward and the cooperating outer surfaces of the fingers and the sleeve surfaces cause the sleeve to shift along the female part and permit the fingers to move outward to receive the male part, which snaps into the notches in the fingers.

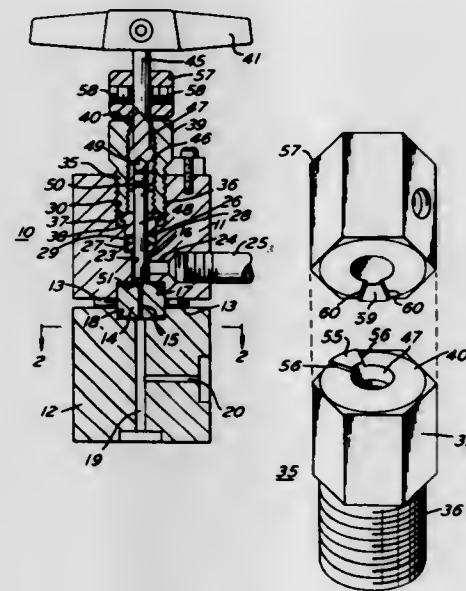
3,601,362

STOP FOR VALVE SHANK

Rush B. Gunther, Abington, Pa., assignor to The Duriron Company, Inc., Hatboro, Pa.
Filed Sept. 10, 1969, Ser. No. 857,639
Int. Cl. F16k 51/00, 31/50

U.S. Cl. 251-285

5 Claims



A stop for valve shanks for high pressure valves is provided which includes a stop element adjustably mounted on the valve shank and having a land for engagement with a shoulder on the valve gland or housing to prevent further turning for valve seating.

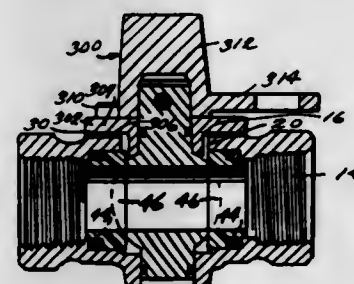
3,601,363

BALL VALVES

Frank H. Mueller; Wilbur R. Leopold, Jr., and John J. Smith, all of Decatur, Ill., assignors to Mueller Co., Decatur, Ill.
Division of Ser. No. 794,822, Nov. 29, 1968, which is a Division of Ser. No. 417,435, Dec. 10, 1964, Pat. No. 3,437,106
Filed Aug. 5, 1969, Ser. No. 871,363
Int. Cl. F16k 51/00, 5/20

U.S. Cl. 251-288

1 Claim



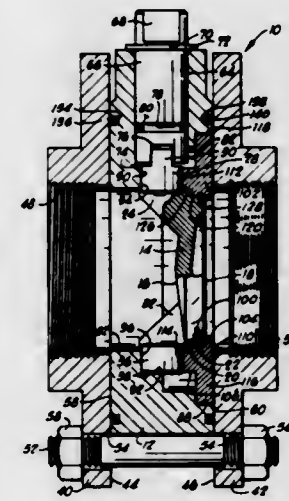
A ball valve is provided with resilient annular seats between the ball and housing through passageway. The housing is provided with opposed lateral openings, through one of which a key including a valve ball is received. One trunnion of the key protrudes into the other opening and is sealed with respect thereto by an O-ring received in an annular groove in that trunnion. The housing is flat surrounding where the valve key is inserted in the housing. An L-shaped spacer bears against the ball and is mounted upon the flat surface via screws, two separated ones of which function as stops for rotation of the valve key. A resilient gasket is interposed between the L-shaped spacer and the flat surface.

3,601,364
DISC VALVE ASSEMBLY WITH INSERTABLE VALVE MEMBER AND SEATS

Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla.
Filed Aug. 5, 1969, Ser. No. 847,564
Int. Cl. F16k 1/22

U.S. Cl. 251-306

5 Claims



A disc valve assembly wherein the seats and the disc valve member, having the valve stems connected thereto, are axially insertable in the valve body.

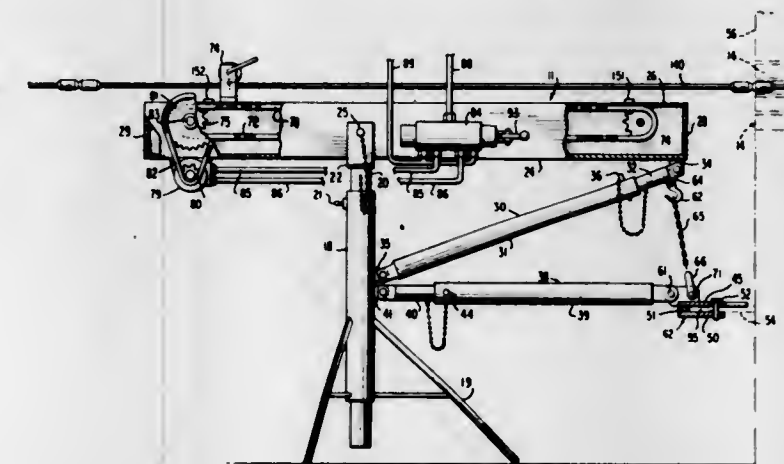
3,601,365

DUCT RODDER

Henry M. Hall, P.O. Box 9603, Atlanta, Ga.
Filed Apr. 15, 1969, Ser. No. 816,296
Int. Cl. E21c 29/16

U.S. Cl. 254-134.3FT

7 Claims



A duct rodder of the type utilized to urge rods through the ducts of an underground telephone conduit, comprising an elongated housing, a rod gripping member movable back and forth along the length of the housing, and drive means for positively driving said rod gripping member. The rod gripping member comprises a U-shaped bracket for receiving a rod, and a pivotal wedge member is supported by the legs of the bracket above the position normally occupied by the rod, and is movable into frictional engagement with the rod in such a manner that when the rod gripping member is moved in one direction the rod gripping member carries the rod with it, and when the rod gripping member is moved in the opposite direction, it moves over the surface of the rod.

3,601,366

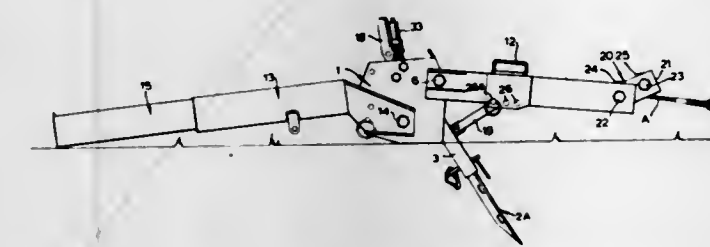
HAULING APPARATUS

George S. Webster, Rhyl, North Wales, assignor to Samuel Lewis (Winches) Limited, Netherton, Dudley, England
Filed July 17, 1969, Ser. No. 842,646
Claims priority, application Great Britain, July 17, 1968, 33932/68

Int. Cl. E21c 29/16

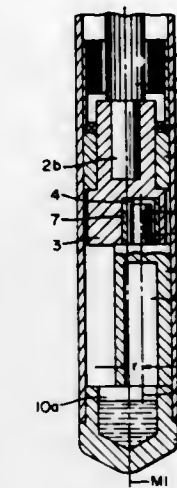
U.S. Cl. 254-147

5 Claims



The present invention discloses a foldable hauling apparatus which can be used on either hard ground or soft ground and which is self-anchoring, requiring no rigid structure to which it must be attached. Also disclosed is a winch mechanism for this hauling apparatus, which mechanism not only allows for wire to be hauled in, thus hauling the load towards the apparatus, but also provides for the wire to be paid out under tension; the speed at which the wire is paid out being dependent on the speed at which an operator operates the mechanism.

connected with the motor shaft, the diameter of said bore being greater than the diameter of said pivot to such an extent that the unbalancing force produced by the rolling movement of the cylindrical unbalance body will not be transferred to the eccentric disc.



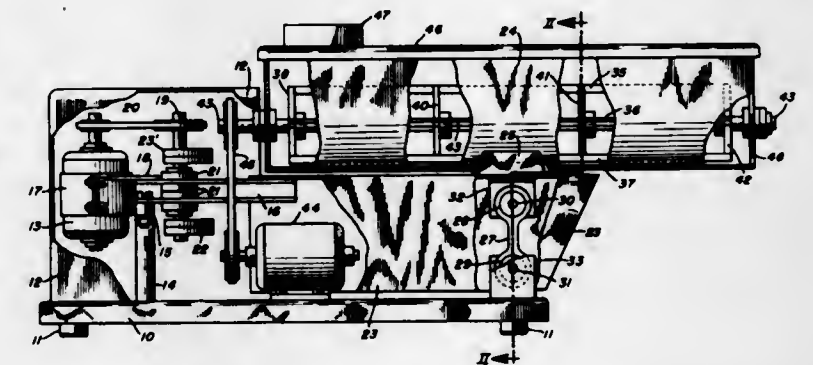
3,601,369

APPARATUS FOR MIXING PARTICULATE MATERIALS

Eugene A. Wahl, 294 Forest Ave., Glen Ridge, N.J.
Filed Apr. 1, 1969, Ser. No. 811,798
Int. Cl. B01f 11/00

U.S. Cl. 259-2

5 Claims



Apparatus for receiving two or more streams of powdered or granular materials includes means to stir the received materials while such materials are vigorously vibrated and to discharge the mixed materials at a rate which is equal to the inlet rate.

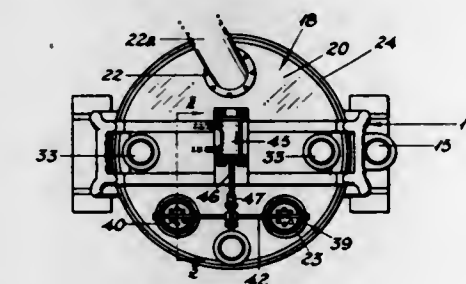
3,601,367

MIXING GLASS BATCH MATERIALS

Chester J. Brown, Jr., Toledo, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio
Filed Sept. 19, 1969, Ser. No. 859,304
Int. Cl. B01f 9/10, 15/00

U.S. Cl. 259-1 R

6 Claims



The invention pertains to a method of and apparatus for minimizing dust and moisture losses to dust collection systems from the hood of horizontal pan type glass batch mixing apparatus. A butterfly valve interposed in the exhaust port between the hood and the dust collector is selectively opened and closed in conjunction with the mixing cycle. The wafer of the butterfly valve contains a plurality of openings having sufficient area to prevent pressure buildup within the mixing chamber due to the heating and consequent expansion of the air therein, but effectively closing off the exhaust port between the mixing chamber and the dust collection system during both the dry and wet mixing stages.

3,601,370

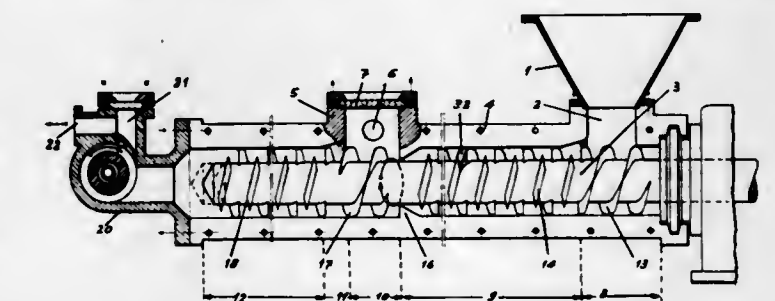
CONTINUOUSLY OPERATING MIXING AND KNEADING MACHINE

Erwin Ruettener, Riehen, and Fritz Sutter, Pratteln, both of Switzerland, assignors to Buss AG., Basel, Switzerland
Filed Nov. 18, 1968, Ser. No. 776,418
Claims priority, application Switzerland, Nov. 20, 1967, 16,330/67

Int. Cl. B01f 7/02, 13/04

U.S. Cl. 259-5

2 Claims



Continuously operating mixing and kneading machine embodying a continuous, rotating, reciprocating worm shaft mounted in a housing, which machine is divided into a feeder zone with continuous worm channels; an initial pressure build-

3,601,368

INTERIOR VIBRATOR WITH ROTATING UNBALANCE

Philipp Uebel, Munich, Germany, assignor to Wacker Werke KG, Munich, Germany
Filed Dec. 22, 1969, Ser. No. 887,119
Claims priority, application Germany, Dec. 21, 1968, P 18 16 421.1

Int. Cl. B01f 11/00

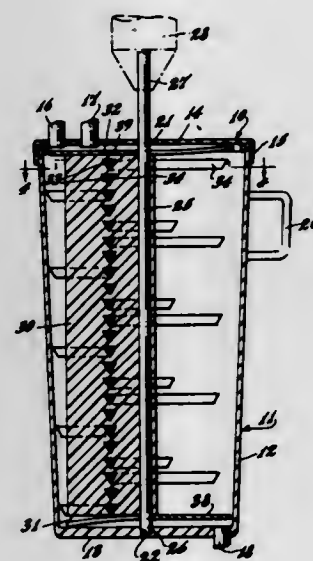
U.S. Cl. 259-1

4 Claims

An inner vibrator with an unbalance body of cylindrical shape adapted to roll on the inner mantle of the housing for the vibrator, for compacting concrete and similar material, in which said unbalance body has one end provided with a short pivot which engages a bore of an eccentric disc drivingly

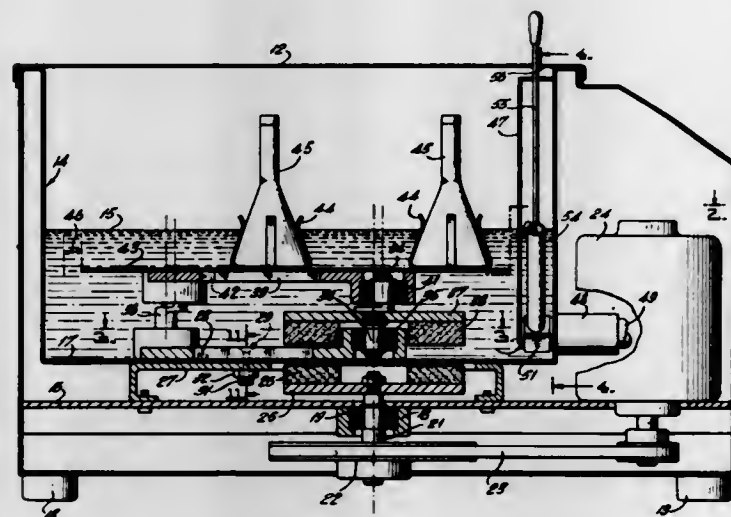
dup zone with discontinuous worm channels and with kneading dogs additionally mounted in the housing; a detensioning zone and a reintroduction zone, both with continuous worm channels; and a second pressure buildup zone with discontinuous worm channels and with kneading dogs mounted additionally in the housing.

3,601,371
MIXER DISPENSER
Abe D. Ross, 101 Marine Avenue, Wilmington, Calif.
Filed Nov. 19, 1968, Ser. No. 777,064
Int. Cl. B01f 7/16
U.S. Cl. 259-5



A hub is eccentrically rotatable within a casing and carries generally chordally disposed blades rotatable with the hub and slidable relative thereto, the blades having oblique surfaces for displacing material being mixed axially of the hub while effecting mixture of the material.

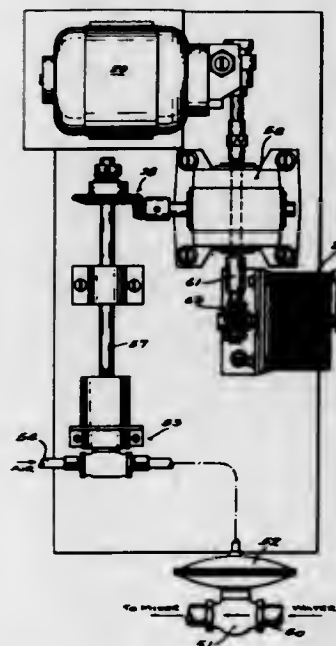
3,601,372
INCUBATOR SHAKER APPARATUS
Clyde S. Harmes, III, Schnecksville, Pa., assignor to New Brunswick Scientific Co., Inc., New Brunswick, N.J.
Filed May 20, 1969, Ser. No. 826,148
Int. Cl. B01f 9/00
U.S. Cl. 259-54



An incubator shaker apparatus in which objects are shaken by rotary or reciprocating action within a bath with the drive means being external of movable means within the bath and

with the movable means being drivingly connected to the external drive means through magnetic elements to eliminate a physical driving connection between the movable means and the external drive means. The invention also provides for improved means for controlling the level of the bath.

3,601,373
MOISTURE CONTROLLER
Nelson Hartley, Towson, Md., assignor to Hartley Controls Corporation, Neenoh, Wis.
Continuation-in-part of Ser. No. 648,060, June 22, 1967, abandoned and Ser. No. 725,117, Apr. 29, 1968, abandoned
Filed Sept. 19, 1969, Ser. No. 859,544
Int. Cl. B28c 7/04
U.S. Cl. 259-154



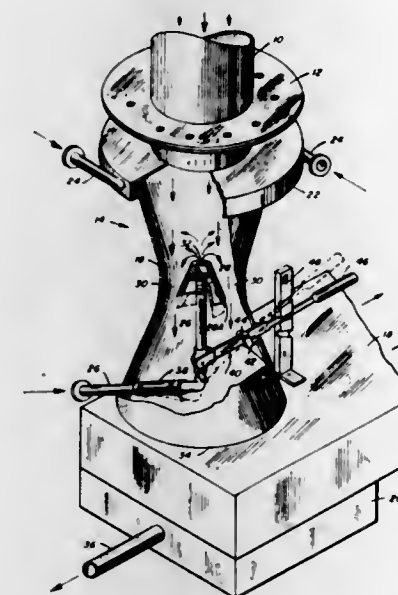
This disclosure relates to apparatus for electrically controlling the addition or removal of water with respect to material undergoing mixing. Moisture and heat sensors are exposed to the material. These sensors signal an electric circuit which energizes a reversible electric motor connected to a valve in a fluid line. When removal of water is desired, the motor can be connected to a control valve for a heater, such as a dryer. In some embodiments the motor periodically is energized to move in opposite directions. When the motor moves in one direction, it tends to close the valve. In this movement the motor functions independently of the electric sensing circuit. When the motor moves in the opposite direction, it tends to open the valve. In this movement the motor functions subject to the electric sensing circuit. The motor is also coupled to a balance element in the electric circuit to cause the motor and the relay which energizes it to hunt in a narrow range when the moisture requirement of the material is substantially satisfied. In other embodiments the motor does not hunt.

3,601,374
APPARATUS FOR EXTRACTING SOLIDS FROM A GAS STREAM
Roger M. Wheeler, 1957 E. 41st St., Tulsa, Okla.
Filed Aug. 5, 1968, Ser. No. 750,040
Int. Cl. B01d 47/10
U.S. Cl. 261-62

This invention relates to apparatus for extracting solids from a gas stream. More particularly, the invention relates to an apparatus for extracting solids from a gas stream including an upright scrubber column defining an internal circular gas flow chamber, inlet and outlet gas conduits connected to the upper and lower ends of the flow chamber respectively, a liquid inlet conduit intersecting the internal circular gas flow chamber tangentially providing means of introducing fluid to wet the surface of the flow chamber, a liquid conduit extending upwardly and coaxially within the flow chamber, and a truncated conical baffle supported at the top of the liquid spray conduit defining an annular passageway between the baffle and the gas chamber, fluid being sprayed upwardly through the baffle in a fountain configuration to engage the

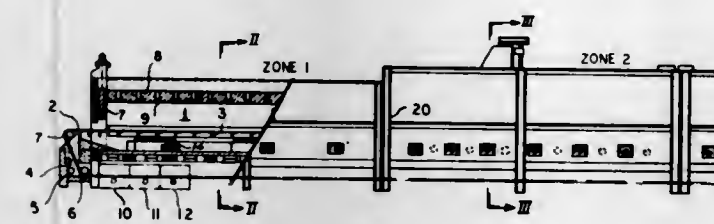
downward flow of gas through the scrubbing column. One embodiment of the invention includes a means of varying the

tending along at each side of the bridge structure under the plates for dividing the gases leaving the preheating zone, and



elevation of the conical baffle by means exterior of the scrubbing column. Another embodiment of the invention includes means of varying the diameter of the conical baffle.

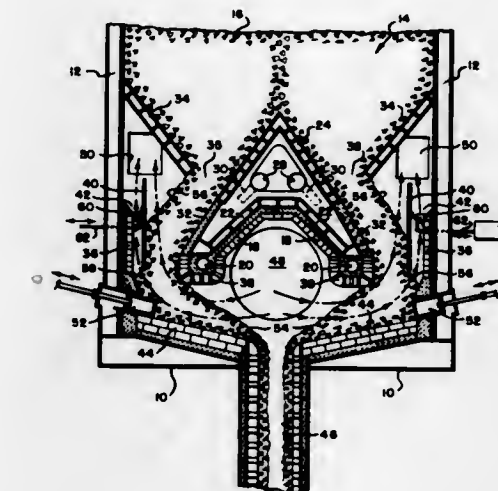
3,601,375
GLASS ANNEALING LEHRS
Edward W. Bowman, 279 Derrick Ave., Uniontown, Pa.
Filed Apr. 22, 1969, Ser. No. 818,225
Int. Cl. F27b 9/24
U.S. Cl. 263-8



A glass annealing lehr constructed to direct the heating medium of different temperatures to separately controlled successive zones of the annealing tunnel through which the ware passes in traveling from the charge to the discharge end. The lehr also features the use of continuous conveying means on which the ware is supported to pass through the annealing tunnel in a single line whereby each unit of ware is subjected to uniform treatment in its passage through the lehr.

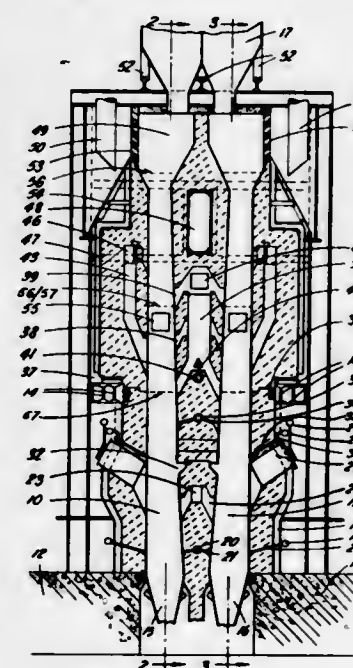
3,601,376
PROCESS AND APPARATUS FOR PREHEATING LIMESTONE AND THE LIKE
Gerhard Niemitz, Bronx, N.Y., assignor to Kennedy Van Saun Corporation, Danville, Pa.
Filed June 4, 1970, Ser. No. 43,406
Int. Cl. F27b 1/10
U.S. Cl. 263-30

Apparatus for preheating limestone comprising an upright structure including a storage bin at the top, a horizontal bridge and arch structure extending through the central lower portion of the preheater, the upper walls of which slope outwardly, inwardly extending plates directing limestone from the side walls toward the bridge structure and covering a gas receiving space and gas outlets, duct means for introducing hot gases beneath the arch to pass through the stone moving downwardly over the bridge structure onto a sloping floor at each side, means for moving stone along each sloping floor into a discharge passage, a baffle wall ex-



valve control means in a gas passage outside the baffle wall for varying the flow of gases removed after passing through only a portion of the stone in preheating zone.

3,601,377
SHAFT FURNACES
Edward Charles Jope, Catagas Limited, National Provincial Bank Chambers, High Street, Epsom, Surrey, England
Filed Mar. 24, 1969, Ser. No. 809,876
Claims priority, application Great Britain, Mar. 29, 1968, 15271/68
Int. Cl. F27b 1/00
U.S. Cl. 263-30



An apparatus for the calcination of a mineral, for example lime, magnesite or dolomite which consists of a fuel oil-fired furnace provided with two parallel shafts. Each of the shafts communicate with one or more gas bypass passages one of which is common to both shafts, which enables the downwardly moving charge to be isolated from the upwardly flowing furnace gases at a point in the furnace where a high degree of temperature uniformity is necessary in the charge.

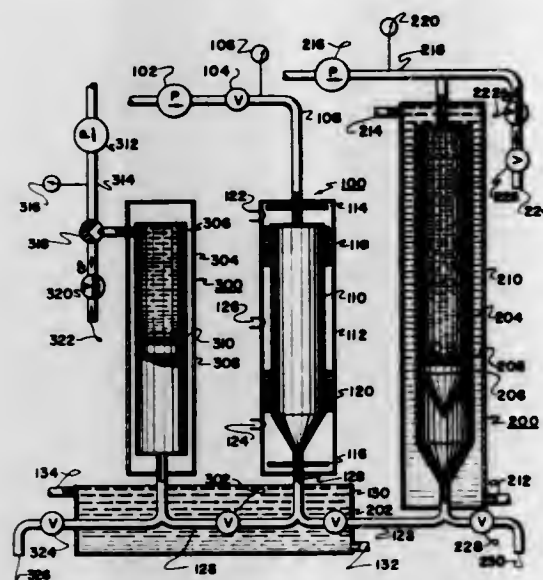
3,601,378 CONTINUOUS HYDROTHERMAL APPARATUS AND PROCESS

Vernon J. Hurst, Athens, Ga., assignor to J. M. Huber Corporation, Locust, N.J.

Filed July 22, 1969, Ser. No. 843,535
Int. Cl. F26b 9/02

U.S. Cl. 263—36

5 Claims



A continuous hydrothermal reactor for processing slurries at low velocity gradients capable of operating at up to approximately 1000° C. and up to approximately 30,000 pounds per square inch is disclosed.

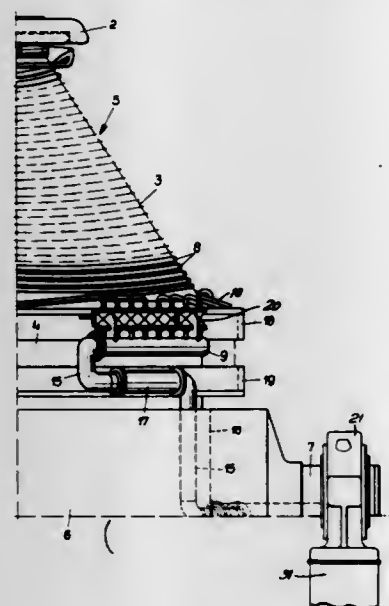
3,601,379 COOLING STRUCTURE FOR A METALLURGICAL FURNACE

Karlheinz Langlitz, Mulheim (Ruhr); Wolfgang Jansa, Moers-Asberg, and Karl Heinrich Mahringer, Duisburg-Hamborn, all of, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany

Filed Apr. 25, 1969, Ser. No. 819,322
Claims priority, application Germany, June 27, 1968, P 17 58 562.5

Int. Cl. F27d 9/00; F23m 5/08
U.S. Cl. 263—44

11 Claims



A metallurgical vessel includes a cylindrical portion which is supported on a ring carrying a tilting spindle which is mounted for pivotal tilting movement of the vessel. The vessel includes a frustoconical mouth portion at its upper end which terminates in a mouth ring of reinforced construction. The construction includes a cooling arrangement for the mouth portion which comprises a plurality of groups of coils which are wound around the mouth portion and which are

advantageously wound in the form of a multistart screw thread. Each group of coils includes an inlet and an outlet which is connected to a distributor through suitable valves. This distributor in turn is connected through a main distribution pipe which extends through an opening in the tilting ring and the tilting spindle and is connected to a source of fluid cooling medium through a rotary seal at the outer end of the tilting spindle.

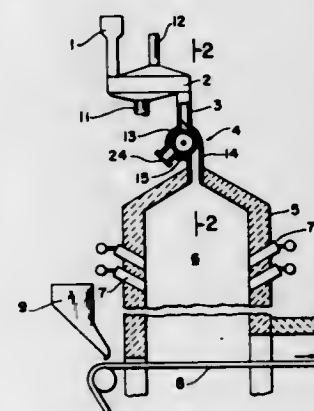
3,601,380 TOWER FURNACE AND FEED

Ernst A. Siemssen, Gwynedd, and John M. Hummel, Doylestown, both of, Pa., assignors to Selas Corporation of America

Filed June 11, 1969, Ser. No. 832,197
Int. Cl. F27b 1/20

U.S. Cl. 266—27

5 Claims



Means to supply clay particles to fall through a tower furnace comprising a rotating drum having particle-receiving indentations on its surface. As the drum is rotated, particles are picked up by it and dropped vertically in a substantially constant stream into and through the furnace.

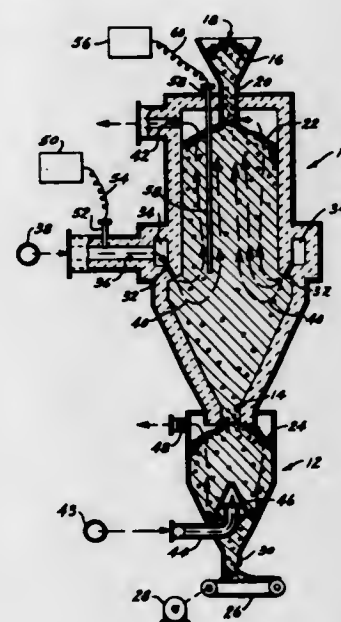
3,601,381 GAS SAMPLING DEVICE

Donald Beggs, Toledo, Ohio, assignor to Midland-Ross Corporation, Toledo, Ohio

Filed May 15, 1969, Ser. No. 824,849
Int. Cl. F27d 23/00

U.S. Cl. 266—29

3 Claims



This disclosure is directed to a gas sampler useful in apparatus for the direct reduction of iron oxide to metallic iron such as a vertical shaft type furnace employing a gaseous reductant. A novel arrangement of gas sampling is employed which enables the degree of reduction being achieved to be determined and controlled, in situ, by gas analysis.

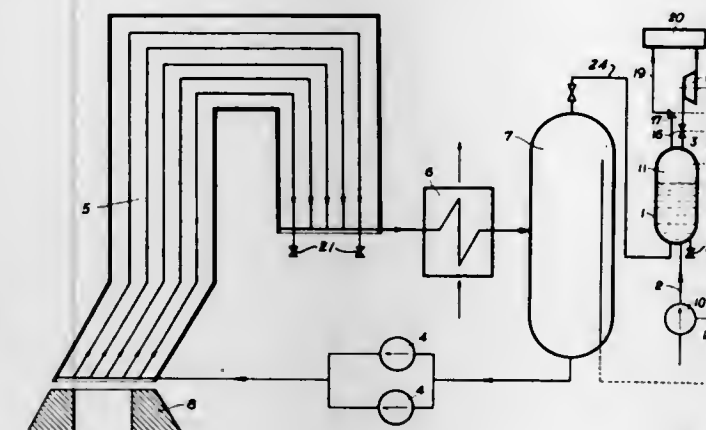
3,601,382 METHOD AND APPARATUS FOR AVOIDING OF EVAPORATION

Alfred Sandri, Graz; Anton Scherleitner, Graz; Stefan Ivessa, Lebnitz, and Karl Nutz, Graz, all of, Austria, assignors to Waagner-Biro Aktiengesellschaft, Vienna, Austria

Filed Jan. 15, 1969, Ser. No. 791,325
Claims priority, application Austria, Jan. 18, 1968, A500/68
Int. Cl. C21b 7/10

U.S. Cl. 266—32

11 Claims



A method and apparatus for preventing the vaporization of a cooling liquid used in a boiler which is heated by waste gases from a converter. A circulating pump pumps a constant amount of cooling liquid through a system which includes in addition to the boiler and the pump a heat exchanger in which the liquid is cooled after leaving the boiler and a reservoir which receives the cooled liquid from the heat exchanger and which supplies the liquid to the circulating pump. A compensating or equalizing expansion tank communicates with the reservoir and maintains over a liquid which is in this latter tank a cushion of a noncorrosive gas. As the temperature of the liquid rises, the pressure of the gas in this cushion also rises, so that the pressure of the liquid rises, thus raising the boiling point thereof in such a way as to prevent vaporizing of the liquid. The liquid is continuously circulated during the off-blow as well as during the blow periods of each cycle, so that by the time the end of an off-blow has been reached, the cooling liquid has been cooled down to the temperature which it had initially at the beginning of the blow period.

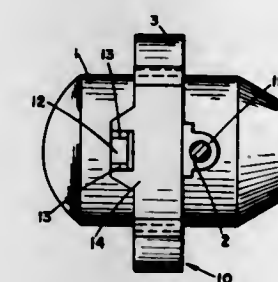
3,601,383 SUPPORTING ARRANGEMENT FOR VESSELS USED IN METALLURGICAL PROCESSING INVOLVING HEAT

Karl-Heinz Mahringer, Duisburg-Hamborn, and Karlheinz Langlitz, Mulheim (Ruhr), both of, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany

Filed Apr. 4, 1968, Ser. No. 718,744
Claims priority, application Germany, Sept. 22, 1967, D 54177
Int. Cl. C21c 5/50

U.S. Cl. 266—36

9 Claims



A supporting arrangement for vessels, such as steelmill converters, used in metallurgical processing involving heat, includes a supporting ring surrounding the vessel and supporting the vessel through the medium of support elements secured on the vessel wall and which extend radially from the

vessel sidewall in angularly spaced relation therearound. A corresponding number of supports are provided on the supporting ring in only two opposed arcuate zones of the ring. Each support receives a respective support element and provides for movement of the associated support element both radially of the supporting ring and angularly relative to a radius of the ring or the axis of the vessel. The supports also accommodate twisting of the support element about its longitudinal centerline or axis. Additional stop means may be provided to limit relative tilting of the vessel and the supporting ring during tilting of the vessel.

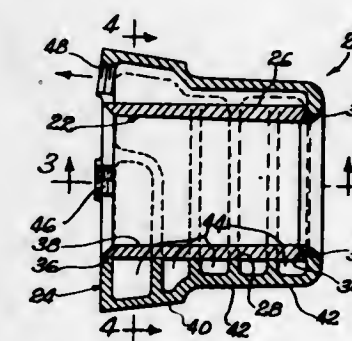
3,601,384 TUYERES

Lewis H. Durbin, P. O. Box 1148, Birmingham, Ala.

Filed May 9, 1969, Ser. No. 823,403
Int. Cl. C21b 7/16

U.S. Cl. 266—41

10 Claims



Each of the disclosed tuyeres or other tubular members comprises inner and outer tubular elements, preferably in the form of copper castings, having mating cylindrical surfaces. A series of channels are formed in one of said tubular elements along one of said surfaces to provide fluid coolant passages between the tubular elements. The channels are preferably cast into the corresponding element. Connections are provided for fluid coolant conduits. Welded or soldered joints are provided between the elements.

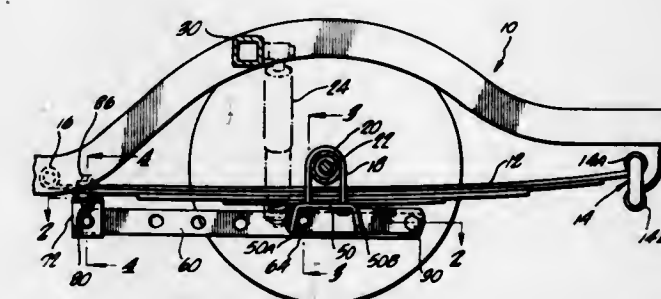
3,601,385 ATTACHMENT FOR CHANGING REAR END SUSPENSION IN AUTOMOBILES

Louis Senter, and Robert E. Johnson, both of Los Angeles, Calif., assignors to Whittaker Corporation

Filed Oct. 22, 1969, Ser. No. 868,435
Int. Cl. B60g 1/02, 11/04

U.S. Cl. 267—48

7 Claims

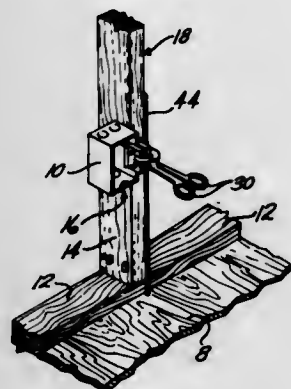


Apparatus mountable on the rear axle of an automobile includes a platelike member to replace that plate element normally found on an automobile for clamping the central portion of the conventional leaf spring and for providing a support for the lower end of a conventional shock absorber. An arm pivotally mounted on such platelike member has one of its ends attached through a pivotal connection to the forwardmost part of the spring, the other end of such arm being releasably secured by a removable pin to a rearwardly extending extension of such platelike member so that the effect of the spring may be altered.

3,601,386
JIG FOR POSITIONING ELECTRICAL BOXES
 John W. Estep, Box 685, Ferndale, Wash.
 Filed Sept. 15, 1969, Ser. No. 857,722
 Int. Cl. B25b 3/00

U.S. Cl. 269—6

5 Claims

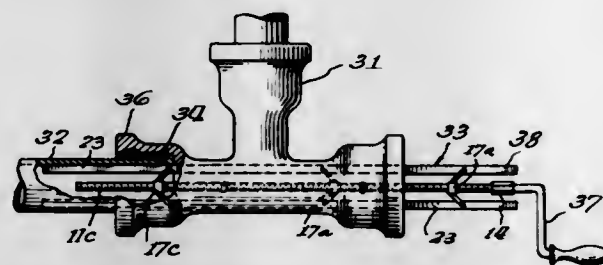


The edge of an electrical junction box is inserted an adjustable amount between two plates movable toward and away from each other by suitable means, as tongs. This adjustable amount is the amount allowed for the thickness of a wall to be later constructed and to the surface of which, the edge of the electrical box should project. An adjustable rod determines the selected elevation of the box. While the box is being secured to a stud, the jig permits the box to be manually held in the selected position for installation.

3,601,387
PIPE ALIGNING TOOL
 Jack B. Pavlich, 7008 W. 40th St., Stickney, Ill.
 Filed Apr. 14, 1969, Ser. No. 815,880
 Int. Cl. B23q 3/14

U.S. Cl. 269—48.1

3 Claims



An alignment tool for aligning pipe fittings or short sections of pipe with the main run of pipe preparatory to completing a joint comprises a shaft having several threaded portions, at least one of which has right-hand threads and at least one of which has left-hand threads. Each threaded portion is provided with an internally threaded collar which meshes with the threads of the shaft. Attached to each collar are pivotally connected links, the outer ends of which are attached to elongated shoes extending longitudinally of the shaft. Rotation of the shaft, as by a crank, causes the shoes to move radially outwardly, thereby aligning sections of pipe or pipe fittings through the bore of which the tool is passed and expanded.

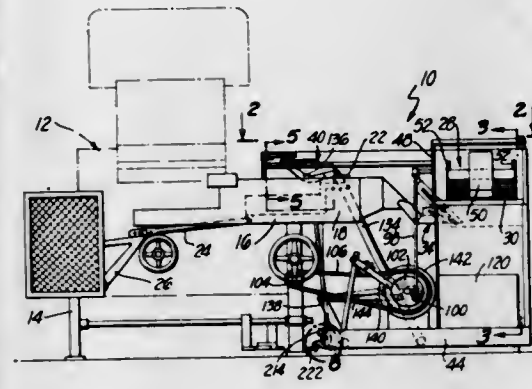
3,601,388
INFEEED METHOD AND MECHANISM FOR BOOK-SEWING MACHINE
 Jack M. Hilliard, P.O. Box 83, Tioga, Tex., and William W. Tingle, 1215 Queen Ann Court, Glendora, Calif.
 Filed Feb. 3, 1969, Ser. No. 795,962
 Int. Cl. B65h 39/02

U.S. Cl. 270—54

16 Claims

An infeed method and mechanism for feeding signatures in succession to a Smyth book-sewing machine. According to the invention, the signatures are stacked in a hopper from which they are extracted in succession by a transfer means. This transfer means grips each signature along its folded edge and transfers the signature to gripping means on an infeed

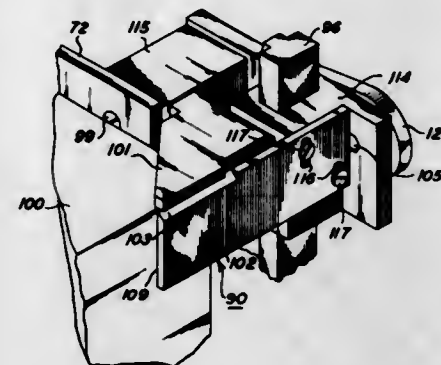
carriage. The carriage transports each signature edgewise in a generally vertical attitude with its folded edge uppermost past a signature-parting shoe, which spreads the center signature pages, to a terminal position over the sewing machine



3,601,389
SHEET FEEDING APPARATUS
 William E. Kramer, Ontario, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
 Filed July 3, 1969, Ser. No. 838,906
 Int. Cl. B65h 3/56

U.S. Cl. 271—18

4 Claims



Apparatus to separate and feed individual sheets from the top of a stack in which a snubber plate, acting in conjunction with a knife edge retaining bar, is biased into contact with each forward corner of the topmost sheet in said stack to cause a sheet of predetermined beam strength to be buckled by said snubber and to cause a sheet of greater beam strength to pass between the snubber and the retaining bar.

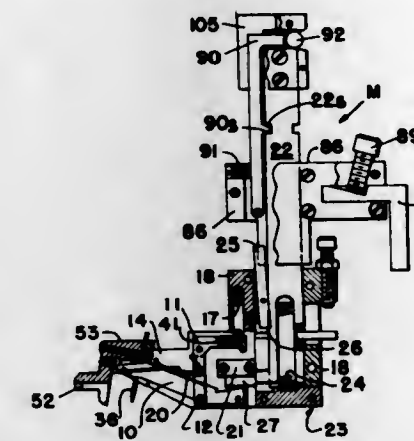
3,601,390
SHEET SEPARATING APPARATUS
 Kenneth O. Morton, Troy, N.Y., assignor to Cluett, Peabody & Co., Inc., Troy, N.Y.
 Filed Aug. 29, 1969, Ser. No. 854,225
 Int. Cl. B65h 3/22

U.S. Cl. 271—18

11 Claims

Apparatus for separating layers of limp fabric from a stack, including an angular lifting needle and a second, upright, needle. The lifting needle typically penetrates the top layer and then lifts it onto the second needle. The separated layer, secured on the needles, is transported to a work station

where castoff means serve to disengage the fabric from the needles. By adjustment of the lifting needle, more than one

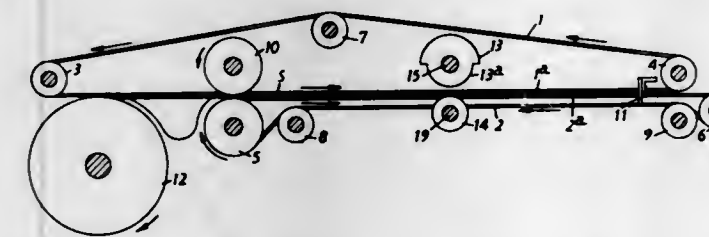


layer can be separated from the stack in a single operation. An additional element may be used to physically restrain the stack from moving up with the ply to be separated.

3,601,391
SHEET FEEDING MECHANISM
 Charles Hillingdon Dickinson, Burton Latimer, near Kettering, England, assignor to Timsons Limited, Northamptonshire, England
 Filed Feb. 3, 1969, Ser. No. 795,945
 Int. Cl. B65h 5/24

U.S. Cl. 271—46

3 Claims

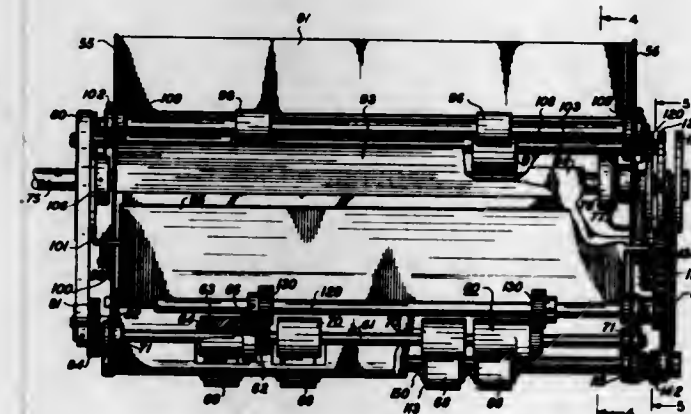


Sheet feeding mechanism for a printing or like machine, comprising a tape conveyor for feeding individual sheets successively to stops and a slow down device for preventing the sheets rebounding from the latter or impact therewith. Device comprises two pairs of feed rollers driven at a slower rotational speed than the linear speed of the tape conveyor, the sheets being fed through the nips of said pairs of rollers. One roller in each pair is arcuately gapped around part of its circumference so that each sheet is released by the rollers at an appropriate time.

3,601,392
SHEET REGISTERING APPARATUS
 Merton R. Spear, Jr., Penfield, and John R. Caldwell, Rochester, both of, N.Y., assignors to Xerox Corporation, Monroe, N.Y.
 Filed July 3, 1969, Ser. No. 838,929
 Int. Cl. B65h 9/06

U.S. Cl. 271—53

8 Claims



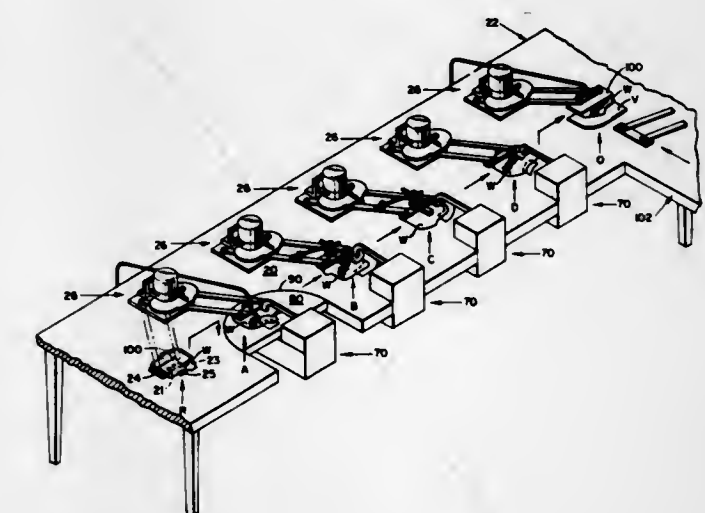
Apparatus to register and align a cut sheet of support material prior to the support material being forwarded to the

xerographic transfer station. Register stop rolls are positioned prior to the transfer station and are programmed by means of a cam and gear arrangement to arrest the leading edge of a sheet of material as it is forwarded from a sheet feed tray. The sheet is registered in the stop rolls and is held in friction-driving contact with stop rolls by means of a pair of idler rolls cammed into operative relation therewith. The stop rolls are rotated rapidly to accelerate the sheet of material to the desired constant velocity at which time a second pair of cooperating feed rolls adapted to forward the sheet to the transfer station are cammed into engagement with the moving sheet. For a brief period of time the sheet is being positively driven towards the transfer station by the two drive means. The register stop rolls are programmed to release the sheet prior to completing one revolution and the remaining forwarding function completed by the second set of drive rolls.

3,601,393
APPARATUS FOR TREATING FABRIC WORKPIECES IN SEQUENCE AT A PLURALITY OF WORK STATIONS
 George F. Hawley, Bogota, N.J., assignor to Ivanhoe Research Corporation, New York, N.Y.
 Division of Ser. No. 601,768, Dec. 4, 1966, abandoned
 Filed Nov. 19, 1969, Ser. No. 871,326
 Int. Cl. B65h 5/10

U.S. Cl. 271—54

7 Claims



A transfer module for transferring fabric workpieces from one workstation to another along a low friction surface, including an arm swingable forward and back with friction gripping means carried by the arm and engageable with the workpieces to slide and orient the workpieces relative to a series of workstations. The arm is shown including a parallel linkage.

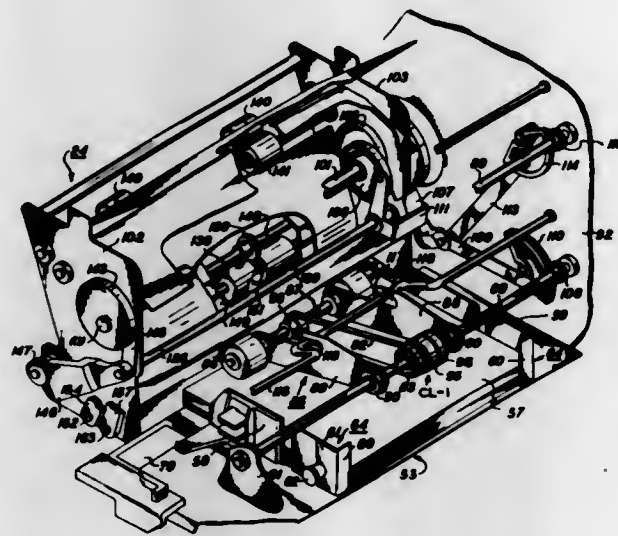
3,601,394
SHEET RETAINING APPARATUS
 John M. Lang, Williamson, and Charles J. Kubasta, Rochester, both of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
 Filed July 3, 1969, Ser. No. 838,907
 Int. Cl. B65h 1/04

U.S. Cl. 271—61

10 Claims

An automatically repositionable stack retainer is herein disclosed for supporting a stack of cut sheets of support material as the sheets are separated and fed one at a time from the stack. The retainer consists of a body having a tab pivotally mounted thereon, the tab being normally biased in a position to operatively engage the stack. An automatic

elevating mechanism is provided to automatically raise the retainer when new sheets are added to the stack. The

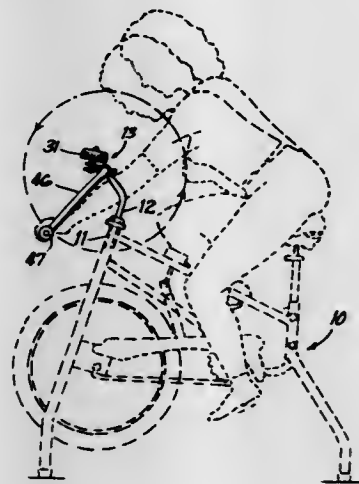


3,601,395
ROTATABLE HANDLE BAR FOR EXERCISE
APPARATUS WITH ADJUSTABLE ROTATIONAL
RESISTANCE CONTROL

Howard A. Morgan, Glenview, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed July 14, 1969, Ser. No. 841,380
Int. Cl. A63b 69/18, 21/00, 23/04

U.S. Cl. 272-73

3 Claims



A stationary cycle type exercising device having attached to the support for the handle bars an adjustable friction type clamping device that offers a frictional resistance to the manual rotation of the handle bars during an exercise program. The handle bars have a straight intermediate portion received in the clamping device and a pair of hand grips which are offset from, and parallel to, the intermediate portion. The axes of the hand grips are coextensive.

3,601,396
METHOD AND SYSTEM FOR STACKING AND FEEDING
WORKPIECES OF LIMP MATERIAL

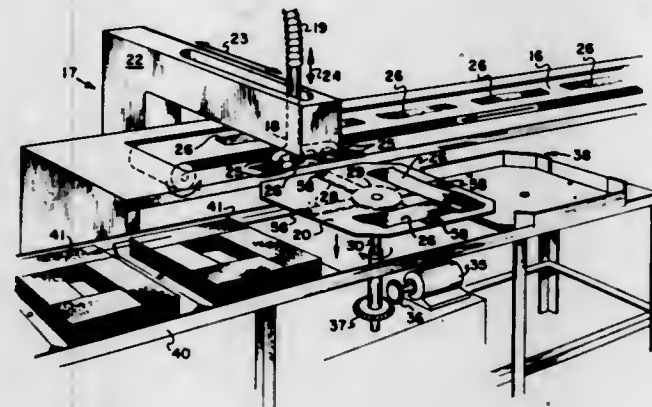
Herman Rovin, Norwalk, Conn., assignor to Ivanhoe Research Corporation, New York, N.Y.
Filed Sept. 15, 1969, Ser. No. 858,013
Int. Cl. B65h 29/32

U.S. Cl. 271-86

10 Claims

A method and system are disclosed for stacking and feeding workpieces of limp material onto and from conveyable worktables by angularly displacing the successive workpieces in the stack to provide a stable stack in which the individual

workpieces retain their oriented positions, accommodating nonuniform thickness or contour. The limp material is such as fabric, cloth, leather, plastic or any other limp material, and the invention is advantageous for use in the manufacture of garments, wearing apparel, headgear, footwear, home furnishings, and the like. The identity of the individual workpiece in the stack as well as the identity of the stack itself is



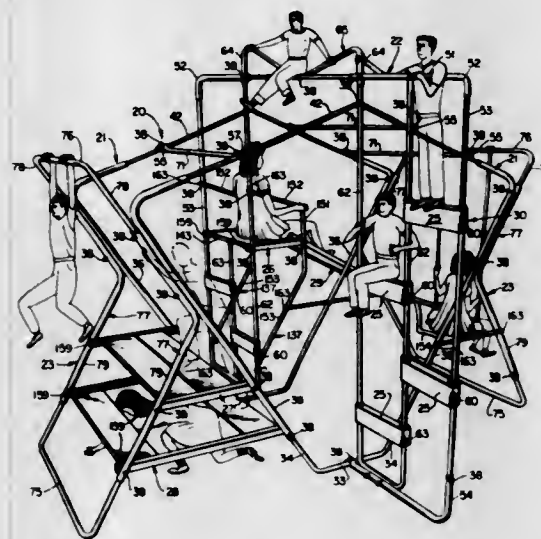
preserved. Workpieces having sections of differing thickness or contour are accommodated by utilizing predetermined angular increments of displacement between the stacking or feeding of respective successive workpieces on the conveyable worktables to provide stacks of workpieces which may take any one of several forms as described. The invention also facilitates the differentiation of the top workpiece from the stack without disturbing the remaining ones.

3,601,397
PLAY CENTER HAVING TABLE, SWING, SLIDE AND
GYMNASTIC BARS

Edward T. Carlin, and Bobbie L. White, both of Shreveport, La., assignors to Gym-Dandy, Inc., Bossier City, La.
Filed Oct. 3, 1969, Ser. No. 863,603
Int. Cl. A63b 17/00

U.S. Cl. 272-56.5 R

10 Claims



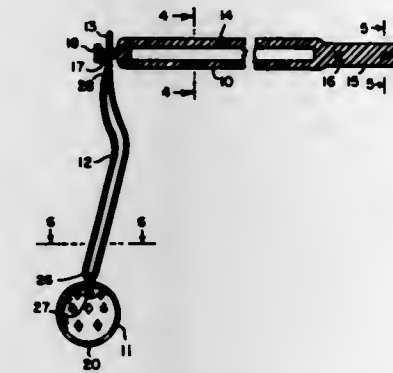
A play center for home yard, patio, or recreation room use by preschool and grade school age children designed and constructed to encourage innovative play as well as conventional usage by such children. The play center is a fabricated structure composed of six main tubular frames; three novel platform assemblies providing a table, associated bench seats and a slide approach platform; a slide board; a swing; and variously disposed tubular cross braces and wide step structures forming ground or floor engaging outrigger members to prevent upsetting of the assembled unit, swing supports, chinning and gymnastic bars, steps and seats. These fabricated elements and subassemblies are joined together to form an assembled unit of generally cubical configuration when viewed from the sides and opposite ends and the ground or floor area, measuring roughly 3 feet by 7 feet, delimited by the main frame subassemblies which cooperates with the main frame subassemblies, table and associated benches to form a house area and tunnellike passage in innovative usage by preschool children.

3,601,398
BALL-HITTING PRACTICE DEVICE

Louis R. Brochman, 310 W. Maple St., Stillwater, Minn.
Filed Apr. 14, 1969, Ser. No. 815,815
Int. Cl. A63b 69/40

U.S. Cl. 273-26 E

7 Claims



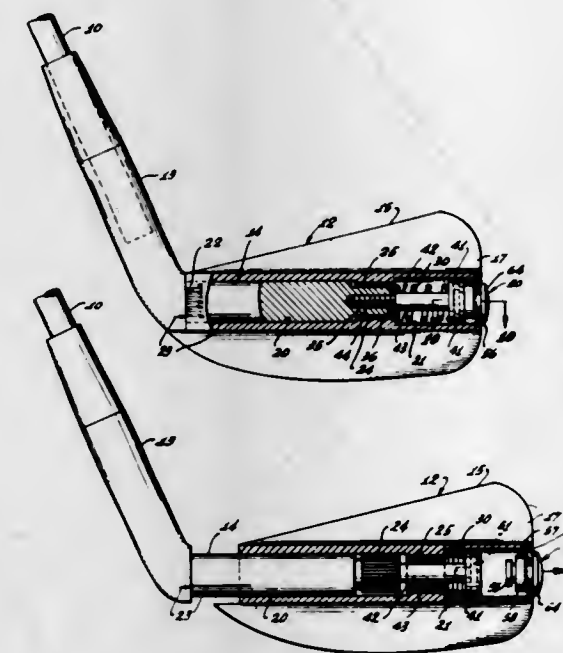
A device for practicing the art of hitting balls is disclosed. This device employs a single flexible nonfilamentary monolithic strand of organic thermoplastic material as the means for suspending or holding a plastic ball. The strand has a thickness of at least about one-sixteenth inch at a minimum. Its thickness is no greater than about three-fourth inch or possibly 1 inch at a maximum. It is flexible and bends to permit varied movement for a ball hit in batting practice. The strand is mounted upon a stiff mounting bracket member through means including an organic plastic ear member; and the arrangement is such that the ear member and strand and ball are capable of swivel erratic and rotational movement as a unit without tangling or knotting of the strand when the ball is hit.

3,601,399
ADJUSTABLE GOLF CLUB HEAD

Martyn L. Agens, 970 Easy St., Los Angeles, Calif., and Robert S. Wallace, 2706 S. Robertson Blvd., Los Angeles, Calif. Assignor by said Wallace to said Agens
Filed Mar. 13, 1969, Ser. No. 807,051
Int. Cl. A63b 53/06

U.S. Cl. 273-79

9 Claims



An adjustable gold club comprising a handle shaft, club head assembly and an elongated club head member movable within the club head but unable to be fully withdrawn therefrom. The handle shaft is connected to the club head member in the conventional hosel-type relationship. The club head and club head member possess corresponding splines, whereby when the splines are meshed the club head is prevented from rotating about the longitudinal axis of the

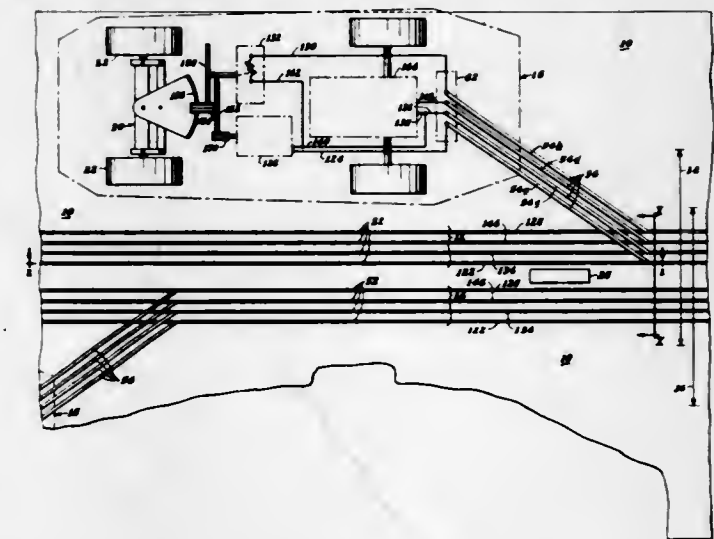
club head member. Within the club head are holding structure, retaining components and adjustable elements connecting the club head member to the club head to provide limited axial movement of the member, while also allowing the club head to be angularly varied to the longitudinal axis of the member.

3,601,400
STEERABLE SLOT CAR MEANS

Patrick W. Boles, 3708 E. 38th St., Anderson, Ind.
Filed Mar. 4, 1970, Ser. No. 16,296
Int. Cl. A63h 17/36

U.S. Cl. 273-86 B

9 Claims



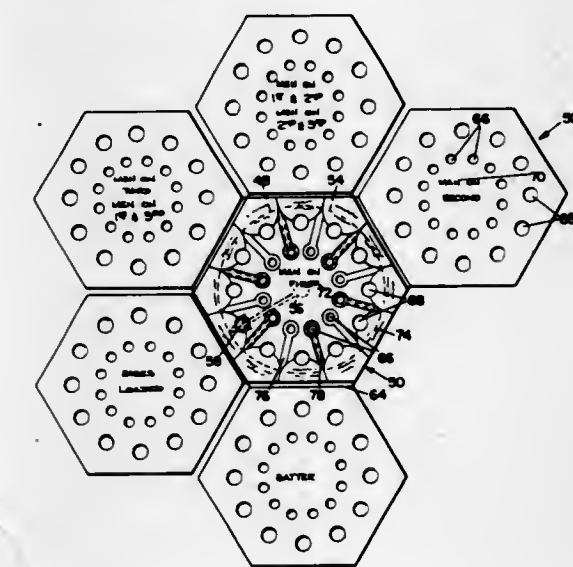
A steerable slot car installation, the cars being steerable by remote control so as to be able to move laterally from the nominal pathway of the track, the steering control being electrically operable through conductors extending from the car to the electrically energized track.

3,601,401
COMPACT GAME WITH CHANCE DEVICE

Douglas J. Beck, East Longmeadow, Mass., assignor to Milton Bradley Company, Springfield, Mass.
Filed July 22, 1969, Ser. No. 843,372
Int. Cl. A63f 7/06

U.S. Cl. 273-93 R

2 Claims



Apparatus for playing a simulated game comprising; a cover convertible into a playing board having self-contained playing pieces; a chance control device including a spinner mounted on a base and a plurality of play determining members hinged to the base and movable into and out of play determining position overlying the spinner. Each of the play determining members has a pair of concentric rings of

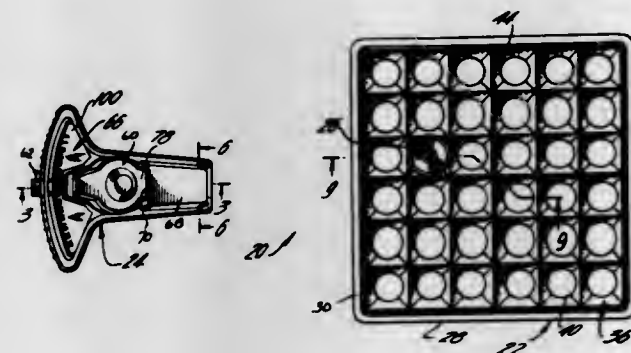
openings, in staggered relationship, with outcome indicia pertinent to the particular game adjacent each opening. The game is played by spinning the spinner and then moving the appropriate play determining member into overlying relationship therewith, the outcome of the play being that indicated by the indicia adjacent the opening through which the spinner can be seen.

3,601,402
TARGET GRID FOR RECEIVING CONICAL PROJECTILES

Frank Kohner, New York, N.Y., and Albert Stubbman, Franklin Lakes, N.J., assignors to Kohner Bros., Inc., East Paterson, N.J.
Division of Ser. No. 678,076, Oct. 25, 1967, Pat. No. 3,525,318
Filed Jan. 29, 1969, Ser. No. 794,996
Int. Cl. A63b 63/00

U.S. Cl. 273-105 R

2 Claims



A game constituting a target grid, projectiles and a catapult launcher, wherein the target grid is composed of an array of columns and rows of abutting perforated square inverted pyramidal seats the bases of which lie in a common horizontal plane, the seats being subdivided into differently colored areas for selective target objectives, wherein the projectiles are cones with weighted balls frictionally held interiorly of the noses of the cones and different projectiles are differently colored for intended reception in areas of matching color in the target grid.

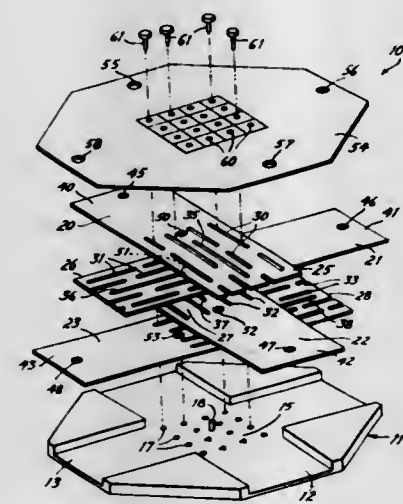
3,601,403
SLIDE GAME

Joseph A. Weisbecker, 1220 Wayne Ave., Erlton, Cherry Hill, N.J.

Filed Jan. 12, 1970, Ser. No. 2,009
Int. Cl. A63f 9/06

U.S. Cl. 273-130 R

6 Claims



A member provided with intersecting guideways and a plurality of slides slidable along respective guideways in over-

lying relation, the slides having openings, and an array of apertures overlying the slides for receiving removable pegs inserted through selected apertures and into aligned slide openings.

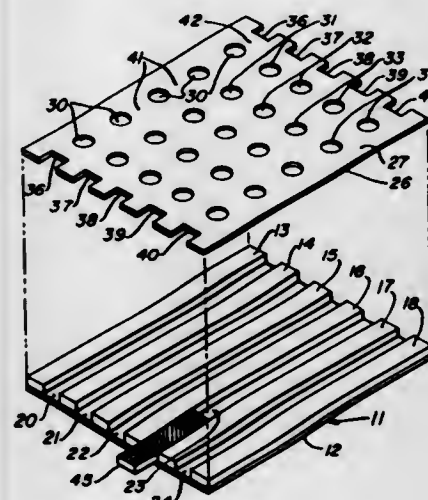
3,601,404
COMBINATION GAME AND PUZZLE BOARD APPARATUS

Joseph A. Weisbecker, 1220 Wayne Ave., Erlton, Cherry Hill, N.J.

Filed May 26, 1970, Ser. No. 40,535
Int. Cl. A63f 3/02

U.S. Cl. 273-131 AB

8 Claims



A combination game and puzzle wherein a plurality of sub-surface elongate passageways are provided beneath the playing surface of a board, and rows of apertures are formed through the playing surface into either passageways, so that elongate playing pieces are insertable into the passageways for exposure through the apertures of characteristically marked different segments of the playing pieces, said apertures and the interaperture spaces are of the same dimension longitudinally of the rows, and said segments are of the same dimension as said apertures and spaces longitudinally of the rows, whereby adjacent segments may be exposed and concealed, respectively, by an aperture and an adjacent space.

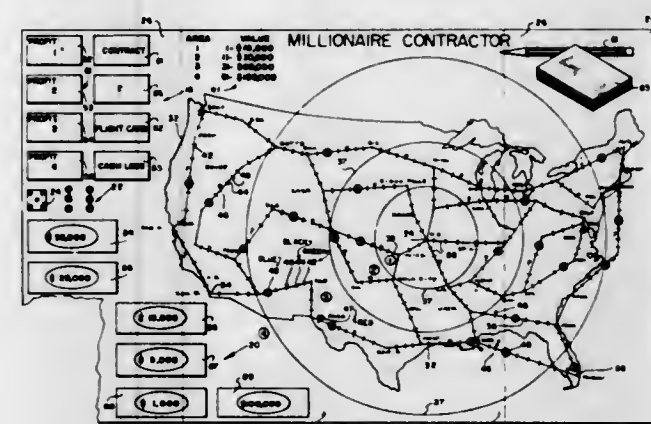
3,601,405
GAME BOARD APPARATUS

Richard C. Hedden, 1101 N. Roosevelt, Wichita, Kans.

Filed June 17, 1968, Ser. No. 737,600
Int. Cl. A63f 3/02

U.S. Cl. 273-134 AC

5 Claims



This invention is a game board apparatus including a large game board member; a plurality of stacks of information card means; a plurality of stacks of profit card means; play or simulated money means; a plurality of player token members; and a die member usable to indicate and achieve movement of the player token members on the game board member.

More particularly, this invention is a game board apparatus having a game board member with indicia thereon indicating a plurality of colored hash-marked paths to be taken to various cities in the United States whereby the information card means sets forth various alternative actions to be taken by the individual players in movement of the player token members along the respective paths and such movement is permitted on throwing of the die member. The game board has a plurality of concentric zones thereon into which the colored hash-marked paths extend, the zones determining the relative value of deals, related to the profit card means.

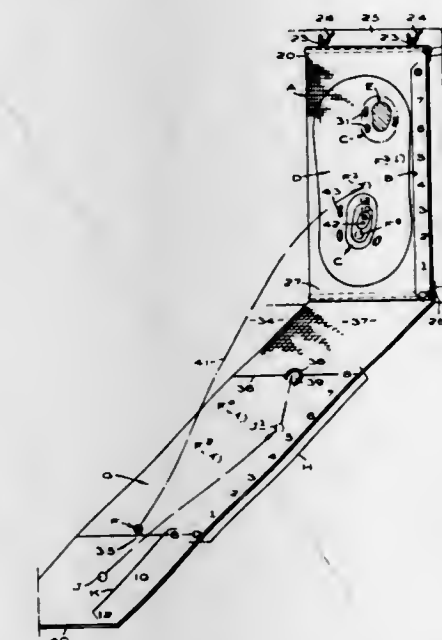
3,601,406
GOLF-PRACTICING APPARATUS

Aldo J. Giusti, 764 Johnson St., Half Moon Bay, Calif.

Filed Mar. 12, 1970, Ser. No. 18,965
Int. Cl. A63b 67/02, 69/36

U.S. Cl. 273-176 F

9 Claims



A golf-practicing apparatus having a panel of fabric material disposed in upright position, the panel being provided with the outline of a fairway and a green removably secured to the fabric of the panel and disposed on the fairway. A self-adhering golf ball may be propelled from a tee on a mat arranged in front of the panel and driven against the panel so as to cling to the latter. An elevation distance scale is provided on the panel and graduated in feet. Moreover, a driving distance-indicating scale is provided on the mat in front of the tee. The green is subdivided into subareas, each being designated by a number for indicating a subsequent putt, using a conventional golf ball, and the mat has a putting distance-designating scale disposed in back of the tee.

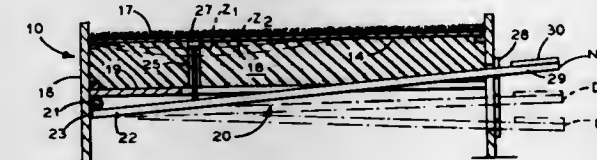
3,601,407
VARIABLE PLAYING SURFACE GAME DEVICE

Arthur Lorraine, Flushing, N.Y., assignor to Processing Office Furniture Inc., Maspeth, N.Y.

Filed Dec. 9, 1968, Ser. No. 782,280
Int. Cl. A63b 67/02

U.S. Cl. 273-176 H

4 Claims



A game device in which the elevation contour of the playing field can be selectively varied by shifting one or more pivotable levers connected to associated discrete regions of a

flexible panel defining the playing field. At each lever connection region, the panel can be bent into a localized doubly curved surface configuration, the elevation of which depends upon the angular displacement of the corresponding lever from a neutral position. The flexible panel is supported by a layer of resilient cushioning material which is supported on an underlying rigid panel. The pivotable levers extend from positions below the rigid panel to a position outwardly of a supporting frame which includes latching elements for holding the levers in various adjusted positions. The levers are secured to the flexible panel by link members extending upward from the levers through the rigid panel and cushioning layer. The flexible panel may be covered by a grass simulating material to adapt the device for use by golfers in putting a golf ball into a recessed cup.

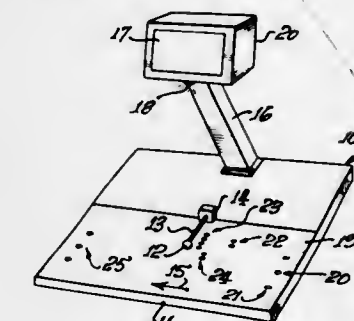
3,601,408
GOLF SWING TRAINING APPARATUS

Kenneth K. Wright, 800 Rim Road, Pasadena, Calif.

Filed Oct. 13, 1969, Ser. No. 865,665
Int. Cl. A63b 69/36

U.S. Cl. 273-186 R

17 Claims



The time and position of a golf club head are sensed photoelectrically at selected stations along a practice swing, and corresponding characteristics of the swing and of the resulting ball flight are computed electronically and displayed to the player. The lateral club position is sensed accurately at spaced stations near the ball for computation of the swing direction. The clubhead attitude at impact is determined by two sensors spaced along the club face. Matrix circuitry computes the nature of ball flight from the club attitude and swing direction. Ball distance is computed by generating a pulse rate that varies with the ball flight characteristic, and counting the pulses during the portion of the swing between set points. The electronic computing system is reset during a backswing, and all computations are completed during the forward swing. The display is activated automatically as the swing is completed, and remains on until the ball is addressed for a new swing.

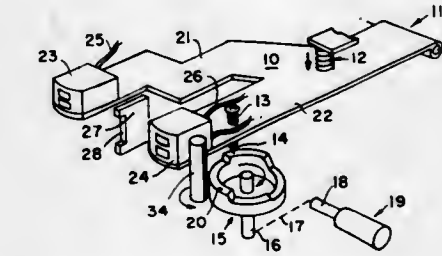
3,601,409
HEAD ARRANGEMENT FOR STEREO TAPE PLAYERS

Ralph D. Marshall, San Francisco, Calif., assignor to Milton C. Johnson, San Francisco and Wesley G. Schirman, San Rafael, Calif.

Filed Dec. 1, 1967, Ser. No. 687,254
Int. Cl. G11b 5/56, 21/08

U.S. Cl. 274-4 A

5 Claims



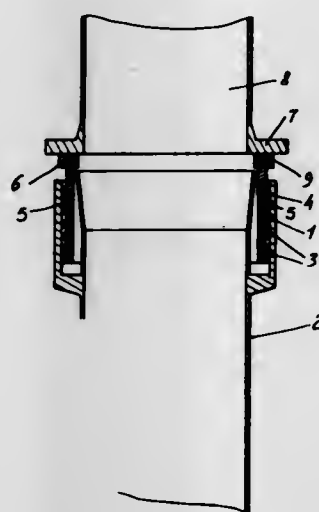
A head arrangement for a stereo tape player comprises a vertically movable support plate having an erasing head and a recording and playback head mounted thereon. A stationary guide is arranged between the heads to maintain a four or eight track stereo tape in its proper position during movement past the heads.

3,601,410

DEVICE FOR FREE JUNCTION BETWEEN TWO PIPES
Paul Andre Guinard, Saint-Cloud, France, assignor to Etablissements Pompes Guinard, Societe Anonyme, France
Filed July 16, 1969, Ser. No. 842,218

Claims priority, application France, July 17, 1968, 159,520
Int. Cl. F16j 15/34; F16l 17/00
U.S. Cl. 277-27

3 Claims



A pipe junction comprising a first pipe, a second pipe having one end in register with the first pipe, a flange on said end of the second pipe, a floating ring cooperating with the first pipe and axially movable relative thereto, an annular plate on the ring for cooperation with the flange permitting transverse movement therebetween and means on the ring responsive to fluid pressure within the pipes to maintain the ring in equilibrium relative to the flange by the combined effects of fluid pressure on the ring within the pipes and fluid pressure acting between the plate and flange.

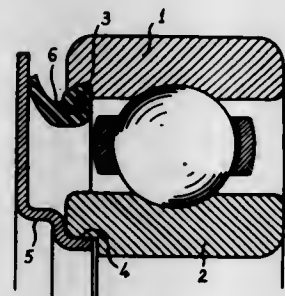
3,601,411

SEALS FOR ROLLING-CONTACT BEARINGS
Claude Raymond Bourgeois, Annecy, France, assignor to Societe Nouvelle de Roulements, Annecy (Haute Savoie), France
Filed Sept. 6, 1968, Ser. No. 757,900

Claims priority, application France, Sept. 7, 1967, Dec. 7, 1967, 120,260; 131,385
Int. Cl. F16j 15/34

U.S. Cl. 277-82

4 Claims



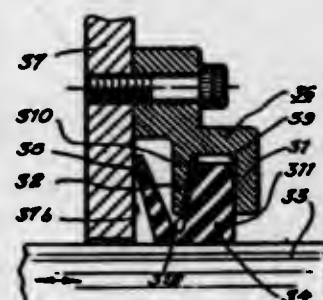
Seal for rolling-contact bearings, characterized by the combination of a resilient seal mounted on the outer race with a deflector member mounted on the inner race or any adjacent surface with which the sealing lip of said seal is in smooth sliding or frictional contact.

3,601,412

ARRANGEMENT FOR MOUNTING AND AXIALLY FIXING A SHAFT SEAL
Sven-Erik Malmstrom, Reftele, Sweden, assignor to Forsheda Gummifabrik AB, Forsheda, Sweden
Filed Feb. 27, 1970, Ser. No. 15,183

Int. Cl. F16j 15/54

9 Claims



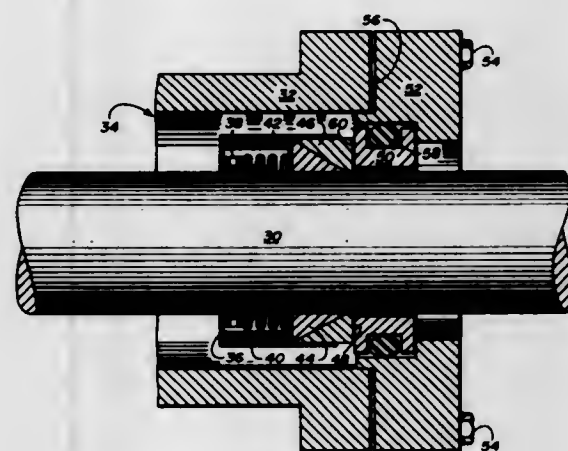
An arrangement for the mounting and axial fixation of shaft seals of the type consisting of a rubber ring stretched around the shaft and providing a point of fastening for an integrating funnel-shaped sealing lip, which seals axially against a sealing surface that is essentially perpendicular to the longitudinal direction of the shaft, characterized by the fact that a support securely fastened at points in connection with the sealing surface and against which a ring-shaped support surface effected on the rubber ring then slides when the shaft turns, whereby the support is so positioned with respect to the sealing surface that the sealing lip assumes a correct axial position with respect to the sealing surface after one revolution.

3,601,413

MECHANICAL SEAL
James R. Darnell, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed July 18, 1969, Ser. No. 842,872

Int. Cl. F16j 15/34

3 Claims



A mechanical seal includes a sealing surface formed by chemical vapor deposition of an extremely hard material, such as silicon carbide. The surface is finished to the required smoothness by optical grinding. The resulting seal has excellent wear resistance as well as high tolerance to corrosive chemicals, extreme temperatures and other adverse operating conditions.

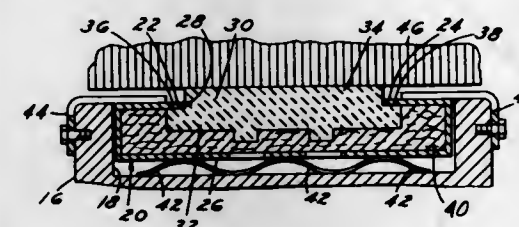
3,601,414

CERAMIC CROSSARM SEAL FOR GAS TURBINE REGENERATORS
Vemulapalli D. Rao, Woodhaven, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 29, 1969, Ser. No. 872,328

Int. Cl. F16j 15/34

U.S. Cl. 277-96

8 Claims



A thin walled steel case has a ceramic shoe projecting through an opening in one side thereof. Externally facing shoulders along the longitudinal edges of the shoe bear against the edges of the case. A fibrous resilient ceramic material fills the remainder of the case and is located between the bottom of the shoe and the base of the case to adsorb deflecting forces.

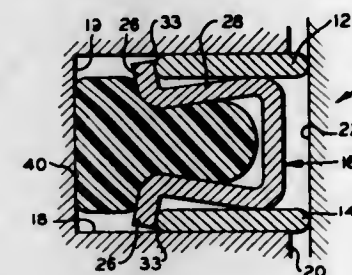
3,601,415

PISTON RING SPACER-EXPANDER
Phillip L. Bond, Richmond, Ind., assignor to Dana Corporation, Toledo, Ohio
Filed Feb. 26, 1970, Ser. No. 14,458

Int. Cl. F16j 9/06

U.S. Cl. 277-140

15 Claims



A spacer-expander for rail-ring type oil control piston ring assemblies with a deformable means secured to the spacer-expander ring and extending radially inwardly thereof for providing a temporary internal diameter for the spacer-expander ring which is as small as or smaller than the root diameter of the piston groove which will receive the ring thereby to prevent overlap of the ends of the spacer-expander ring, to center the piston ring assembly, and to inhibit "pop-out" thereof. The deformable means deforms in a manner which is at least partially resilient and is degradable upon being subjected to engine operating conditions.

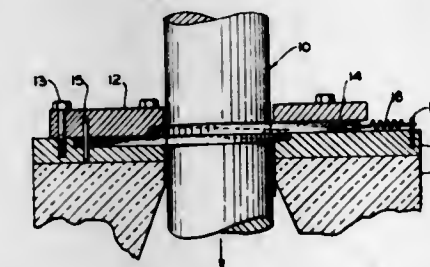
3,601,416

SELF-ADJUSTING WRAPAROUND SEAL
Aubert Y. Coran, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
Filed June 13, 1969, Ser. No. 833,016

Int. Cl. F16j 15/24

U.S. Cl. 277-151

6 Claims



A self-adjustable seal for an axially movable furnace electrode has a sealing strip adapted to wrap completely around

the electrode and extend therefrom. One end on the strip is anchored and the end is tensioned to maintain the central portion of the strip in tight engagement with the electrode.

3,601,417

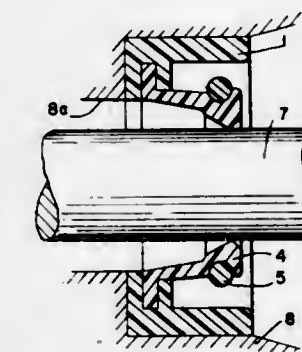
RADIAL PACKING FOR SHAFTS
Jeno Szepesvary, Kufstein, Eichelwang 359/D (Tirol), Austria
Filed Aug. 4, 1969, Ser. No. 847,044

Claims priority, application Austria, Aug. 2, 1968, A 7552/68

Int. Cl. F16j 15/32

U.S. Cl. 277-165

11 Claims



A radial packing for shafts is made of a resilient material and has a housing which surrounds the shaft and has an annular groove therein. A substantially cylindrical packing element has an external supporting rib adjacent to one end thereof with this rib being positioned in the housing groove and an internal lip at the other end thereof for sealing engagement with the shaft. An O-ring of a resilient material surrounds the packing element on the rear side of the sealing lip to urge the lip into sealing engagement with the shaft.

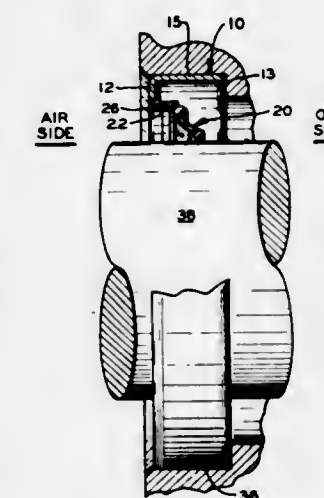
3,601,418

ROTARY SHAFT SEAL
Thomas O. Kosatka, Cicero, Ill., assignor to Dana Corporation, Toledo, Ohio
Filed Sept. 29, 1969, Ser. No. 861,738

Int. Cl. F16j 15/00

U.S. Cl. 277-183

4 Claims



A rotary shaft seal is disclosed comprised of an outer, rigid case member and an annular elastomeric sealing member which is bonded thereto. The sealing member is comprised of a longitudinally extending flexible collar portion, which is bonded at one end to the case member, and a radial flange which extends radially inwardly from the collar portion and has located at its outer end a molded sealing lip which, in the free state, extends axially of the radial flange. The molded sealing lip is substantially square in cross section. When the seal is mounted on a shaft, the radial flange bends and becomes arcuate, thereby placing a lateral surface of the sealing lip in continuous contact with the shaft.

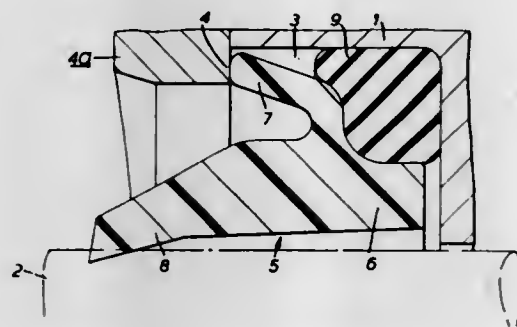
3,601,419

FLUID-PRESSURE-OPERATED PISTON-AND-CYLINDER DEVICE

Alan G. Fern, Hatherley, Cheltenham, England, assignor to Dowty Seals Limited, Gloucester, England
Filed May 29, 1968, Ser. No. 733,117
Int. Cl. F16j 15/32

U.S. Cl. 277-205

9 Claims



A ringlike sealing or wiping member is interposed between a pair of coaxially disposed but relatively slidably engaged cylindrical surfaces, one of which has a stepped contour thereon defining a pair of shoulders, the end walls of which are radially oppositely disposed about the cylindrical axis of the surfaces and spaced apart from one another by a circumferential recess in the one surface. In addition, one of the shoulders is spaced apart from the other of the surfaces, to form a radial clearance which allows for substantial relative radial movement therebetween. The ringlike member is interposed in the recess between the surfaces, and the main body of the member is yieldably biased along the axis of the surfaces in the direction of the radial clearance and the end wall of the one shoulder. The body has a continuously closed annular construction between the inner and outer peripheries thereof, and there are relatively flexible annular limbs on the inner and outer peripheral portions of the member which project from the main body of the same in the aforesaid direction of the bias thereon, and are spaced apart from one another at the ends thereof relatively remote from the body of the member, so that the limbs and body can flex in relation to one another. The end portion of one of the limbs is engaged with the end wall of the one shoulder, whereas the end portion of the other limb extends from the recess into the radial clearance between the surfaces and is engaged with the other surface thereof, in the clearance. There are also means including a space between the ringlike member and the end wall of the other shoulder, whereby the ringlike member is shiftable against the bias thereon.

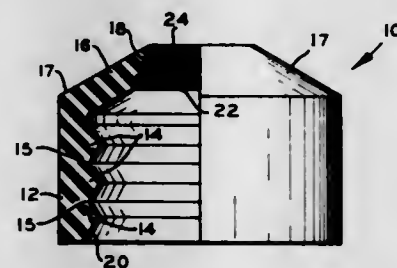
3,601,420

VALVE STEM SEAL

John D. Binford, Richmond, Ind., assignor to Dana Corporation, Toledo, Ohio
Filed Sept. 8, 1969, Ser. No. 855,899
Int. Cl. B61f 15/22

U.S. Cl. 277-212 C

10 Claims



A valve stem seal for sealing against the reciprocating stem of a poppet valve is provided. The seal is formed of an elastomeric material. The seal comprises an annular wall that grips the valve guide and integral with the annular wall, a conical wall that terminates in a conical sealing surface. This sealing surface has annular grooves formed therein and forms a progressively increasing interference fit with the valve stem.

3,601,421

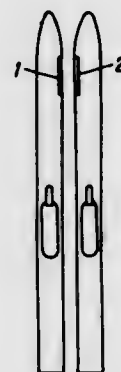
DEVICE FOR THE IMPROVEMENT OF THE DIRECTIONAL GUIDANCE OF SKIS

Jurg M. Ris, Lenzenwiesstrasse 2, Zollikon, Switzerland
Filed May 19, 1969, Ser. No. 825,622
Claims priority, application Switzerland, Mar. 13, 1969, 3828/69

U.S. Cl. 280-11.37 E

Int. Cl. A63c 5/06

2 Claims



A device for the improvement of the guidance of a pair of skis, the device comprising an upstanding ridge means disposed on the upper surface of the forward portion of each ski directly along the edge thereof nearest to the adjoining ski of the pair whereby, lateral guidance of skis, particularly of skis having small thickness, is greatly improved and their superimposition or crossing during running is obviated.

3,601,422

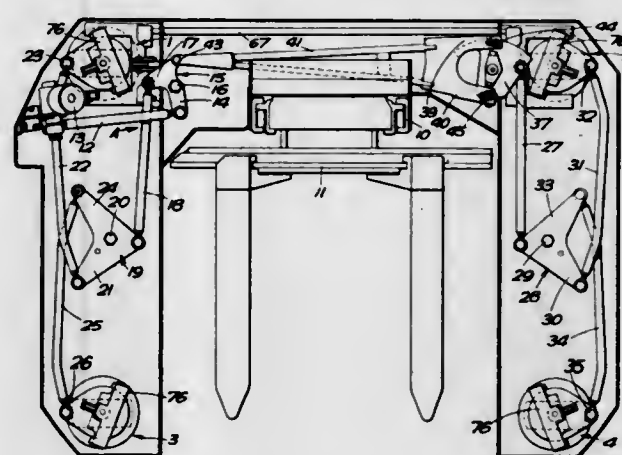
INDUSTRIAL TRUCKS

Alexander Richard Woods, Hampton Wick, Surrey, England, assignor to Lansing Bagnall Limited, Hampshire, England
Filed Apr. 18, 1969, Ser. No. 817,537
Claims priority, application Great Britain, Apr. 23, 1968, 19030/68

U.S. Cl. 280-91

Int. Cl. B62d 3/02

7 Claims



An industrial truck has four ground wheels, four hydraulically operated rack and pinion devices for individually adjusting each wheel angularly about a vertical axis whereby the truck may be driven in a plurality of alternative directions according to the adjusted positions of the wheels, and a steering mechanism for simultaneously effecting steering movements of the wheels in various adjusted positions thereof, which steering mechanism comprises a first linkage connecting a first pair of wheels so that those wheels are steered in the same direction as each other, a second linkage connecting the second pair of wheels so that those wheels are steered in the same direction as each other, and a member connectable by two alternative connections on opposite sides of the pivot point of a lever forming part of the second linkage. One of the connections so connects the two linkages that the two pairs of wheels are steered in the same direction and the other connection so connects the two linkages that the two pairs of wheels are steered in opposite directions.

3,601,423

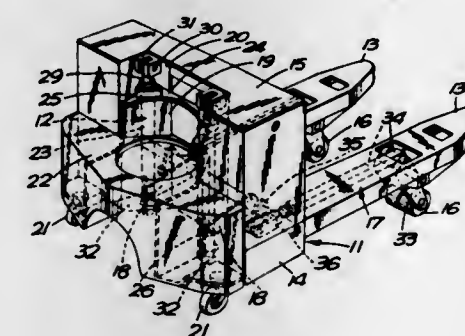
INDUSTRIAL PALLET AND STILLAGE TRUCKS

Cecil Goodacre, Basingstoke, England, assignor to Lansing Bagnall Limited, Basingstoke, England
Filed June 25, 1969, Ser. No. 836,482
Claims priority, application Great Britain, June 27, 1968, 30,779/68

U.S. Cl. 280-43.12

Int. Cl. B66f 9/06

8 Claims U.S. Cl. 280-124



An industrial pallet truck comprises a body portion, a load-carrying portion mounted for up-and-down movement relatively to the body portion, two hydraulic rams for raising a root portion of the load-carrying portion, and a linkage operable by movement of the root portion relatively to the body portion and including ground engaging members for raising and lowering the end of the load-carrying portion remote from the root portion, in unison with the root portion. Each ram comprises a cylinder connected to the body portion and a plunger connected to the load-carrying portion and the linkage comprises two operative levers each pivotally connected at its fulcrum to said root portion, each lever also being pivotally connected directly to the lower end of the cylinder of one of the rams, so that up-and-down movement of the root portion imparts pivoting movement to the lever to operate said linkage. The truck has fork arms which may be attached to the load-carrying portion in alternative positions.

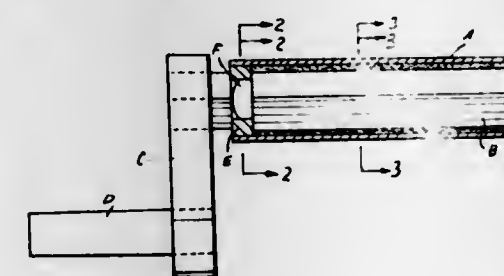
3,601,424

ROAD-VEHICLE SUSPENSION SYSTEMS

Barrie J. Badland, Bolton, England, assignor to Mechanical Services (Trailer Engineers) Limited
Filed Sept. 30, 1969, Ser. No. 862,312
Int. Cl. B60g 11/22

U.S. Cl. 280-124

5 Claims



A vehicle suspension system in which stub-axes for a pair of laterally spaced road wheels are mounted at the free ends of arms arranged to swing about a common horizontal axis, and in which each such arm and provided, at the end and side remote from the stub-axle, with a spindle extruding parallel to the latter and journaled at least at the outboard end of a tubular housing, the remainder of such spindle being of square section and having a length of rubber or other elastomeric cord compressed between each face thereof and an adjacent internal corner of the housing.

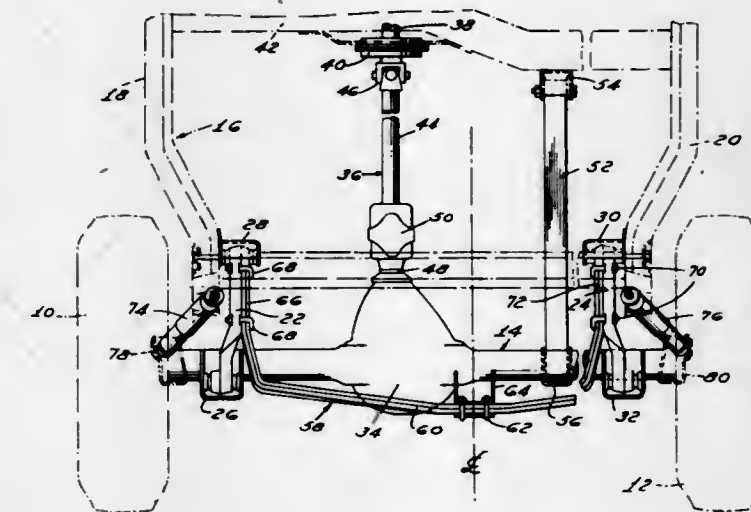
3,601,425

REAR SUSPENSION SYSTEM FOR A MOTOR VEHICLE

Achille C. Sampietro, Bloomfield Hills, and Kenneth L. Hoyt, Dearborn, both of, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Division of Ser. No. 651,783, July 7, 1967, Pat. No. 3,469,649
Filed June 5, 1969, Ser. No. 830,682

U.S. Cl. 280-124

10 Claims



A rear suspension system for a motor vehicle having a solid rear axle housing positioned by a pair of conventional upper suspension arms and a pair of lower suspension links. One of the lower links is the vehicle drive shaft which performs the dual function of transmitting torque and positioning the axle housing. A laterally extending leaf spring interconnects the two upper suspension arms and is loaded in torsion to support the chassis on the axle housing.

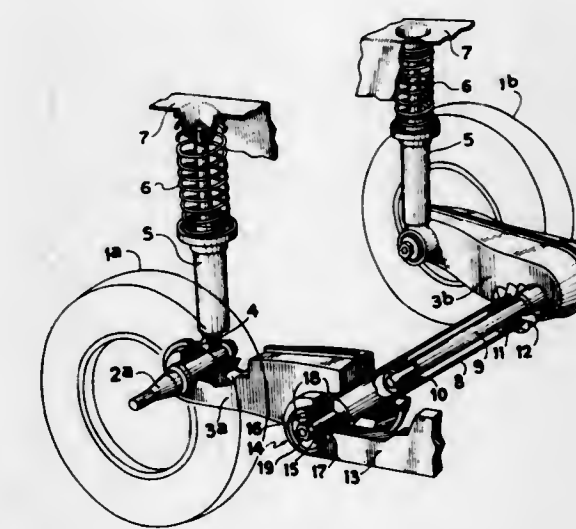
3,601,426

VEHICLE REAR ASSEMBLY

Jacques Hury, Rueil-Malmaison, France, assignor to Automobile Peugeot, Paris, France and Regie Nationale des Usines Renault, Billancourt, France
Filed Oct. 31, 1969, Ser. No. 872,998
Claims priority, application France, Nov. 13, 1968, 173,441
Int. Cl. B60g 11/32

U.S. Cl. 280-124

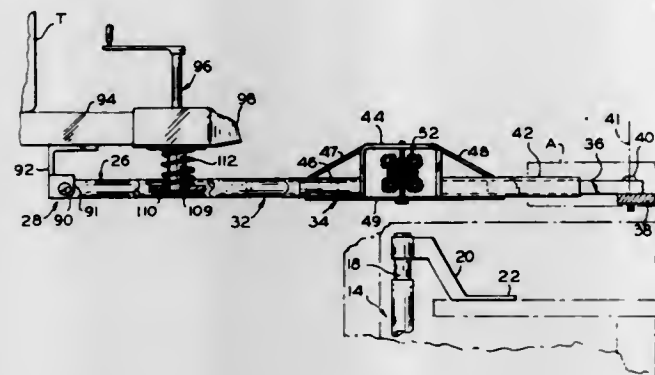
15 Claims



Rear assembly for motor vehicle, of the type comprising independent wheels and trailing suspension arms, wherein each suspension arm has fixed thereto a shaft member extending transversely with respect to the longitudinal axis of the vehicle, said shaft members being connected at their outer ends to the suspended part of the vehicle and being interconnected at their inner ends.

3,601,427
ANTISWAY TRAILER HITCH
 Charles F. Holt, Rte. 2, Box 220, Corvallis, Oreg.
 Filed June 20, 1969, Ser. No. 835,146
 Int. Cl. B62d 53/00
 U.S. Cl. 280-406 A

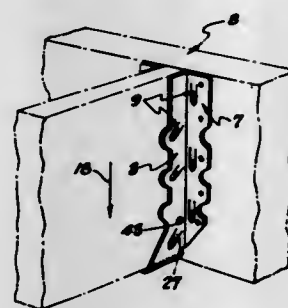
11 Claims.



The trailer hitch inhibits sidesway of a trailer by use of a transversely extending track tube connected at its opposite ends to the rear of the towing vehicle. A drawbar hinged to the trailer and pivoted to the traction vehicle includes a pivoted guide sleeve movable on rollers laterally along the tube for transmitting towing power between the towing and towed vehicles. A forward portion of the drawbar extends to permit lateral movement of the guide sleeve on the track tube. The drawbar has a swivel coupling permitting relative rolling movement between the vehicles. A rear portion of the drawbar has a load equalizer including a coil spring operable in conjunction with the trailer jack to vary the distribution of the axle loads between the trailer and towing vehicle.

3,601,428
PRONGED JOIST HANGER
 Tyrell T. Gilb, Berkeley, Calif., assignor to Simpson Company
 Filed Dec. 11, 1969, Ser. No. 884,170
 Int. Cl. F16b 3/00
 U.S. Cl. 287-20.94

3 Claims



A joist hanger formed with integral prongs which can be driven into a wood joist by a hammer blow thereby eliminating or reducing the number of nails required to fasten the hanger to the joist. Other integral prongs increase the holding power of the hanger to the header.

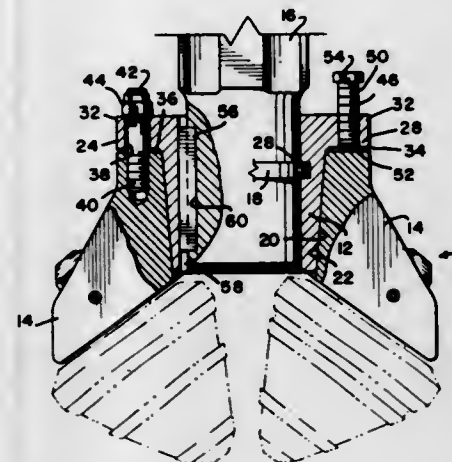
3,601,429
PILOT CUTTER MOUNTING ASSEMBLY
 William D. Coski, Mercer Island, Wash., assignor to Lawrence Manufacturing Company, Seattle, Wash.
 Filed June 19, 1969, Ser. No. 834,745
 Int. Cl. F16d 1/06

U.S. Cl. 287-53

13 Claims

A pilot cutter mounting assembly comprising a segmented collar having both a keyway and an annular groove for en-

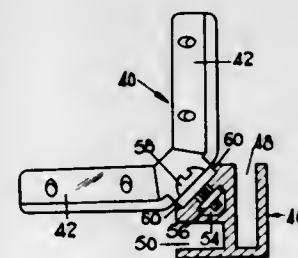
gaging the cutter shaft with both a key and an annular thrust ring. The collar has a radial rim which supports studs for



mounting the cutter support, and receives jacking screws for removing the cutting support.

3,601,430
JOINTS BETWEEN STRUCTURAL MEMBERS
 Hendrik Pieter Zwennis, 50 Murray Avenue, Meredale, Johannesburg, Republic of South Africa
 Filed Dec. 2, 1968, Ser. No. 780,523
 Claims priority, application, Republic of South Africa, Dec. 13, 1967, 67/7489
 Int. Cl. F16b 7/00
 U.S. Cl. 287-54

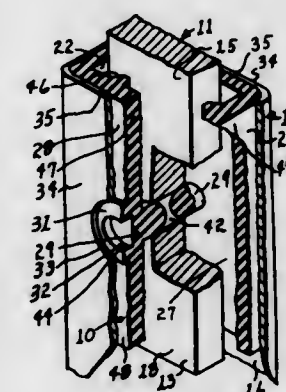
1 Claim



A joint between structural members such as edge members of panelled furniture, the joint being secured by a bracket having leaves which each abut and are secured to one of the structural members. The leaves each have an axis and the axes intersect to define a plane, the faces of the leaves abutting the structural members being obliquely inclined to that plane.

3,601,431
RESILIENT FITTING
 John W. Henley, Willoughby, Ohio, assignor to Eagle-Picher Industries, Inc., Cincinnati, Ohio
 Filed Feb. 9, 1970, Ser. No. 9,535
 Int. Cl. F16b 7/00
 U.S. Cl. 287-104

7 Claims

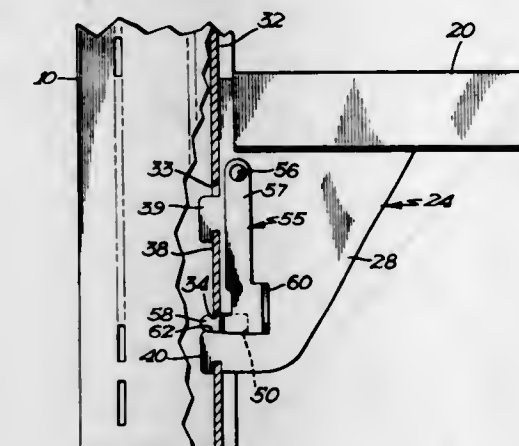


A one-piece resilient fitting of a tubular configuration for connecting a lever arm in axial alignment with a sleeve. The

fitting is particularly adapted to isolate vibrations in the sleeve from the lever arm, and vice versa. Further, the fitting is adapted to transmit a positive force from the lever arm relative to the sleeve in the transverse direction, but is only adapted to resist, i.e., not transmit, axial motion of the lever arm relative to the sleeve. In assembly, the tubular fitting is designed to be snap-fit in nested relation within the sleeve, and then to permit the lever arm to be snap-fit in nested relation within the tubular fitting.

3,601,432
DISPLAY FIXTURE FRAME STRUCTURE
 Jay G. Fenwick, and Earl Christensen, both of Albert Lea, Minn., assignors to Streater Industries, Inc., Albert Lea, Minn.
 Filed May 15, 1969, Ser. No. 824,933
 Int. Cl. E04g 3/08, 7/00; F16b 5/07, 7/22
 U.S. Cl. 287-189.36

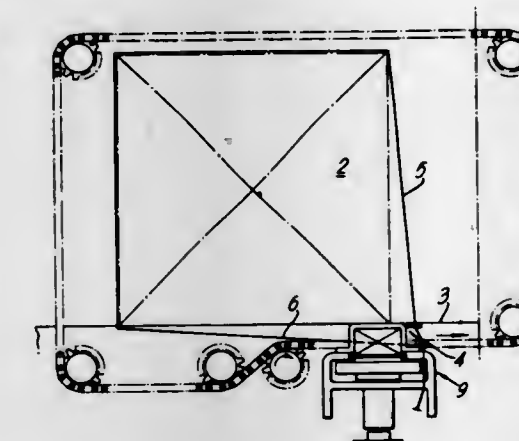
1 Claim



The invention relates to a frame assembly having general utility and specific utility for a display fixture of a type commonly found in department stores. A horizontal sway brace for the fixture is connected by means of hooks to vertically extending members referred to as standards. A pivotally mounted locking device is provided for locking the hooks in their inserted position.

3,601,433
KNOTTING MECHANISM
 Michael Ivan Mercer, Kent; Terry Arthur, Fleming, Kent; Sydney Tyes, Clacton-on-Sea, and Donald Sutehall, Harlow, all of, England, assignors to Harris Intertype Limited, Slough, England
 Filed Nov. 5, 1969, Ser. No. 874,296
 Int. Cl. A01d 59/04
 U.S. Cl. 289-2

12 Claims

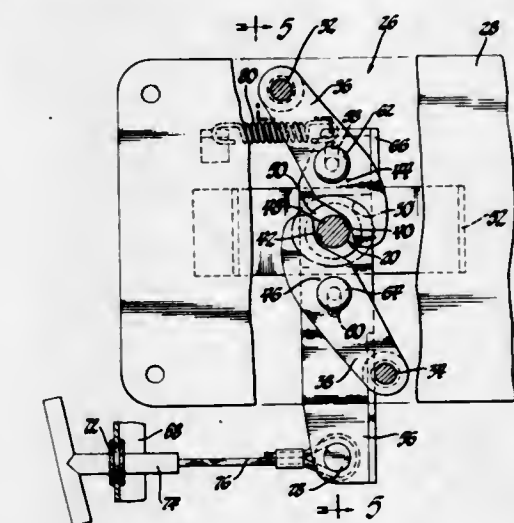


This invention relates to a knotter mechanism for a bundle tying machine, including a sliding knotter carriage having a knotter rotatably mounted thereon, a rotatably mounted cam plate, whereby rotation of the cam plate will cause sliding movement of the carriage between an operative and an in-

operative position a drawslide mechanism and twine lifter arm correctly to position a length of twine and means to rotate and actuate the knotter when the carriage is in the operative position to tie a knot in the twine.

3,601,434
HOOD LATCHING ARRANGEMENT
 Donald E. Fargo, Warren, and Mark B. Williamson, Royal Oak, both of, Mich., assignors to General Motors Corporation, Detroit, Mich.
 Filed Nov. 24, 1969, Ser. No. 879,179
 Int. Cl. E05c 3/34, 3/40
 U.S. Cl. 292-46

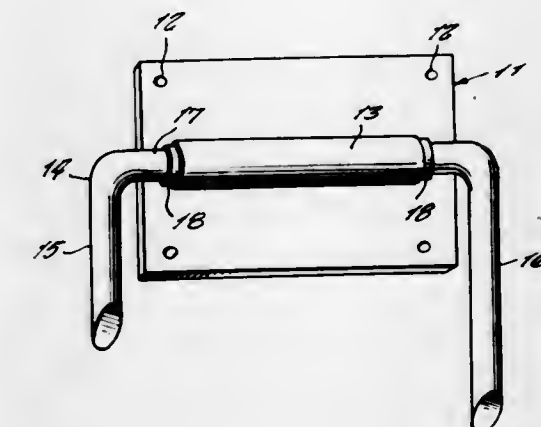
4 Claims



A vehicle hood latching arrangement includes a striker mounted on the hood member and a pair of retaining levers pivotally mounted on a body member for movement between latched and unlatched positions. The retaining levers are situated in a generally parallel line relationship operative to maintain at least one of the retaining levers in the latched position thereof during rapid horizontal acceleration or deceleration of the vehicle in any direction. An operating lever is operatively connected to each retaining lever for moving the latter from latched to unlatched positions and the retaining levers are balanced on the operating lever to prevent inertially motivated unlatching of the hood member.

3,601,435
GATELOCK
 John H. Fouser, Box 196, Carthage, Mo.
 Filed Apr. 22, 1969, Ser. No. 818,232
 Int. Cl. E05c 3/06, 19/00
 U.S. Cl. 292-78

1 Claim



A lock assembly for a gate, lock assembly comprising a catch eyebolt engageable by a pivotable locking bar carried in a bar tube of a mounting plate, the mounting plate being secured to a gate and the catch eyebolt being secured to a post.

3,601,436

PRESSURE VESSEL WITH SHEAR PIN CONSTRUCTION

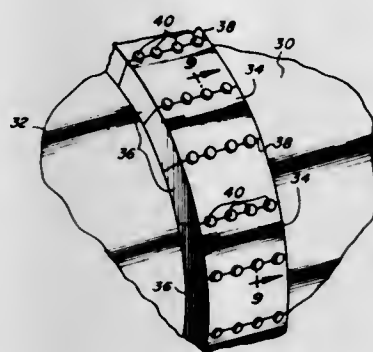
Svend M. Jorgensen, Tenafly, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.

Filed July 15, 1969, Ser. No. 841,713

Int. Cl. B65d 45/00, 53/00

U.S. Cl. 292-256

14 Claims



A pressure vessel in which a pair of vessel members having meshing projections formed thereon are secured together by means of a plurality of shear pins disposed along the interface between the adjoining projections.

3,601,437

EMERGENCY-RELEASABLE LATCH FOR HATCHWAY DOOR

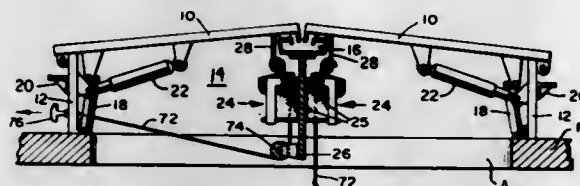
Robert J. Lyons, 1060 Ridge Road, Hamden, Conn.

Filed July 6, 1970, Ser. No. 52,342

Int. Cl. E05c 15/00, 19/10; E05f 15/20; F23i 17/02

U.S. Cl. 292-256.5

9 Claims



An emergency-releasable latch mechanism is disclosed for use with roof or deck hatchways having a hinged door or cover heavily biased by spring or other means to full open position in order to vent quickly in emergency smoke, noxious fumes, explosion pressures and the like from a room or similar enclosed space serviced by the hatchway, yet provide for latching of the door in closed position normally to shut out the weather and prevent unauthorized entry. A particularly compact and mechanically simple lever system is provided to reduce the load reaction from the heavy opening bias forces imposed on the door so that the latch tripping control can be made highly sensitive without sacrificing positive latched retention of the door under normal conditions. Both automatic and manual tripping of the latch in emergency are provided for.

3,601,438

TWO-WAY DOOR STOP

George Stuart, 57 Kingsbury Road, New Rochelle, N.Y.

Filed July 13, 1970, Ser. No. 54,348

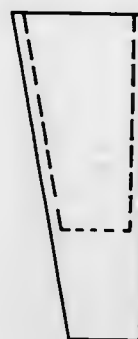
Int. Cl. E05c 17/54

U.S. Cl. 292-343

3 Claims

A one piece portable wedging device with two different tapers, permitting the device to be used with different heights. For example, the device may be used as a door stop,

and if one of the tapers does not give sufficient height to permit the device to be wedged in the space between the bottom



of a door and the floor, the device may be turned to present the other taper giving a greater height to the device.

3,601,439

CONTAINER-PACKAGING DEVICE

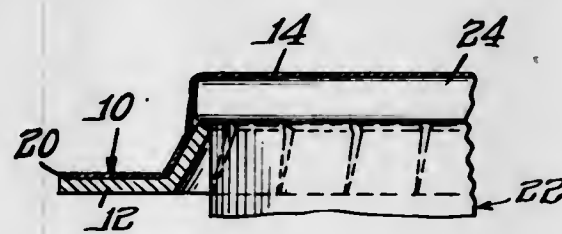
Ougljesa Jules Poupitch, Chicago, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed June 6, 1969, Ser. No. 831,194

Int. Cl. B65d 71/00, 85/62

U.S. Cl. 294-87.2

8 Claims



This invention relates generally to a multipackaging device or carrier for containers and more particularly to devices for accommodating containers having a circumferential bead adjacent one extremity thereof, as for example the conventional bead on a can. The embodiment of the invention disclosed herein includes a paperboard sheet which is apertured to provide a plurality of pockets for receiving the extremity of beaded containers. The circumferential marginal area adjacent each aperture is adapted to be deflected out of the plane of the paperboard sheet upon telescopic association of a beaded container therewith so as to position the edge of said marginal area for engagement with the underside of the container bead. A flexible plastic film is adhered to the upper side of the paperboard sheet in superimposed relation with respect to the circumferential marginal areas. The portion of the film which superimposes the marginal areas serves to maintain the edge of the deflected margin in underlying relation with respect to the bead of a telescopically associated container.

3,601,440

MAGNET SPREADER BAR

George W. P. Evans, North Surrey, British Columbia, Canada, assignor to Dominion Bridge Co. Ltd., Montreal, Quebec, Canada

Filed Mar. 3, 1969, Ser. No. 803,840

Claims priority, application Canada, Jan. 20, 1969, 040,652

Int. Cl. B66c 1/04; E21b 31/06

U.S. Cl. 294-65.5

4 Claims



An electromagnet carrier for use in lifting elongated metallic objects in which the long axes of the magnets may be

3,601,443

TRAY SUPPORT FOR HYDRAULIC BEAUTY SHOP CHAIR

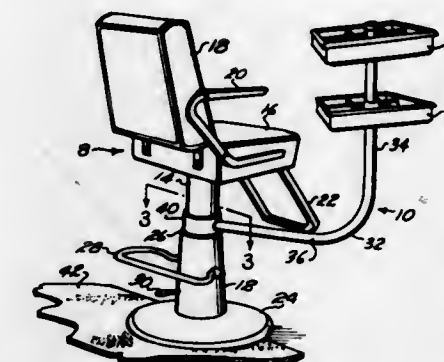
Donald Jones, 6337 Lake Como Ave., San Diego, Calif.

Filed July 24, 1969, Ser. No. 844,486

Int. Cl. A47c 7/62

U.S. Cl. 297-188

5 Claims



A tray-supporting device which is attachable to a hydraulic lift beauty shop chair having a central piston and an upstanding base. The device consists of a sleeve, a bent piece of tubing, and a tray or trays carried by the tubing. The sleeve is coaxially fitted to the piston for free turning thereabout, and rides atop the base. The tubing has an arm fixed to the sleeve, and an upright post spaced an optimum distance from the piston axis and movable along a concentric path to locations convenient to a beauty operator working around the chair. The trays are free to turn on the post and are adjustably mounted at optimum levels for the operator, the trays being maintained at such levels independently of the height of the chair.

3,601,444

CHAIR CONTROL WITH SUPPORT FOR THE TORSION SPRING

Joseph T. Doerner, Waterloo, Ontario, Canada, assignor to Doerner Products Co. Limited, Waterloo, Ontario, Canada

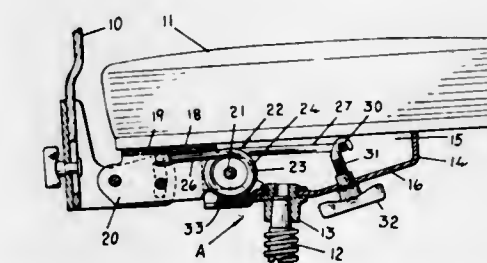
Filed Nov. 25, 1969, Ser. No. 870,319

Claims priority, application Canada, Sept. 23, 1969, 062,731

Int. Cl. A47c 3/00

U.S. Cl. 297-300

2 Claims



A chair control for tilting chairs and posture chairs having a coiled torsion spring oriented in a horizontal plane with its axis parallel to the pivots on which the control tilts. The chair control has two frames which are pivotally connected to permit relative pivotal movement, one of the frame members being mountable on the top end of the chair post which is carried by the chair base. The torsion spring is supported by a fixed frame of the chair control so that it is fully supported thereby both when at rest and when subjected to torsional stresses induced by a person sitting in the chair when such person leans back in the chair.

3,601,445

HEADREST STRUCTURE FOR VEHICULAR USE

Vasilios Glyniyas, 117 Janice Lane, Addison, Ill.

Filed Feb. 6, 1969, Ser. No. 796,995

Int. Cl. A47c 7/36

U.S. Cl. 297-404

5 Claims

An improved portable headrest structure for vehicular use is described which may be releasably attached to a window of

oriented to be at right angles to the axis of the plate when elongated steel plates are raised and the long axis of the magnets may be rotated to be parallel with the long axis of the article when lifting long narrow flexible items. Movement of the magnets is accomplished by bringing a long rod associated with the magnet into contact with the gantry column of the crane causing the magnets to rotate to the desired position.

3,601,441

GRIPPING APPARATUS FOR PACKAGING MACHINE

Lazzaro Pezza, Bronx, N.Y., assignor to Swahettes, Inc., Wayne, N.J.

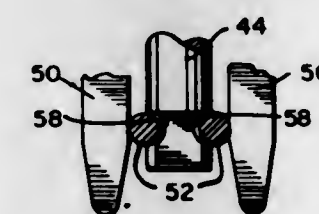
Division of Ser. No. 577,291, Sept. 6, 1966, Pat. No. 3,456,425

Filed Jan. 7, 1969, Ser. No. 801,905

Int. Cl. B65b 5/08

U.S. Cl. 294-87 SH

3 Claims



A gripping apparatus for a packaging machine which engages and releases a plurality of elongated members. A body member has a plurality of fingers rotatably supported thereon. A comb device is mounted on the body member and has a plurality of teeth extending therefrom for cooperating with the fingers to engage and release a plurality of swabs. An actuating mechanism is engaged with the fingers and is operable to rotate the fingers to engage a plurality of swabs in cooperation with the teeth and to rotate the fingers in the opposite direction to release the swabs.

3,601,442

GRIPPING DEVICE

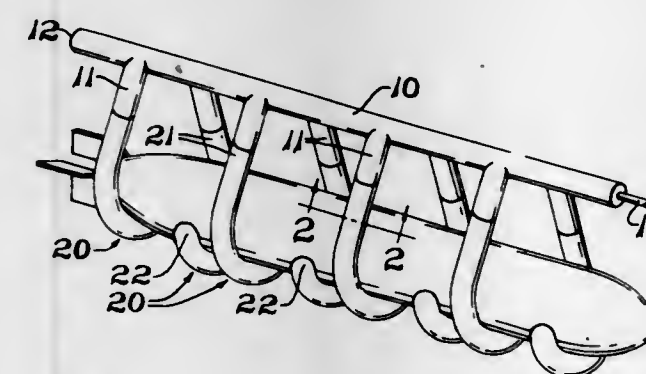
Roy L. Orndorff, Jr., Kent, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,594

Int. Cl. B25b 11/00; B66c 1/42

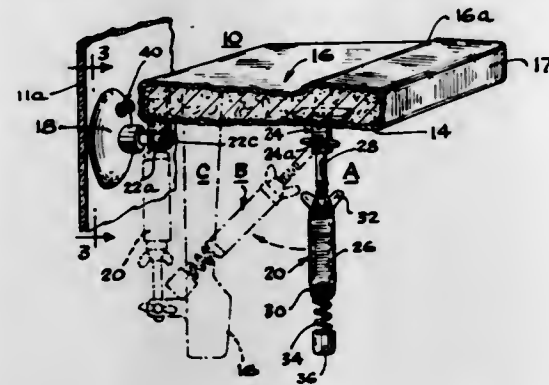
U.S. Cl. 294-99

7 Claims



A gripping device having a plurality of closed end "fingers" of elastic tubing extending from a common pressure manifold, each finger having a portion of the transverse wall section provided with longitudinal cords of tension resistant material embedded therein along only one side of the tubing. In the relaxed state, the fingers are substantially linear, but upon introduction of a pressurized fluid therein, the fingers curl toward a common central region for gripping. Upon release of the pressurized fluid, the elastomeric fingers of the device return to substantially a linear state releasing the grip.

a vehicle or the like and support a user's head positioned in a natural, sidewise-tilted manner. Effective shock absorption is obtained by a pair of soft, resilient rubber section cups intended for attachment to a vehicular surface and a spring-



supported front support member together with a cushion formed of foam rubber or the like. Provision is made for quick release of the suction cups from the vehicular surface by a release valve assembly incorporated as an integral part of the suction cups.

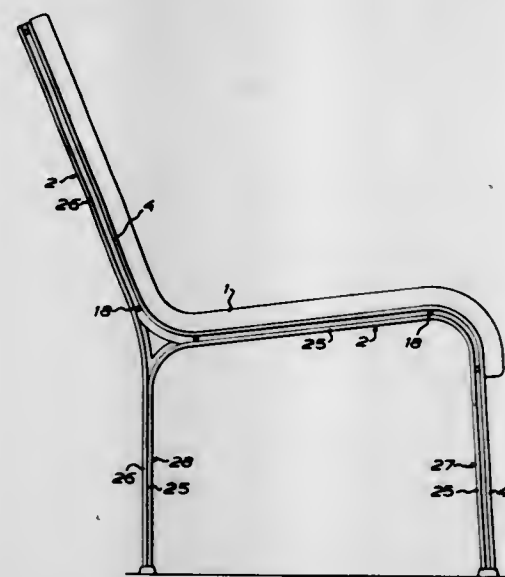
3,601,446

PIECE OF FURNITURE

Eric Sigfrid Persson, Horby, and Signe Persson-Melin, Malmö, both of, Sweden, assignors to Expo-Nord AB, Horby, Sweden

Filed Sept. 24, 1969, Ser. No. 860,745
Claims priority, application Sweden, Nov. 21, 1968, Mar. 21, 1969, 15,840/68; 3,943/69
Int. Cl. A47c 5/00, 1/12, 11/00
U.S. Cl. 297-445

8 Claims



In a piece of furniture a body-supporting material has two opposed parallel marginal portions which are anchored in channels in two frame bars extending along said marginal portions.

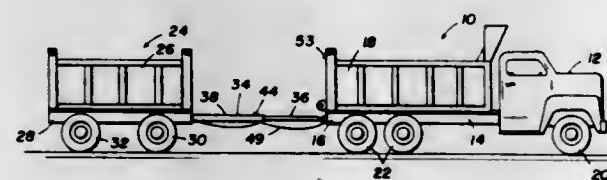
3,601,447

DUMP TRUCK-TRAILER COMBINATION

Robert E. Kelley, 159 32nd St., Cedar Rapids, Iowa
Filed June 2, 1969, Ser. No. 829,670
Int. Cl. B60p 1/118, 1/30

U.S. Cl. 298-14

10 Claims



A truck-trailer combination for hauling and dumping bulk materials. The rig includes a trailer and a towing vehicle and

has two tiltable dump bodies which are separate while the rig is moving over the road, but when the contents are to be unloaded, the one dump body is joined to the other and the two dump bodies are tilted together and unloaded as a single unit.

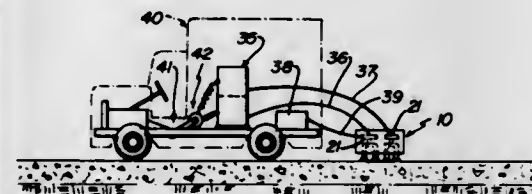
3,601,448

METHOD FOR FRACTURING CONCRETE AND OTHER MATERIALS WITH MICROWAVE ENERGY

Stanford C. Stone, Deerfield, Ill., assignor to Gas Development Corporation, Chicago, Ill.

Filed Apr. 21, 1969, Ser. No. 817,783
Int. Cl. E01c 23/09; E21c 37/18
U.S. Cl. 299-14

3 Claims



A low-noise method and apparatus for fracturing concrete and other solid materials by coupling microwave energy into the material in a fashion such as to generate independent heat patterns using at least two or more microwave applicator horns that are spaced apart from each other. The power density of the microwave energy coupled into the solid material is established and maintained below a predetermined threshold level above which violent and explosive type reactions occur. The spaced heat patterns or zones produced cause the heated material to expand, so as to place high tensile forces or stresses on the unheated material between the heat patterns. These forces or stresses cause failure to occur between the heat patterns, and ultimately across the heat patterns themselves.

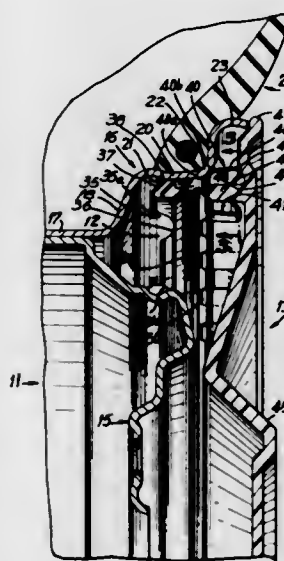
3,601,449

WHEEL, WHEEL COVER AND RETAINING RING ASSEMBLY

Herbert Buerger, Walton, N.Y., assignor to Del Krome Corp., Walton, N.Y.

Filed Aug. 19, 1969, Ser. No. 851,165
Int. Cl. B60b 7/04
U.S. Cl. 301-37 P

4 Claims



A wheel cover is assembled with a metal retaining ring which also grips the rim of a wheel. Thereafter the cover can be pried off while leaving the retaining ring on the wheel. The cover has an annular cylindrical flange. The retaining ring comprises springfingers gripping the outer side of the flange, alternating with springfingers gripping the inner side of the flange. The cover is made of nonmetallic material.

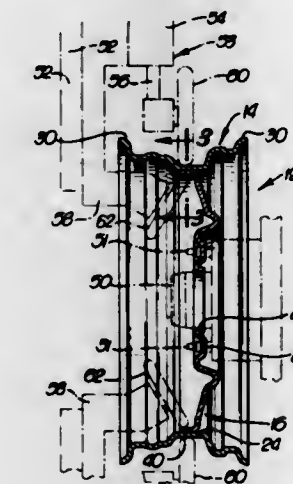
3,601,450

VEHICLE WHEEL

Harold R. Baker, Lynwood, Calif., assignor to Norris Industries, Inc., Los Angeles, Calif.

Filed Apr. 28, 1969, Ser. No. 819,683
Int. Cl. B60b 23/00
U.S. Cl. 301-63 R

4 Claims



A vehicle wheel and method of and apparatus for assembling wherein the wheel includes an annular rim and a spider inserted within the rim bridging the area defined by the rim. The spider is secured to the rim in a plurality of places by a series of overlapping seam welds. In assembling the wheel a method of utilizing opposed welding electrodes engaging the rim and spider, respectively, is employed, as well as apparatus for welding and moving the wheel to create an overlapping seam weld.

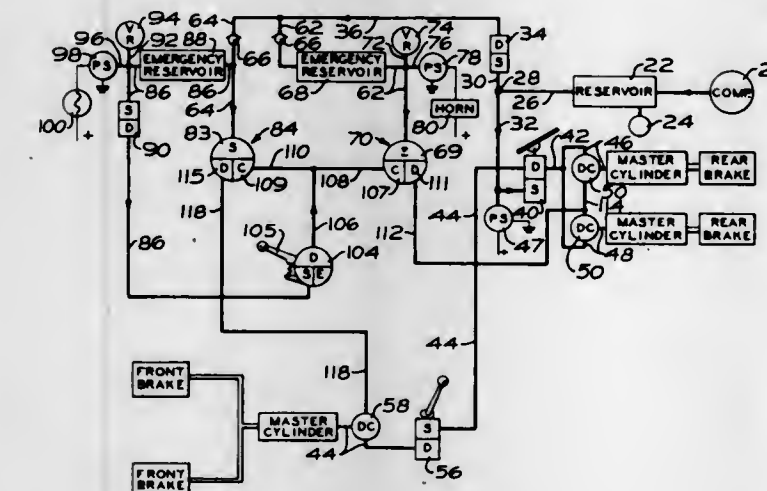
3,601,451

EMERGENCY BRAKE CONTROL SYSTEM

Curtis F. Cummins, Decatur; Kenneth W. Kelly, Latham, and Larry G. Warren, Peoria, all of, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed May 15, 1969, Ser. No. 824,937
Int. Cl. B60t 13/28
U.S. Cl. 303-13

6 Claims



A fluid pressure emergency brake control system has a novel valving arrangement which permits the operator of a vehicle to apply and release the brakes so long as the fluid pressure in the system is above a predetermined level and after the fluid pressure drops below the predetermined level only allows the operator to apply the brakes.

3,601,452

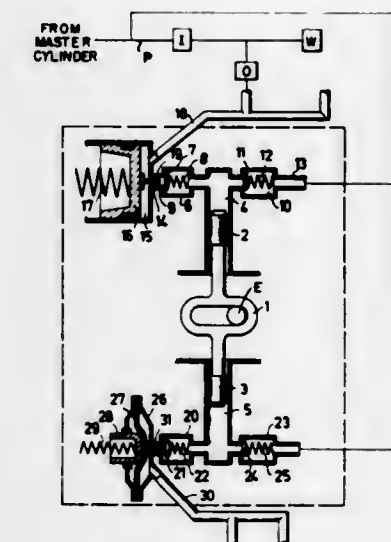
FLUID RETURN SYSTEM FOR ANTILOCKING VEHICLE BRAKES

Dietrich Brunner, Edingen, Germany, assignor to Teldix GmbH, Heidelberg, Germany

Filed July 22, 1969, Ser. No. 843,691
Claims priority, application Germany, July 27, 1968, P 17 80 058.7

Int. Cl. B60t 8/12, 13/14
U.S. Cl. 303-21 F

3 Claims



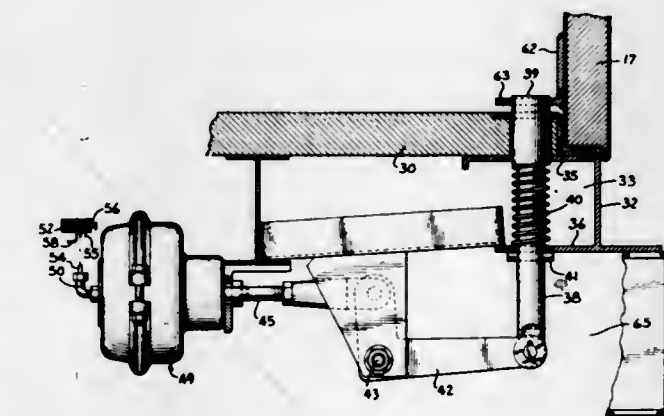
A reciprocating pump for returning brake fluid bled from the brake slave cylinder of a vehicle wheel during automatic, anti-locking brake control is connected through a check valve to an expansible chamber accumulator receiving the fluid bled off. When the chamber is nearly empty a pin carried by the movable wall of the accumulator engages the check valve and holds it open so that the fluid is merely transferred back and forth between the pump and the accumulator to prevent the pump from running dry.

3,601,453

SAFETY LOCK FOR TRAILER DOORS

Seymour Silverman, 5070 N. Bay Road, Miami Beach, Fla.
Filed July 1, 1969, Ser. No. 838,252
Int. Cl. B62d 53/06; B60t 13/24; E03b 51/02
U.S. Cl. 303-89

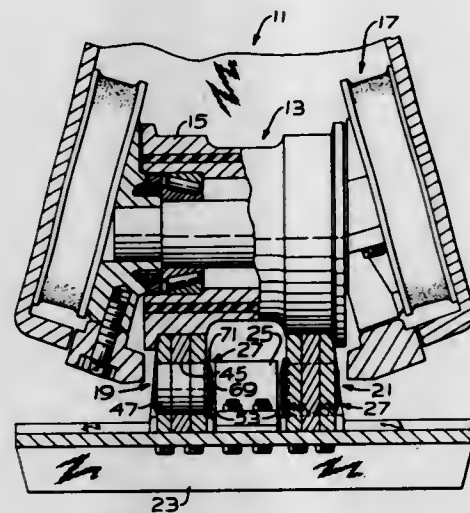
5 Claims



A lock for the door of a trailer to inhibit pilfering from an unattended trailer, as when one is in "piggyback" transit by rail or when it is in a yard unattended by a tractor operator without an attached tractor. A power lock for the door is mounted in a position inaccessible from the outside of the trailer and for its operation requires power such as air pressure or 12-volt electricity, which is available from a tractor, to unlock it.

3,601,454
CARTRIDGE JOINT FOR HEAVY DUTY TRACK CHAIN
 Harold L. Reinsma, Dunlap, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
 Filed June 19, 1969, Ser. No. 834,626
 Int. Cl. B62d 55/20

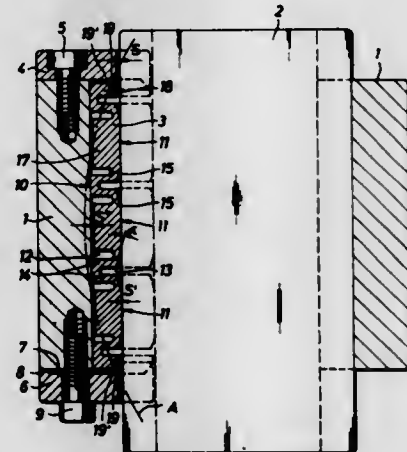
U.S. Cl. 305-11



A cartridge joint for a heavy-duty track chain having fork-and-blade-type track links and midpitch drive lugs. The cartridge joint comprises a hollow pin with an integral head on one end thereof, a flanged ring fixedly mounted on the other end thereof, and an intermediate rotatable bushing which is kept from moving axially on the pin by abutment surfaces on the head and ring. The midpitch drive lugs are provided with retaining locks to hold the cartridge joints in place.

3,601,455
DEVICE FOR ADJUSTING THE SIZE OF A BEARING CLEARANCE BETWEEN TWO ELEMENTS
 Rudolf Spieth, 12 Kennenberg Str., D 7300 Esslingen (Neckar)-Kennenburg, Germany
 Filed Apr. 4, 1969, Ser. No. 813,413
 Claims priority, application Germany, Apr. 11, 1968, P 17 50 244.2
 Int. Cl. F16c 27/06

U.S. Cl. 308-3 R



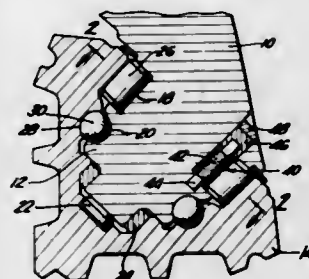
A striplike adjusting key for varying the size of the bearing clearance between the adjacent surfaces of a slide carriage and a fixed guide block so as to be movable relative to each other at different degrees of friction or to lock them to each other. The key is substantially meander shaped by being provided with narrow transverse recesses in its opposite sides, and its ends may be pressed toward each other by tightening screws so as to cause a buckling effect whereby some parts of the remaining opposite longitudinal surfaces of the key are more or less pressed against the adjacent surface of the slide carriage and of the guide block, respectively.

5 Claims

3,601,456
ANTISKEW DEVICE FOR DRILL BIT BEARINGS
 Myron D. Becker, 2848 Alto Vista Drive, Newport Beach, Calif.
 Filed Mar. 23, 1970, Ser. No. 21,925
 Int. Cl. F16c 19/04, 19/00

U.S. Cl. 308-8.2

17 Claims

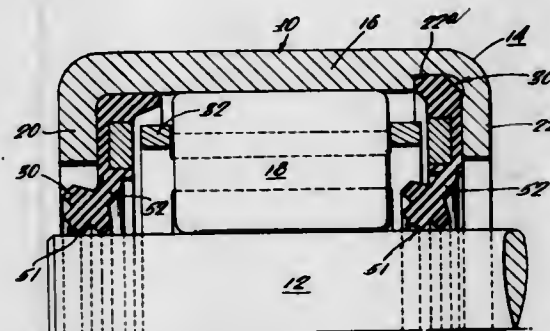


An antis skew device for ensuring proper alignment of roller bearings in roller cutter earth drilling bits is disclosed. The antis skew device aligns the roller bearings as they enter the race area where greatest force is applied to ensure that the force is applied equally along the surface of the roller bearings.

3,601,457
SEAL FOR NEEDLE ROLLER BEARINGS
 John F. Helms, Warminster, Pa., assignor to SKF Industries Inc., King of Prussia, Pa.
 Filed Aug. 26, 1969, Ser. No. 853,125
 Int. Cl. F16c 29/06

U.S. Cl. 308-187.2

4 Claims



A bearing assembly adapted to be mounted on a shaft comprising a cup-shaped housing having a generally cylindrical center portion and a pair of radially inwardly directed flanges at opposite ends of said center portion, means defining a pocket adjacent at least one of said flanges, a plurality of rolling elements mounted interiorly of the housing, a retainer for circumferentially spacing the rollers and a seal adapted to be mounted in the housing at opposite axial ends thereof, said seal comprising a casing made of a resilient material, an annular ringlike reinforcing member mounted in said casing, said casing having an enlarged circumferentially extending bead portion projecting radially outwardly from one outer edge of said reinforcing member, a sealing lip projecting from the inner edge of said reinforcing member, said sealing lip having a reduced neck portion and a terminal edge configuration providing two circumferentially extending sealing lip edges when the sealing lip is deflected in either an outward or an inward direction upon assembly of the bearing to a shaft.

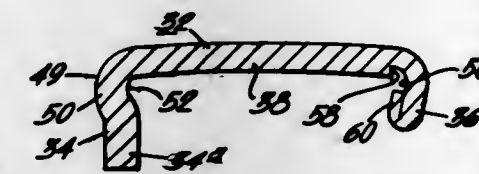
3,601,458
DRAWN CROWNED BEARING SHELL
 Ronald J. Farrell, Bremen; Allen Kerns, Valparaiso, and Carl R. Ernsberger, Bremen, all of, Ind., assignors to SRF Industries, Inc., King of Prussia, Pa.
 Filed Nov. 3, 1969, Ser. No. 873,452
 Int. Cl. F16c 13/00

U.S. Cl. 308-212

5 Claims

A needle roller bearing assembly adapted to be mounted on a shaft member or the like comprising a plurality of

rolling elements, a cage having a plurality of pockets for circumferentially spacing the rolling elements and an outer casing having a circumferentially extending inner raceway, said

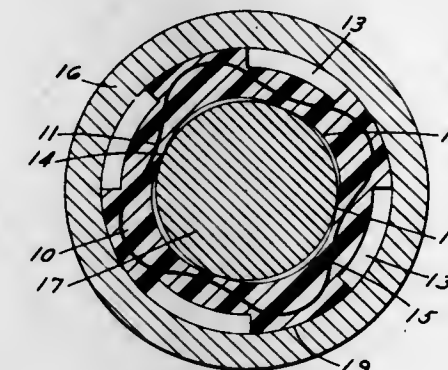


casing including at least one inwardly directed flange at one axial end which is of reduced cross section and folded 180° on itself and disposed at an inwardly directed angle relative to a true radial plane.

3,601,459
SPRING LOADED BEARING
 Edward John Cutting, 4 Barton Close, Shepperton, Middlesex, England
 Filed June 19, 1969, Ser. No. 834,699
 Claims priority, application Great Britain, Aug. 23, 1968, 40313/68
 Int. Cl. F16c 27/00

U.S. Cl. 308-238

6 Claims

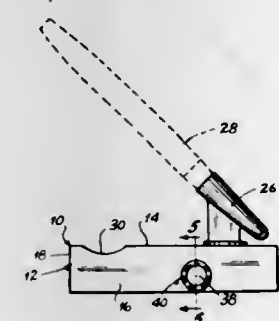


A plastic bearing constructed to support a shaft. The bearing has an irregular inner surface with spaced bearing points engaging the shaft. A spring is embedded in the plastic body of the bearing which exerts a force keeping the bearing surface in engagement with the shaft as the bearing wears.

3,601,460
MULTIPEN AND REFILL HOLDER
 Walton C. Marsh, Belleville, Ill., assignor to Marsh Stencil Machine Company, Belleville, Ill.
 Filed Feb. 10, 1969, Ser. No. 797,962
 Int. Cl. A47f 1/00

U.S. Cl. 312-73

6 Claims



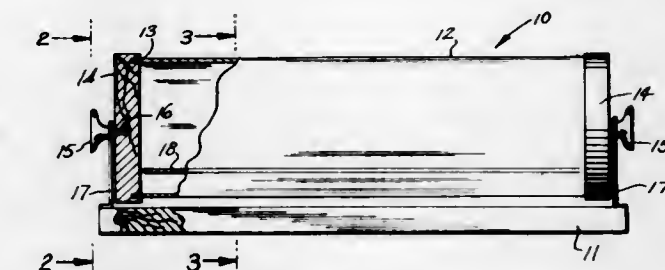
A multipen and selectable refill holder providing support for several refillable pens with different colored inks comprising a closed housing, three pen stands mounted on the housing, end members and a transparent bottom for the housing, an aperture in one end member of a size permitting passage of a pen refill, and a restrictive member in the housing defining a central compartment formed for receiving refills and for dispensing selected refills.

3,601,461
DISPLAY DEVICE

Herman E. Melcher, Rte. 3, Box 268 B, Blatched Road, Waukegan, Ill.
 Filed Oct. 20, 1969, Ser. No. 867,461
 Int. Cl. A47f 3/10

U.S. Cl. 312-125

2 Claims

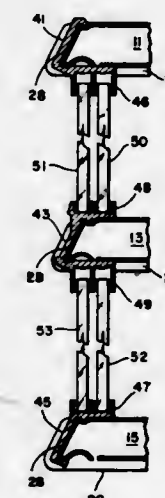


A display case for small handguns, gems, coins and other items. This display is cylindrical in configuration having removable ends, caps, the caps preventing dust from entering the cylinder and brackets secured to a base member supports the cylinder so that it may be rotated by the knobs carried within the end caps on the brackets. The cylinder includes a slideable shelf on its interior. The shelf being slideable when the device is rotated.

3,601,462
CABINET WITH SLIDING DOORS
 Jay G. Fenwick, Albert Lea, Minn., assignor to Streater Industries, Inc., Albert Lea, Minn.
 Filed Aug. 7, 1969, Ser. No. 848,189
 Int. Cl. A47f 3/00

U.S. Cl. 312-138

1 Claim



The invention relates to a sliding door type of cabinet which is constructed in part with the use of standardized shelving apparatus such as hooked shelf brackets and slotted standards or posts. Shelves are provided and adapters for holding and guiding sliding type doors are fitted to the front edge portions of the shelves.

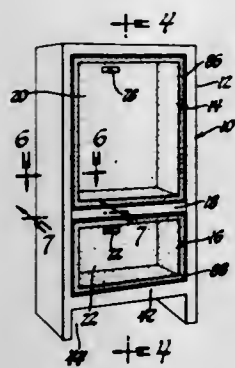
3,601,463
REFRIGERATOR CABINET ENCOMPASSING A RANGE OF REFRIGERATOR VOLUME
 Roy E. Watt, Brookville, Ohio, assignor to General Motors Corporation, Detroit, Mich.
 Filed May 22, 1970, Ser. No. 39,719
 Int. Cl. A47b 81/00, 77/08, 53/00

U.S. Cl. 312-214

3 Claims

A refrigerator cabinet having foamed insulation secured to the interior walls thereof and capable of slidably receiving plastic liners of various sizes providing a range of food compartment volumes. The foamed insulation has channel members molded therein for receiving and supporting a divider

wall in either horizontal or vertical positions. The plastic liners are formed with a plurality of integral rib members extending from the external surface and terminating in flanges



presenting a flat surface for engagement with the insulation. The length of the integral ribs is varied with the size of the food compartment defined by the plastic liner providing rigid support of the liner in the refrigerator cabinet.

3,601,464

ASH RECEPTACLE FOR AUTOMOBILES

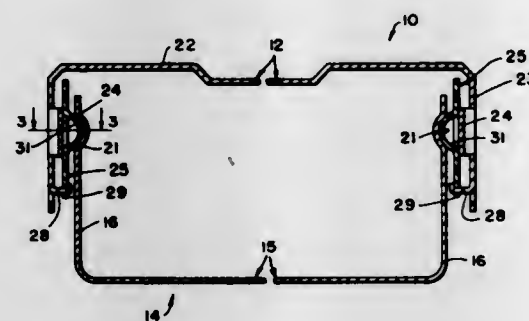
Henry De Boer, Lowell, Mich., assignor to F. L. Jacobs Co., Detroit, Mich.

Filed July 14, 1969, Ser. No. 841,471

Int. Cl. A47b 67/02; A47f 5/08; B60n 3/08

U.S. Cl. 312-246

7 Claims



The receptacle includes a fixed, stamped sheet metal retaining member of inverted channel section, each of whose depending flanges are slitted and inwardly offset to provide integral backing formations for a rigid nonmetallic frictional guide and skid plate. Each plate is fixedly applied by a screw or the like to the inner surface of a retainer flange, in outward abutment with the latter's backing formations. The skid plates are preferably of a thermosetting plastic composition, and each carries a pair of horizontally aligned, integrally formed skid lugs of quasi-circular convex outline. Such lugs mate slidably in longitudinal guideway grooves in the sides of the receptacles's ash box.

3,601,465

HOLOGRAPHIC STORAGE AND RETRIEVAL OF INFORMATION

William James Hannan, Pennington, N.J., assignor to RCA Corporation

Filed Jan. 23, 1970, Ser. No. 5,237

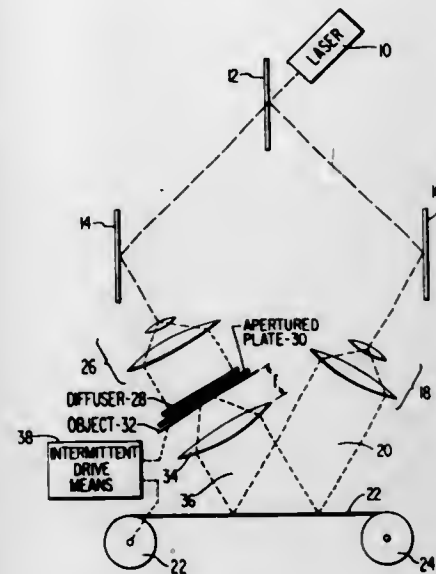
Int. Cl. G02b 27/22

U.S. Cl. 350-3.5

4 Claims

A single picture is stored as a plurality of holograms, each on a succeeding frame of a storage tape. Each hologram is a recording of the information present in a different small area of the picture. During readout, the tape may be driven con-

tinuously relative to the readout beam and the reconstructed image thereupon made to appear as a scanned picture. The



reconstruction may be made to occur on a stationary storage medium having storage properties such as a film or a scannable electronic storage means.

3,601,466

METHOD FOR DETECTING AN ABERRATION-COMPENSATED IMAGE

Tadao Tsuruta, and Yoshinobu Ito, both of Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

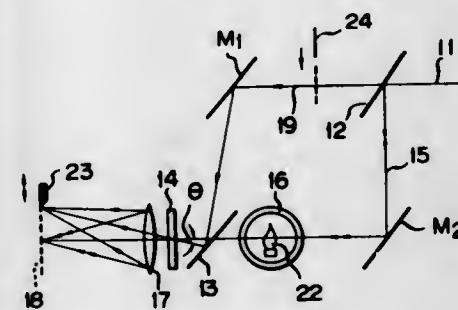
Filed June 9, 1969, Ser. No. 831,561

Claims priority, application Japan, June 21, 1968, 43/42530

Int. Cl. G02b 27/38, 27/00

U.S. Cl. 350-3.5

3 Claims



This invention relates to a method for sharply detecting an image which comprises, preparing a hologram with an aberration-free wave front and an aberration wave front, illuminating the hologram with a wave front produced as a result of removing only the change in light path length caused by a phenomenon to be measured or of adding newly the change in the light path length from or to the aberration front, and effecting filtering such as the schlieren method or phase difference method at the focus of the aberration-free wave front against the change in the wave front caused by the phenomenon and superimposed on the aberration-free wave front.

3,601,467

OPTICAL SCANNING ARRANGEMENT

Ernest Wildhaber, 124 Summit Drive, Rochester, N.Y. Continuation-in-part of application Ser. No. 804,080, Mar. 4, 1969, now abandoned. This application Apr. 1, 1969, Ser. No. 820,695

Int. Cl. G02b 17/00

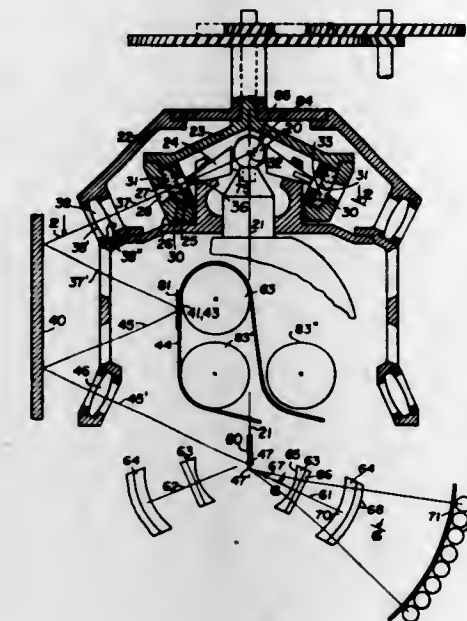
U.S. Cl. 350-6

11 Claims

The entire area of a single character is simultaneously illuminated, and the illuminated area is displaced along a scanning line that contains further characters. Images are formed adjacent a common point of the strung out charac-

ters. The characters are preferably made up of two elements of a limited number of elements. The rays of the images of the two character elements formed adjacent said common

Therefore, part of the light passing through the polarizer is polarized and the remaining portion passes through without being polarizing. When used in an animated display device, such a polarizer produces a smooth less pulsating motion and a brighter more vivid display.



point are guided in different directions. They are compared simultaneously with all elements in use.

A straight scanning line may be attained with a concave and preferably cylindrical mirror.

3,601,468

OPTICAL LIGHT WAVE MODULATOR FOR REPRESENTING A FIRST COLOR LIGHT WAVE AS A SECOND COLOR LIGHT WAVE

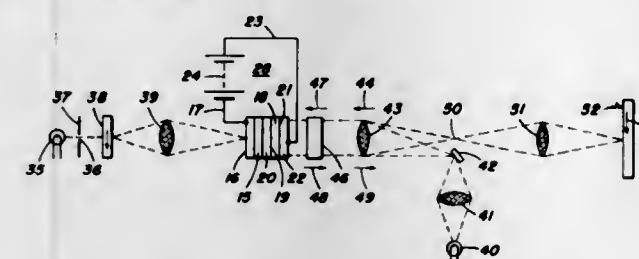
John L. Dailey, Pittsford, N.Y., assignor to Zerox Corporation, Rochester, N.Y.

Filed Nov. 17, 1969, Ser. No. 877,241

Int. Cl. G02f 1/26

U.S. Cl. 350-150

1 Claim



A photoconductor light wave modulator embodying a photoconductor and a crystal of potassium dihydrogen phosphate, and activated by a first color light wave of varying intensity and a second color light wave of fixed intensity to represent the first color light waves of varying intensity in terms of the second light wave of corresponding varying intensity.

3,601,469

ROTARY POLARIZER

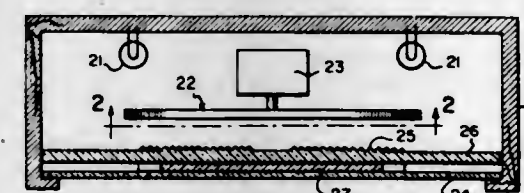
Anthony Siksal, 2705 Lahser Road, Bloomfield Hills, Mich.

Filed Aug. 11, 1969, Ser. No. 848,817

Int. Cl. G02b 5/30

U.S. Cl. 350-153

16 Claims



A rotary polarizer for use with animated display devices, wherein only a percentage of the polarizer is polarized.

3,601,470 LIGHT VALVE PROJECTION SYSTEM EMPLOYING COAXIAL BEAMS OF COLORED LIGHT

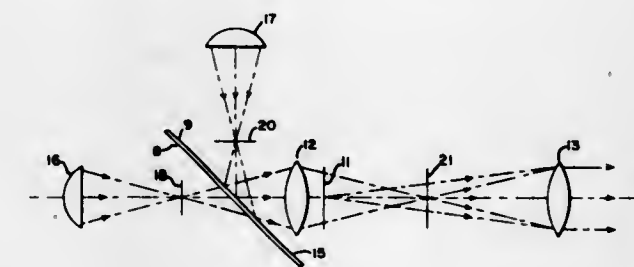
Lawrence A. Juhlin, Jr., Greenville, Ill., assignor to General Electric Company

Filed Oct. 27, 1969, Ser. No. 869,824

Int. Cl. G02b 27/38; G02f 1/32

U.S. Cl. 350-161

4 Claims



In a system for projecting images in color produced by light passing through optical diffraction gratings formed in a deformable medium, gratings formed along each of two different directions are illuminated with light of two different colors. By deployment of dichroic mirrors in the light path, light of both colors are superimposed and directed coaxially along an optic axis of the system onto the deformable medium, thereby achieving an improvement in quality of the projected image.

3,601,471

DURABLE FIRST SURFACE SILVER HIGH REFLECTOR

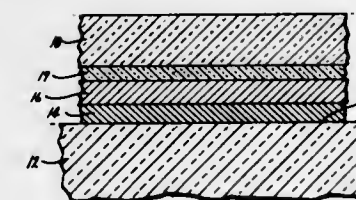
Richard Ian Seddon, Santa Rosa, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Mar. 3, 1969, Ser. No. 803,918

Int. Cl. G02b 5/28

U.S. Cl. 350-166

14 Claims



Durable first surface silver reflector having a layer of silver which is undercoated and overcoated in such a manner as to give the layer excellent adhesion to the substrate and which is also provided with a multilayer dielectric coating to give the coating an ability to withstand high humidity salt spray and the like.

3,601,472

OBJECTIVE LENS

David C. Gilkeson, White Bear Lake, Minn., and Michael J. Buzawa, Rochester, N.Y., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 20, 1969, Ser. No. 826,216

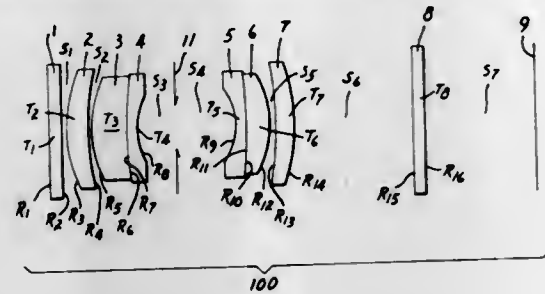
Int. Cl. G02b 9/36, 9/62

U.S. Cl. 350-196

4 Claims

A microfilm camera/processor having a constant film plane to copy board distance and a plurality of objective lens systems mounted in a precision turret for alternative utilization to vary the magnification or reduction of the

camera/processor. Each lens system includes an eight element microphotographic objective lens for providing alterna-



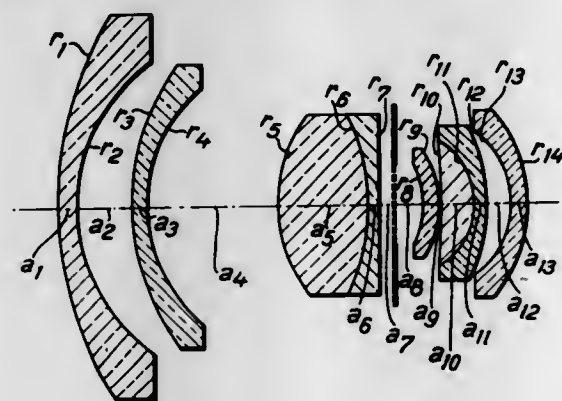
tive magnification, depending upon the system selected, in a fixed copy board to film distance of 82 inches.

3,601,473

OBJECTIVE HAVING LONG BACK FOCAL DISTANCE WITH REGARD TO ITS FOCAL LENGTH
Walter Mandler; Garry Edwards, and Erich Wagner, all of Midland, Ontario, Canada, assignors to Ernst Leitz G.m.b.H., Wetzlar, Germany
Continuation-in-part of application Ser. No. 833,063, June 13, 1969. This application Apr. 14, 1970, Ser. No. 28,339
Int. Cl. G02b 9/62

U.S. Cl. 350-215

1 Claim



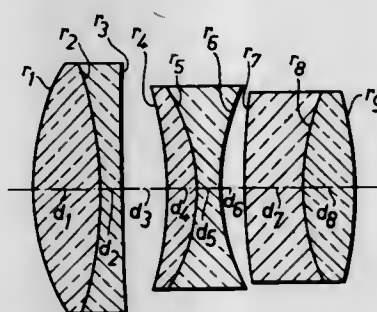
A photographic objective having a relatively long back focal distance with regard to its focal length and also having a great relative opening. The objective comprises in front of the diaphragm a negative lens element consisting of two component lenses and spaced therefrom a cemented positive lens element which consists also of two component lenses. The latter lenses have inverse refractive power. Behind the diaphragm a negative lens element is disposed which consists of three component lenses of which the middle one is a cemented lens.

3,601,474

TRIPLET OBJECTIVE
Georg Knetsch, Berghausen, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany
Filed July 13, 1970, Ser. No. 54,472
Claims priority, application Germany, July 19, 1969, P 19 36 895.7
Int. Cl. G02b 9/14

U.S. Cl. 350-227

1 Claim



An objective specially designed for a field angle of approximately 30° and having a large relative opening of at least

f/2.8 comprises three separate lens elements, each of which being assembled from two single lenses of opposite refractive power which are cemented together.

3,601,475
DISTORTION-FREE PANORAMIC VIEWER AND PICTURE THEREFOR

Harvey L. Ratliff, Jr, Waldorf, Md., assignor to Jetru Inc., Amarillo, Tex.
Continuation-in-part of application Ser. No. 440,110, Mar. 16, 1965, Pat. No. 3,504,122, and a continuation-in-part of 618,977, Feb. 27, 1967, Pat. No. 3,471,224, which is a continuation-in-part of application Ser. No. 343,841, Feb. 10, 1964, Pat. No. 3,464,570, and a continuation-in-part of 638,319, May 15, 1967, now abandoned, and a continuation-in-part of 662,716, Aug. 23, 1967, now abandoned. This application Sept. 24, 1969, Ser. No. 860,489
Int. Cl. G02b 27/02

U.S. Cl. 350-239

4 Claims



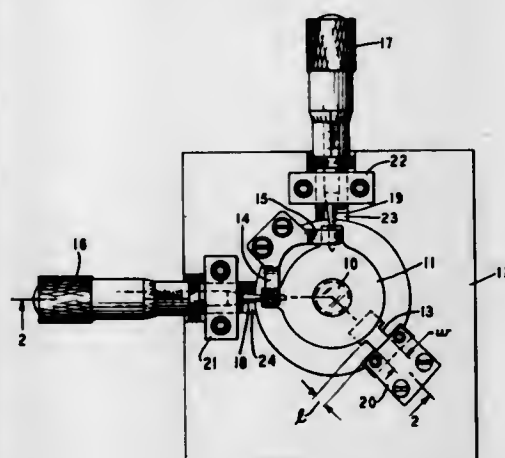
A panoramic viewer having a large slot in the front portion thereof and a special wide-angle ocular in the rear portion thereof for eliminating the distortion of a fisheye-type picture placed in the slot to enable substantially distortion-free wide-angle viewing.

3,601,476

ADJUSTABLE OPTICAL DEVICE
Donald R. Mackenzie, Plainfield, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Sept. 16, 1968, Ser. No. 762,184
Int. Cl. G02f 1/34

U.S. Cl. 350-285

1 Claim



An adjustable holder for optical elements, for use with lasers, exhibits excellent mechanical stability, which is achieved by employment of a beam bent within its elastic limit, to support the optical element. Orientation of the element is then achieved by introducing torsion into the beam, as well as by varying the amount of bending.

3,601,477

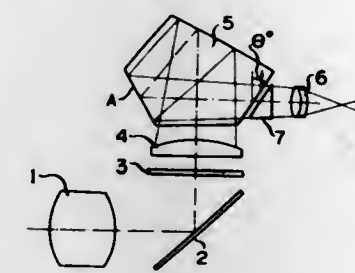
PENTAPRISM FOR SINGLE LENS REFLEX CAMERA
Masayuki Miyazaki, Fujisawa-shi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 14, 1968, Ser. No. 775,643
Claims priority, application Japan, Nov. 22, 1967, 42/74668
Int. Cl. G02b 5/04

U.S. Cl. 350-286

3 Claims

This invention relates to a pentaprism incorporated in single lens reflex cameras which is so constructed that the final

surface, in other words the transparent surface on the eyepiece side, of the prism is slanted to make a specified



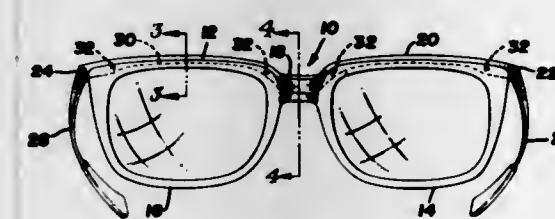
angle with the optical axis of the finder in order to eliminate the disturbing reflection of light within the finder.

3,601,478

REINFORCED SPECTACLE FRAME
Robert H. Ramp, Pittsford, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Feb. 10, 1969, Ser. No. 797,984
Int. Cl. G02c 1/00

U.S. Cl. 351-89

1 Claim



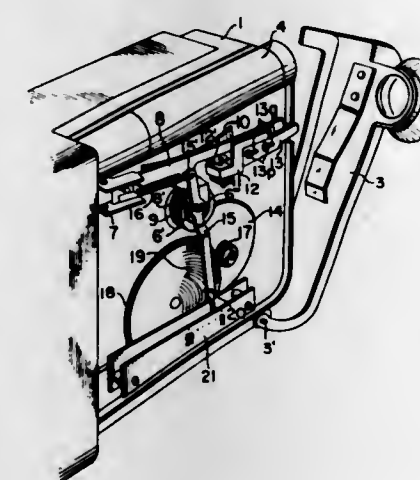
A spectacle frame having a brow bar is provided with a recess into which a reinforcing member is secured. The spectacles are further characterized in that by partially exposing the reinforcing member a decorative effect is also achieved.

3,601,479

CINE CAMERA HAVING FILM COUNTER
Yoshio Komine, Saitama-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 21, 1969, Ser. No. 852,044
Claims priority, application Japan, Aug. 28, 1968, Aug. 30, 1968, 43/73,679;43/74,476
Int. Cl. G03b 23/02

U.S. Cl. 352-72

7 Claims



A cine camera is provided with a film footage counter which is automatically coupled and uncoupled with the film-advancing mechanism of the camera as a film magazine is loaded and unloaded from the camera film chamber. A film-driving shaft with its axis normal to the direction of loading and unloading operations and extending into the camera film chamber, is mounted within the camera on a biased pivoted member, the insertion or withdrawal of the film magazine

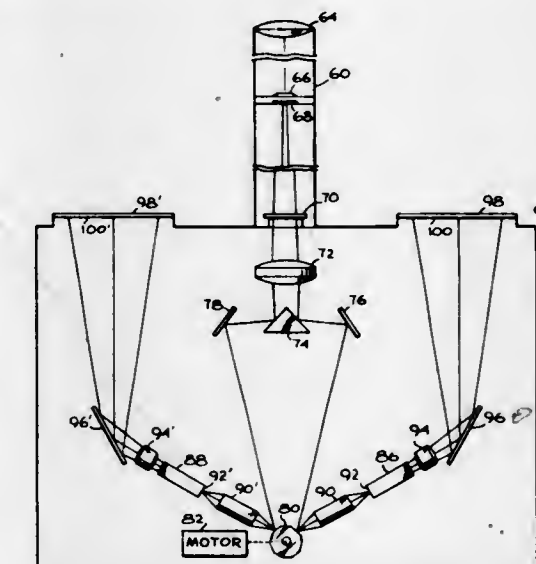
retracting the film-winding shaft; the biased member coupling the shaft to the magazine driving core when the film magazine is in place. A film footage indicator operative with the film-driving shaft is provided with resilient means for returning the indicator to a zero reading position upon retraction of the film-winding shaft from the camera body.

3,601,480

OPTICAL TUNNEL HIGH-SPEED CAMERA SYSTEM
Donald Sexton Randall, Mountain View, Calif., assignor to Physics International Company, San Leandro, Calif.
Filed July 10, 1968, Ser. No. 743,868
Int. Cl. G03b 41/00

U.S. Cl. 352-84

8 Claims



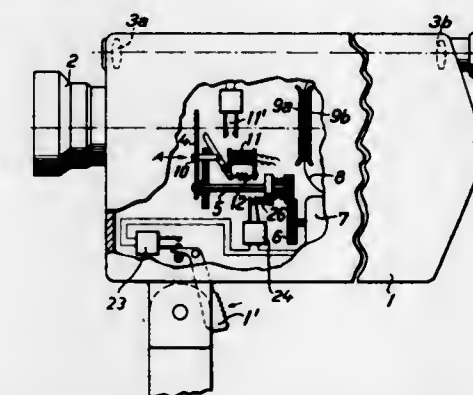
A high-speed framing camera is disclosed. The camera includes an optical tunnel of rectangular cross section for forming an extended array of virtual images of an event to be recorded. An objective lens system of limited aperture projects a cone of image-forming rays onto a face of a rotating mirror upon which face a real image of the event is formed. These rays are recollected by another lens to form an additional real image at the entrance of the tunnel. A copy lens at the exit of the tunnel forms rows of real images of these virtual images on an image surface outside of the tunnel. As the face of the mirror rotates through its recording angle, the images are sequentially illuminated.

3,601,481

SHUTTER RELEASE DEVICE FOR MOTION PICTURE CAMERAS
Arthur Kessler, Grossaltendorten, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany
Filed Dec. 19, 1969, Ser. No. 886,674
Claims priority, application Germany, Dec. 23, 1969, P 18 16 600.2
Int. Cl. G03b 21/58

U.S. Cl. 352-169

5 Claims



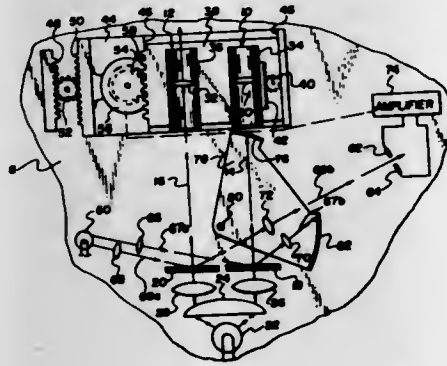
A shutter release device in an electrically operated motion picture camera for releasing the shutter for continuous

operation or for single frame exposure. The rotating camera shutter is stopped and released by a stop member actuated by a solenoid. A bistable circuit for energizing the solenoid and the camera motor is connected in line with the camera release switch and is switched in its conductive state when the release switch is closed. Means for generating one electric pulse in dependence on every shutter rotation and for conducting the pulse to the bistable circuit are provided, which pulse causes the bistable circuit to be switched in its nonconductive state, thereby deenergizing the solenoid and the camera motor. Set means are provided at the camera which may be set either to a continuous-operation-position or to a single-frame-exposure-position. In the continuous-operation-position the set means prevent the pulse from reaching the bistable circuit while in the single-frame-exposure position the pulse is conducted to the bistable circuit, switching the circuit to its nonconductive state and thereby deenergizing the solenoid and stopping the camera motor.

3,601,482
AUTOMATIC FOCUSING MECHANISM FOR A LAP DISSOLVE PROJECTOR

Donald M. Harvey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 23, 1969, Ser. No. 868,696
Int. Cl. G03b 3/10

U.S. Cl. 353—101

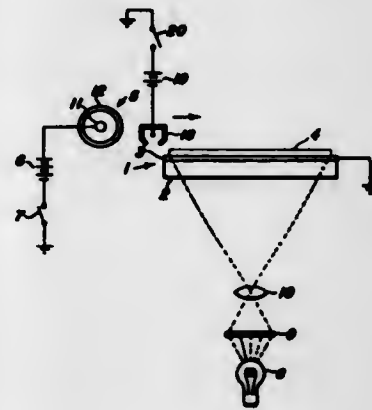


A lap dissolve projector having mechanism for automatically focusing film images in a pair of film projection lens systems for maintaining a constant lens-to-film distance for each system in which the film image is in focus. An optical focusing system for each film comprises a lens for focusing a radiation source on the corresponding film, and a lens for focusing the reflected radiation from the film onto a single pair of closely spaced radiation sensitive elements. The output of the radiation sensitive elements is supplied to a drive motor for adjusting the lens-to-film distance to maintain image focus. A disabling member for the optical focusing systems is selectively movable between two positions for alternately disabling one of the film projection systems and its corresponding optical focusing system and enabling the other film projection system and its corresponding optical focusing system.

3,601,483
IMAGING APPARATUS
Leonard M. Carreira, Penfield, and Vsevolod Tulagin, Rochester, both of, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Division of Ser. No. 561,587, June 29, 1966, Pat. No. 3,477,934
Filed May 16, 1969, Ser. No. 825,256
Int. Cl. G03g 15/02, 15/00

U.S. Cl. 355—3
8 Claims
Imaging apparatus for making photoelectrophoretic images by placing a photoelectrophoretic suspension between two or more electrodes while exposing the suspension to activating

electromagnetic radiation and an electric field. An electric field may be generated electrostatically either before or during



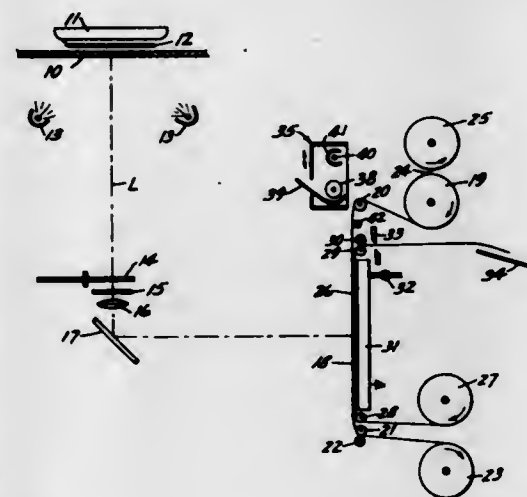
ing imaging in any manner such as by a corona discharge device or by frictionally rubbing the surface of one of the electrodes.

3,601,484
COLOR COPYING APPARATUS

Douglas H. Dybvig, John W. Ulseth, and Joseph A. Wiese, Jr., all of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 728,169, May 10, 1968. This application June 19, 1970, Ser. No. 47,720
Int. Cl. G03g 15/00

U.S. Cl. 355—4

8 Claims

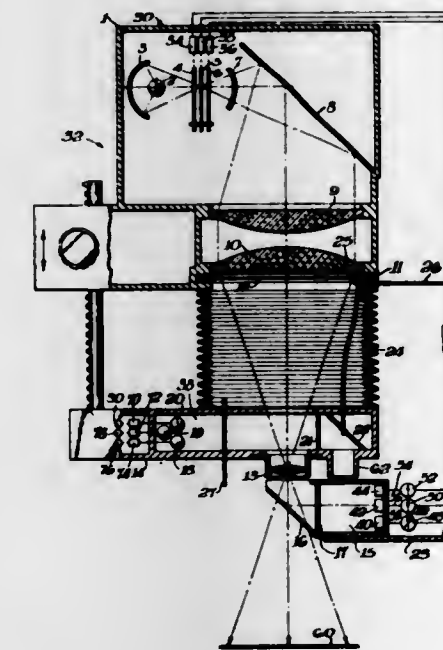


Apparatus is described for making full color copies of colored originals. Color separation, and thermally induced printing of separate colors in accurate registration, is accomplished rapidly and automatically. The apparatus employs a thermographic dry image-forming process. A powder supply unit operating at high potential applies powder to a photosensitive color transfer sheet in a pattern defined by a color separation light-image of the original. The radiation-absorptive powder pattern is heated by exposure to radiant energy to cause transfer of color to a receptor sheet.

3,601,485
METHOD AND APPARATUS FOR MEASURING AND CONTROLLING THE AMOUNTS OF COLORED LIGHT IN THE PRINTING OF PHOTOGRAPHIC TRANSPARENCIES
Siegfried Barbieri, Brixen, near Bozen, Italy, assignor to Durst A.G., Bozen, Italy
Filed Feb. 12, 1969, Ser. No. 798,621
Claims priority, application Italy, Oct. 9, 1968, 2572
Int. Cl. G03b 27/76

U.S. Cl. 355—38
20 Claims
An apparatus for making prints from colored photographic transparencies performs color measuring and printing either

simultaneously or sequentially. In simultaneous operation, part of the light passing through the transparency is utilized to terminate the exposures to the printing light of each of the primary colors. Sequentially auxiliary sources of light of each of the primary colors are adjusted to the same combination and intensity as in a selected portion of the transparency having an arbitrary combination of these colors. The adjusted light is then used to terminate the exposures to the light of each of the primary colors. A semitransparent mirror upon a movable sensing head diverts part of the light passing through the transparencies to terminate the exposures or uses, therefor the light adjusted. A fiber optic samples the



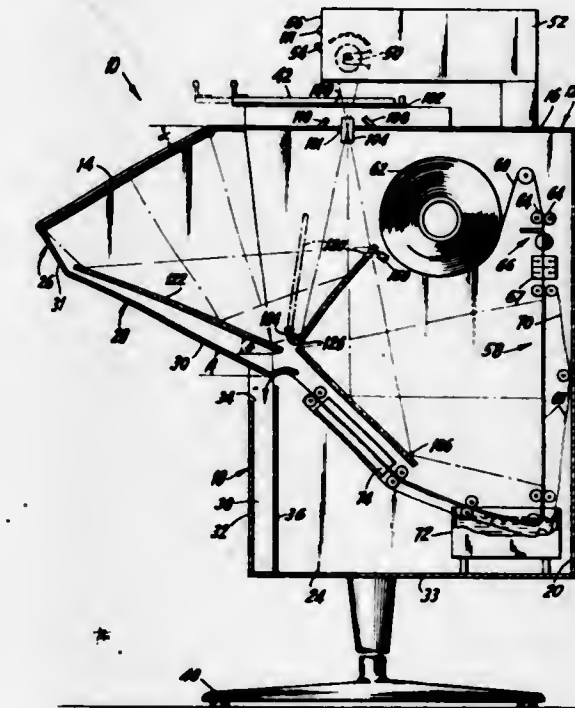
combination of colors in a selected portion of the transparency during sequential measuring and projects them upon the sensing head. The auxiliary sources are then adjusted to the same combination and intensity as the selected portion of the transparency and this light is projected upon the sensing head during the sequential printing process to terminate the exposures to each of the primary colors. The sensing head slides back and forth under the focusing lens carrier within which the auxiliary sources of light and an apertured reflector (through which the fiber optic extends) are conveniently mounted with a diaphragm in-between for adjusting the overall intensity of the light from the auxiliary sources.

3,601,486
COMBINATION READER-PRINTER
Mark Levine, Plainview, N.Y., assignor to Readex Microprint Corporation, New York, N.Y.
Filed May 18, 1970, Ser. No. 38,207
Int. Cl. G03b 13/28

U.S. Cl. 355—45

5 Claims

A compact epidiascopic combination reader-printer is disclosed which projects enlarged images of microforms for viewing or printing by persons of widely ranging heights seated in front of the reader-printer. The reader-printer housing includes a cantilevered portion projecting forwardly supporting a rear projection viewing screen. The housing has an upper surface on which is mounted a microform holder and transport means, and means for transmitting light through transparent microforms. Lighting means are also mounted below the microform holder to illuminate opaque microforms. A printing station is mounted within the housing and adjacent the rear wall of the housing and an optical system within the housing provides an enlarged image. A system including movable and stationary mirrors transmits an enlarged image to either the printing station or the viewing

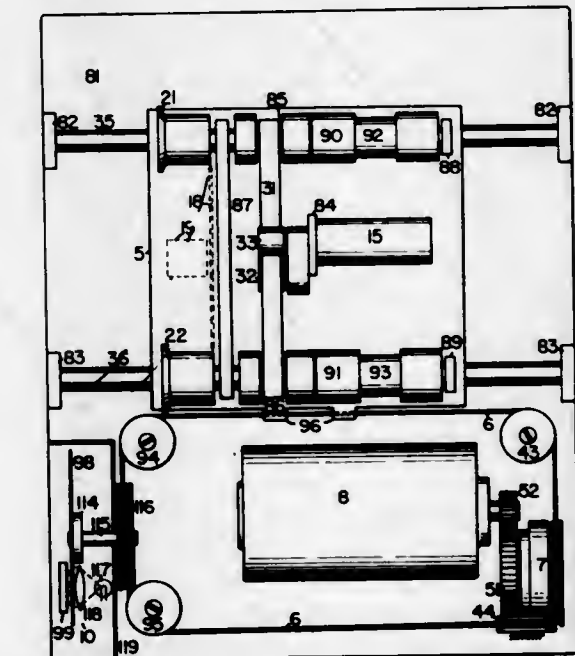


user are such as to provide comfortable use by persons of widely ranging heights seated in front of the reader-printer.

3,601,487
MICROFICHE STEP AND REPEAT CAMERA
John S. Burton, Los Angeles, and Harry F. Rayfield, Bradbury, both of, Calif., assignors to Terminal Data Corporation, Van Nuys, Calif.
Filed Feb. 26, 1970, Ser. No. 14,422
Int. Cl. G03b 27/42

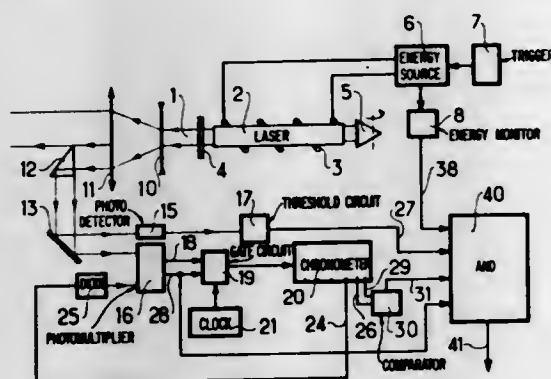
U.S. Cl. 355—53

14 Claims



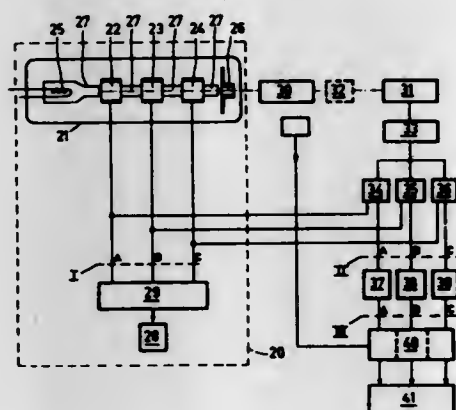
A microfiche camera suited to expose a wide selection of film widths at relatively high speeds and with required precision. The objective lens is stationary and the film is moved transversely to accomplish the multiple independent exposures characteristic of the fiche format. A photoelectric cell-format disk assembly accurately controls the lateral position of the film by coaction with a servomotor. A mechanical cable wound around a power drum translates a film-carrying carriage. The cable is kept taut by a torsion spring surrounding the hub of the drum. A stepper-motor supported by the film carriage translates the film longitudinally. A pinch roller system having spring flanges at the edges maintains precise transverse alignment at the lens aperture gate despite intervening transverse motion of the film.

3,601,488
APPARATUS FOR CHECKING THE PROPER OPERATION OF A LASER TELEMETER
 Guy Ripart, Plessis-Robinson, France, assignor to Compagnie Generale D'Electricite, Paris, France
 Filed Sept. 26, 1969, Ser. No. 861,391
 Claims priority, application France, Sept. 27, 1968, 168,042
 Int. Cl. G01c 3/08, 25/00
 U.S. Cl. 356-6 7 Claims



Apparatus for checking the operation of a laser telemeter before it is used, comprising a laser transmitter and a receiver comprising a photomultiplier and a counter characterized particularly by its means for measuring the energy supplied to the discharge circuit connected to the laser and for measuring the laser emission energy, as well as its means for generating an artificial echo signal on an artificial target in order to stop the chronometer in a preselected position corresponding to the distance separating the artificial target from the receiver and its means for stopping the counter before its maximum capacity has been exceeded.

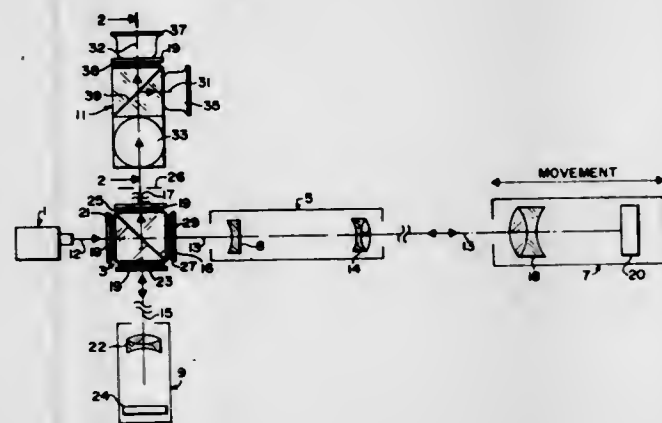
3,601,489
GAS-DISCHARGE LAMP FOR PRODUCING MODULATED ATOMIC RESONANCE RADIATION
 Zeger Van Gelder, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
 Filed Sept. 3, 1969, Ser. No. 854,990
 Claims priority, application Netherlands, Sept. 4, 1968, 6,812,602
 Int. Cl. G01j 3/42; H01l 17/02
 U.S. Cl. 356-97 7 Claims



A gas-discharge lamp for producing modulated atomic resonance radiation comprising a hermetically sealed cylindrical envelope having a window at one end, two electrodes between which a positive column discharge in a rare gas is maintained during operation by means of a direct-voltage difference, a sputtering electrode essentially consisting of an element having desired resonance radiation characteristics, and a ring to confine the resonance radiation along the axis of the positive column discharge which is located in such a manner that it intersects the window. The sputtering electrode and the ring surround the positive column with the ring positioned between the sputtering electrode and the electrode at the window end. The ring, extending up to the vicinity of the sputtering electrode, has an inner diameter which is smaller than that of the sputtering electrode and a length

which is at least equal to the inner diameter. Furthermore, a generator is provided from which a voltage of periodically varying values is applied to the sputtering electrode. The lamp may comprise a plurality of sputtering electrodes and may be used in apparatus for measuring absorption of atomic resonance radiation, particularly for determining traces of elements in a sample.

3,601,490
LASER INTERFEROMETER
 Kent E. Erickson, Ridgewood, N.J., assignor to Keuffel & Esser Company, Hoboken, N.J.
 Filed Dec. 30, 1966, Ser. No. 606,364
 Int. Cl. G01b 9/02
 U.S. Cl. 356-106 10 Claims



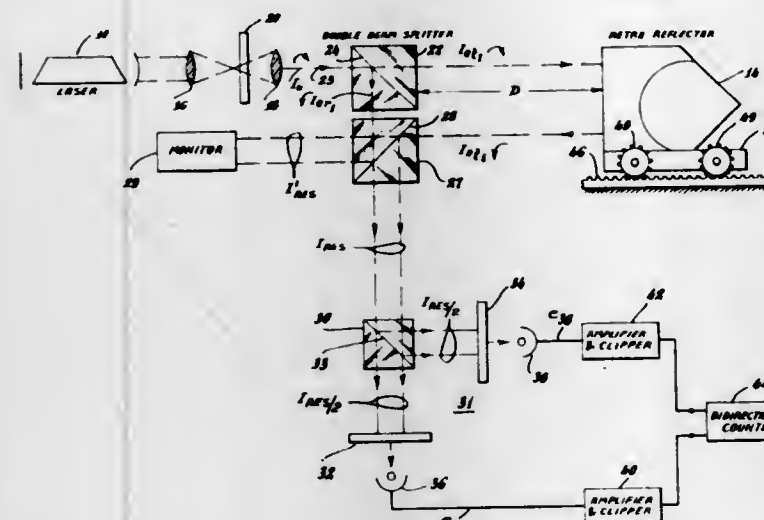
Feedback intracavity interference in a laser beam generator used as the light source in a single-pass interferometer is avoided by dividing the source beam at a polarizing beamsplitter to form reference and measuring beams polarized with antiparallel Poincare vectors. Birefringent elements disposed in the path of the polarized beams effectively rotate the vectors of the beams and create respectively contrapolarity in the beams. As a result the beamsplitter originally passing (or reflecting) the beams will subsequently reflect (or pass) the beams, thus preventing the return of laser beams to the generator cavity. The reference and measuring beams recombined at the beamsplitter thus form a composite beam having a resultant Poincare vector lying in a plane normal to the antiparallel Poincare vectors of the component beams. As the azimuth of the resultant vector traverses a full cycle with the phase change resulting from the movement of the interferometer measuring component, a plurality of polarizing elements disposed in the combined beam create optically discernible fringe signals which minimize at selected azimuths in the vector cycle. Multiple signal-counting components provide multiple-phase electronic signals which may be differentiated to remove DC components and provide signals which may be employed in reversible readout devices.

3,601,491
DISTANCE-MEASURING INTERFEROMETER
 William Reid, Smith-Vaniz, 14 Pasture Lane, Darien, Conn.
 Continuation-in-part of Ser. No. 566,050, July 18, 1966, abandoned
 Filed June 7, 1967, Ser. No. 645,567
 Int. Cl. G01b 9/02
 U.S. Cl. 356-106 4 Claims

An interferometer for accurately measuring the displacement of a remotely positioned object includes means for projecting a first polarized beam of light at the object, for reflecting the projected beam from the object and for combining a reference beam of light with the reflected beam. The reference beam is of similar polarization and is orthogonally related to the first beam. Means are provided for converting the resultant beam to linearly polarized light and for detect-

ing and indicating variations in the polarization plane of linearly polarized light. Displacement of the object causes

3,601,493
CLEANSING STRUCTURE AND SOAP DISH
 Jacob M. Levy, 5238 Oakton, Skokie, Ill.
 Filed Apr. 16, 1969, Ser. No. 816,542
 Int. Cl. A47k 5/04, 7/03
 U.S. Cl. 401-201 2 Claims



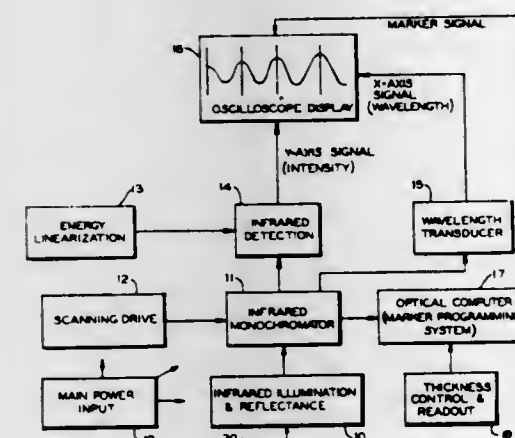
A cleansing structure formed of a sponge, a bar soap held and exposed centrally in the sponge and a relatively rigid handle exposed externally of the sponge, the handle serving as a base for the sponge when used as a soap dish.

3,601,494
STYLOGRAPHIC PEN WITH DISPOSABLE INK RESERVOIR
 Edward Bok, 7348 Lee Hwy. Apt. #201, Falls Church, Va.
 Filed Feb. 6, 1970, Ser. No. 9,369
 Int. Cl. B43k 1/10
 U.S. Cl. 401-258 12 Claims



A stylographic pen of the type encompassing an ink reservoir communicant with a tubular writing pen tip, particularly the improvement consisting of a disposable reservoir reciprocable within the pen barrel, while venting the reservoir and cleaning the tubular writing tip with a cleaning wire.

3,601,492
APPARATUS FOR MEASURING FILM THICKNESS
 Thomas E. Reichard, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.
 Filed Nov. 20, 1967, Ser. No. 684,382
 Int. Cl. G01b 9/02
 U.S. Cl. 356-108 6 Claims

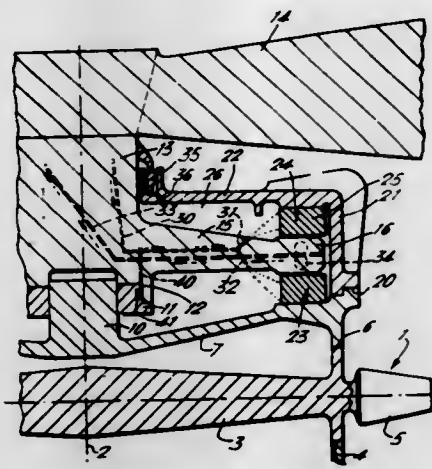


Improved means and method for measuring film thickness by rapidly forming and portraying optical interference fringe spectra and interpreting the same directly in terms of film thickness. An internal computer senses movement of a wavelength reference member and causes programmed indices to be displayed along with the interference fringe waveform. A single manual control, with the aid of an improved scanning and display method which balances out time lags, allows the indices to be coordinated with the fringe waveform. An automatic thickness readout device cooperates with the manual control.

3,601,495
BEARING ASSEMBLY
 Cyril John Bean, Coventry, England, assignor to Rolls-Royce Limited, Darby, England
 Filed Sept. 16, 1969, Ser. No. 858,308
 Claims priority, application Great Britain, Sept. 20, 1968, 44950/68
 Int. Cl. F01d 1/10
 U.S. Cl. 415-110 12 Claims

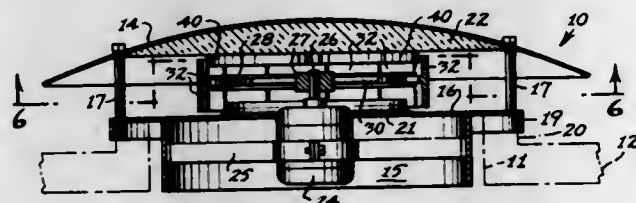
A bearing assembly comprising an annular rotor portion, a stator portion about which the rotor portion is mounted for rotation about a stator portion and which defines a substantially closed annular chamber therewith, the stator portion including a stator member which extends transverse to the

axis of rotation of the rotor portion and which carries at least one thrust bearing which engages an internal surface of the



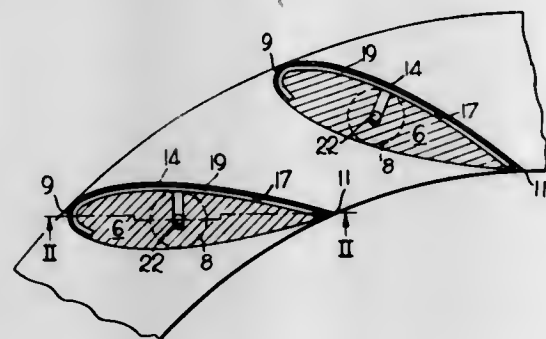
rotor portion. The bearing assembly is for use in a substantially vertically arranged gas turbine engine.

3,601,496
ROOF BLOWER DEVICE
Bobbie G. Kemp, 113 Cumberland Shore Drive, Hendersonville, Tenn.
Filed Aug. 27, 1969, Ser. No. 853,275
Int. Cl. F01d 17/00; F04d 25/08
U.S. Cl. 415-146 7 Claims



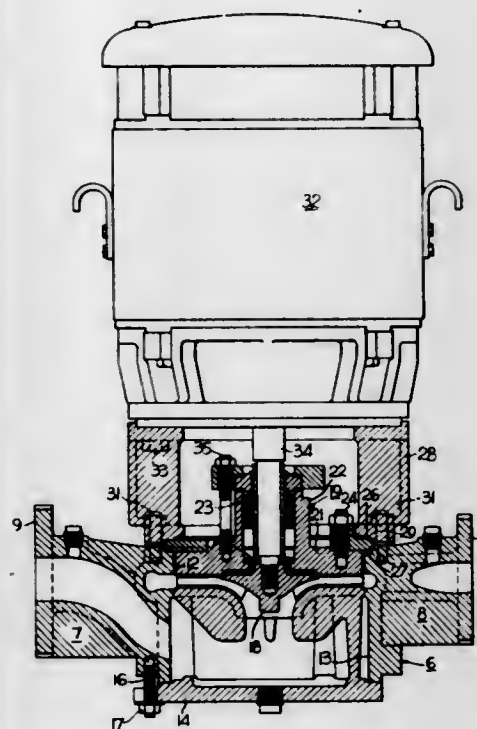
A roof blower device including a power-driven rotary frame having a plurality of vanes pivotally and serially mounted around the circumference of the frame in overlapping relationship in closed position. The rotary frame is mounted in an annular air passage so that when the frame is stationary the vanes are closed, and when the frame is rotated the overlapping vanes are swung radially outward by the centrifugal motion of the frame to open the annular air passage.

3,601,497
WICKET GATE END SEAL FOR HYDRAULIC MACHINE
Howard A. Mayo, Jr., York, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Oct. 24, 1969, Ser. No. 869,038
Int. Cl. F01d 17/12
U.S. Cl. 415-163 1 Claim



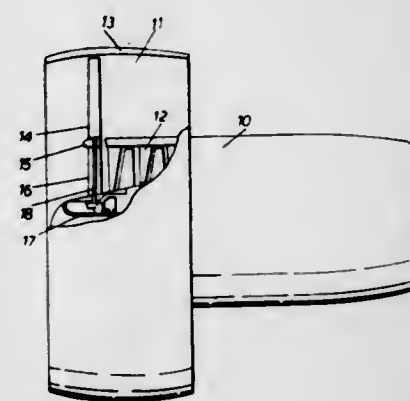
A piston seal is slidably contained in a slot provided in the ends of the wicket gates. Means are provided to urge this piston seal into liquid sealing engagement with the adjacent hydraulic turbine stationary components. These means are preferably in the form of pressurized hydraulic fluid directed to the chamber behind the piston seal.

3,601,498
CENTRIFUGAL PUMP
Earle E. Schroeder, New Richmond, Ohio, assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Oct. 23, 1969, Ser. No. 868,729
Int. Cl. F04d 29/00; F04b 17/00
U.S. Cl. 415-170 1 Claim



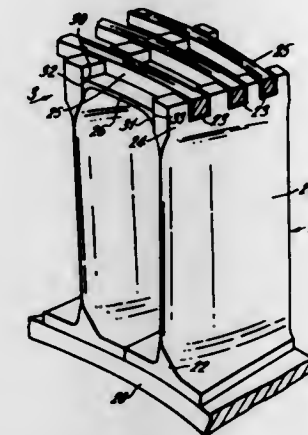
A centrifugal pump having front and rear apertures each of a size to permit removal of the impeller and the shaft seal therethrough. The rear cover assembly provides a support for the shaft seal housing and can be removed through either aperture.

3,601,499
GEAR DRIVE FOR VARIABLE PITCH AEROFOIL ASSEMBLY
John H. Ellinger, Mickleover, Derby, England, assignor to Rolls Royce Limited, Derby, England
Filed June 17, 1969, Ser. No. 834,125
Claims priority, application Great Britain, June 22, 1968, 29883/68
Int. Cl. B63h 3/06
U.S. Cl. 416-160 6 Claims



A gear drive for variable pitch aerofoil comprises a common gear wheel adapted to drive the aerofoils to vary their pitch, a plurality of compound epicyclic wheels engaging with the common wheel and the drive shaft of the aerofoil, a carrier from which are carried the epicyclic wheel and drive means for the carrier adapted in one mode to hold the carrier stationary and in another mode to cause the carrier to rotate with the drive shaft.

3,601,500
ROTOR ASSEMBLY FOR A FLUID FLOW MACHINE
Jack Palfreyman, and Henry Edward Middleton, both of Derby, England, assignors to Rolls-Royce Limited, Derby, England
Filed Aug. 12, 1969, Ser. No. 849,437
Claims priority, application Great Britain, Aug. 28, 1968, 41,097/68
Int. Cl. F01d 5/24
U.S. Cl. 416-190 6 Claims



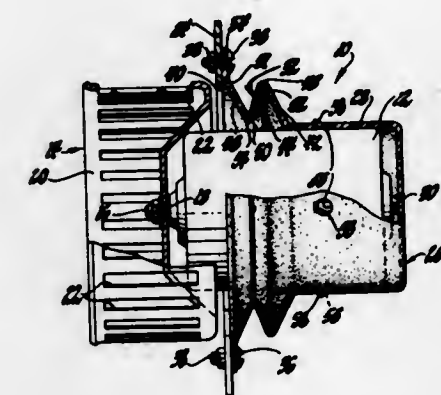
A rotor assembly for a fluid flow machine comprising a rotor hub member provided with a plurality of angularly spaced apart rotor blades, and at least one load-distributing member which transmits predetermined torsional loads between the various rotor blades, the load-distributing member being free to move with respect to all the rotor blades but engaging the latter to distribute the load whenever any rotor blade, as a result of the application thereto of such a predetermined torsional load, moves with respect to the remaining rotor blades.

3,601,501
GAS COMPRESSOR IMPELLER AND SHAFT ASSEMBLY
John G. Johnson, Rte. 2, Box 18, Waynesboro, Va., and James H. Anderson, 1615 Hillock Lane, York, Pa.
Filed Feb. 26, 1970, Ser. No. 14,470
Int. Cl. F04d 29/00; B63b 1/00; F16d 1/06
U.S. Cl. 416-244 6 Claims



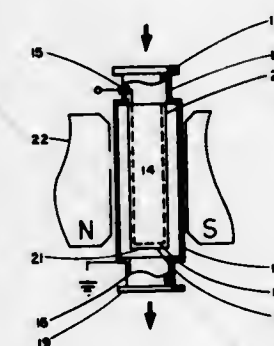
A centrifugal gas compressor impeller is assembled to a rotatable shaft with two friction washers having conical surfaces mating with respective opposite conical surfaces of the impeller that are concentric to a central impeller aperture through which a threaded bolt is passed and threaded into a threaded aperture at the end of the rotatable shaft. The angles of concentricity for the conical surfaces of the washer are slightly different than the angles of concentricity of the mating impeller surfaces so that a friction lock is obtained between the shaft and impeller and also the impeller and washer apertures are slightly larger than the bolt shaft diameter so that an impeller centering relative to the shaft is assured during assembly.

3,601,502
VIBRATION ISOLATION BLOWER MOUNTING
Robert M. Harter, Collins, N.Y., assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 17, 1969, Ser. No. 858,699
Int. Cl. B64c 11/00
U.S. Cl. 416-244 4 Claims



In preferred form a blower assembly for an automobile ventilation system including a blower motor, a blower fan connected to the motor for rotation, a resilient plastic member having a tubular end portion encircling and supporting the fan and a bellows portion connected at one end to the tubular end portion and attached at the other end to a wall of the automobile. Expansion and contraction of the bellows portion dampens axial and lateral vibrational movement of the blower motor.

3,601,503
THIN MEMBRANE IONIZATION PUMP APPARATUS
Thomas W. Snouse, 13781 Pierce Road, Saratoga, Calif.
Filed Aug. 8, 1969, Ser. No. 849,607
Int. Cl. F04b 37/02
U.S. Cl. 417-48 3 Claims



An ionization process vacuum pump. Ions produced in the pump are accelerated to energies sufficiently high to enable them to pass through a thin membrane and thus out of the system being evacuated. The membrane prevents return of low energy gas molecules from the high-pressure side of the pump. Embodiments relating to different methods for production of energetic ions are discussed.

3,601,504
COMPENSATOR AND PRESSURE LIMITING DEVICE
 James R. McBurnett, Stillwater, Okla., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
 Filed Sept. 22, 1969, Ser. No. 859,806
 Int. Cl. F04b 49/00

U.S. Cl. 417-213

6 Claims

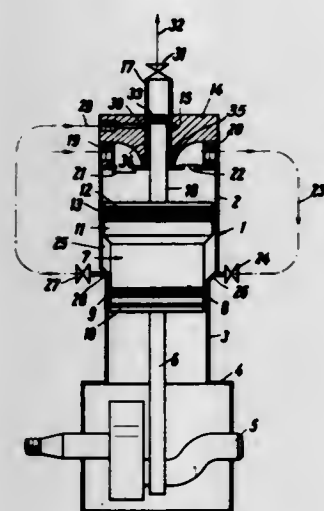


A pressure limiting and pressure regulating device operating as a compensator on a variable stroke pump in a load sensitive hydraulic system.

3,601,505
COMPRESSORS
 Kurt Bratsch, Kampchaussée 39d, 2050 Hamburg 80, Germany
 Filed Apr. 8, 1969, Ser. No. 814,389
 Claims priority, application Germany, Apr. 8, 1968, Mar. 4, 1969, P 17 03 145.7; P 19 10 848.6
 Int. Cl. F04b 3/00

U.S. Cl. 417-266

12 Claims



An improved compressor with at least three stages and having at least one cylinder, wherein the improvement comprises that only one connecting rod is used for each cylinder and that the differential piston forms a guide piston for the high-pressure piston, wherein the high-pressure cylinder operates without an inlet valve and its outlet valve covers substantially the entire and face; the invention also comprises a multicylinder arrangement embodying these improvements.

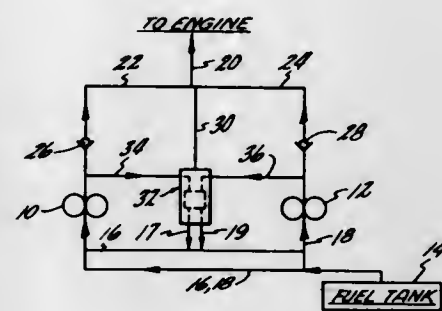
3,601,506
WEAR EQUALIZED FUEL DELIVERY SYSTEM
 Ray Frederick Griswold, Northridge, Calif., assignor to Chandler Evans Inc., West Hartford, Conn.
 Filed Nov. 28, 1969, Ser. No. 880,648
 Int. Cl. F04b 49/00, 23/04, 41/06

U.S. Cl. 417-286

9 Claims

A multipump fluid delivery system that simultaneously provides pump redundancy and the large displacement necessary at low startup speeds. Valve means are provided to cause one or more pumps to recirculate unpressurized fuel during normal operation when the entire flow of the several pumps need not be pressurized to meet system demands. The valve means automatically alternates the loaded pump each successive

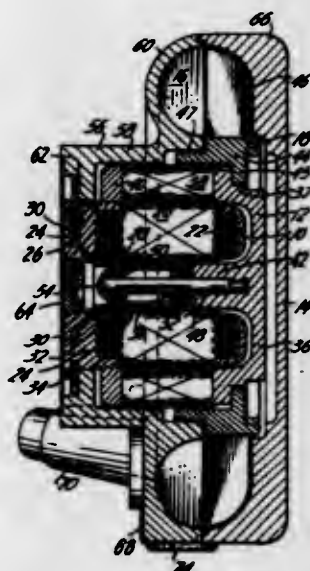
startup. This alternate loading tends to equalize wear among the several pumps, thereby affording a longer life before fuel system overhaul is required. The valve means also simultaneously serves a pressure relief function.



3,601,507
COMPACT FLUID COMPRESSOR
 Dwight E. Harris, Woodstock, N.Y., assignor to Rotron Incorporated, Woodstock, N.Y.
 Filed Aug. 27, 1969, Ser. No. 853,298
 Int. Cl. F04b 17/00; H02k 7/00

U.S. Cl. 417-354

7 Claims



A regenerative compressor in accordance with the invention described herein comprises a stator and a rotor coaxial therewith to form a motor. Concentric to the motor and between its ends is a compressor chamber having inlet and exhaust openings. A compressor wheel is mounted on the rotor and projects into the compressor chamber for providing a high compression output in a limited space.

3,601,508
PROCESS AND DEVICE FOR OPERATING DIAPHRAGM METERING PUMPS
 Franz Orlita, Schillerstrasse 33, D-63 Giessen, Lahn, Germany
 Filed Apr. 25, 1969, Ser. No. 819,374
 Claims priority, application Germany, Apr. 25, 1968, P 17 03 269.8

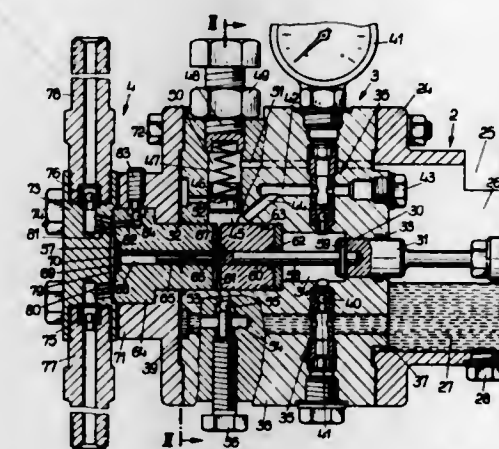
U.S. Cl. 417-388

Int. Cl. F04b 9/08

3 Claims

Process and device for operating a diaphragm metering pump in which a charging pump is connected to a metering

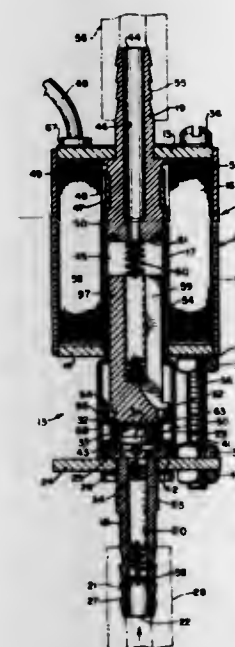
pump with a supply space for the transmitting liquid which is under atmospheric pressure and the pressure side is in communication with a space from which the pressure transmitting space is refilled.



3,601,509
ELECTROMAGNETIC PUMP
 Morton A. Kreitchman, South Orange, N.J., assignor to Valcor Engineering Corporation, Kenilworth, N.J.
 Filed Aug. 11, 1969, Ser. No. 849,067
 Int. Cl. F04b 17/04

U.S. Cl. 417-417

8 Claims

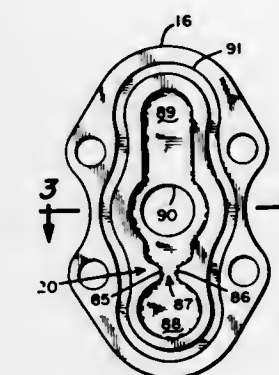


The present invention includes an electromagnetically responsive pump including a spring-biased piston assembly reciprocating within a cylinder. Inlet and outlet fittings formed with inlet and outlet ports, respectively, are secured to opposite ends of the cylinder. An electromagnetic coil surrounds a portion of the cylinder and, when energized, is operative to move the piston assembly against its spring bias. The piston assembly is formed with a fluid-conducting slot which communicates with said outlet port. Sealing means for sealing said slot from the inlet port comprise a sealing ring engaging inner walls of the cylinder, and flanges forming part of said piston assembly spaced from and disposed on opposite sides of the sealing ring, said flanges movably engaging first and second portions of the sealing ring during suction and return strokes of the piston assembly, said slot being sealed from the inlet port during the suction stroke and communicating therewith during the return stroke. A spring-biased check valve normally seals the inlet port.

3,601,510
MODIFIED HEAD FOR SOAP INJECTOR UNIT
 Harry J. Sadler, St. Paul; Ramon Pareja, Minneapolis, and John Leschisin, Minneapolis, all of, Minn., assignors to Hypro, Inc., St. Paul, Minn.
 Filed Aug. 25, 1969, Ser. No. 852,684
 Int. Cl. F04b 39/10, 7/00

U.S. Cl. 417-503

7 Claims

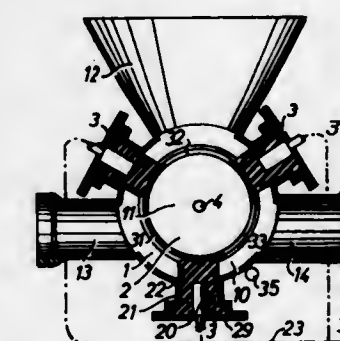


Induction means for use in combination with a positive displacement pump, the pump having a body with wall means and cover means defining a pumping chamber, a reciprocating piston disposed in a cylinder communicating with the chamber, a source of fluid under pressure being coupled to said pump through a supply conduit, inlet and outlet orifices communicating with said chamber and having inlet and outlet valves respectively for intermittent isolation of the chamber during the pumping strokes, the induction means being arranged in communication with the pumping chamber and being adapted to induce fluid flow into the pumping chamber for discharge through the positive displacement pump structure, the induction means including induction inlet means for coupling the chamber to a supply reservoir and communicating with said pumping chamber through a certain induction orifice, and an adjustable control means for controlling the flow of fluid from the supply reservoir to the induction orifice, and baffle means formed in the chamber and partially isolating the pumping cylinder and the induction orifice from the inlet orifice, the baffle means substantially impeding the flow of fluid from the source of fluid under pressure to the pumping cylinder so that upon each suction stroke of the piston, the pressure of the pumping chamber falls to a level below atmospheric.

3,601,511
ROTARY DISTRIBUTOR
 Bechtold Freiherr von Massenbach, Landstrasse 3, CH-8750 Glarus, Schweiz, Switzerland
 Filed June 3, 1969, Ser. No. 829,926
 Claims priority, application Austria, June 5, 1968, A 5384/68
 Int. Cl. F04b 7/00, 15/02, 39/08

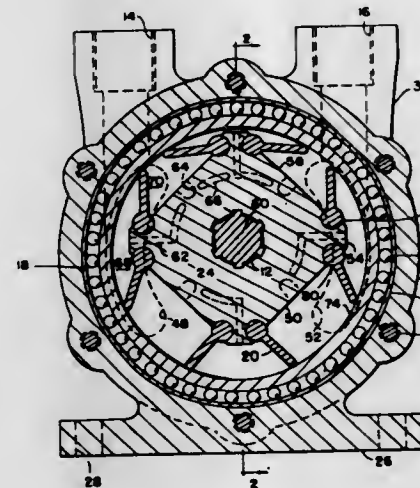
U.S. Cl. 417-506

14 Claims



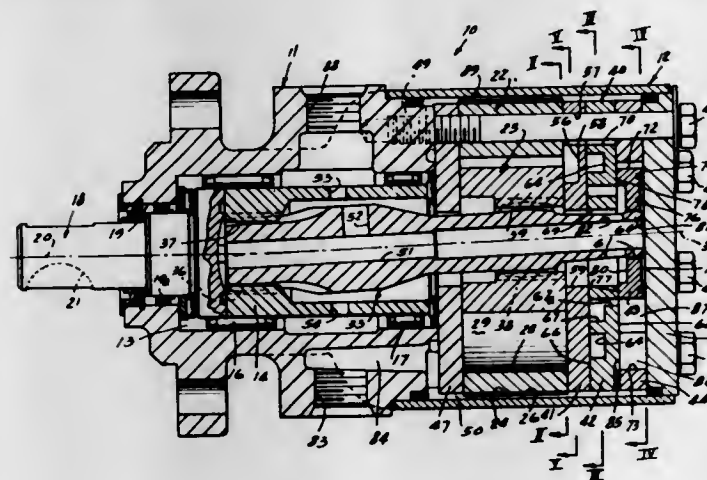
A rotary distributor for slurry pumps and in particular a concrete pump. The pump has an apertured valve member cooperating with inlet and discharge apertures in the housing and alignable to correspond to suction or discharge positions. Sealing means are provided between the housing and valve and are located between inlet and discharge apertures and are displaceable radially inwardly to seal the space between the housing and valve member.

3,601,512
ROTARY MOTOR
 Henry Kehl, 3283 Byng Road, Windsor, Ontario, Canada
 Filed Sept. 5, 1969, Ser. No. 855,567
 Int. Cl. F01c 21/00, 1/00; F04c 1/00
 U.S. Cl. 418-77



A rotary device for use as a pump or motor including vane structure pivoted to a rotor and a speed ring for reducing friction between a motor housing and the rotor vane structure. The speed ring is positioned between the motor housing and rotor and bearings are provided in the speed ring to permit free rotation of a portion of the speed ring within the housing. The rotor vanes are provided in pairs at the radially outer portions of alternate radially inner and outer rotor portions for pivotal movement toward and away from the speed ring on rotation of the rotor which is displaced axially from the axis of the housing and speed ring which are concentric. Connecting pressure-equalizing grooves are provided in the rotor and side covers of the motor structure operable to equalize the pressure between radially outer and radially inner portions of the rotor separated by vanes over a portion of the angular rotation of the rotor.

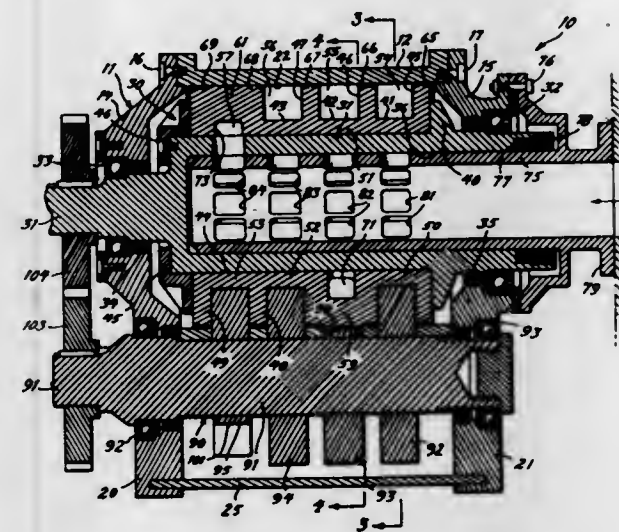
3,601,513
HYDRAULIC DEVICE
 Hollis N. White, Jr., Lafayette, Ind., assignor to TRW Inc., Cleveland, Ohio
 Filed July 22, 1969, Ser. No. 843,611
 Int. Cl. F01c 1/02; F04c 1/02; F01c 21/10
 U.S. Cl. 418-61



A hydraulic device of the type having inner and outer toothed or lobed members of a gerotor gearset which rotate and orbit relative to one another to provide continually expanding and contracting fluid-pumping chambers or pockets therebetween. The inner toothed member is made of sintered iron. A casing surrounds the inner toothed member in radially spaced relation thereto to provide an annular chamber which is hydraulically pressurized to impose a hydraulic compressive hoop stress on the inner toothed member. A metal

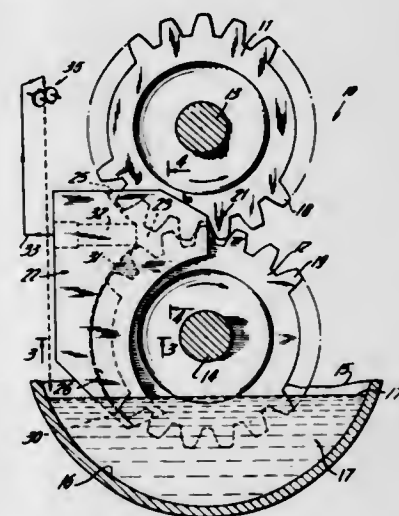
sleeve is also pressed on the inner toothed member to impose a mechanical compressive hoop stress thereon.

3,601,514
ROTARY MACHINE
 Kermit J. Afner, 41 Saint Denis St., Floressant, Mo.
 Filed July 23, 1969, Ser. No. 843,931
 Int. Cl. F01c 1/08, 11/00
 U.S. Cl. 418-188



A rotary machine for use as a pump or motor wherein a hollow rotor is rotatable within a casing and combines with the latter to define therebetween an annular chamber. A vane or arm extends from the rotor for rotation therewith about the annular extent of the chamber and a fluid inlet passageway communicates between the hollow of the rotor and the chamber on one side of the vane or arm for passing fluid into the chamber on said one side of the vane. An outlet is provided in the casing for the egress of fluid from the chamber on the other side of the rotor vane.

3,601,515
LUBRICANT PUMP
 Winton J. Pelizzoni, Hagerstown, Md., assignor to Mack Trucks, Inc., Allentown, Pa.
 Filed July 30, 1969, Ser. No. 845,993
 Int. Cl. F01c 1/18
 U.S. Cl. 418-206

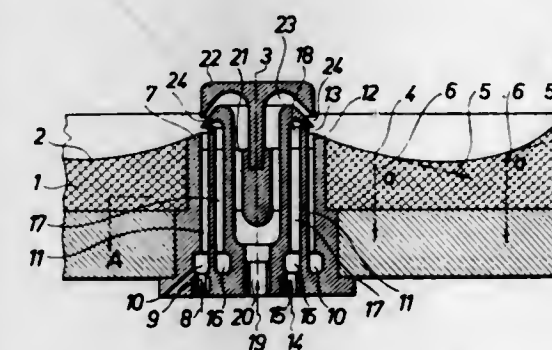


A lubricant pump especially suitable for automotive transmissions and the like employing mating gears, at least one of which extends into a sump in a lower casing area. A channel-defining adapter receives the teeth of two mating gears as they converge toward the area of gear engagement. The adapter and that part of its channel receiving the teeth of at least one gear extend below the lubricant level in the sump to substantially close the spaces between adjacent gear teeth, thus defining compartments within which lubricant is transported toward the location at which the gears converge. By virtue of the increased pressure at the convergence of the

gear teeth, the transported lubricant is pumped through an outlet passage in the adapter adjacent the area of gear engagement for remote lubrication of other components. One or both of the mating gears may extend into the lubricant of the sump.

3,601,516
METHOD FOR THE COMBUSTION OF THIN FILMS OF LIQUID FUELS, AND A BURNER ARRANGEMENT FOR REALIZING THE METHOD
 Karoly Somhegyi, Tamas Rapp, and Gyorgy Sasvari, all of Budapest, Hungary, assignors to Nikex Nekezipari Kulkereskedelmi Vallalt, Budapest, Hungary
 Filed Oct. 9, 1969, Ser. No. 865,006
 Claims priority, application Hungary, Oct. 11, 1968, MA-1895

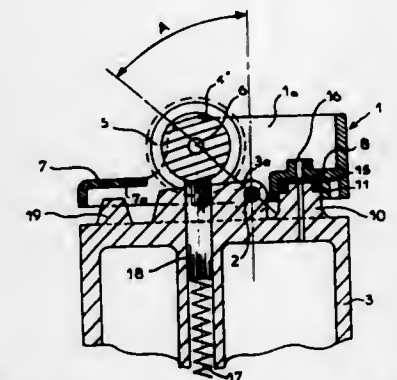
Int. Cl. F23c 5/20
 U.S. Cl. 431-8



Liquid fuel is spread and burned in a thin film on a solid surface, either by pressure of the liquid fuel itself, or else by pressure of a carrier gas. Combustion air is blown parallel along the liquid film. High specific surface of the fuel and

high velocity of the fuel and air relative to each other are thus simultaneously achieved.

3,601,517
ROCKING HEAD FOR PORTABLE LIGHTING DEVICES SUCH AS LIGHTERS OPERATING ON PRESSURIZED LIQUEFIED GAS
 Claude Roland Julius Rosenthal, Paris, France, assignor to Pierre Keller, Tanger, Morocco
 Filed Nov. 12, 1969, Ser. No. 875,988
 Claims priority, application France, Nov. 19, 1968, 174,281
 Int. Cl. F23q 2/16
 U.S. Cl. 431-254

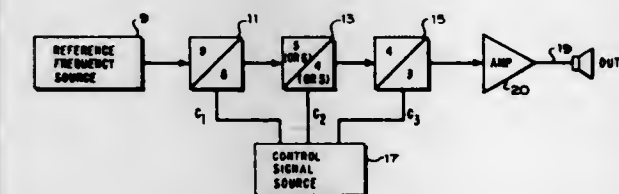


The lighting device is provided with a lighter head constituted by a single rigid lever, capable of freely rocking on either side of a fulcrum connecting it to the body of said device, said lever comprising, on one side of the fulcrum, an arm and a knurled roller continuously subjected to the action of a spring so as to raise this side of the said lever, and on the other side of the fulcrum a closing cap which, when resting upon an escape opening for the expanded gas, closes said opening.

ELECTRICAL

3,601,518
MUSICAL INSTRUMENT AND METHOD EMPLOYING REFERENCE FREQUENCY SOURCE AND CONTROLLED PERIOD MULTIPLIERS THEREFOR
 Charles M. Hill, 567 Van Buren, Los Altos, Calif.
 Filed Oct. 6, 1969, Ser. No. 863,979
 Int. Cl. G10h 5/06

U.S. Cl. 84-1.01

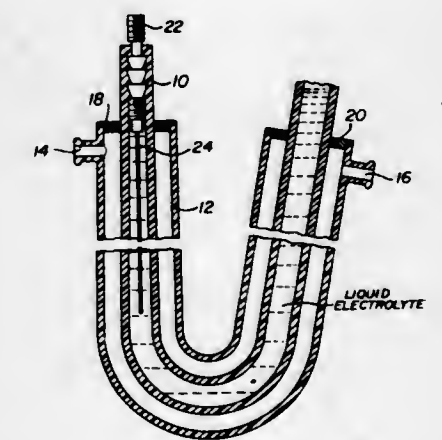


A single reference frequency source is coupled to a series of controlled period multipliers (frequency dividers) for selecting a musical keynote and for producing selected output tones that vary according to extensions of the natural or diatonic scale. The output tone selectors are arranged in a two-dimensional array correlating tonal intervals with spatial relationships.

3,601,519
ELECTROLYTIC CONDUCTOR
 Maurice Paul Wanner, Geneva, Switzerland, and Neil Rudolph Wallis, Goring on Thames, England, assignors to Aerocont S. A., Geneva, Switzerland
 Filed May 11, 1970, Ser. No. 36,027
 Claims priority, application Switzerland, May 14, 1969, 7,465/69
 Int. Cl. H01b 1/00; B05b 5/00
 U.S. Cl. 174-9 F

In an electrolytic conductor for connecting a high voltage direct current source to a utilization device and comprising a

flexible tube which contains an electrolyte and whose ends are fitted with electrodes in contact with the electrolyte, the space inside the tube that holds the electrolyte is made to

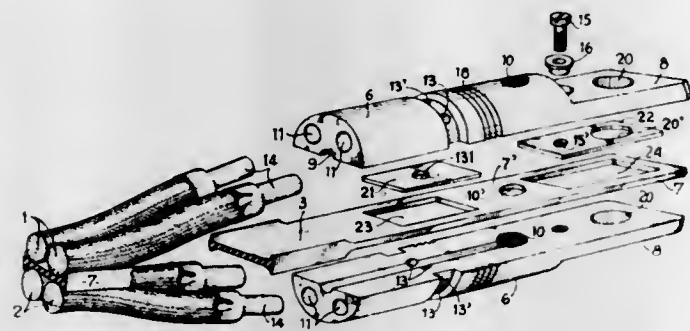


have a cross section which progressively increases from the end of the tube intended to be connected to the current source, as by tapering the inner surface of the tube.

3,601,520
TERMINAL STRUCTURE FOR A MULTICONDUCTOR CABLE COOLED BY A CIRCULATING FLUID
 Armand Carasso, 71 Avenue du Roule, 92 Neuilly-sur Seine, France
 Filed Sept. 3, 1969, Ser. No. 854,839
 Claims priority, application France, Sept. 6, 1968, 165,294
 Int. Cl. H01b 7/34
 U.S. Cl. 174-15

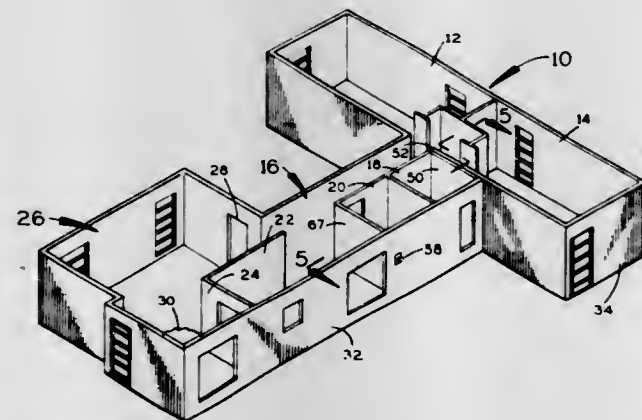
A terminal structure of a multiconductor electric cable wherein the terminal is in two parts and two groups of conductors of different polarities separated by a separating ele-

ment are cooled by a fluid in a sealing sheath. According to the invention, an elastic sealing element is interposed between plane faces of the two terminal parts in the extension of the separating element. At least one rigid incom-



pressible insulating element, thinner than the sealing element and interposed between said faces, limits the pressure exerted on the sealing element when clamping said parts together.

3,601,521
UTILITY CONSTRUCTION IN MODULES
Evans T. Morton, Pompano Beach, Fla., assignor to Behring Corporation, Fort Lauderdale, Fla.
Filed May 18, 1970, Ser. No. 38,248
Int. Cl. H02g 3/28
U.S. Cl. 174-48
8 Claims

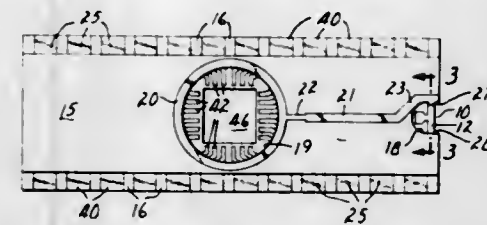


A building module having an outside service wall with a framework is provided with an electrical meter unit recessed into the framework and available on the outside thereof for meter reading, the recessing of the meter unit into the framework preventing projection of the unit beyond dimensional limits for travel of modules on roadways. Electrical conduit is attached to the framework to provide distribution of electrical service throughout the module and to other parts of the building. At a place where two walls of adjoining modules abut each other, aligned openings are provided, and an air-conditioning duct as well as a portion of the electrical conduit passes through these aligned openings to provide air and electrical interconnection between modules.

3,601,522
COMPOSITE CERAMIC PACKAGE BREAKAWAY NOTCH
James E. Lynch, Chattanooga, Tenn., assignor to American Lava Corporation, Chattanooga, Tenn.
Continuation-in-part of application Ser. No. 843,461, July 22, 1969, now abandoned. This application June 18, 1970, Ser. No. 47,186
Int. Cl. H05k 1/04, 5/06
U.S. Cl. 174-68.5
8 Claims

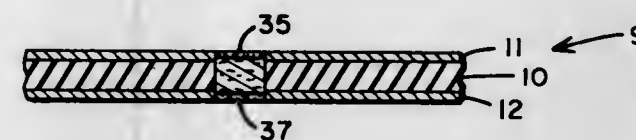
A small portion of the electrical circuit connecting at least two exposed conductive surfaces is applied on a segment, which may be single thin ply, of ceramic forming the composite structure. Breaking away of or otherwise removing the

segment or thin ply is effective to separate the surfaces electrically. This is convenient in electroplating surfaces which



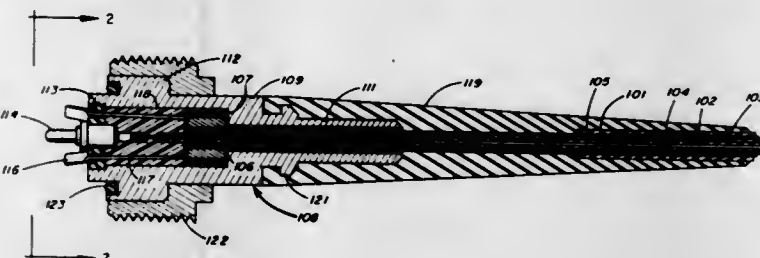
are not readily accessible under certain plating conditions and provides grounding during mounting of chips.

3,601,523
THROUGH HOLE CONNECTORS
Lloyd G. Arndt, St. Paul, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 855,703, Sept. 5, 1969, now abandoned. This application June 19, 1970, Ser. No. 47,714
Int. Cl. H05k 1/04
U.S. Cl. 174-68.5
7 Claims



A through hole connector incorporating a low-resistance electrical connection between electrical leads which are located on opposite sides of an insulated layer and a conducting epoxy connector in the hole formed by forcing a conductive adhesive into the hole and compressing a layer of conducting powder onto the adhesive before curing.

3,601,524
UNDERWATER MARINE CABLE
Samuel H. Kauffman, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy
Filed Dec. 9, 1965, Ser. No. 513,126
Int. Cl. H02g 15/02
U.S. Cl. 174-74 R
5 Claims



1. The combination of a new and improved flexible marine cable and a watertight end coupler formed thereon, comprising a multistrand center conductor,

a first inner layer of insulation of high density polyethylene surrounding said center conductor to provide good electrical insulation,

a second outer layer of insulation of nylon covering said inner layer of insulation to provide good mechanical strength,

a braided coaxial outer conductor surrounding the insulation and supported thereby,

a high density polyethylene jacket encasing said outer conductor to provide corrosion protection and abrasion resistance,

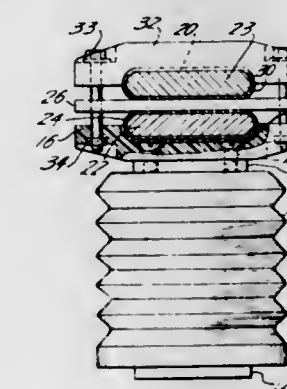
a swaged assembly including a collar through which the combination of said outer conductor, insulation, and center conductor passes, the strands of said outer conductor being laid back over said collar, and a collet swaged over said collar, the center conductor extending beyond said swaged assembly,

a generally cylindrical cable end fitting having a first axial bore therethrough through which the combination of said outer conductor, insulation, and center conductor passes, and a second larger diameter axial bore part way therethrough which receives said swaged assembly,

a first seal comprising a potting compound filling the cavity in said second bore, and

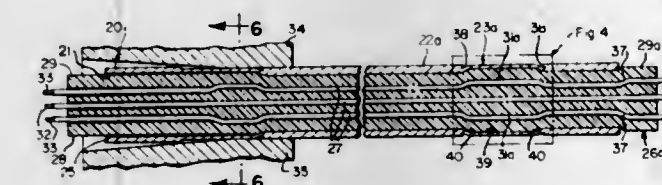
a second seal comprising a tapered polyurethane section molded over said end fitting and over a portion of said polyethylene jacket encasing said outer conductor.

3,601,525
SUPPORTED HIGH VOLTAGE BUS BARS
John J. Oravec, Union, N.J., assignor to Federal Pacific Electric Company, Newark, N.J.
Filed Jan. 9, 1970, Ser. No. 1,822
Int. Cl. H01b 17/18
U.S. Cl. 174-171
4 Claims



Bus bar clamps for insulation covered bus bars in a high voltage alternating current system are carried by standoff insulators, these bus bar clamps being made of insulating material to avoid the effect, in the case of prior art metal clamps, of the clamps becoming energized by capacitance to the bus bar. This capacitance resulted in sustained electrical stress on the insulation covering of the bus bars, leading possibly to breakdown of the insulation covering and resulting in shock hazard to personnel coming into contact with the supposedly insulated prior art metal clamps. All of this is avoided by the clamps made of insulation in the novel assembly.

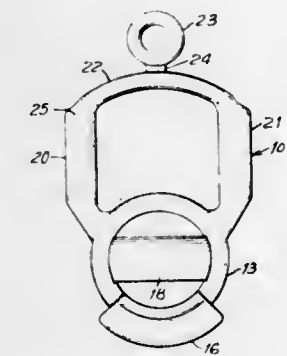
3,601,526
ELECTRICAL PENETRANT STRUCTURE
Frederick G. Bohne, Buffalo, and Mark O. Johnson, Grand Island, both of, N.Y., assignors to Conax Corporation, Buffalo, N.Y.
Filed July 30, 1968, Ser. No. 748,715
Int. Cl. H01b 17/26
U.S. Cl. 174-151
3 Claims



An electrical penetrant structure, and a method of making the same, are disclosed for feeding sealingly one or more

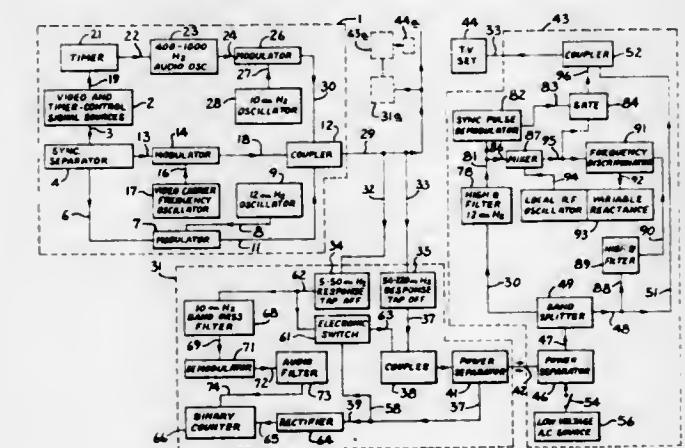
electrical conductors through a wall, such as the containment vessel wall in a nuclear-powered electrical generating station. The penetrant structure comprises a tubular metal housing through which a metal conductor extends noncentrally but in spaced relation to the surrounding housing wall surface, such surface being annularly recessed to provide an enlarged chamber filled with resilient insulating material in compression and surrounding a laterally offset portion of said conductor. The method for making such structure involves swagging an assembly of the housing having an external groove therein surrounding a body of insulating material having a noncentral hole through which the conductor extends, this swagging causing the insulating material to be compressed between the housing and conductor and the portion of the conductor adjacent the groove to become laterally offset while embedded in the insulating material.

3,601,527
AERIAL CABLE TIE
James P. Markham, Milford, N.H., and John F. Jost, Glastonbury, Conn., assignors to Synthetic Products Mfg. Corp., Leominster, Mass.
Filed Mar. 3, 1970, Ser. No. 15,991
Int. Cl. H01b 17/22
U.S. Cl. 174-173
8 Claims



This disclosure generally relates to an elastomeric fastener or "tie" which is used by the electrical power transmission companies in securing aerial conductor cables to pin or post type insulators.

3,601,528
TELEVISION COMMUNICATIONS SYSTEM WITH CODING AND DECODING
David S. McVoy, Gainesville, Fla., assignor to Coaxial Scientific Corporation
Filed June 16, 1969, Ser. No. 833,519
Int. Cl. H04n 1/32, 1/34, 1/44
U.S. Cl. 178-5.1
10 Claims



A subscription television system comprises a transmitter unit that codes or scrambles its composite output signals comprising video intelligence signals and synchronizing pulses by separating the video signals from the synchronizing

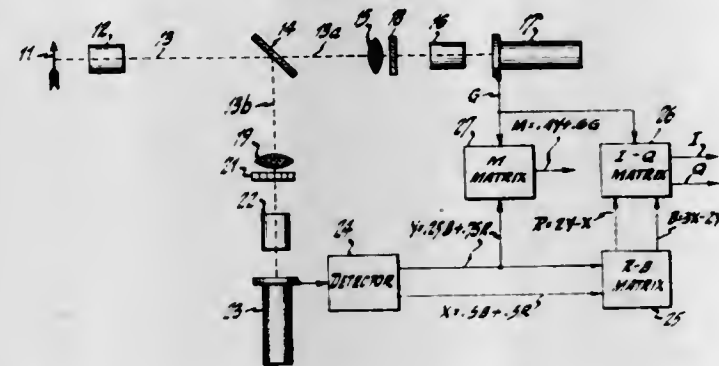
pulses and transmitting them over separate carriers to a decoding receiver. The synchronizing pulse carrier is transmitted to the receiver over a cable while the video carrier may be transmitted over-the-air or over the cable. The receiver passes the scrambled video to the subscriber's television set. Circuitry is provided, however, for selectively passing the synchronizing pulse carrier through the receiver and forming the decoded or unscrambled original composite signal, and at the same time activating a recorder to measure the amount of viewing time.

3,601,529 COLOR TELEVISION SIGNAL-GENERATING APPARATUS

Robert A. Dischert, Burlington, N.J., assignor to RCA Corporation
Continuation of application Ser. No. 487,374, Sept. 15, 1965, now abandoned. This application Nov. 20, 1968, Ser. No. 789,630

Int. Cl. H04n 9/06
U.S. Cl. 178-5.4 ST

21 Claims



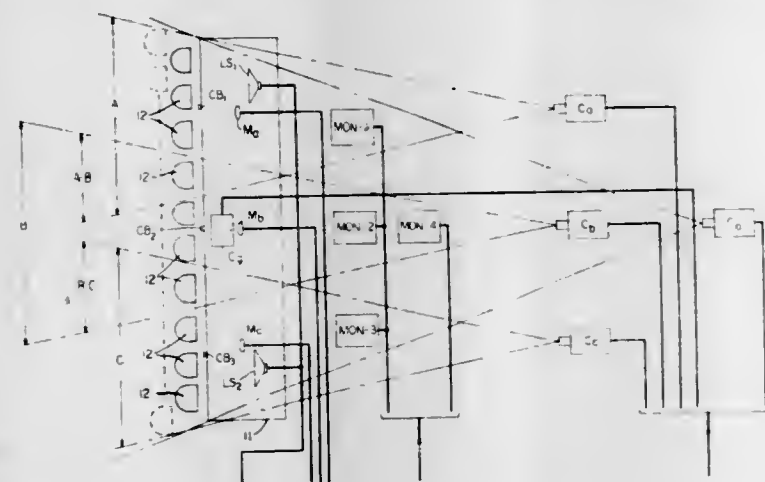
A color television camera is provided which includes at least one image pickup device. Colored light from a scene is encoded on the photosensitive electrode of the pickup device by an encoding filter having alternate strips of material for separating the light into component colors. The alternate encoding filter strips are selected such that they have equal transmissivity for white light, thereby suppressing the encoded color carrier frequency for white light. Signal processing means separate the color component signals and combine them with a brightness signal to provide signals representative of the color and brightness of the scene.

3,601,530 VIDEO CONFERENCE SYSTEM USING VOICE- SWITCHED CAMERAS

Robert C. Edson, Brielle; Doren Mitchell, Martinsville, and George P. Reid, Holmdel, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 29, 1969, Ser. No. 820,131

Int. Cl. H04n 5/24
U.S. Cl. 178-5.6

30 Claims



This disclosure relates to a video conference system for a plurality of groups of remotely located conferees. At each group location, a plurality of video cameras are used and the

field of each is restricted to a small number of persons in the group. Voice voting and switching are used to determine the location of the person in the group who is talking and to "enable" the appropriate camera, in response thereto, so that the talker will be seen at the remote location. As different people in the group speak, the appropriate cameras covering the same are successively enabled so that the outgoing video signal matches the audio signal. Operational features include a graphic mode, for the remote display of written or graphic material, and a conference leader mode, in which the system is biased in favor of the leader so as to give him substantial control over the conference.

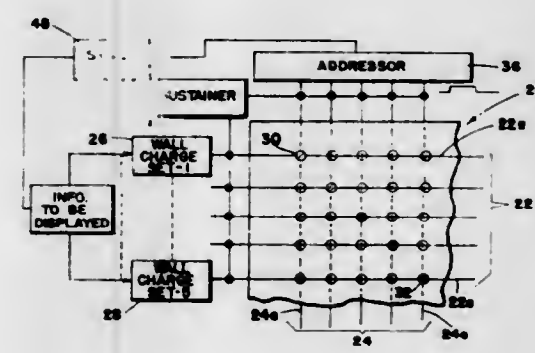
3,601,531 PLASMA DISPLAY PANEL APPARATUS HAVING MULTILEVEL STABLE STATES FOR VARIABLE INTENSITY

Donald L. Bitzer, Urbana; Hiram Gene Slottow, Urbana, and William Petty, Champaign, all of Ill., assignors to University of Illinois Foundation, Urbana, Ill.

Filed Oct. 8, 1968, Ser. No. 765,939
Int. Cl. H04n 5/66

U.S. Cl. 178-7.3 D

8 Claims



A plasma display panel apparatus having multilevel stable states for providing a display of variable intensity, the apparatus including means for initially setting in an amount of wall charge in each respective cell according to the intensity of the information to be displayed, and means for providing a sustaining signal for displaying the cells and maintaining the respective wall charges therein, the sustaining signal waveform having alternate stable and unstable regions. The means for setting in of the initial wall charge in respective cells is provided such that the cells having information which is to be displayed with a higher intensity are supplied with a higher initial wall charge than the cells having information which is to be displayed at a relatively lower intensity. The level of intensity depends on the slope of the exciting or sustaining signal at the time of discharge of the cell. The apparatus providing a rippled sustaining signal of alternate stable and unstable regions insures that the initial wall charge information set into the display panel will remain at the initial level, thereby providing a constantly recurring permanent display.

3,601,532 PLASMA DISPLAY PANEL APPARATUS HAVING VARIABLE-INTENSITY DISPLAY

Donald L. Bitzer, and Hiram Gene Slottow, both of Urbana, Ill., assignors to University of Illinois Foundation, Urbana, Ill.

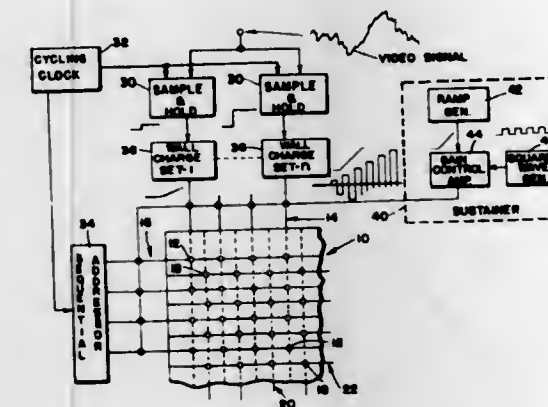
Filed Oct. 8, 1968, Ser. No. 765,950
Int. Cl. H04n 5/66

U.S. Cl. 178-7.3 D

8 Claims

Plasma display panel apparatus having a variable-intensity display for displaying periodically changing information, such as television video signals, the display panel apparatus including means for decoding the information signal of varying intensity levels into respective voltage levels corresponding to the respective cells in a display of the plasma display panel, means for entering the respective voltage levels into corresponding cells such that the initial wall voltage of each cell corresponds to the incoming information signal intensity

level to be displayed at the respective cells forming the plasma display panel; and means for discharging the cells in



accordance with the initial wall voltage, such that a variable-intensity display is obtained.

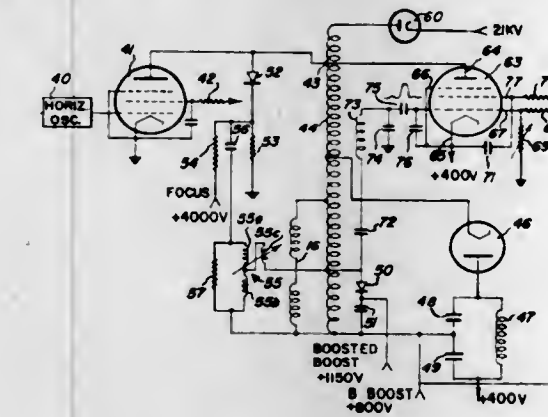
3,601,533 REGULATED HIGH VOLTAGE SUPPLY

Lester Tucker Matzek, Lombard, Ill., assignor to Warwick Electronics Inc.

Filed June 22, 1967, Ser. No. 648,028
Int. Cl. H04n 3/18

U.S. Cl. 178-7.5 R

2 Claims



A regulator circuit for a color television receiver in which a gate tube is connected in shunt with a portion of the horizontal output transformer from which high voltages are derived. The gate tube is normally nonconducting, but is pulsed into conduction during retrace, when the high voltage rectifiers conduct. The bias of the gate is varied in accordance with the current drawn by the cathode ray tube. The gate conducts more heavily when the current drain is low than when it is high, keeping the output of the high voltage power supplies relatively constant.

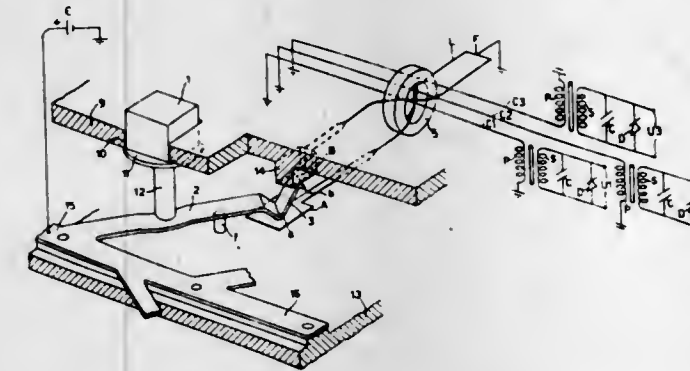
3,601,534 ALPHANUMERIC KEYBOARD

Alfredo Olivei, Turin, Italy, assignor to Ing C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Jan. 29, 1969, Ser. No. 795,005
Claims priority, application Italy, Feb. 13, 1968, 50498A68
Int. Cl. H04l 15/06

U.S. Cl. 178-17 C

7 Claims



A key-operated actuating mechanism for an alphanumeric keyboard in which the key bears through a stem on one side

of a flexible electrically conductive tongue which has one end fixed. A fulcrum is mounted proximate the other side of the tongue between the key and the free end for causing the tongue to bow when the key is depressed. The depression of the key causes the free end of the tongue to swing up and to break its electrical contact with a first contact and to establish electrical contact with a second contact. This in turn causes a source of electrical potential to be differently connected to winding on a magnetic core having a square hysteresis loop and thereby switches the core to the opposite state. An output signal is thereby generated in output windings on the core, the output signal being so coded as to identify the key struck.

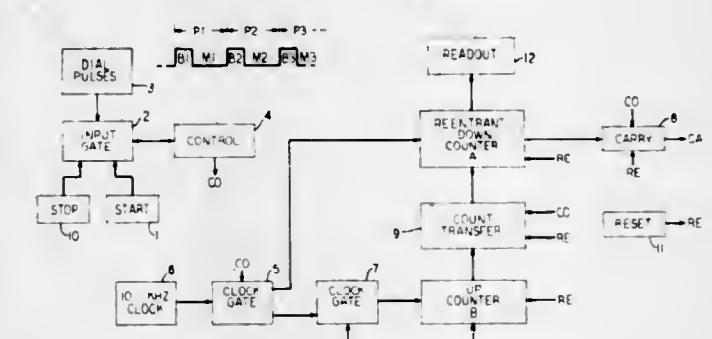
3,601,535 MEASUREMENT OF MINIMUM OF A SERIES OF TIME INTERVALS

Robert B. Heick, Eatontown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 24, 1969, Ser. No. 879,341
Int. Cl. H04l 1/00; H04m 3/22, 1/24

U.S. Cl. 178-69 A

11 Claims



The circuit uses digital technique to measure the minimum break (or make) interval over a series of telephone dial pulses. During the first break, clock pulses are serially counted in a binary coded decimal up-counter. At the end of the first break, the up-count is transferred as the same count to a binary coded reentrant decimal down-counter of the same count capacity as the up-counter; and, at the start of the next break, the up-counter is cleared to zero count. During the second (new) break, clock pulses are serially subtracted from the count in the down-counter while being serially counted in the up-counter. If any clock pulses cause the count in the down-counter to go from zero count to capacity count, further up-counting in the up-counter is stopped. After each new measured break, the up-counter contains the minimum of the old and new counts, the minimum count is transferred to the down-counter, the up-counter is cleared to zero count, and the process repeats. Visual display is provided of the minimum count by translation from clock pulse count in the down-counter to milliseconds.

3,601,536 SYSTEM AND METHOD FOR DEVELOPING A COMPOSITE VIDEO SIGNAL

Richard W. Calfee, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

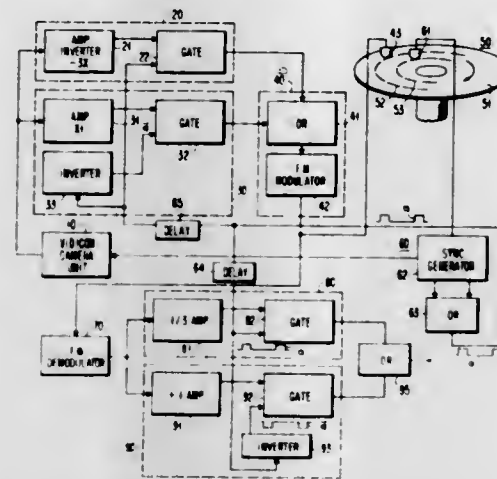
Filed Jan. 15, 1969, Ser. No. 791,419
Int. Cl. H04n 5/04

U.S. Cl. 178-69.5 TV

5 Claims

A system whereby a composite video signal is developed by a vidicon camera tube which is driven off a clock track from a rotating magnetic disk. The synchronizing signals from this composite signal are removed and inverted to signals within the same amplitude range as the analog video signal, and combined with the analog video signal. This new composite video signal with inverted sync frequency modu-

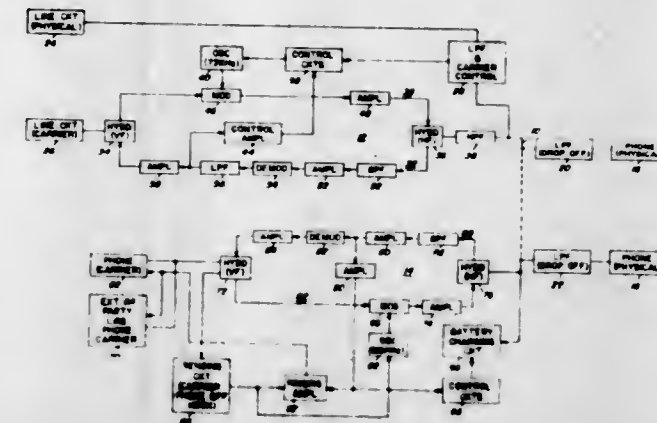
lates a carrier which is applied to a rotating disk. Upon readout, this frequency-modulated signal is demodulated and



the inverted sync is removed. Conventional sync time replaces the inverted sync.

3,601,537
METHOD OF AND CIRCUIT FOR

responsive to a reception of a carrier signal transmitted from the subscriber terminal, or in off-hook condition of one of the physical phones for turning on the central office terminal carrier oscillator. The subscriber terminal has a battery which is connected to the line to receive charging current therefrom in the absence of central office terminal carrier signals and is disconnected from the line in response to the



interval, means for generating said start signal in said registers and transmitting said start signal during said predetermined interval, and a pulse distributor for controlling all said means.

3,601,540
SECURITY SYSTEM

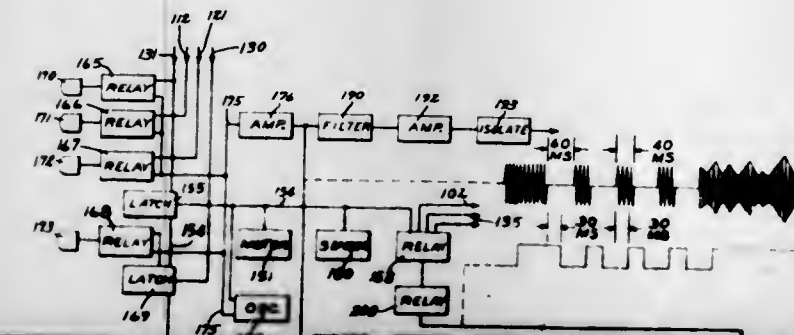
McNeil Bryan, 3000 E. Hennepin, Minneapolis, Minn.

Filed Feb. 14, 1969, Ser. No. 799,382

Int. Cl. H04m 11/04

U.S. Cl. 179-5 P

2 Claims



attempt is made to restrict the dialling of any number. However, the action of dialling causes the telephone's transmit and receive circuit to be at least partly disabled. Enabling of the circuit is accomplished by deposition of a coin or by transmission of a control signal from the central office which is sent in response to the dialling of the preselected numbers.

3,601,542

DYNAMIC RECORDER SYSTEM FOR TOLL TICKETING

Donald R. Gill, Fairport; William H. Stewart, Webster, and

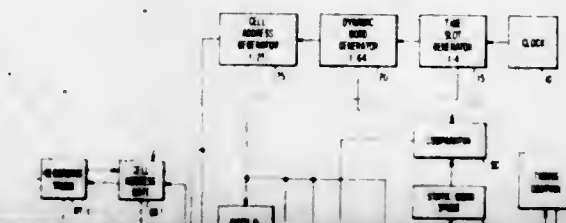
Bernard H. Root, Palmyra, all of, N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Dec. 5, 1969, Ser. No. 882,453

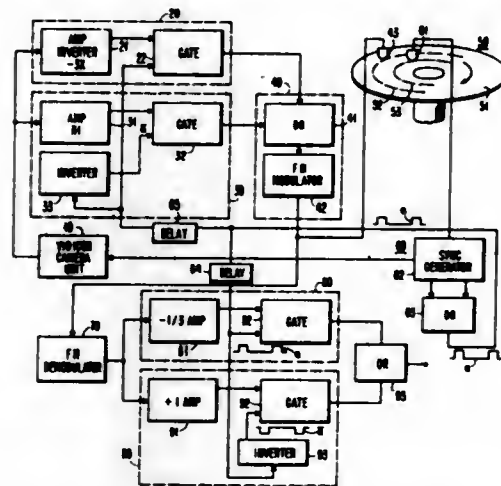
Int. Cl. H04m 15/10

U.S. Cl. 179-9

28 Claims



lates a carrier which is applied to a rotating disk. Upon readout, this frequency-modulated signal is demodulated and



the inverted sync is removed. Conventional sync time replaces the inverted sync.

3,601,537 METHOD OF AND DETECTING CIRCUIT FOR SYNCHRONIZING MASTER-REMOTE SIGNALLING SYSTEM

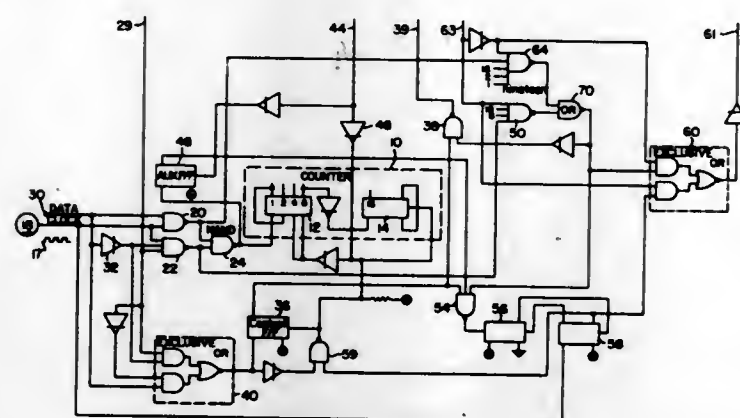
Klaus Gueldenpfenning, Rochester, and Herman L. La Pierre, Hokomb, both of, N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Feb. 20, 1969, Ser. No. 800,945

Int. Cl. H04I 7/00

U.S. Cl. 178-69.5

6 Claims



A master-remote, digital signalling system is synchronized at the beginning of each message to be transmitted by sending two pulses of distinctive length, which are detected at the receiver. The detector circuit includes counters and a series of gates for distinguishing the special synchronizing pulses from the message pulses.

3,601,538 CARRIER AND VOICE-FREQUENCY TELEPHONE SYSTEM

Peter J. May, Webster; Uno Randmere, Rochester; Frederick C. Sabernick, Fairport, and Morris A. Suntop, Rochester, all of, N.Y., assignors to Stromberg-Carlson Corporation

Filed Feb. 24, 1969, Ser. No. 801,590

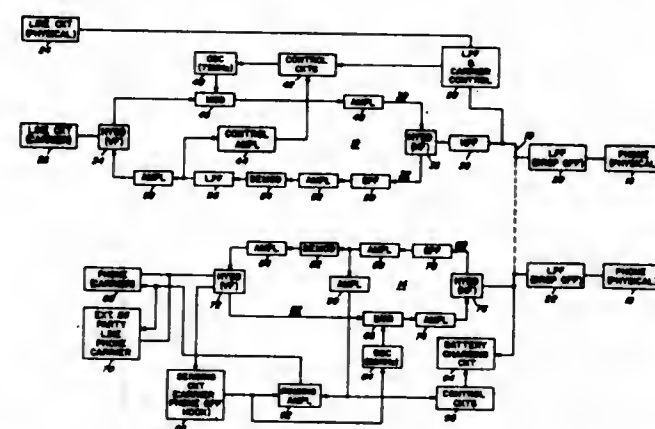
Int. Cl. H04h 1/08

U.S. Cl. 179-2.5

15 Claims

This system serves the purpose of providing private line service over an existing telephone line and includes a central office terminal at one end of the line and a subscriber terminal at the other end of the line. Physical phones may be connected to the existing line and a line circuit at the central office is coupled to the line for connecting the central office equipment to the phones. Both the subscriber and the central office terminals have transmitting channels in which a carrier oscillator signal may be modulated and applied to the line. The control functions in the system are operated in response to the absence or presence of carrier oscillations on the line. Circuits are provided at the central office terminal which are

responsive to a reception of a carrier signal transmitted from the subscriber terminal, or in off-hook condition of one of the physical phones for turning on the central office terminal carrier oscillator. The subscriber terminal has a battery which is connected to the line to receive charging current therefrom in the absence of central office terminal carrier signals and is disconnected from the line in response to the



presence of central office carrier signals. Ringing current for the telephone which is connected to the subscriber carrier terminal is generated by modulating the central office carrier. The modulated carrier operates the ringer circuitry at the subscriber carrier terminal. Both the subscriber carrier terminal and the central office terminal therefore cooperate with each other to produce the requisite control functions.

3,601,539 PHASE SYNCHRONISM SYSTEM FOR A ONE-WAY TELEGRAPH CONNECTION

Herman Da Silva, Voorburg, Netherlands, assignor to De Staat Der Nederlanden Ten Deze Vertegenwoordigd Door De Directeur-Generaal Der Posterijen Telegrafie En Telefonie, The Hague, Netherlands

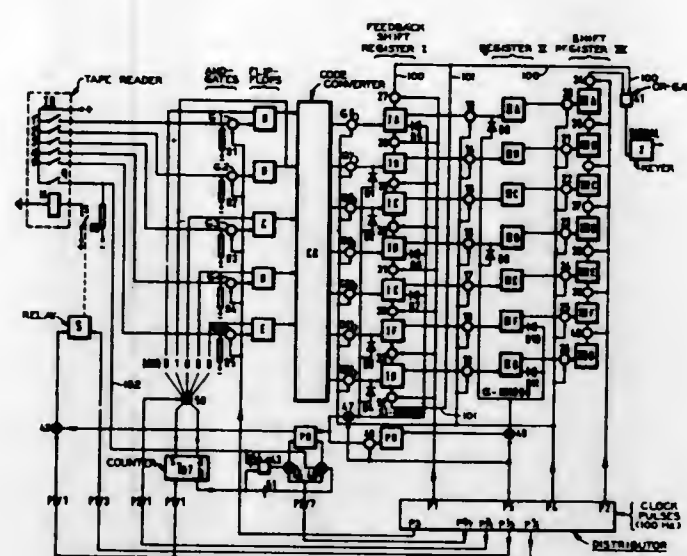
Filed June 2, 1969, Ser. No. 829,331

Claims priority, application Netherlands, June 6, 1968, 6807940

Int. Cl. H04I 7/10

U.S. Cl. 178-4.1

15 Claims



A one-way telegraph system for permitting recurring phase synchronism checks by transmitting at predetermined intervals a definite series of alternate special service and/or idle time signals which form a start signal. This system includes means for transmitting each signal twice separated by a predetermined time interval, three successive registers therefor, means for detecting in the transmitter a certain regularly occurring signal, such as the "line feed" signal, counter means for interrupting traffic for said predetermined

interval, means for generating said start signal in said registers and transmitting said start signal during said predetermined interval, and a pulse distributor for controlling all said means.

3,601,540 SECURITY SYSTEM

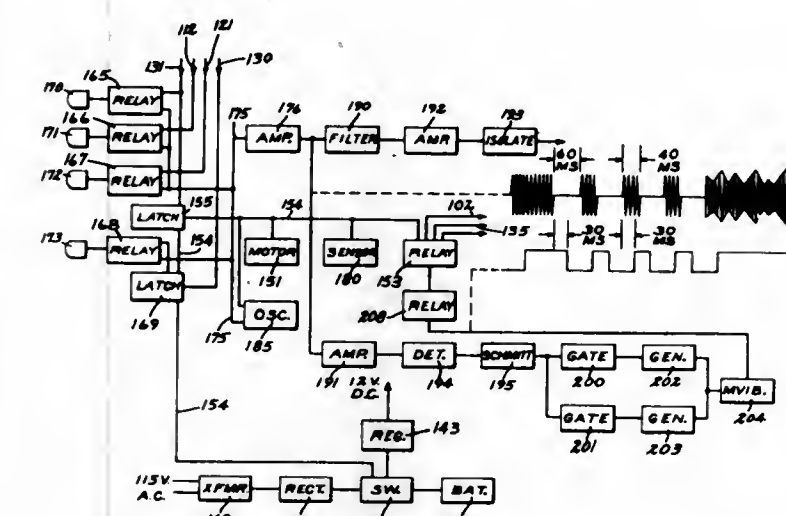
McNeil Bryan, 3000 E. Hennepin, Minneapolis, Minn.

Filed Feb. 14, 1969, Ser. No. 799,382

Int. Cl. H04m 11/04

U.S. Cl. 179-5 P

2 Claims



A plurality of burglar and fire sensors and emergency switches connected to relays for providing output signals upon activation of one of the sensors or switches, which signals activate a desired tape recording that dials a remotely located telephone and provides a voice message thereon. The system includes circuitry which energizes indicators upon the occurrence of internal trouble therein. The system further includes a self-contained power source which automatically switches from line to internal batteries and means for delaying recorded telephone dialing pulses to reduce errors in dialing due to momentary failures of the system.

3,601,541 TELEPHONE PAYSTATION PROVIDING FREE SERVICE TO SPECIAL NUMBERS

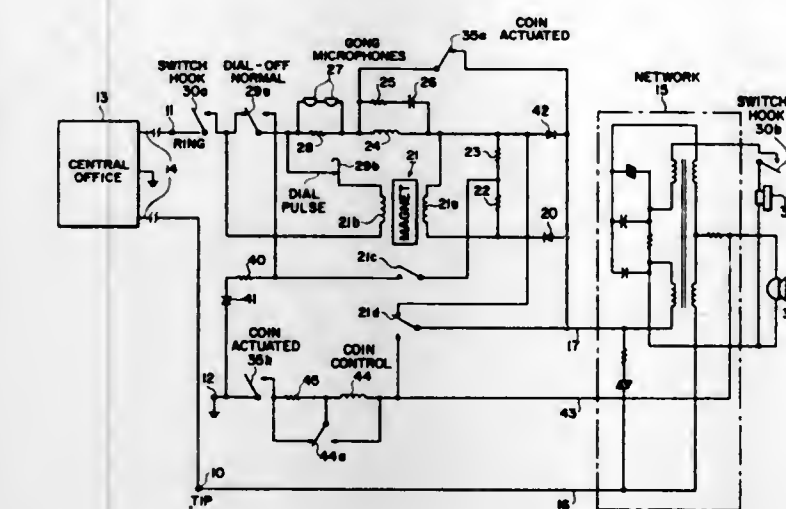
Joseph Thompson, Glanworth, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 12, 1969, Ser. No. 884,481

Int. Cl. H04m 17/02

U.S. Cl. 179-6.3

4 Claims



A telephone paystation which permits calling to one or more preselected numbers without deposition of a coin. No

attempt is made to restrict the dialling of any number. However, the action of dialling causes the telephone's transmit and receive circuit to be at least partly disabled. Enabling of the circuit is accomplished by deposition of a coin or by transmission of a control signal from the central office which is sent in response to the dialling of the preselected numbers.

3,601,542

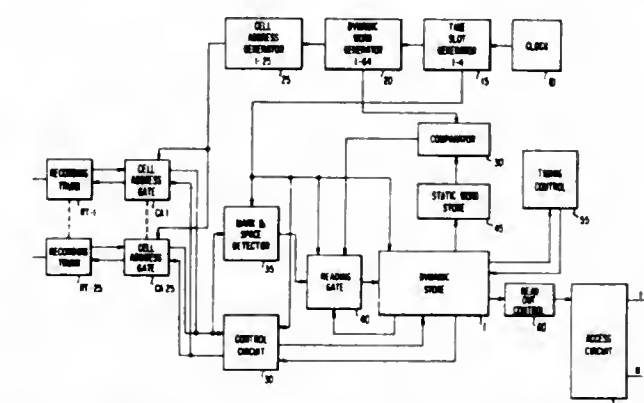
DYNAMIC RECORDER SYSTEM FOR TOLL TICKETING
Donald R. Gill, Fairport; William H. Stewart, Webster, and Bernard H. Root, Palmyra, all of, N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Dec. 5, 1969, Ser. No. 882,453

Int. Cl. H04m 15/10

U.S. Cl. 179-9

28 Claims



Dynamic recorder system for toll ticketing provided as time-shared equipment in connection with a common control system, wherein the data received from one of a plurality of recording trunks is stored in a unique one of a plurality of cells of a recirculating memory, each cell of the memory providing a plurality of words within which the necessary information relating to the direct dialed call may be stored and selective words within which the necessary timing of the system operation is carried out.

3,601,543 TIME DIVISION DATA TRANSMISSION SYSTEM Maurice M. Maniere, and Henri L. Tambutte, both of Paris, France, assignors to Lignes Telegraphiques Et Telephoniques, Paris, France

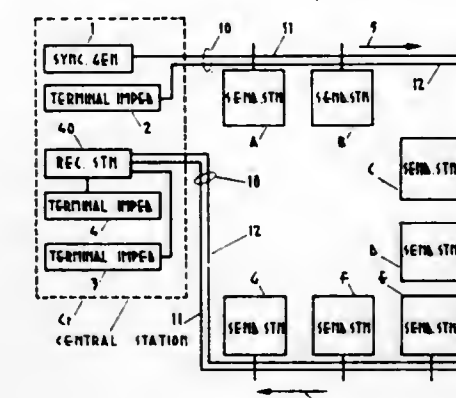
Filed Mar. 17, 1970, Ser. No. 20,323

Claims priority, application France, Mar. 21, 1969, 08241

Int. Cl. H04j 3/08

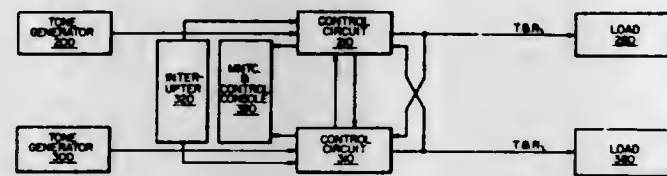
U.S. Cl. 179-15 AL

10 Claims



A time division binary-coded data transmission system using two parallel and juxtaposed transmission lines, with a number of sending and receiving stations distributed along said lines and coupled to both of them. The first line transmits synchronization frames supplied by a central station, and the second one the information. The system is characterized in that at each sending station, the information signals transmitted by the second line are derived from the

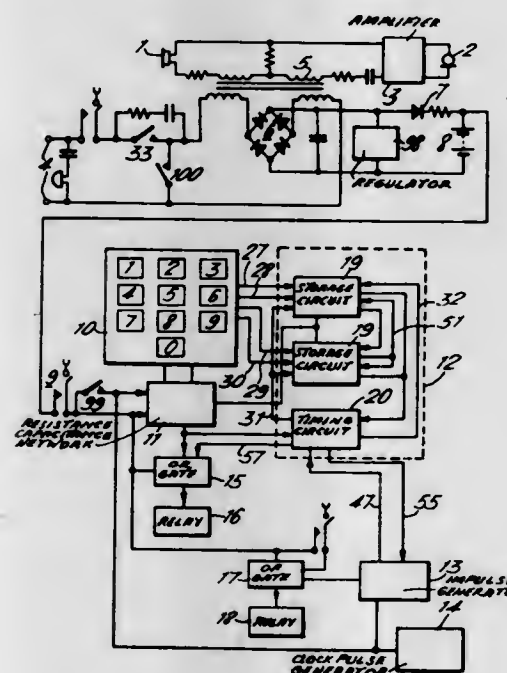
switching system. Two or more tone generators are employed to share the total load presented with the present control circuit automatically switching, upon generator failure, the load



associated with the inoperative generator to another generator, except when tone signal failure is induced by conditions such as shorting or grounding of the load.

3,601,552
REPERTORY TELEPHONE DIALER UTILIZING BINARY STORAGE OF DIGIT VALVES
Bernard Sydney Barnaby, Ware; Graham Webb, Ruislip, Middlesex, and Robert Andrew Stevenson, Darlington, all of, England, assignors to The General Electric and English Electric Companies Limited, London, England
Filed Jan. 10, 1969, Ser. No. 790,304
Claims priority, application Great Britain, Jan. 12, 1968, 1923/68

U.S. Cl. 179-90 B Int. Cl. H04m 1/45



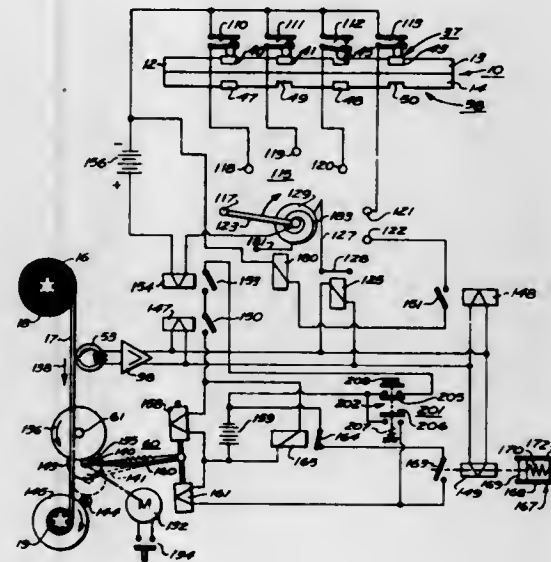
An electric impulse transmitter for a telephone instrument having a pushbutton dialling mechanism comprising a cyclic dynamic store which is capable of storing binary coded values relating to, say, 12 digit values, with input and output distributors under control of which the binary values are respectively entered from the pushbutton mechanism and read out to control the operation of a 10-impulse-per-second generator. The store and the distributors comprise dynamic shift registers utilizing metal oxide semiconductor (MOS) transistors.

3,601,553
INFORMATION REPLAY APPARATUS
Dexter P. Cooper, Jr., Pasadena, and Arthur Rak, Huntington Beach, both of, Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed July 21, 1970, Ser. No. 56,803
Int. Cl. G11b 27/12

U.S. Cl. 179-100.1 P 4 Claims
An apparatus for selectively replaying a number of features recorded on a recording tape having a casing has an adjusta-

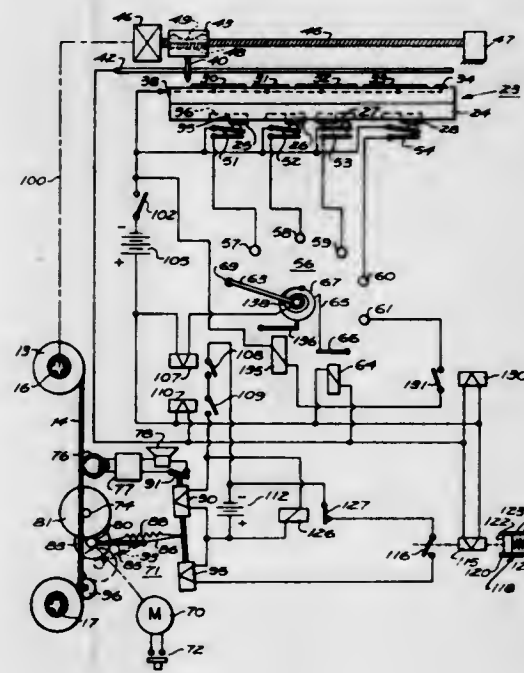
ble memory register on the casing for preselecting features for replay. The apparatus further includes a selectively actua-



ble device for overriding the memory register in order to bypass a preselected feature.

3,601,554
INFORMATION REPLAY METHODS AND APPARATUS
Arthur Rak, Huntington Beach, Calif., assignor to Bell & Howell Company, Chicago, Ill.
Filed Nov. 3, 1969, Ser. No. 873,250
Int. Cl. G11b 27/12

U.S. Cl. 179-100.1PS 16 Claims



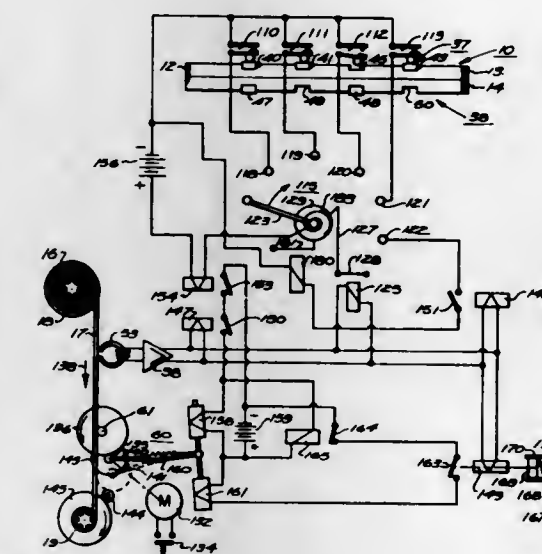
Apparatus and methods for selectively replaying a number of features recorded on a recording medium having a support, in which markings are provided on said support indicative of the beginnings of said features and designating selected ones of said features for replay, and in which feature replay operations are controlled in response to a sensing of said markings to effect replay of said selected features.

3,601,555
INFORMATION REPLAY METHODS AND APPARATUS
Peter G. Peterson, Winnetka, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Nov. 3, 1969, Ser. No. 873,288
Int. Cl. G11b 27/12

U.S. Cl. 179-100.1PS 26 Claims
Methods and apparatus for selectively replaying a number

of features recorded on a recording medium having a support pulse count upon angularization of a cassette-receiving in which adjustable markings are provided on the support for module with respect to a system operational panel after a

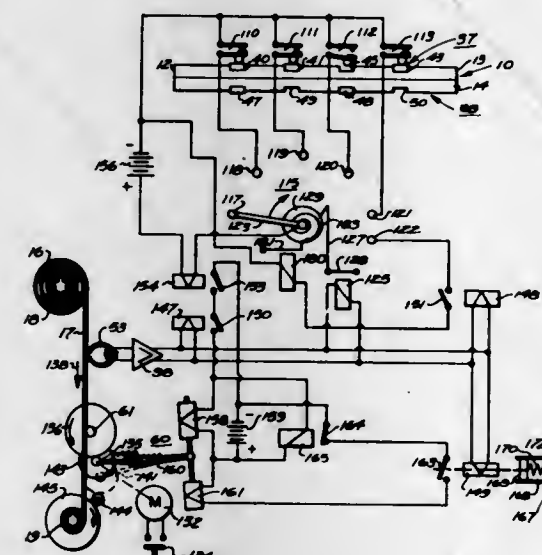


alternatively indicating preselections of the features for replay.

3,601,556
INFORMATION REPLAY METHODS AND APPARATUS
Dexter P. Cooper, Jr., Pasadena, and Arthur Rak, Huntington Beach, both of, Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed Nov. 3, 1969, Ser. No. 873,289
Int. Cl. G11b 27/12

U.S. Cl. 179-100.1PS 22 Claims

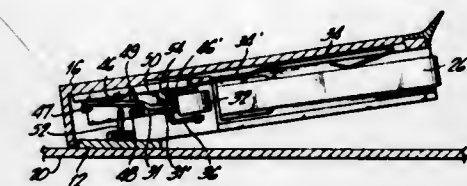


Method and apparatus for selectively replaying a number of features recorded on a recording medium having a support in which adjustable markings are provided on the support for alternatively indicating preselections of the features for replay, and in which feature start indications on the recording medium cooperate with said markings in controlling the replay of said features.

3,601,557
COUNTER FOR TAPE-RECORDING SYSTEM
Thomas M. Lennox, Mentor, Ohio, assignor to Scanfax Systems Corporation, New York, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,468
Int. Cl. G11b 5/86; G06F 15/46

U.S. Cl. 179-100.2 E 9 Claims
A counter system for use in a tape recorder is described as including switching and circuit means for initiating a single

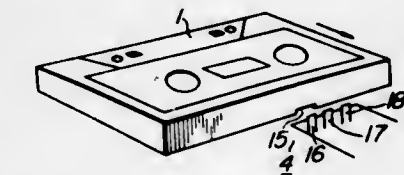


recording operation has been performed with the cassette in that module.

3,601,558
CARTRIDGE-TYPE MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS WITH MEANS TO INDICATE THE COERCIVITY OF THE TAPE
Hiroshi Sugaya, Suita-shi; Fukashi Kobayashi, Hirakata-shi, and Mitsuaki Ono, Osaka, all of, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Nov. 13, 1968, Ser. No. 775,348

Claims priority, application Japan, Nov. 20, 1967, Oct. 4, 1968, Oct. 4, 1968, Oct. 4, 1968, Oct. 11, 1968, 42-75019; 43-72655; 43-87071; 43-87072; 43-88970
Int. Cl. G11b 5/44, 15/12, 23/08

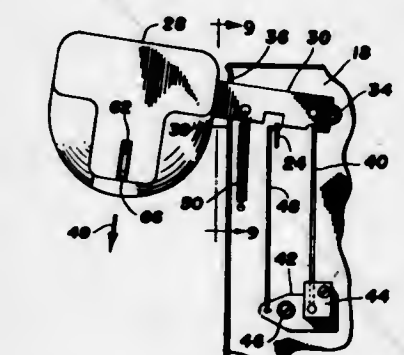
U.S. Cl. 179-100.2 Z 6 Claims



A cartridge-type magnetic tape recording and reproducing apparatus which is so designed that the recording or reproducing conditions are automatically adjusted in accordance with the physical characteristics of a magnetic tape accommodated in a tape cartridge or with the reproducing conditions of a recorded tape accommodated in said tape cartridge.

3,601,559
HOOKE SWITCH AND HOLD BUTTON RELEASE MECHANISM
Edson S. Hineline, Jr., Charlottesville, Va., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.
Filed Dec. 8, 1969, Ser. No. 883,024

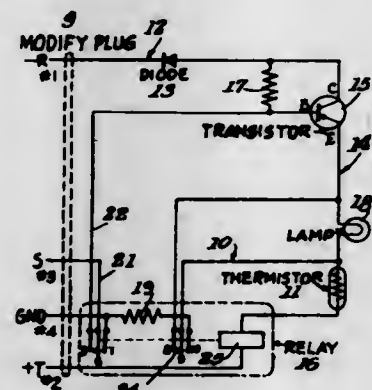
Int. Cl. H04m 1/08 9 Claims



A multiline wall telephone set includes a line select and hold button switch assembly with a hold button release mechanism, and also a hookswitch mounted in a handset cradle. A lever mechanism is coupled between the cradle and

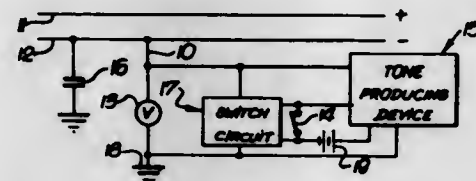
the hold button release mechanism. The hookswitch and the hold button release mechanism are separately and sequentially operated by the weight of the telephone handset when positioned in the cradle.

3,601,560
DEVICE FOR BUSYING A TELEPHONE SWITCH
Jim C. Garrett, Robert H. Johnson, and Jack Shelton, all of 3300 E. Spring St., Long Beach, Calif.
Filed Aug. 14, 1969, Ser. No. 850,079
Int. Cl. H04m 3/22
U.S. Cl. 179-175 5 Claims



A completely automatic and self-powered device provided with solid-state components allowing high input impedance on busy circuits obviating interference with dial pulses or audio during conversation on a telephone line, having a built-in time-delay and steering circuit to allow proper switch train release regardless which party on the line hangs up first, with indication of a completed operation by means of a low current lamp and internal divider, once operated, providing a ground to the telephone switch (usually a Strowger switch) to busy it out to all accessing switches until removed, and providing automatic resets when removed from the telephone jack.

3,601,561
APPARATUS FOR APPLYING AN IDENTIFYING SIGNAL TO A TELEPHONE-LINE PAIR WITHOUT DISTURBANCE OF SERVICE
Richard L. Bennett, Saugus, Calif., assignor to Perkins Research & Mfg. Co., Canoga Park, Calif.
Filed May 21, 1969, Ser. No. 826,525
Int. Cl. H04m 3/26
U.S. Cl. 179-175.3 9 Claims

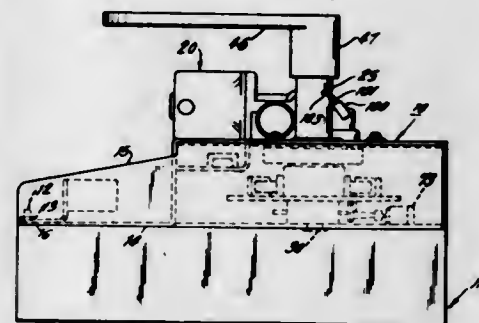


An apparatus for applying an identifying tone to a telephone-line pair without disturbing user service comprising a line tap, electrical signal-producing means for imposing a tone on the telephone pair, and a switch circuit connected between the tapping line and the tone-producing means and responsive to potential in the telephone pair so as to selectively connect the tone-producing means to the pair when the lines are not in use as indicated by the telephone-pair potential and capacity.

3,601,562
DEFEATER LOCK FOR ELECTRICALLY OPERATED CIRCUIT BREAKER
Carl E. Grytko, Haddon Heights, N.J., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Sept. 2, 1969, Ser. No. 854,512
Int. Cl. H01h 27/00
U.S. Cl. 200-42 R 7 Claims

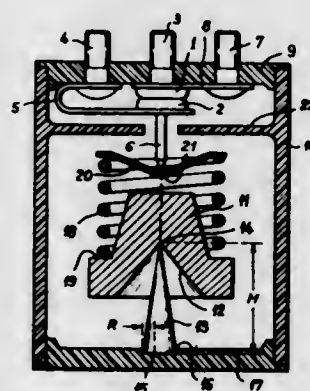
A circuit breaker having provisions for electrically powered as well as manual operation is provided with a

coupling mechanism that is selectively operable to connect the circuit breaker for manual or powered operation. The coupling mechanism is biased toward its power-operating position. Cooperating-aperture arrangement, brought into



alignment when the coupling mechanism connects the circuit breaker for manual operation, receive a padlocking arrangement for rendering the electrically powered circuit breaker inoperative.

3,601,563
SHOCK-SENSITIVE SAFETY CUTOFF DEVICE FOR AUTOMOTIVE VEHICLES
Jean-Pierre Serpette, and Francois Peroy, both of Billancourt, France, assignors to Regie National Des Usines Renault, Billancourt and Automobiles Peugeot, Paris, France
Filed Oct. 31, 1969, Ser. No. 872,897
Claims priority, application France, Nov. 7, 1968, 172911
Int. Cl. H01h 35/14
U.S. Cl. 200-61.5 6 Claims

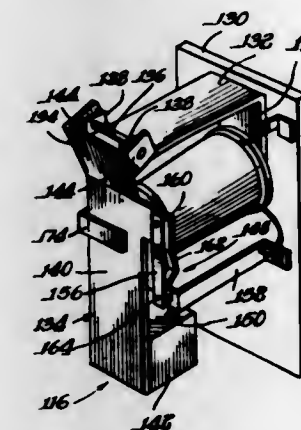


This safety cutoff consists of two members enclosed in a case, the first member being an electric switch and the other a deceleration detector comprising a pivoted assembly of particularly low frictional characteristic, of which the equilibrium is disrupted by overstepping a dead center from a threshold of horizontal deceleration applied to an inertia weight associated with the electric switch and causing the automatic opening thereof.

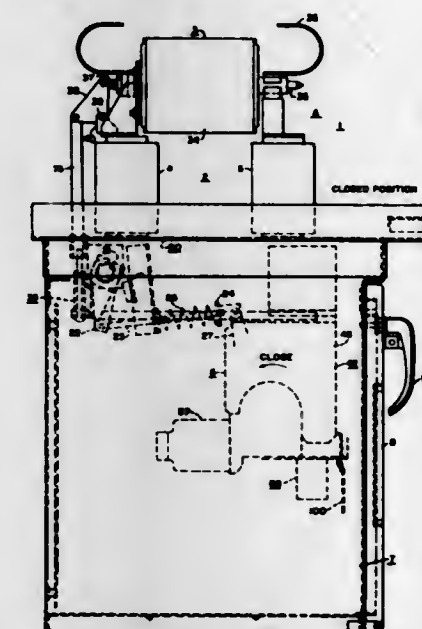
3,601,564
INERTIA SWITCH FOR DECELERATION SIGNALING SYSTEM
Lynn E. Ellison, 44 Industrial Road, Crystal Lake, Ill.
Division of Ser. No. 571,856, Aug. 11, 1966, Pat. No. 3,501,742
Filed Jan. 12, 1970, Ser. No. 7,439
Int. Cl. H01h 35/14
U.S. Cl. 200-61.48 5 Claims

An inertia switch assembly of the type adapted for use in a signaling system for motor vehicles. The assembly includes a pair of normally open contacts disposed in circuit with an

electrically actuated device comprising an element of said system, and means for closing said contacts upon the sensing



3,601,565
VACUUM CIRCUIT INTERRUPTER WITH HIGH VOLTAGE SWITCH COMPARTMENT AND LOW VOLTAGE OPERATING MECHANISM COMPARTMENT SEPARATED BY A GROUNDED METALLIC PARTITION
Robert A. Few, Bloomington, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 22, 1968, Ser. No. 730,983
Int. Cl. H01h 33/66, 33/42, 3/46
U.S. Cl. 200-144 B 9 Claims



A circuit interrupter of the vacuum type is adapted for reclosing operations and is utilized with a novel operating mechanism of simplified and easily accessible construction. The location of the vacuum interrupters in the high voltage compartment is remote from the operating mechanism and static control disposed in the low voltage compartment. The operating mechanism is of a simplified and of a low-cost construction incorporating a pair of supporting plates. The mounting of the reclosing mechanism and location of the main drive shaft results in an accessible and ultrasafe piece of interrupting equipment.

3,601,566
ELECTRICAL SWITCH APPARATUS
Eric George Hansen, Milwaukee; George Peter Plotrowski, Milwaukee, Wis., and Pradip N. Shah, Chicago, Ill., assignors to Globe-Union Inc., Milwaukee, Wis.
Filed Mar. 19, 1969, Ser. No. 808,509
Int. Cl. H01h 9/18
U.S. Cl. 200-167 A 15 Claims

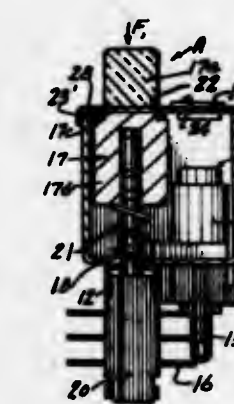
Switch apparatus is provided which includes a switching device or the equivalent with a manually engageable portion having unique illuminating means. The described embodiment

provides a stationary first section and a second section movable relative to the first section only upon a predetermined external force being applied thereto. The illuminating means comprises the stationary section including an electrically energizable light source and the movable section includ-



ing a protective shield shrouding the light source. The shield is provided with a removable lens piece through which the light rays from the source pass when the latter is energized. The source is energized only upon alternate application of the predetermined external force on the second section.

3,601,567
ILLUMINATED BUTTON SWITCH CONSTRUCTION
Pradip Shah, Chicago, Ill., assignor to Globe-Union Inc., Milwaukee, Wis.
Filed Sept. 10, 1969, Ser. No. 856,753
Int. Cl. H01h 9/18
U.S. Cl. 200-167 A 11 Claims

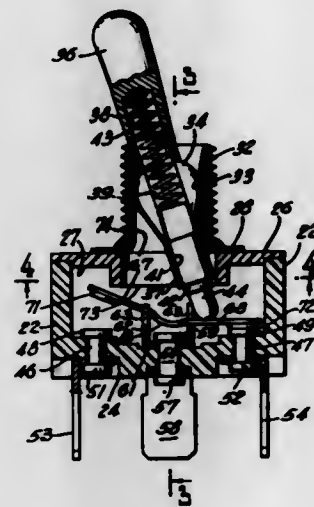


An illuminated button switch assembly is provided which has a self-contained light source disposed within a protective housing, and a button member carried in said housing. The button member, when in one predetermined position of actuation, has a first portion forming a wall for the light source and, when in a second predetermined position of actuation, has a second position thereof forming the wall for said light source. The light transmitting characteristics of the button member wall-forming portions are dissimilar whereby an exposed diaphanous portion of the button member is illuminated by the light source when the button member is disposed in at least one of the predetermined positions of actuation.

3,601,568
ARC-TRAPPING IMPROVEMENT FOR ELECTRIC SWITCH CASES
Wesley T. Sorenson, West Hartford, Conn., assignor to Carling Electric Inc., West Hartford, Conn.
Filed Dec. 15, 1969, Ser. No. 885,003
Int. Cl. H01h 9/02
U.S. Cl. 200-168 H 8 Claims

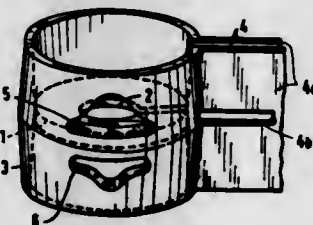
An electric switch case with an actuator extending through

the cover thereof and an insulating shield surrounding that portion of the toggle element in the interior of the case for



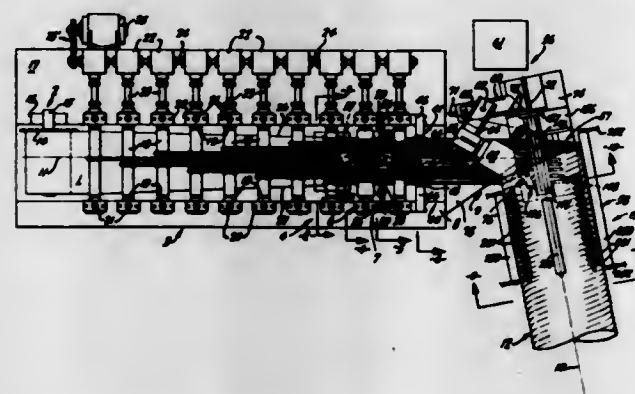
taping arc discharges formed by the opening of electrical circuits therein.

3,601,569
DEVICE FOR CRUCIBLE-FREE OR FLOATING-ZONE MELTING A CRYSTALLINE ROD, ESPECIALLY A SEMICONDUCTOR ROD
Wolfgang Keller, Pretzfeld, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Oct. 7, 1969, Ser. No. 864,360
Claims priority, application Germany, Oct. 11, 1968, P 18 02 524.6
Int. Cl. H05b 5/00, 9/02
U.S. Cl. 219—10.43



Device for floating-zone melting a crystalline rod includes a flat-wound induction heating coil adapted to encircle a crystalline rod so as to maintain a molten zone therein, and a slotted hollow member of electrically conductive material disposed coaxially to the flat-wound coil in close coupling therewith, the hollow member having an axial length many times greater than that of the flat-wound coil.

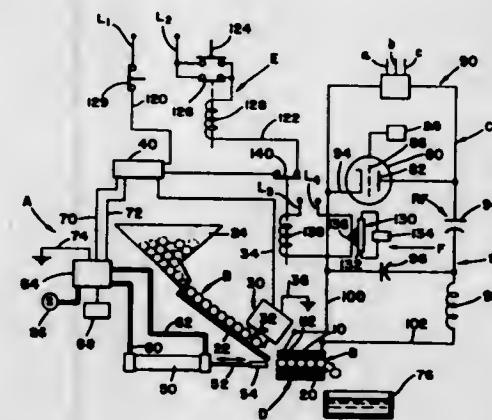
3,601,570
HELICAL PIPE-FORMING AND WELDING APPARATUS METHOD
Paul K. Davis, Alameda, Calif., assignor to Pacific Roller Die Company, Hayward, Calif.
Filed June 14, 1967, Ser. No. 646,089
Int. Cl. B23k 1/16, 1/108
U.S. Cl. 219—62



Mechanism and procedure for joining, in the presence of heat and pressure, the abutting edges of a metal strip as it is

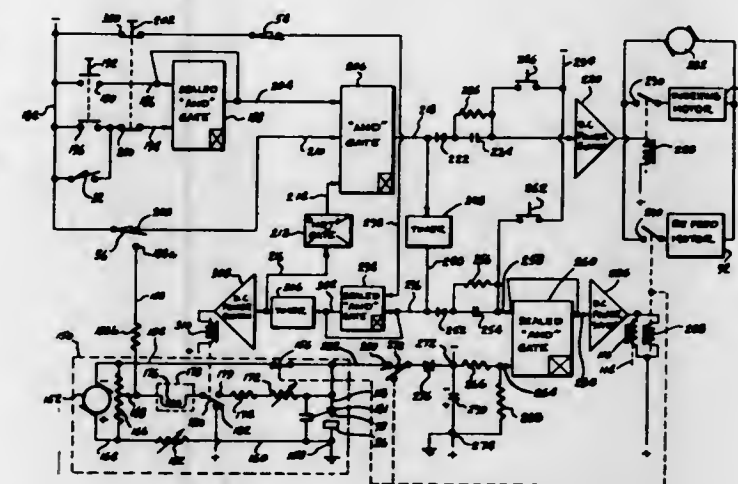
formed helically into a length of cylindrical pipe. A welding head and pressure rollers are positioned at a joint-forming station to supply heat and pressure in proper amounts to insure formation of a continuous butt-welded seam in an uninterrupted edge-joining operation. The components of the mechanism are adjustable to adapt the mechanism to form pipe of varying sizes.

3,601,571
INDUCTION HEATING DEVICE WITH A CONTROLLED FEEDING MECHANISM
Edmund N. Curcio, South Orange, N.J., assignor to Park-Ohio Industries, Inc., Cleveland, Ohio
Filed Nov. 12, 1969, Ser. No. 875,638
Int. Cl. H05b 5/00, 9/06
U.S. Cl. 219—10.69



In an induction heating device including an oscillator with a high frequency output circuit, a multiple turn induction heating coil with an internal workpiece-receiving passageway connected in the output circuit, means for sequentially feeding workpieces through the passageway and control means for actuating the feeding means, there is provided an energizable means for actuating the control means only when high frequency current is flowing in the output circuit of the oscillator whereby the feeding means is operable only when heating current is flowing in the coil.

3,601,572
ELECTRODE-REPLENISHING APPARATUS FOR ELECTRICAL DISCHARGE MACHINING
John M. Check, Ann Arbor, and Gary F. Rupert, Ypsilanti, both of, Mich., assignors to Raycon Corporation, Ann Arbor, Mich.
Filed Oct. 22, 1965, Ser. No. 501,910
Int. Cl. B23p 1/08
U.S. Cl. 219—69 V



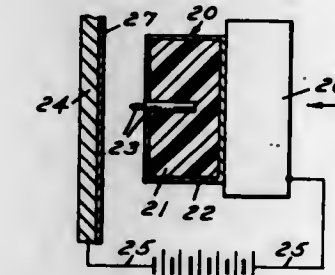
Electrical discharge machining apparatus utilizing a wire electrode and a re-feed mechanism operable to replenish the electrode following each machining pass. The mechanism includes means for sensing electrical contact between the workpiece and the electrode to determine the amount of

electrode fed after each operation of the apparatus. The apparatus also can form true holes which are larger in diameter than the electrode by employing structure for rotating a workpiece while the electrode is fed axially thereof and held obliquely to the workpiece axis.

3,601,573
FLUXLESS ARGON ARC SOLDERING
Albert J. Shutty, Warren, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Oct. 13, 1969, Ser. No. 866,041
Int. Cl. B23k 1/20

U.S. Cl. 219—85
A method of soldering wherein heat is supplied by striking an electric arc between a nonconsumable tungsten electrode and the work. The source for the arc is a bidirectional electric current. A stream of argon gas is supplied to the solder zone to shield the work for oxidation. The argon is conjunction with the bidirectional current provides a cleansing action in the solder zone permitting metallurgical bonding of the solder and work. The method is practiced without the aid of a flux.

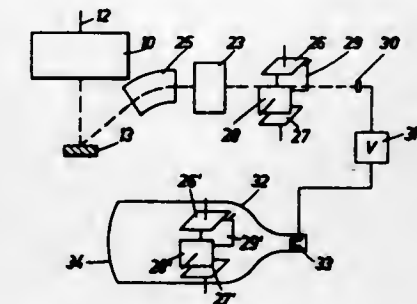
3,601,574
PART STRUCTURE FOR PROJECTION WELDING A NONMETALLIC BODY TO A METAL PART
Theodore E. Fiddler, 1268 Suffield Drive, Birmingham, Mich.
Filed Mar. 19, 1970, Ser. No. 21,057
Int. Cl. B23k 1/14
U.S. Cl. 219—93



A part structure for projection resistance welding a non-metallic or electrically non-conductive body, such as of synthetic resin, wood, porcelain, ceramic, etc. to a metal base wherein the part structure comprises the nonconductive body, a conductive welding projection of the body, and a current conducting member carried by the body leading to the projection from a remote surface on the body; the part structure being weldable on a metal base by including the metal base and a welding machine electrode, such as press-platen, in a welding circuit and disposing the part structure between the metal base and the platen with welding current communicating from the platen to the base through the current conducting member and the projection to fuse the projection with the base.

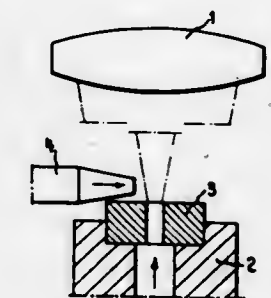
3,601,575
METHOD AND APPARATUS FOR VIEWING THE IMPACT SPOT OF A CHARGE CARRIER BEAM
Edgar Meyer, Gilling, and Joachim Geissler, Vaterstetten, both of, Germany, assignors to K. H. Steigerwald GmbH, Wasseralfingen, Germany
Continuation of application Ser. No. 473,355, July 20, 1965.
This application Jan. 24, 1969, Ser. No. 804,342
Claims priority, application Germany, July 24, 1964, St 22,453
Int. Cl. B23k 15/00

U.S. Cl. 219—121
A viewing system for monitoring the focus of a beam of charged particles at the impact spot in apparatus using such beam for the machining of a workpiece is described. The viewing system utilizes the charged-particle radiation moving reversely with respect to the beam from the impact spot and focuses this in an image plane. A fluorescent screen is provided in the image plane and behind the screen is a photoelectric detector having a photosensitive area smaller than the image of the particles on the screen whereby the in-



3,601,576
METHOD FOR BORING WORKPIECES BY LASER PULSES
Hans Schlafl, Buren an der Aare, and Gottfried Gugger, St. friburg, both of, Switzerland, assignors to Laser Technique S A, Berne, Switzerland
Filed Sept. 13, 1968, Ser. No. 759,659
Claims priority, application Switzerland, Sept. 25, 1967, 13,356/67
Int. Cl. B23k 9/00

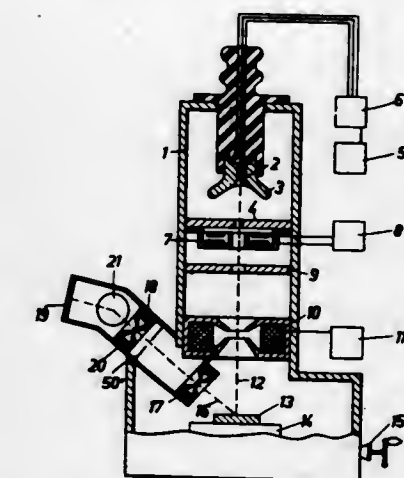
U.S. Cl. 219—121 L



A method for boring workpieces of hard material by laser pulses for obtaining the bore sizes within relatively critical tolerances. Laser pulses are used of 0.1 to 0.8 Joule, the duration not exceeding 100 μ sec. and the wavelength of the pulses is arranged to exceed 1 μ .

3,601,577
METHOD AND APPARATUS FOR VIEWING THE IMPACT SPOT OF A CHARGE CARRIER BEAM
Edgar Meyer, Wessling, and Joachim Geissler, Munich, both of, Germany, assignors to Steigerwald Strahltechnik GmbH, Munich, Germany
Division of Ser. No. 804,342, Jan. 24, 1969, which is a Continuation of Ser. No. 473,355, July 20, 1965, abandoned
Filed Jan. 20, 1970, Ser. No. 4,221
Int. Cl. B23k 15/00

U.S. Cl. 219—121



In equipment using a beam of charged particles for machining a workpiece, the size and/or shape of the beam's

impact spot is checked by placing a sharply defined edge to intercept energy radiated from the impact spot so that the radiation casts a shadow on a detection device, which is provided by a fluorescent screen of a photoelectric detector or by a combination of them.

3,601,578

HIGH-PRESSURE PLASMA BURNER

Rudolf Gebel, Tennenlohe, and Helmut Forster, Neunkirchen, both of, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

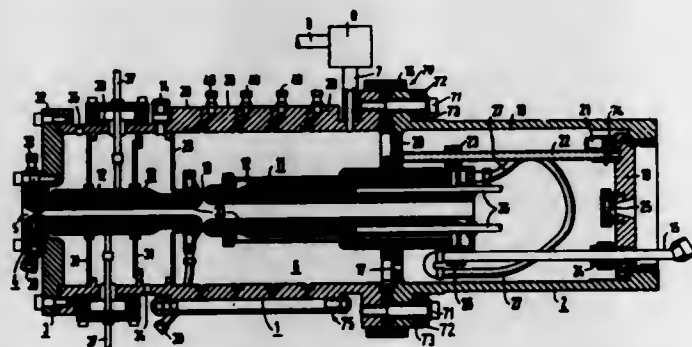
Filed Dec. 23, 1969, Ser. No. 887,578

Claims priority, application Germany, July 11, 1969, P 19 33 306.3

Int. Cl. B23k 9/00

U.S. Cl. 219-121 P

1 Claim



High-pressure plasma burner of the gas heater type includes a pressure-tight arc chamber containing electrodes adapted to form an arc therein, flow discharge nozzle means for discharging from the arc chamber working gas heated and ionized therein by the arc, coolant channels located in parts of the arc chamber thermally stressed by the arc, the coolant channels being connected in a closed coolant loop, and a pressure transmitter and pressure line pressure transmitting interconnecting the pressure tight arc chamber and the closed coolant loop.

3,601,579

METHOD OF WELDING METAL PARTS AND ARTICLES

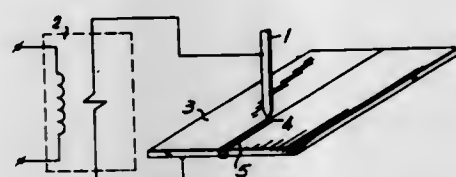
Georgy Vasilievich Gorbunov, bulvar Lesi Ukrainki, 2, kv. 41, Kiev, U.S.S.R.

Filed June 14, 1968, Ser. No. 737,140

Int. Cl. B23k 9/00

U.S. Cl. 219-137

3 Claims



This invention relates to a method of welding wherein molten bath is maintained between the edges of a workpiece and an electrode and subsequently moved along the edges to form a weld seam.

3,601,580

HEATER ROLL TEMPERATURE DETECTOR APPARATUS

Maurice W. Cannon and Jerome B. Tankersley, III, both of Roanoke, Va., assignors to General Electric Company

Filed May 13, 1970, Ser. No. 36,894

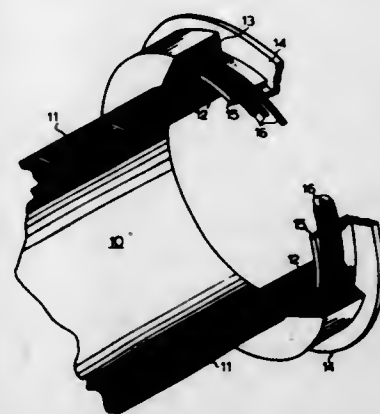
Int. Cl. H05b 1/02; B21b 27/06

U.S. Cl. 219-505

5 Claims

A temperature sensor for a rotating heater roll having an annular slot cut into an end face of the roll including a non-inductive winding of temperature-responsive resistance

wire upon a stationary rim inserted completely within the slot in non-contacting relationship whereby the heat of the



roll affects the winding to change its resistance to control and regulate the source of heat provided for the roll.

3,601,581

ELECTRIC HEATING DEVICE FOR HEATING THE EXTREMITIES OF PLASTIC PIPES

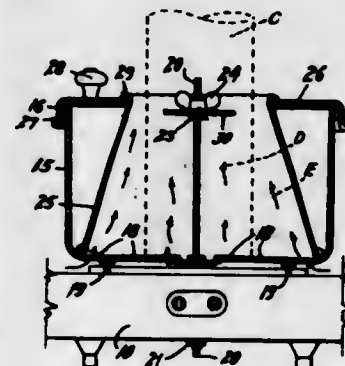
Clyde C. Cone, 7395 W. 67th Ave., Arvada, Colo.

Filed Apr. 23, 1970, Ser. No. 31,237

Int. Cl. F27d 11/00

U.S. Cl. 219-386

8 Claims



A cylindrical, open-topped, vertically walled pot with a perforated bottom adapted to be secured in spaced relation to a conventional electrical heating element so as to receive the extremity of a length of plastic pipe and support a circular air-deflecting disc therein so that air, heated by said element, will flow through the perforations in the bottom and longitudinally of both the inside and outside surfaces of said extremity to heat and soften the latter for expansive purposes.

3,601,582

APPARATUS FOR REHEATING PORTIONS OF COOKED FOOD

Jean De Boisfleury, Plombières-les-Bains, France, assignor to Iseco S. A., Plombières-les-Bains, France

Filed July 23, 1969, Ser. No. 843,933

Claims priority, application France, July 24, 1968, 160 407

Int. Cl. F27b 9/06

U.S. Cl. 219-388

12 Claims



An apparatus for reheating cooked food portions, having an oven, electric infrared ray emitters mounted within said oven, containers for accommodating the food portions and support means within said oven for holding said containers.

These emitters are encased tubes arranged to form heating grills and placed above and below the containers. The heating is in the form of a timed heating cycle with periods of heating when the containers are subjected to the heating effect of the emitters and at least one stabilization period in which the intensity of heating is reduced to equalize the temperature prevailing inside the containers.

3,601,583

ELECTRICAL HEATING WIRE ASSEMBLY FOR INCORPORATION IN WIRED LAMINATED GLASS PANELS

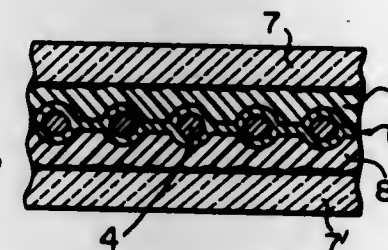
Yasuharu Fujiwara, Kanagawa-ken, Japan, assignor to Nippon Sheet Glass Co. Ltd., Osaka, Japan

Filed Apr. 11, 1969, Ser. No. 815,435

Int. Cl. H05b 3/06

U.S. Cl. 219-522

3 Claims



An electrical heating wire assembly for incorporation in a wired laminated glass panel, comprising an array of closely spaced parallel electric heating wires sandwiched between two sheets of films which are not adhesive to the cement to be used for bonding a pair of glass sheets forming said laminated glass panel one and at least one of the films of which has said cement coated on the inside face thereof to secure the individual electrical heating wires in positions integrally therewith, said electrical heating wire assembly being used in such a manner that after removing the two sheets of films, the array of electrical heating wires carried by the cement layer is positioned on the inside face of one of said pair of glass sheet and the other one of the glass sheets is positioned on said array of electrical heating wires with the same cement interposed therebetween, whereby the two glass sheets are bonded together with the array of heating wires incorporated therein.

3,601,584

DEVICE FOR READING PUNCHED CARDS

Tochio Kashio, Tokyo, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

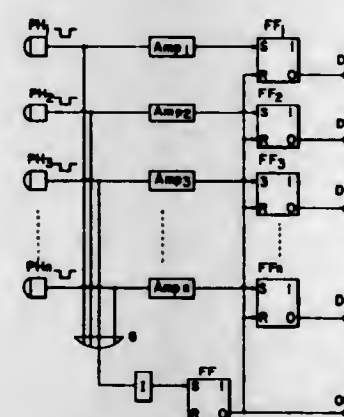
Filed Apr. 23, 1968, Ser. No. 723,484

Claims priority, application Japan, May 15, 1967, May 16, 1967, May 18, 1967, May 24, 1967, 42/30,395;42/40,318;42/41,170;42/32,537

Int. Cl. G06k 7/016

U.S. Cl. 235-61.11 E

3 Claims



A programming system for an electronic computer using a card-reading device, said reading device having a card passageway adapted to feed punched cards by allowing

descent of the card therethrough by gravitation. The information stored in each punched card is read by a photoelectric means while each punched card descends by gravity through the card passageway of the card-reading device.

3,601,585

METHOD AND APPARATUS FOR TOTALIZING MATERIALS FROM CONSTRUCTION DRAWINGS

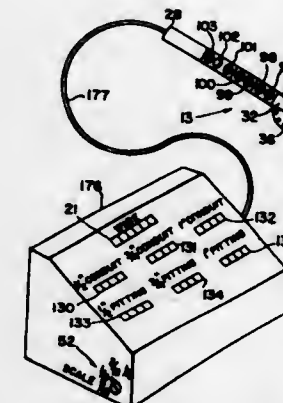
Dan B. Paulsen, 36505 Oak St., Fremont, Calif.

Filed Sept. 18, 1968, Ser. No. 760,527

Int. Cl. G06m 1/272, 3/02

U.S. Cl. 235-92 DN

6 Claims



In order to accumulate the total amount of required electrical materials for estimating the cost of electrical facilities for a designed building, the length of all conduit runs obtained from a sealed electrical construction drawing are converted into a proportional number of electrical pulses by a rotameter. Each pulse thereby provided is employed to generate a selected multiple number of pulses by appropriately gating the output of a high frequency pulse generator wherein the number of pulses thus gated is selected to be proportional to the number of conductors carried by each conduit run. The resulting gated pulses are accumulated by a pulse counter accumulator which thereby registers a number proportional to the total conductor length for all of the conduit runs displayed by the construction drawing. In addition to the accumulation of conductor lengths, method and apparatus are disclosed for totalizing the conduit length for each conduit size and for totalizing the number and size of conduit fittings by similar pulse generating, gating and counting operations.

3,601,586

THERMAL CALCULATOR

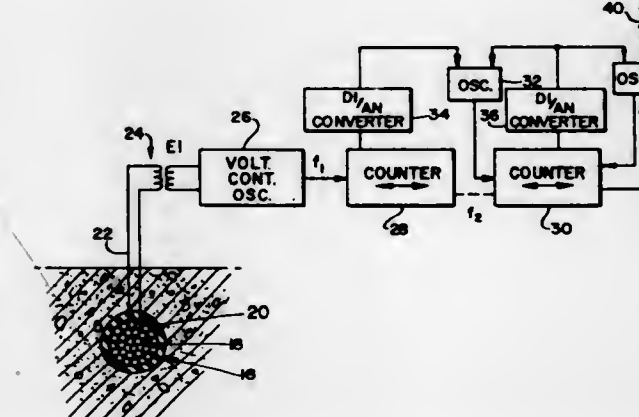
Peter E. Slavin, Winchester, Mass., assignor to Intelligent Instruments, Inc., Winchester, Mass.

Filed Feb. 28, 1969, Ser. No. 803,289

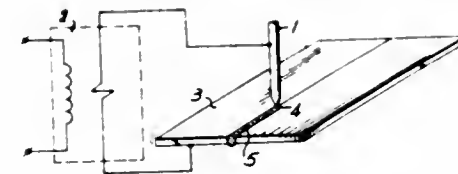
Int. Cl. G06m 3/08

U.S. Cl. 235-92 MT

3 Claims



A digital thermal calculator is provided for use particularly in the prediction and display of the temperature of electrical cables, especially the conductor temperature(s) of un-



This invention relates to a method of welding wherein molten bath is maintained between the edges of a workpiece and an electrode and subsequently moved along the edges to form a weld seam.

3,601,580 HEATER ROLL TEMPERATURE DETECTOR APPARATUS

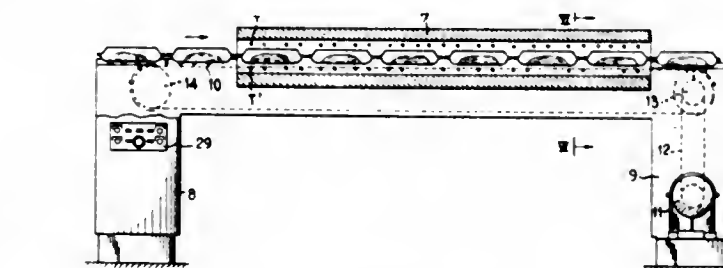
Maurice W. Cannon and Jerome B. Tankersley, III, both of Roanoke, Va., assignors to General Electric Company
Filed May 13, 1970, Ser. No. 36,894
Int. Cl. H05b 1/02; B21b 27/06

U.S. Cl. 219-505

5 Claims

A temperature sensor for a rotating heater roll having an annular slot cut into an end face of the roll including a non-inductive winding of temperature-responsive resistance

An apparatus for reheating cooked food portions, having an oven, electric infrared ray emitters mounted within said oven, containers for accommodating the food portions and support means within said oven for holding said containers.



3,601,582 APPARATUS FOR REHEATING PORTIONS OF COOKED FOOD

Jean De Boisfleury, Plombieres-les-Bains, France, assignor to Iseco S. A., Plombieres-les-Bains, France
Filed July 23, 1969, Ser. No. 843,933
Claims priority, application France, July 24, 1968, 160 407
Int. Cl. F27b 9/06

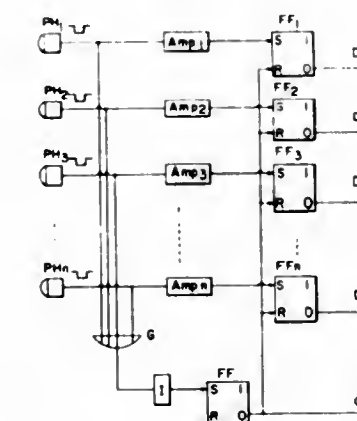
U.S. Cl. 219-388

12 Claims

Co., Ltd., Tokyo, Japan
Filed Apr. 23, 1968, Ser. No. 723,484
Claims priority, application Japan, May 15, 1967, May 16, 1967, May 18, 1967, May 24, 1967,
42/30,395; 42/40,318; 42/41,170; 42/32,537
Int. Cl. G06k 7/016

U.S. Cl. 235-61.11 E

3 Claims



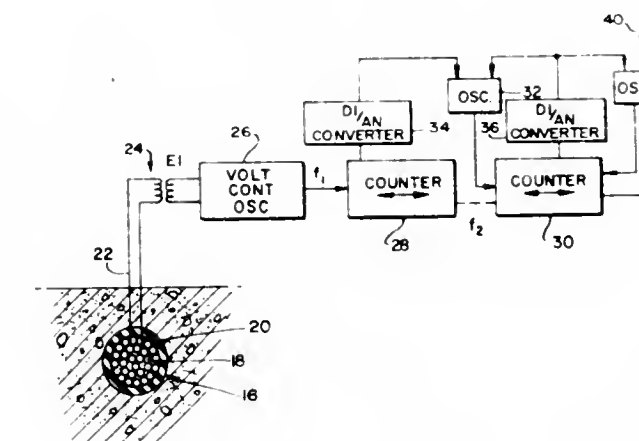
A programming system for an electronic computer using a card-reading device, said reading device having a card passageway adapted to feed punched cards by allowing

THERMAL CALCULATOR

Peter E. Slavin, Winchester, Mass., assignor to Intelligent Instruments, Inc., Winchester, Mass.
Filed Feb. 28, 1969, Ser. No. 803,289
Int. Cl. G06m 3/08

U.S. Cl. 235-92 MT

3 Claims



A digital thermal calculator is provided for use particularly in the prediction and display of the temperature of electrical cables, especially the conductor temperature(s) of un-

derground cables. Large currents which give power (thermal units) into the cable(s) are converted by transducers into a useable voltage, which is fed to a voltage-controlled oscillator. The output of the oscillator is fed into a reversible counter and the count in the counter represents temperature at some portion of the cable. Additional up/down counters and voltage-controlled oscillators are connected to represent heat flow between different points in the thermal system.

3,601,587

REGISTER CONTROL SYSTEM AND METHOD

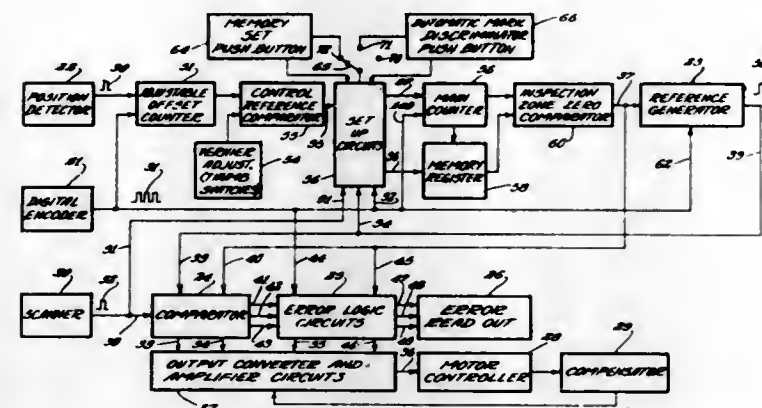
Paul W. Thiede, Danville, Ill., assignor to Hurltron Incorporated, Danville, Ill.

Filed Oct. 6, 1969, Ser. No. 863,876

Int. Cl. G06m 3/02

U.S. Cl. 235-92 CC

4 Claims



A digital control system for controlling register of a moving web at successive stations wherein the set point at each station is automatically obtained and stored while the web is running in the desired register condition.

3,601,588

METHOD AND APPARATUS FOR ADAPTIVE CONTROL

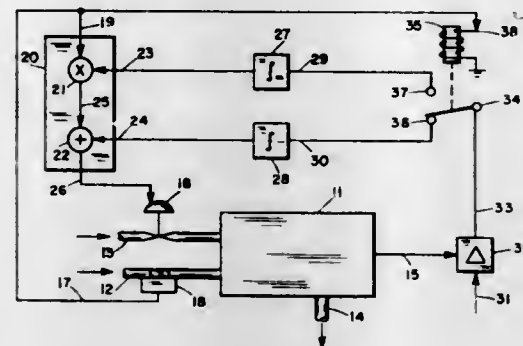
Edgar H. Bristol, II, Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed May 23, 1966, Ser. No. 552,288

Int. Cl. G05b 13/00

U.S. Cl. 235-150.1

37 Claims



The invention is for a method of self-adaptation of a feedforward type of model incorporated online in a control system supplying "anticipatory" control to a dependent system variable based on the value of an independent system variable. The feedforward model, for example, may employ a proportional and a bias function which together express a linear estimate of the modification of the independent system variable required to compute a suitable control for the dependent system variable. The invention is for a procedure performed while the system is under control action, employing the steps of monitoring the condition of the independent system variable, or in some cases, the set point, and selecting in accordance therewith one of the feedforward model functions for an adjustment, which adjustment uses the system error signal in a feedback loop type of control action in order to reduce that error. Each such selection, together with the adjustment performed, acts to improve the model's estimate

of the proper relationship between the value of the independent system variable and the value of the dependent system variable. Over a period of time, as the independent variable changes, several successive selections and adjustments will be made, and the model will express the best possible estimate, whether the model is a simple linear model, or is made to represent a more complex group of functions. The invention also includes apparatus for carrying out the adaptation. Applications are also included where the model is employed in other than the conventional feedforward control situations, the adaptation feature of the invention providing for automatic calibration of measurements, and for on-off control activity, for example.

3,601,589

PROCESS AND APPARATUS FOR PRODUCING COLORED CHEMICAL COATINGS

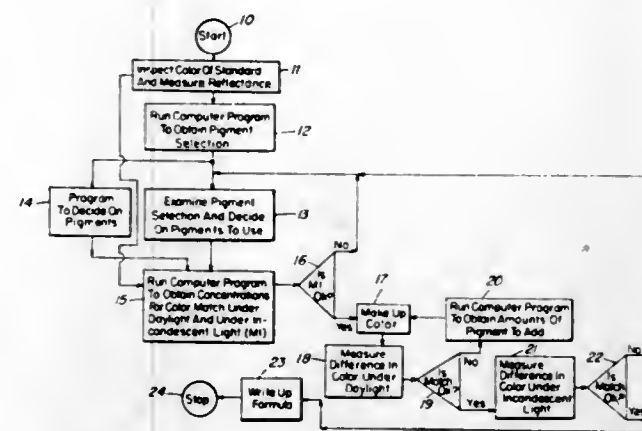
William H. McCarty, Hunterdon, N.J., assignor to Mobile Oil Corporation

Filed Sept. 19, 1969, Ser. No. 859,474

Int. Cl. G06f 7/00

U.S. Cl. 235-150

25 Claims



A computer-aided color formulation process is provided wherein a color standard is matched by a blend of pigments from a library of pigments. Reflectance values of the standard color at a plurality of reflectance points are supplied to a computer programmed to select pigments from the library and to approximate concentrations of the selected pigments to give a match to the reflectance data of the standard. The computer is also programmed to generate the pigment composition from a group of those selected to match the color of the standard, and to determine the metamer index of the match. The color of a blend of library pigments prepared in response to the concentration values generated by the computer is measured by a colorimeter under daylight to insure that the difference in color coordinates between the blend and the standard is within tolerance. If the color coordinate difference is not within tolerance, the process provides for determining the amount of selected pigment addition necessary to shade the blend to provide a color coordinate difference within tolerance. The blend is then measured by the colorimeter under incandescent light to insure that the metamer index is within tolerance.

3,601,590

AUTOMATED ARTWORK-GENERATING SYSTEM

Wayne G. Norton, Rochester, N.Y., assignor to Rutledge Associates, Inc., Wakefield, Mass.

Filed May 14, 1968, Ser. No. 731,356

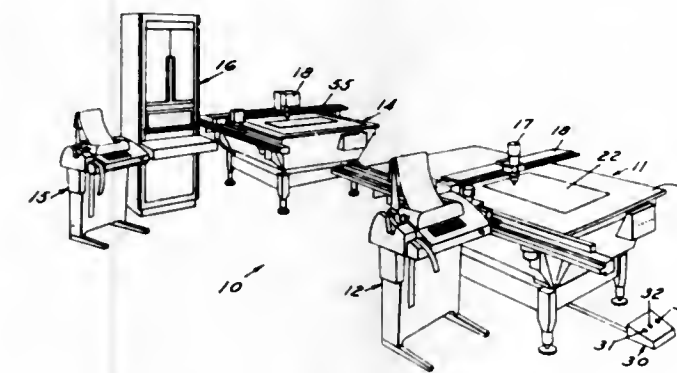
Int. Cl. G06g 7/48

U.S. Cl. 235-151

9 Claims

This invention relates to an automated artwork-generating system which has two drafting tables which are connected to a computer unit and the computer unit is connected with two teleprinter units. A teleprinter unit is associated with each drafting table. One of the drafting tables is utilized as a coordinate readout table and has a dotting mechanism positioned on a slide mechanism which sends signals into the computer unit to be directed to either the second automatic drafting table or to its associated teleprinter to produce a tape for future use. The second teleprinter unit is utilized to read the

tape produced by the first teleprinter unit and feed the information into the computer unit so that the artwork can be reproduced by the second drafting table by a rotary tool mechanism provided on its slide mechanism. The artwork is



produced on a peel coat master mat by a knife member which is oriented to be substantially aligned with the direction of the cut movement the rotary tool mechanism must follow during performance of its function on the peel coat master mat.

3,601,591

DIGITAL DIFFERENTIAL ANALYZER EMPLOYING COUNTERS CONTROLLED BY LOGIC LEVELS

Brian Ronald Gaines, Cambridge, and Peter Lawrence Joyce, Bishops Cleeve, both of, England, assignors to International Standard Electric Corporation, New York, N.Y.

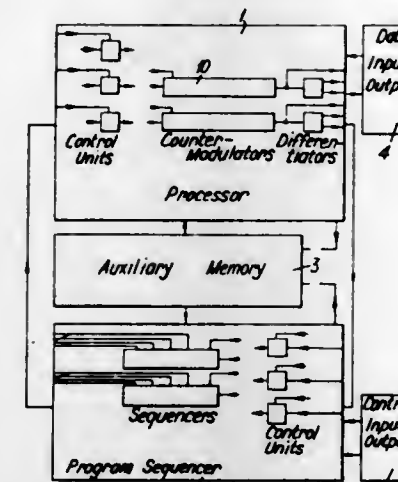
Filed Aug. 12, 1968, Ser. No. 752,060

Claims priority, application Great Britain, Aug. 17, 1967, 37851/67

Int. Cl. G06f 7/50, 7/52

U.S. Cl. 235-152

6 Claims



Data processing equipment wherein the registers are interconnected to perform the functions of analog computing loops, a sequencer unit consisting of a plurality of programmable registers responds to outputs derived from the processor, and the outputs of the sequencer registers being arranged to control the interconnection patterns in the processor.

3,601,592

FAST FOURIER TRANSFORM ADDRESSING SYSTEM

Joseph T. Cutter, Boulder, Colo.; Walter H. Elder, Silver Spring; Don G. Freeman, Galtersburg, and Richard Van Blerkom, Rockville, all of, Md., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 15, 1970, Ser. No. 28,892

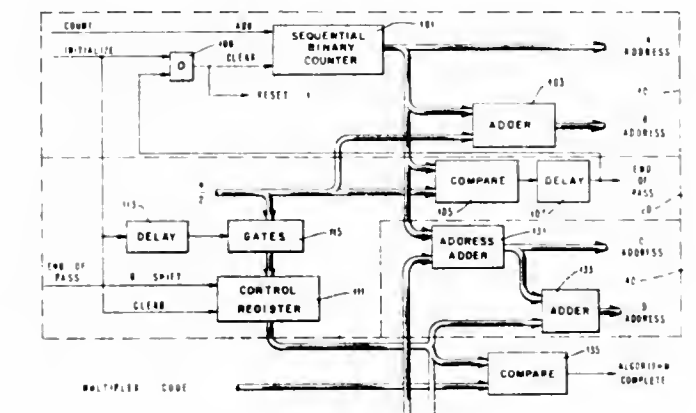
Int. Cl. G06f 7/00, 7/38

U.S. Cl. 235-156

9 Claims

A fast Fourier transform addressing system using the Danielson-Lanczos algorithm. The addressing system uses a

basic relationship between addresses to allow implementation of the addressing system using a reduced number of address



3,601,594 CIRCUIT CONTROLLER FOR CONCEALED HEADLAMP ACTUATOR APPARATUS

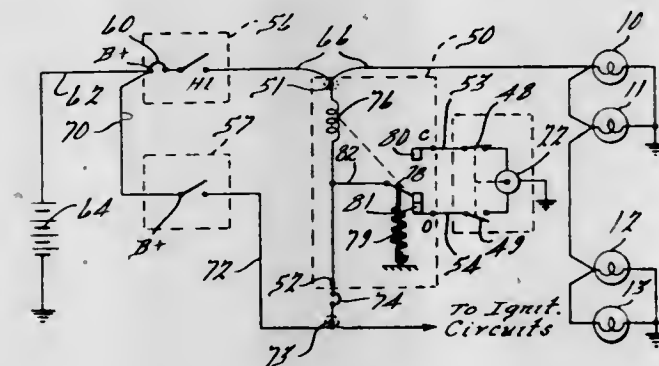
Leonard A. Carbary, Fraser, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Apr. 17, 1969, Ser. No. 816,974

Int. Cl. B60q 1/06

U.S. Cl. 240—7.1 H

8 Claims



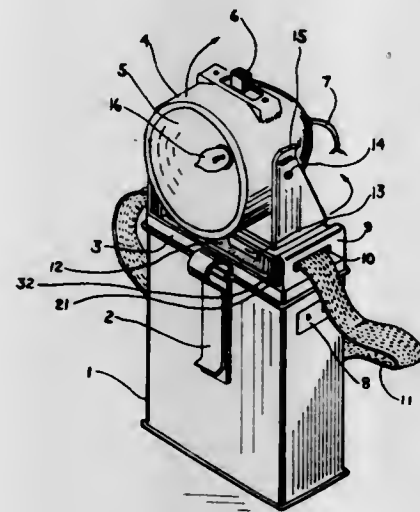
An electrical circuit controller controlling the direction of actuation of a concealed headlamp apparatus including a relay which is energized through the vehicle ignition switch to operate or maintain the apparatus in a headlamp concealing position and is deenergized under the joint control of the vehicle ignition switch and headlamp switch in their enabled condition to operate the apparatus to its headlamp revealing position.

3,601,595 FLASHLIGHTS

Stanley Edward Kivela, Rte 1, Box 94, Marengo, Wis.
Filed Jan. 10, 1968, Ser. No. 696,760
Int. Cl. F21L 23/00

U.S. Cl. 240—10.6

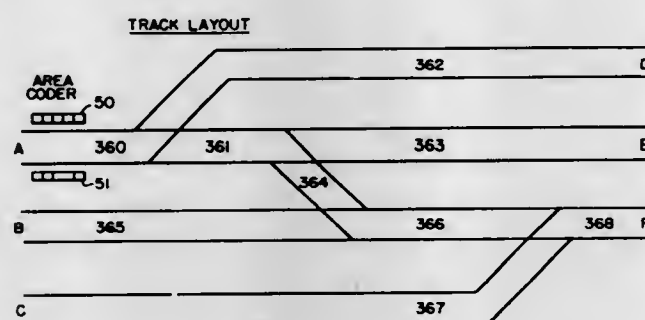
11 Claims



3,601,602

SYSTEM FOR MONITORING TRAIN OPERATION
 Willis R. Smith, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
 Filed July 24, 1969, Ser. No. 844,350
 Int. Cl. B611 25/02

U.S. Cl. 246—124

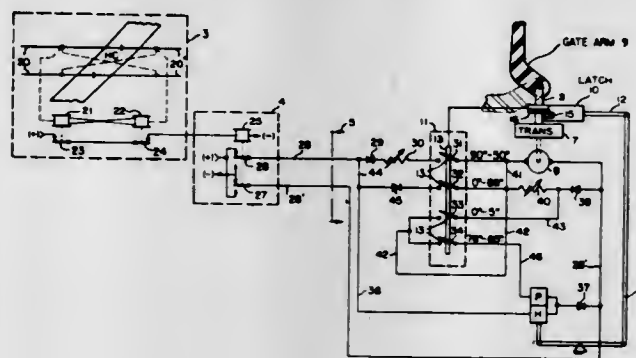


Monitoring apparatus is located on each locomotive which apparatus is distinctively actuated each time that locomotive passes a track switch in the track layout. Such actuation is dependent upon whether the locomotive passes the track switch in its normal or reverse position. The elapse of time also acts on the monitoring apparatus together with the change in the direction of locomotive movement. These distinctive conditions stored in the locomotive monitoring apparatus are fed into a computer which compares the recorded locomotive movements with a standard of operation for that area of railroad and gives a written record of the actual locomotive performance. In the event the actual performance deviates substantially from a standard of performance, such difference is printed on the written record to be brought to the attention of the operator of the locomotive as well as his management. In a modified form of the invention, the conditions detected on the locomotive are transmitted to the central office in real time and are supplied to the computer for immediate processing. The computer in addition to supplying a typed record of performance also provides control of a currently updated display panel for showing the route and times of locomotive movement.

3,601,603

CROSSING GATE CONTROL CIRCUIT
 J. Donald Hughson, Macedon, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
 Filed Sept. 11, 1969, Ser. No. 856,963
 Int. Cl. B611 29/08

U.S. Cl. 246—125

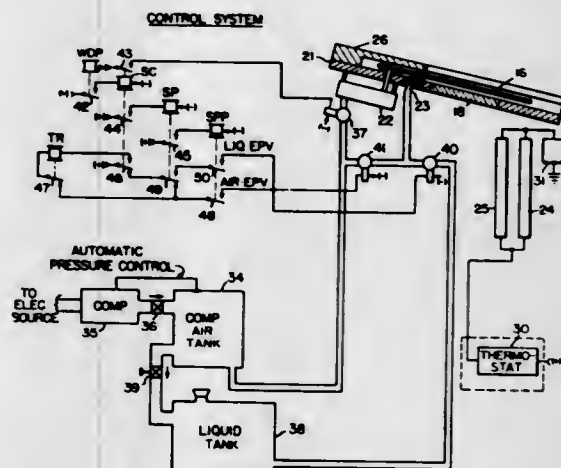


A control system for a highway crossing gate has been provided having circuit means for selectively operating the gate to open and closed positions when a signal of one or another polarity is present respectively. The improvement for providing directional control of the gate includes a plurality of polarity sensitive devices for selectively including or not including a resistor in the operating circuit of the gate in accordance with the polarity of the signal impressed on the operating circuit.

3,601,604

HOT BOX DETECTOR STRUCTURES FOR RAILWAYS
 Henry C. Sibley, Adams Basin, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
 Filed July 16, 1969, Ser. No. 842,319
 Int. Cl. B61k 9/06; B08b 3/00

U.S. Cl. 246—169 D

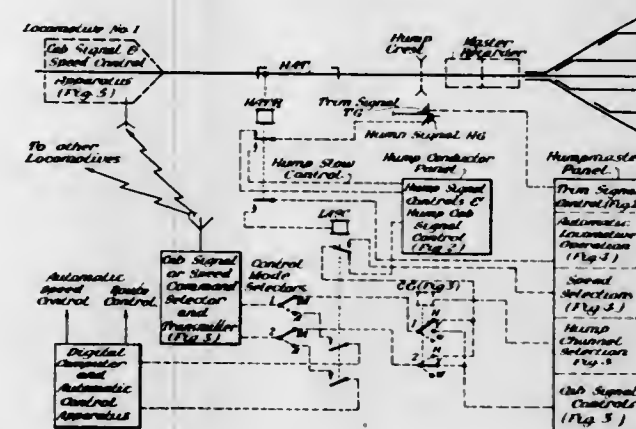


The hot box detector structure comprises a main enclosure and an upper deck enclosure. The main enclosure houses the radiometer which should be maintained at ambient temperature. For this reason, the upper deck enclosure is separated from the main enclosure by a suitable air space. It also supports a surrounding sun shade to further protect the main enclosure of the structure from the direct rays of the sun and thus prevent the building up of its internal temperature above the ambient. The tower enclosure rises from one end of the main enclosure and includes a window at its top or head through which the radiometer can view the passing hot elements of a moving train. The head of such tower also includes certain operative parts such as a shutter for the window, heating elements, shutter control, window washer and dryer, and the like. This head of the tower is heat insulated from the tower supporting structure and from the main enclosure.

3,601,605

CAB SIGNAL AND SPEED CONTROL FOR LOCOMOTIVES
 John Calvin Elder, Penn Hills Township, Allegheny County; William C. Kuzmich, Kennedy Township, Allegheny County; and Thomas C. Vaughn, Pittsburgh, all of, Pa., assignors to Westinghouse Air Brake Company, Swissvale, Pa.
 Filed Aug. 28, 1969, Ser. No. 853,699
 Int. Cl. B611 3/00

U.S. Cl. 246—182 R



Each locomotive in a railroad classification yard area is provided with both cab signal and automatic speed control apparatus, each element controlled at different times from a

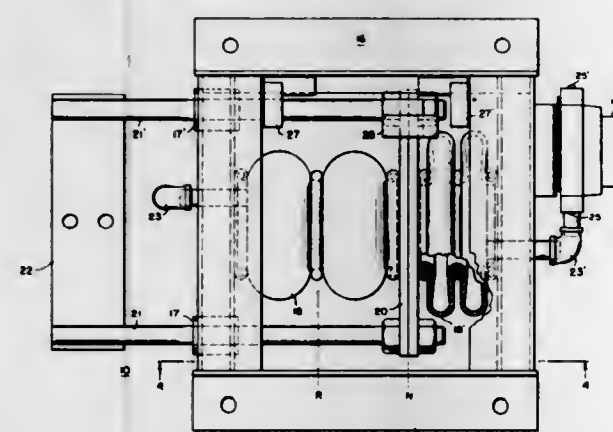
remote location. The cab signal or speed commands are transmitted to a locomotive by one or a combination of selected tone signals modulated on a carrier signal. Remote control of all cab signals may be by the humpmaster but normally one locomotive is assigned to humping operations and control of its cab signal transferred to the hump conductor. Remote automatic speed control can be established on a locomotive only when it is assigned to humping operations. That locomotive speed control apparatus is then controlled by transmitted tone combinations corresponding to speed selections made by the humpmaster. The locomotive engineer must acknowledge a received automatic operation request in order to establish the remote control condition on the locomotive. The engineer retains an ability to restore local onboard control at any time and has final control of reestablishing automatic operation after any interruption.

3,601,606

AIR BAG SWITCH MACHINE
 Raymond G. Cook, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
 Filed Nov. 6, 1969, Ser. No. 874,437
 Int. Cl. B611 5/04

U.S. Cl. 246—258

7 Claims



A trailable switch machine has been provided wherein a switch machine mechanism actuates a set of railroad switch points reciprocally to normal and reverse positions. A control means selectively actuates the mechanism to the desired position in accordance with an input signal. The control means comprises means magnetically responsive to the position of the switch rails including a magnet laterally disposed relative to the normal and reverse positions of the switch rails and a switch means disposed so as to cooperate with the proximity of the magnet. The switch means selectively actuates the control means for changing the position of the rails when the relative position of the switch means and the magnet is altered by the trailing of the switch points. Energy storage means maintains the input signal for a period relative to a minimum actuation time of the control apparatus.

3,601,607

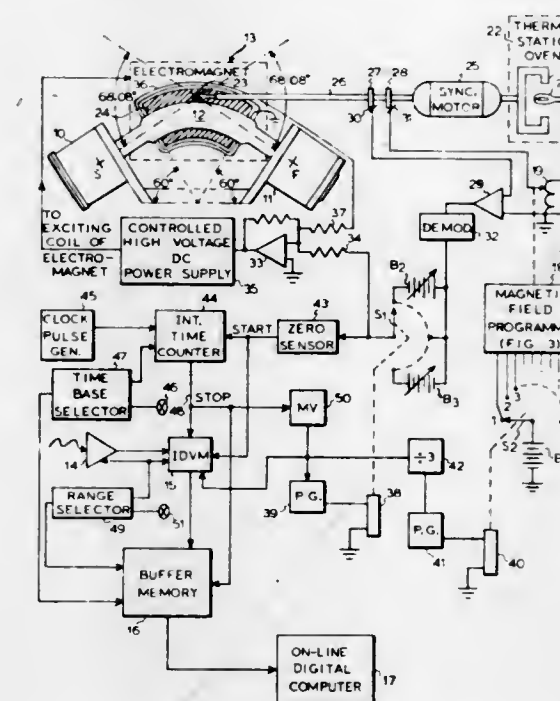
STEP-SCANNING SYSTEM FOR MASS SPECTROMETER
 Gerald J. Wasserburg, Altadena; Curtis A. Bauman, La Crescenta; Emil V. Nenow, La Crescenta; and Dimitri A. Papanastassiou, Pasadena, all of, Calif., assignors to California Institute of Technology, Pasadena, Calif.
 Filed June 13, 1969, Ser. No. 833,069
 Int. Cl. B01d 59/44

U.S. Cl. 250—41.9 D

15 Claims

A single-focusing, 60° sector magnet mass spectrometer constructed with symmetric conjugate foci calculated from fringe field data and corresponding to a beam deflection of 68° is provided with a programmable magnetic field to step scan spectral lines and "zero" lines on both sides of each spectral line. A rotating coil probe in the magnetic field, and a stationary coil around a magnetic pole face used to provide the field, are employed as field magnitude and time-rate-of-change sensors for a current nulling system. The nulling system cooperates with an automatic step-scan programmer to set the magnetic field to 3N values, where N is the number of spectral lines to be step scanned, and the successive values

correspond to the centers of spectral lines and "zeros" on both sides of each spectral line. The programmer selects a reference voltage for each spectral line which is compared with an induced voltage in the rotating coil. The difference drives the electromagnet power supply to rapidly change the field. The change induces a rate signal in the stationary coil



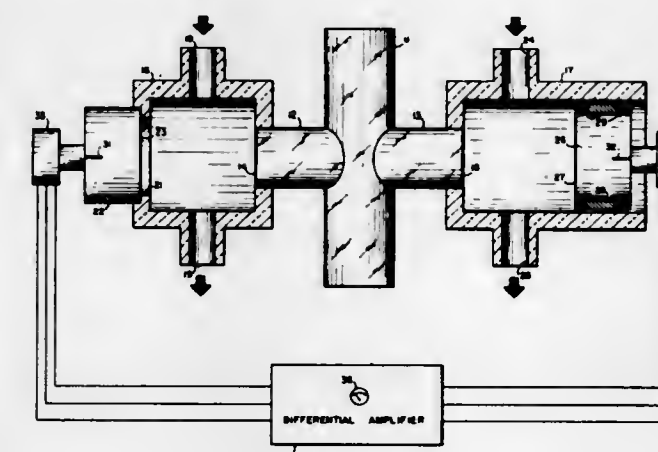
to produce a damping signal for the nulling system. At each step, a data acquisition system records in digital form a value proportional to ion current, scale factor, and the integrating time for that value to be developed through an integrating digital voltmeter. A computer then receives the data for later analysis.

3,601,608

ABSOLUTE HUMIDIMETER
 Dwight L. Randall, Arlington; William W. Campbell, Jr., Springfield, Va., and Franklin H. Harris, Accokeek, Md., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Mar. 6, 1969, Ser. No. 804,877
 Int. Cl. G01n 23/12

U.S. Cl. 250—43.5 MR

4 Claims



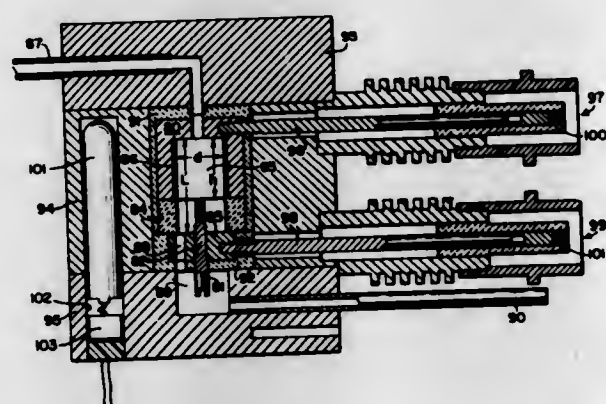
An instrument for measuring absolute humidity by comparing the attenuation of Lyman-alpha radiation through a reference chamber containing a dry gas with the attenuation through a sample chamber containing moist gas. The optical path lengths of the two chambers are matched by varying the length of the sample chamber. The outputs of the respective nitric oxide detectors, which measure the intensity of radiation transmitted through the chambers, are compared directly by a differential amplifier circuit to provide an output indicative of the absolute humidity of the sample.

3,601,609
IONIZATION DETECTION DEVICE USING A NICKEL-63 RADIOACTIVE SOURCE
 William L. Yauger, Jr., Baton Rouge, La., assignor to Tracor, Inc., Austin, Tex.
 Continuation of application Ser. No. 497,099, Oct. 18, 1965, now abandoned. This application Sept. 19, 1969, Ser. No. 863,672

U.S. Cl. 250-44

Int. Cl. G01n 23/12

12 Claims



Improved ionization detectors capable of analyses at temperatures of 500° C. or more for use with analysis instruments such as gas chromatographs, utilize a radioactive source of nickel-63.

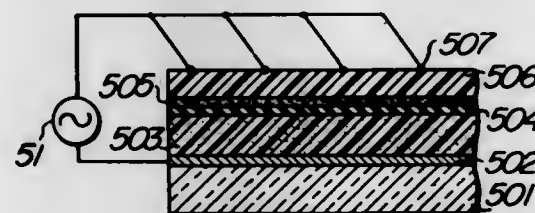
3,601,610
SIGNAL MEMORY DEVICE
 Tadao Nakamura, Kawasaki-shi; Shigeaki Nakamura, Kawasaki-shi, and Tadao Kohashi, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 12, 1968, Ser. No. 774,715
 Claims priority, application Japan, Nov. 20, 1967, 42/75023; 42/75024

U.S. Cl. 250-71

Int. Cl. G01n 21/38

3 Claims



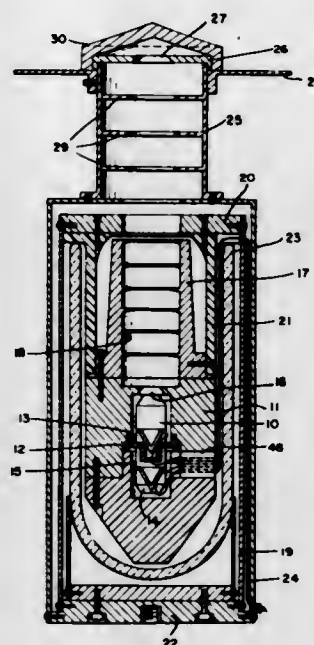
A signal memory device having a photoconductor element made from photoconductive cadmium sulfide, cadmium selenide or their solid solution doped with impurities. The device utilizes the phenomenon that the photoconductivity of the photoconductor appearing as a result of excitation with radiation at low temperatures persists even after the radiation ceases to project on the photoconductor element.

3,601,611
PRIMARY ABSOLUTE RADIOMETER
 James M. Kendall, Sr., Pasadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.
 Filed Aug. 11, 1969, Ser. No. 848,880

U.S. Cl. 250-83.3 H

A radiometer is disclosed for use in either ambient atmospheric air or a vacuum environment having a black body receptor cavity in a massive heat sink enclosed in a Dewar Flask. A view limiting tube outside a housing is provided with baffles, as is a muffler inside the housing, to protect the cavity from effects of wind. A compensating cavity or mass of thermal capacity is connected to the heat sink via a flange by a thermal resistance equal to a thermal resistance connecting

the receptor cavity to the flange. Cold junctions of a thermopile are connected to the receptor cavity. A heating coil is



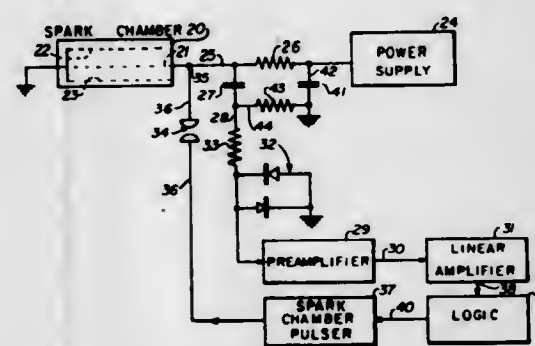
provided for the receptor cavity for calibration. Modifications for various elements or features are also disclosed.

3,601,612
WIRE SPARK CHAMBER WITH MAGNETOSTRICTIVE READOUT
 Victor Perez-Mendez, Berkeley, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 22, 1969, Ser. No. 852,273

U.S. Cl. 250-83.6 R

7 Claims



A wire spark chamber having magnetostriuctive readout. One embodiment thereof is for particular use with low energy gamma rays, X-rays, or neutral particles whose presence is detected by secondary particles produced in converters placed in or around the wire planes of the chamber. Another embodiment has a very large and uniformly sensitive detecting area by means of auxiliary conducting planes which serve to charge the chamber capacity with a low impedance transmission-line characteristic. The embodiment for use with low energy gamma, X-ray or neutral particles has utilization in the field of medical diagnostics while the large chamber embodiment provides the capability of detecting multiple tracks with uniform high efficiency, thus fulfilling a long looked for need in the field of wire spark chambers.

3,601,613
PHOTOELECTRIC APPARATUS FOR DETERMINING THE DISPLACEMENT OF AN OBJECT
 Fromund Hock, Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany
 Filed Mar. 5, 1970, Ser. No. 16,776

U.S. Cl. 250-205

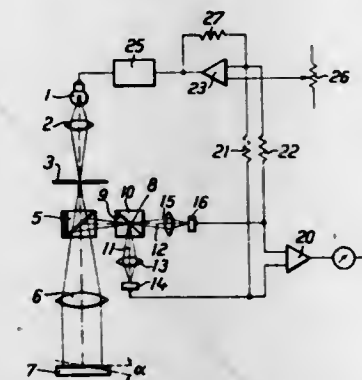
Claims priority, application Germany, Mar. 10, 1969, P 19 11 956.3

Int. Cl. G01j 1/32; G01b 11/26

15 Claims

In a photoelectric apparatus for determining the displacement of an object the image of a slit is projected onto a

reflector attached to the object. A beam splitter is arranged for dividing the reflected image into two equal portions and for directing the portions into two different reception channels. Photoelectric receivers are associated with each reception channel which receivers are responsive to the intensity

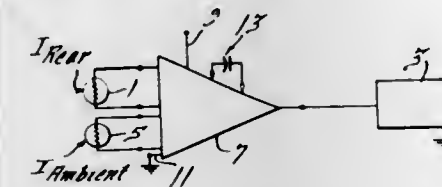


of the light impinging thereon. A summing amplifier and a differential amplifier are connected to the photoelectric receivers and are interconnected with one another for producing an output signal when the object is displaced; the amplitude of the signal corresponding to the displacement of the object.

3,601,614
AUTOMATIC ANTI-GLARE REARVIEW MIRROR SYSTEM
 George E. Platzer, Jr., Southfield, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
 Continuation-in-part of application Ser. No. 713,883, Mar. 18, 1968, now abandoned. This application May 25, 1970, Ser. No. 40,446

U.S. Cl. 250-209

11 Claims

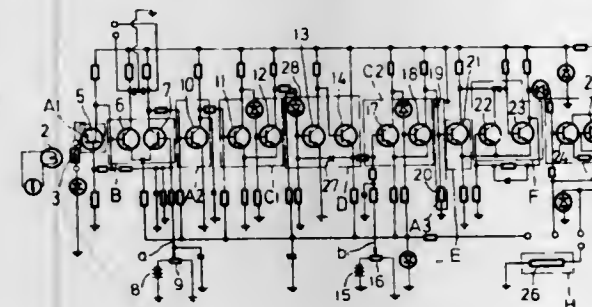


Control circuit and system for changing an automotive rear view mirror between a day and a night reflective condition. The circuit includes a forwardly facing photocell for sensing ambient illumination and a rearwardly facing photocell for sensing the illumination on a mirror from the headlights of a following vehicle.

3,601,615
ELECTRIC APPARATUS FOR DETECTING MINUTE VARIATION IN TIME-FUNCTIONAL LUMINOUS ENERGY
 Seizi Maeda, 5-19 Kida-cho, Neyagawa-shi, Osaka, Japan
 Filed Oct. 9, 1969, Ser. No. 865,072

U.S. Cl. 250-214 R

3 Claims



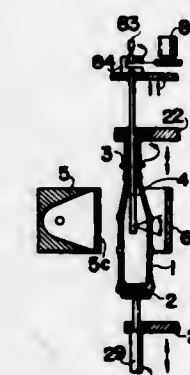
Time-functional variations in the thickness of a lengthwise advancing linear article are photoelectrically sensed in succession and converted into an electrical signal for actuating a terminal mechanical means operative for the article's ad-

vancing system, which signal is passed through a system substantially including a differential amplifier, a waveform converter, an integrator, a differentiator and a monostable circuit, connected in this order. The resultant electrical signal may be negatively fed back for control of the luminous source for better stabilization of an amplifier circuit.

3,601,616
METHOD AND DEVICE FOR INSPECTING BOTTLE BY RADIANT ENERGY
 Takuma Katsumata, Aichi-ken, and Hisao Kishigami, Gifu-ken, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Jan. 30, 1969, Ser. No. 795,229

U.S. Cl. 250-223

3 Claims



A method of inspecting bottles comprises directing diffused light rays on bottles to be inspected and scanning the bottles thus irradiated. The bottles, in each of which an optical system with a light receiving unit is inserted, are rotated for scanning.

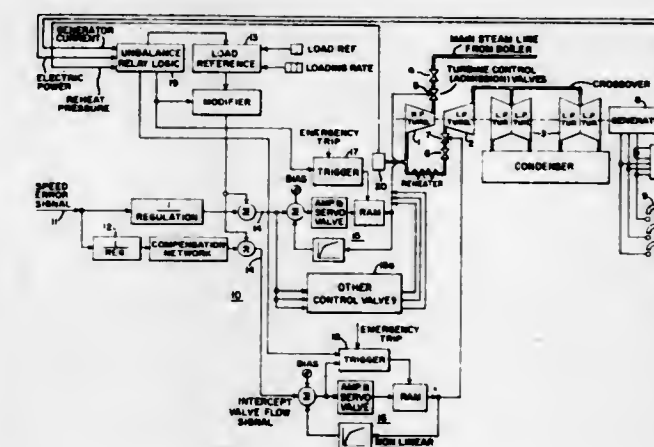
A device for inspecting bottles is provided with a rotary turret, on which a plurality of bottle supports are rotatably and vertically movably arranged at regular angular intervals, irradiating units, optical systems with light receiving units arranged so as to enter into the bottles, and transducers for converting light signals received by the optical systems into electrical signals.

The use of diffused light rays makes it possible to eliminate the lens action of the bottle wall and to detect solely foreign particles or substances attached on the bottle walls.

3,601,617
TURBINE CONTROL SYSTEM WITH EARLY VALVE ACTUATION UNDER UNBALANCED CONDITIONS
 Francisco P. De Mello, Burnt Hills; Markus A. Eggenberger, Schenectady, and Richard J. Mills, Scotia, all of N.Y., assignors to General Electric Company
 Filed May 28, 1970, Ser. No. 41,271

U.S. Cl. 290-40 C

10 Claims



A large steam turbine-generator control system with normal valve positioning systems for speed and load control and fast valve closure systems for turbine overspeed control,

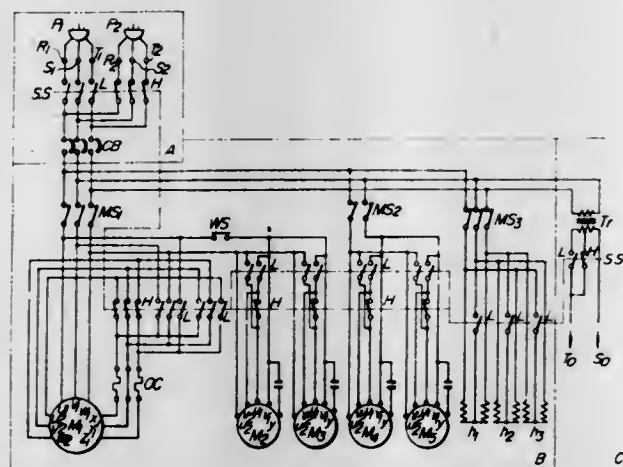
wherein the system also includes early valve actuation relay logic designed to function upon logical combinations of unbalance and time-rate-of-change of unbalance of selected turbine-generator measured operating conditions such as mechanical input power, electrical load and generator terminal current.

3,601,618 REFRIGERATOR UNIT USED FOR A FREIGHT CONTAINER

Toshiyuki Toyonaka, Yokohama; Akira Goto, Sakai-shi; Joji Ochi, Osaka; Katsumasa Hatamoto, Sakai-shi, and Tetsuji Arai, Funabashi-shi, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan
Filed July 14, 1969, Ser. No. 841,286
Claims priority, application Japan, July 20, 1968, Jan. 30, 1969, Jan. 17, 1969, 43/62233;44/8039;44/4134
Int. Cl. H02g 3/00

U.S. Cl. 307-9

13 Claims



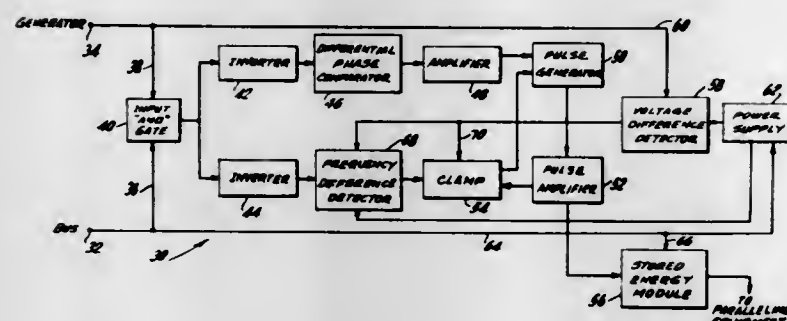
A refrigerator unit used for a freight container which may be operated at various places where the line voltages of available power are different, for example, 200 v. class and 400 v. class, said unit comprising electric loads rated for the dual voltages, switches for selecting appropriate power input terminals or relays for detecting the voltage of the connected power line, switches for changing connections of the electric loads so as to match the rated voltage of said loads with the power voltage, the above switches and relays being all interconnected to ensure safe operation.

3,601,619 AUTOMATIC SYNCHRONIZING MONITOR FOR PARALLEL CONNECTION OF TWO SEPARATE ALTERNATING-CURRENT SOURCES

Ralph H. Ringstad, Whippany, N.J., assignor to Automatic Switch Co.
Filed Dec. 3, 1969, Ser. No. 881,796
Int. Cl. H02j 3/42

U.S. Cl. 307-87

19 Claims



An automatic synchronizing monitor enabling the connection of two separate alternating-current sources in parallel and, more particularly, to permit parallel connection of the alternating-current sources when the phase angle, frequency,

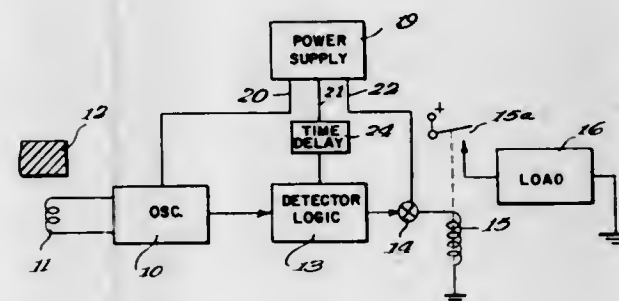
and voltage of the sources are substantially equal to one another and within predetermined limits so as to limit the resultant disturbance on a common bus to an absolute minimum when the paralleling takes place.

3,601,620 POWER SUPPLY

Gordon E. Gee, Homewood, Ill., assignor to Electro Products Laboratories, Inc.
Filed July 18, 1969, Ser. No. 842,846
Int. Cl. H01h 35/00

U.S. Cl. 307-116

9 Claims



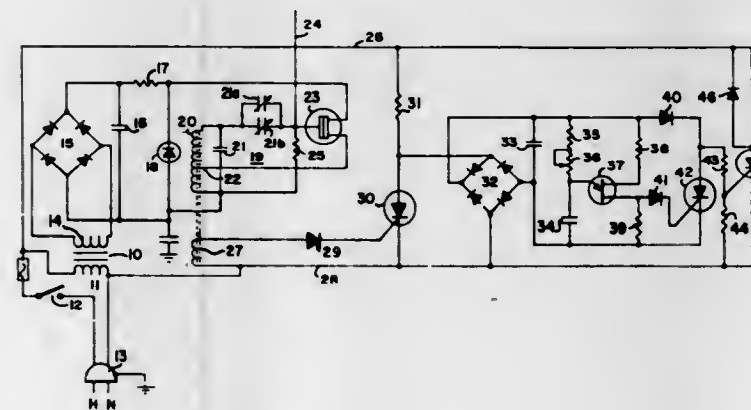
An AC to DC power supply for a sensing system in which an oscillator responds to a condition being sensed and a detector connected with the output of the oscillator provides a signal utilized in a control or indicator. The detector is connected with the power supply through a transistor switch which responds to the source of voltage and has a time delay to prevent energization of the detector unless the oscillator is operating.

3,601,621 PROXIMITY CONTROL APPARATUS

Edwin E. Ritchie, Rte 6, Box 6147, Bainbridge Island, Wash.
Filed Aug. 18, 1969, Ser. No. 850,967
Int. Cl. H01h 35/00

U.S. Cl. 307-116

6 Claims



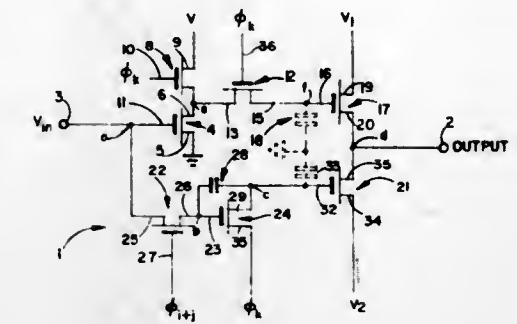
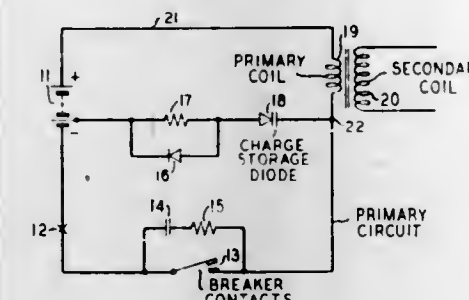
An electronic control responsive to the presence of an object in predetermined proximity to the probe thereof. The probe is connected to an oscillation generator which supplies electrical oscillations to a circuit which controls the initiation of the timing cycle of a timing device when an object is brought into proximity of the probe and electrical oscillations supplied by the generator are interrupted. The timing device supplies a signal to a control circuit after a predetermined timed interval to shut off the load circuit which was activated when the timing cycle was started.

3,601,622 CONTACT PROTECTION USING CHARGE STORAGE DIODES

Sigurd G. Waaben, Princeton, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Apr. 17, 1969, Ser. No. 817,053
Int. Cl. H01h 9/30

U.S. Cl. 307-136

7 Claims



controlling its current source mode and another channel for controlling its transient current sink mode.

3,601,625 MOSIC WITH PROTECTION AGAINST VOLTAGE SURGES

Donald J. Redwine, and Earl M. Worstell, Jr., both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed June 25, 1969, Ser. No. 836,266
Int. Cl. H03k 3/35

U.S. Cl. 307-202

6 Claims

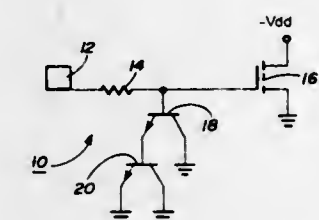
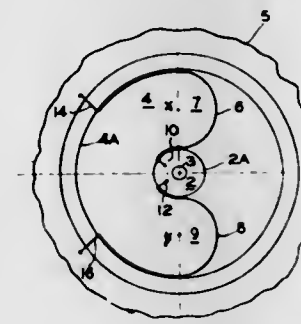
3,601,623 FLEX LEAD ASSEMBLY HAVING MINIMUM AND SUBSTANTIALLY CONSTANT FRICTION AND TORQUE

George A. Kirsch, Little Falls, N.J., assignor to The Bendix Corporation

Filed Sept. 23, 1969, Ser. No. 860,340
Int. Cl. H01r 39/00

U.S. Cl. 307-145

6 Claims



A circuit for protecting a metal-insulator semiconductor integrated circuit (MOSIC) against voltage surges is described. The circuit utilizes a diffused PN junction connected between the gate of an input MOS transistor and the source voltage in such a manner that the control voltage applied to the gate reverse biases the PN junction, which then functions as a Zener diode. The circuit may include a diffused resistance between the gate and the source voltage, or between the gate and an input terminal to protect either the diode, or the gate, or both against heavy current levels. Two or more diodes can be connected back to back to provide a higher breakdown voltage and permit higher control voltage signals to be used.

A flex-lead arrangement for providing a plurality of circuits electrically connecting stationary and angularly displaceable components. The arrangement provides substantially constant and minimum levels of friction and torque and maintains these minimum levels through wide angular displacements.

3,601,624 LARGE SCALE ARRAY DRIVER FOR BIPOLAR DEVICES

Donald E. Hayes, Orange, Calif., assignor to North American Rockwell Corporation
Filed Dec. 22, 1969, Ser. No. 887,152
Int. Cl. H03k 17/60

U.S. Cl. 307-151

7 Claims

A large scale array driver provides a current source for holding a bipolar device on until commanded to provide a transient current sink for the device. The current sink turns

3,601,626 LOGIC ELEMENT

Hans Hoffmann, Harks-Heide; Ludwig Wittorf, Harks-Heide; Hans-Wilhelm Neuhaus, Hamburg, and Uwe Bertram, Hamburg, all of Germany, assignors to U. S. Philips Corporation, New York, N.Y.
Filed Feb. 26, 1969, Ser. No. 802,576
Claims priority, application Germany, Feb. 29, 1968, P 15 37 986.9

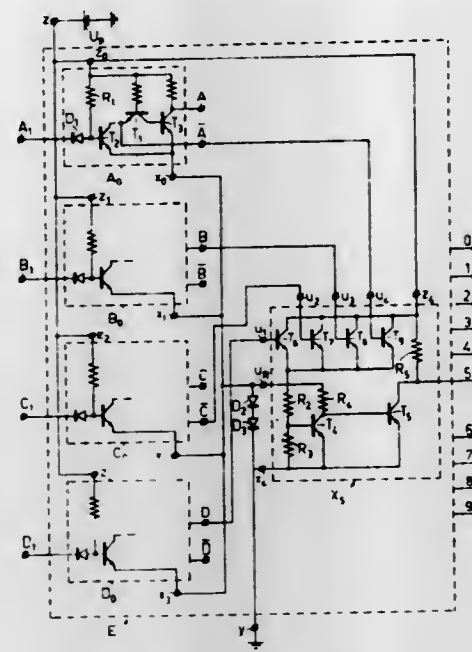
U.S. Cl. 307-203

Int. Cl. H03k 19/08

4 Claims

A digital logic element in which a single voltage supply

provided current to an input circuit connected in series with a diode biased in the forward conduction region. Voltage for



supplying part of a digital output circuit in the element is taken from the junction of the input circuit and the diodes.

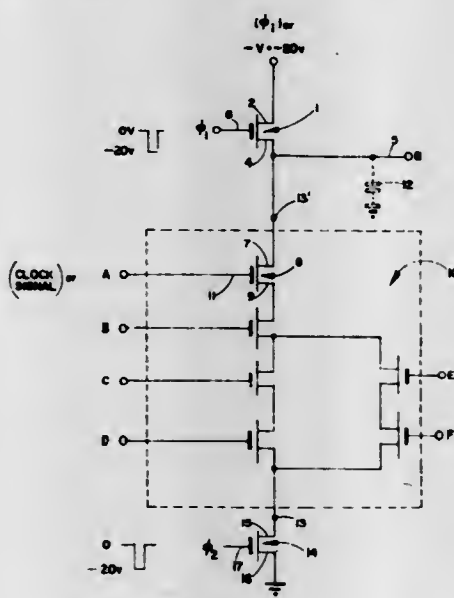
3,601,627 MULTIPLE PHASE LOGIC GATES FOR SHIFT REGISTER STAGES

Robert K. Booher, Mission Viejo, Calif., assignor to North American Rockwell Corporation
Continuation of application Ser. No. 523,769, Jan. 28, 1966, now Patent No. 3,526,783, dated Sept. 1, 1970. This application July 13, 1970, Ser. No. 54,113

Int. Cl. H03k 19/08

U.S. Cl. 307-205

10 Claims



Logic gates having an isolation transistor connected to a common point between a load transistor and a two terminal logical network are combined at least partially with logic gates having the output connected to a common point between the load and isolation transistors for forming shift register stages.

**3,601,628
PRECHARGE MOS-BIPOLAR OUTPUT BUFFER**
Donald J. Redwine, and Earl M. Worstell, Jr., both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 25, 1969, Ser. No. 836,510

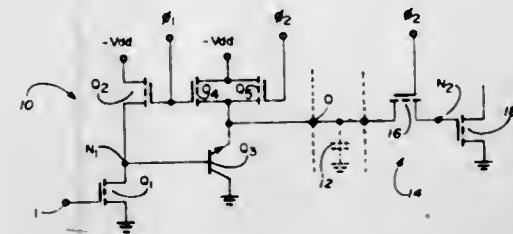
Int. Cl. H03k 19/08

U.S. Cl. 307-205

6 Claims

A two-phase, precharge MOS-bipolar output buffer for an integrated semiconductor circuit which utilizes a bipolar

transistor and an MOS transistor formed on the same semiconductor chip and connected in push-pull configuration at the output. The bipolar transistor is turned "off" and the MOS transistor turned "on" regardless of the level of the logic input during a first pulsed clock to precharge the capacitive load to a logic "1," then the bipolar transistor is kept "off" to maintain the logic "1" if the logic input is a



logic "0" or is turned "on" to discharge the capacitive load if the input is a logic "1." The output buffer can drive capacitive loads at high speed because the output MOS transistor can be made as large as necessary to charge the load rapidly without increasing the input capacitance and the gain of the bipolar device provides the necessary current to discharge the load rapidly.

3,601,629 BIDIRECTIONAL DATA LINE DRIVER CIRCUIT FOR A MOSFET MEMORY

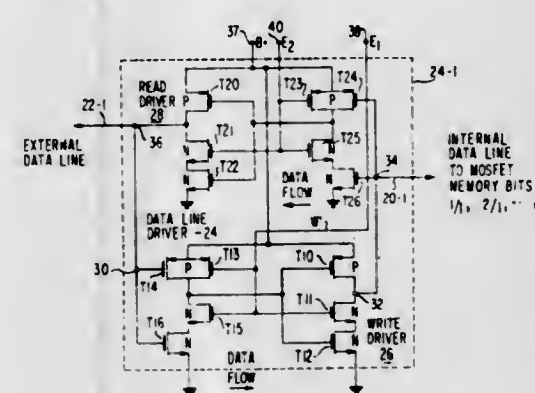
James R. Cricchi, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 6, 1970, Ser. No. 9,380

Int. Cl. H03k 19/08

U.S. Cl. 307-205

11 Claims



A noninverting buffer circuit of an integrated circuit memory coupled between an external data line having relatively large capacitance and an internal data line commonly coupled to one or more complementary MOSFET memory cells which provides increased noise immunity and lower input capacitance for the memory cells so that nondestructive readout is achieved with improved access times. The data line driver circuit is comprised of two identical circuit portions connected between the external and internal data lines in mutually opposite directions and operate so as to be mutually operative and inoperative or both simultaneously inoperative to translate binary logic signals to and from the memory cells from an external source. When either of the two circuit sections are operable the operative section effectively acts as two logic inverters connected in series between the respective external and the internal digit data line.

3,601,630 MOS CIRCUIT WITH BIPOLAR EMITTER-FOLLOWER OUTPUT

Donald J. Redwine, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 26, 1969, Ser. No. 836,811

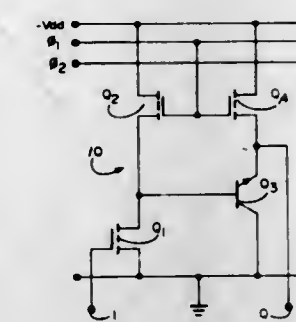
Int. Cl. H03k 19/08

U.S. Cl. 307-205

6 Claims

An inverter for a metal-insulator-semiconductor integrated circuit which utilizes an MOS inverter stage followed by a bipolar emitter-follower stage is disclosed. The inverter stage may have multiple inputs to form a gate. The emitter-follower stage employs a bipolar transistor with an MOS

transistor as the load impedance. The size of the output MOS transistor can be changed to provide optimum drive characteristics without redesigning the remainder of the integrated



3,601,631 BINARY INPUT CONTROLLED GATE CIRCUIT FOR ANALOG TYPE SIGNALS

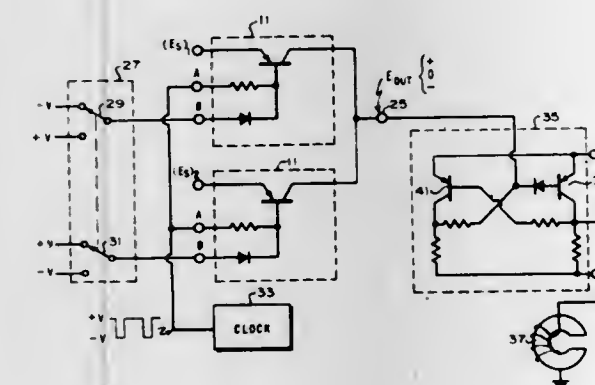
Donald K. Miller, San Jose, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 12, 1968, Ser. No. 751,946

Int. Cl. H03k 17/00

U.S. Cl. 307-209

4 Claims



A gate circuit includes a transistor which receives dual polarity analog-type input signals and conducts either as a forward or inverted gain amplifier or as two diodes to provide dual polarity output signals. The transistor is controlled at the base electrode thereof by resistor-diode logic circuitry responsive to binary signals having magnitudes greater than the dual polarity input signals. A plurality of the transistor gate circuits in combination permit time multiplexing of dual polarity signals to an analog type of load such as a magnetic head in an NRZ recording system.

3,601,632 MEANS FOR INCREASING THE RELIABILITY OF ELECTRONIC CIRCUITS INCORPORATING ZENER DIODES

Larry Vane W. Frazier, Ventura, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Oct. 6, 1969, Ser. No. 864,081

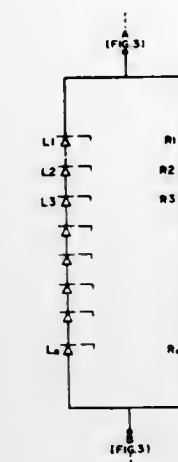
Int. Cl. G06f 11/08

U.S. Cl. 307-219

1 Claim

An arrangement for increasing the reliability of an electronic circuit employing individual Zener diodes, especially where such circuit is in a location difficult of access. Failure of one Zener diode in such an environment frequently results in long delays and great expense in locating the malfunction and making the repair. The present concept employs a plu-

rality of Zener diodes in a network consisting of both series and parallel groupings, so that shorting of any one element



changes the electrical characteristics of the overall network by only a negligible amount.

3,601,633 PRECISION MULTIPLIER AND DC TO AC CONVERTER

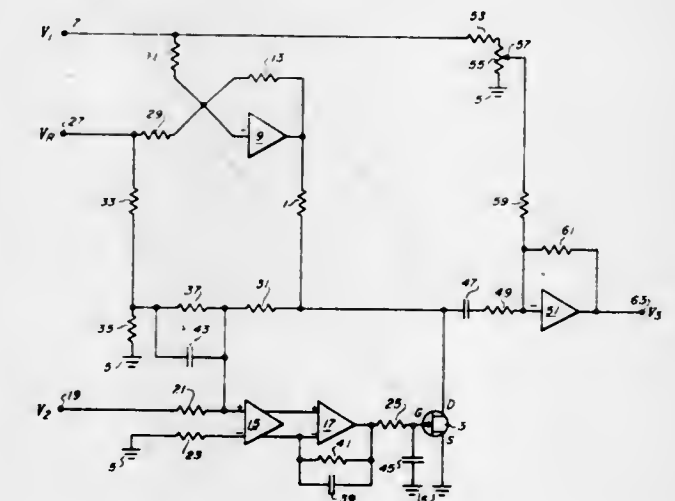
Lawson C. Nichols, Midland Park, N.J., assignor to The Bendix Corporation

Filed June 17, 1969, Ser. No. 833,992

Int. Cl. G06g 7/16

U.S. Cl. 307-229

7 Claims



A multiplier circuit having a fixed resistor and a variable resistance such as a field effect transistor, controlled by a variable DC input signal, forming an attenuator having an attenuation factor determined by the DC input signal. A fixed DC signal is applied to the attenuator and the attenuator provides a DC output signal which is fed-back and added to the variable DC input signal so that the attenuation factor is substantially independent of the characteristics of the variable resistance and is determined by the DC input signal. A variable AC input signal also is applied to the attenuator which provides an AC signal at its output corresponding to the product of the AC and DC input signals.

3,601,634 FIELD EFFECT TRANSISTOR MULTIPLEXING CIRCUIT FOR TIME SHARING A COMMON CONDUCTOR

Michel A. Ebertin, Yorba Linda, Calif.

Filed July 13, 1970, Ser. No. 54,114

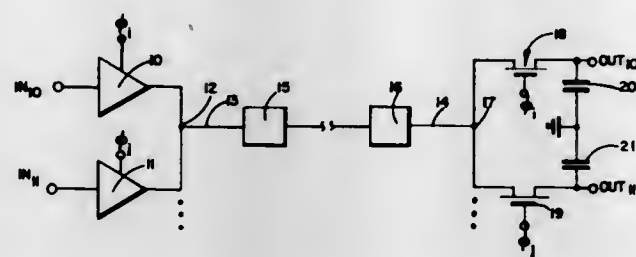
Int. Cl. H03k 17/60

U.S. Cl. 307-251

5 Claims

A plurality of output drivers, gated by multiple phase clocking signals are connected together at a common con-

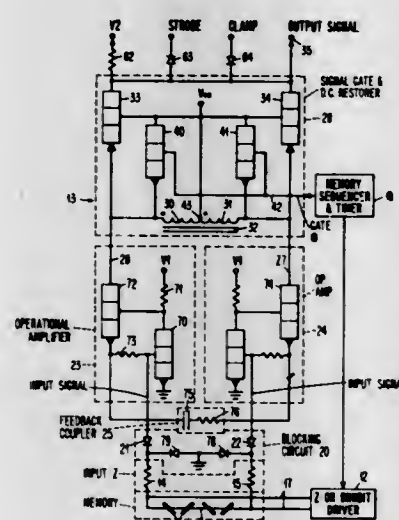
ductor. Sampling transistors for each of the drivers are connected to the common conductor and are gated by the same



clocking signals gating the drivers for synchronizing the connections of the drivers to their associated outputs.

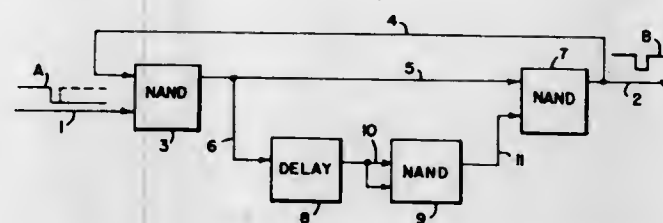
3,601,635 GATED SIGNAL PROCESSING CIRCUITS FOR LOW-LEVEL SIGNALS

David E. Norton, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed July 10, 1969, Ser. No. 840,753
Int. Cl. H03k 17/00
U.S. Cl. 307—246



A gated signal processing circuit suitable for use with a magnetic core memory as a sense amplifier. Two symmetrical operational amplifiers receive double-ended input signals respectively from a pair of input terminals and supply them to two high impedance lines. Signal gate and DC restore means receive the amplified signals from the high impedance lines. The latter means includes a pair of like-poled identical windings serially connected across the high impedance lines. A pair of gating transistors operable in the so-called inverted mode are respectively connected across the windings for acting as a gate and enabling DC restoration to the high impedance lines. When current conductive, the inverted-mode, operable transistors clamp the high impedance lines to a predetermined reference potential to place the circuit in an inactive operational state during which time no signals are processed. No base current flows into the windings. When such transistors are switched to a high impedance mode (collector current cutoff), the circuit is placed into an active operational state for processing low-level input signals. An output circuit, connected across the high impedance lines, includes a pair of grounded-base connected, silicon junction transistors having their collectors connected to a single output terminal. The silicon transistors provide a signal threshold such that, when the circuit is in its inactive operational state, noise is not passed to the output terminal. The gate transistors are switched to the high impedance mode for a period of time bracketing the low-level signal processing. Such operation enables DC restoration before and after signal processing.

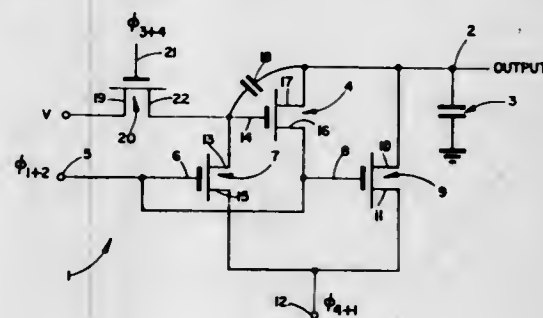
3,601,636
SINGLE-SHOT DEVICE
Lynn W. Marsh, Jr., Melrose, Mass., assignor to Mohawk Data Sciences Corporation, Herkimer, N.Y.
Filed June 23, 1969, Ser. No. 835,606
Int. Cl. H03k 3/284, 19/36
U.S. Cl. 307—273



A single-shot device having two NAND gates which are interconnected to provide an output signal in response to an input signal. The output signal remains for a predetermined duration until the output signal of one NAND gate is applied through a delay to the other NAND gate. The delay comprises a transient network which performs an integrating function and contains a series connected resistor and a parallel connected capacitor.

3,601,637
MINOR CLOCK GENERATOR USING MAJOR CLOCK SIGNALS

John R. Spence, Villa Park, Calif., assignor to North American Rockwell Corporation
Filed June 25, 1970, Ser. No. 49,884
Int. Cl. H03k 3/26, 19/08
U.S. Cl. 307—304

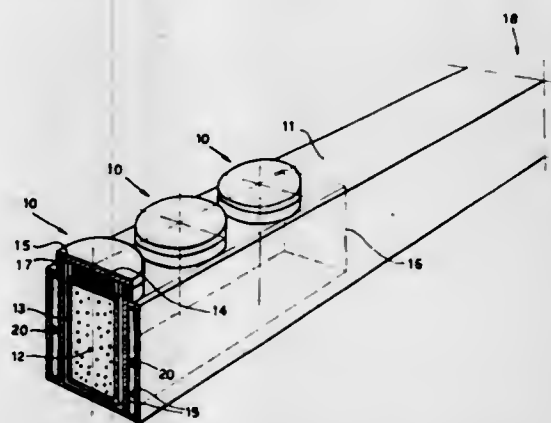


Selected major phase clock signals (double width) of a multiple phase clocking scheme precharge a bootstrap capacitor, control the rise and fall time of a minor clock signal (single width) which is phase separated from adjacent clock signal phases.

3,601,638
FUEL ELEMENTS FOR USE IN THERMIONIC NUCLEAR REACTORS

Claus A. Busse, Laveno, Italy, assignor to European Atomic Energy Community (Euratom), Brussels, Belgium
Filed Mar. 4, 1968, Ser. No. 710,252
Claims priority, application Luxembourg, Apr. 4, 1967, EUR/C/1899/67 1081 d
Int. Cl. H01j 45/00

U.S. Cl. 310—4

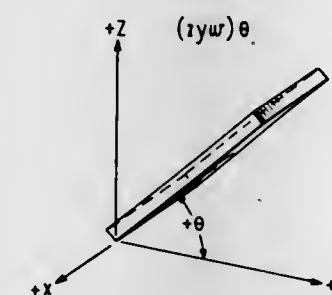


Disclosed are nuclear fuel heated thermionic converters.

Heat pipes are provided to ensure isothermal heat transfer between the converters and the reactor.

3,601,639
LOW-TEMPERATURE COEFFICIENT LITHIUM TANTALATE RESONATOR
John J. Hannon, Whitehall, Pa.; Peter Lloyd, Derry, N.H., and Robert T. Smith, Coopersburg, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Jan. 9, 1970, Ser. No. 1,699
Int. Cl. H01v 7/00

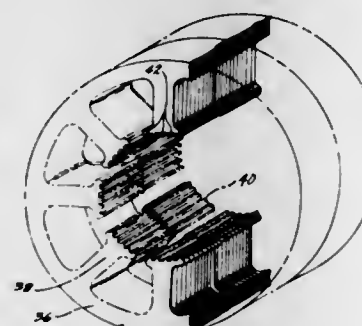
U.S. Cl. 310—9.5



Length extensional mode and width-length flexure mode resonators fabricated from lithium tantalate piezoelectric single crystals cut to have orientations within the range of $zyw (+25^\circ \text{ to } zyw (+50^\circ))$ exhibit zero temperature coefficients of frequency, thus permitting their use as resonators in wide-band crystal filters and voltage controlled oscillators.

3,601,640
STATOR DESIGN FOR A STEPPING MOTOR
Katsumi Egawa, Tokyo, Japan, assignor to Computer Devices Corporation, Santa Fe Springs, Calif.
Filed Mar. 3, 1970, Ser. No. 16,063
Int. Cl. H02k 37/00

U.S. Cl. 310—49



A stepping motor in which the stator is constructed from a plurality of laminations wherein each lamination is formed with a plurality of inwardly projecting pole portions. The inner edge of each pole has a number of equally spaced teeth which are offset relative to the centerline of the pole portion by one-fourth the pitch of the teeth. By assembling the stator with half the laminations reversed from the other half, the teeth in one-half are offset by one-half the pitch from the teeth in the other half of the stator stack.

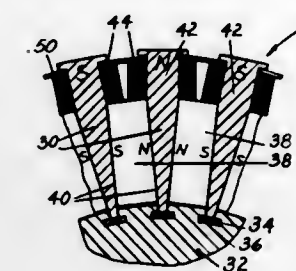
3,601,641
EDDY CURRENT AND/OR INDUCTION BRAKE OR CLUTCH

Max Baermann, 506 Bensberg, Bezirk, Cologne, Germany
Filed Jan. 26, 1970, Ser. No. 005,889
Claims priority, application Germany, Jan. 24, 1969, P 19 03 528.0
Int. Cl. H02k 49/02

U.S. Cl. 310—93

An eddy current and/or induction brake or clutch comprised of, a braking inductor and a ferromagnetic eddy current conductor arranged for relative rotation with respect to one another. The inductor includes a plurality of pole shoes

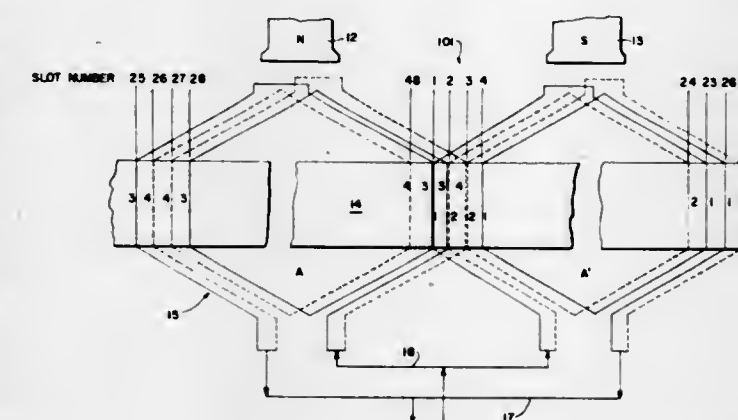
of alternating magnetic polarity arranged in an annular ring and a plurality of permanent magnets disposed intermediate



the pole shoes. There is further provided electromagnetic means operatively associated with the permanent magnets for regulating the magnetic field generated by the inductor.

3,601,642
MULTI-THREE PHASE WINDING WITH INTERCHANGED CIRCUIT SEQUENCE

David M. Willyoung, Scotia, N.Y., assignor to General Electric Company
Filed Jan. 22, 1970, Ser. No. 4,888
Int. Cl. H02k 3/00, 27/02
U.S. Cl. 310—198

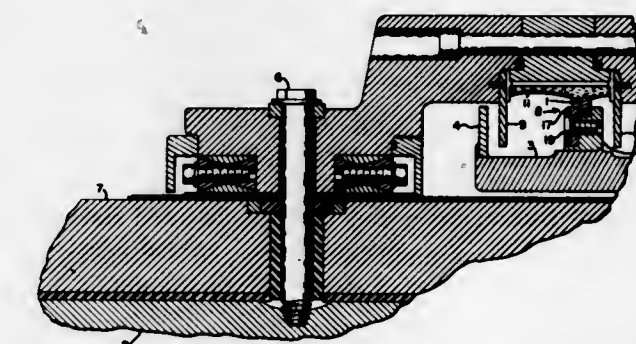


A polyphase armature winding for a dynamoelectric machine with a plurality of three phase, two-layer lap windings, each phase of each winding consisting of a different number of parallel-connected circuits than the number of rotor poles. The circuit sequence of the coil sides in the top layer is in partially or wholly interchanged relationship with the sequence of the bottom layer coil sides. The pitch of the windings may vary from five-sixths to one-full pole pitch. Although applicable to many variations, the winding is exemplified by a six-phase generator with two-phase belts per phase and four parallel-connected circuits per phase.

3,601,643
ANTI-EROSION FEED SLOT FOR LIQUID METAL COLLECTOR

Gerd E. Krulls, Scotia, and William L. Durrwang, Schenectady, both of, N.Y., assignors to General Electric Company
Filed Mar. 5, 1970, Ser. No. 16,647
Int. Cl. H02k 29/00

U.S. Cl. 310—219



In a liquid metal collector of the rotatable cup-type, the stationary member is provided with a segmented conductor blade such that a circumferential liquid feed groove and cir-

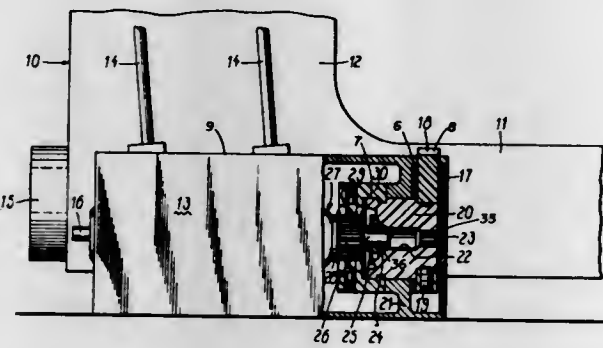
cumferential liquid pressure groove are formed between rings. At the bottom of each groove, respectively, a pressure pickup hole and feed hole are provided such that the proper level of liquid metal is maintained in the rotatable cup. By placing the pressure pickup hole and feed hole where the liquid metal velocity is relatively quiescent, erosion of the conductor ring at the discontinuities is prevented.

3,601,644
SPEED REGULATION DEVICE FOR SEWING MACHINE MOTORS

Silvano Perlino, Pavia, Italy, assignor to Necchi Societa per Azioni, Pavia, Italy

Filed Dec. 17, 1969, Ser. No. 885,829
Claims priority, application Italy, Dec. 19, 1968, 32422/68/A
Int. Cl. H02k 13/00

U.S. Cl. 310-241 2 Claims

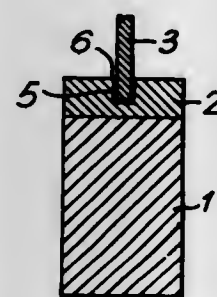


The invention relates to a device which permits the operator of a home-type sewing machine to regulate the speed thereof. The machine motor is of the commutator-type and is provided with a hand-manipulable knob member for varying the brush holder position.

3,601,645
ELECTRICAL CONTACT BRUSHES
Colin Whiteheart, Morden, England, assignor to Morganite Carbon Limited, London, England

Filed May 16, 1969, Ser. No. 825,305
Claims priority, application Great Britain, May 23, 1968, 24,637/68
Int. Cl. H01r 39/36

U.S. Cl. 310-249 10 Claims



An electrical brush comprises a metal-and-carbon containing body and a metallic layer to which an electrical conductor is or may be secured and electrically connected. The metal-and-carbon containing body is sintered with the metallic layer in an area which is greater than the area at the connection of the electrical conductor to the layer.

3,601,646
ROTOR COIL END TURN BRACING AND INSULATION SYSTEM

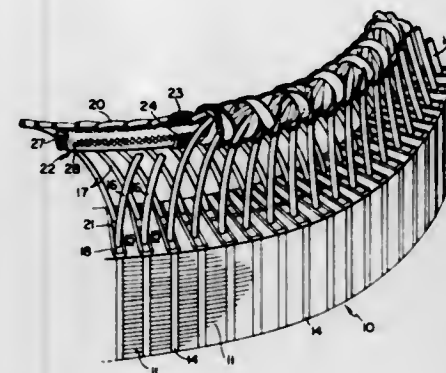
Roy Leonard Balke, Erie, and George Edward Brissey, Harborside, both of Pa., assignors to General Electric Company

Filed Feb. 6, 1970, Ser. No. 9,149
Int. Cl. H02k 3/46

U.S. Cl. 310-270 3 Claims

An end turn bracing arrangement for the rotor of dynamo electric machine in which a glass fiber rope consisting of glass fibers surrounded by woven glass sleeve is passed

through the end turns of the rotor to form a circular hoop within the end turns. The glass hoop may, if desired, be held against the end turns, by means of a fiberglass lacing braid which is wound around the end turns and the hoop to anchor



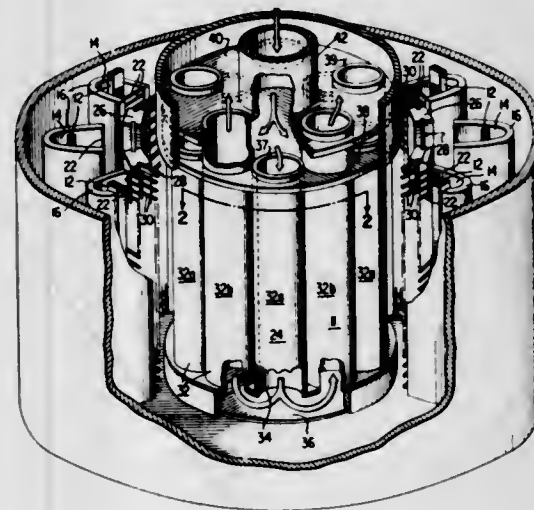
the glass fiber hoop firmly against the copper conductors. The entire assembly is then dipped in an epoxy resin which is cured to form a rigid, unitary structure consisting of the glass hoop, the end turns, the glass lacing and the cured resin.

3,601,647
HIGH POWER ELECTRON DISCHARGE DEVICE HAVING ANODE WITH IMPROVED HEAT DISSIPATION CAPABILITY

Fred George Hammersand, East Petersburg, Pa., assignor to RCA Corporation

Filed Feb. 27, 1969, Ser. No. 802,783
Int. Cl. H01j 1/42, 19/36

U.S. Cl. 313-30 14 Claims



An electron discharge device having an anode comprising a plurality of hollow pipes. The pipes have relatively thin, continuous walls of uniform dimension and generally may be of any cross-sectional geometry. The pipes are adjacently disposed in a circular or linear array such that the electron-intercepting surfaces thereof are oblique to the direction of the electron beams. The angles of incidence of the electron beams on the pipe surfaces preferably have a minimum average value. A cooling medium is circulated through the interiors of the pipes.

3,601,648
CONDUCTIVE FILM FOR ELECTROMAGNETIC DEFLECTION DEVICE

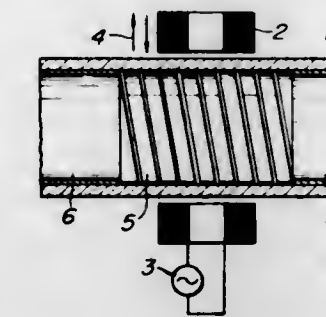
Yoshihiro Uno, Tokyo, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan

Filed June 26, 1968, Ser. No. 740,340
Claims priority, application Japan, July 11, 1967, 42/45176
Int. Cl. H01j 19/40, 29/02

U.S. Cl. 313-64 6 Claims

A conductive surface for an electromagnetic deflection

device formed with helical, linear or zigzag gaps to thereby alter a current which flows through the conductive surface. Each spring extends from a baseplate which bridges the stiff-



due to electromagnetic induction, thereby making possible a high frequency magnetic field within the device.

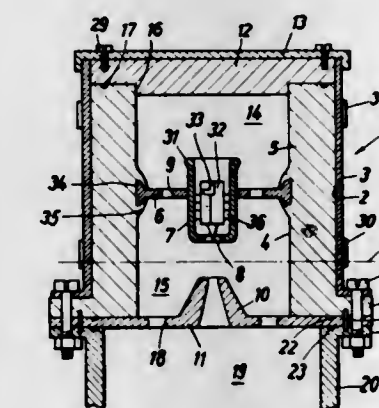
3,601,649
ELECTRON BEAM GENERATING SYSTEM FOR HIGH BEAM POTENTIALS

Karl-Heinz Steigerwald, Mozartstrasse 27, Lochham near Munich, Germany

Filed Dec. 12, 1966, Ser. No. 601,082
Claims priority, application Germany, Dec. 13, 1965, ST 24757

U.S. Cl. 313-82 5 Claims

Int. Cl. H01j 29/00, 5/14



This invention concerns an electron beam generating system for high beam voltages in which the insulation between a grounded casing and the high-voltage electrodes is achieved by an insulating body surrounding the high-voltage electrodes with a small distance, so that the dimensions of the system are considerably smaller than with arrangements in which the insulation is primarily achieved by providing sufficient vacuum space about the high-voltage electrodes.

The invention is further concerned with an automatically actuatable replacement device for cathode holders, said replacement device being adapted to be controlled by monitoring means for at least one beam parameter so that the cathode holder under operation will be automatically replaced by a fresh cathode holder and cathode when the magnitude of the sensed beam parameter falls outside a predetermined range.

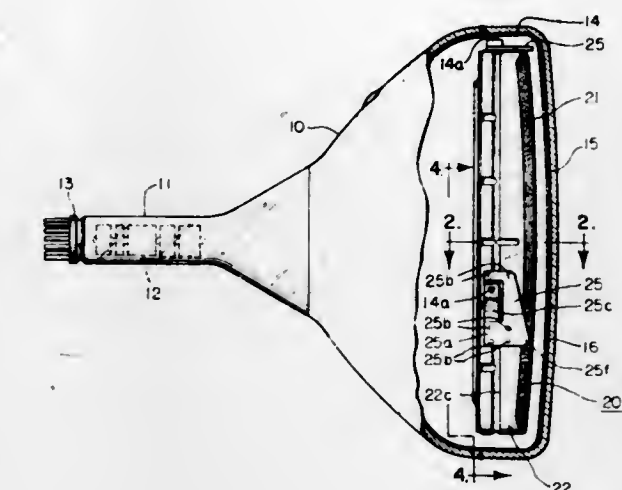
3,601,650
INTEGRATED SHADOW MASK STRUCTURE

Nicholas P. Pappadis, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 11, 1969, Ser. No. 848,800
Int. Cl. H01j 29/46

U.S. Cl. 313-85 2 Claims

The shadow mask of a color cathode-ray tube is constructed of a single piece of metal formed to have a color-selection portion with a field of apertures and also to have a circumscribing mounting frame contiguous to the color-selection portion. A stiffening rib is pressed into the mounting frame to add mechanical strength and the mounting

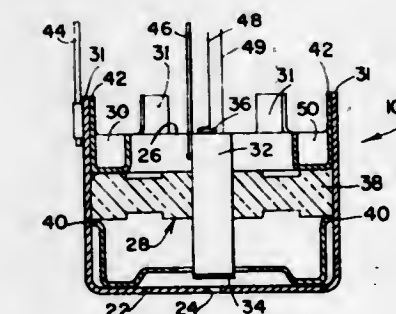


stiffening rib of the frame and is welded to the frame on opposite sides of the stiffening rib.

3,601,651
REPLACEMENT CATHODE ASSEMBLY
Donald A. Neis, Lombard, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Jan. 9, 1970, Ser. No. 1,760
Int. Cl. H01j 1/20, 29/48

U.S. Cl. 313-237 6 Claims



A replaceable electron emission cathode for use in electron guns within television picture tubes or the like. The first grid of an electron gun forms a support member for an electron emission cathode assembly which is held to the support member by retainer means. The support member has a plurality of spaced-apart severable tablike portions extending therefrom to mate with and be fastened to corresponding tablike portions formed on the retainer means. To replace the cathode of the electron gun, the fastened together tablike portions of the support member and retainer means are severed from the structure to allow removal of the retainer means and cathode assembly. A new cathode assembly is inserted and held in place by the same or new retainer having other or new tablike portions mating with and are fastened to auxiliary ones of the tablike portions on the support member.

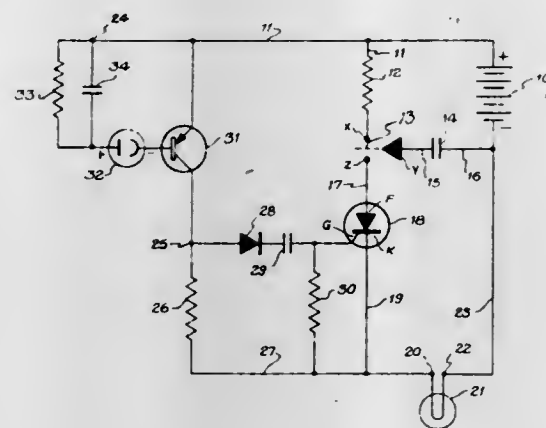
3,601,652
SLAVE FLASH LIGHT
Harry L. Burnett, Jr., 6904 Ingraham St., Riverdale, Md.

Filed Aug. 13, 1969, Ser. No. 849,819
Int. Cl. H05b 37/02

U.S. Cl. 315-156 7 Claims

A slave flash device having a simplified circuitry triggered by light, which may, of course, include ultraviolet or infrared light waves from a distant source. The device including a battery and a resistance connected in series with parallel con-

ducting means having a condenser in one branch and a silicon controlled rectifier and a flashbulb in the other branch, from the center of each coil, or in the form of a leaf spring wrapped around friction pins at front corners of the cassette



and including a photovoltaic cell means to trigger the silicon controlled rectifier.

3,601,653

GAS LASER WITH AUTOMATIC IGNITION

Hans Golser, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

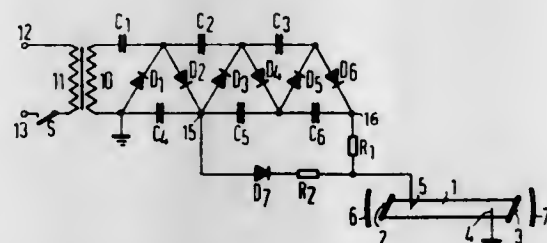
Filed Dec. 4, 1969, Ser. No. 882,088

Claims priority, application Germany, Feb. 4, 1969, P 19 05 409.2

Int. Cl. H05b 41/16; H01j 11/04

U.S. Cl. 315—341

4 Claims



An automatic ignition circuit for a gas laser preferably one having a grounded DC discharge, wherein a voltage multiplier circuit is operatively connected at one end to the secondary winding of a power transformer, for the generation of the high ignition voltage, a relatively high resistance connected to the high voltage end of such circuit operative to connect such end to an electrode of the gas laser defining the discharge section, a relatively low resistance and a diode in series therewith operatively connected to an intermediate point of said multiplier, operative to connect such electrode to said intermediate point, such point being located to provide, during laser operation, a voltage corresponding approximately to the normal operating voltage whereby the high voltage end of said multiplier is operatively shunted to block said high voltage.

3,601,654

ELECTROSTATIC-FREE TAPE CASSETTE

Brian H. Long, Orange; Oliver T. Tetrick, Orange, and Richard W. Erickson, Santa Ana, all of, Calif., assignors to Certron Corporation, Anaheim, Calif.

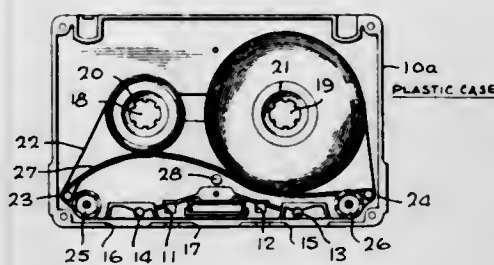
Filed June 22, 1970, Ser. No. 48,391

Int. Cl. H05f 3/00

U.S. Cl. 317—2 R

10 Claims

A standard tape cartridge of the coplanar twin hub-type, commonly referred to as a cassette, is rendered free of static electricity on the tape being transported from one hub to the other by a conductor, such as a conductive band of resilient material or conductive friction pins, in contact with the front (coated side) of the tape and electrically connected to conductive guide elements in contact with the back of the tape. The conductive band is provided as a V, U or O-shaped spring in contact with a conductive pin spaced some distance



and arched to continually make contact with the back of the tape on the coils.

3,601,655

CIRCUIT CONTINUITY MONITORING, WARNING AND PROVING DEVICE

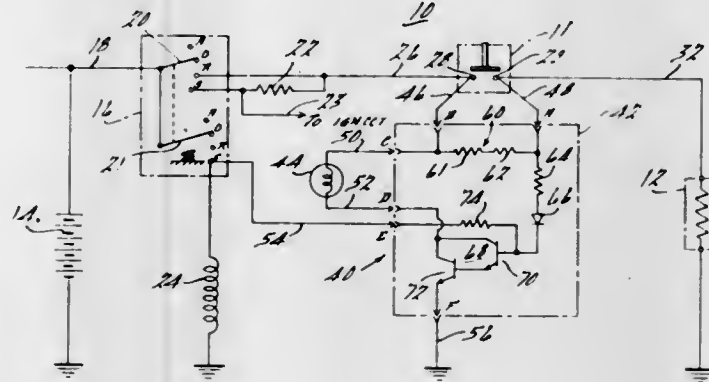
Poul H. Andersen, Royal Oak, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed May 25, 1970, Ser. No. 40,026

Int. Cl. G08b 21/00

U.S. Cl. 317—9 B

16 Claims



A circuit continuity and signal warning device for monitoring the continuity of an electrical circuit controlling the activation of a motor vehicle inflatable occupant restraining system. The monitoring warning device is connected by parallel circuit connections to the existing electrical circuit wiring of the vehicle and the electrical control circuit for the air bag system and provides a signal warning in the event of a circuit discontinuity in the electrical energization circuit, including the electrical detonation device, of the air bag system to warn the operator that the circuit is inoperative and the system is defective. The continuity monitoring device further features a signal proving or checking circuit that is operated each time the motor vehicle is started to prove the operability of the warning device.

3,601,656

SILICON DIODE PROTECTION MEANS

Bob H. Smith, Berkeley, and Louis L. Reginato, Orinda, both of, Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed June 30, 1970, Ser. No. 51,239

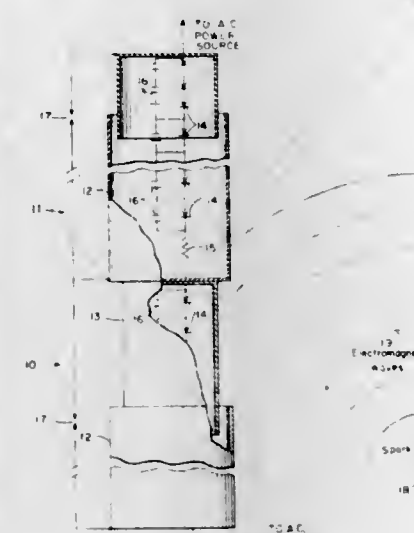
Int. Cl. H02h 7/10; H05k 9/00

U.S. Cl. 317—13 R

7 Claims

A means for protecting silicon diodes in high voltage power supplies from overload damage. Current limiting re-

sistors and a parallel spark gap provide protection against excessive forward current while shielding and the spark gap energization of the motor to be modulated.



protect against excessive back voltages generated either directly or by electromagnetic waves.

3,601,657

OVERVOLTAGE PROTECTIVE DEVICE

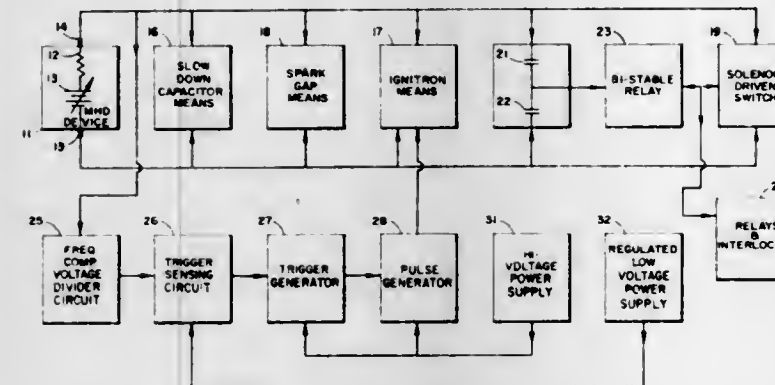
Henry R. Guarino, Revere, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed Oct. 31, 1968, Ser. No. 772,140

Int. Cl. H02h 7/06

U.S. Cl. 317—16

11 Claims



A high voltage, high current, short circuiting device which can sense a condition overvoltage at the output of a magnetohydrodynamic generator or the like and initiate a short circuit in microseconds. The device incorporates a high voltage, high current ignitron actuated by a voltage sensing circuit; a spring-loaded switch to assist the ignitron in carrying the short circuit current; a spark gap as back up for the ignitron; and a bistable relay for use in combination with the spring-loaded switch and to actuate auxiliary apparatus such as fuel cutoff valves and the like.

3,601,658

CONTROL SYSTEMS INCLUDING A SAFETY CIRCUIT FOR DIRECT CURRENT ELECTRIC MOTORS

Frank Manners, Basingstoke, England, assignor to Lansing Bagnall Limited, Basingstoke, Hampshire, England

Filed June 30, 1969, Ser. No. 837,567

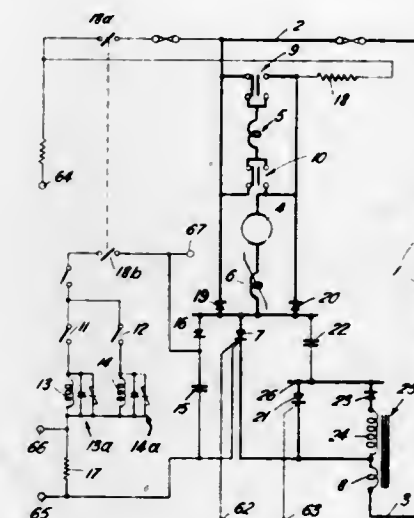
Claims priority, application Great Britain, July 1, 1968, 31386/68

Int. Cl. H02h 7/09; H02p 7/28

U.S. Cl. 317—16

11 Claims

The invention concerns a pulse-controlled DC motor having a main thyristor coupled in a commutating circuit with an auxiliary thyristor and triggered from a speed control using feedback from the armature. A transistor switch is coupled across a trigger network for the auxiliary thyristor and is rendered conductive when the main thyristor is fired. This in-



A safety circuit including a contactor having an operating coil coupled effectively in parallel with the main thyristor cuts off the motor if the energization period is too long.

3,601,659

REVERSE CURRENT DETECTOR UTILIZING THYRISTORS AND GATE SIGNAL INHIBITING CIRCUITRY

Sinya Tanaka, Tokyo, Japan, assignor to Sanken Electric Company, Limited, Saitama-ken, Japan

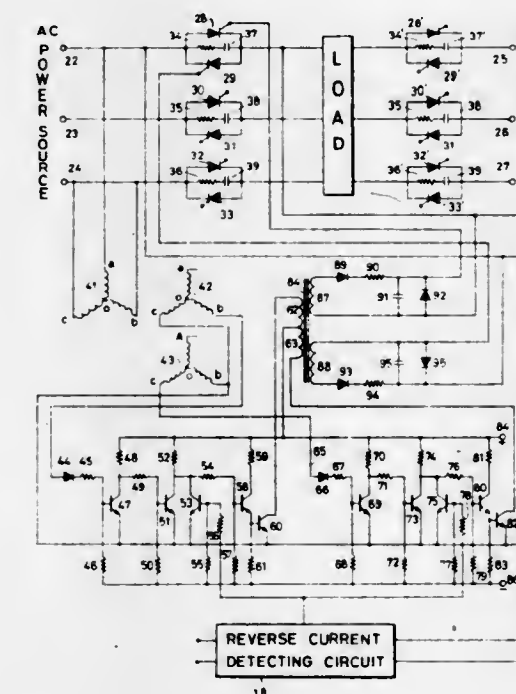
Filed Nov. 3, 1969, Ser. No. 873,215

Claims priority, application Japan, May 1, 1969, 44/34239; 44/34238

Int. Cl. H02h 3/28, 3/38

U.S. Cl. 317—43

8 Claims



A thyristor circuit device constructed so that thyristor switches are used as protectors in the network system and a forward current can flow without being disturbed in any way but a reverse current is suppressed when it results and is completely cut off as occasion demands by applying to the gates of said thyristor switches a firing signal having a pulse duration determined within the limited time between the point of time corresponding to 90° phase angle of lead and the point of time corresponding to 90° phase angle of lag, taking a phase voltage of line as the reference point.

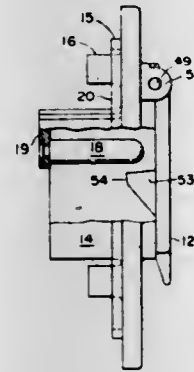
3,601,660

TRAILER CONNECTOR

Martin B. Brandt, Needham; Kent J. Batcheller, Westwood, and Francis Donald Kirchoff, Waban, all of, Mass., assignors to Joseph Pollak Corporation, Boston, Mass.
Filed Mar. 27, 1970, Ser. No. 23,219
Int. Cl. H01h 61/01

U.S. Cl. 317-99

6 Claims



A multiconductor electrical connector socket comprising a conducting flange, having a permanently affixed ground conductor and plug receiving chamber, and a detachable molded insulating base containing circuit breakers. The detachable base has permanently affixed circuit breakers, conducting pins and buss strips in order to minimize the number of manual connection terminals. The connector is constructed so that when the flange and base are joined, an enclosure is formed, protecting the circuit breakers from damaging external forces.

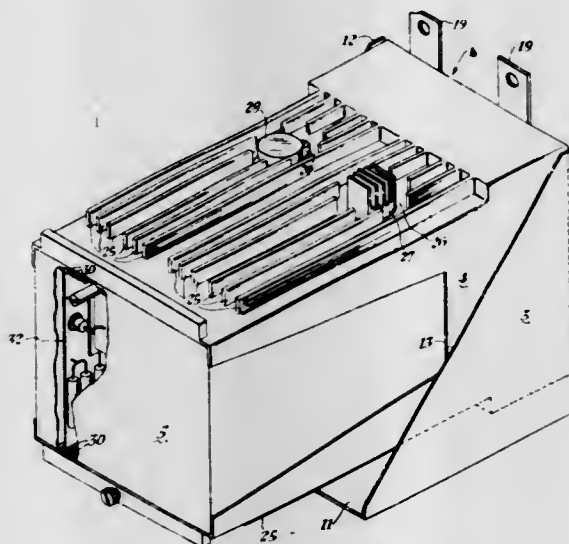
3,601,661

FINNED MODULAR ELECTRICAL EQUIPMENT PACKAGE WITH MOUNTING BRACKET

Edward J. Kleinhample, Jr., Allison Park, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Feb. 2, 1970, Ser. No. 7,919
Int. Cl. H05k 7/20, 5/04

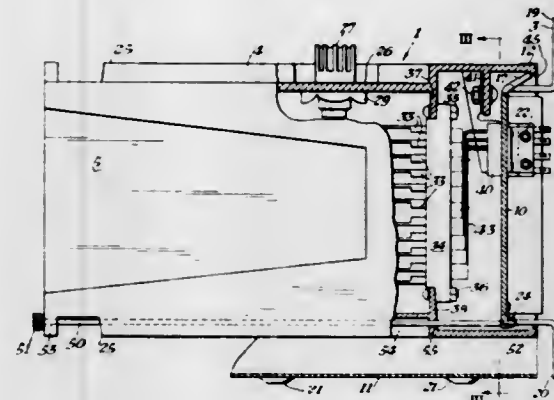
U.S. Cl. 317-100

14 Claims



This disclosure relates to a modular electrical equipment package having a metallic mounting bracket, a metallic plug-in circuit board case and a metallic U-shaped cover. The metallic case includes a plurality of extending heat radiating fins and is telescopically engageable with the mounting

bracket. The metallic case is initially suspended by and thereafter is securely held to the mounting bracket by an



elongated retaining screw which is threadedly engaged to the mounting bracket.

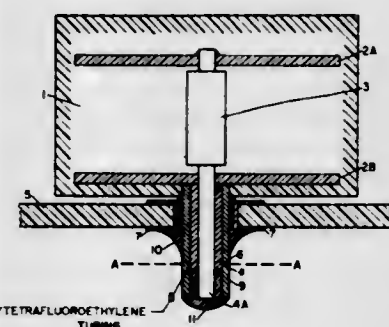
3,601,662

TERMINATIONS FOR CORDWOOD MODULES

Sydney A. DeBarros, Dollard des Ormeaux, Quebec, Canada, assignor to Canadian Marconi Company, Montreal, Quebec, Canada
Continuation-in-part of application Ser. No. 732,367, May 27, 1968, now abandoned. This application Aug. 11, 1969, Ser. No. 849,131

Int. Cl. H05k 1/18, 3/30
U.S. Cl. 317-101 CC

4 Claims



Termination means for each lead of a cordwood module which permits easy removal of the module from a circuit board on which it is mounted. The termination means includes a conductive cylinder which is placed over the lead and which is fixed to the circuit board, by soldering, on the side of the circuit board remote from the module. The lead is then soldered to the termination means at its end remote from the module, thereby providing a mechanical and electrical connection between the lead and the circuit board. The termination means is so constructed that, when a cut is made between the two solder joints, the lead is released from the board.

3,601,663

INSULATOR MOUNTING IN A HIGH POWER ELECTRICAL DISTRIBUTION SYSTEM

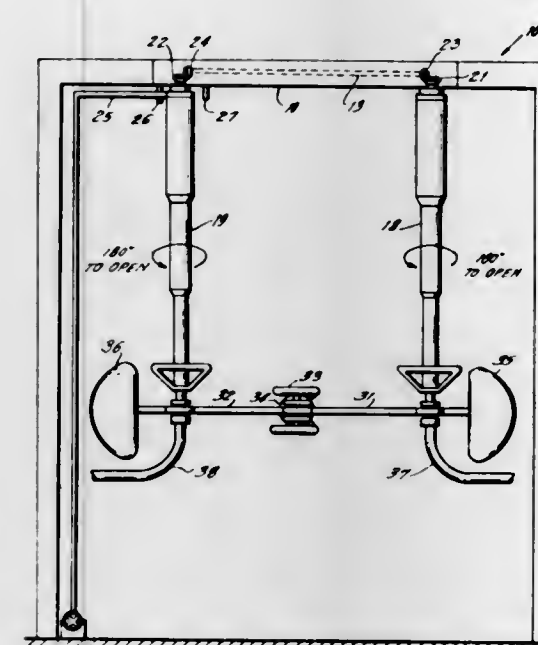
Roy H. Albright, Greensburg, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Oct. 6, 1969, Ser. No. 864,016
Int. Cl. H02b 1/04; H01h 33/24

U.S. Cl. 317-103

7 Claims

A high power electrical distribution system wherein insulator stacks are mounted in an inverted, underhung position rather than in an upright position to support switches and/or

buses. An inverted or underhung mounting provides greater acid; silver sulfate at least partially dissolved in the acid solution and at least one metal sulfate selected from chromium, dielectric characteristics than a mounting of insulator stacks



in a conventional upright manner, and permits a reduction in the required insulator height for a given voltage application.

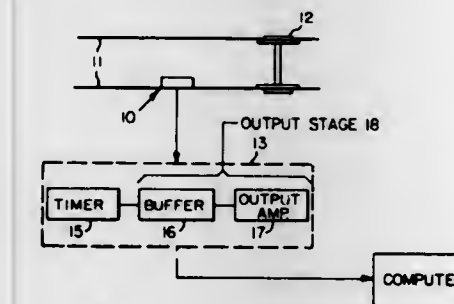
3,601,664

WHEEL DETECTOR AMPLIFIER

John H. Aver, Jr., Fairport, and Jerry P. Huffman, Rochester, both of, N.Y., assignors to General Signal Corporation, Rochester, N.Y.
Filed Sept. 5, 1969, Ser. No. 855,523
Int. Cl. H01h 47/32

U.S. Cl. 317-148.5

8 Claims



An improved amplifier responsive to wheel detector signals having a timing circuit producing signals relative to the duration of the wheel detector signals. An output stage responsive to the timing circuit signals produces output signals indicative of wheel presence and includes; a buffer for isolating the timing circuit and transmitting the signals, and an output amplifier responsive to the buffer signals having greater than a threshold value for producing the output signals.

3,601,665

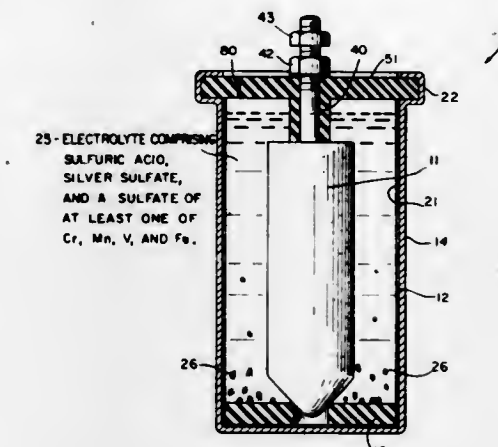
CAPACITORS HAVING A SELF-DEPOLARIZING ELECTROLYTE

Thomas C. O'Nan; Charles W. Walters, and James M. Booe, all of Indianapolis, Ind.
Filed Sept. 29, 1969, Ser. No. 862,049
Int. Cl. H01g 9/02

U.S. Cl. 317-230

7 Claims

A capacitor is provided comprising an anode made of tantalum or niobium, a silver cathode spaced from the anode and an electrolyte in contact with the anode and cathode, the electrolyte comprising an aqueous acid solution of sulfuric



vanadium, manganese and iron also at least partially dissolved in the acid solution.

3,601,666

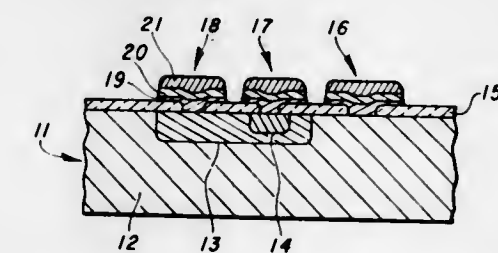
TITANIUM TUNGSTEN-GOLD CONTACTS FOR SEMICONDUCTOR DEVICES

Hayden M. Leedy, Plano, and Neal J. Tolar, Richardson, both of, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 21, 1969, Ser. No. 851,781
Int. Cl. H01l 19/00

U.S. Cl. 317-234 R

6 Claims



A trimetal ohmic contact system comprising titanium covered by tungsten and then gold is provided for semiconductors, especially for silicon devices. For best results it is essential to deposit the titanium by evaporation, since it is very difficult to obtain good ohmic contact with a sputtered film.

3,601,667

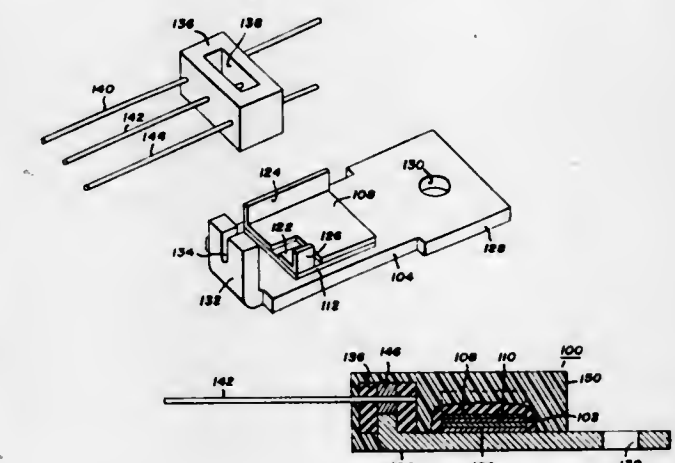
A SEMICONDUCTOR DEVICE WITH A HEAT SINK HAVING A FOOT PORTION

Richard J. Desmond, North Syracuse, and Paul W. Koenig, Clyde, both of, N.Y., assignors to General Electric Company

Filed Dec. 9, 1968, Ser. No. 782,183
Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

10 Claims



A foot portion is bent up from a planar, electrically conductive heat sink, and a header rigidly mounting circular

cross section electrical leads positions one of the leads in engagement with the foot portion. A semiconductor crystal is attached to the heat sink with a soft solder and a contact having an upstanding flange is similarly attached to the semiconductor crystal with a soft solder. The flange is attached to an electrical lead positioned by the header. A pliant, substantially fluid impervious material, such as silicone rubber, is cured around the semiconductor crystal and a casement is then molded to the leads and heat sink to form a shock and strain resistant semiconductor device. The header is in one form enclosed by the casement, but in alternate forms may be partially or entirely stripped after molding.

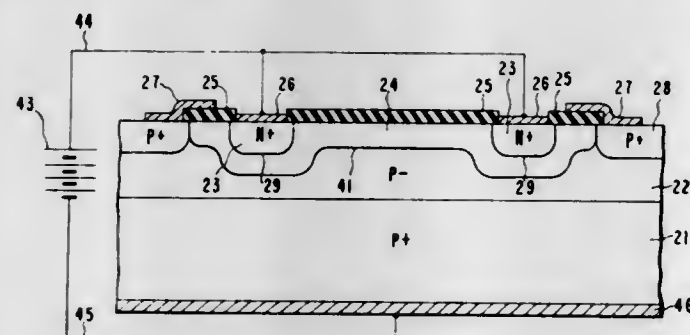
3,601,668

SURFACE DEPLETION LAYER PHOTODEVICE

Gary G. Slaten, Palo Alto, and Edward H. Snow, Los Altos, both of, Calif., assignors to Fairchild Camera and Instrument Corporation, Mt. View, Calif.

Filed Nov. 7, 1969, Ser. No. 874,745
Int. Cl. H01L 15/00

U.S. Cl. 317-234 R



A semiconductor photodevice sensitive to blue light is produced by placing an oxide layer containing a selected surface state charge density over one surface of the device. The fixed surface state charge density creates a surface depletion region in the semiconductor material immediately underlying the oxide. Blue light incident on the device, which is normally absorbed before reaching the depletion region associated with a PN junction strikes the surface depletion layer and produces photocurrent therein.

3,601,669

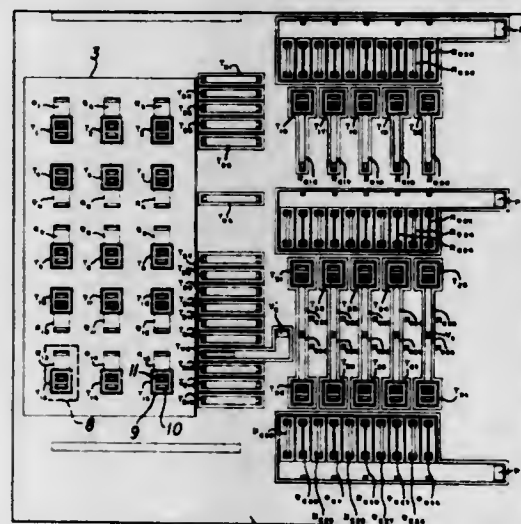
INTEGRATED HEATER ELEMENT ARRAY AND DRIVE MATRIX THEREFOR

Jerry D. Merryman, and Edward M. Ruggiero, both of Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 671,821, Pat. No. 3,501,615
Filed May 7, 1969, Ser. No. 847,750
Int. Cl. H01L 19/00

U.S. Cl. 317-235 R

7 Claims



Thermal display including an air isolated integrated semiconductor circuit forming a semiconductor heater element

array joined by a metallic connecting pattern which extends out over the heating elements to interconnect selected ones of them and a PN junction isolated integrated semiconductor drive matrix for the heating element array positioned in the same plane as the heating element array. The PN junction isolated integrated semiconductor drive matrix and the semiconductor heating element array are concurrently formed in the same semiconductor substrate and the heating element array is air isolated to provide a high degree of electrical and thermal isolation for the heating element array while both are located in the same plane on a larger support. The thermally sensitive material on which a dynamic display is formed or on which a permanent display is printed is in direct contact with the monocrystalline semiconductor material of the heating element array and can be passed over the heating element array and the drive matrix.

3,601,670

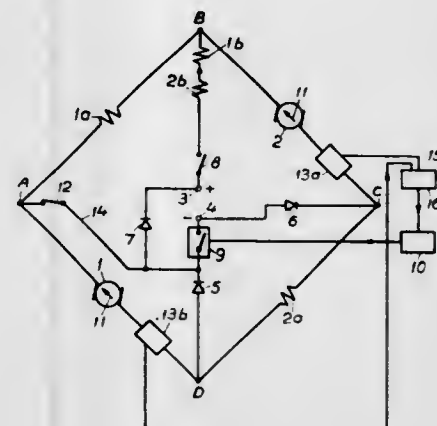
PLURAL MOTOR DRIVING SYSTEM ADAPTED FOR REGENERATIVE BRAKING

Lars Goran Eriksson; Karl-Gunnar Goliath, and Bo Ingemar Larsson, all of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Apr. 20, 1970, Ser. No. 30,095
Claims priority, application Sweden, Apr. 22, 1969, 5650/69
Int. Cl. H02p 7/70

U.S. Cl. 318-87

1 Claim



A driving system adapted for regenerative braking having two DC motors each having two series wound field windings. The motors and one field winding from each motor are connected in a bridge circuit to a DC source to provide for changing from motor to generator conditions. The other two field windings are connected in series with each other and with the DC source in a diagonal of the bridge. The motors are controlled in response to the average value of motor current.

3,601,671

PLURAL MOTOR TRAIN CONTROL WITH SEQUENTIAL OR SELECTIVE STARTING FOR SPEED CONTROL

Donald R. Little, Greensburg, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Apr. 17, 1969, Ser. No. 816,915
Int. Cl. H02p 1/58

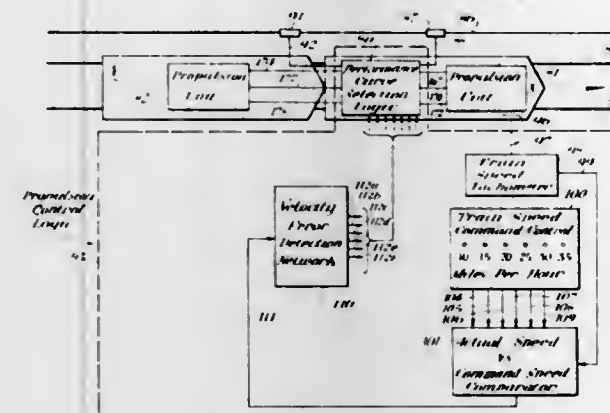
U.S. Cl. 318-102

15 Claims

This invention relates to a single or multivehicle propulsion control system having at least two propulsion units.

The system is comprised of at least one propulsion unit having a plurality of selectable operating modes and at least one other propulsion unit having a plurality of selectable operating modes. A propulsion control logic unit is operatively coupled respectively to the two just-recited propulsion units. These propulsion units are simultaneously controlled by the propulsion control logic unit to select a predetermined number of combinations of the modes of operation from the propulsion units, the predetermined number of combination modes available exceeding the number of modes available for

any one of the propulsion units. The selected combination of modes closely approximates the propelling effort required to



maintain the preselected vehicle or vehicles' speeds free from accelerating and decelerating effects.

3,601,672

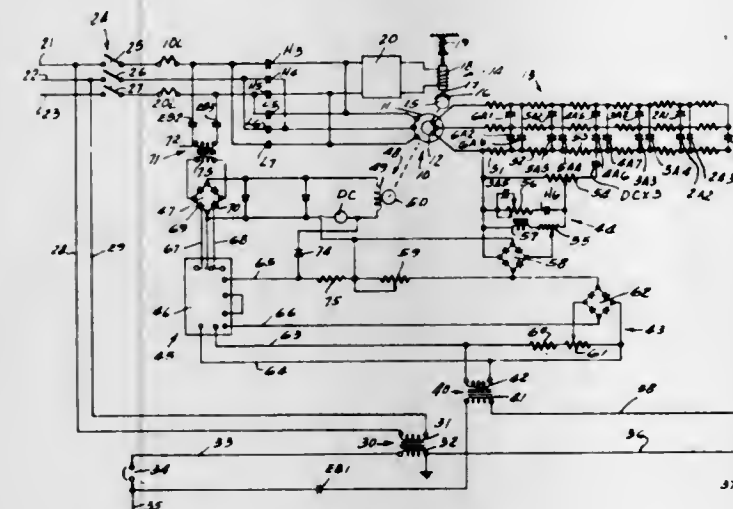
EDDY CURRENT BRAKING SYSTEM

Edward A. Horsley, Niagara Falls, Ontario, Canada, assignor to Dominion Bridge Company Limited

Filed Aug. 6, 1969, Ser. No. 847,894
Int. Cl. B66d 5/02

U.S. Cl. 318-204

9 Claims



An eddy current braking system for wound rotor induction motors, particularly those employed in hoisting and lowering loads, employs apparatus for sensing reflected load torque and speed and utilizing a signal derived therefrom for controlling braking of the motor. The control signal is only a small fraction of and represents a large current in the motor circuit. System stability to negate hunting of the eddy current brake is provided by a feedback circuit connected between the exciting winding of the eddy current brake and the control input to a solid state firing circuit.

3,601,673

MOTOR CONTROL CIRCUIT

Raymond J. Mason, Lynwood, Calif., assignor to Minarik Electric Company, Los Angeles, Calif.

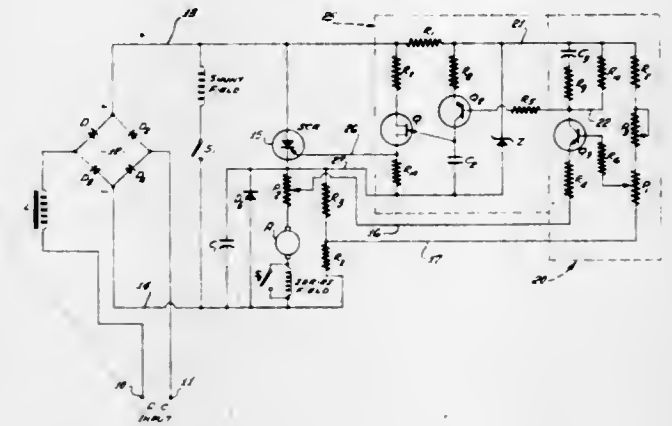
Filed Dec. 4, 1969, Ser. No. 881,954
Int. Cl. H02p 5/16

U.S. Cl. 318-308

16 Claims

Alternating current rectified by a bridge rectifier is supplied through an SCR device to a motor armature; the bridge rectifier, SCR device, and armature being connected in a series loop circuit. A firing control circuit associated with the SCR device controls the angle at which the device fires during each half cycle of alternating current received from the bridge rectifier.

A storage capacitor and a freewheeling diode are coupled in parallel with the armature to assist in filtering. A resistor connected in series with the armature produces a feedback voltage signal which is proportional to armature current, and a resistive circuit branch arranged in parallel with the armature provides a feedback voltage signal which is proportional



to armature voltage. A signal responsive circuit combines the two voltage feedback signals into a composite control signal for controlling the firing control circuit previously referred to. The firing control circuit is connected between anode and cathode of the SCR device for receiving its operating energy when the SCR device is nonconductive.

3,601,674

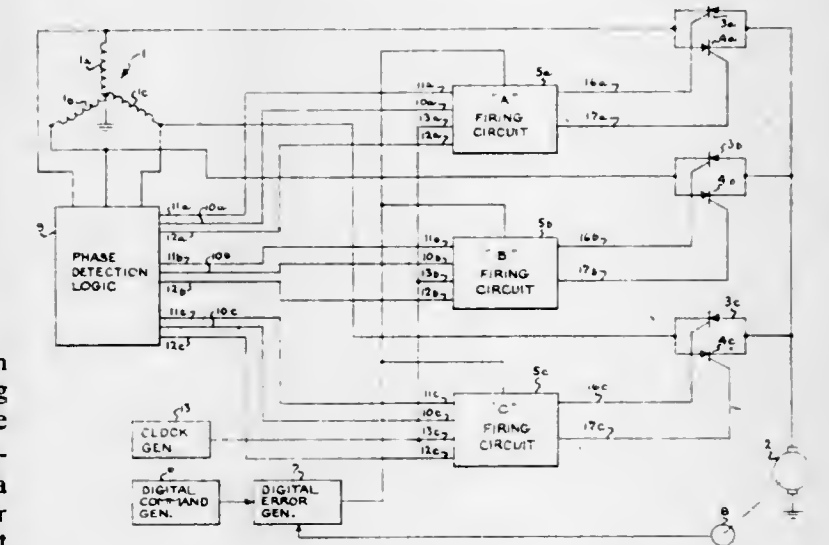
CONTROL SYSTEM FOR FIRING SCR'S IN POWER CONVERSION APPARATUS

John A. Joslyn, Dalton, and Albert F. Koch, Lanesboro, both of, Mass., assignors to General Electric Company

Filed Feb. 5, 1970, Ser. No. 8,928
Int. Cl. H02p 5/06

U.S. Cl. 318-318

16 Claims



A digital control system for controlling the flow of power via SCR's from a multiphase AC source to a load. A digital command signal is compared with a digital feedback signal indicative of motor speed so as to generate a digital error signal. The system includes a digital firing circuit for each phase wherein each firing circuit comprises a reversible counter and a digital comparator. Phase detection logic examines the three phases of the AC source so as to synchronously initiate a control interval for an appropriate SCR by presetting a predetermined positive, or negative digital number into the reversible counter associated with each phase. The reversible counter thereafter counts down if the present number is positive, or up if the preset number is negative, during the control interval. Continuous comparison of the digital error signal with the contents of the reversible counter is made by the digital comparator: when the error signal exceeds the contents of the reversible counter, a firing

pulse is generated which is supplied to a positively poled SCR if the preset number is positive; when the contents of the reversible counter exceed the error signal, a firing pulse is generated which is supplied to a negatively poled SCR if the preset number is negative.

3,601,675

VENTILATOR CONTROLLER FOR A GREENHOUSE

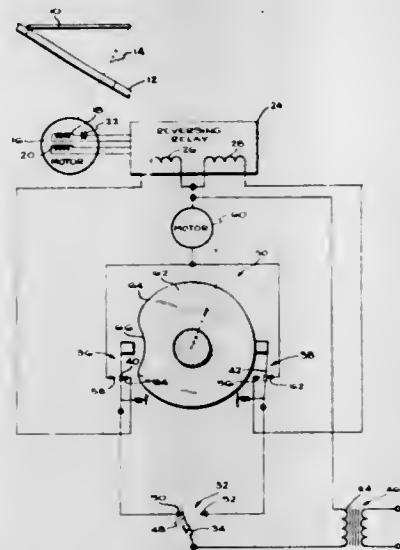
Carl Radtke, Chicago, Ill., assignor to Ickes-Braun Glasshouses, Inc., Deerfield, Ill.

Filed July 9, 1970, Ser. No. 53,551

Int. Cl. G05b 7/00

U.S. Cl. 318-471

3 Claims



A controller for opening and closing a ventilator for a greenhouse in response to temperature sensed by a thermostat within the greenhouse. The ventilator is opened and closed by a single-phase capacitor start motor having a centrifugal switch connected in series with its starting winding. The motor is controlled by a reversing relay which is coupled to the motor so as to cause the motor to drive in a direction to open the ventilator when an open-relay coil in the relay is energized and to cause the motor to drive in a direction to close the ventilator when a close-relay coil within the relay is energized. A delay system is provided to prevent the motor from being energized to reverse its direction of rotation for a time period sufficient to enable the centrifugal switch to close. The delay system is arranged so that when the thermostat first calls for a reversal of the drive motor it actuates a delay motor. The delay motor drives a cam which, after a delay sufficient to enable the centrifugal switch to drop out actuates a switch means to disconnect the delay motor and to energize the close (or open) relay, thus energizing the drive motor.

3,601,676

BALANCE CIRCUIT FOR DC SERVOS

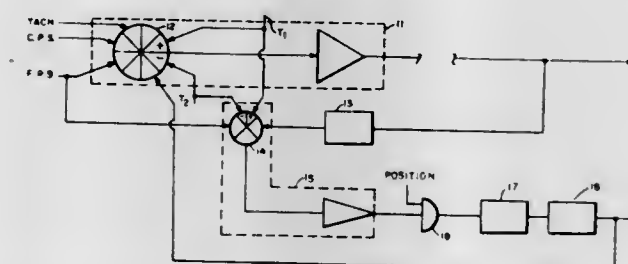
Martin O. Halfhill, and Frank J. Sordello, both of San Jose, Calif., assignors to Information Storage Systems, Inc., Cupertino, Calif.

Filed Aug. 20, 1969, Ser. No. 851,692

Int. Cl. G05d 23/275

U.S. Cl. 318-592

7 Claims



A balance circuit for neutralizing offsets and drift of all inputs to the summing amplifier of a DC servo including: a

balance amplifier for comparing the drive signal applied to a servo controlled motor with selected inputs to the summing amplifier to determine any difference therebetween and developing a balance signal for feedback to the input of the summing amplifier which is equal to, but out of phase with the difference, and circuitry for applying the balance signal during both the fine and coarse position steps of the servo operation.

3,601,677

TEMPERATURE COMPENSATED SERVOSYSTEM

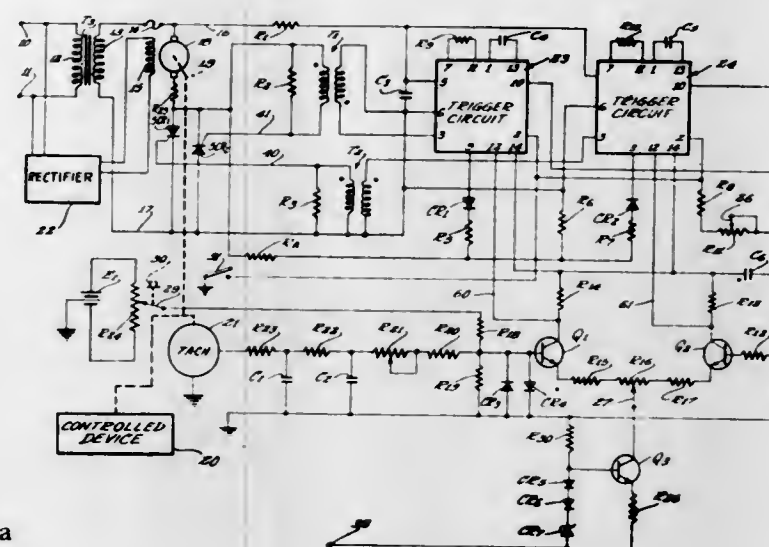
Kenneth R. MacDavid, Clarence Center, N.Y., assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Filed Oct. 20, 1969, Ser. No. 867,582

Int. Cl. G05f 1/08

U.S. Cl. 318-678

4 Claims



A motor control circuit for a servosystem which includes trigger circuits for controlling the direction and speed of a motor and which has temperature compensation to assure accurate and positive control. The control system of this invention is very stable and is not affected by temperature changes because temperature compensating means including a transistor and a Zener diode are connected in circuit with a differential amplifier so as to compensate for any temperature variations.

3,601,678

STEPPING MOTOR CONSTANT VELOCITY DRIVE INCLUDING CLOSED AND OPEN LOOP CONTROL

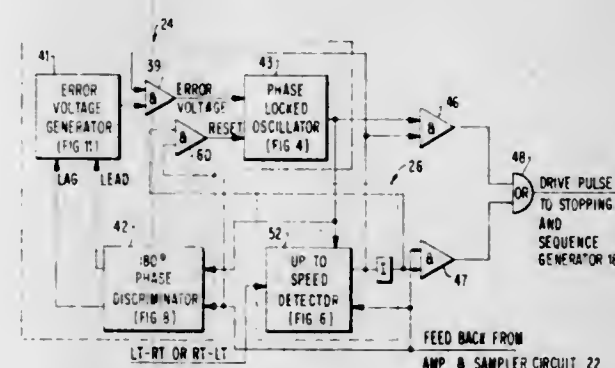
Dennis G. Abraham, Vestal; George J. Dohanich, Binghamton, and Joseph P. Pawletko, Endwell, all of, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 27, 1970, Ser. No. 41,032

Int. Cl. G05b 19/40

U.S. Cl. 318-685

9 Claims



A stepping motor drive which includes both a closed loop feedback control system and an open loop oscillator control system. The stepping motor is started by a start pulse, and feedback pulses from an emitter driven by the motor are

gated to accelerate the motor. At the same time, the feedback pulses are gated to reset and synchronize a free-running oscillator. Feedback and oscillator pulses are compared, and when synchronism is achieved, i.e., the motor is up to speed, the oscillator pulse gate drive is enabled. When this occurs, the oscillator is controlled by a discriminator which compares the phase of the oscillator and feedback pulses and corrects the relation therebetween by modifying the oscillator frequency.

3,601,679

SOURCE OF ELECTRICAL ENERGY

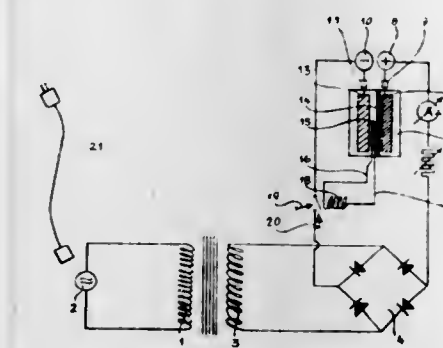
Artur Braun, 6 Russelsheimerstrasse 22., Frankfurt am main, and Heinz Luchterhand, 6239 Fucksweg 7., Diedenbergen, both of, Germany

Continuation of application Ser. No. 634,378, Apr. 27, 1967, now abandoned. This application Dec. 30, 1969, Ser. No. 888,122

Int. Cl. H02j 7/04

U.S. Cl. 320-35

2 Claims



A compact portable source of electrical energy for electric razors comprising:

A. at least one electric cell having a gastight enclosure, which is rapidly chargeable at high amperages and safe from overcharging.
B. a charging device adapted to receive power from an external source and adjusted to deliver a high amperage charging current to the cell, preferably by means of a thyristor circuit, and
C. a temperature sensor in thermal proximity with said cell adapted to produce a signal when the temperature of the cell reaches a predetermined level, thereby indicating the degree of charge of the cell. The power sources of the present invention are especially useful to supply electrical energy to electric razors.

3,601,680

DC-TO-DC CONVERTER

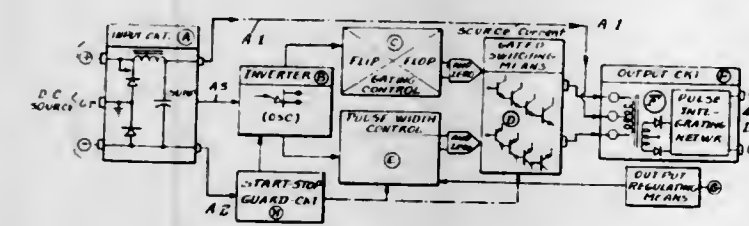
Robert W. Beckwith, 1002 Greenfield Lane, Mount Prospect, Ill.

Filed Apr. 1, 1969, Ser. No. 812,104

Int. Cl. H02m 3/22

U.S. Cl. 321-2

9 Claims



A DC to DC converter embodying transistors in compound-connected multiple arrays, providing high current gain with special means for reducing switching losses, the arrays being driven in an alternate switching action to apply power pulses to an time-delay transformer under control of pulse-forming and gating subcircuits utilizing multivibrator means controlled by an inverter to produce sets of voltage-conformed gating pulses in such a manner that the power pulses are thereby shaped for substantially constant energy content

as the result of automatically adjusting the duration of the pulses in inverse proportion to the instantaneous voltage of the DC source to produce a substantially constant output voltage between predetermined limits of source voltage for a given load condition. A low-loss reflex output-voltage regulating means may additionally modify the pulse shape in response to load variations. A dual-function isolation and time-delay input circuit prevents feedback into the source and also cooperates with start-stop protective means to guard the power transistors against destructive current surges during turn-on and turnoff of the converter.

3,601,681

CONVERTER COMPRISING A RECTIFIER GROUP CONTAINING REACTORS AND AN OVER-CURRENT PROTECTION FOR THE RECTIFIER GROUP

Carl Ingvar Boksjo, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

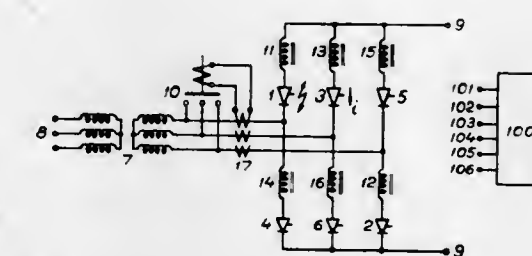
Filed Feb. 24, 1969, Ser. No. 801,253

Claims priority, application Sweden, Feb. 28, 1968, 2532/68

Int. Cl. H02m 1/18

U.S. Cl. 321-11

2 Claims



A converter is formed of a group of rectifiers arranged in series with reactors. A protection device is provided which includes a short-circuiting arrangement for the rectifiers. The reactors are provided with iron cores which are saturated at approximately 1 percent-10 percent of the short-circuiting current of the converter.

3,601,682

STATIC INVERTER FOR ENSURING SMOOTH SUPPLY OF POWER FOR LEADING AND LAGGING LOAD CURRENTS

Masahiko Iwata, and Hirotsuke Imabayashi, both of Ise, Japan, assignors to Shinko Electric Co., Ltd., Tokyo, Japan

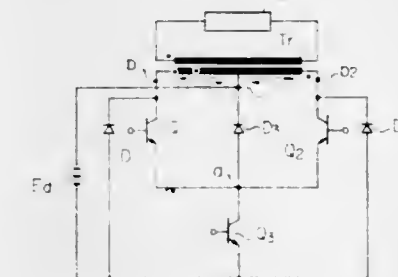
Filed June 1, 1970, Ser. No. 41,893

Claims priority, application Japan, June 10, 1969, 44/46006

Int. Cl. H02m 7/48

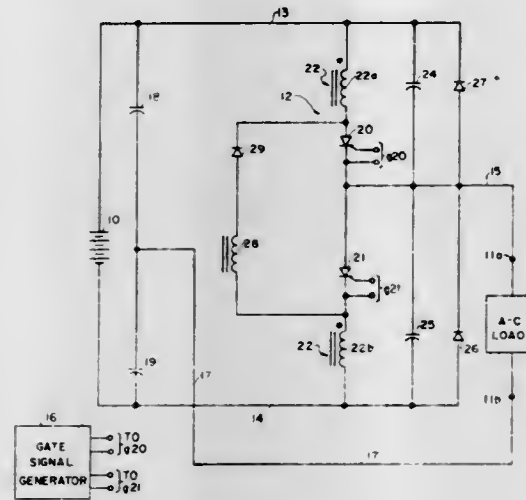
U.S. Cl. 321-21

3 Claims



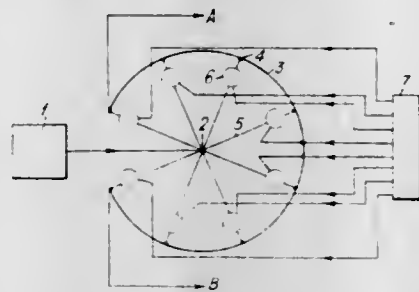
A stationary inverter having a DC power source and a transformer. Input power is applied from the source alternately to either half of the primary winding of the transformer through a first and a second controlled switching circuits, respectively. Diodes are used in the switching circuits for ensuring smooth supply of power for leading and lagging load currents.

3,601,683
ENERGY RECOVERY CIRCUIT FOR INVERTER
 Harold J. Brown, Lorain, Ohio, assignor to Lorain Products Corporation
 Filed Mar. 3, 1970, Ser. No. 16,033
 Int. Cl. H02m 7/48
 U.S. Cl. 321-45 R
 7 Claims



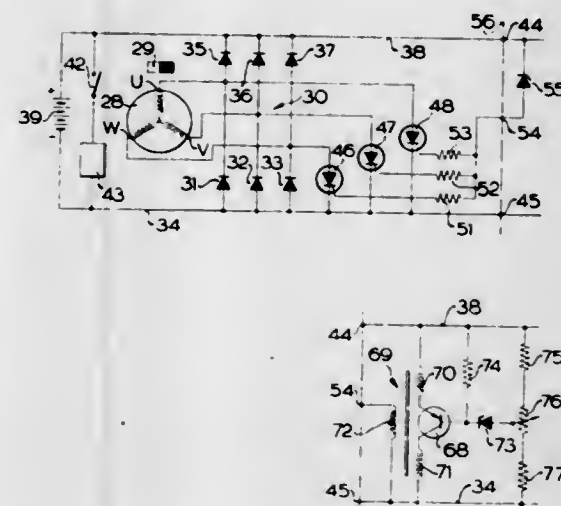
A circuit for preventing the loss of the energy stored in a plurality of commutating capacitors of center tapped source inverters. The charged one of the commutating capacitors discharges in a respective discharge loop when the associated thyristor is turned on. The uncharged one of the commutating capacitors is charged by a current in a respective charging loop, the latter current flowing in response to the flow of discharge current in the discharge loop. An inductor in the charging loop maintains a charging current through the charging one of the commutating capacitors after the discharging one of the commutating capacitors is no longer able to maintain the flow of discharge current in the discharge loop. Means is provided to interrupt the flow of current in the charging loop after the charging one of the commutating capacitors is fully charged.

3,601,684
PHASE-SHIFTING ARRANGEMENT
 Charles William Earp, London, and Francis Giles Overbury, Cuffley, both of, England, assignors to International Standard Electric Corporation, New York, N.Y.
 Filed Mar. 2, 1970, Ser. No. 15,531
 Claims priority, application Great Britain, Mar. 13, 1969, 13249/69
 Int. Cl. H02m 5/00
 U.S. Cl. 321-54
 7 Claims



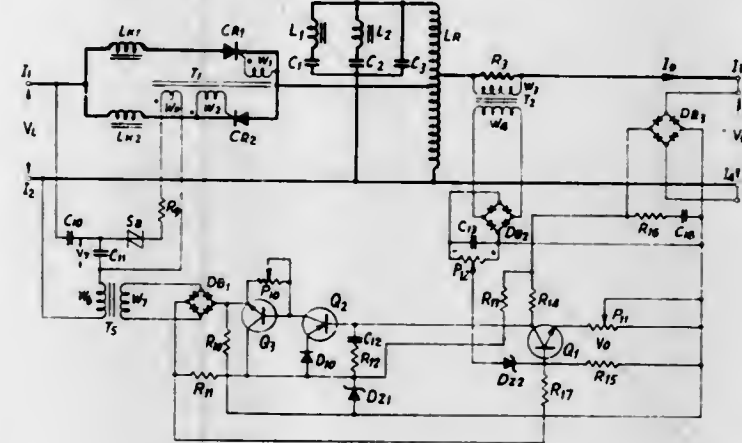
A phase-shifting arrangement wherein a source is cyclically coupled to predetermined and equally spaced points of an arcuate transmission line of predetermined length. The coupling is achieved over radial transmission lines having pulse switchable diodes which are sequentially activated at a predetermined frequency by a rotary pulse distributor. At one end of the arcuate line there is derived a positively displaced RF signal, and at the other end of the arcuate line is derived a negatively displaced RF signal.

3,601,685
VOLTAGE REGULATOR, PARTICULARLY FOR USE WITH PERMANENT MAGNET VEHICLE-TYPE AC GENERATOR-RECTIFIER COMBINATION
 Edgar Kuhn, Gerlingen, Germany, assignor to Robert Bosch GmbH, Stuttgart 1, Germany
 Filed Apr. 24, 1969, Ser. No. 819,018
 Claims priority, application Germany, May 2, 1968, P 17 63 303.3
 Int. Cl. H02p 9/00
 U.S. Cl. 322-28
 4 Claims



Controlled semiconductor switches, such as SCR's are connected in parallel to, and with reverse polarity to the rectifier elements of the rectifier system connected to an AC permanent magnet vehicle-type generator, which may generate high voltages upon being driven at high speed and low load. A Zener diode senses overvoltage conditions, the Zener diode being connected to trigger a blocking oscillator to oscillate and to provide sharp triggering pulses to the SCR's, the frequency of oscillations of the blocking oscillator being additional by determined by the output voltage so that the SCR's will be conductive for a longer time, during any half cycle, as output voltage rises above the predetermined value.

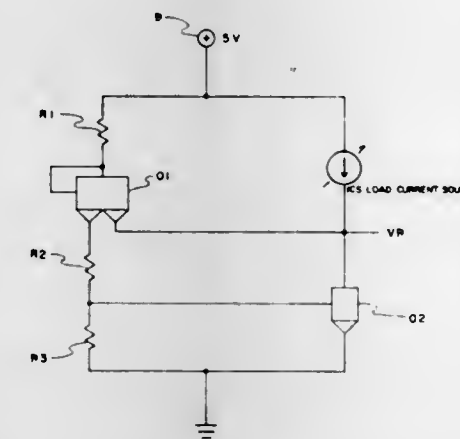
3,601,686
AC REGULATOR EMPLOYING A CONTROL RECTIFIER SWITCHING CIRCUIT
 George A. Gautherin, Woodside, N.Y., assignor to Lambda Electronics Corporation, Huntington, N.Y.
 Filed Sept. 26, 1968, Ser. No. 762,934
 Int. Cl. G05f 1/30
 U.S. Cl. 323-9
 2 Claims



An AC regulator which employs inductance, a resonant circuit and controlled rectifier switching between the input terminals connected to the AC voltage to be regulated, and the output terminals which supply the regulated AC output. The controlled rectifier switching circuit is regulated by a control system which monitors the output voltage and con-

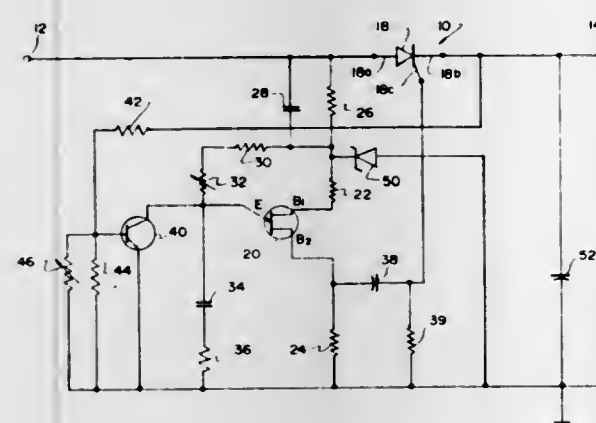
trols the firing of a pair of oppositely-polarized parallel controlled rectifiers connected in serial relationship between the input (line) and output terminals.

3,601,687
LOW-IMPEDANCE VOLTAGE SUPPLY
 George K. Tu, Wappingers Falls, N.Y., assignor to Cogar Corporation, Wappingers, N.Y.
 Filed June 22, 1970, Ser. No. 48,204
 Int. Cl. G05f 1/56
 U.S. Cl. 323-17
 9 Claims



A low-impedance voltage supply for providing a relatively constant reference voltage independent of the magnitude of the current flowing through the source. The circuit includes a transistor whose base is connected to the junction of two resistors in a voltage divider network. The voltage divider network is driven from a diode connected through a resistor to a potential source. The collector of the transistor is connected to another diode which is fed through the same resistor from the potential source.

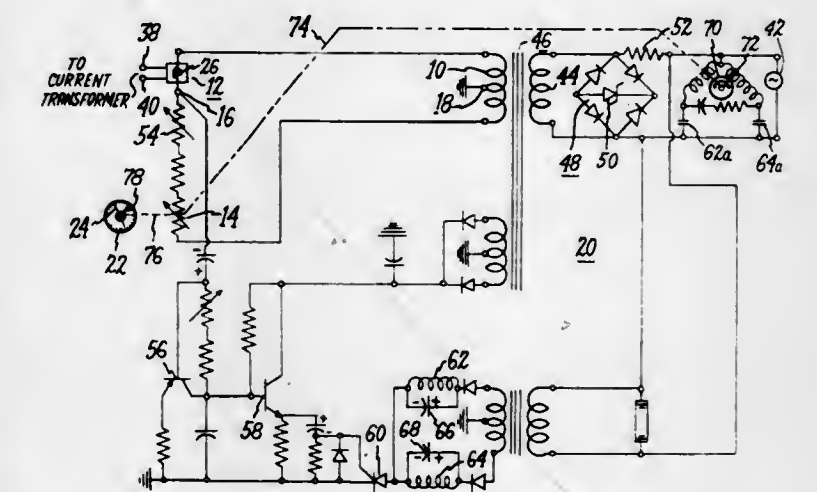
3,601,688
VOLTAGE REGULATOR FOR PERMANENT MAGNET GENERATORS
 Peter Dogadko, and Forbes D. Gilchrist, both of Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
 Filed Jan. 28, 1970, Ser. No. 6,367
 Int. Cl. G05f 1/44, 5/00
 U.S. Cl. 323-20
 8 Claims



A voltage regulator circuit having an input terminal for connection to the output of a permanent magnet generator which develops a voltage at its output variable in frequency and amplitude in response to the speed of rotation of the generator. A current control device is arranged to switchably connect the output of the generator to a desired load in response to trigger pulses which are generated at desired phase angles during each half cycle of a given polarity of the applied voltage. The output of the voltage regulator may be free of an external power source, and in such case, means are provided to always establish at least a minimum current flow

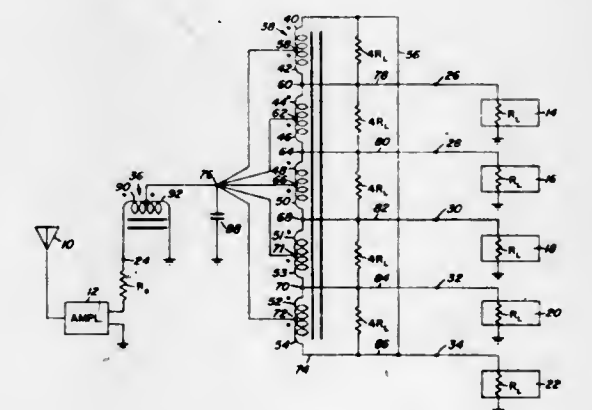
at the output of the regulator during no load conditions to effect continuous operation of the regulator for all voltage values at the output of the generator.

3,601,689
THERMAL LOAD INDICATOR FOR ELECTRICAL APPARATUS
 Clarence J. Kettler, Lenox, Mass., assignor to General Electric Company
 Filed Oct. 24, 1969, Ser. No. 869,174
 Int. Cl. G05f 1/20
 U.S. Cl. 323-43.5 S
 8 Claims



A thermal load indicator to show the present thermal loading of an electrical apparatus and the past maximum thermal loading. A thermal model comprising a nonlinear, temperature sensitive resistor and a heater resistor in a thermal container is immersed in the insulation liquid of the electrical apparatus to provide a representation of the "hot spot" temperature of such apparatus. The thermal model is placed electrically in a voltage divider to provide an error signal to a servomotor circuit. The servomotor drives an indicator device to provide an indication of thermal loading. The indicator in turn is coupled to a rheostat which is driven to balance the voltage divider eliminating the error signal. A drag hand on the indicator indicates the maximum past thermal loading. Switching means are provided in the indicator device when used with a tap changing apparatus to drive such apparatus to a lower ratio when such apparatus is overheated.

3,601,690
MULTICOUPLER EMPLOYING A MULTIPLE FILAR-WOUND TRANSFORMER
 James F. Judson, Rochester, and Eugene A. Peterson, Penfield, both of, N.Y., assignors to General Dynamics Corporation
 Filed Feb. 16, 1970, Ser. No. 11,713
 Int. Cl. H02j 3/00
 U.S. Cl. 323-48
 9 Claims



A multicoupler is described which employs a multiple bifilar-wound transformer with outputs therefrom feeding

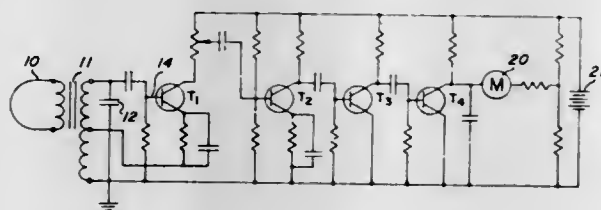
each of the multiplicity of loads. The transformer has a multiplicity of adjacent in series pairs of windings which are serially connected. The ungrounded terminal of an input source is connected in common to each of the adjacent pairs of windings at the connection therebetween. The windings are polarized so that the current from the source divides equally therein to as well as into the loads, whereby the power from the source is equally divided into the loads with isolation between the loads. Any unbalance is reflected into all of the windings and dissipated in balance resistors shunting each of the adjacent winding pairs.

contact resistance between the A- and M-electrodes is so bad that genuine resistivity measurements cannot be made, the measuring system will produce very high, off-scale measurement values to indicate such an occurrence. In another embodiment of the invention, the electrodes are energized with current at a plurality of frequencies to enable separate measurements to be made. These measurements when utilized in a desirable manner, can enable a relatively authentic resistivity measurement to be obtained.

3,601,691
METAL DETECTOR RESPONSIVE TO SMALL
METALLIC OBJECTS FOR DIFFERENTIATING
BETWEEN FERROUS AND NONFERROUS OBJECTS
Robert F. Gardiner, 4729 N. 7th Ave., Phoenix, Ariz.
Continuation-in-part of application Ser. No. 682,764, Nov.
14, 1967, now abandoned. This application Ser. 29, 1969,
Ser. No. 864,946
Int. Cl. G01v 3/00

U.S. Cl. 324—3

1 Claim

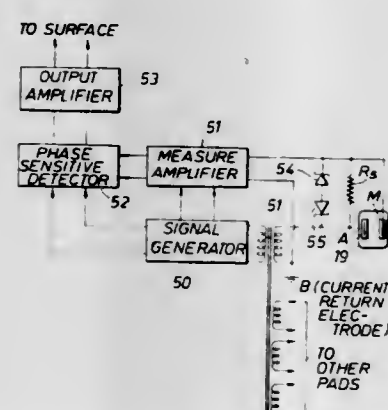


A metal detector utilizing a Hartley oscillator having a field effect transistor therein. The output of the oscillator is connected through a series of amplifying transistor circuits to a meter. The oscillator is adjusted with sufficient Q to just oscillate; the detection of certain metals results in a change in the Q to result in a substantial decrease in the amplitude of oscillations indicated by the meter connected to the circuit.

3,601,692
ELECTRICAL LOGGING SYSTEM UTILIZING
IMPEDANCE MEANS BETWEEN SURVEY AND
MEASURE ELECTRODES
Nick A. Schuster, Darien, Conn., assignor to Schlumberger
Technology Corporation, New York, N.Y.
Filed May 15, 1969, Ser. No. 824,981
Int. Cl. G01v 3/18
U.S. Cl. 324—10 6 Claims

U.S. Cl. 324—10

6 Claims

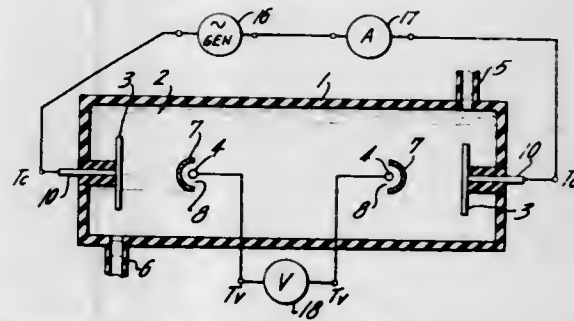


In accordance with illustrative embodiments of the present invention, a well tool having wall-engaging pad members is moved through a borehole. Current is supplied to a current electrode A on each pad member and the resulting potential on a nearby electrode M on each pad member is measured to provide a measure of formation resistivity. A shunt resistor is connected between the A- and M-electrodes of each pad member and has a resistance value suitable to enable the system to provide reasonably accurate measurements when the A- and/or M-electrodes fail to make reasonably good electrical contact with the formation. However, when the

3,601,693
MEASURING CELL FOR MEASURING ELECTRICAL
CONDUCTIVITY OF A FLUID MEDIUM
Jens Jørn Lorentzen, Bogehøj 46,, Hellerup, near
Copenhagen, Denmark
Continuation-in-part of application Ser. No. 472,857, June
19, 1965, now abandoned. This application Mar. 27, 1969,
Ser. No. 811,186
Int. Cl. G01n 27/42

U.S. Cl. 324—30 R

6 Claims

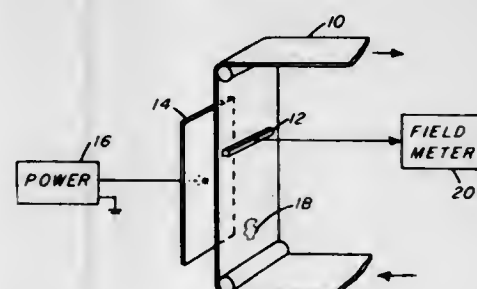


A measuring cell having current electrodes and voltage electrodes, the current electrodes being serially connected to an alternating current source and a current measuring device and the voltage electrodes being connected to a voltage measuring device whereby the ratio of the measured current flow to the measured voltage is a unique value indicative of the electrolytic conductivity of the medium. Electrical insulating means are positioned adjacent the voltage electrodes to effectively bypass the current flow around the voltage electrodes thereby screening same from the current flow. The insulating means prevents contamination and polarization of the voltage electrodes by the current flow whereby an accurate current measurement and voltage measurement is obtained.

3,601,694
**APPARATUS FOR ELECTRICALLY CHECKING THE
 CONTINUITY OF A COATING**
 Darrell A. Checketts, and David R. Simonsen, both of
 Rochester, N.Y., assignors to Eastman Kodak Company,
 Rochester, N.Y.
 Filed Dec. 9, 1968, Ser. No. 782,179
 Int. Cl. G01r 29/12; G08b 21/00
 U.S. Cl. 324—32

U.S. Cl. 324-32

3 Claims

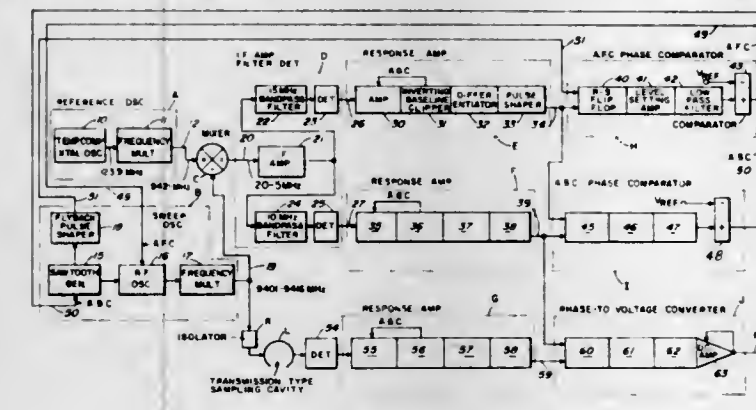


The aqueous coating on a triboelectrically chargeable web is employed, before such coating dries, to shield the charged web from a field meter, thereby to detect skips in the coating.

3,601,695
SINGLE CAVITY FREQUENCY AND BANDWIDTH
STABILIZED ABSOLUTE MICROWAVE
REFRACTOMETER
William A. Heile, Indianapolis, Ind., assignor to The United
States of America as represented by the Secretary of the
Navy

U.S. Cl. 324—58.5 C

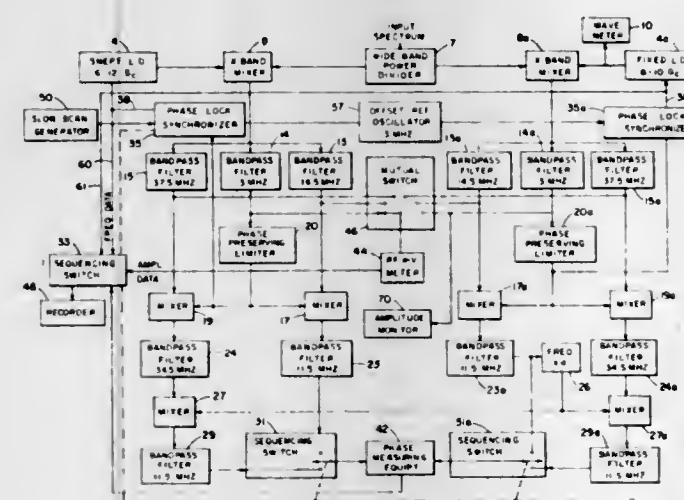
6 Claims



An airborne absolute microwave refractometer having an externally mounted sampling cavity fed a range of sweep frequencies from a sweep oscillator to produce a resonance response signal the phase of which is determined by the refractive index of the air within the cavity which resonance signal is converted in a direct (DC) voltage proportional to the refractive index of the air within the sampling cavity, the sweep frequencies also being mixed with the frequency of a crystal controlled reference oscillator and the resultant difference frequency fed through two band-pass filters and two channels of response amplifiers to automatic frequency control and automatic bandwidth control circuits, the outputs of which are fed back to the sweep oscillator to maintain the proper center frequency and bandwidth of the generated sweep frequency regardless of temperature and altitude variations.

3,601,696
**SPECTRUM ANALYZER UTILIZING RELATIVE PHASE
SLOPE DIFFERENCE OF PAIRS OF LINES IN
SPECTRUM TO MEASURE RELATIVE PHASES OF
INDIVIDUAL LINES**
**Joseph L. Chovan, Liverpool, and Earl R. Wingrove, Jr.,
North Syracuse, both of, N.Y., assignors to The United
States of America as represented by the Secretary of the
Army**

Army **Filed Sept. 23, 1969, Ser. No. 860,345**



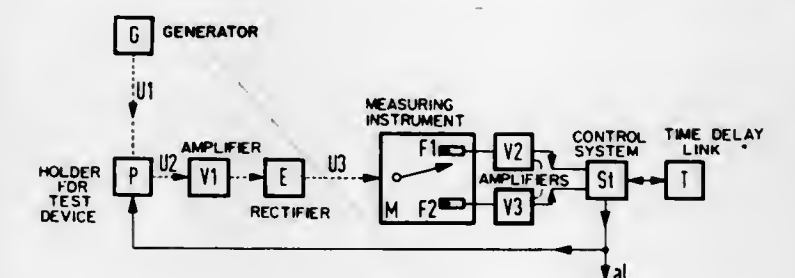
The relative amplitudes and phases of individual lines of a wide band line spectrum are determined by dividing the spec-

trum analyzer into two parallel branches. One branch process a fixed reference pair of lines in the spectrum and the other branch processes an arbitrary tunable line pair. This allows the instantaneous relative phase slope difference of two pairs of lines in the spectrum to be measured.

3,601,697
AUTOMATIC TESTING APPARATUS RESPONSIVE TO
EXCESS OVER FIXED LIMITS
Erwin Martin, Munich, Germany, assignor to Siemens-Ak-
tiengesellschaft, Munich, Germany
Filed Dec. 16, 1968, Ser. No. 784,027
Int. Cl. G01r 19/00, 27/00
U.S. Cl. 324-102 5 Claims

U.S. Cl. 324-102

5 Claims

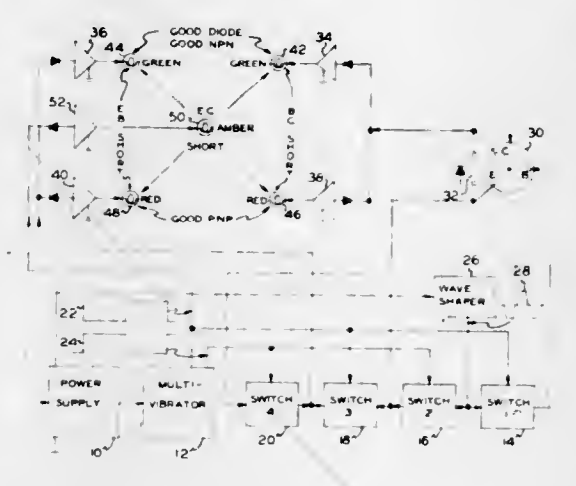


Automatic testing apparatus for electrical devices which are tested by applying a variable voltage thereto, measuring the response of the device to the variable voltage, and detecting excesses of that response with respect to limits of a tolerance zone. To avoid necessity of use of apparatus which has a cathode ray oscilloscope, the response of the device is rectified so that fixed tolerance limits may be employed. Any excess over the fixed tolerance limits is detected.

3,601,698
SEMICONDUCTOR TESTER HAVING VISUAL DISPLAY
Milton E. Thurman, Jr., 550 S.E. 26th Avenue, Hillsboro,
Oreg.
Filed Jan. 21, 1969, Ser. No. 792,445
Int. Cl. G01r 31/26; G08b 23/00
U.S. Cl. 324-158 T **10 Claims**

U.S. Cl. 324—158 T

10 Claims



A continuity tester particularly suitable for testing bipolar transistors and semiconductor diodes is disclosed having a visual display including four test information indicator lamps arranged in a square with green lamps at adjacent corners of the square and red lamps at the remaining corners. A fifth indicator lamp functioning as a test mode indicator lamp is positioned in the center of the square. A circuit automatically applies an alternating current test voltage across the emitter-base and base-collector terminals of the transistor during first test mode time intervals and also turns on the second test mode indicator lamp and applies the test voltage across the collector-emitter-terminals during alternate second test mode time intervals which alternate with the first time intervals. Current flow, if any, and its direction of flow between the various terminals of the transistor causes lighting of certain of the test information indicator lamps during each

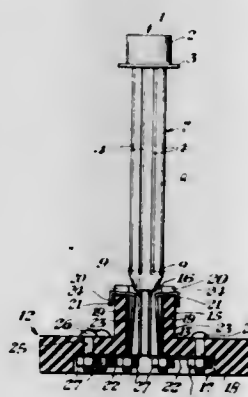
of the two test mode time intervals. The color and position of the lamps thus lighted indicates whether the transistor is a good NPN transistor or a good PNP transistor and, if not, the nature of the defect. Diodes are similarly tested by applying the test voltage across their terminals during the second test mode intervals.

3,601,699 LEAD SEPARATOR AND MOUNTING SOCKET FOR MICROMINIATURE DEVICES

Roscoe A. Norton, Jr., and William M. Carrozza, both of Batesburg, S.C., assignors to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Apr. 16, 1969, Ser. No. 816,690
Int. Cl. G01r 31/22; H01r 13/20
U.S. Cl. 324—158 F

5 Claims



This disclosure relates to testing apparatus employing a component lead separator for receivingly entrapping yet physically exposing a portion of the relatively long conductive leads of a microminiature component. The lead separator is quickly and easily inserted into a mounting socket which includes a plurality of spring contact elements for electrically engaging the exposed portions of the conductive leads. The spring contact elements are, in turn, connected to an electrical analyzer for measuring and testing the electrical and operating characteristics of the microminiature component.

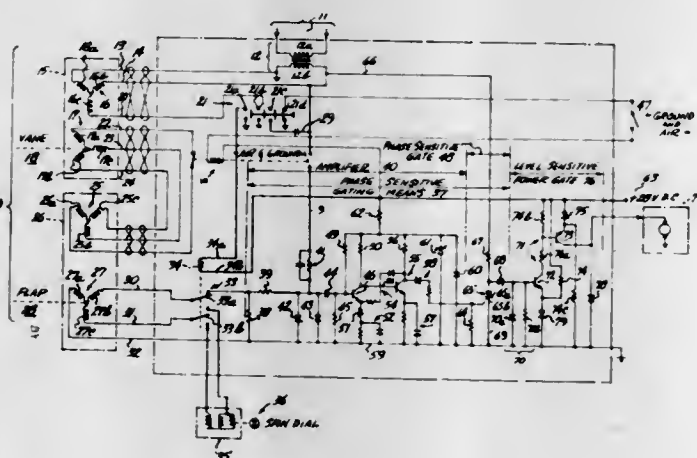
3,601,700 METHOD FOR TESTING A THREE WIRE DIFFERENTIAL SYNCHRO CHAIN

John E. Collett, Snohomish, and Rudolph P. Host, Seattle, both of, Wash., assignors to The Boeing Company, Seattle, Wash.

Division of Ser. No. 604,751, Dec. 27, 1966, Pat. No. 3,518,621.
Filed Sept. 11, 1969, Ser. No. 857,014
Int. Cl. G01r 29/16

U.S. Cl. 324—158 SY

1 Claim



An aircraft stall warning system wherein flap and air vane controlled synchros phase shift an alternating current reference signal in response to lift air foil attitude to form a

control signal that controls, by the phase shift, the amount of the reference signal gated to a level-sensitive power switch for activating preferably a pilot's column shaker warning upon the aircraft's assuming a critical angle of attack. Two alternative modes of "fail safe" testing work in integral relationship with "built-in" bias inherent in the system.

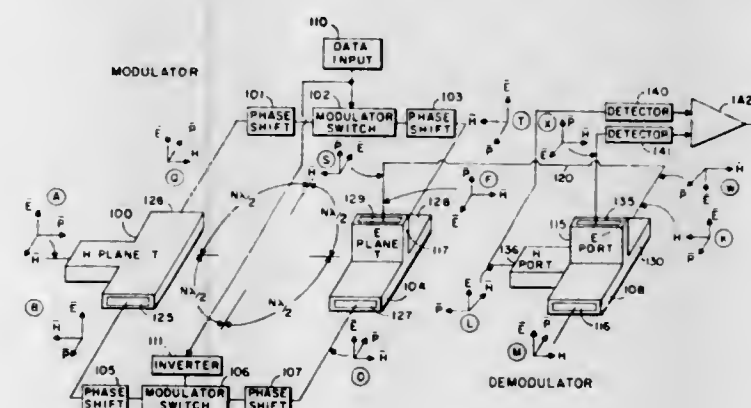
3,601,701 BI-PHASE KEYED MODULATOR-DEMODULATOR SYSTEM

Robert F. Salmon, Cedar Rapids, Iowa, assignor to Collins Radio Company, Dallas, Tex.

Filed Sept. 25, 1969, Ser. No. 860,880
Int. Cl. H04b 1/04, 1/16

U.S. Cl. 325—30

12 Claims



At the transmitter, a first switching means connects first symmetric ports of an E plane T junction and an H plane T junction together and a second switching means connects the other symmetric ports of the two T junctions together. Modulating means operates the two switches in an alternate manner so that an input signal supplied to the collinear port of one T junction will have either a 0° or a 180° phase shift at the collinear port of the other output T junction, depending upon which switching means is conductive. At the receiver a hybrid T junction is provided with the output signal of said output T junction being supplied to one symmetric port thereof and a constant phase reference signal to the other symmetric port. An output signal will appear either at the H port or the E port of the hybrid T junction depending upon the phase of the received signal.

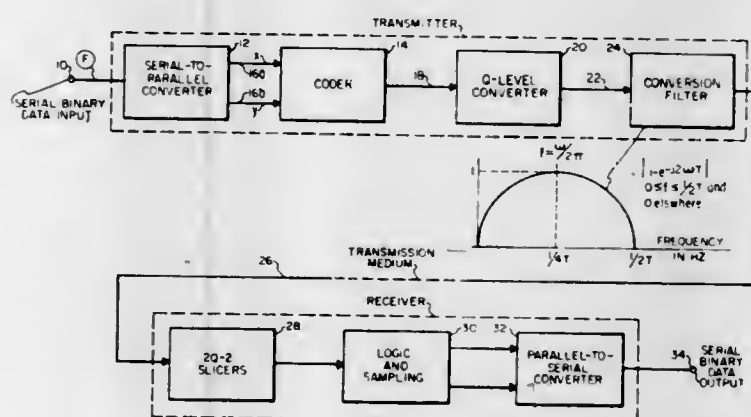
3,601,702 HIGH SPEED DATA TRANSMISSION SYSTEM UTILIZING NONBINARY CORRELATIVE TECHNIQUES

Adam Lender, Palo Alto, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Mar. 17, 1969, Ser. No. 807,578
Int. Cl. H03k 13/256, 13/34

U.S. Cl. 325—38 A

7 Claims



A digital data transmission system which significantly increases the transmission rate of a binary data signal over a band limited transmission channel employs correlative techniques utilizing novel precoding for converting a binary

input signal into a multilevel nonbinary correlative signal which is transmitted. Each level of the transmitted signal, seven being required to achieve a factor of eight improvement in transmission rate, represents a particular combination of the original binary digits, and introduction of correlative properties at the transmitter permits the original binary data to be recovered at the receiver with standard logic circuits without reference to the past history of the waveform. The correlative properties of the transmitted signal also permit error detection without adding redundant digits at the transmitter end. The bit speed capability of the concept is not limited to eight times that of a binary system but, in general, is equal to $21 \log_2 Q$ per Hertz in carrier applications, where Q is equal to the number of levels of a noncorrelative nonbinary signal and is an integer greater than two.

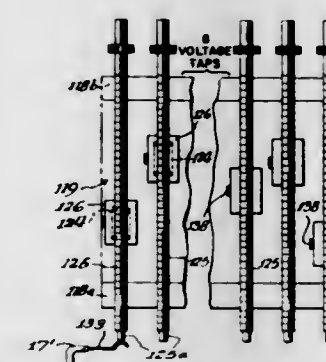
3,601,703 CHANNEL SELECTING DEVICE FOR VOLTAGE RESPONSIVE TV TUNER

Edward L. Midgley, Carol Stream, Ill., assignor to Standard Kollsman Industries Inc., Melrose Park, Ill.

Filed July 7, 1969, Ser. No. 839,163
Int. Cl. H04b 1/16; H03j 5/02; H01c 5/00

U.S. Cl. 325—464

1 Claim



A television tuner arrangement is disclosed including a wide band signal selecting circuit having a solid state voltage variable capacitance selectively controllable in accordance with the level of applied voltage and a channel selector control for controlling the voltage levels applied thereto. The control illustrated herein includes a selector, actuatable to a plurality of channel selection settings, a cylindrical shaped structure providing an external surface of conductive material, and a plurality of voltage taps radially disposed about the surface of the cylindrical structure and mounted for individual movement along the conductive material. A tuning voltage bus is connected to the wide band circuit and is selectively connectable to each of the taps. The cylindrically shaped structure and taps are mounted for rotation about the axis of the structure and ganged to the selector so that a separate tap is connected to the bus for each channel selection setting.

3,601,704 ARRANGEMENT FOR GENERATING THE COMPLEMENT OF A NUMBER

Manfred Seltzer, Bad-Soden, Taunus, Germany, assignor to Eichner Organisation GmbH, Frankfurt am Main, Germany

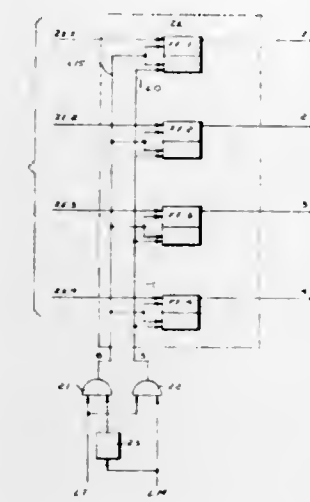
Filed July 22, 1968, Ser. No. 746,400
Claims priority, application Germany, Aug. 17, 1967, P 15 49 408.3

Int. Cl. H03k 21/06

4 Claims

In a computing system having a number of flip-flops and output lines connected to only one side of these flip-flops the complement of a number is generated by first resetting all flip-flops, then entering the number whose complement is to be found into said flip-flops, and subsequently switching each of said flip-flops to the opposite stable state, the signals thus

appearing on the output lines constituting the 1's complement of the number set into the flip-flops. If four flip-flops



are used to constitute a decade digit, and the number is entered in an excess 3 code, then the output lines will carry the 9's complement of the number.

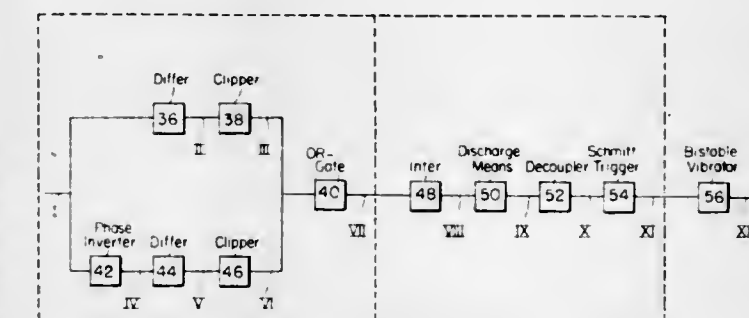
3,601,705 FREQUENCY MULTIPLICATION AND DISPLACEMENT

Reimar Germann, and Kurt Wiederwohl, both of Graz, Austria, assignors to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 626,755, Mar. 29, 1967, Pat. No. 3,471,763
Filed Apr. 2, 1969, Ser. No. 842,038
Int. Cl. H03k 5/159

U.S. Cl. 328—55

3 Claims



A circuit for displacing a signal 90° comprising a frequency doubler wherein an input square wave is differentiated and clipped. The frequency doubler also inverts the square wave, differentiates the inverted square wave and clips the differentiated inverted square wave. The two clipped signals are then added to provide a signal having a frequency twice that of the input square wave. This signal is applied to a sawtooth generator which provides an output signal to actuate a Schmitt trigger. The Schmitt trigger generates a square wave having a frequency twice that of the input square wave for actuating a bistable vibrator. The output of the bistable vibrator is a square wave displaced 90° from the input square wave.

3,601,706 PULSE INTERVAL DECODER

Frederick H. Battle, Jr., and Edward Savage, both of Dix Hills, N.Y., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

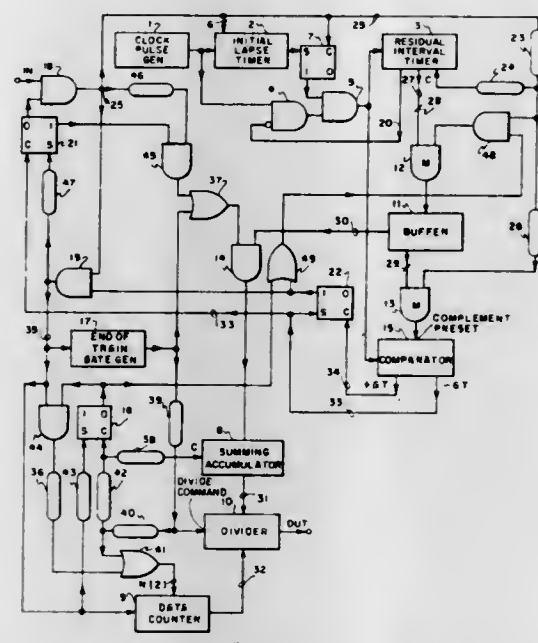
Filed Mar. 2, 1970, Ser. No. 15,394
Int. Cl. H03k 13/00; G01s 1/44

U.S. Cl. 328—119

6 Claims

A system for determining the average length of intervals between pulses in a finite train, including a pulse counter,

two alternately operating interval timing devices, an arithmetic divider, and storage and logic circuits. An inter-



val-adaptive track gate arrangement provides discrimination against spurious pulse intervals.

3,601,707

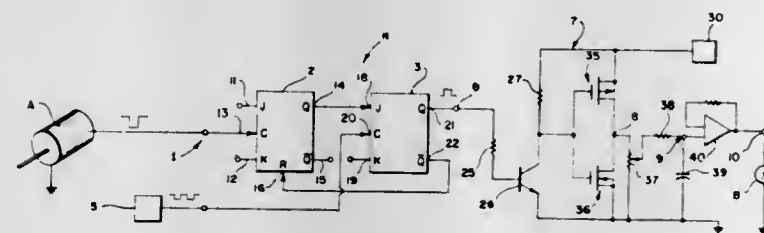
FREQUENCY TO DIRECT CURRENT CONVERTER
Douglas M. Bauer, Danvers, Mass., assignor to General Electric Company

Filed Aug. 21, 1969, Ser. No. 852,041

Int. Cl. H03k 5/20, 9/06

U.S. Cl. 328—141

7 Claims



3,601,708

FREQUENCY INDEPENDENT CONSTANT PHASE SHIFT SYSTEM

Samuel Stempler, Brooklyn; Carl A. Listl, New Hyde Park, and Eugene L. Boronow, Jamaica, all of N.Y., assignors to Kollsman Instrument Corporation, Syosset, N.Y.

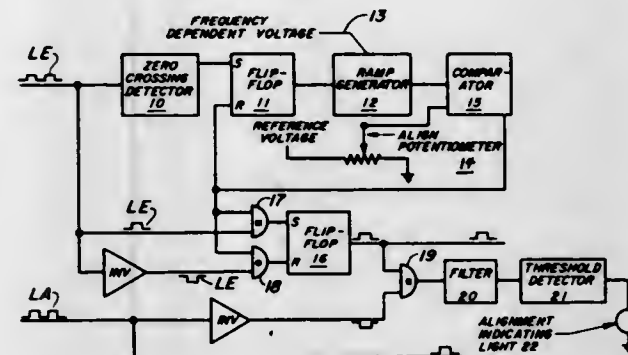
Filed Feb. 16, 1970, Ser. No. 11,387

Int. Cl. H03b 3/04

U.S. Cl. 328—155

4 Claims

The system provides phase alignment of a pair of frequency variable symmetrical pulsations of repetitive waveform having the same instantaneous frequency. Facility is described and illustrated for comparing the relative phase of



a broad range and once the phase shift is set, the set remains constant and independent of changes in the frequency of the wave trains.

3,601,709

A PULSE TRAIN REGENERATION SYSTEM
Vladimir Nikolaevich Dyachkov, ulitsa Stendera 1, kv. 1; Zhanna Nikolaevna Lupaschenko, ulitsa Berznieki-Upisha, 10, kv. 8, and Ljubov Petrovna Pyatkina, ulitsa Lenina, 236, kv. 36, all of Riga, U.S.S.R.

Filed Aug. 2, 1968, Ser. No. 749,851

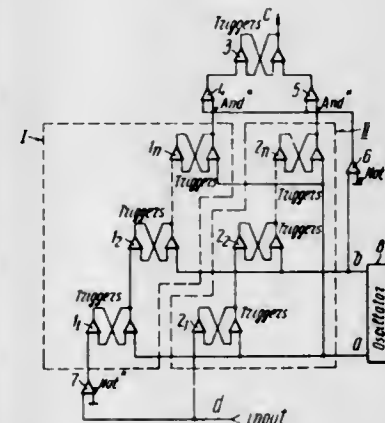
Claims priority, application U.S.S.R., Aug. 9, 1967,

1,177,905

Int. Cl. H03k 5/00; H03b 1/04; H04b 1/10

U.S. Cl. 328—164

3 Claims



A pulse train regeneration system for regenerating a control pulse train, including at least two shift registers. Each of the shift registers is provided with at least a last stage, the last stage including flip-flops, an inverter, two coincidence circuits, each of the coincidence circuits being provided with at least two inputs, one input of each of the two inputs being connected to the output of a respective one of the shift registers, a train of the first of said two inputs timing pulse supplied to the input of the last stage and being supplied through the inverter to the first input of said two coincidence circuits timing pulse, the second timing pulse being time delayed with respect to the timing pulse train of the first inputs and being supplied to the other two inputs of the coincidence circuits, the control pulse train being supplied to the last stage and an output flip-flop having at least two inputs, each of the two inputs of the output flip-flop being connected to the output of a respective one of the two coincidence circuits.

3,601,710

DIGITAL DETECTOR FOR BINARY FSK SIGNALING

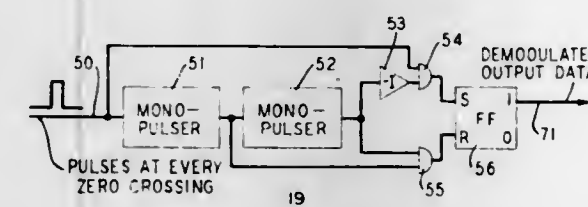
Michael A. Morra, Freehold, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Aug. 22, 1969, Ser. No. 852,309

Int. Cl. H03k 9/00

U.S. Cl. 329—104

6 Claims



A digital detector for a synchronous, low bit-rate signaling systems comprises monostable timing devices and logic components to replace the low-pass filter and slicer circuits of the conventional zero-crossing detector. The detection scheme is dependent upon a comparison of zero-crossing intervals and an optimum threshold interval chosen to minimize synchronous distortion. The maximum theoretical bit rate is equal to the sum of the mark and space frequencies, corresponding to 50 percent peak synchronous distortion.

3,601,711

MULTIPLE-CONTROLLER SYSTEM WITH IMPROVED AUTOMATIC-TO-MANUAL TRANSFER MEANS

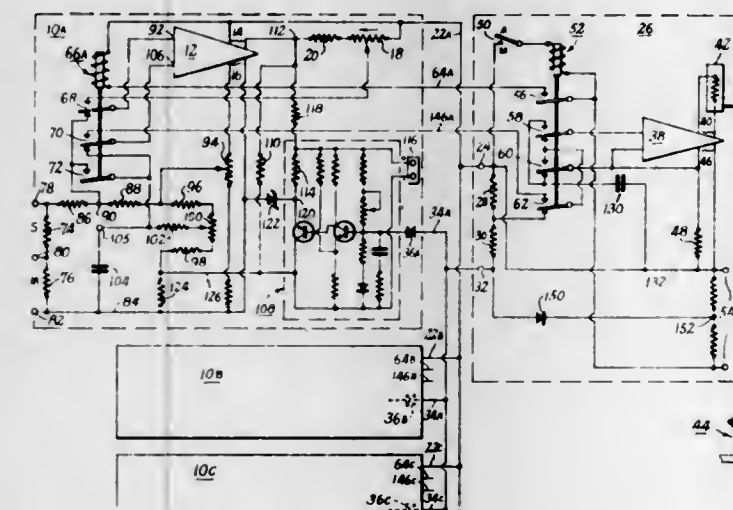
David A. Richardson, Sheldonville, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed Apr. 12, 1967, Ser. No. 630,321

Int. Cl. H03f 1/00

U.S. Cl. 330—1 A

10 Claims



Industrial process control system wherein a plurality of individual electronic process controllers are provided responsive to respective process variables to produce corresponding output signals the largest one of which is automatically selected by a valve control station so as to determine the positioning of a process valve, the system including transfer means for switching from automatic operation to manual operation or vice versa without requiring any precedent balancing step and without upsetting the process.

3,601,712

SOURCE FOLLOWER

Shmuel Elazar, Camarillo, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Continuation of application Ser. No. 387,059, Aug. 3, 1964, now abandoned. This application Dec. 17, 1968, Ser. No. 812,500

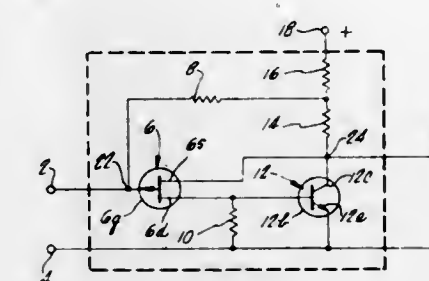
Int. Cl. H03f 3/04

U.S. Cl. 330—24

10 Claims

An impedance-matching circuit utilizing a field-effect transistor connected to a solid-state amplifying device. A re-

sistive feedback path is provided from the output of the amplifying device to the input of the field-effect transistor and its value, together with the value of the biasing resistors, are chosen such that the input impedance to the circuit is deter-



mined almost entirely by the input impedance of the field-effect transistor. The value of these resistors are also selected such that the gain of the circuit is held at a value of slightly less than 1.0.

3,601,713

SHAPED BULK NEGATIVE-RESISTANCE DEVICE OSCILLATORS AND AMPLIFIERS

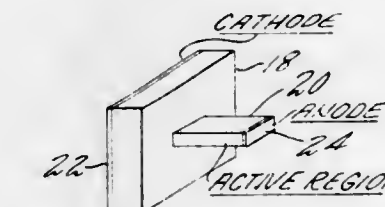
Peter R. Solomon, West Hartford; Melvin P. Shaw, West Hartford, and Harold L. Grubin, Bloomfield, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 6, 1969, Ser. No. 797,055

Int. Cl. H03b 7/14

U.S. Cl. 331—107 G

13 Claims



A class of active solid state oscillators and amplifiers in which an active working substance, typically a semiconductor such as gallium arsenide, is connected between two low-resistance contacts. The working substance is shaped or sculptured in a manner to alter the electric field distribution in the working substance and to maintain the active region of the device away from the controlling electric fields of the contacts.

3,601,714

UNIJUNCTION RELAXATION OSCILLATOR PROVIDING LINEAR POTENTIAL TO FREQUENCY CONVERSION

Conrad P. Vespie, Brookville, and Elgin J. Karklins, Kettering, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 11, 1970, Ser. No. 10,517

Int. Cl. H03k 3/26

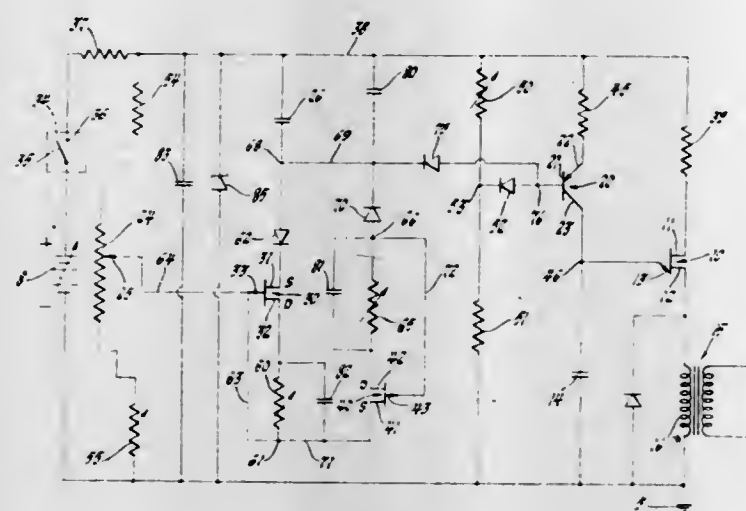
U.S. Cl. 331—111

5 Claims

A potential controlled oscillator having an output frequency proportional to the magnitude of an applied potential. The capacitor of a unijunction transistor relaxation-type oscillator circuit is charged linearly from a direct current potential source through a transistor connected in a constant current circuit configuration. The potential applied across the base-emitter electrodes of the transistor is determined by the magnitude of the charge on a control capacitor which is charged from the direct current potential source through a potentiometer which determines the magnitude of the charge. So

that the oscillator frequency varies linearly with a change of potentiometer setting, the capacitor charging and discharging

opposite ends of said first and second coupling segments so that a pulse travelling thru said main line segment or said first



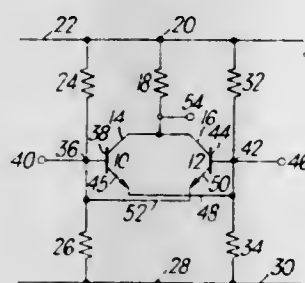
circuits include separate field effect transistor constant current circuits.

3,601,715 TRANSFORMERLESS DOUBLE-BALANCED MODULATOR APPARATUS

Bruce G. Pringle, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Oct. 30, 1969, Ser. No. 872,483
Int. Cl. H03c 1/42
U.S. Cl. 332-31 T

4 Claims



A transformerless double-balanced modulator circuit using two transistors having a common collector load with electrical interconnections between the electrodes of the two transistors, a carrier voltage being, in use, applied to the base electrode of one of said transistors and an information signal voltage being applied, in use, to the base electrode of the other of said transistors, a modulated output being obtained at the common collector load. If desired, a transistor driver stage may be provided for each of said two transistors.

3,601,716 STRIPLINE DIRECTIONAL COUPLING DEVICE

Murray H. Bolt, Raleigh, N.C.; Howard H. Nick, Potomac, Md., and Edward C. Uberbacher, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 24, 1969, Ser. No. 887,964
Int. Cl. H01p 3/08, 5/14
U.S. Cl. 333-10

A segment of a main transmission line is located equidistant between and parallel to a first and second coupling segment. The first coupling segment has an input terminal at one end thereof for connection to a stub line. The second coupling element has a terminating impedance located at the end thereof opposite said input terminal end of said first coupling segment. A conductor connects the other

coupling segment in a direction away from said input terminal end of said first coupling segment will couple to the other travelling in the reverse direction.

3,601,717 SYSTEM FOR AUTOMATICALLY MATCHING A RADIO FREQUENCY POWER OUTPUT CIRCUIT TO A LOAD

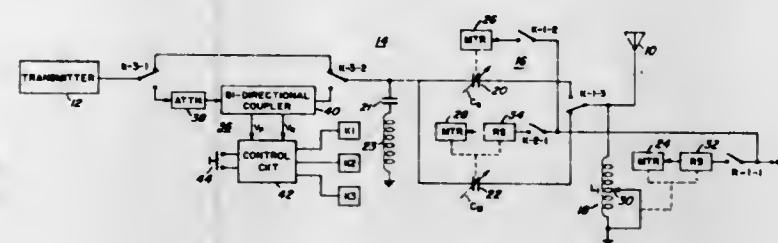
John A. Kuecken, Pittsford, N.Y., assignor to General Dynamics Corporation

Filed Nov. 20, 1969, Ser. No. 878,507

Int. Cl. H03h 7/40

U.S. Cl. 333-17

16 Claims



An automatic antenna coupler is described which uses a variable inductor and a pair of variable capacitors which are alternately switched into the network; the first while tuning the inductor, and the second after the inductor is tuned. While the inductor is tuned the first capacitor is swept through its range of values so that its capacitance changes at a rate much greater than the change in inductance. A control system responsive to the ratio of forward to reverse line voltage detected by a directional coupler stops the tuning process.

3,601,718 VOLTAGE-CONTROLLED ATTENUATOR AND BALANCED MIXER

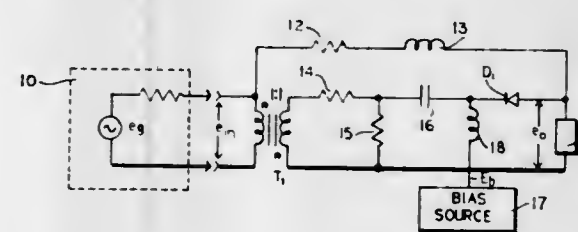
Robert F. Arnesen, 4 Mansfield Lane, Camarillo, Calif.

Filed May 12, 1969, Ser. No. 823,820

Int. Cl. H03h 7/24

U.S. Cl. 333-81 R

11 Claims



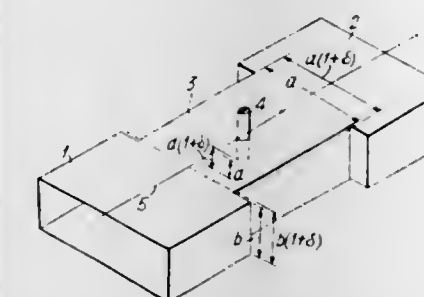
A voltage-controlled attenuator is disclosed for signal gain control, modulation and switching, using an inverting transformer coupled to a load through a voltage-dividing network and a diode so forward biased that it attenuates the incoming signal by combining the effects of variable voltage division and signal cancellation. In one embodiment, the diode attenuates the inverted signal sufficiently to cancel a desired amount of the input signal connected to the load from the transformer primary by a resistor and a phase-compensating network if necessary. In another embodiment, the uninverted signal is attenuated and the inverted signal is controlled in amplitude by signal cancellation.

3,601,719 TEMPERATURE-COMPENSATED WAVEGUIDE RESONATOR

Kenneth George Hodgson, Loughton; George Frederick Craven, Harlow, and Raymond Richard Thomas, Harlow, all of, England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 9, 1969, Ser. No. 865,110
Int. Cl. H01p 7/06; H03n 13/00; H01p 1/30
U.S. Cl. 333-82 BT

2 Claims



An evanescent H-mode rectangular waveguide resonator having a tuning screw mounted on one broad wall is temperature compensated by having said screw physically penetrate close to the opposite broad wall of said waveguide. Said penetration provides significant end-loading capacitance. In one preferred embodiment, said screw is offset from the longitudinal centerline of said waveguide to achieve both the required tuning capacitance and the required penetration. In another preferred embodiment, to further improve temperature compensation, a silver-plated Swedish iron screw having a lower coefficient of expansion than the material of the waveguide, (i.e., copper) penetrates close to the opposite broad wall.

3,601,720 HELICAL WAVEGUIDE WITH VARIED WALL IMPEDANCE ZONES

Tsunao Nakahara, and Masao Hoshikawa, both of Nishinomiya, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Aug. 13, 1968, Ser. No. 752,271

Claims priority, application Japan, Aug. 16, 1967, 42/52543

Int. Cl. H01p 3/12, 1/16

U.S. Cl. 333-95

9 Claims



Manufacturing methods of the helical waveguide that the wall impedance of the wall structure of the waveguide is alternated discontinuously or continuously in the direction of the axis of the helix by means that jacket or tape of insulating or lossy material having diverse dielectric constants, or roving of lossy material is located on the helix of the waveguide to make the wall structure having the alternated wall impedance and their products.

3,601,721 LOW LOSS COAXIAL CONDUCTOR USING OVERLAPPED AND INSULATED HELICAL WOUND STRIPS

Raymond Justice, Palos Park, Ill., assignor to Justice Associates, Incorporated

Filed Feb. 14, 1969, Ser. No. 799,393

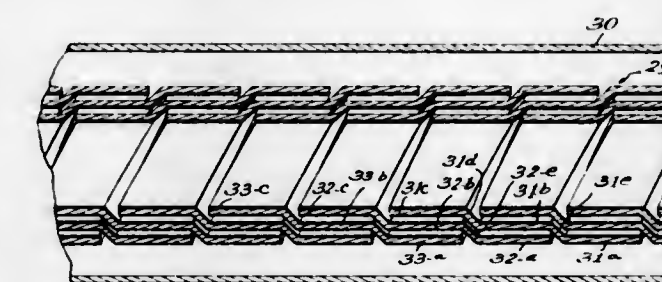
Int. Cl. H01p 3/06, 7/04; H01b 7/26

U.S. Cl. 333-96

9 Claims

A low loss transposed high frequency conductor comprising an overlapped spiral web. The web is continuous, thin

and flat and is formed into n layers by overlapping adjacent turns by the fraction $(n-1)/n$. Each layer is insulated from adjacent layers. The conductor can be utilized as the inner



conductor of a coaxial cable, the outer conductor of a coaxial cable, a tuning member in a coaxial cavity or as an inductor.

3,601,722 TUNING ARRANGEMENT FOR STORABLE STATION SELECTION IN TELEVISION RECEIVERS

Helmut Rolf, Nurnberg, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

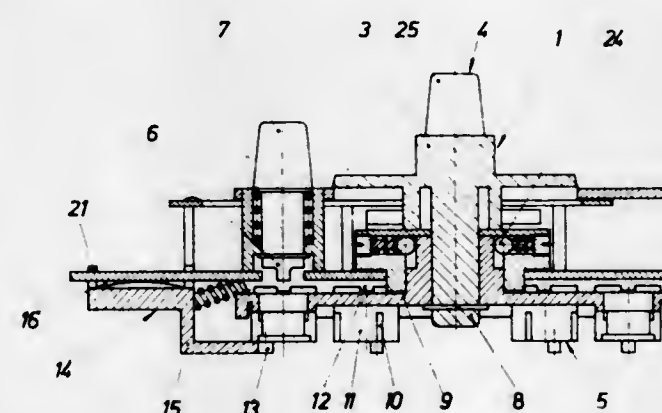
Filed Apr. 4, 1969, Ser. No. 813,454

Claims priority, application Germany, May 4, 1968, P 17 66

Int. Cl. H03j 5/04, 5/08

U.S. Cl. 334-7

5 Claims



A tuning arrangement for television receivers including a support, a rotary selector having predetermined fixed positions into which said selector may be set mounted on said support, a first tuning button having a beveled gear at one end thereof mounted on said selector, a plurality of stationary potentiometers mounted concentrically with said selector, one being opposite each of said fixed positions and each having a gear associated therewith for engagement with, and adjustment by said button, said button being movable into and out of engagement with the potentiometers, and a second tuning button, having a screwdriver end, mounted on said support, a plurality of rotatable cams controlling the position of a range selector switch, said cams mounted concentrically with said selector, one being opposite each of said fixed positions and being associated with one of said stationary potentiometers, and each having slot means associated therewith for engagement with, and adjustment by said second button, said second button being movable into and out of engagement with said cams.

3,601,723 ELECTRONIC TUNING APPARATUS FOR MICROWAVE CIRCUITS

Albert Henry Johnson, Christchurch, England, assignor to National Research Development Corporation, London, England

Filed Oct. 7, 1969, Ser. No. 864,498

Claims priority, application Great Britain, Oct. 8, 1968, 47,655/68

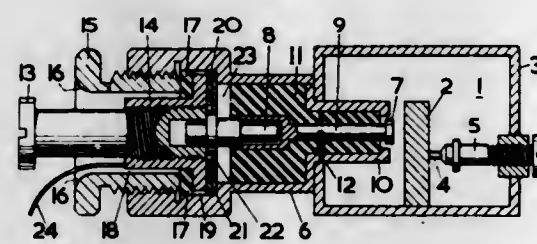
Int. Cl. H03j 3/06

U.S. Cl. 334-15

6 Claims

Tuning apparatus for a resonant cavity comprises a varactor diode capacitively coupled into the cavity by means of a

half-wavelength of, or n half-wavelengths of, a transmission line, and a return path for the varactor current is provided by an inductive member connected a quarter-wavelength from



one end of the line. Bias current supply leads, with a bypass capacitor connected across them, are connected either in series with the varactor diode or in series with the inductive member. The inductive member may be a spiral wire.

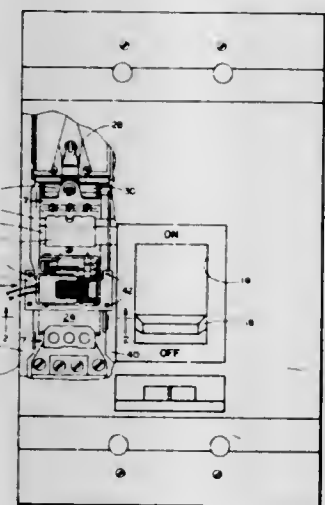
3,601,724

ELECTRIC CIRCUIT BREAKER HAVING REMOTELY OPERABLE CONTACT ARM CARRIER LATCHING MEANS

Robert E. Dietz, and Beryl W. Layton, both of Cedar Rapids, Iowa, assignors to Square D Company, Park Ridge, Ill.
Filed Nov. 18, 1969, Ser. No. 877,668
Int. Cl. H01h 77/00

U.S. Cl. 335—8

4 Claims



Latching means for holding the movable contact arm carriers of a multipole molded-case electric circuit breaker in an open or OFF position while the operating handle is held in an ON position. The latching means is electrically operable from a remote point to release the contact arm carriers and allow them to move to ON position toward which they are biased by a spring of a toggle mechanism when the operating handle is in ON position.

3,601,725

STEPPING SWITCH

Fritz Hartmann, 852 Im Henschlaze, Erlangen-Sieglitzhof, Germany

Filed July 28, 1969, Ser. No. 845,469
Claims priority, application Germany, July 30, 1968, P 17 75 334.3

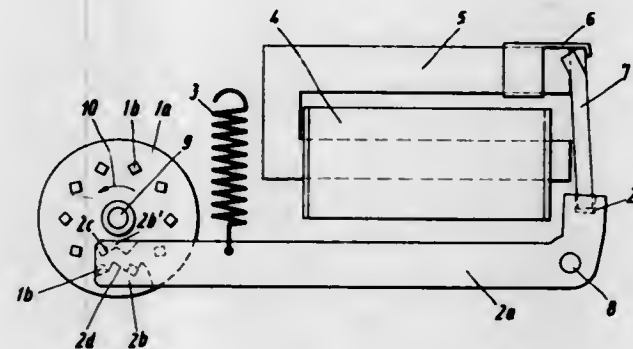
Int. Cl. H01h 51/08

U.S. Cl. 335—140

9 Claims

A stepping switch comprising a driving part including a magnet, an armature and a lever supported at one end and having oppositely disposed claws at its free end that is movable transversely of a driven part that presents pins, which are

engaged by wedged flanks of said claws which have smooth sliding surfaces that snugly engage the smooth sliding surfaces of the pins to advance the driven part while the wear on the sliding surfaces is so negligible as to permit the use of plastic components.



3,601,726

MODIFIED TOGGLE ASSEMBLY FOR CIRCUIT BREAKERS

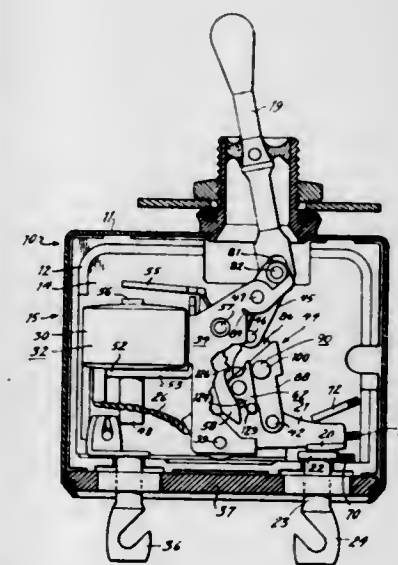
Ronald Nicol, Trenton, N.J., assignor to Heinemann Electric Company, Trenton, N.J.

Filed Mar. 4, 1970, Ser. No. 16,526

Int. Cl. H01h 9/20

U.S. Cl. 335—167

4 Claims



An electromagnetic circuit breaker for opening a set of contacts upon the occurrence of predetermined conditions, having an automatically resettable linkage mechanism. The linkage mechanism includes a toggle assembly having a latch which is biased to the latching position and whose movement to the latching position is stopped by the pin which connects the two links of the toggle assembly to each other.

3,601,727

MAGNETIC SNAP ACTION SWITCH

Harold W. Hults, New Berlin, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Mar. 9, 1970, Ser. No. 17,629

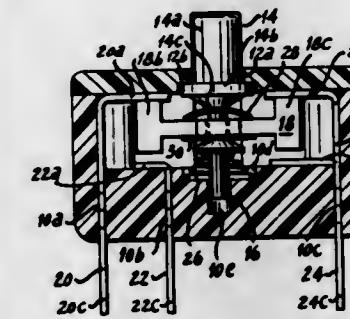
Int. Cl. H01h 5/02, 5/30

U.S. Cl. 335—205

5 Claims

A combination spring and magnetic snap action switch of the momentary type. It employs spaced-apart pairs of stationary contacts and a movable contactor which are formed of magnetic materials. A spring-biased reciprocally movable

plunger carrying convexly curved spring washers on opposite sides of the contactor acts upon movement of the plunger in



opposite direction to move the contactor with snap action between the spaced-apart pairs of stationary contacts.

3,601,728

PRINTED CIRCUIT KEY IMPROVEMENT

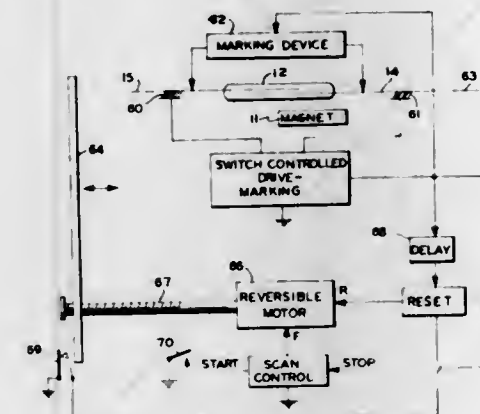
John Paul Jones, Jr., Wayne, and Peter A. Peroni, Pottstown, both of, Pa., assignors to Navcor, Inc., Norristown, Pa.

Filed Oct. 3, 1969, Ser. No. 863,496

Int. Cl. H01h 11/00, 45/02

U.S. Cl. 335—205

9 Claims



Magnetic reed switches have their operation strokes standardized by locating the reeds in variable positions relative to a magnet affixed in a movable structure depending upon their individual switching characteristics. Switching structure disclosed includes both a movable magnet holder and a reed holder for referencing the stroke position. Also disclosed is an automatic system for referencing reed switches out of a variable batch for identical operating conditions.

3,601,729

SWITCH ASSEMBLY

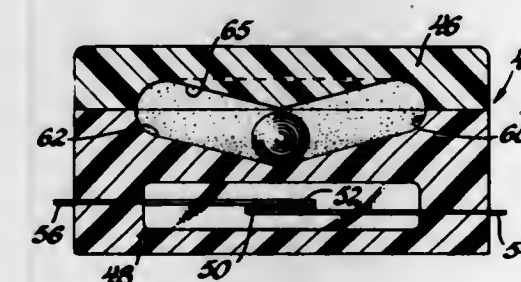
Lars J. Hierta, Westland, Mich., assignor to Western Sales Corp., Southfield, Mich.

Filed Nov. 3, 1969, Ser. No. 873,535

Int. Cl. H01h 36/00

U.S. Cl. 335—205

10 Claims



A switch assembly for use in an environment requiring automatic switch operation under certain conditions, as when

the switch assembly, or the body on which the switch is mounted, is tilted or changed in position beyond a predetermined amount. The assembly includes a housing in which is mounted the switch, preferably of the normally open type. A cavity is formed in the housing and has a point adjacent but spaced from the switch contact elements. Actuating means are disposed in the housing cavity and in one modification includes a magnetic member that moves away from the close adjacency to the switch contact elements when the housing is tilted beyond a predetermined amount. Thus, the switch opens until the magnetic member returns to its adjacent position, as when the housing is righted. In another modification, a magnetic member is fixed in the housing and magnetic-flux-deflecting means are pivotally mounted in the housing and in the cavity. As the housing is tilted, the deflecting means pivots into position between the magnetic member and the switch, thus deflecting the magnetic flux field. The magnetic attraction is removed and the switch opens. When the housing is righted, magnetic flux is again established to the switch to close the switch contacts.

3,601,730

MAGNETIC-DETENTING CONTROL

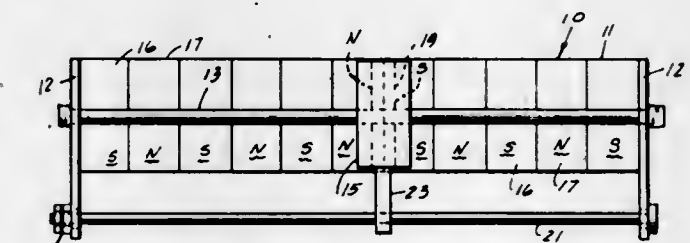
Jack C. Cookerly, 7655 Atoll Ave., North Hollywood, Calif., and George Robert Hall, 13613 Huston St., Sherman Oaks, Calif.

Continuation-in-part of application Ser. No. 662,628, Aug. 23, 1967. This application Mar. 3, 1970, Ser. No. 16,107

Int. Cl. H01f 7/02

U.S. Cl. 335—306

10 Claims



Magnetic-detenting control for resistance strip, switches, valves or other devices in which it is required that the control be in increments and that there be a pause at each increment. The positions of the control are indexed by a series of magnets mounted on a base and alternately arranged in opposite polarity. A manually operable slider is guided for movement along the magnets and forms a support for a detenting magnet. The detenting magnet is arranged with its magnetic field flowing in the direction of movement of the slider. As the detenting magnet is moved along the series of stationary magnets, a dwell occurs as opposite poles come into registry with each other. The points at which the detent actions or swells take place can thus be relatively closely spaced and calibrated. The position of the slider can readily be determined visually, and the detent actions can be determined by feel.

3,601,731

COIL FORM FOR A MAGNETIC DEFLECTION YORK
William R. Christiana, Saugerties, and Joseph F. Hevesi, Hurley, both of, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 30, 1970, Ser. No. 7,275

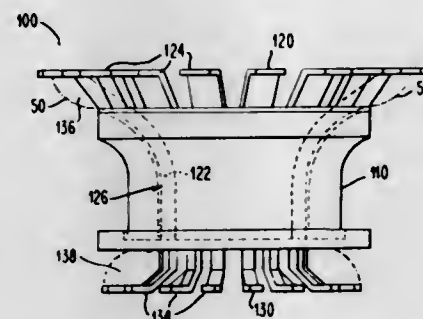
Int. Cl. H01f 7/00

U.S. Cl. 335—210

9 Claims

A magnetic deflection yoke has internal longitudinal slots and two end caps. Each of the end caps has hook members to allow a deflection yoke to be wound with each wire in each

coil being precisely positioned to reduce deflection distortion. The core may be cylindrical or tapered in shape. A flat-



tened trumpet-shaped wire feeder is used for feeding wire under tension between the end caps and hooking the wire behind them.

3,601,732

LINEAR VARIABLE ELECTRICAL TRANSDUCER

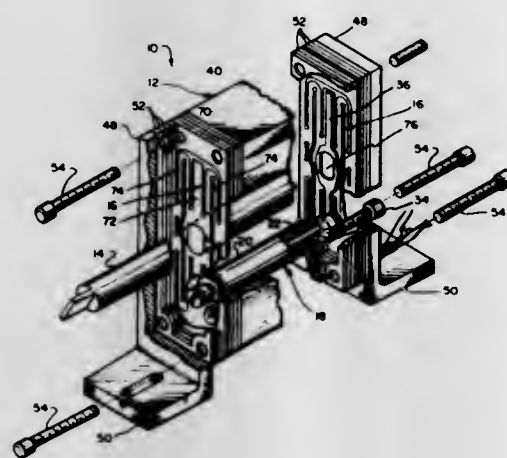
Ronald L. Samuels, Palos Verdes Peninsula, and Josef E. Friedrichs, Pacific Palisades, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Sept. 29, 1969, Ser. No. 861,819

Int. Cl. H01f 21/06

U.S. Cl. 336—30

13 Claims



A linear variable electrical transducer characterized by high accuracy and sensitivity, compact size, relatively long stroke, very low breakaway friction, and rugged damage and clog resistant construction. The transducer has a housing containing a flexure-supported coupling shaft and an electrical sensor laterally displaced from and operatively connected to the shaft for producing an electrical signal representing the position of the shaft relative to the housing. The flexure supports provide stiff radial positioning of the coupling shaft while requiring very low force for axial movement and no breakaway resistance of the shaft. The sensor is isolated from all external loads applied to the coupling shaft, thus permitting the use of a relatively fragile miniature sensor to substantially reduce the overall size and weight of the transducer. A novel flexure configuration for the transducer characterized by a high aspect ratio.

3,601,733

AIRCRAFT CONTROL WHEEL FORCE SENSOR

Edward Kazmarek, Reseda, Calif., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Sept. 17, 1969, Ser. No. 858,807

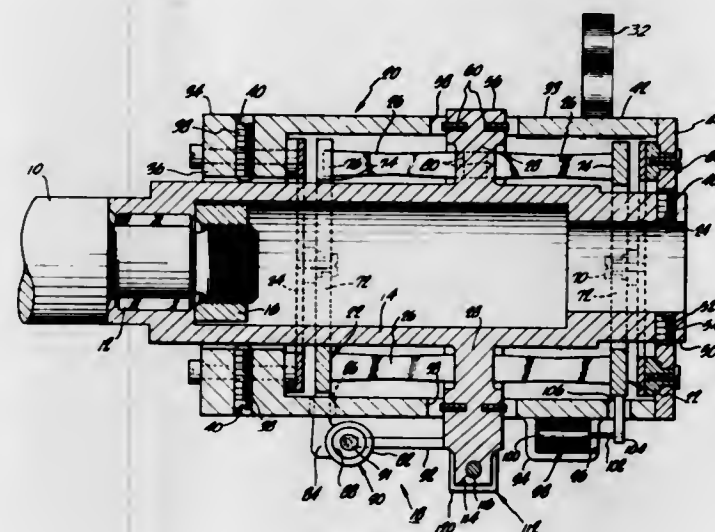
Int. Cl. H01f 21/02

U.S. Cl. 336—30

18 Claims

A control wheel force sensor has an inner member, an outer member and a middle member disposed in alignment along a reference axis. A spring that is flexible in a rotational direction about the reference axis and rigid in a translation direction parallel to the reference axis couples the middle

member to one of the other members, a cylindrical bellows aligned with the axis couples the middle member to the remaining member. The bellows is flexible in a translational direction parallel to the reference axis and rigid in a rota-



tional direction about the reference axis. The bellows supports the remaining member in spaced relationship from the middle member, and the other spring supports the middle member in spaced relationship from the one member.

3,601,734

HIGH Q TUNABLE IF TRANSFORMER COIL ASSEMBLY

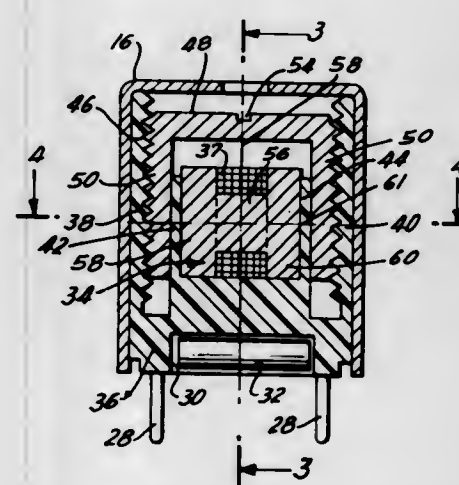
John Chesney, Roselle Park, N.J., assignor to General Instrument Corporation, Newark, N.J.

Filed Aug. 13, 1969, Ser. No. 849,629

Int. Cl. H01f 21/06

U.S. Cl. 336—83

1 Claim



In a conventional tunable transformer coil assembly a coil is wound on a core, and a magnetic tuning cup is movable relative to the core along an axis parallel to the axis of the core to vary the inductance of the transformer. In the present invention, the axis along which the cup moves is substantially at right angles to the axis of the core. This construction provides a coil having a higher value of Q.

3,601,735

EMBEDMENT-TYPE COIL ASSEMBLY

Lucian Bercovici, Wilbraham, Mass., assignor to General Instrument Corporation, Newark, N.J.

Filed July 15, 1970, Ser. No. 55,151

Int. Cl. H01f 15/02, 27/30

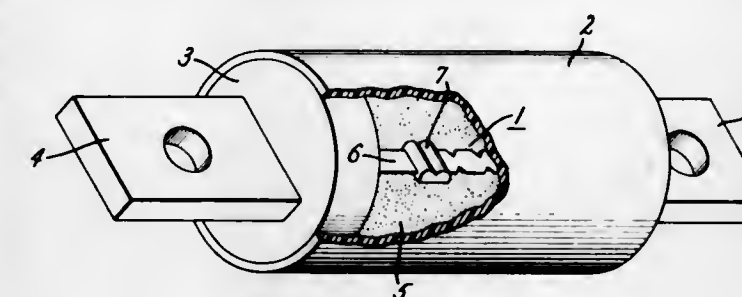
U.S. Cl. 336—96

18 Claims

An embedment-type transformer coil assembly is disclosed particularly suited for a transformer application, together with a novel method and coil form for embedding the primary and secondary transformer windings within a unitary embedment material. An inner elongated tubular member is

connected by means of a top panel skeletal structure to an outer shorter tubular member defining a minor molding space therebetween. The top panel skeletal structure defines spaces through which embedment material can be conducted, thereby to embed leads from the windings which extend into the minor molding space. The top panel may comprise a plurality of terminal lugs to which the leads can be

structing the arc within the structure, the chance of creation of deleterious shunt current paths is minimized. The method



disclosed encompasses flowing a still viscous room temperature vulcanized silicon rubber over a reduced portion of the fuse link to encapsulate the portion.

3,601,738

PROTECTION UNITS AND MOUNTING TOOL

Oscar Wuyts, Bevern-Wass; Herman Johan Kruse, Atwerp, and Sylvere Jules Staelens, Atwerp, all of Belgium, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 21, 1968, Ser. No. 777,716

Claims priority, application Netherlands, Nov. 27, 1967, 6,716,075

Int. Cl. H01h 85/12, 85/20, 85/48

U.S. Cl. 337—197

1 Claim

connected. In the embedding process, the form is placed in an upstanding position in an open mold cavity which is filled to its upper level with embedment material. Embedment material can then be added to the minor molding space between the tubular members, thereby to embed the leads and form a unitary embedment structure, thus providing full protection for the primary and secondary transformer windings and their associated leads.

3,601,736

TIME DELAY BIMETALLIC RELAY

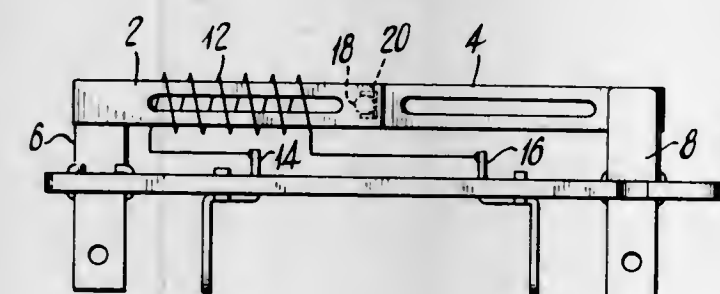
Manlio O. Sepe, Newark, N.J., assignor to Wagner Electric Corporation

Filed June 23, 1969, Ser. No. 835,564

Int. Cl. H01h 37/10, 37/52, 61/04

U.S. Cl. 337—101

3 Claims



A relay employing two slotted bimetallic blades mounted substantially parallel and overlapping at their free (un-mounted) ends with a heater element associated with one of the blades.

3,601,737

FUSE ELEMENTS FOR DC INTERRUPTION

Leslie L. Baird, Swarthmore, and Ernest H. Bogert, Media, both of Pa., assignors to General Electric Company

Filed Oct. 9, 1969, Ser. No. 865,047

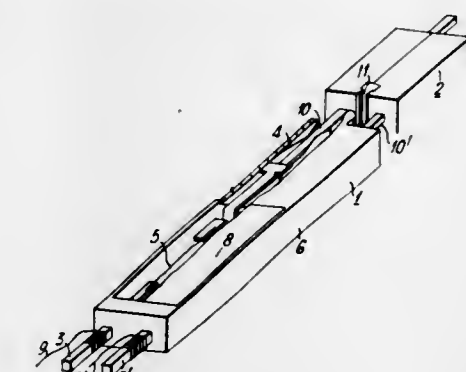
Int. Cl. H01h 85/10, 85/18, 85/38

U.S. Cl. 337—159

6 Claims

A current-limiting fuse having a silicon rubber arc constricting structure encapsulating certain portions of the link having reduced cross-sectional areas. By confining and con-

A housing to support fuse wires is provided for a miniature main distribution frame. The housing is made compatible with printed circuit card techniques. A tool is supplied to enable the mounting of fuse wires into the fuse housing.



3,601,739

INDICATING MEANS FOR FUSES

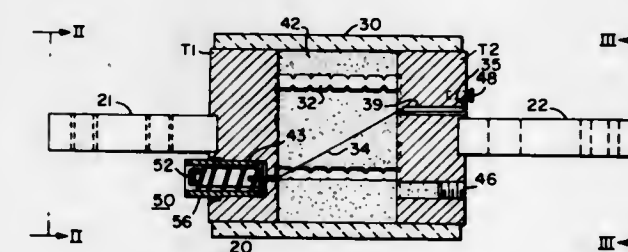
Donald D. Blewitt, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 31, 1969, Ser. No. 889,508

Int. Cl. H01h 85/30

U.S. Cl. 337—244

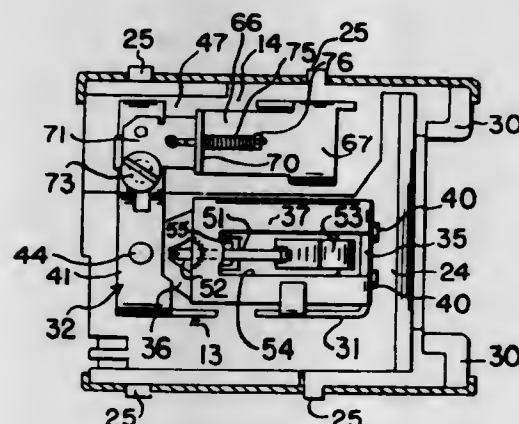
12 Claims



A fuse comprising an electrically insulating, generally tubular casing having a pair of terminal members mounted on the casing adjacent to the opposite ends of the casing and one or more fusible elements connected between the terminal members. A plunger is disposed in an axially extending

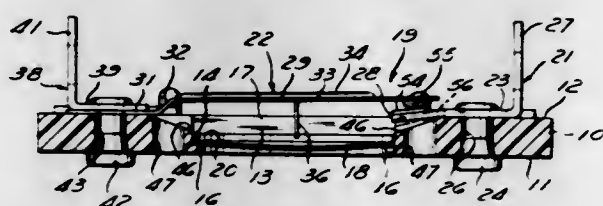
opening in one of the terminal members and is biased outwardly from the opening by an associated spring. The plunger is normally restrained from movement under the influence of the spring by a restraining wire or high resistance fusible element which is connected between the plunger and the other terminal member of the fuse.

3,601,740
TWO-STAGE THERMOSTATIC SWITCH MECHANISM
Gunter H. Fildebrandt, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio
Filed Jan. 29, 1970, Ser. No. 6,911
Int. Cl. H01h 37/18, 37/38, 37/60
U.S. Cl. 337-311 2 Claims



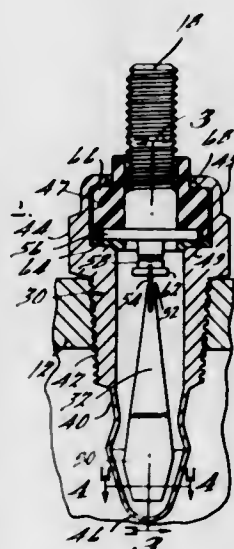
A two-stage thermostatically operated switching mechanism has two toggle switches supported on different levels of an insulator support. The switches have a common terminal member for fixed contacts and movable contacts of the respective switches are operated by overcenter spring mechanisms actuated by a common lever connected with an expansible power element. The overcenter operating mechanism of one switch has an elongated tension spring which is connected with a movable control arm and is caused to shift from one side to the other of dead center by the common lever. The pivot for the contact arm is shiftable towards and from the actuating lever by a screw adjustment.

3,601,741
THERMOSTAT
Ronald L. Holden, Mansfield, Ohio, assignor to Therm-O-Disc, Incorporated, Mansfield, Ohio
Filed Aug. 21, 1969, Ser. No. 851,966
Int. Cl. H01h 37/04, 37/28, 37/54
U.S. Cl. 337-380 11 Claims



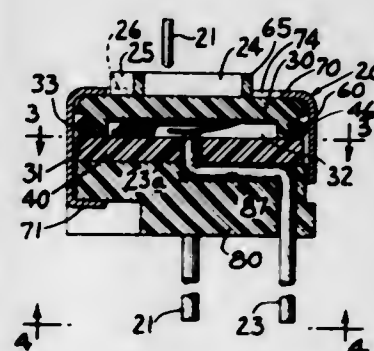
A simplified, low-cost thermostat in which the switch includes a lateral projection engageable with the center of a bimetallic snap disc. The switch retains the disc in position in the body without separate mounting means. The body is symmetrical about a lateral plane so that the switch may be assembled thereon in either of two positions and the switch elements are arranged so that the thermostat can be installed in either of two positions. Means are provided to adjust the switch pressure and operating position after assembly to compensate for variations in tolerances and to eliminate the need of selective assembly.

3,601,742
TEMPERATURE ACTUATED ELECTRICAL SWITCH
Harry I. Baker, Ann Arbor, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Sept. 2, 1969, Ser. No. 854,674
Int. Cl. H01h 37/04, 37/20, 37/52
U.S. Cl. 337-380 1 Claim



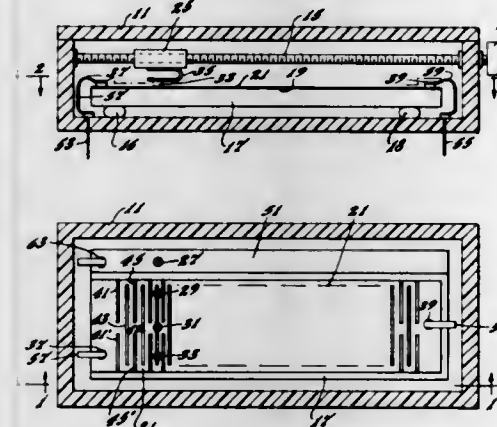
A temperature-actuated electrical switch of minimum size and dimension having a flattened conical tip portion insertable through a minimum sized opening in an engine block or container of fluid of variable temperature and featuring a tapered, reed-type electrical contact element of increased strength and stability and vibration attenuating characteristics.

3,601,743
MINIATURIZED SINGLE TURN POTENTIOMETER WITH HERMETICALLY SEALED ROTOR AND SUBSTRATE
Victor G. Mathison, Solana Beach; Robert M. Hayflick, La Jolla; Bo Gustaf Fahlstrom, San Diego, and Charles W. Yungblut, San Diego, all of Calif., assignors to Electra/Midland Corporation, Kansas City, Kans.
Filed Oct. 1, 1969, Ser. No. 862,888
Int. Cl. H01c 9/02
U.S. Cl. 338-164 10 Claims



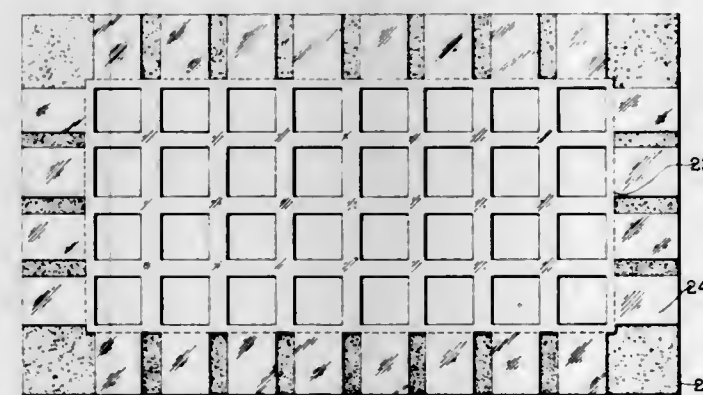
A miniaturized single turn potentiometer having a rotor and substrate and in which the rotor is of recessed configuration having peripheral contact with the substrate and hermetically sealed with respect to the latter, with a contact spring seated in the recess for wiping the resistance element. Means are included for ensuring optimum contact pressure and to facilitate assembly so that proper phasing of the wiper with respect to the lead mounting is assured. Provision is made for substitution of bases for different mounting styles with minimum change in the basic structure.

3,601,744
VARIABLE RESISTOR WITH STRAIN-REDUCING ATTACHMENT MEANS FOR THE SUBSTRATE
Felix Zandman, Philadelphia, Pa., assignor to Vishay Inter-technology Inc., Malvern, Pa.
Filed July 14, 1969, Ser. No. 841,322
Int. Cl. H01c 9/02
U.S. Cl. 338-183 4 Claims



An adjustable resistor wherein a predetermined pattern of thin metallic film is deposited upon a substrate, a thin isolating layer being interposed between the substrate and film, and a movable contact system with suitable linear or rotary mechanical drive means is arranged for movability parallel to the substrate surface on which are fixed the isolating layer and metallic film, the contact system providing connection to the metallic film at a distance from one end thereof dependent on the position of the drive means. The pattern in the metallic film compels the electric current to flow through a path of limited width and of effective length much greater than the straightline length along the midline of the pattern.

3,601,745
STANDARDIZED RESISTOR BLANK
Walter Helgeland, Nashua, N.H., assignor to Sprague Electric Company, North Adams, Mass.
Filed Dec. 24, 1969, Ser. No. 887,839
Int. Cl. H01c 7/00
U.S. Cl. 338-203 4 Claims

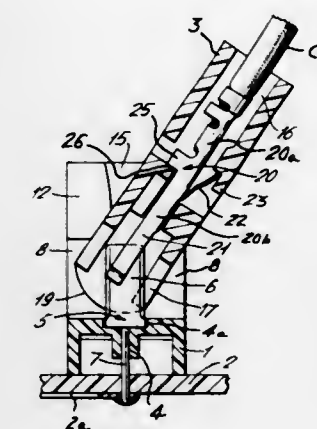


Standardized resistor blanks are machined by an electron beam which can be program controlled to form a variety of different resistor networks from the same standardized resistor blank.

3,601,746
CONNECTOR HOUSING ASSEMBLIES
Wladimiro Teagno, Turin, Italy, assignor to AMP Incorporated, Harrisburg, Pa.
Filed June 5, 1969, Ser. No. 830,732
Claims priority, application Italy, June 15, 1968, 17795A/68
Int. Cl. H01r 39/00
U.S. Cl. 339-4 R 9 Claims

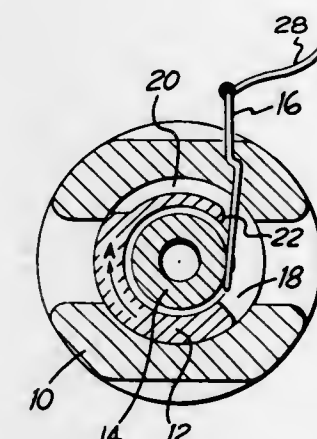
A two-part connector for making multiple connection to a printed circuit panel has one part mounted in trunnions and

with fork leaf contacts engaging tabs of the other part so that the two parts may be rotated, relatively, in the manner of a hinge to vary the cable leadout angle. The two parts may be



mated or disengaged over a wide range of relative orientation and facilitate connections to spaced boards of a stack or in low access space.

3,601,747
BRUSH BLOCK RETRACTOR AND ALIGNMENT DEVICE
Ralph J. Prall, Wayne, N.J., and Georg Olsen, Staten Island, N.Y., assignors to Singer-General Precision, Inc., Little Falls, N.J.
Filed Sept. 18, 1969, Ser. No. 859,060
Int. Cl. H01r 39/42
U.S. Cl. 339-5 6 Claims

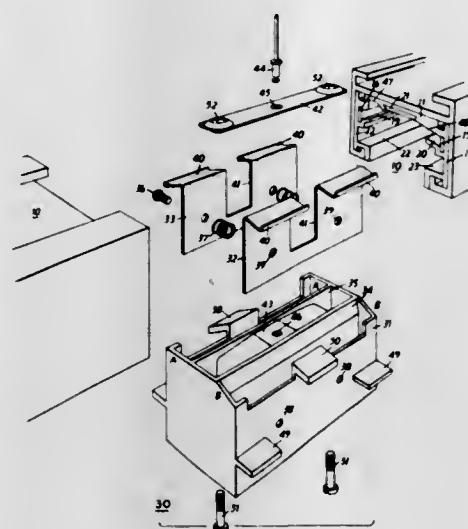


A device for retracting and aligning the brush members of a brush block assembly with respect to a slipring assembly, wherein a cylindrical member provided between the brush lock assembly and the slipring assembly has a plurality of slots for receiving the brush members, and an arcuate groove registering with each slot. The cylindrical member is rotatable with respect to the brush block assembly so that each brush member can be transferred into said groove to uniformly retract the brush members.

3,601,748
COUPLING MEMBER FOR ELECTRICAL DISTRIBUTION TRACKS
Derek James Hart, and Robert Davis, both of London, England, assignors to British Lighting Industries Limited, London, England
Filed May 26, 1969, Ser. No. 827,707
Claims priority, application Great Britain, July 22, 1968, 34941/68
Int. Cl. H01r 3/06
U.S. Cl. 339-14 R 1 Claim

A coupling member, for connecting the ends of two lengths of electricity distribution track in which exposed track conductors are mounted, has a pair of conductive con-

tact members which are resiliently mounted within a housing parallel to and insulated from one another, the coupling member being so constructed as to be capable of insertion

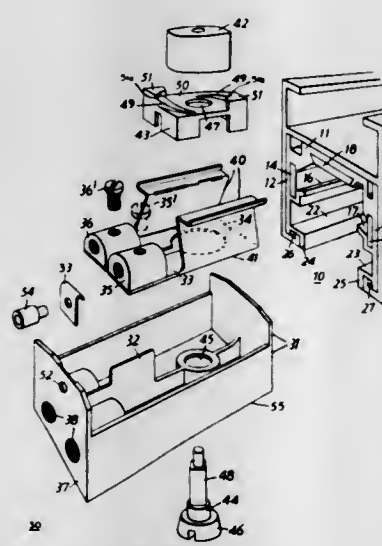


3,601,749 INPUT CONNECTOR FOR ELECTRIC DISTRIBUTION TRACKS

Derek James Hart, and Robert Davis, both of London, England, assignors to British Lighting Industries Limited, London, England

Filed May 26, 1969, Ser. No. 827,820
Claims priority, application Great Britain, July 22, 1968, 34942/68

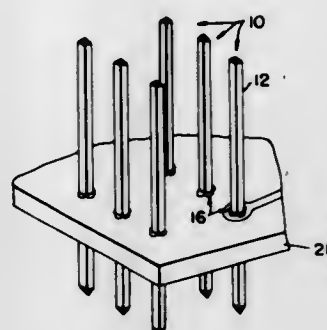
Int. Cl. H01r 3/06
U.S. Cl. 339-14 R



An input connector for connecting a distribution track to an electricity supply has a pair of movable conductor elements provided with terminals for wiring to the supply, the input connector having a cam assembly, for moving the conductor elements into a position in which the conductor elements (i) make contact with exposed track conductors housed in the distribution track and (ii) clamp the input connector to the track.

**3,601,750
CIRCUIT BOARD CONNECTOR**
Lloyd Mancini, New Cumberland, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.
Continuation-in-part of application Ser. No. 749,694, Aug. 2, 1968. This application Feb. 9, 1970, Ser. No. 9,841
Int. Cl. H01r 5/04; H05k 1/00
U.S. Cl. 339-17 C

16 Claims

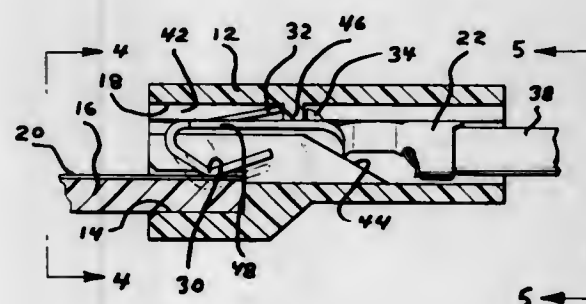


A square pin with a cylindrical ferrule fitted around the medial portion and mechanically secured to the corners of the pin forms a circuit board through connector. A plurality of passages extend the length of the ferrule between the sides of the pin and the interior of the ferrule. The connector is fitted in a hole in a circuit board with the ends of the ferrule extending to either side of the circuit board, following which the ends of the ferrule are deformed to engage the circuit board and secure the connector to the circuit board.

**3,601,751
PRINTED CIRCUIT BOARD CONNECTOR**
William Vito Pauza, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 9, 1968, Ser. No. 758,397
Int. Cl. H01r 13/50, 9/08

U.S. Cl. 339-17

2 Claims



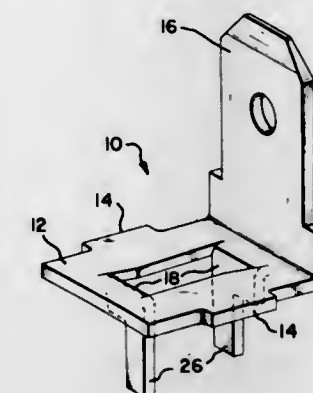
An electrical connector for a printed circuit board or the like comprising an insulating housing and a plurality of electrical contacts disposed in regularly spaced cavities in the housing. An elongated slot communicates with the cavities and receives the printed circuit board. Stabilizing means are provided in the housing cavities and on the contacts for maintaining the contacts in position within the housing.

**3,601,752
ELECTRICAL CONTACT**
William Vito Pauza, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed July 23, 1969, Ser. No. 844,020
Int. Cl. H01r 9/14
U.S. Cl. 339-17 R

3 Claims

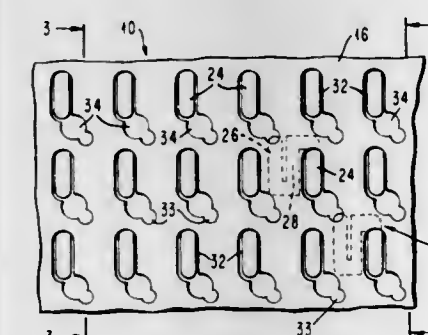
A contact is disclosed for electrically connecting conduc-

tors to printed circuit boards or the like. More specifically such connector tab is less than full width for only partially the contact has provision for staking connection to a circuit occupying a female terminal, thereby permitting an identical



**3,601,753
COAXIAL INTERFACE CONNECTOR**
Edward C. Uberbacher, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 10, 1970, Ser. No. 45,082
Int. Cl. H01r 29/00
U.S. Cl. 339-18 C

9 Claims



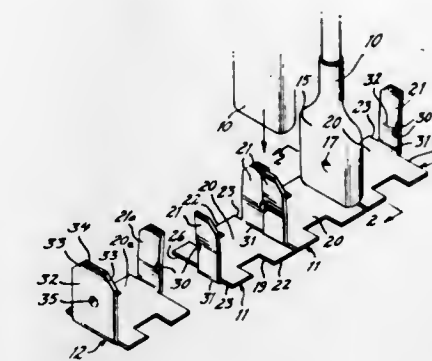
Three electrically conductive sheets are provided which are bonded together to form an electrical coaxial interface connector. The middle or signal plane sheet is made of a spring material and has formed therein a plurality of paired contact members. The outer or ground plane sheets are coated with a dielectric material. These outer sheets have openings therein which are indexed with the underlying contact element of the paired contact members. Once the three conductive sheets are bonded together, the interconnecting pads between the paired contact members are removed to provide electrical isolation. A tool is provided which consists of pins and opposed die surfaces which, when positioned with respect to the connector, provides a means by which the contact elements are bent so that they extend through the openings indexed therewith in the outer conductive sheets.

**3,601,754
ADAPTER FOR GANG CONNECTING A PLURALITY OF FEMALE ELECTRICAL TERMINALS**
John Richard Filson, Medford, N.J., assignor to Tech Connector Corporation, Westville Grove, N.J.
Filed June 8, 1970, Ser. No. 44,324
Int. Cl. H01r 31/08

U.S. Cl. 339-19

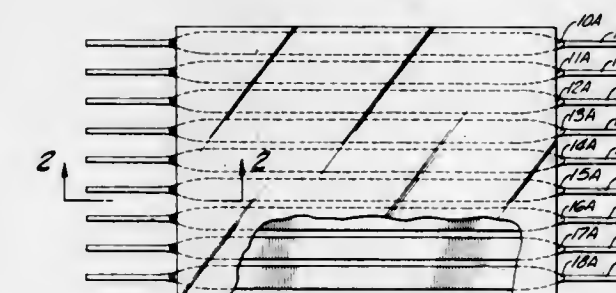
7 Claims

A gang connection adapter wherein a plate part is provided to extend between female terminals to be connected, and connector tabs extending from the plate part for insertion into respective female terminals, wherein at least one



**3,601,755
ELECTRICAL JUMPER AND METHOD OF MAKING SAME**
James F. Shiells, Jr., La Canada, Calif., assignor to Digital Sensors, Inc.
Filed Dec. 10, 1965, Ser. No. 512,965
Int. Cl. H01r 31/08
U.S. Cl. 339-19

1 Claim



In making an electrical jumper a round wire has an intermediate portion flattened by applying a rolling pressure leaving the ends of the wire in original round condition for use as terminals. Such intermediate portion is sandwiched between two sheets of insulating material which are then laminated to cover only such flattened intermediate portion. A plurality of such wires may be so sandwiched between sheets of insulating material with the planes of such flattened portions being coplanar. In the flattening operation the cross-sectional area of the flattened portion is preferably made less than the cross-sectional area of either end of the wire for enhanced flexibility.

**3,601,756
TERMINATOR CONNECTOR FOR MULTICONDUCTOR CABLE**
Robert R. Stroh, Coatesville, Pa., assignor to Burroughs Corporation, Detroit, Mich.
Filed Aug. 14, 1969, Ser. No. 850,210
Int. Cl. H01r 31/08

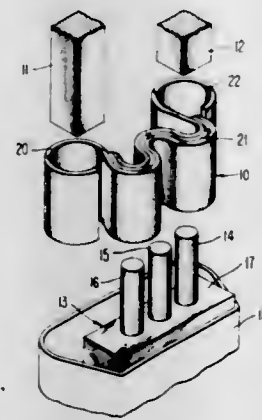
U.S. Cl. 339-19

10 Claims

A terminator connector is disclosed for use with a multiconductor cable. The connector is formed of a laminate of two layers of conductive material joined to opposite surfaces of a layer of insulating material and the laminate is provided with various types of undulations so as to be able to be inserted between the various conductors of the cable with each conductive layer being extended for connection to a terminal

lug. The connector of the present disclosure is particularly adaptable for employment with multiconductor cables where

ously in said holes. One end of the shutter is freely supported by an upwards-sloping surface terminating beyond the holes, and the other end is spring loaded to maintain the shutter pressed against the underside of the holes and in engagement

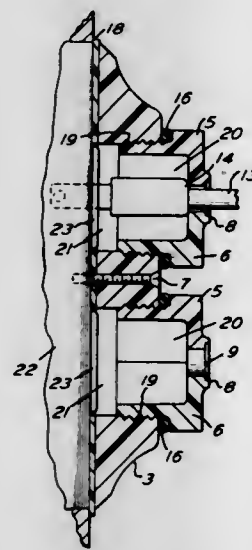


alternate conductors are adapted to be shielding conductors which reside at a particular shielding voltage level.

3,601,757
MALE PLUG RETAINER
Glenn D. Gober, 27 President Ave., Rutledge, Pa.
Filed May 1, 1970, Ser. No. 33,605
Int. Cl. H01r 13/44

U.S. Cl. 339-39

9 Claims



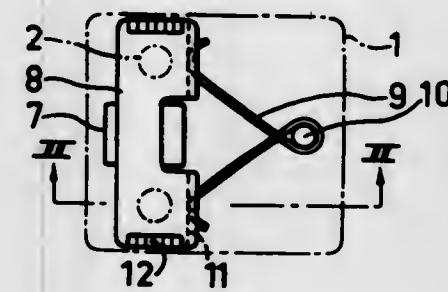
A male electrical plug retainer to cover a wall-mounted type electrical box or the faceplate of such a box. The retainer has a plate portion fastened to the box or the faceplate with a screw. The retainer also has a recess adapted to receive and retain a male plug. A hole extends from the recess to permit passage of the line cord. A recess is partially formed by a split threaded hollow cover, provided with locating pins and a hole, and a center closure is provided to close said hole when a line cord does not pass through it.

3,601,758
BIPOLAR ELECTRIC SOCKET
Tage Arnold Davidsson, Gothenburg, Sweden, assignor to Joel Olssons Elektriska AB, Stockholm, Sweden
Filed June 9, 1969, Ser. No. 831,490
Claims priority, application Sweden, June 10, 1968, Mar. 31, 1969, 7767/68; 4500/69
Int. Cl. H01r 13/44, 13/60

U.S. Cl. 339-40

10 Claims

A bipolar electric socket of the type having, for protection reasons, a spring-loaded shutter mounted in the space between the entrance holes and the underlying contact sleeves in such a manner that the shutter will be pressed away to uncover the sleeves only when two pins or the like—corresponding to the plug pins—are inserted simultane-

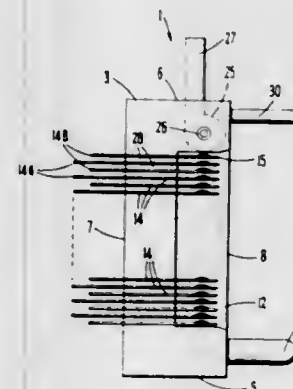


with a blocking shoulder. The insertion of the two pins of an attachment plug will first release the shutter from the shoulder and then push the shutter down the sloping surface, against the spring action, to uncover the entrance holes and the sleeves.

3,601,759
ELECTRICAL CONNECTOR
Randolph G. Barker, Ranyham, Mass., assignor to Component Manufacturing Service, Inc., West Bridgewater, Mass.
Filed Feb. 7, 1969, Ser. No. 797,553
Int. Cl. H01r 11/02, 13/54

U.S. Cl. 339-59 M

9 Claims



An electrical connector primarily for use in computer circuits having a pair of interengageable terminals. Each terminal has a plurality of aligned parallel-spaced contact elements insulated from each other with the spaces intermediate adjacent contact elements having a width sufficient to receive contact elements of the other terminal in electrical interengagement. Means for exerting a force normal to a parallel alignment of the contact elements are provided to compress the contact elements in the direction of the parallel alignment to effect positive electrical interengagement of the contact elements of one terminal with the contact elements of the other terminal.

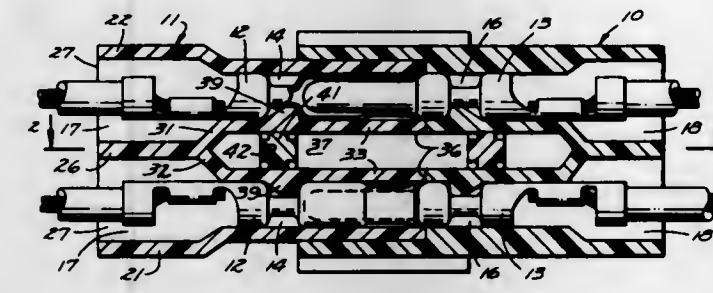
3,601,760
ELECTRICAL CONNECTOR
Thomas M. Cairns, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 17, 1969, Ser. No. 807,733
Int. Cl. H01r 13/54, 9/16

U.S. Cl. 339-59

7 Claims

An electrical connector includes both a terminal having an annular recess therearound intermediate portions of the terminal of larger cross section and a block of nonconductive material having an aperture therein for receiving the terminal. A flexible wall forms a portion of the terminal block and this wall extends along and defines at least a portion of the length of the block's terminal receiving aperture. A locating tab, secured to the flexible wall, enters the annular recess

of the terminal to position it within the receiving aperture. A locking device is attached to the block to prevent the free



flexing of the flexible wall when the tab has positioned the terminal within the aperture.

3,601,761
WATERPROOF LOCKING-TYPE ELECTRIC PLUG AND RECEPTACLE COUPLING
Arthur M. Harris, 135 Southwood Road, Fairfield, Conn.
Filed Aug. 28, 1969, Ser. No. 853,898
Int. Cl. H01r 13/08

U.S. Cl. 339-61 R

9 Claims



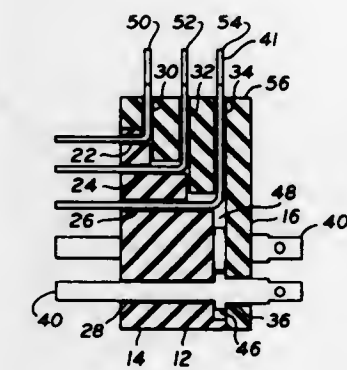
Electric coupling comprising plug and receptacle parts having contact pins and cooperable contactor sockets carried respectively by plug and receptacle bodies of insulating material. The bodies include portions which have a telescoping fit and which have, on contacting or mating cylindrical inner and outer surfaces, a cooperable annular detent bead and detent groove by which the bodies are releasably held assembled. At such cylindrical surfaces a sealing O-ring is provided on one body and a sharp sealing shoulder on the other body, adapted to bite into the O-ring to effect a watertight seal. The biting engagement is characterized by axial force as distinguished from radial force. The contactor sockets are of a greater width than the contact prongs whereby the latter can move edgewise in the sockets, enabling the plug and receptacle bodies to be separated by employing a relative angular movement which forces the detent bead out of the cooperable annular detent groove. A flattened configuration on one body, with or without imprinted words, indicates the direction of angular separating force which is required to separate the bodies. A plurality of arcuate sealing wedges are forced around the electric cords at the inside of the collars of the bodies, said wedges being held in place by snap caps to effect a securement of the electric cords as well as to seal the same where they enter the bodies.

3,601,762
ELECTRICAL CONNECTOR
Walter Eshelman, Laconia, N.H., assignor to Vernitron Corporation, New York, N.Y.
Filed Aug. 15, 1969, Ser. No. 850,405
Int. Cl. H01r 13/62

U.S. Cl. 339-64 M

4 Claims

An electrical connector assembly for straight through connection and connection to a printed circuit board including

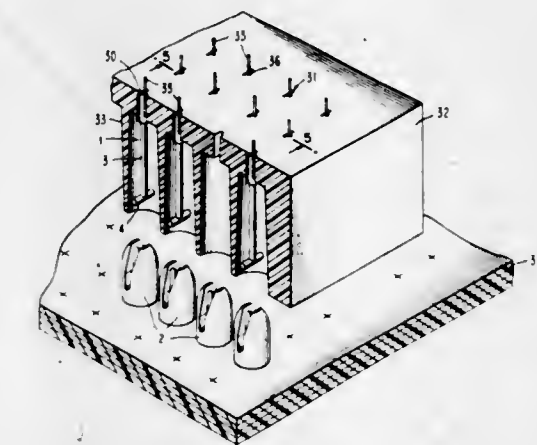


halves. Configuration of connector halves and contact elements will position the latter in the connector without need for locking and positioning devices.

3,601,763
PIN-SOCKET CONNECTION DEVICES WITH TORSIONED PIN CONTACTS
Robert D. McNutt, Poughkeepsie, N.Y., assignor to International Business Machines Corp., Armonk, N.Y.
Filed Feb. 28, 1969, Ser. No. 803,162
Int. Cl. H01r 13/62

U.S. Cl. 339-65

5 Claims



In this plug-in electrical connection arrangement contact pressure is established by twisting the torsionally resilient pin member of each pin-socket contact couple. The insulating base which holds and provides protective enclosures for the pin contacts also provides alignment guidance for the socket contacts. The pin contact has a torsionally resilient stem section, ideally colinear with the longitudinal axis of the socket contact, which terminates in a transversely extended contact cap section. In the process of making contact the cap is forced to rotate and torsionally flex the stem. The reaction of the stem establishes contact pressure at the lateral extremities of the cap.

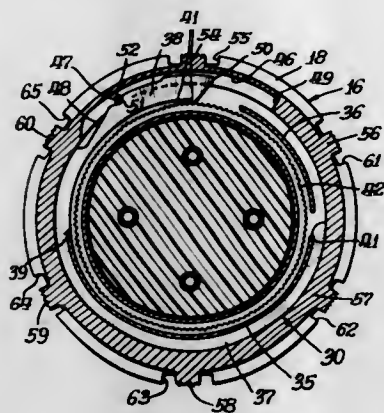
3,601,764
LOCK DEVICE FOR COUPLING MEANS
John K. Cameron, Hillside, Ill., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed Jan. 28, 1969, Ser. No. 794,547
Int. Cl. H01r 13/54

U.S. Cl. 339-89 M

3 Claims

Lock device for an electrical connector or the like including a coupling ring mounted on one shell and threaded onto another shell to hold the shells together. A rotatable locking is provided for actuating lock means to prevent rotation of the coupling ring relative to the one shell. The lock means preferably includes an arcuate cantilever member having a cam surface engaged by a pin on the locking to engage tooth

means on the member with the one shell. The locking is rotated in the direction of the coupling ring rotation and

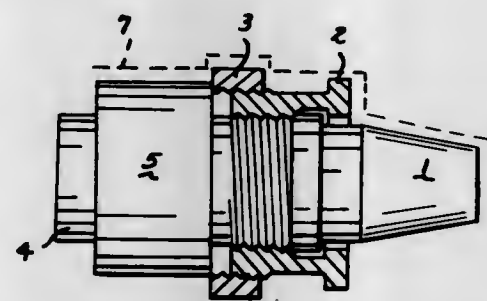


3,601,765
CONNECTOR COUPLING RING GAP CLOSURE DEVICE
John S. Miller, Long Beach, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Dec. 4, 1969, Ser. No. 882,180
Int. Cl. H01r 13/54

U.S. Cl. 339—89 C

1 Claim



The invention is a device which attaches to circular cable connectors in such a way as to provide an external path to ground for radio frequency interference (r.f.i.) currents which would otherwise enter the internal cable wires. It comprises a backshell with two threaded rings of r.f.i. conducting material. One ring which is called the backshell retaining ring and which is threaded on the inside and outside engages the backshell and is then screwed onto the threaded cable connector thereby connecting the backshell and cable connector. The other ring is attached by threads to the outside of the first ring and, after the backshell and cable connector have been joined, is rotated toward the cable connector until it makes firm contact with the cable connector's coupling ring which has already been tightened into position. Once the connection is made between the coupling ring and the outer ring of the device the r.f.i. currents follow the path from the coupling ring to the outer ring of the device, to the backshell retaining ring, to the backshell, and on to ground.

3,601,766
CONNECTOR DEVICE FOR SUPPORTING CABLES AND FOR ADDITIONALLY PROVIDING AN ELECTRICAL CONNECTION

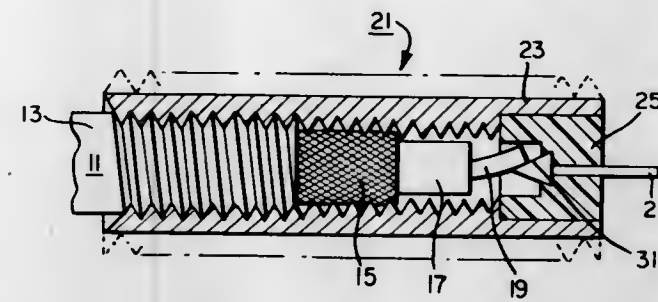
Vernon F. Allbert, Ivy Lane, Chester Heights, Pa.
Filed Feb. 13, 1969, Ser. No. 798,948
Int. Cl. H01r 9/08, 17/04

U.S. Cl. 339—97

1 Claim

The present connector device provides a somewhat elongated element having an internally threaded surface and having at least one end thereof chamfered. The connector device can be further formed, or may include means, to be secured to a fixed member. In one embodiment, the elongated element has located in the end opposite from the chamfered end

an insert of electrically insulating material, and in the center of this insert is disposed an electrically conducting member. The elongated member in combination with its end piece is so designed that it is self-threading on the outer jacket of a cable with which it is engaged. When employed with a coaxial cable it includes an electrically conducting threaded sur-

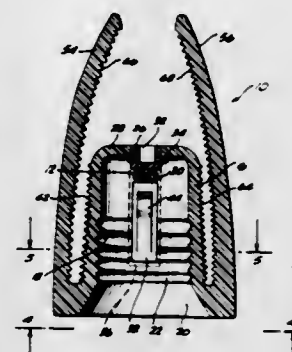


face and is designed to come in electrical contact with the inner shield of the coaxial cable. In addition, in this last mentioned embodiment the present device makes further electrical contact between the center conductor of the coaxial cable and the centrally disposed conducting member of the end piece.

3,601,767
BULB SOCKET WITH HANGER
William J. Eckles, 1117 S. Cambridge St., Anaheim, Calif.
Filed Apr. 7, 1970, Ser. No. 26,192
Int. Cl. H01r 11/20

U.S. Cl. 339—99 L

11 Claims

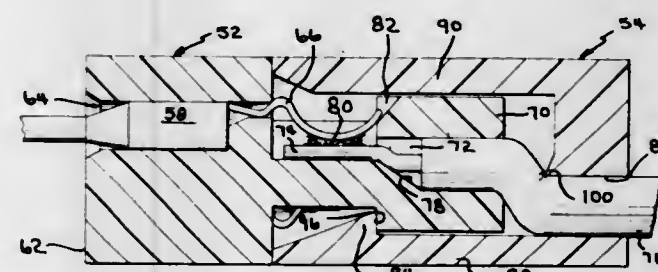


The bulb socket is unitarily formed with first and second fingers joined to the socket at the front thereof, and extending rearward past the socket to face each other. The fingers are resilient to resiliently clamp a small structure on which the bulb socket is to be hung between one of the fingers and the socket body or to clamp a larger structure from which the bulb socket is to be hung between the two fingers behind the socket body.

3,601,768
CONNECTOR FOR MULTIPLE CONDUCTOR CABLE
Linn Stephen Lightner, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Continuation-in-part of application Ser. No. 763,707, Sept. 30, 1968. This application Jan. 21, 1969, Ser. No. 792,493
Int. Cl. H01r 13/58

U.S. Cl. 339—103 M

6 Claims



An electrical connector for multiple conductor electrical cable having a housing containing a plurality of contact means having contact tabs extending therefrom. A header

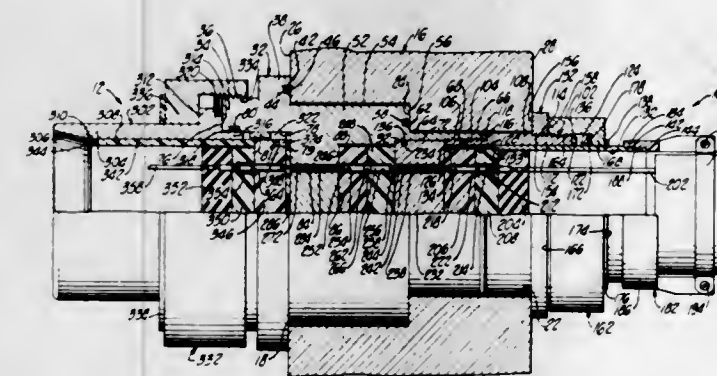
block is adapted to receive the multiple conductor cable to orient the conductors in staggered relation along two planes. The header block is insertable within the housing whereby the contact tabs will electrically engage the conductors of the cable. A second form of the invention provides a one piece housing for both the electrical contacts and the multiple conductor cable and a strain relief is provided which is engageable with the housing for retaining the cable fixed relative to the housing.

3,601,769
UNDERWATER ELECTRICAL CONNECTOR
Leland W. Oliver, and Robert A. Patterson, both of Phoenix, assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 27, 1969, Ser. No. 837,123
Int. Cl. H01r 7/02, 13/54

U.S. Cl. 339—103 M

2 Claims



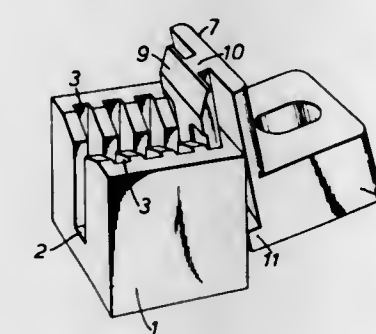
An underwater electrical connector for providing cable strain relief in order to eliminate the possibility of wire breakage at the terminal area. Redundant safety is provided by means of a primary header and a secondary header, each of which has glass sealed contacts mounted therein. Moreover, a cable strain relief is formed by means of a wave washer on the terminal assembly. When the cable flexes, the wave washer is compressed, allowing axial movement of the entire assembly surrounded by a sleeve and relieving the strain on individual terminal joints formed between the wires of the cable and socket contacts of the connector. The device could be used where the cable is subjected to vibration and oscillation due to movement, resulting in substantial possibility of wire breakage at the terminal area.

3,601,770
EDGE CONNECTOR FOR PRINTED CIRCUIT PANELS
Thomas William Bowley, Bramcote, England, assignor to United-Carr Incorporated, Boston, Mass.

Filed July 17, 1969, Ser. No. 842,485
Int. Cl. H01r 13/50; H02b 1/02

U.S. Cl. 339—125 R

1 Claim



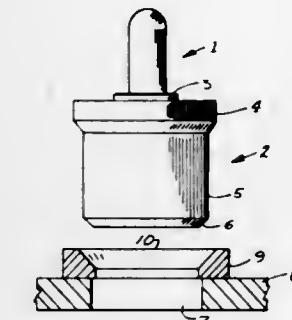
A detachable endpiece for an edge connector comprises a base attachable to a support, the base having an arm carrying a resilient platelike element for sliding engagement into an edge recess in the connector and a lip for snapping under the underface of the connector.

3,601,771
ELECTRICAL COMPONENTS WITH CHAMFERED MOUNTING RINGS
Hilliard Dozier, Cincinnati, Ohio, assignor to U.S. Terminals, Inc., Cincinnati, Ohio

Filed Mar. 23, 1970, Ser. No. 21,797
Int. Cl. H02b 1/02

U.S. Cl. 339—126 RS

7 Claims

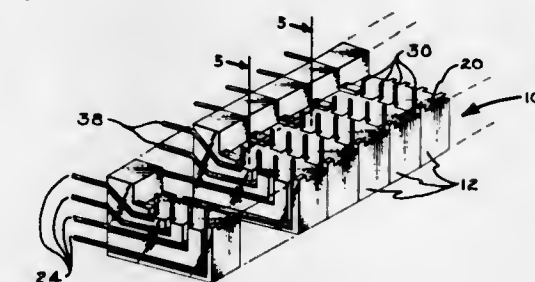


Electrical components, such as insulated terminals, transistor sockets and the like, having a distortable dielectric body adapted to be press-fitted in an unchamfered opening in a chassis or other support, the distortable body having a diameter greater than the opening into which it is to be inserted and provided with a chamfered mounting ring of a size to seat against the chassis in an area surrounding the opening, the chamfered mounting ring acting to define a chamfer for the opening so that the distortable body may be readily inserted therein.

3,601,772
HEADER BLOCK ASSEMBLY
Lloyd Mancini, New Cumberland, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.
Filed May 20, 1970, Ser. No. 39,043
Int. Cl. H01r 9/22; H05k 1/04

U.S. Cl. 339—156 R

7 Claims



A header block assembly for interconnecting circuit elements formed of a number of insulating wafers secured together with contact wires extending between sides of the assembly along the interfaces between wafers. The wires are fitted in grooves formed in one wafer below the interface. Ridges formed in the adjacent wafer extend into the grooves to form a tight interference fit which prevents reduction of cross resistance between wires due to seepage of fluids into the interface between wafers.

3,601,773
WIRELESS R. F. RADIATION TACHOMETER
Edward Frieling, Livingston, N.J., and William G. Konos, Salem, Mass., assignors to Hartman Marine Incorporated, Newark, N.J.

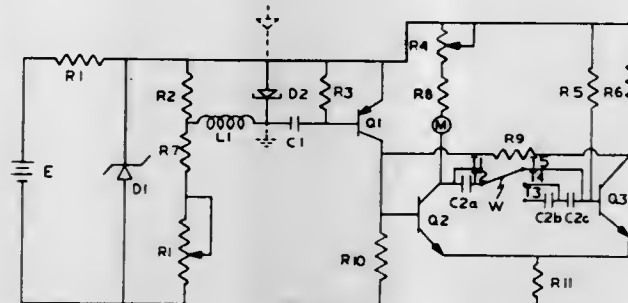
Filed June 16, 1969, Ser. No. 833,257
Int. Cl. G01p 3/48

U.S. Cl. 324—170

16 Claims

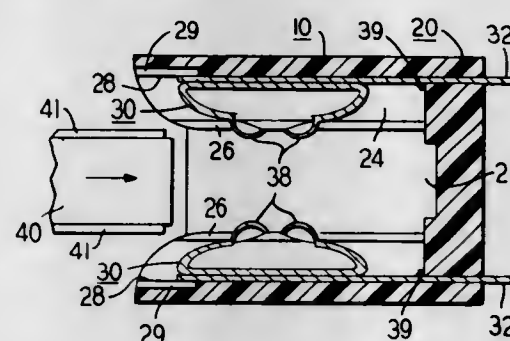
A tachometer which does not require any wired connections or inductive probes. It picks up radiation from ignition spark discharges and the like, and uses these to trigger a tunnel diode which activates a pulse-stretching monostable multivibrator. An ammeter is in series with the output current of the multivibrator, and is calibrated in r.p.m. The nonretrig-

gerable period enhances the accuracy of the tachometer by providing noise blanking. A switching circuit adjusts the electrical value of a coupling network between stages of the multivibrator and adjusts the period thereof to accommodate two, three, four or six cylinder internal combustion engines



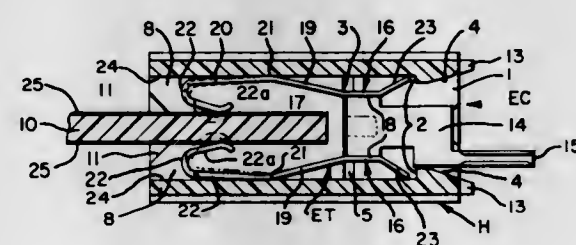
without sacrificing any of the noise blanking capability. The coupling network incorporates a plurality of matched timing capacitors, enabling the tachometer to be calibrated for any number of engine cylinders by means of a single potentiometer.

3,601,774
CONNECTOR DEVICE HAVING SERIALLY DISPOSED PRETENSIONED CONTACTS
Theodore Stathos, Jamaica, N.Y., and Norman Wasserman, Columbus, Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 6, 1968, Ser. No. 781,830
Int. Cl. H05k 1/12; H01r 9/12
U.S. Cl. 339-176 MP



A connector device containing a support block and one or more terminal members is disclosed in which the support block includes a socket opening and at least one terminal pocket and each terminal member is located in a terminal pocket and has two serially disposed contacts extending into the socket opening.

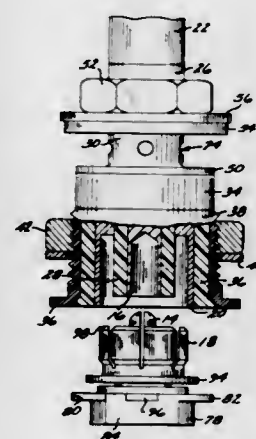
3,601,775
PRINTED CIRCUIT CONNECTOR
Bruce Cameron Longenecker, Harrisburg, and Lex Donald Kensing, Middletown, both of, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 4, 1969, Ser. No. 796,361
Int. Cl. H05r 1/07; H01r 1/22
U.S. Cl. 339-176



A printed circuit connector comprises a dielectric housing having an electrical terminal disposed in a passageway thereof. The terminal includes a cantilevered contact arm ex-

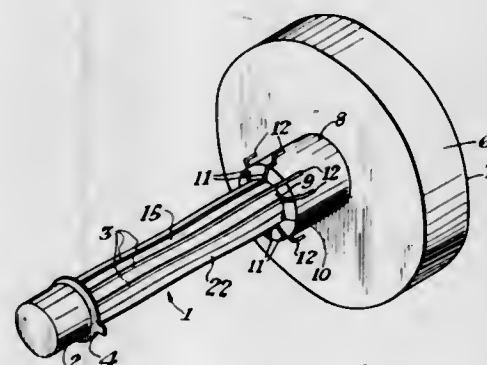
tending along a passageway wall, the contact arm having a bight in engagement with the wall to provide a point about which an outer section of the contact arm is movable outwardly toward the passageway wall when a hook-shaped conductor-engaging section of the outer section engages a conductive path on a printed circuit board when it is moved within a board-receiving area in the housing.

3,601,776
ELECTRICAL CONNECTORS
Gerald A. Curl, Orange, Calif., assignor to Symbolic Displays, Inc., Orange, Calif.
Filed May 20, 1969, Ser. No. 826,139
Int. Cl. H01r 17/04, 13/12
U.S. Cl. 339-177



This invention relates to improvements in electrical connectors. A two circuit jack and plug are described in which the jack is formed of a series of sleeves inserted one within the other to expose, at one end of the jack, a pair of contact rings. The contact rings are noncircular in that their sidewalls are flat at spaced points around their periphery. They are held in encompassing ring retainers having inner dimensions to squeeze the contact rings such that they are more nearly circular. The jack is associated with a phonograph type plug whose outer contact is arranged to have its outer surface, rather than its inner surface, mate with a respectively associated one of the contact rings of the jack.

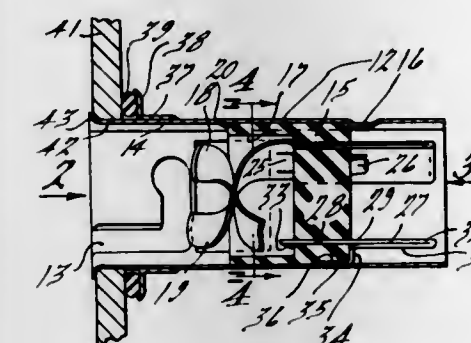
3,601,777
LEAD SEPARATOR FOR MICROMINIATURE DEVICES
Roscoe A. Norton, Jr., and William M. Carrozza, both of Batesburg, S.C., assignors to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Feb. 4, 1969, Ser. No. 796,476
Int. Cl. H01r 13/50, 13/64
U.S. Cl. 339-186 M



This disclosure relates to a microminiature component lead separator which includes an elongated cylindrical electrical insulative body. The insulative body is provided with a suitable indexing means and a plurality of circularly spaced semienclosed grooves extending along substantially the entire

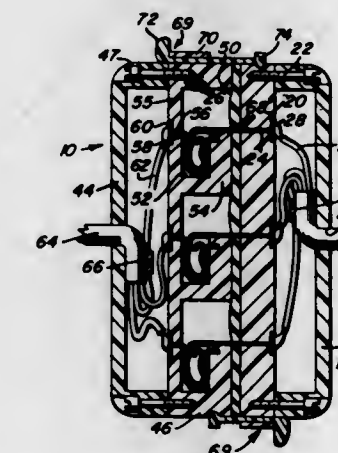
length of the elongated body for receiving the conductive leads of the microminiature component.

3,601,778
LAMP SOCKET
Ronald G. Hollett, Rochester, Mich., assignor to Microdot, Inc., New York, N.Y.
Filed Feb. 3, 1969, Ser. No. 796,058
Int. Cl. H01r 33/48
U.S. Cl. 339-188



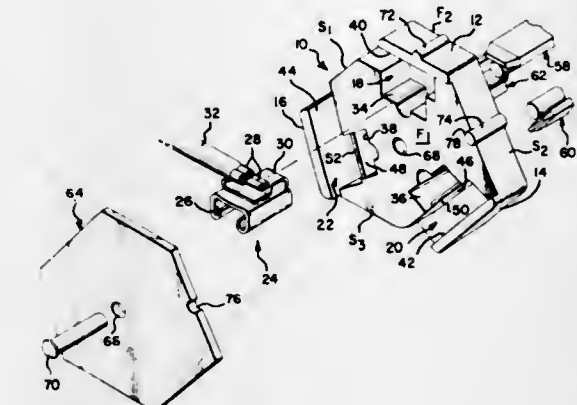
The socket is constructed from a tube having a pair of bayonet slots and a locating slot formed outwardly of the tube wall. A cylindrical insulating element has a pair of conductors fixed thereto, the portion extending from the front face being helically formed for engaging the contacts of a two filament light bulb and the portion extending from the rear face forming terminals. A ground terminal is also supported by the insulating element having a portion in contact with the wall of the tube with the terminal end spaced a greater distance from the center of the element for locating the contacts of a plug insertable in the rear end of the tube for properly connecting the three terminals to a circuit.

3,601,779
INTERLOCKING ELECTRICAL CONNECTOR
Edmund M. Waller, Sr., 3228 Sleepy Hollow Road, Falls Church, Va.
Filed Jan. 27, 1969, Ser. No. 794,166
Int. Cl. H01r 13/06, 13/54
U.S. Cl. 339-192



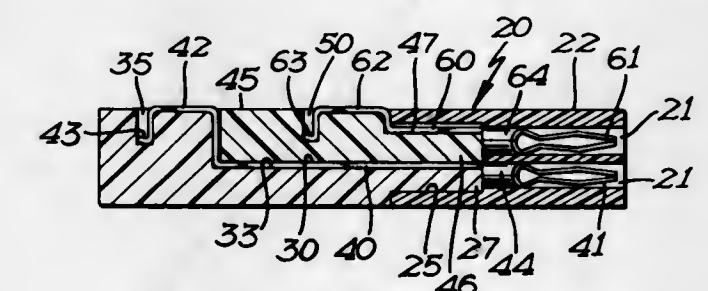
Male and female electrical connectors, each having contacts bent medially to provide one portion overlying another portion. The female connector includes an offset stepped socket which permits contact engagement within the socket thereby preventing separation of the connectors under the influence of outwardly pulling forces.

3,601,780
THREE-POINT CONTACT ELECTRICAL CONNECTOR ASSEMBLY
Armand Rene De Lyon, Harrisburg, and Edwin Stanton De Bolt, Carlisle, both of, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Apr. 9, 1970, Ser. No. 27,041
Int. Cl. H01r 33/72
U.S. Cl. 339-192



Disclosed is an electrical connector assembly having three receptacle connectors located therein for mating contact with a three-terminal male connector hermetically mounted in a motor housing or the like. One of the receptacle connectors is retained in the triangular-shaped housing in a reversed position relative to the other two receptacle connectors so that the wire conductor connected thereto exits the housing toward the other two wire conductors to form a Y-configuration.

3,601,781
MINIATURE CONNECTOR AND METHOD OF MAKING
Doyle D. Mullin, Minneapolis, Minn., assignor to Omnetics, Inc., Minneapolis, Minn.
Filed Aug. 22, 1969, Ser. No. 852,370
Int. Cl. H01r 33/76
U.S. Cl. 339-192 R



An electrical connector generally formed in miniature size for use with a mating plug having a plurality of closely adjacent extending terminals is formed from a rectangular insulated body having a cavity forming an end cap with a plurality of parallel bores disposed in multiple rows and extending longitudinally through the end face of the end cap into which is inserted at least a pair of insulation body members having a plurality of grooves formed in each communicating with the bores in the end cap. A plurality of pin terminals are secured within the bores and grooves, the rear terminals are secured within the bores and grooves, the rear portions of each having a pad formed thereon to which a conductor may be connected, and the forward portions being recessed within the bores. The plurality of bodies are bonded together to form an integral unit.

3,601,782

PRINTED CIRCUIT EDGE CONNECTOR

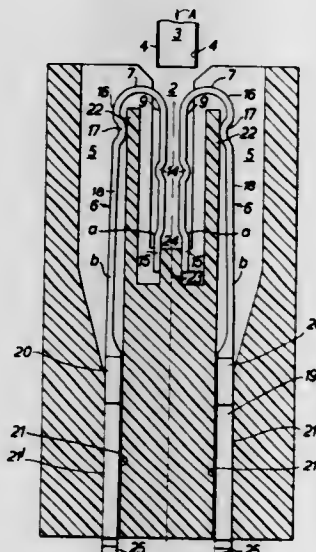
Hermanus Petrus Johannes Gillissen, Vlijmen, and Lucas Gerardus Christinus Teurlings, 's-Hertogenbosch, both of, Netherlands, assignors to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 4, 1968, Ser. No. 780,956
Claims priority, application Netherlands, Sept. 30, 1968, 6716581

Int. Cl. H01r 13/50

U.S. Cl. 339—217

3 Claims



A printed circuit edge connector comprises contact springs having contact surfaces substantially parallel to the direction of insertion of a printed circuit board, each contact spring being loaded between three laterally spaced surfaces along a contact-receiving cavity of a housing so that the contact pressure is substantially constant over the whole area of the contact surfaces so that excessive wear against specific regions of the contact surfaces containing precious metal plating is thereby avoided.

3,601,783

ELECTRICAL CONNECTOR WITH SPRING BIASED SOLDER INTERFACE

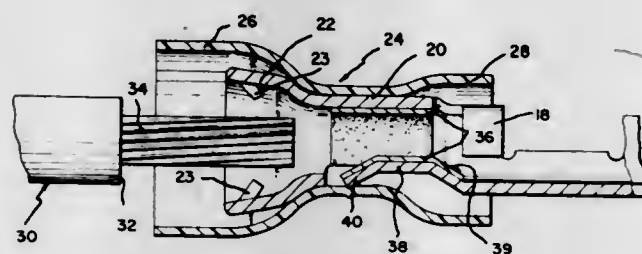
Winfield Warren Loose, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 5, 1969, Ser. No. 804,538

Int. Cl. H01r 15/12, 5/04

U.S. Cl. 339—223 R

5 Claims



An electrical connector-terminal device is disclosed which features a conductor lead receiving barrel lined with solder and containing spring means adapted to be loaded by lead insertion to force the lead into engagement with the solder prior to and during solder reflow as effected by heat applied to the device. The barrel includes a stop and projections which operate in conjunction with the spring means to mechanically stabilize the lead during solder reflow. A heat shrinkable sleeve is applied over the region of joint between the lead and the device to prevent solder escape and to seal the joint relative to the insulating sheath of the lead terminated thereby.

3,601,784

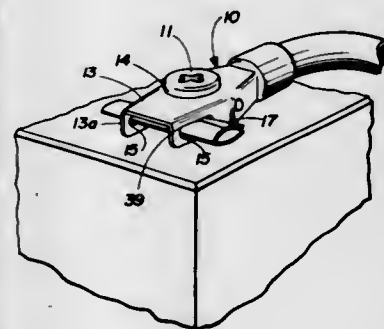
BATTERY TERMINAL

Francis N. La Martine, 2113 Rosebud Drive, Irving, Tex.
Filed June 16, 1969, Ser. No. 833,649

Int. Cl. H01r 11/12

U.S. Cl. 339—240

20 Claims



A quick connect-disconnect battery terminal which incorporates a saddle portion for receiving a battery post in cooperation with a movable spring wedge which is retained in guiding members in a spring biased relationship and movable transversely of the post opening with its edge inclined to the direction of the transverse movement for wedging action against the battery post. The wedge is formed of a sheet of resilient material folded into a wedge-shaped spring member to form a pair of spaced sides carrying opposed retaining edges which move in contact with the battery post.

3,601,785

DETACHABLE ELECTRICAL CONNECTORS

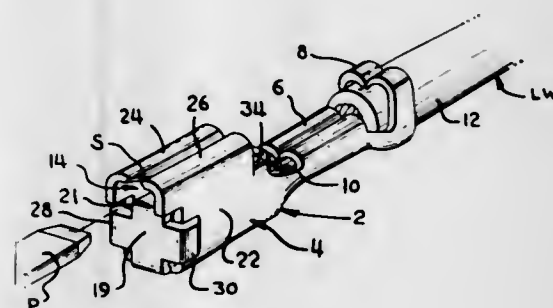
Bruce Cameron Longenecker, Harrisburg, and Stanley Byron Brinser, Steelton, both of, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 4, 1968, Ser. No. 783,162

Int. Cl. H01r 13/20

U.S. Cl. 339—256

7 Claims



This disclosure relates to detachable electrical connectors having contact postengaging portions thereon and conductor-receiving barrels coextensive therewith. The postengaging portions are disposed on a plane adjacent the plane of the wire barrels. The connectors are secured to lead wires whereafter one or more connectors may be insertably secured to a contact post from an associated component. Connections between the connectors and the post may be made and broken without the aid of application tooling. The connectors are rigid so as to be mechanically and electrically reliable over a long period of continued use.

3,601,786

WIRE GRIP TERMINAL

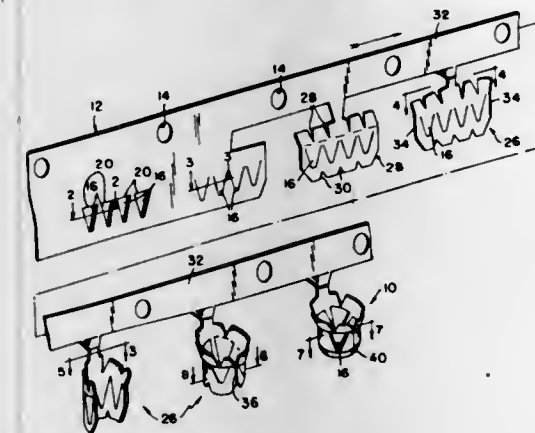
Weldon L. Brubaker, Mechanicsburg, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.

Filed Aug. 18, 1969, Ser. No. 851,030

Int. Cl. H01r 13/12

U.S. Cl. 339—258 R

3 Claims



A wire grip circuit board eyelet with wire-engaging burrs on the edges of the wire grip fingers and the method of making the same.

3,601,787

SOLDER TERMINAL AND SPRING-WIRE SOLDER FORM

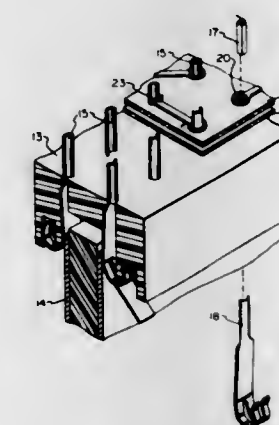
William A. Reimer, Wheaton, Ill., assignor to GTE Automatic Electric Laboratories Incorporated

Filed June 22, 1970, Ser. No. 48,061

Int. Cl. H01r 5/04

U.S. Cl. 339—275 R

3 Claims



A solder form facilitates replacement of receptacle terminals that extend through blind connecting through-holes of a plurality of circuit boards. A hairpin conductor within the solder form spreads apart when the form is melted to carry solder to a replacement terminal and to the conductive surface of a through-hole.

3,601,788

SOUND TRANSDUCER

Bernard J. Stralser, St. Charles, and Rue O'Neill, Jr., Ladue, both of, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Continuation of application Ser. No. 551,298, May 19, 1966.

This application May 31, 1968, Ser. No. 739,921

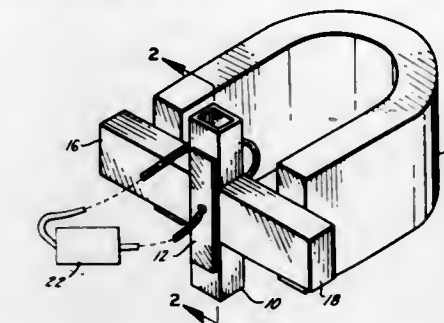
Int. Cl. H04r 23/00

U.S. Cl. 340—8 R

12 Claims

A sound transducer for sending and/or receiving communications through a liquid medium such as through salt water embodied in an open ended tube which fills with the liquid when submerged therein so that the liquid in the tube remains a part of the liquid in which the tube is submerged, means for establishing a magnetic field in a first direction

through the liquid in the tube, and means causing electric impulses to pass through the liquid in the tube at an angle relative to the magnetic field to produce pressure changes and corresponding noise signals in the liquid in the tube, said



noise signals radiating outwardly from the tube into the surrounding liquid. The means for causing electric impulses may be substituted for by means responsive to signals radiated in the liquid by other similar devices at remote locations to act as a receiver thereof.

3,601,789

DEEP-SUBMERGENCE ACOUSTIC ARRAY STAVE

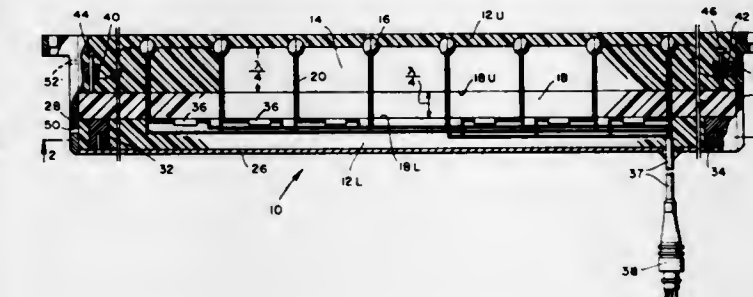
Shelby F. Sullivan, Arcadia; Harper John Whitehouse, Hacienda Heights, Calif., and Guy J. Andrews, Stoneham, Mass., assignors to The United States of America as represented by the Secretary of the Navy

Filed Oct. 8, 1969, Ser. No. 864,780

Int. Cl. H04b 13/02

U.S. Cl. 340—9

6 Claims



A transducer assembly for deep submergence, acoustic, signal reception at a band of frequencies, including: a first elongated elastomeric member, generally in the shape of a stave; a second elongated elastomeric member having a thickness of one-quarter wavelength in the direction of preferred signal propagation; a plurality of spaced transducers embedded in the second elastomeric member in a linear row adjacent one surface; a slab of pressure release material, having a thickness of one-quarter wavelength in the direction of preferred signal propagation, and engaged in parallel relationship with a side of the second elastomeric member opposite the side closest to the transducers; the second elongated elastomeric member and the slab being embedded in the first elastomeric member; and each transducer having a pair of wires which extend from the second and first elastomeric members.

3,601,790

COMMON DEPTH POINT SEISMIC PROSPECTING

John H. Sasseen, Houston, Tex., assignor to Esso Production Research Company

Filed Sept. 3, 1969, Ser. No. 855,008

Int. Cl. G01v 1/16

U.S. Cl. 340—15.5 CP

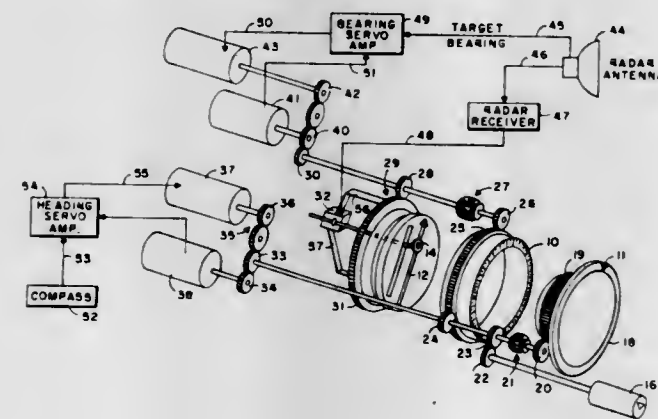
2 Claims



Common depth point seismic prospecting is accomplished by sequentially producing seismic waves at transmitting loca-

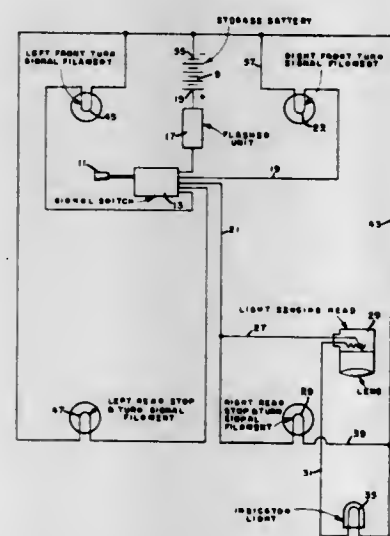
tions spaced apart the distance A, and detecting resulting seismic waves at a first plurality of detecting locations along the traverse spaced apart a distance A from the transmitting location corresponding thereto and a second plurality of transmitting locations spaced apart a distance 2A, the second plurality of detecting locations beginning at the end of the first plurality.

3,601,791
VEHICLE STATION KEEPING DISPLAY APPARATUS
Kenneth C. Emerson, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed May 15, 1969, Ser. No. 824,807
Int. Cl. G01c 23/00
U.S. Cl. 340—27 NA



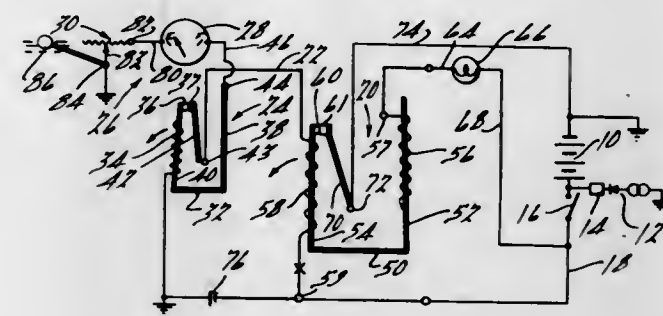
A rho-theta relative position indicator for displaying separation and bearing with respect to a reference vehicle. From radar input parameters, the bearing of a lead or target vehicle is displayed as a pointer indication and separation is presented by the displacement of a second indicator along the bearing pointer axis, the combined display presenting location information for vehicle station keeping purposes.

3,601,792
VEHICLE PASSING DEVICE
John Murray, 1022 Central Avenue, Albany, N.Y.
Filed July 29, 1969, Ser. No. 845,680
Int. Cl. B60q 1/38
U.S. Cl. 340—34



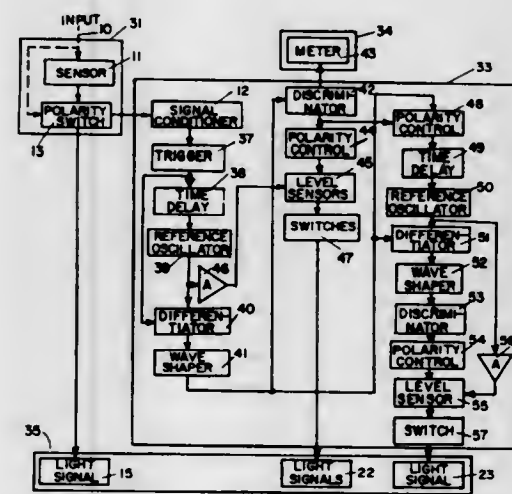
A light-sensing head and indicator light in combination with a passing vehicle's conventional, directional signal system for use during nighttime driving to indicate when the passing vehicle can safely return to the driving lane in which the passed vehicle is proceeding.

3,601,793
LOW FUEL LEVEL WARNING AND GAUGING SYSTEM
Anthony K. Otto, Ann Arbor, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed June 2, 1969, Ser. No. 829,635
Int. Cl. B60q 1/00
U.S. Cl. 340—59



A low fuel level signalling arrangement for a vehicle fuel level gauging system of the constant voltage regulated type. A current responsive relay element is connected between the vehicle battery and the input to the instrument regulator, the regulated output voltage of which is applied to the series combination of a conventional electrothermal fuel gauge and its control unit connected in a single line, ground-return electrical circuit. The relay operates a switching circuit controlling the energization of a signal lamp which the fuel level diminishes to a predetermined level and includes a biasing or lock-in means for maintaining the switching circuit in operated condition to prevent flickering of the signal lamp.

3,601,794
VEHICLE ACCELERATION AND DECELERATION SENSING AND INDICATING SYSTEM UTILIZING AN AC INPUT SIGNAL
Robert W. Blumenkamp, Palo Alto, Calif., and Enrique J. Klein, 947 Alice Lane, Menlo Park, Calif.
Filed Sept. 30, 1968, Ser. No. 763,673
Int. Cl. G01p 15/12
U.S. Cl. 340—62



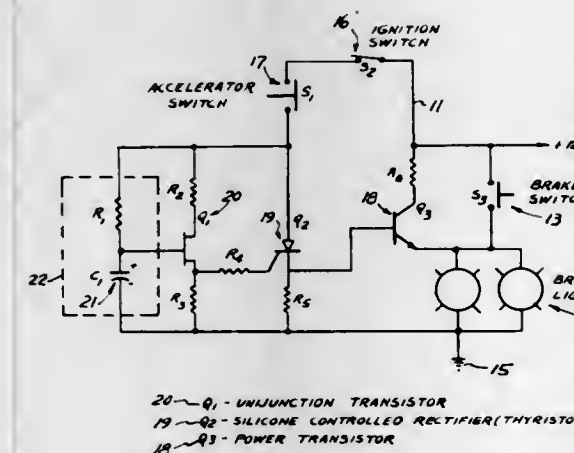
Apparatus for the determination of acceleration, deceleration and reduction in acceleration of a vehicle in which an electromechanical sensing device generates an AC signal having a frequency which varies in accordance with the angular velocity of a shaft turning at a fixed ratio to the vehicle drive shaft. Electronic circuitry processes the signal of the sensing device for continuously monitoring of acceleration and deceleration on a meter, and for operating light signals indicating levels of acceleration, deceleration and reduction in acceleration in a system that is integrated with conventional vehicle light signals.

3,601,795
ELECTRIC CIRCUIT ENERGIZING LAMPS OF A VEHICLE
Tetsuji Shimizu, Nagoya; Shozo Naito, Ama-gun, and Hiroshi Tanaka, Motosu-gun, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Oaza-shimoodia, Nishibiwajimacho, Nishikasugar-gun, Aichi Prefecture, Japan
Filed July 2, 1969, Ser. No. 838,521
Claims priority, application Japan, July 9, 1968, 43-47735
Int. Cl. B60q 1/38
U.S. Cl. 340—67



This circuit controls two groups of lamps at the rear of a vehicle adjacent the right and left sides thereof, respectively, and two directional lamps on the front of the vehicle adjacent opposite sides thereof. It includes the usual brake-operated switch for simultaneously illuminating all of the lamps on the rear of the vehicle, two manually operable directional signals for selectively energizing one of the two rear groups of lamps for successive and cyclical energization concurrently with the intermittent energization of the corresponding front directional lamp, and a plurality of hazard switches for causing selective lamps at the front and rear of the vehicle to be energized intermittently, and independently of the operation of the brake and directional switches.

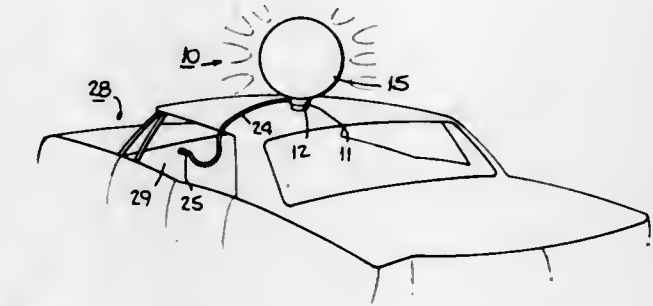
3,601,796
ACCELERATOR RELEASE SIGNAL LIGHT DELAY ACTUATOR
Rudolf G. Mortimer, Ann Arbor, Mich., assignor to John D. Campbell, Livonia, Mich.
Filed Apr. 13, 1970, Ser. No. 27,670
Int. Cl. B60q 1/26
U.S. Cl. 340—71



An accelerator release signal light delay actuator in a vehicle electric circuit to actuate signal lamps on the vehicle after a time interval of 4 to 8 seconds whenever the accelerator is continuously in an engine idle position and the ignition switch is closed. The lamp is operated at less than normal available voltage but will operate at normal available voltage when the vehicle brake is applied. The signal lamp remains

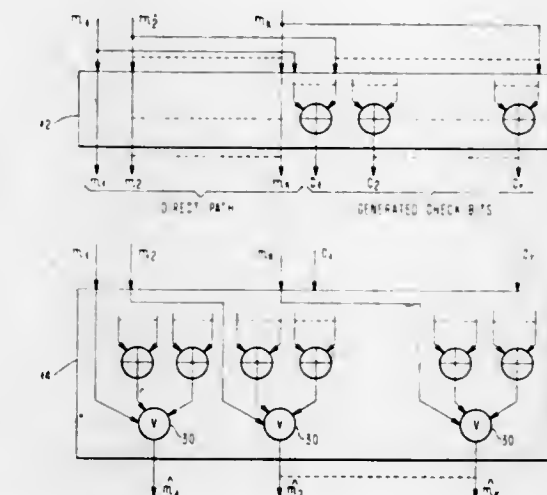
lighted until the accelerator pedal is depressed or the ignition switch is opened.

3,601,797
ILLUMINATED DISTRESS SIGNAL DEVICE
Robert H. O'Connor, 1777 E. 48th St., Brooklyn, N.Y.
Filed Dec. 9, 1968, Ser. No. 782,324
Int. Cl. B60q 1/00
U.S. Cl. 340—87



A balloon is mounted on a base through which the balloon can be inflated orally. In addition, a light is mounted within the base which can be plugged into a dashboard outlet of an automobile or to a battery of an automobile, boat or disabled aircraft in order to illuminate the balloon from within. The balloon can be deflated through a manually applied mechanism, such as a pin.

3,601,798
ERROR CORRECTING AND DETECTING SYSTEMS
Mu-yue Hsiao, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 3, 1970, Ser. No. 8,251
Int. Cl. G06f 1/108; G08c 25/00
U.S. Cl. 340—146.1



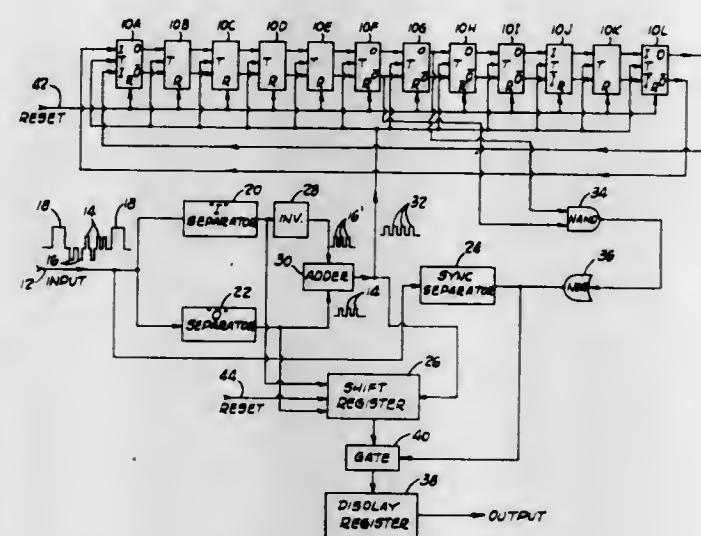
A single error correcting system for correcting messages of any number of data bits comprises encoding means and decoding means. The encoding means adds r check bits, each check bit representative of at most r-1 data bits and, on the average, each check bit representative of >r/2 data bits; each check bit is representative of no more than one common data bit; and each data bit is represented by exactly two check bits. The decoding means for each data bit has an error correcting circuit receiving three inputs from input circuitry, one input being the data bit itself and the other two inputs being combinations, respectively, of one of the two check bits and other data bits representative of the received data bit. The error correcting circuit is capable of producing an output correctly corresponding to the data bit if no more than one input thereto was in error. A double error detecting system, useful with this single error correcting system, inputs syndrome bits representative of each check bit and of an added parity bit to an OR circuit and to an ADDER circuit, and compares the output from these circuits.

3,601,799

DIGITAL RECORDING-PLAYBACK TECHNIQUE
 Ronald J. Martone, Cheshire; Peter G. Mueller, Guilford, and
 Homer M. Bailey, North Haven, all of, Conn., assignors to
 Picker Corporation, White Plains, N.Y.

Filed June 26, 1969, Ser. No. 836,915
 Int. Cl. G06f 11/00; G11c 29/00
 U.S. Cl. 340-146.1

8 Claims



In a digital recording-playback technique, a ring counter is utilized in playback mode to insure that bits have not been dropped or spurious noise signals recorded. If the correct number of signals have been recorded in a word preceding a synchronizing signal, signals are obtained from two adjacent stages of the ring counter that permit the synchronizing signal to open a transfer gate from a shift register to a display register. If the correct number of signals has not been received, transfer is inhibited.

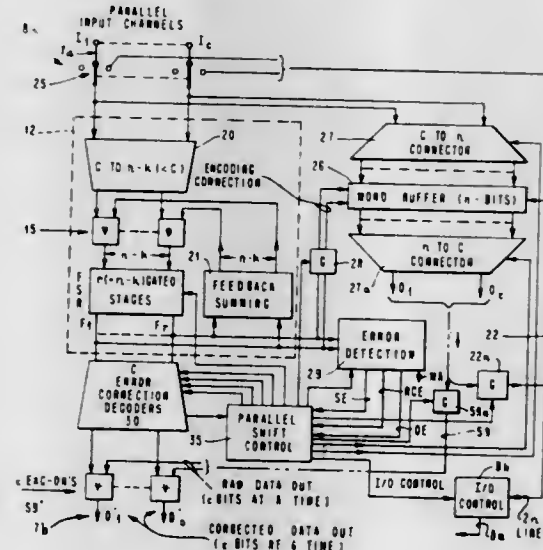
3,601,800

ERROR CORRECTING CODE DEVICE FOR PARALLEL-SERIAL TRANSMISSIONS

Hua-Tung Lee, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.J.
 Filed Sept. 30, 1969, Ser. No. 862,206

Int. Cl. G08c 25/00; H04i 1/10
 U.S. Cl. 340-146.1

13 Claims



Data signals are encoded in an (n,k) cyclic code and checked for errors and corrected. The encoding and correction decoding apparatus includes an $n-k$ stage parallel input parallel feedback shift register adapted to process the data digit signals in groups of c digits where the number c is greater than $n-k$. An example of implementation is disclosed for the specific case: $n=72$, $k=64$, and $c=18$, illustrating that encoding and/or error check decoding are completed in only 4 ($=n/c$) parallel shifts and that error correction decoding is

accomplished in a maximum of only 3 additional parallel shifts timed to coincide with the handling of the data signals.

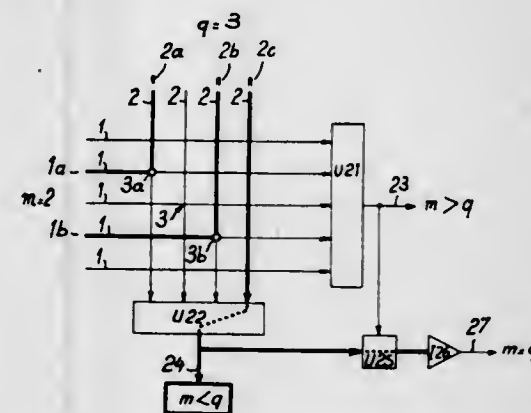
3,601,801

PARALLEL SIGNAL LOGIC COMPARISON CIRCUIT
 Jacques Louis Sauvan, Paris, France, assignor to Societe Anonyme dite: Societe Nationale D'Etude Dt de Construction de Moteurs D'Aviation S.N.E.C.M.A., Paris, France

Filed Jan. 8, 1969, Ser. No. 789,709
 Claims priority, application France, Jan. 9, 1968, 135 311

Int. Cl. G06f 7/00, 7/02
 U.S. Cl. 340-146.2

8 Claims



A logic circuit to effect the comparison of a number m of lines in a set of n lines A and energized in any sequence with a number q of energized lines in a set of p lines B. A matrix has a series of n inputs linked to the n row lines and a series of p inputs linked to p column lines. At the nodes of the row and column lines, an AND gate is provided having an inverted output. The inverted output is connected to one input each of two AND gates each having another input supplied by the respective row or column line to provide an output from the row or column line at the nodal point if, and only if there is no coincidence of input. The row and column lines are connected to OR gates and to a comparator, energization of the row or column OR gate, respectively, indicating that the larger number of row or column lines was energized initially; if both OR gates are deenergized, the comparator will indicate equality of numbers of input lines energized.

3,601,802

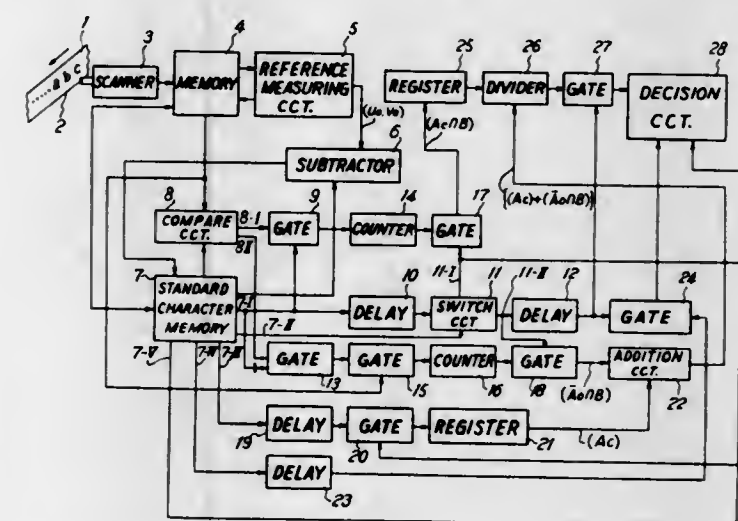
PATTERN MATCHING CHARACTER RECOGNITION SYSTEM

Yukio Nakagome, and Saburo Shirai, both of Tokyo-to, Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan

Filed Sept. 6, 1967, Ser. No. 665,920
 Claims priority, application Japan, Sept. 9, 1966, 41-59,225
 Int. Cl. G06k 9/08

U.S. Cl. 340-146.3 Q

4 Claims



A pattern matching character recognition system in accordance with pattern matching method, where for each of

input characters, a first kind of standard pattern included substantially in all the same named input characters and a second kind of standard pattern including substantially all the same named input characters are previously established for each of the input characters to be recognized, and the names of the respective input characters are determined in consideration of results obtained from respective compare operations between input characters and each of the two kinds of standard patterns.

3,601,803

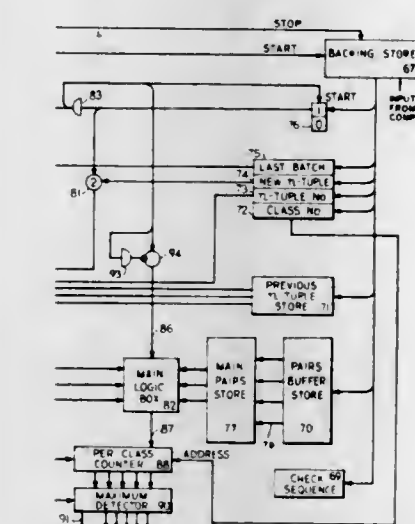
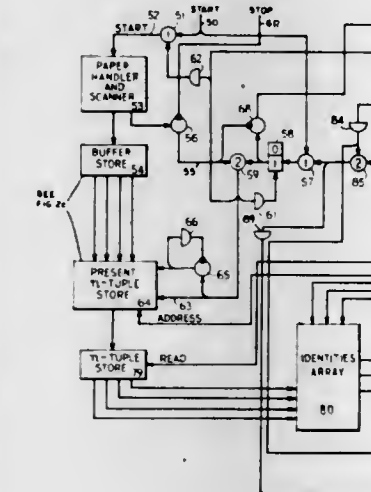
PATTERN RECOGNITION PROCESSES AND APPARATUS

Julian Richard Ullmann, Edgware, England, assignor to Her Majesty's Postmaster General, London, England

Filed Dec. 4, 1968, Ser. No. 781,035
 Claims priority, application Great Britain, Dec. 7, 1967, 55757/67

Int. Cl. G06k 9/12
 U.S. Cl. 340-146.3 R

3 Claims



This specification describes a method of pattern recognition and apparatus for carrying out the method in which predetermined groups of n pattern elements are extracted from an unknown pattern and these groups are compared with corresponding groups from patterns of known class to identify the unknown pattern. The invention lies in the manner of comparison of the groups of n pattern elements and involves the examination of a group of elements from the unknown pattern to ascertain if there is a partition into parts of this group such that all of the parts belong to partitions into parts of the corresponding groups derived from the known patterns belonging to any one class. The parts of the partition of the group from the unknown pattern are also examined to ascertain whether they belong to a set of parts, each of which is the only part belonging to partitions of two different known patterns of the one class, such that these partitions are exclusively composed of parts obeying this last condition. It is decided that the group belongs to the one class if it satisfies both of the above conditions and the unk-

nown pattern is identified as belonging to the one class if most of the groups derived from it belong to that class.

3,601,804

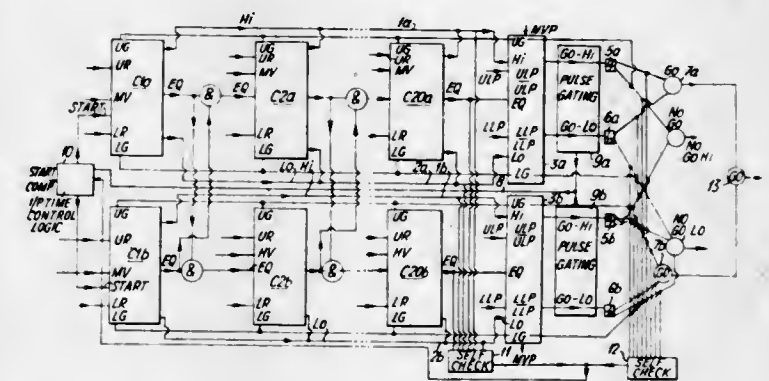
DIGITAL COMPARATOR UTILIZING DUAL CIRCUITS FOR SELF-CHECKING

Charles Thomas Wainwright, Stevenage, and Peter H. Pearson, Letchworth, both of, England, assignors to British Aircraft Corporation Limited, London, England

Filed Mar. 14, 1969, Ser. No. 807,385
 Int. Cl. G06f 7/02, 11/00

U.S. Cl. 340-146.2

3 Claims



The invention relates to a digital comparator for use in automatic test equipment for assessing whether a measured binary response from a test object lies within predetermined tolerance limits. The comparator includes two banks of identical comparator bit units with upper and lower registers for storing the upper and lower tolerance limits respectively. The measured response is compared initially with the upper tolerance limit and subsequently with the lower tolerance limit if the result of the first comparison indicates that the measured value is less than the upper tolerance limit. The two banks are gated together between each unit such that the comparison of any one bit only takes place if the comparison of the preceding bit produces an identical signal from each comparator bank.

3,601,805

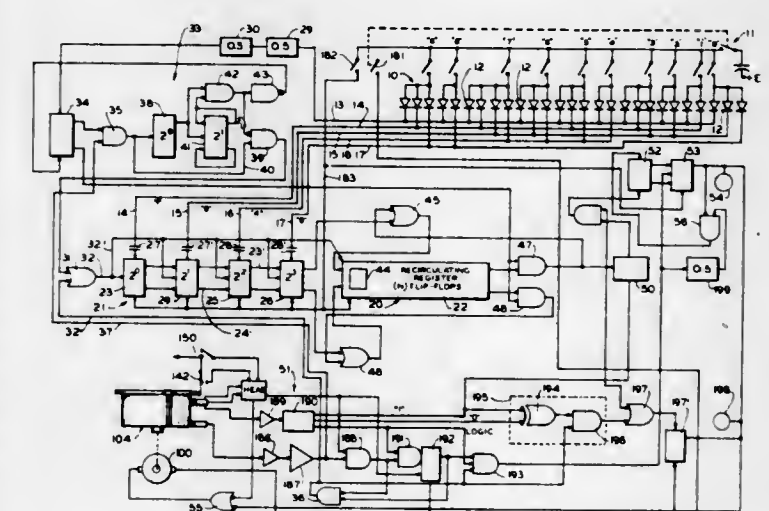
CREDIT CARD VERIFIER APPARATUS

Richard K. Snook, Bridgeton, Mo., assignor to Research Systems Corporation, Bridgetown, Mo.

Filed Dec. 22, 1967, Ser. No. 692,975
 Int. Cl. H04q 9/00

U.S. Cl. 340-149 R

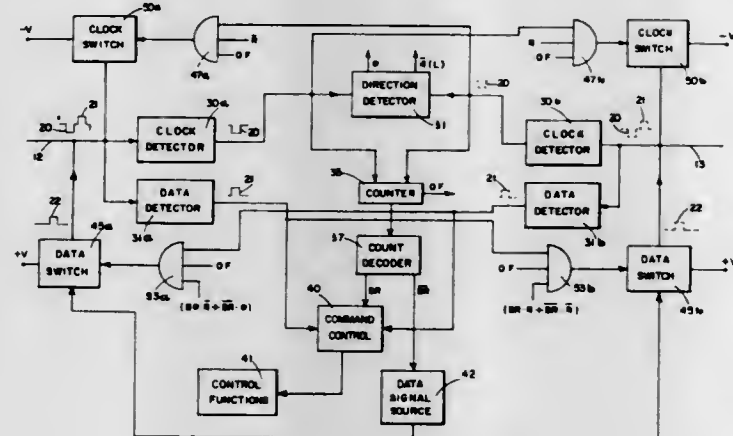
46 Claims



An apparatus for electronically comparing customer credit card numbers with a stored list of invalid credit card numbers and providing an indication whenever a favorable comparison occurs. A drum removably holds a magnetic multitrack tape with invalid card numbers recorded thereon in binary coded decimal form. A reading head is shifted from track to track on the multitrack tape and senses the signals

on the tape. A logic circuitry is provided for comparing the card number with the readout of the drum. The reading head detects a logical pulse and this in turn allows a subsequently detected synchronizing pulse detected by a synchronous head to pass and clock a transfer flip-flop circuit. The read credit card number is transferred to a shift register and is compared serially bit-by-bit with the output of the transfer flip-flop circuit in a half adder. A recirculating output from the shift register is also provided for returning signals to the input thereof. A bad card flip-flop receives an input whenever there is no sum output from the half adder for the series of digits.

3,601,806
DIGITAL TIME MULTIPLEXED BIDIRECTIONAL COMMUNICATIONS SYSTEM
Gary L. Heimbigner, Anaheim, Calif., assignor to North American Rockwell Corporation
Filed June 23, 1969, Ser. No. 835,320
Int. Cl. H04q 9/14
U.S. Cl. 340—151 17 Claims



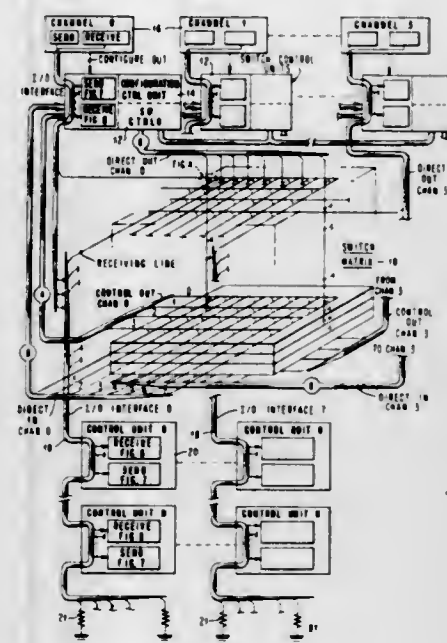
Digital signals are bidirectionally transmitted between a master station and a plurality of remote stations on a single wire which serially interconnects all the stations. A connection is provided from the last remote station directly back to the master station. Each station is successively interrogated by means of clock pulses transmitted from the master station, data being transmitted from the master station to the remote station on certain predetermined digital bits established by the clock pulses and data being transmitted from the remote station to the master station on certain other predetermined bits. When the predetermined bit count for each remote station has been completed, this station is deactivated and clock and data pulses are bypassed through this station in either direction to provide communications between the master station and another remote station. This interrogation and bidirectional transmission of data is repeated successively for each remote station until all in turn have been interrogated.

3,601,807
CENTRALIZED CROSSPOINT SWITCHING UNIT
William F. Beausoleil, and Wilbur D. Pricer, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 13, 1969, Ser. No. 790,680
Int. Cl. H04q 5/14; H04m 3/22
U.S. Cl. 340—166 10 Claims

An input/output interface switching apparatus for switching I/O interfaces connecting I/O control units between channels. A matrix of transistor cross-point switches is provided for attaching one or more strings of control units to one or more channels. These strings of control unit are switched between the channels under configuration control.

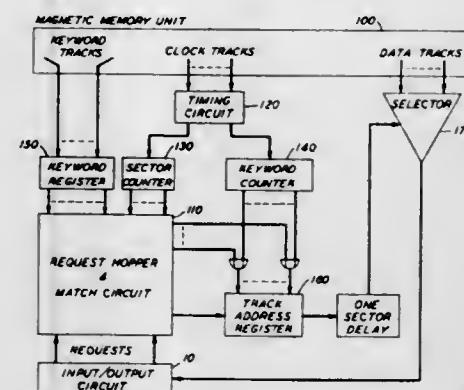
The cross-points are arranged so that a single failure within one interface affects at most only the channel to which the interface is associated. The switching matrix is physically centralized to minimize the number of I/O interface cables

and connectors. The switching functions are, however, logically decentralized from a reliability standpoint so that a sin-



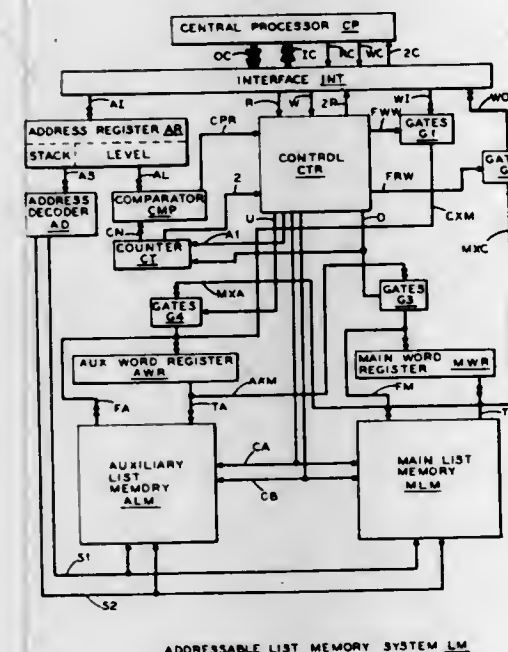
gle component failure does not result in total switching system failure.

3,601,808
ADVANCED KEYWORD ASSOCIATIVE ACCESS MEMORY SYSTEM
David Vlack, Aurora, Ill., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.
Filed July 18, 1968, Ser. No. 745,738
Int. Cl. G06f 7/22
U.S. Cl. 340—172.5 9 Claims



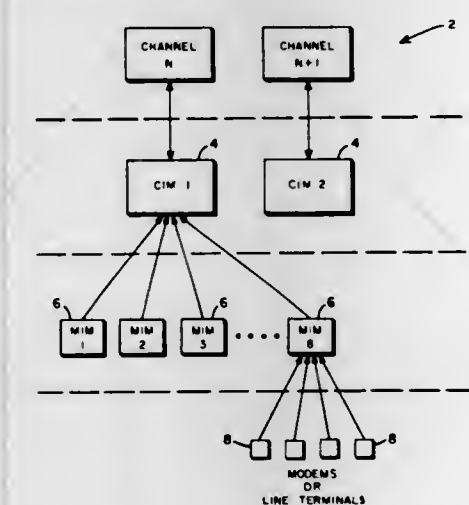
Circuitry is disclosed which uses a rotating magnetic disc file as an associative access memory. Each block of data stored on the file has associated with it a keyword, which keyword is used to access that particular block of data. The disc is partitioned into angular sectors and the blocks of data are stored in concentric, circular tracks as one block per sector per track, having their associated keywords recorded in radial tracks in the preceding sector. Data requests, including keyword information, are stored in a request hopper and are all simultaneously compared with each keyword as it is read from the disc. When a match occurs, the track defined by the matched keyword is read during the next sector in order to retrieve the requested block of data. Data requests may alternatively specify the track and sector address of a desired data block.

3,601,809
ADDRESSABLE LIST MEMORY SYSTEMS
Harry J. Gray, Springfield, and Willis K. King, Philadelphia, both of, Pa., assignors to The Trustees of the University of Pennsylvania, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 723,406, Apr. 23, 1968. This application Nov. 4, 1968, Ser. No. 777,979
Int. Cl. G11c 7/00
U.S. Cl. 340—172.5 21 Claims



A memory system includes at least a main list memory. When the memory system is to be accessed for an operation of reading or writing a word, it receives the desired word address. Words are then sequentially transferred from the list memory. As each word is transferred, its address is indicated as available. When a predetermined relationship, such as equality is detected between the desired word address and indicated address, the read or write operation is performed. In the several embodiments of the disclosure, the indicated available address is derived either from a counter or from the contents of the words being transferred. In addition, the various embodiments show the main list memory as either a Last-in First-out (LIFO) type or a First-in First-out (FIFO) type.

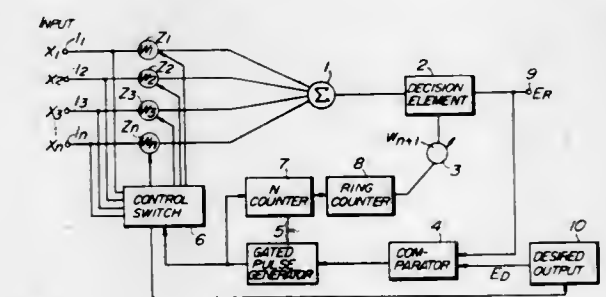
3,601,810
SEGREGATION AND BRANCHING CIRCUIT
Duane H. Anderson, St. Paul; Peter A. Meyer, Roseville, and Paul D. Byrns, St. Paul, all of, Minn., assignors to Comcat Incorporated, St. Paul, Minn.
Filed Dec. 30, 1968, Ser. No. 787,632
Int. Cl. G06f 7/00
U.S. Cl. 340—172.5 6 Claims



A data storage control circuit which decodes incoming characters and produces signals which cause the characters

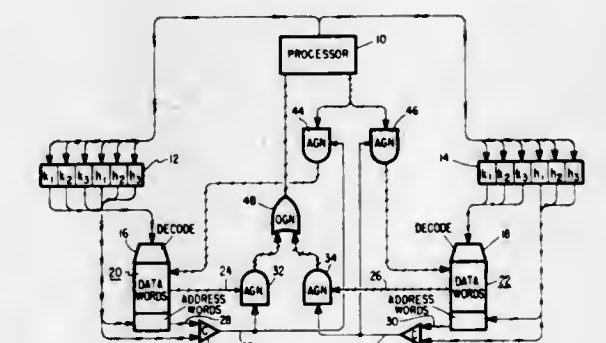
themselves to be stored sequentially in a normal buffer area in memory or individually segregated in a second buffer area in memory or stored in both of these areas simultaneously and which can switch the normal buffer area to a predetermined location in memory whereby the incoming characters are routed away from the old buffer area in memory to the new buffer area.

3,601,811
LEARNING MACHINE
Hirokazu Yoshino, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 9, 1968, Ser. No. 782,374
Claims priority, application Japan, Dec. 18, 1967, 42/82473
Int. Cl. G06f 11/00
U.S. Cl. 340—172.5 6 Claims



A learning machine having a decision element, a comparator, a learning pulse generator, a monostable circuit, a multistable circuit, a control switch circuit and a signal delay circuit. All these circuits are in the form of logic circuits whereby the machine can fully automatically and digitally be controlled until an actual output derived in response to application of input patterns coincides with a desired output value for the correct classification of the input patterns.

3,601,812
MEMORY SYSTEM
Joseph A. Weisbecker, Cherry Hill, N.J., assignor to RCA Corporation
Filed Jan. 22, 1969, Ser. No. 793,043
Int. Cl. G11c 15/00, 7/00
U.S. Cl. 340—172.5 21 Claims



Memory system for buffering several computers to a central storage unit or a computer to several small memory units, and a partitioned address scheme for the efficient use thereof. The digits of the address are decomposed into two disjoint subsets, one of which is used as a buffer memory address and the other of which is stored with the data word to effect identification thereof.

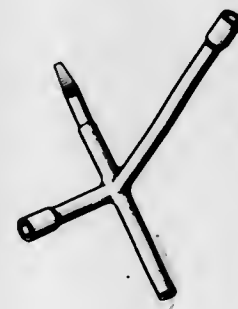
DESIGNS

AUGUST 24, 1971

221,506
COMBINED TOILET BRUSH AND HOLDER
 Robert A. O'Neil, Glen Ellyn, Ill., assignor to Kellogg
 Brush Manufacturing Co., Easthampton, Mass.
 Filed May 27, 1970, Ser. No. 23,175
 Term of patent 14 years
 Int. Cl. D4—01
 U.S. Cl. D4—9



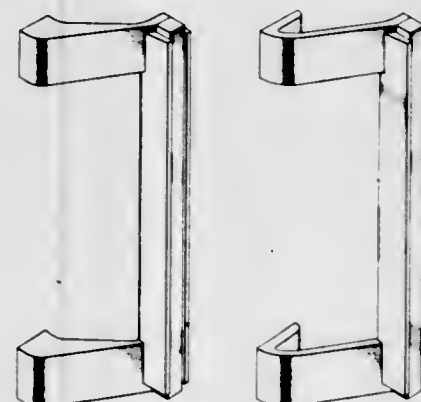
221,508
AUTOMOBILE LUG WRENCH
 Normand L. Chapdelaine, 124 Olympic Ave.,
 Woonsocket, R.I. 02895
 Continuation-in-part of design application Ser. No. 14,431,
 Nov. 13, 1968. This application Mar. 19, 1969, Ser.
 No. 16,322
 Term of patent 14 years
 Int. Cl. D8—02
 U.S. Cl. D8—26



221,507
ELECTRIC GRASS TRIMMER
 Roderick F. Bunyea, Cockeysville, Md., assignor to The
 Black and Decker Manufacturing Company, Towson,
 Md.
 Filed July 24, 1970, Ser. No. 24,116
 Term of patent 14 years
 Int. Cl. D8—01
 U.S. Cl. D8—8



221,509
DOOR PULL
 Malcolm Leland, Box 54, Potrero, Calif. 92063
 Filed Apr. 10, 1970, Ser. No. 22,375
 Term of patent 14 years
 Int. Cl. D8—03
 U.S. Cl. D8—171

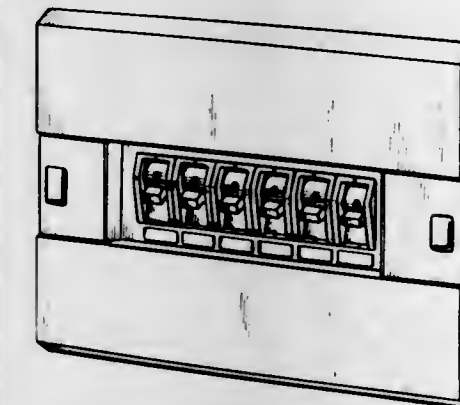


AUGUST 24, 1971

U. S. PATENT OFFICE

1339

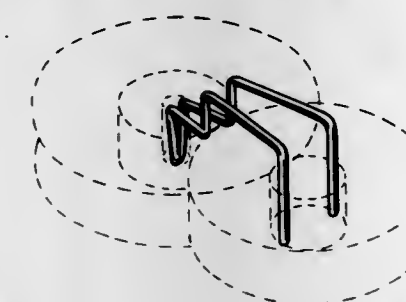
221,510
COMBINED COVERING PLATE AND SWITCHES
FOR ELECTRICAL STATIONS, ELECTRICAL
PANELS AND THE LIKE
 Giuseppe Zecca, Via Monte Tabor 16, Varese, Italy
 Filed June 16, 1970, Ser. No. 23,522
 Claims priority, application Italy Jan. 10, 1970
 Term of patent 14 years
 Int. Cl. D13—03
 U.S. Cl. D8—181



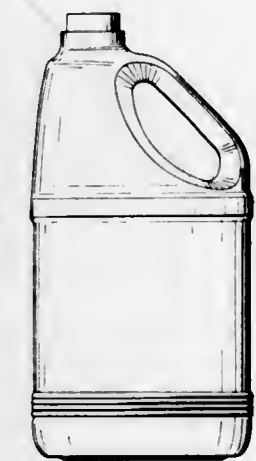
221,511
COMBINATION CORD AND ROPE WINDER
 Leonard M. Dufault, 609 N. Naches Ave.,
 Yakima, Wash. 98901
 Filed May 14, 1970, Ser. No. 22,977
 Term of patent 14 years
 Int. Cl. D8—05
 U.S. Cl. D8—220



221,512
CLIP FOR TYPEWRITER RIBBON SPOOLS
 Robert W. Weller, P.O. Box 398, Lomita, Calif. 90717
 Filed May 19, 1969, Ser. No. 17,208
 Term of patent 14 years
 Int. Cl. D8—03
 U.S. Cl. D8—259



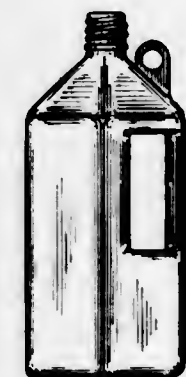
221,513
JUG
 Donald J. Leary and Doyle J. Morgan, Toledo, Ohio,
 assignors to Owens-Illinois, Inc., Toledo, Ohio
 Filed July 17, 1970, Ser. No. 24,009
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—39



221,514
JUG
 Donald J. Leary and Doyle J. Morgan, Toledo, Ohio,
 assignors to Owens-Illinois, Inc., Toledo, Ohio
 Filed July 17, 1970, Ser. No. 24,011
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—39



221,515
JUG
 Harold A. Betka, Waukegan, Ill., assignor to
 Abbott Laboratories, North Chicago, Ill.
 Filed Feb. 16, 1970, Ser. No. 21,443
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—40



221,516
JUG OR SIMILAR ARTICLE
 Harry Crisci, P.O. Box 231, New Castle, Pa. 16103
 Filed Mar. 18, 1970, Ser. No. 21,950
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—40



221,517
BOTTLE
 Warren J. Luedtke, Racine, Wis., assignor to
 S. C. Johnson & Son, Inc., Racine, Wis.
 Filed June 1, 1970, Ser. No. 23,239
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—42



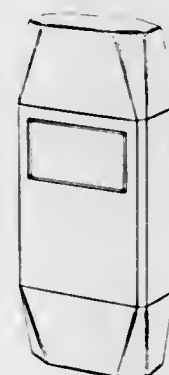
221,518
JUG
 Richard L. Weckman, Perrysburg, Ohio, assignor to
 Owens-Illinois, Inc., Toledo, Ohio
 Filed July 1, 1970, Ser. No. 23,792
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—43



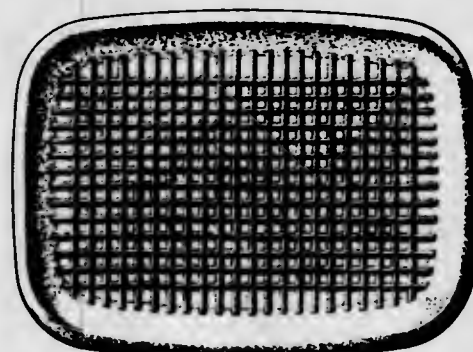
221,519
JUG
 James E. Plummer, Toledo, Ohio, assignor to
 Owens-Illinois, Inc., Toledo, Ohio
 Filed July 1, 1970, Ser. No. 23,794
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—48



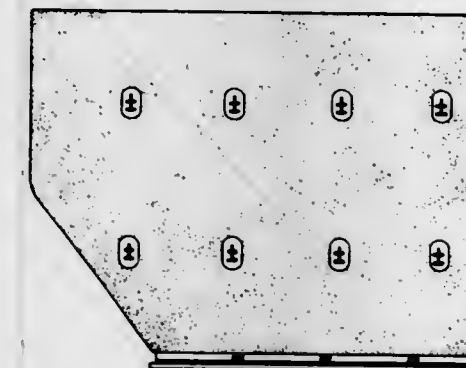
221,520
COMBINED BOTTLE AND OVERCAP THEREFOR
 James E. Plummer, Toledo, Ohio, assignor to
 Owens-Illinois, Inc., Toledo, Ohio
 Filed July 17, 1970, Ser. No. 24,008
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—130



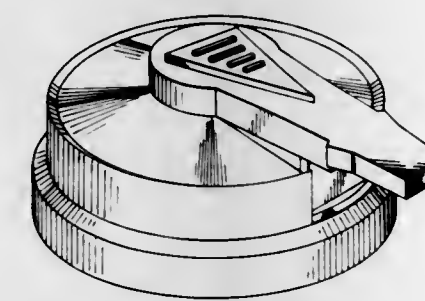
221,521
PACKAGING TRAY
 Kenneth L. Crabtree, Fairfield, Maine, assignor to
 Keyes Fibre Company, Waterville, Maine
 Filed Apr. 27, 1970, Ser. No. 22,642
 Term of patent 14 years
 Int. Cl. D9—99
 U.S. Cl. D9—219



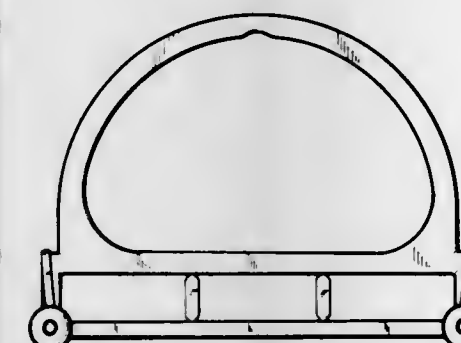
221,522
SHIPPING CONTAINER
 Oscar W. Meller, Akron, Edsel F. Moffitt, Tallmadge,
 and Frank C. Morse and Walter F. Sprick, Akron,
 Ohio, assignors to Goodyear Aerospace Corporation,
 Akron, Ohio
 Filed Jan. 16, 1970, Ser. No. 20,952
 Term of patent 14 years
 Int. Cl. D9—04
 U.S. Cl. D9—246



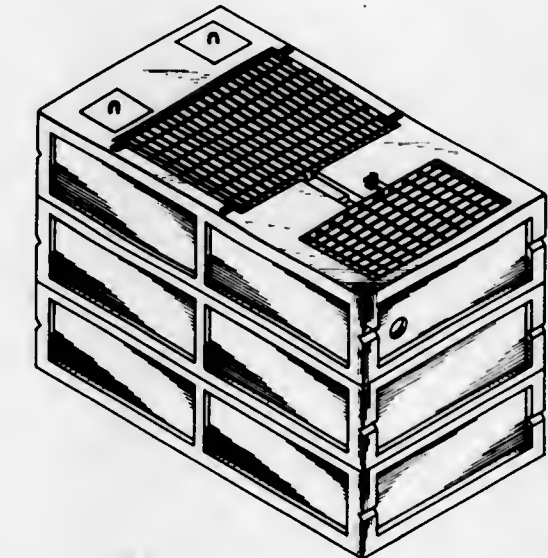
221,523
DISPENSER CAP FOR A PRESSURIZED CONTAINER
 Jimmie L. Mason, Hacienda Heights, and Howard Clyde
 Tracy, Jr., Los Angeles, Calif., assignors to Dart In-
 dustries Inc., Los Angeles, Calif.
 Filed Apr. 3, 1970, Ser. No. 22,234
 Term of patent 14 years
 Int. Cl. D9—07
 U.S. Cl. D9—258



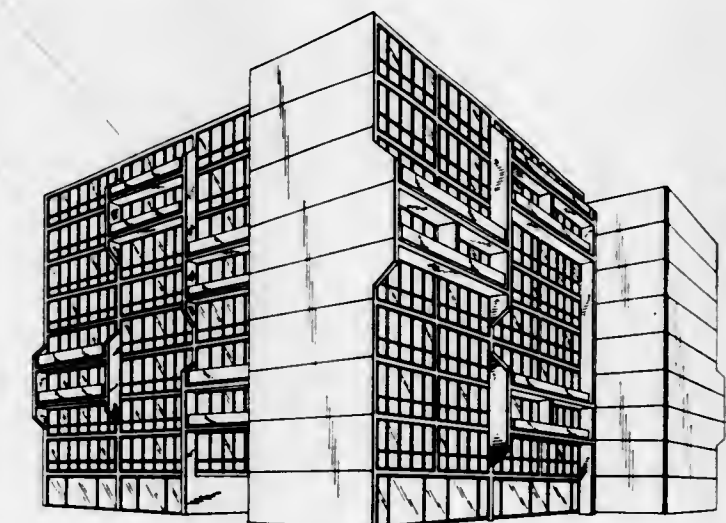
221,524
BAG CARRYING HANDLE
 Allen I. Field, 147 Valley Stream Road, Larchmont, N.Y.
 10538, and Sidney P. Field, 226 Beach 134th St., Belle
 Harbor, N.Y.
 Filed July 30, 1970, Ser. No. 24,220
 Term of patent 14 years
 Int. Cl. D9—02
 U.S. Cl. D9—292



221,525
SEWAGE TREATMENT PLANT
 David S. MacLaren, 21176 Brantley Road,
 Shaker Heights, Ohio 44120
 Filed Mar. 17, 1970, Ser. No. 21,933
 Term of patent 14 years
 Int. Cl. D25—99
 U.S. Cl. D13—1



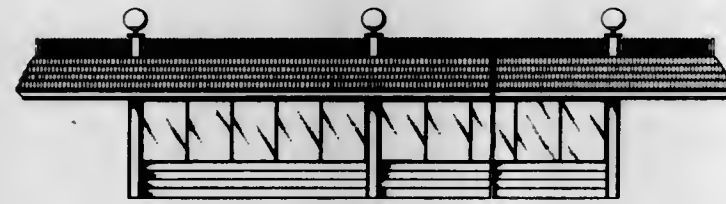
221,526
BUILDING
 Walter Fisher, Brookline, Mass., assignor to
 Fox Ledge Corp.
 Filed Apr. 21, 1970, Ser. No. 22,543
 Term of patent 14 years
 Int. Cl. D25—03
 U.S. Cl. D13—1



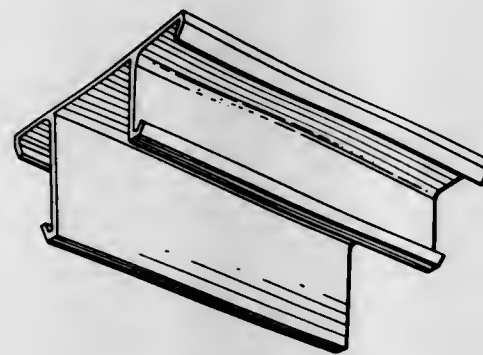
221,527
CAR WASH STRUCTURE
 James W. Baker, Santa Monica, Calif., assignor to Hunter
 Structures, Inc., Los Angeles, Calif.
 Filed July 20, 1970, Ser. No. 24,023
 Term of patent 14 years
 Int. Cl. D25—04
 U.S. Cl. D13—1



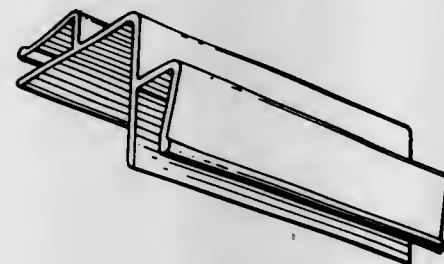
221,528
CAR WASH STRUCTURE
 James W. Baker, Santa Monica, Calif., assignor to Hunter Structures, Inc., Los Angeles, Calif.
 Filed July 20, 1970, Ser. No. 24,026
 Term of patent 14 years
 Int. Cl. D25—04
 U.S. Cl. D13—1



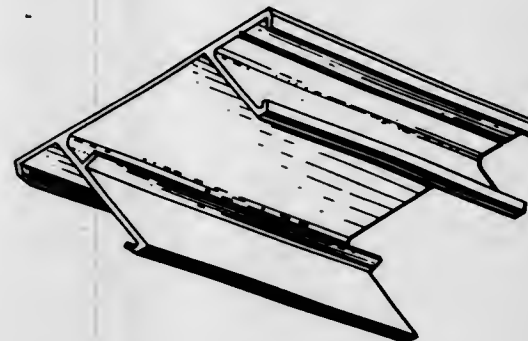
221,529
EXTRUDED STRAIGHT EAVE CONNECTOR MEMBER
 Irvine Kimmel, 2375 NW. 75th St., Miami, Fla. 33155
 Filed Aug. 17, 1970, Ser. No. 24,542
 Term of patent 14 years
 Int. Cl. D25—03
 U.S. Cl. D13—1



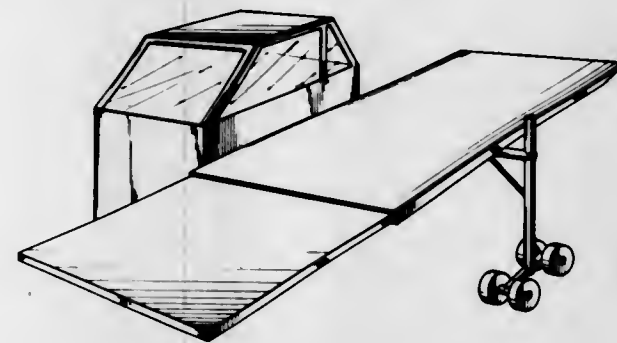
221,530
EXTRUDED CORNER TRIM MEMBER
 Irvine Kimmel, 2375 NW. 75th St., Miami, Fla. 33155
 Filed Aug. 17, 1970, Ser. No. 24,543
 Term of patent 14 years
 Int. Cl. D25—03
 U.S. Cl. D13—1



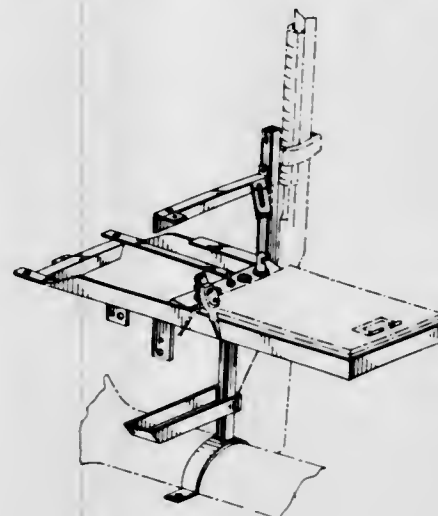
221,531
EXTRUDED TAPERED EAVE CONNECTOR MEMBER
 Irvine Kimmel, 2375 NW. 75th St., Miami, Fla. 33155
 Filed Aug. 17, 1970, Ser. No. 24,545
 Term of patent 14 years
 Int. Cl. D25—03
 U.S. Cl. D13—1



221,532
COMBINED MOTOR VEHICLE AND ADJUSTABLE LOADING PLATFORM
 Bernard S. Sain, 321 Charnwood Road, New Providence, N.J. 07974
 Filed Apr. 9, 1970, Ser. No. 22,346
 Term of patent 3½ years
 Int. Cl. D12—09
 U.S. Cl. D14—3



221,533
SQUAD CAR EQUIPMENT CONSOLE OR SIMILAR ARTICLE
 Lyle M. Browning, 1408 Garrett St., Yakima, Wash. 98902
 Filed July 10, 1969, Ser. No. 18,170
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D14—6



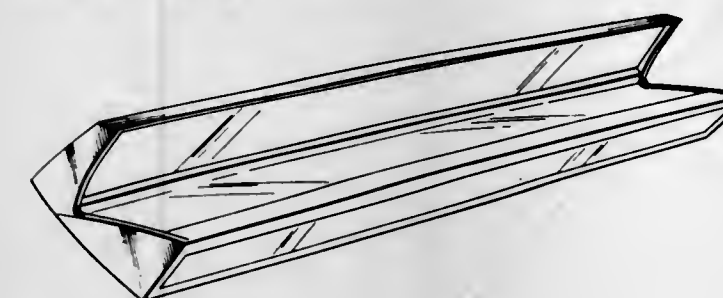
221,534
STATIONARY CAR-TOP MIRROR
 Lynn Harold Hodge, Highland Park, Mich. (12618 Wyoming Ave., Detroit, Mich. 48238)
 Filed Aug. 13, 1969, Ser. No. 18,668
 Term of patent 3½ years
 Int. Cl. D12—16
 U.S. Cl. D14—6



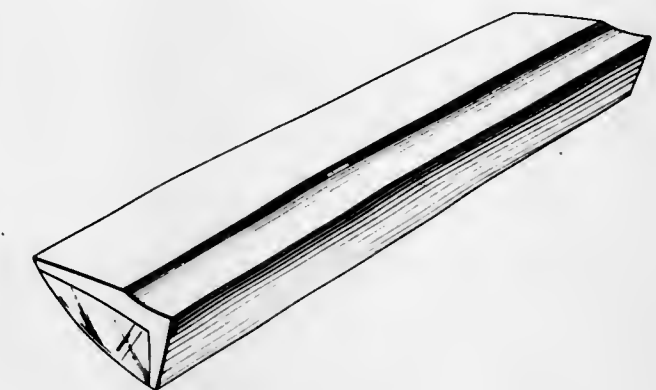
221,535
WINDSCREEN WIPER BLADE HOLDER
 Timothy H. Norman, Scotton, near Knaresborough, England, assignor to Spafax (1965) Limited, Chippenham, Wiltshire, England
 Filed Mar. 5, 1970, Ser. No. 21,755
 Claims priority, application Great Britain Sept. 10, 1969
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D14—6



221,536
PERISCOPE-TYPE REAR VIEW MIRROR
 Lynn Harold Hodge, Highland Park, Mich. (12618 Wyoming Ave., Detroit, Mich. 48238)
 Filed Apr. 6, 1970, Ser. No. 22,262
 Term of patent 3½ years
 Int. Cl. D12—14
 U.S. Cl. D14—6



221,537
PERISCOPE-TYPE REAR VIEW MIRROR
 Lynn Harold Hodge, Highland Park, Mich. (12618 Wyoming Ave., Detroit, Mich. 48238)
 Filed Apr. 6, 1970, Ser. No. 22,269
 Term of patent 3½ years
 Int. Cl. D12—14
 U.S. Cl. D14—6



221,538
PERISCOPE-TYPE REAR VIEW MIRROR
 Lynn Harold Hodge, Highland Park, Mich. (12618 Wyoming Ave., Detroit, Mich. 48238)
 Filed Apr. 6, 1970, Ser. No. 22,270
 Term of patent 3½ years
 Int. Cl. D12—14
 U.S. Cl. D14—6

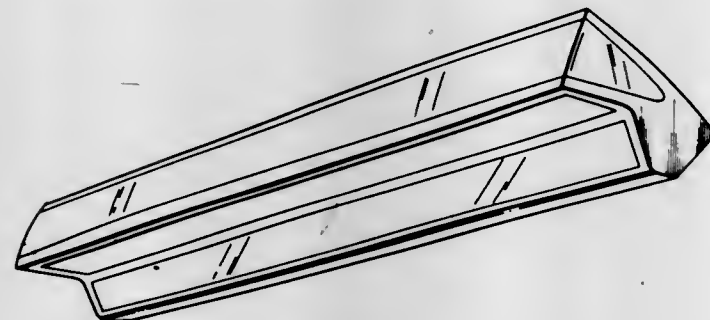


221,539
PERISCOPE-TYPE REAR VIEW MIRROR
 Lynn Harold Hodge, Highland Park, Mich. (12618 Wyoming Ave., Detroit, Mich. 48238)
 Filed Apr. 6, 1970, Ser. No. 22,271
 Term of patent 3½ years
 Int. Cl. D12—14
 U.S. Cl. D14—6



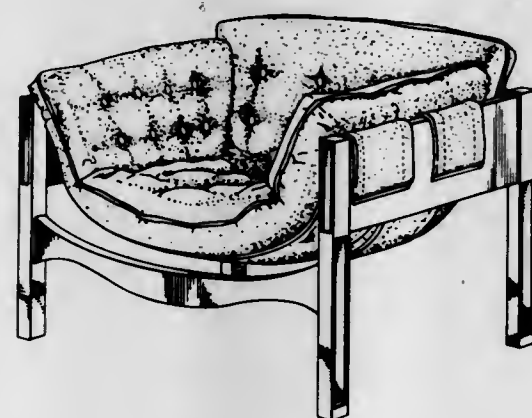
221,540
PERISCOPE-TYPE REAR VIEW MIRROR
 Lynn Harold Hodge, Highland Park, Mich.
 (12618 Wyoming Ave., Detroit, Mich. 48238)
 Filed Apr. 6, 1970, Ser. No. 22,272
 Term of patent 3½ years
 Int. Cl. D12—14

U.S. Cl. D14—6



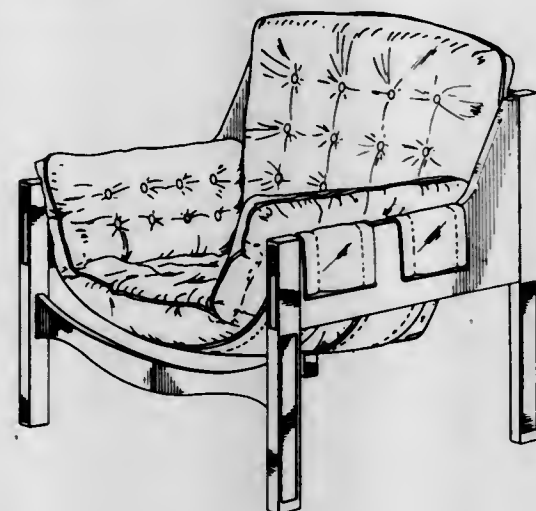
221,541
CHAIR
 Morris F. Fisher, 9820 Deerfield Circle,
 Carmel, Ind. 46032
 Filed Apr. 23, 1970, Ser. No. 22,604
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D15—1



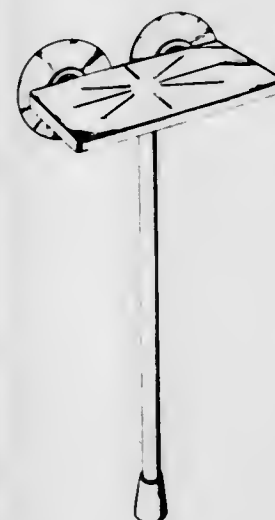
221,542
CHAIR
 Morris F. Fisher, 9820 Deerfield Circle,
 Carmel, Ind. 46032
 Filed Apr. 23, 1970, Ser. No. 22,605
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D15—1



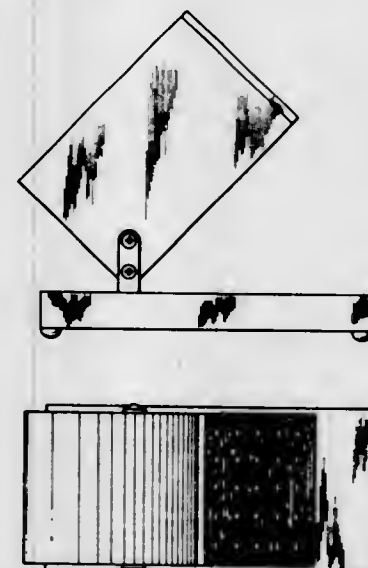
221,543
SHOWER STEP STOOL
 George W. Lassen, 834 P Ronda Mendoza,
 Laguna Hills, Calif. 92653
 Filed Dec. 22, 1969, Ser. No. 20,589
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D15—8



221,544
PIPETTE RACK
 Donald H. McGlory, 5 Lee Ann Drive,
 Barrington, R.I. 02806
 Filed Feb. 24, 1970, Ser. No. 21,600
 Term of patent 14 years
 Int. Cl. D24—02; D6—01

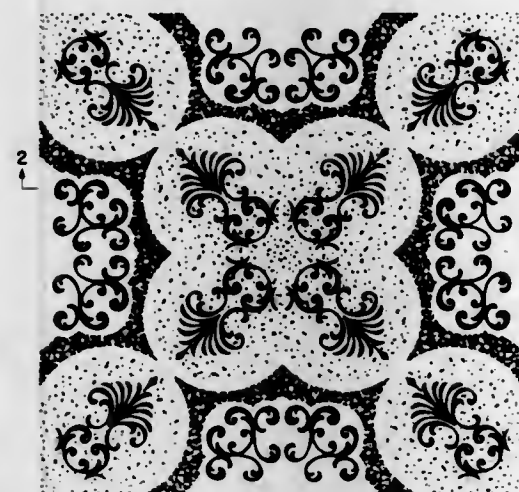
U.S. Cl. D16—1



221,545
FLOOR TILE OR SIMILAR ARTICLE
 John Stanley Madsen, Montgomery Township, Belle Mead
 County, N.J., assignor to GAF Corporation, New York,
 N.Y.

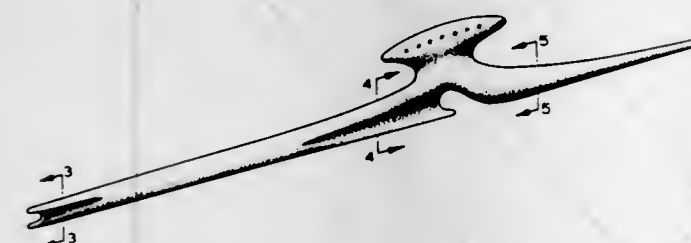
Filed June 5, 1970, Ser. No. 23,328
 Term of patent 14 years
 Int. Cl. D25—01

U.S. Cl. D18—2



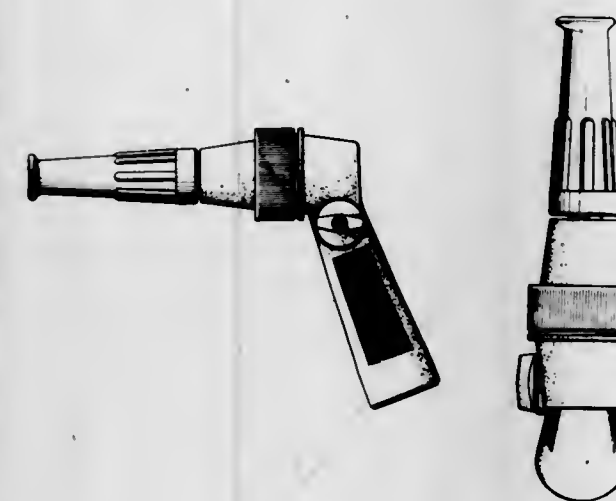
221,546
TIP-UP FOR ICE FISHING
 Karl G. T. Happe, 38 Tara Ave.,
 Scarborough, Ontario, Canada
 Filed Oct. 2, 1969, Ser. No. 19,382
 Term of patent 14 years
 Int. Cl. D22—08

U.S. Cl. D22—22



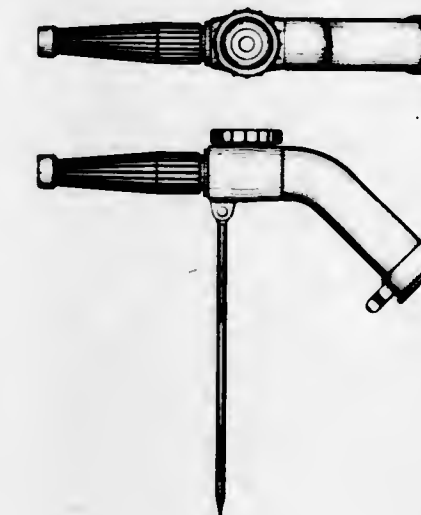
221,547
MULTIPLE PURPOSE SPRAY GUN
 Raymond Kleves, 421 Wilson St. NE.,
 Minneapolis, Minn. 55413
 Filed Apr. 15, 1970, Ser. No. 22,439
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—17



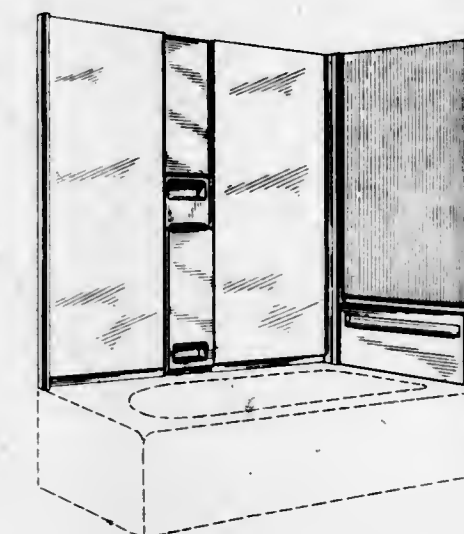
221,548
**COMBINATION WATER NOZZLE AND
 SPRAY HEAD**
 William B. Delamater, 9114 Valley View,
 Whittier, Calif. 90603
 Filed Dec. 4, 1969, Ser. No. 20,352
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—34

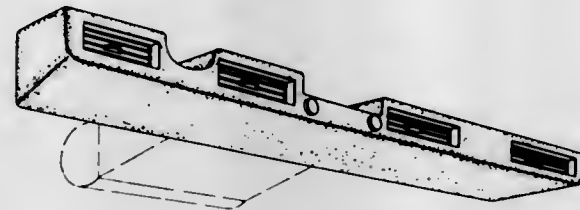


221,549
BATHTUB WALL UNIT
 Raymond Wallace Young, Louisville, Ky., assignor to
 American Standard Inc., New York, N.Y.
 Filed July 24, 1969, Ser. No. 18,385
 Term of patent 14 years
 Int. Cl. D23—02

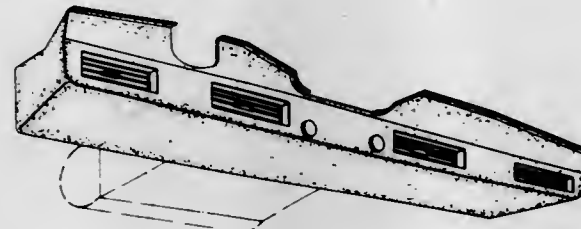
U.S. Cl. D23—49



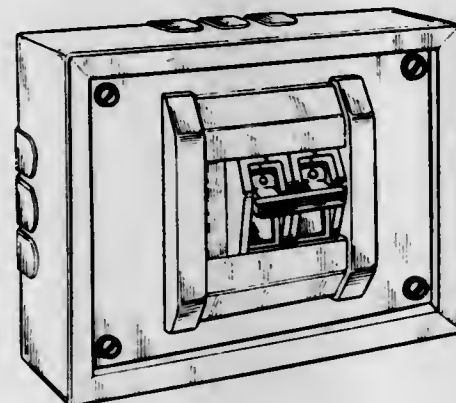
221,550
COMBINED OUTLET AND CONTROL PANEL FOR AN AUTOMOBILE AIR-CONDITIONER
 Don P. Dixon, 1937 Shipman, San Antonio, Tex. 78219
 Filed June 26, 1970, Ser. No. 23,680
 Term of patent 14 years
 Int. Cl. D23—04
 U.S. Cl. D23—142



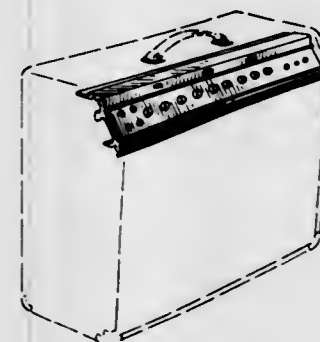
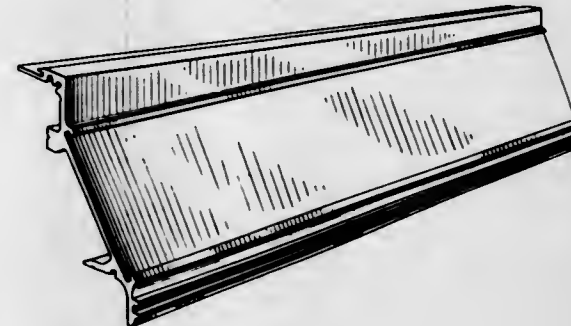
221,551
COMBINED OUTLET AND CONTROL PANEL FOR AN AUTOMOBILE AIR-CONDITIONER
 Don P. Dixon, 1937 Shipman, San Antonio, Tex. 78219
 Filed June 26, 1970, Ser. No. 23,688
 Term of patent 14 years
 Int. Cl. D23—04
 U.S. Cl. D23—142



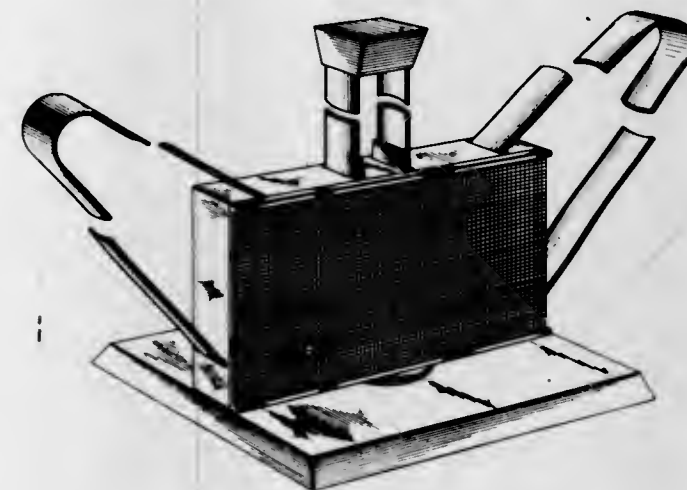
221,552
CIRCUIT BREAKER OR THE LIKE
 Giuseppe Zecca, Via Monte Tabor 16, Verese, Italy
 Filed June 16, 1970, Ser. No. 23,523
 Claims priority, application Italy Jan. 10, 1970
 Term of patent 14 years
 Int. Cl. D13—03
 U.S. Cl. D26—13



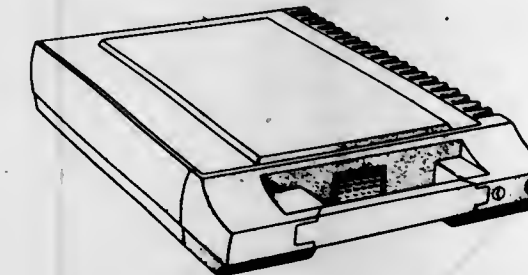
221,553
EXTRUDED PANEL FOR MUSICAL AND OTHER INSTRUMENTS
 Murray S. Figlin, 432 Edgewood Road, Linden, N.J. 07036, and Roger F. Cox, 16 Hyacinth Drive, Fords, N.J. 08863
 Continuation of design applications Ser. No. 16,102 and Ser. No. 16,103, both filed Mar. 7, 1969, and both now abandoned. This application Dec. 22, 1969, Ser. No. 20,579
 Term of patent 14 years
 Int. Cl. D14—04
 U.S. Cl. D26—14



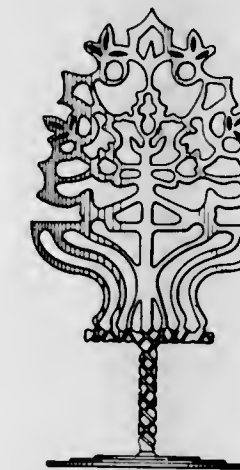
221,554
TELEVISION ANTENNA
 Robert D. Kahn, Rockville Centre, N.Y., assignor to Fedtro, Inc., Rockville Centre, N.Y.
 Filed Apr. 16, 1970, Ser. No. 22,461
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14



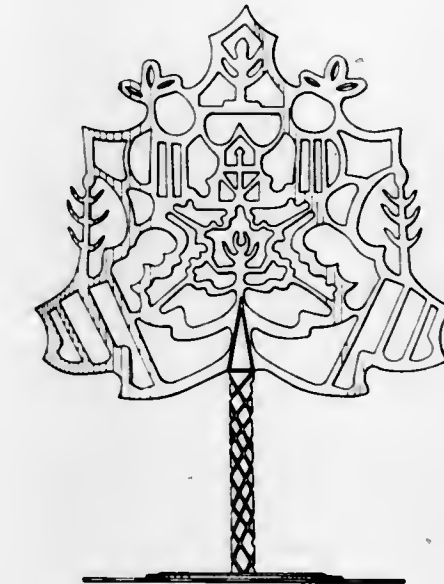
221,555
TWO-WAY RADIO OR SIMILAR ARTICLE
 Rudolph W. Krolopp, Palatine, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
 Filed July 13, 1970, Ser. No. 23,916
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14



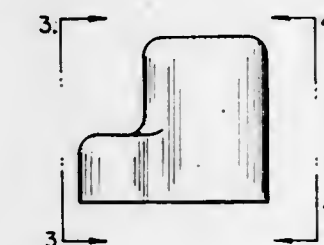
221,556
RELIGIOUS ORNAMENT
 Elizabeth Wallace, 64 Clinton St., Paterson, N.J. 07522
 Filed June 30, 1970, Ser. No. 23,758
 Term of patent 14 years
 Int. Cl. D11—02
 U.S. Cl. D29—23



221,557
RELIGIOUS ORNAMENT
 George M. Wallace, 64 Clinton St., Paterson, N.J. 07522
 Filed June 30, 1970, Ser. No. 23,764
 Term of patent 14 years
 Int. Cl. D11—02
 U.S. Cl. D29—23



221,558
ANIMAL BED
 Robert O. Zimmerman, 33542 Morris St., Wayne, Mich. 48184
 Filed Apr. 3, 1970, Ser. No. 22,236
 Term of patent 14 years
 Int. Cl. D30—06
 U.S. Cl. D30—41

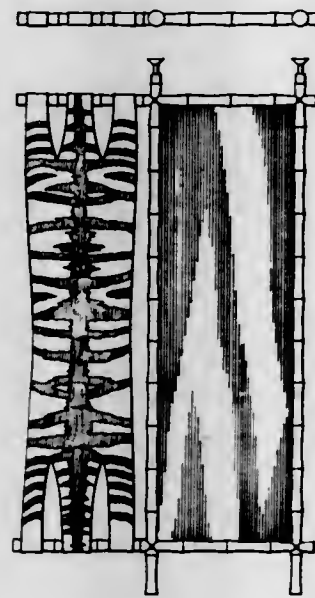


221,559
DOG TOY
 LaVerne Frifogle, 61 N. Turner Road, Youngstown, Ohio 44515
 Filed July 6, 1970, Ser. No. 23,831
 Term of patent 14 years
 Int. Cl. D30—99
 U.S. Cl. D30—42



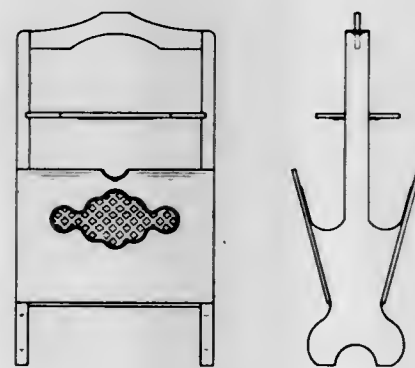
221,560
ROOM DIVIDER
 John H. Jordan, Jr., 8124 S. Crandon Ave.,
 Chicago, Ill. 60617
 Filed Feb. 6, 1970, Ser. No. 21,312
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—1



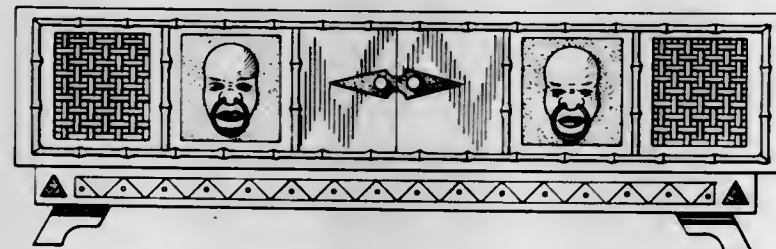
221,561
MAGAZINE RACK
 Ransom Reaves, 679 E. McKellar,
 Memphis, Tenn. 38106
 Filed Apr. 21, 1970, Ser. No. 22,549
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—2



221,562
CONSOLE
 John H. Jordan, Jr., 8124 S. Crandon Ave.,
 Chicago, Ill. 60617
 Filed Feb. 6, 1970, Ser. No. 21,311
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—19



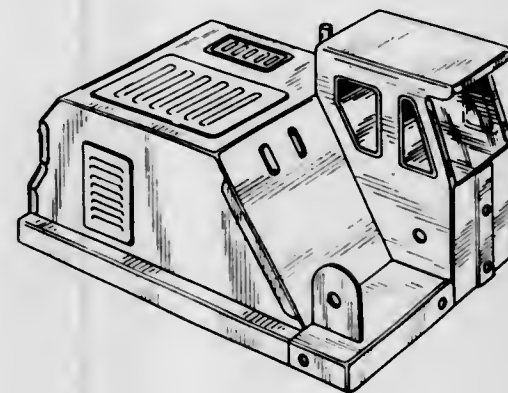
221,563
GOLF CLUB HEAD COVER
 Edward G. Bourgeois, Northampton, Mass., assignor to
 A. G. Spalding & Bros., Inc., Chicopee, Mass.
 Filed Apr. 2, 1970, Ser. No. 22,213
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5



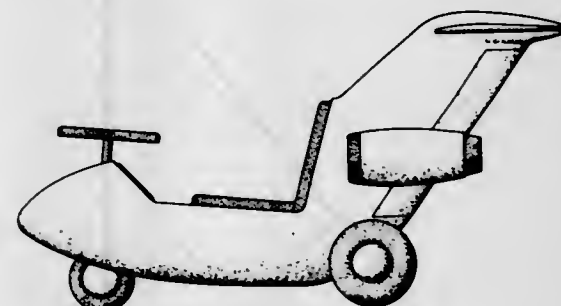
221,564
TOY BACKHOE BODY
 Lee J. Pfeilsticker, Mound, Minn., assignor to
 Tonka Corporation, Mound, Minn.
 Filed July 27, 1970, Ser. No. 24,127
 Term of patent 7 years
 Int. Cl. D21—01

U.S. Cl. D34—15



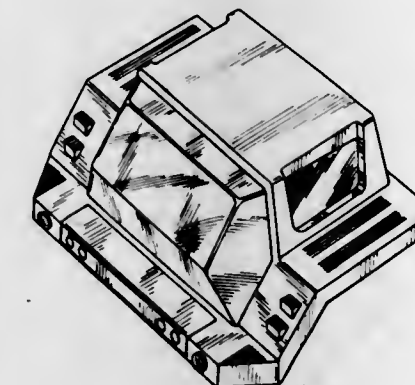
221,565
RIDING TOY
 George W. Dunbar, Nashville, Tenn., assignor to
 Kusan, Inc., Nashville, Tenn.
 Filed July 27, 1970, Ser. No. 24,143
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15



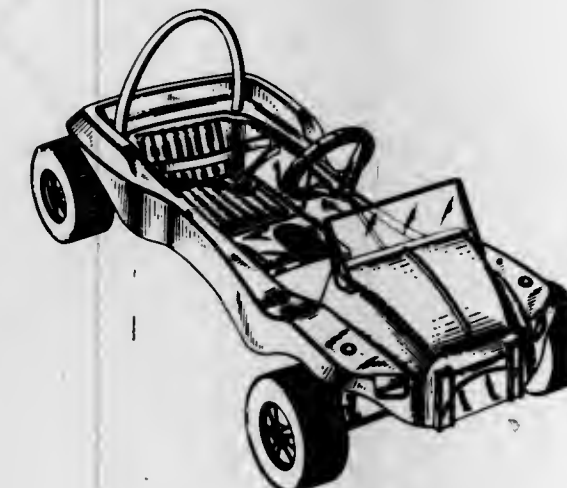
221,566
TOY TRUCK CAB
 Ira Gilford, Thousand Oaks, Calif., assignor to
 Tonka Corporation, Mound, Minn.
 Filed July 27, 1970, Ser. No. 24,128
 Term of patent 3½ years
 Int. Cl. D21—01

U.S. Cl. D34—15



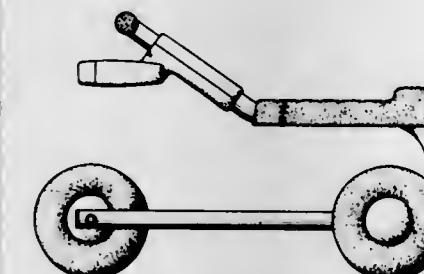
221,567
TOY VEHICLE
 Calvin S. Cook and Raymond J. Lohr, Erie, Pa.,
 assignors to Louis Marx & Co., Inc.
 Filed Aug. 3, 1970, Ser. No. 24,289
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15



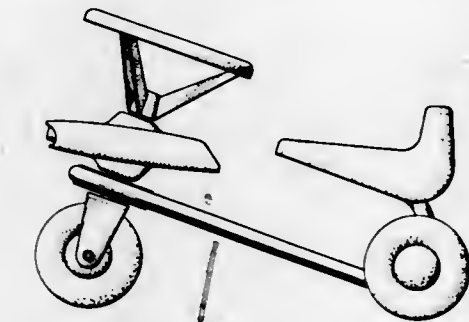
221,568
RIDING TOY
 Daniel F. Krause, Nashville, Tenn., assignor to
 Kusan, Inc., Nashville, Tenn.
 Filed Aug. 4, 1970, Ser. No. 24,296
 Term of patent 7 years
 Int. Cl. D21—01

U.S. Cl. D34—15



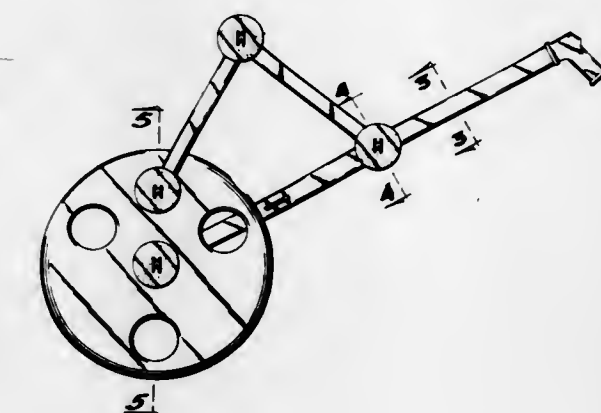
221,569
RIDING TOY
 Daniel F. Krause, Nashville, Tenn., assignor to
 Kusan, Inc., Nashville, Tenn.
 Filed Aug. 4, 1970, Ser. No. 24,298
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15



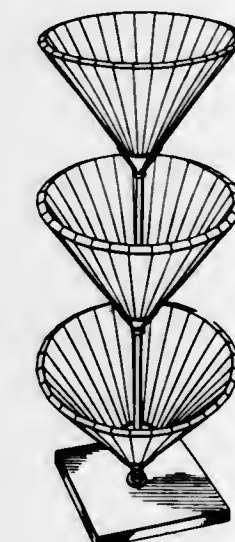
221,570
TRUNDLE TOY
 John J. Tanhauser, P.O. Box 382,
 Cambria Pines, Calif. 93428
 Filed May 13, 1970, Ser. No. 22,955
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15

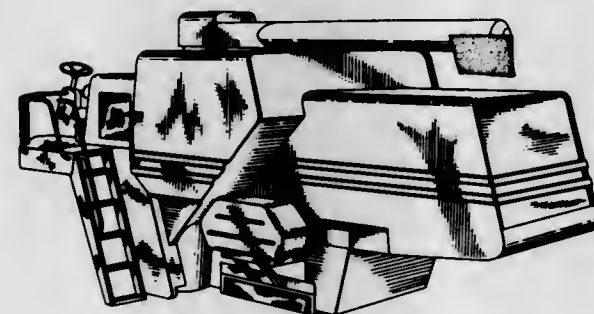
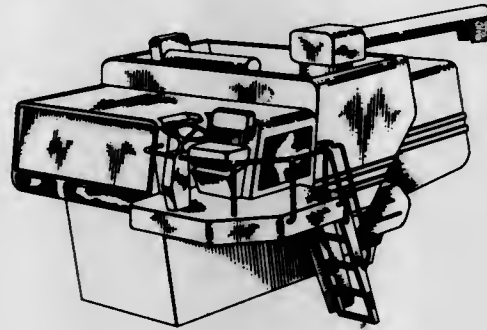


221,571
PLANTER
 Lee H. Stevens, P.O. Box 710, Escondido, Calif. 92025
 Filed May 11, 1970, Ser. No. 22,926
 Term of patent 14 years
 Int. Cl. D11—02

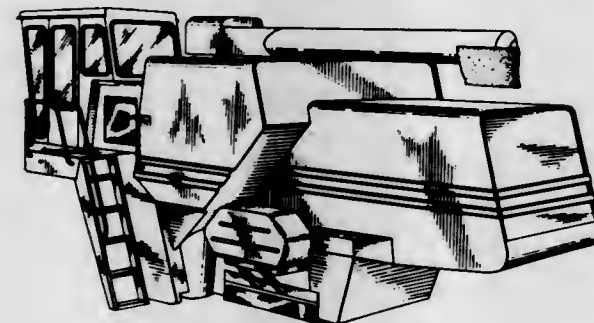
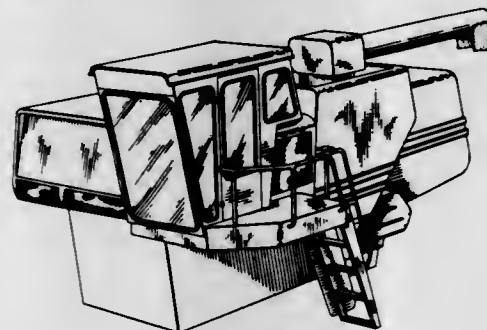
U.S. Cl. D35—3



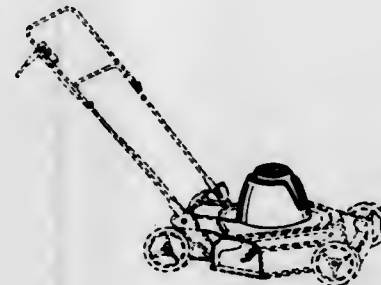
221,572
COMBINE HARVESTER
 Robert Ashton, Islington, Ontario, and Walter Hirsch, Don Mills, Ontario, Canada, assignors to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada
 Filed June 15, 1970, Ser. No. 23,501
 Term of patent 14 years
 Int. Cl. D12-09; D15-03
 U.S. Cl. D40-1



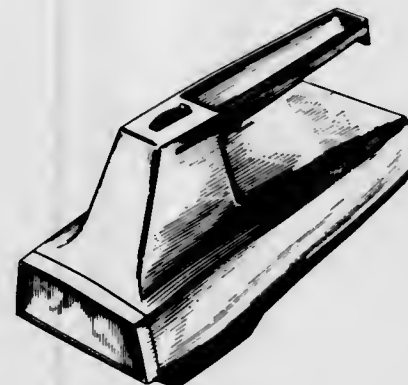
221,573
SELF-PROPELLED COMBINE
 Robert Ashton, Islington, Ontario, and Walter Hirsch, Don Mills, Ontario, Canada, assignors to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada
 Filed June 15, 1970, Ser. No. 23,502
 Term of patent 14 years
 Int. Cl. D15-03; D12-09
 U.S. Cl. D40-1



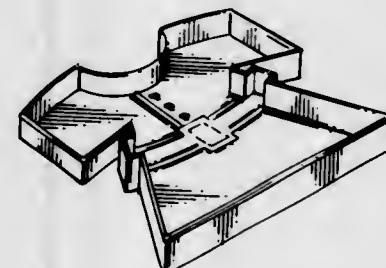
221,574
MOTOR SHROUD FOR LAWN MOWER
 Roderick F. Bunyea, Cockeysville, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
 Filed July 28, 1970, Ser. No. 24,174
 Term of patent 14 years
 Int. Cl. D8-01; D15-03
 U.S. Cl. D40-1



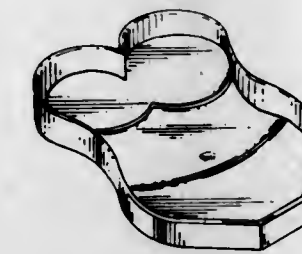
221,575
KITCHEN MIXER
 Arthur C. Christensen, Thomaston, Conn., and Monte L. Levin, New York, N.Y., assignors to Scovill Manufacturing Company, Waterbury, Conn.
 Filed June 3, 1970, Ser. No. 23,264
 Term of patent 14 years
 Int. Cl. D7-05
 U.S. Cl. D44-1



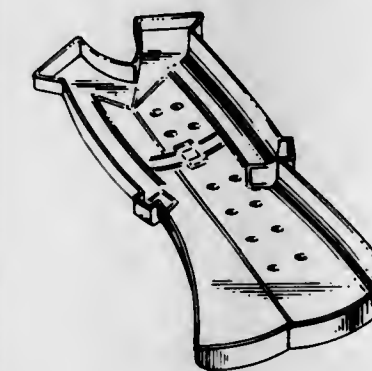
221,576
CAKEPAN OR THE LIKE
 Florene Joy Ramboldt, 12026 Dresden Place, Los Angeles, Calif. 91344
 Filed July 8, 1970, Ser. No. 23,869
 Term of patent 14 years
 Int. Cl. D7-02
 U.S. Cl. D44-1



221,577
CAKEPAN OR THE LIKE
 Florene Joy Ramboldt, 12026 Dresden Place, Los Angeles, Calif. 91344
 Filed July 8, 1970, Ser. No. 23,868
 Term of patent 14 years
 Int. Cl. D7-02
 U.S. Cl. D44-1



221,578
CAKEPAN OR THE LIKE
 Florene Joy Ramboldt, 12026 Dresden Place, Los Angeles, Calif. 91344
 Filed July 8, 1970, Ser. No. 23,867
 Term of patent 14 years
 Int. Cl. D7-02
 U.S. Cl. D44-1



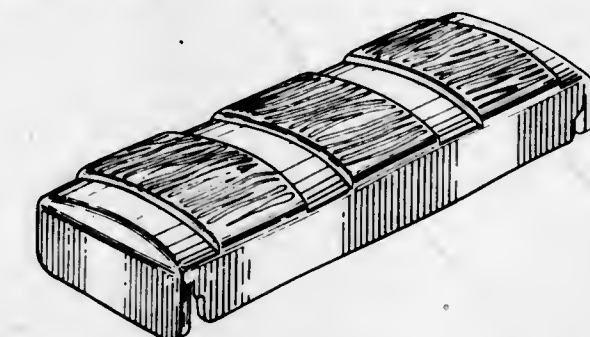
221,579
WATCH BRACELET OR SIMILAR ARTICLE
 Yuen Sang Poon, 36 Kam Wah St., Hong Kong
 Filed Apr. 24, 1970, Ser. No. 22,624
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4



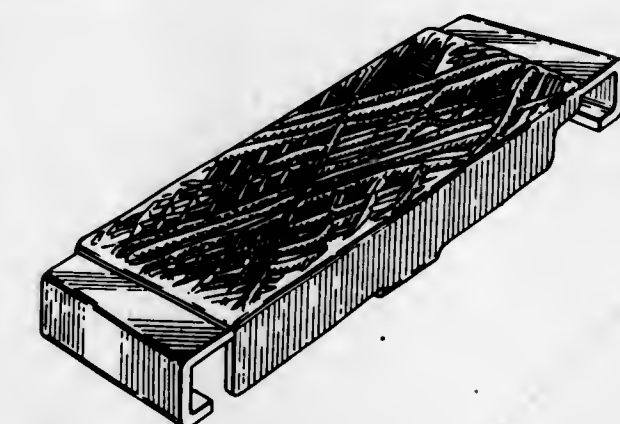
221,580
WATCH BRACELET OR SIMILAR ARTICLE
 Yuen Sang Poon, 36 Kam Wah St., Hong Kong
 Filed Apr. 24, 1970, Ser. No. 22,625
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4



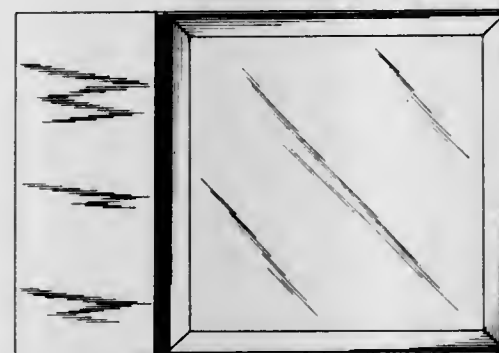
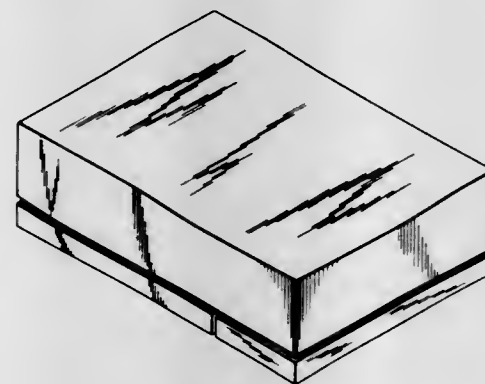
221,581
EXPANSIBLE LINK CHAIN FOR A BRACELET OR SIMILAR ARTICLE
 Murray L. Cowan, Norwood, Mass. (% Speidel Division, 70 Ship St., Providence, R.I. 02903)
 Filed July 16, 1970, Ser. No. 23,976
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4



221,582
EXPANSIBLE LINK CHAIN FOR A BRACELET OR SIMILAR ARTICLE
 Raymond C. Fontaine, Greenville, R.I. (% Speidel Division, 70 Ship St., Providence, R.I. 02903)
 Filed July 20, 1970, Ser. No. 24,031
 Term of patent 14 years
 Int. Cl. D11-01
 U.S. Cl. D45-4



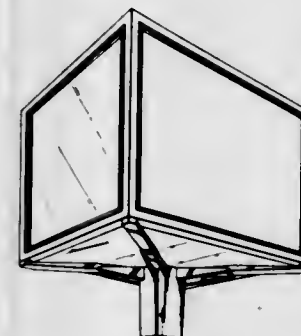
221,583
POST-MOUNTED LUMINAIRE
 Anthony C. Donato, Westfield, N.J., assignor to Lightolier Incorporated, Jersey City, N.J.
 Filed Dec. 24, 1969, Ser. No. 20,639
 Term of patent 14 years
 Int. Cl. D26—03
 U.S. Cl. D48—31



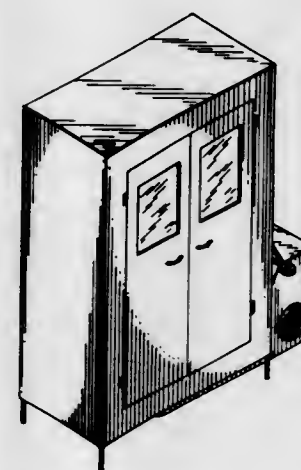
221,584
PORTABLE LIGHT
 Julian J. Wierzbicki, Peabody, and Harold L. Hough, Beverly, Mass., assignors to Sylvania Electric Products Inc.
 Filed July 2, 1970, Ser. No. 23,816
 Term of patent 14 years
 Int. Cl. D26—02
 U.S. Cl. D48—24



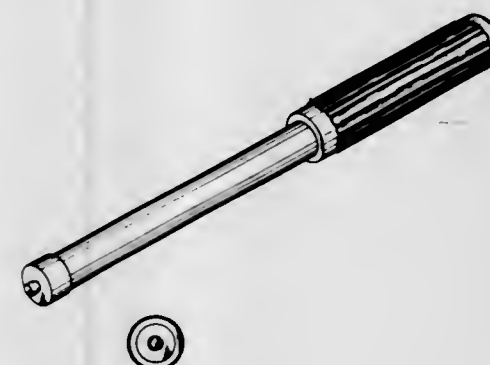
221,585
LIGHT FIXTURE
 Buell Moore, Houston, Tex., assignor to Esquire, Inc., New York, N.Y.
 Original design application Apr. 10, 1969, Ser. No. 16,662, now Patent No. 2,176,377, dated May 19, 1970. Divided and this application Mar. 3, 1970, Ser. No. 21,725
 Term of patent 14 years
 Int. Cl. D26—03
 U.S. Cl. D48—31



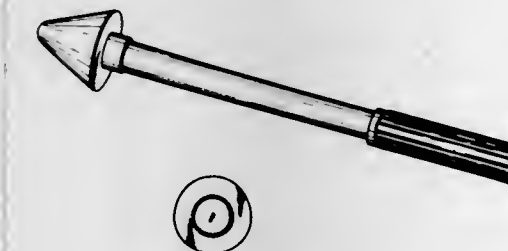
221,586
STEAM/AIR FINISHING CABINET
 Richard H. Dison, 214 N. Broadway, Rochester, Minn. 55901
 Filed June 15, 1970, Ser. No. 23,497
 Term of patent 3½ years
 Int. Cl. D15—05
 U.S. Cl. D49—1



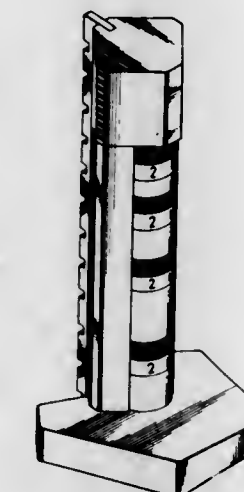
221,587
HIGH FREQUENCY PROBE
 Edward E. Aslan, Plainview, N.Y., assignor to The Narda Microwave Corporation, Plainview, N.Y.
 Filed Mar. 23, 1970, Ser. No. 21,999
 Term of patent 14 years
 Int. Cl. D10—99
 U.S. Cl. D52—6



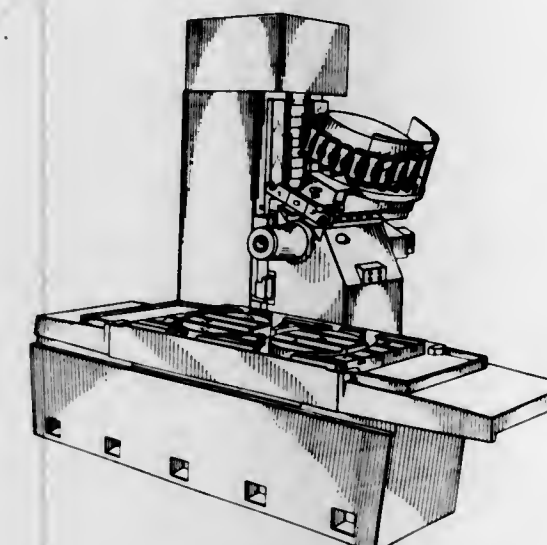
221,588
HIGH FREQUENCY PROBE
 Edward E. Aslan, Plainview, N.Y., assignor to The Narda Microwave Corporation, Plainview, N.Y.
 Filed Mar. 23, 1970, Ser. No. 22,010
 Term of patent 14 years
 Int. Cl. D10—99
 U.S. Cl. D52—6



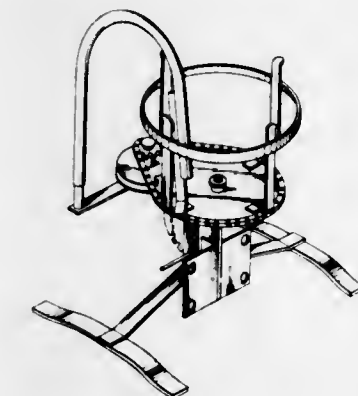
221,589
HEIGHT GAGE
 Edgar P. Freer, Los Angeles, Calif., assignor to Hubach-Freer Corporation, Woodland Hills, Calif.
 Filed May 25, 1970, Ser. No. 23,141
 Term of patent 14 years
 Int. Cl. D10—08
 U.S. Cl. D52—6



221,590
MACHINING CENTER
 Charles A. Larsen, Union Grove, Mass., Daniel J. Mousseau, Racine, and Kenneth M. Boutell, Franksville, Wis., assignors to Gorton Machine Corporation, Racine, Wis.
 Filed June 22, 1970, Ser. No. 23,589
 Term of patent 14 years
 Int. Cl. D15—99
 U.S. Cl. D54—14



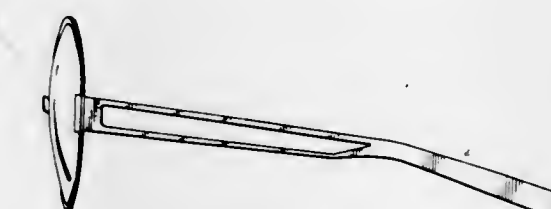
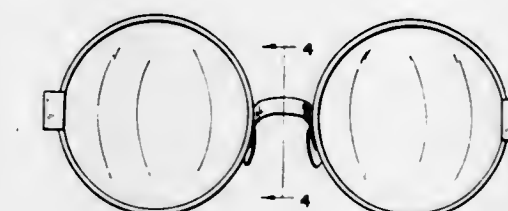
221,591
PORTABLE CEMENT MIXER
 Dale E. Cooper, Main at Boise, Emmett, Idaho 83617
 Filed May 15, 1970, Ser. No. 23,016
 Term of patent 14 years
 Int. Cl. D15—04
 U.S. Cl. D55—1



221,592
TEMPLE FOR A SPECTACLE FRAME
 Richard R. Maiese, Webster, and Harold F. Whiting, Attleboro, Mass., assignors to American Optical Corporation, Southbridge, Mass.
 Filed Mar. 25, 1970, Ser. No. 22,049
 Term of patent 7 years
 Int. Cl. D16—08
 U.S. Cl. D57—1



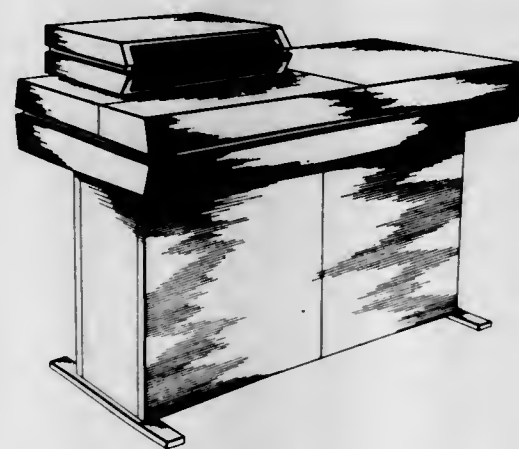
221,593
PAIR OF SPECTACLES
 Anthony Shindler, Brookline, Mass., assignor to American Optical Corporation, Southbridge, Mass.
 Filed June 25, 1970, Ser. No. 23,677
 Term of patent 7 years
 Int. Cl. D16—06
 U.S. Cl. D57—1



221,594
ONLINE/OFFLINE COMPUTER OUTPUT
MICROFILMER
 John Jamieson, Palo Alto, Calif., assignor to Peripheral
 Technology, Incorporated, Sunnyvale, Calif.
 Filed June 24, 1970, Ser. No. 23,653
 Term of patent 14 years
 Int. Cl. D16—05
 U.S. Cl. D61—1



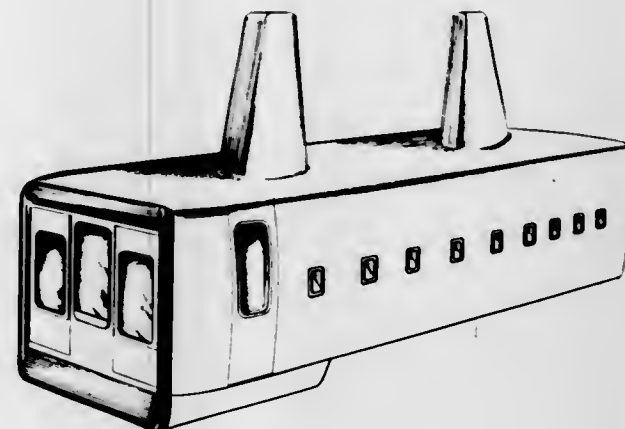
221,595
ONLINE/OFFLINE COMPUTER OUTPUT
MICROFILMER
 John Jamieson, Palo Alto, Calif., assignor to Peripheral
 Technology, Incorporated, Sunnyvale, Calif.
 Filed June 24, 1970, Ser. No. 23,654
 Term of patent 14 years
 Int. Cl. D16—05
 U.S. Cl. D61—1



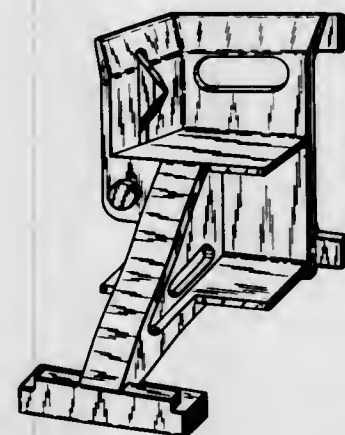
221,596
FONT OF TYPE
 David P. Brittig, Lombard, Ill., assignor to
 Rixson Inc., Franklin Park, Ill.
 Filed Mar. 4, 1970, Ser. No. 21,738
 Term of patent 14 years
 Int. Cl. D18—04
 U.S. Cl. D64—12

A B C D E F G H I J
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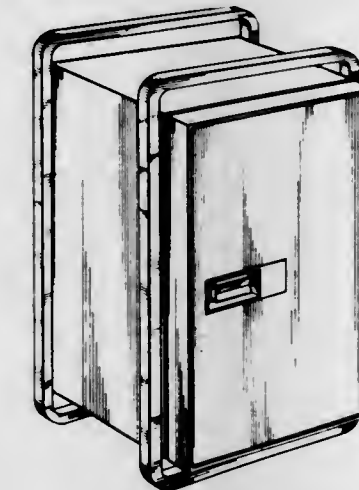
221,597
PASSENGER TRANSFER VEHICLE
 Walter S. Eggert, Jr., Huntingdon Valley, Pa. (% The
 Budd Co., 2450 Hunting Park Ave., Philadelphia, Pa.
 19132)
 Filed Dec. 30, 1969, Ser. No. 20,696
 Term of patent 14 years
 Int. Cl. D12—03
 U.S. Cl. D66—1



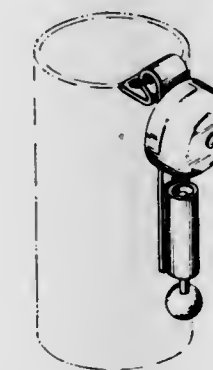
221,598
SUPPORTING PEDESTAL FOR SHIPPING
CONTAINERS
 Stephen G. Peterson, 6038 Westwood Terrace,
 Norfolk, Va. 23508
 Filed Mar. 19, 1970, Ser. No. 21,964
 Term of patent 14 years
 Int. Cl. D12—16
 U.S. Cl. D66—2



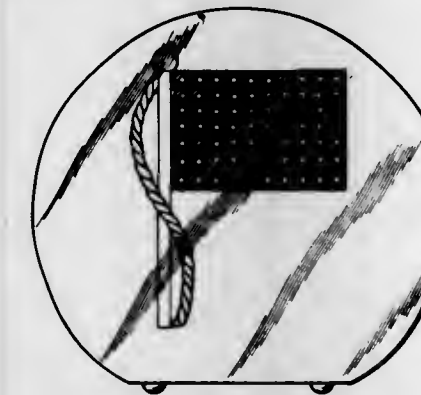
221,599
ICE CHEST
 Robert P. Brown, Greenwich, Conn., assignor to Poloron
 Products, Inc., New Rochelle, N.Y.
 Filed May 18, 1970, Ser. No. 23,036
 Term of patent 14 years
 Int. Cl. D7—02
 U.S. Cl. D67—4



221,600
DRINK-REFILL SIGNALLING BELL
 Arthur H. Anson, 3301 Congress St.,
 Allentown, Pa. 18103
 Filed Feb. 5, 1970, Ser. No. 21,288
 Term of patent 14 years
 Int. Cl. D31
 U.S. Cl. D72—1



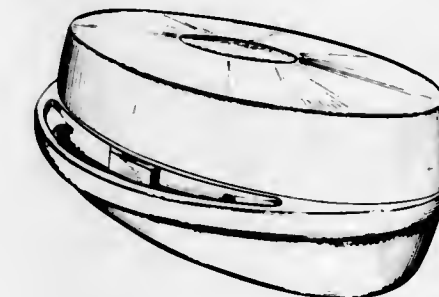
221,601
PAPERWEIGHT
 Varkis A. Markarian, 3 Applegate Road,
 Cranston, R.I. 02920
 Filed May 18, 1970, Ser. No. 23,033
 Term of patent 14 years
 Int. Cl. D19—02
 U.S. Cl. D74—12



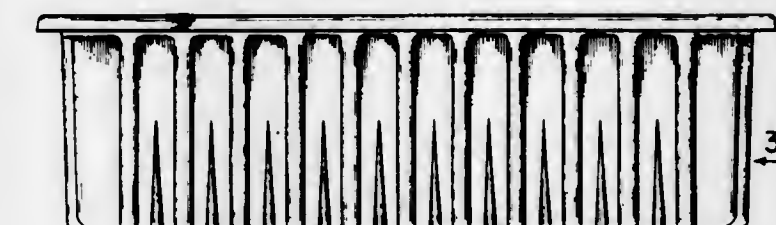
221,602
SHOE POLISH KIT
 Arnold H. Nels, Hillsdale, N.J., assignor to
 Knomark Inc., Jamaica, N.Y.
 Filed June 11, 1970, Ser. No. 23,437
 Term of patent 14 years
 Int. Cl. D28—99
 U.S. Cl. D86—11



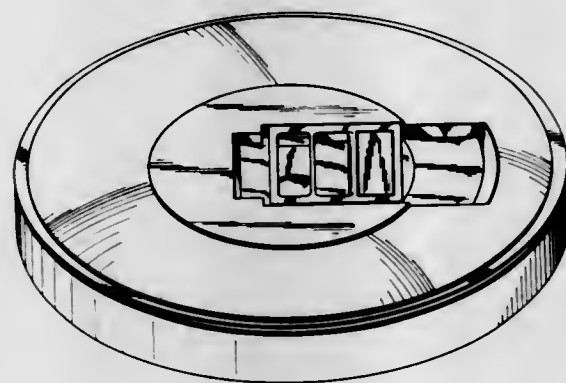
221,603
HEATER HOUSING FOR HAIR CURLERS
 Monte L. Levin, New York, N.Y., assignor to Scovill
 Manufacturing Company, Waterbury, Conn.
 Filed Feb. 18, 1970, Ser. No. 21,482
 Term of patent 14 years
 Int. Cl. D28—03
 U.S. Cl. D86—10



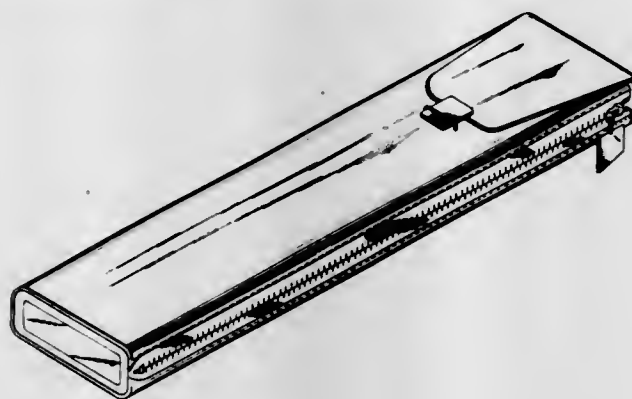
221,604
PLASTIC CARRYING TRAY
 Michael Rodolakis, Worcester, Mass., assignor to Dapol
 Plastics Inc., Worcester, Mass.
 Filed Aug. 27, 1969, Ser. No. 18,906
 Term of patent 14 years
 Int. Cl. D3—99
 U.S. Cl. D87—1



221,605
CONTAINER FOR MAGNETIC RECORDING DISC
 John C. Davey, Boundary Cottage, Telegraph Hill, near Redlynch, Salisbury, Wiltshire, England; Hugh G. Dickie, 18 Rosslyn Close, North Baddesley, Hampshire, England; Albert H. Metcalfe, 21 Brunswick Road, Fair Oak, Hampshire, England; and Leo J. Rigbey, 12 Braeside Close, Winchester, Hampshire, England
 Filed Nov. 13, 1969, Ser. No. 20,228
 Claims priority, application Great Britain May 31, 1969
 Term of patent 14 years
 Int. Cl. D3—02
 U.S. Cl. D87—1



221,606
UMBRELLA SHEATH
 Richard Zimmermann, Leichlingen, Rhineland, Germany, assignor to Bauermann & Soehne G.m.b.H., Hilden, Rhineland, Germany
 Filed Nov. 24, 1969, Ser. No. 20,249
 Claims priority, application Germany June 7, 1969
 Term of patent 14 years
 Int. Cl. D3—99
 U.S. Cl. D87—1



221,607
TOWEL OR SIMILAR ARTICLE
 Leonard C. Clementi, Huntington, N.Y., assignor to Cannon Mills Company, Kannapolis, N.C.
 Original design application Nov. 25, 1968, Ser. No. 14,658, now Patent No. 216,417, dated Dec. 30, 1969. Divided and this application Nov. 20, 1969, Ser. No. 20,189
 Term of patent 14 years
 Int. Cl. D6—13
 U.S. Cl. D92—26



221,608
BASE SUPPORT UNIT FOR A TENTERING MACHINE
 Frederick Hyatt, Providence, R.I., assignor to Bevis Industries, Inc., Providence, R.I.
 Filed May 27, 1968, Ser. No. 12,083
 Term of patent 14 years
 Int. Cl. D15—06
 U.S. Cl. D92—15



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 24TH DAY OF AUGUST, 1971

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 Albright, Roy H., to I-T-E Imperial Corporation. Insulator mounting in a high power electrical distribution system. 3,601,663, Cl. 317-103.
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 Anderson, Alan P., to Ford Motor Company. Compound motion transmitting cable mechanism. 3,600,966, Cl. 74-473.
 Anderson, Duane H.; Meyer, Peter A.; and Byrns, Paul D., said Anderson and said meyer assors. to Comcet Incorporated. Segregation and branching circuit. 3,601,810, Cl. 340-172.5.
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 Arnes, Lyle L., to Tennaco Inc., mesne. Diffusion ring for limiting hydraulic ram travel. 3,601,011, Cl. 91-402.
 Arnesen, Robert F. Voltage controlled attenuator and balanced mixer. 3,601,718, Cl. 333-81.
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 Auer, John H., Jr.; and Huffman, Jerry P., to General Signal Corporation. Wheel detector amplifier. 3,601,664, Cl. 317-148.5.
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 Auguin, Bernard; Noe, Pierre; Riwan, Richard; and Viel, Georges, to Commissariat a l'Energie Atomique. Variable-orientation mechanism. 3,600,967, Cl. 74-479.

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Babkin, Svetoslav Ivanovich: See—
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Bachmann, William V., to Chrysler Corporation. Seat belt buckle. 3,600,769, Cl. 24-230.
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Martone, Ronald J.; Mueller, Peter G.; and Bailey, Homer M., 3,601,799.
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Baker, Harry I., to Chrysler, Corporation. Temperature actuated electrical switch. 3,601,742, Cl. 337-380.
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Barbieri, Siegfried, to Durat G. G. Method and apparatus for measuring and controlling the amounts of colored light in the printing of photographic transparencies. 3,601,485, Cl. 355-38.
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- Knetsch, Georg, to Leitz, Ernst, G.m.b.H. Triplet objective. 3,601,474, Cl. 350-227.
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- Ko Line Tool Co.: See—
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- Kosatka, Thomas O., to Dana Corporation. Rotary shaft seal. 3,601,418, Cl. 277-183.
- Kostur, Robert E.; and Brown, Robert J., to Comet Industries Inc. Apparatus for molding articles. 3,600,746, Cl. 18-1.
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- Kreitchman, Morton A., to Valcon Engineering Corporation. Electromagnetic pump. 3,601,509, Cl. 417-417.
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- Krueger, Raymond E. Dental cast articulator. 3,600,809, Cl. 32-32.
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3,600,728	3,601,293	3,601,730	3,601,713	3,601,066	3,601,953
3,600,773	3,601,304	3,601,732	3,601,761	3,601,109	3,601,086
3,600,783	3,601,313	3,601,733	3,601,799	3,601,134	3,601,251
3,600,785	3,601,315	3,601,743	3,601,799	3,601,152	3,601,400
3,600,787	3,601,330	3,601,755	3,601,714	3,601,174	3,601,420
3,600,797	3,601,340	3,601,765	3,600,714	3,601,203	3,601,458
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3,600,825	3,601,371	3,601,789	3,600,891	3,601,225	3,601,600
3,600,842	3,601,385	3,601,794	3,600,955	3,601,253	3,601,665
3,600,848	3,601,399	3,601,806	3,601,034	3,601,263	3,601,695
3,600,850	3,601,406	3,601,081	3,601,078	3,601,278	3,601,614
3,600,863	3,601,408	3,601,185	3,601,083	3,601,300	3,601,729
3,600,894	3,601,409	3,600,788	3,601,125	3,601,329	3,601,742
3,600,900	3,601,428	3,600,828	3,601,132	3,601,349	3,601,096
3,600,924	3,601,443	3,601,015	3,601,176	3,601,363	3,601,201
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3,600,939	3,601,471	3,601,126	3,601,342	3,601,395	3,601,314
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3,601,032	3,601,556	3,600,860	3,601,050	3,601,531	3,601,250
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3,601,159	3,601,627	3,601,172	3,600,761	3,601,587	3,601,030
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3,600,790	3,601,080	3,601,734	3,601,606	3,600,751	3,600,736
3,600,903	3,601,087	3,601,736	3,601,617	3,600,760	3,600,743
3,601,068	3,601,115	3,601,747	3,601,642	3,600,765	3,600,798
3,601,114	3,601,129	3,601,754	3,601,643	3,600,774	3,600,867
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3,601,170	3,601,200	3,601,812	3,601,667	3,600,821	3,600,878
3,601,274	3,601,335	3,600,838	3,601,677	3,600,857	3,600,880
3,601,308	3,601,346	3,600,839	3,601,678	3,600,909	3,601,111
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3,601,588	3,601,432	3,600,715	3,601,690	3,600,947	3,601,190
3,601,588	3,601,462	3,600,738	3,601,694	3,600,987	3,601,191
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3,601,735	3,601,281	3,600,852	3,601,774	3,601,157	3,601,285
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3,600,768	3,601,435	3,600,881	3,601,798	3,601,243	3,601,388
3,600,769	3,601,472	3,600,898	3,601,800	3,601,245	3,601,413
3,600,772	3,601,492	3,600,907	3,601,807	3,601,252	3,601,425
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3,600,819	3,601,597	3,600,932	3,601,277	3,601,277	3,601,666
3,600,826	3,601,788	3,600,935	3,601,282	3,601,282	3,601,669
3,600,835	3,600,856	3,600,952	3,601,303	3,600,723	3,601,784
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3,600,971	3,600,882	3,601,131	3,600,976	3,601,544	3,601,559
3,600,988	3,600,918	3,601,186	3,601,010	3,601,605	3,601,608
3,601,100	3,600,982	3,601,234	3,601,042	3,601,639	3,601,779
3,601,102	3,601,029	3,601,257	3,601,044	3,601,646	3,601,700
3,601,104	3,601,049	3,601,258	3,601,145	3,601,647	3,600,812
3,601,107	3,601,060	3,601,265	3,601,146	3,601,661	3,600,829
3,601,139	3,601,077	3,601,268	3,601,228	3,601,663	3,600,938
3,601,182	3,601,085	3,601,287	3,601,264	3,601,671	3,601,076
3,601,227	3,601,120	3,601,316	3,601,272	3,601,728	3,601,082
3,601,230	3,601,135	3,601,326	3,601,279	3,601,737	3,601,166
3,601,290	3,601,143	3,601,333	3,601,286	3,601,739	3,601,207
3,601,291	3,601,156	3,601,334	3,601,319	3,601,744	3,601,294
3,601,297	3,601,178	3,601,348	3,601,345	3,601,750	3,601,386
3,601,312	3,601,205	3,601,376	3,601,367	3,601,751	3,601,429
3,601,337	3,601,244	3,601,389	3,601,381	3,601,752	3,600,779
3,601,347	3,601,317	3,601,390	3,601,431	3,601,756	3,600,844
3,601,352	3,601,321	3,601,392	3,601,442	3,601,757	3,601,008
3,601,356	3,601,324	3,601,394	3,601,490	3,601,766	3,601,011
3,601,414	3,601,369	3,601,402	3,601,498	3,601,768	3,601,024
3,601,425	3,601,393	3,601,407	3,601,557	3,601,772	3,601,057
3,601,434	3,601,403	3,601,438	3,601,683	3,601,775	3,601,112
3,601,464	3,601,404	3,601,441	3,601,714	3,601,780	3,601,231
3,601,469	3,601,436	3,601,449	3,601,740	3,601,783	3,601,237
3,601,572	3,601,465	3,601,467	3,601,741	3,601,785	3,601,301
3,601,573	3,601,475	3,601,468	3,601,771	3,601,786	3,601,323
3,601,574	3,601,476	3,601,478	3,601,805	3,601,809	3,601,344
3,601,594	3,601,509	3,601,482	3,600,984	3,600,985	3,601,353

Design Patents

6 : 221.509	9 : 221.599	24 : 221.574	27 : 221.564	39 : 221.513	44 : 221.544
221.512	12 : 221.529	25 : 221.526	221.586	221.514	221.582
221.523	221.530	221.563	221.532	221.518	221.608
221.527	221.531	221.581	221.545	221.519	221.561
221.528	16 : 221.591	221.584	221.553	221.520	221.565
221.543	17 : 221.506	221.592	221.556	221.522	221.568
221.548	221.515	221.593	221.557	221.525	221.569
221.566	221.555	221.604	221.602	221.529	221.550
221.570	221.560	26 : 221.534	221.554	41 : 221.601	221.551
221.571	221.562	221.536	221.575	42 : 221.516	221.585
221.576	221.596	221.537	221.583	221.524	51 : 221.598
221.577	18 : 221.521	221.538	221.587	221.567	53 : 221.511
221.578	221.541	221.539	221.588	221.597	221.533
221.589	221.542	221.540	221.603	221.600	55 : 221.517
221.594	21 : 221.549	221.558	221.607	44 : 221.508	221.590
221.595	24 : 221.507	27 : 221.547			

U.S. GOVERNMENT PRINTING OFFICE: O—1971

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

August 31, 1971

Volume 889

Number 5

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Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

PATENT OFFICE NOTICES

Printing of Chemical Patents

In view of financial and scheduling considerations associated with the closing of Fiscal Year 1971, no chemical patents will appear in the patent issues of August 24 and 31, and September 7 and 14, 1971. Chemical patents will again be issued on September 21, 1971.

RICHARD A. WAHL,
Acting Commissioner of Patents.

July 6, 1971.

Establishment of Manual of Trademark Examining Procedure

Preliminary work has begun on the preparation of a Manual of Trademark Examining Procedure.

Directives on trademark examining procedure will be issued by the Patent Office from time to time and, when appropriate, will be included in the Manual at a later date. The directives will be numbered sequentially and those issued prior to publication of the Manual will be designated as Series 1. These directives will constitute the guidelines for the examination of trademark applications.

Trademark Examining Directives are available through the Superintendent of Documents, Washington, D.C., 20013 at an annual subscription of \$1.50 plus 50¢ for foreign mailing.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

July 27, 1971.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,507,347, R. R. Myers, Jr., METHOD OF PRODUCING ARCULAR PRINTING PLATES; 2,800,856, same, METHOD OF MAKING PRINTING PLATES; 2,814,990, same, METHOD OF PRODUCING PRINTING PLATES; 3,062,139, same, METHOD OF AND MEANS FOR PRODUCING PRINTING PLATES, filed Dec. 15, 1970, D.C., W.D.N.Y. (Buffalo), Doc. C-1970-585, *Printing Plate Supply Co. v. Arcata Graphics Corporation*.

2,674,339, F. Schneider, APPARATUS FOR THE DESTRUCTION OF AIR CONTAMINANTS BY COMBUSTION, filed Feb. 11, 1971, D.C., E.D.N.Y. (Brooklyn), Doc. 71-C-159, *Frank Schneider v. General Motors Corp.*

2,707,001, G. W. Magill, TANDEM ROTOR HELICOPTER AND METHOD OF OPERATION, filed Feb. 23, 1971, U.S. Ct. of Cl. Washington, D.C., Doc. 54-71, *Gilbert W. Magill v. The United States of America*.

2,715,006. (See 2,903,767.)

2,800,856. (See 2,507,347.)

2,814,990. (See 2,507,347.)

2,834,511, J. J. Booth, CUP DISPENSER FOR BEVERAGE VENDING MACHINES; 2,861,433, same, PRE-MIX BEVERAGE VENDING MACHINE; 2,860,754, Booth and Branch, AUTOMATIC REPLENISHING DEVICE FOR CUP DISPENSERS, filed Oct. 14, 1964, D.C. Md. (Baltimore), Doc. 15892, *Jack J. Booth and William C. Branch v. Victor Products Corp. et al.* Order of counsel dismissing case with prejudice, Mar. 16, 1971.

2,861,433. (See 2,834,511.)

2,860,754. (See 2,834,511.)

2,903,767, R. Huber, CHAIN SECURING DEVICE WITH TILTING BLOCK; 2,715,006, J. R. Huber, APPARATUS FOR CARGO TIE-DOWN AND THE LIKE, filed July 31, 1962, U.S. Ct. of Cl., Doc. 257-62, *Eastern Rotorcraft Corporation v. The United States of America*, Order and judgment for plaintiff, Feb. 26, 1971.

2,936,000, J. C. McGuire, METHOD OF MAKING RATTAN FURNITURE; 3,297,063, same, FURNITURE TRANSVERSE BUTT JOINT, filed Mar. 2, 1971, D.C., N.D. Tex. (Dallas), Doc. CA-3-4551-D, *The McGuire Company and the McGuire Furniture Company v. George L. Steinfeld, doing business as George L. Steinfeld Showroom, General Interiors Corp. and Towne Mfg. Co.*

3,954,052, R. D. Krehbiel, PRESSURE FLUID CONTROL SYSTEM AND VALVE; Re. 25,147, same, CONTROL VALVE FOR MULTIPLE VALVE BANKS; 3,033,233, same, ANTI-CAVITATION CONTROL SYSTEM AND VALVE, filed Sept. 12, 1969, D.C., E.D. Wis. (Milwaukee), Doc. 69-C-434, *Cessna Aircraft Co. v. Koehring Company*. Final consent, defendant has infringed, agreement entered and action dismissed, Mar. 18, 1971.

3,024,318, Duinker and Bos, A GLASS GAP SPACER FOR MAGNETIC HEADS; 3,145,453, same, METHOD OF PRODUCING MAGNETIC HEADS WITH BONDING GLASS GAP SPACERS; 3,246,383, Peloschek and Vrolijk, METHOD OF MANUFACTURING MAGNETIC HEADS WITH BONDING GAP-FILLING MATERIALS, filed Mar. 2, 1971, D.C., S.D.N.Y., Doc. 71-C-921, *U.S. Philips Corporation v. Micro-netics Inc.*

3,033,233. (See 2,954,052.)

3,052,418, Gorski and Bakke, STATOR WINDING MACHINE; 3,291,417, R. W. Peters, WIRE TENSION DEVICE; 3,467,324, same, STATOR WINDING MACHINE, filed May 25, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-283, *Lincoln Tool & Manufacturing Co. v. Adam Products, Inc. et al.*

3,062,139. (See 2,507,347.)

3,145,453. (See 3,024,318.)

3,216,442, Roth and Hall, SURGICAL AIR TURBINE UNIT; 3,384,065, R. M. Hall, SURGICAL CUTTING TOOL; Re. 27,032, same; 3,423,068, same, PNEUMATICALLY DRIVEN SURGICAL INSTRUMENT AND CONTROL THEREFOR; 3,472,323, same, PNEUMATICALLY DRIVEN SURGICAL INSTRUMENT; 3,541,868, same, SURGICAL IMPACTOR-EXTRACTOR APPLIANCE, filed Mar. 1, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-472-F, *Robert M. Hall, doing business as Hall International, Inc. v. American Sterilizer Co. et al.*

3,246,383. (See 3,024,318.)

3,291,417. (See 3,052,418.)

3,297,063. (See 2,936,009.)

3,384,065. (See 3,216,442.)

3,423,068. (See 3,216,442.)

3,448,230, R. C. Bueler, CONTROL VALVE AND SYSTEM; 3,464,741, E. J. Falk, CONTROL VALVE, filed Nov. 14, 1969, D.C., N.D. Ind. (Fort Wayne), Doc. 69-F-109, *Wagner Electric Corporation v. Weatherhead Company, Inc.* Stipulation of dismissal, Aug. 19, 1970.

3,460,531. (See 3,544,256.)

3,464,741. (See 3,448,230.)

3,467,324. (See 3,052,418.)

3,472,323. (See 3,216,442.)

3,481,123, W. R. Lessig III, HANDLE MOUNT FOR LAWN MOWER; 3,485,018, Beckering, Duran and Lessig, LAWN MOWER DECK HOUSING; 3,500,620, Duran, Lessig and Stieper, ELECTRIC LAWMOWER CONSTRUCTION, filed Sept. 28, 1970, D.C., N.D. Ohio (Cleveland), Doc. C70-918, *MTD Products Inc. v. The Black and Decker Manufacturing Company*. Stipulation, dismissing complaint without prejudice, Mar. 19, 1971.

3,485,018. (See 3,481,123.)

3,495,731. (See D. 212,011.)

3,497,877, Diamond and Greenberg, POOL WITH INTEGRAL SLIDE; D. 216,577, same, filed Nov. 27, 1970, D.C., S.D.N.Y. Doc. 70-C-5195, *General Foam Plastics Corp. v. Coleco Industries, Inc.* Consent judgment, defendant owner of said patents, Feb. 25, 1971.

3,499,305, T. W. Abernathy, ROLLING MILL AND METHOD OF ROLLING STRIPS; 3,534,576, Abernathy and Lindsay, TAPER ROLLING MILL; 3,535,903, same, ROLL FORMING APPARATUS HAVING ROLLS WITH RADIAL AND AXIALLY YIELDABLE FORMING MEMBERS, filed Nov. 3, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 10-2471-ALS, *Tronchemics Research Inc. and PRP Corp. v. Northrop Corp.*

3,500,620. (See 3,485,018.)

3,534,576. (See 3,499,305.)

AUGUST 31, 1971

U. S. PATENT OFFICE

1359

3,535,903. (See 3,499,305.)

3,541,868. (See 3,216,442.)

3,544,256, J. V. Feather, WEIGHT REDUCING BELT; 3,460,531, W. James Gardner, INFLATABLE SPLINT WITH LACING MEANS, filed Mar. 12, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c637, *Biophysical Research & Development Corp. eto v. Abercrombie & Fitch, Trim Twist & Howe Plastics*.

Re. 25,147. (See 2,954,052.)

Re. 27,032. (See 3,216,442.)

D. 212,011, Risom and Jacobs, DRAWER FOR A CARD CATALOG CABINET; 3,495,731, same, CARD CATALOG DRAWER; filed Oct. 9, 1970, D.C., E.D.N.Y. (Brooklyn), Doc.

70-C-1275, *Jens Risom Design, Inc. v. John E. Sjoström Co., Inc.* Order of dismissal with prejudice, Mar. 8, 1971.

D. 213,515. (See D. 217,635.)

D. 216,577. (See 3,497,877.)

D. 217,635, J. H. Yon, Jr., COMBINATION MIST GENERATOR AND A MANIFOLD ASSEMBLY FOR LUBRICATION SYSTEM; D. 213,515, same, AUTOMATIC LUBRICATION SYSTEM FOR KNITTING MACHINES, filed Mar. 24, 1971, D.C., W.D.N.C. (Charlotte), Doc. 2850, *Jett Manufacturing Corporation v. William L. Hull & Knit Needs Inc.*

D. 219,724, A. Rogovin, FOLDABLE COMB, filed Mar. 24, 1971, D.C., S.D.N.Y., Doc. 71-C-1375, *Arthur Rogovin and Afro Pik Co. Inc. v. David Neuman*.

Certificates of Correction for the Week of Aug. 31, 1971

3,426,073	3,555,023	3,568,168	3,576,066
3,426,074	3,555,024	3,568,746	3,576,747
3,459,251	3,557,158	3,569,620	3,576,951
3,468,121	3,557,353	3,570,111	3,577,072
3,504,003	3,557,672	3,571,897	3,577,076
3,505,577	3,560,086	3,572,883	3,577,683
3,517,838	3,561,887	3,573,052	3,577,845
3,520,123	3,562,052	3,573,577	3,578,101
3,523,208	3,562,129	3,573,802	3,578,142
3,525,751	3,563,267	3,574,057	3,578,717
3,528,571	3,564,020	3,574,069	3,578,777
3,528,827	3,564,309	3,574,170	3,578,808
3,533,744	3,565,757	3,574,305	3,579,291
3,534,073	3,566,233	3,574,677	3,579,492
3,535,229	3,566,611	3,574,804	3,579,546
3,541,372	3,566,706	3,574,830	3,579,553
3,542,048	3,566,796	3,575,063	3,580,781
3,546,076	3,566,865	3,575,178	3,581,688
3,548,208	3,567,104	3,575,325	3,582,185
3,549,037	3,567,653	3,575,486	3,582,230
3,550,015	3,568,078	3,575,606	

Dedication

3,507,266.—*Louis A. Vonasch*, Louisville, Ky. OVEN DOOR WITH DOOR SEALING GASKET. Patent dated Apr. 21, 1970. Dedication filed May 28, 1971, by the assignee, *General Electric Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

Disclaimers

3,104,799.—*Donald J. Steidinger*, Clarendon Hills, Ill. ENVELOPE ASSEMBLY. Patent Dated Sept. 24, 1963. Disclaimer filed Apr. 26, 1971, by the assignee, *Uarco Incorporated*.
Hereby enters this disclaimer to claim 13 of said patent.

3,140,835.—*Hansjörg Balmer* and *Rudolph J. Gasparac*, both of Milwaukee, Wis. BOWL CLAMPING MECHANISM FOR CONE CRUSHERS. Patent dated July 14, 1964. Disclaimer filed June 1, 1971, by the assignee, *Rex Chain-belt Inc.*
Hereby enters this disclaimer to claim 1 of said patent.

3,440,123.—*Paul H. Hamisch, Sr.*, Dayton, Ohio. HAND LABELER. Patent dated Apr. 22, 1969. Disclaimer filed June 3, 1971, by the assignee, *The Monarch Marking System Company*.

Hereby enters this disclaimer to claims 1 through 23 of said patent.

3,552,836.—*Aane Adriaan Oskam*, De Meern, Netherlands. ELECTRIC ADJUSTING MEANS FOR AZIMUTH AND ELEVATION ADJUSTMENT. Patent dated Jan. 5, 1971. disclaimer filed Apr. 29, 1971, by the assignee, *Technische Industrie A.C. Koot N.V.*

Hereby enters this disclaimer to claims 14-19 inclusive of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 27, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
* Date of Oldest Application (New)	
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-04-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	3-05-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	7-01-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-03-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	*2-24-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	11-02-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	*2-18-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-30-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	7-08-70
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	6-19-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	6-29-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	7-02-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	5-01-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	6-03-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	8-10-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	7-01-70

Expiration of patents: The patents within the range of numbers indicated below expire during July 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 784), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 283. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

Patents..... Numbers 2,682,658 to 2,685,084, inclusive
Plant Patents..... Numbers 1,288 to 1,293, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED AUGUST 31, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T889,001 PROCESS FOR PREPARING AROMATIC NITRILES FROM ALKYL AROMATIC HYDROCARBONS AND CATALYSTS THEREFOR

Howard S. Young, P.O. Box 511,
Kingsport, Tenn. 37662
Continuation of application Ser. No. 688,352, Dec. 6,
1967. This application Sept. 19, 1969, Ser. No. 859,484
Int. Cl. B01j 11/06; C07c 12/02
U.S. Cl. 260-465C

No Drawing. 17 Pages Specification

Process for the ammoxidative conversion of alkyl-substituted aromatic hydrocarbons to the corresponding aromatic nitrile comprising contacting a mixture of vaporized hydrocarbon, ammonia and oxygen at a temperature of about 350° C. to 625° C. with a catalyst composition comprising oxidized molybdenum and at least one of oxidized niobium and oxidized tantalum and optionally oxidized arsenic. The aromatic hydrocarbons may include benzene and naphthalene substituted by at least one group represented by the formula $R_1R_2R_3C-$ wherein R_1 , R_2 and R_3 each represent a hydrogen atom or a lower alkyl group containing not more than 2 carbon atoms. An analysis of the components of the catalyst on a weight percent basis, when expressed as the theoretical oxides, is:

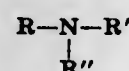
	Percent
MoO ₃ -----	2-60
Nb ₂ O ₅ -----	1-35
As ₂ O ₃ -----	0-25
Support -----	0-90
or	
MoO ₃ -----	2-60
Ta ₂ O ₅ -----	1-35
As ₂ O ₃ -----	0-25
Support -----	0-90

T889,002 STABILIZATION OF 1,1,1-TRICHLOROETHANE Milton J. Blankenship, Alte Landstrasse 64, Oberrieden, Switzerland, and Ralph McCarthy, 1865 Bush St., San Francisco, Calif. 94109

Filed Dec. 15, 1969, Ser. No. 885,339
Int. Cl. C07c 17/42
U.S. Cl. 260-652.5R

No Drawing. 6 Pages Specification

The reaction of 1,1,1-trichloroethane with aluminum is inhibited by the presence in the 1,1,1-trichloroethane of a small amount of a dissolved amino compound of the formula



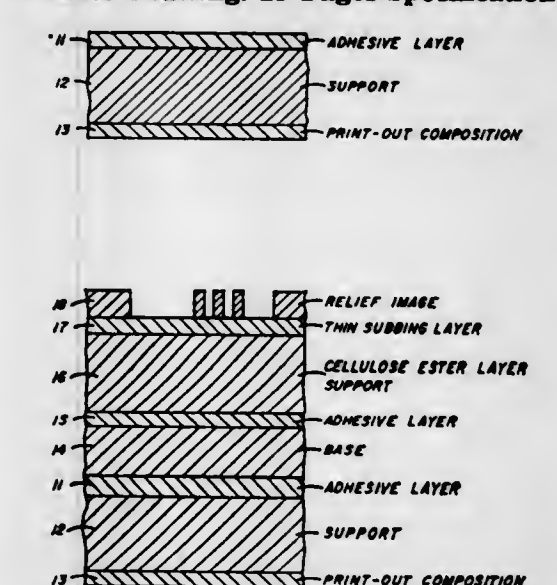
wherein R is a morpholinoalkyl radical, an alkylated morpholinoalkyl radical, a phenylthiomethyl radical, an alkylphenylthiomethyl radical, an aminoalkyl radical, an N-alkylated aminoalkyl radical, a polyglycol residue, a polyglycolamine residue, a halopyridinecarbonyl radical, an aminoalkylcyclohexanealkyl radical, or a dialkyl phosphono radical, R' is hydrogen, an alkyl radical, an amino-

alkyl radical, a polyalkylenepolyamine residue, an alkanoil radical, or a polyglycol residue, and R'' is hydrogen, an alkyl radical, or a polyglycol residue. Concentrations of the order of 0.1-10 weight percent of solvent composition provide significant inhibition of the aluminum reaction.

T889,003 MAKEREADY METHODS AND PRINTING PLATES UTILIZING SAID MAKEREADY

Henry C. Staehle, Douglas G. Borden, and James McNally, Jr., all of Kodak Park, Rochester, N.Y. 14650
Filed Mar. 5, 1970, Ser. No. 16,783
Int. Cl. G03c 5/08; G03f 9/00
U.S. Cl. 96-27

1 Sheet Drawing. 13 Pages Specification



A print-out image-forming layer on an easily cut and stripped adhesive backed support may be used on the back side of a relief printing plate to provide a makeready means for adjusting pressure on printing areas of a printing plate. A method for forming the makeready comprises coating a light-sensitive, preferably print-out, composition in a film-forming vehicle on one side of a support and an adhesive on the opposite side, adhering the adhesive side of the support to the back side of a printing plate, exposing the light-sensitive composition in register with the printing plate relief image and utilizing the image in the sensitive composition as a guide for removal of the film from non-image areas.

T889,004 METHOD OF ATTACHING PLASTIC SHOES TO ANIMAL HOOFES

Kenneth W. Hyche, 4511 Grace Drive, and William F. Thomsen, 4514 Brookridge Drive, both of Kingsport, Tenn. 37664

Filed Apr. 20, 1970, Ser. No. 30,301
Int. Cl. A01l 3/00, 5/00
U.S. Cl. 168-4

No Drawing. 6 Pages Specification

A method of providing horses with plastic horseshoes which involves the bonding of the plastic shoes to the

AUGUST 31, 1971

U. S. PATENT OFFICE

1363

horse's hoofs with a monomeric α -cyanoacrylate adhesive such as methyl 2-cyanoacrylate. The method involves the steps of (1) smoothing the bottom surface of the hoof material to eliminate any irregularities therein, (2) treating the surface of the plastic shoe with the adhesive, (3) contacting the adhesive treated surface with the smooth hoof surface, and (4) applying pressure for a short period of time. Preferably, a shock absorbing sheet of material such as rubber is interposed between the plastic shoe and the hoof surface and bonded to both surfaces by the same adhesive. This method is especially useful and advantageous in that (1) the adhesive sets up almost immediately, and (2) the use of plastic shoes eliminates the heavy weight of iron shoes and the use of nails in the shoeing operation.

T889,005 BAKER'S ALL-PURPOSE PLASTIC SHORTENING CONTAINING EMULSIFIERS

David T. Rusch, Claymont, Del., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.
Filed Apr. 24, 1970, Ser. No. 31,727
Int. Cl. A23d 5/00
U.S. Cl. 99-92

No Drawing. 22 Pages Specification

An all-purpose plastic shortening composition which contains a mixture of emulsifiers selected from the group consisting of (1) polyoxyethylene ethers of fatty acid esters of sorbitan, sorbitol, and isosorbide or fatty acid esters of polyoxyethylene ethers of sorbitan, sorbitol, and isosorbide (2) fatty acid esters of sorbitan, sorbitol, or isosorbide and optionally (3) a monoglyceride is disclosed. The weight percent of the emulsifier mixture based on the shortening composition is from about 0.6 to about 3%. Of this emulsifier mixture from 0 to 50% is a monoglyceride, from 25 to 80% is emulsifier (1) and from 10 to 50 weight percent is emulsifier (2), wherein the ratio of the polyoxyethylene component (1) to the fatty acid ester component (2) varies from 1 to 1 through 4 to 1. The iodine value of the monoglyceride used in preparing the plastic shortening is always less than 85 and generally greater than 40.

Superior cakes, icings, and cream fillings are prepared with the plastic shortening composition, and all products prepared with said plastic shortening composition exhibit excellent moisture retention and aeration properties.

T889,006 DRY PRINTOUT SYSTEM FOR PAPER William J. Priest, Kodak Park Works, 1669 Lake Ave., Rochester, N.Y. 14615

Filed Apr. 30, 1970, Ser. No. 33,503
Int. Cl. G03c 1/58, 5/22, 5/34
U.S. Cl. 96-49

No Drawing. 17 Pages Specification

Stable photographic images are formed by a dry print-out process which employs a photographic element comprising a light sensitive compound, e.g. an aromatic azide, and a dye forming coupler, preferably a phenolic compound of the type which will form an azomethine dye. The azide and the coupler are preferably coated on a support such as paper and isolated from each other. The element is exposed image-wise to visible light at ambient temperature whereby the photosensitive component decomposes to a colored photoproduct in the light struck areas. The element is then heated to permit intimate physical mixing or cosolution of the light sensitive and coupler components and then flash exposed at a different temperature to yield stable printout images directly without additional processing or fixing steps. The system may be made either positive or negative working by reversing the temperatures at which the exposures are made.

Suitable azides include 3-methyl-4-azido-N-ethyl-N-dodecylaniline and N-(4-azidophenyl) morpholine; and suitable couplers include 2,4-dichloro-3-methyl-6-stearamidophenol and 2-[α -(2,4-di-tert-amyphenoxy) acetamido]-4,6-dichloro-5-methylphenol. The azide and the coupler are preferably coated in separate layers on the support and are non-migrating at normal temperature but when heated they mix and upon light exposure form a dye.

T889,007 REDUCTION OF TAR AND NICOTINE YIELDS IN THE COMBUSTION OF CIGARETTE TOBACCO George P. Touey, 2221 Swannanoa Ave. 37664, and Thomas H. Larkins, Jr., 300 Stuffle St. 37600, both of Kingsport, Tenn.

Filed May 11, 1970, Ser. No. 36,450
Int. Cl. A24b 15/02
U.S. Cl. 131-17

No Drawing. 12 Pages Specification

A smoking mixture containing a major portion of tobacco and having substantially uniformly distributed in the tobacco a minor portion of a hydrated calcium aluminate or hydrated calcium carboaluminate additive which functions to substantially reduce the amount of tar and nicotine produced on combustion of the tobacco in a smoking cycle. The additive may comprise 2-10 percent by weight of the total weight of tobacco and additive.

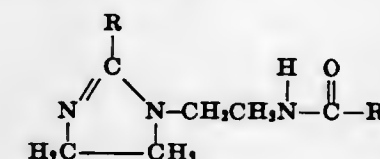
T889,008 PROCESSES OF TREATING TEXTILES, TEXTILE TREATING COMPOSITIONS, AND IMPROVED TEXTILES

Kurt W. Masurat, Preston R. Savage, and Richard L. West, Wilmington, Del., assignors to Atlas Chemical Industries, Inc., Wilmington, Del.

Filed May 21, 1970, Ser. No. 39,573
Int. Cl. D06m 13/40
U.S. Cl. 252-8.8

No Drawing. 17 Pages Specification

Textile materials are provided which have a high degree of lubricity or softness and a low-soilage index. Disclosed is a process for providing a lubricating and low-soiling finish to textile materials which process comprises applying to a textile material a compound characterized by the generalized formula



wherein R is an alkyl group containing from 11 to 21 carbon atoms. Also disclosed are textile treating compositions comprising a compound of the above formula, water, acetic acid, and propanol.

T889,009 N-ISOPROPYL-N-CYCLOHEXYLTHIOCARBAMYL- N,N'-DIMETHYLSULFENAMIDE AS A VULCANI- ZATION ACCELERATOR

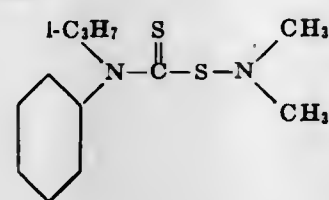
Adel F. Halasa, 1568 Larch St., Akron, Ohio 44301
Continuation of abandoned application Ser. No. 868,648,
Sept. 22, 1969, which is a continuation of abandoned
application Ser. No. 733,776, June 3, 1968, which in
turn is a continuation of application Ser. No. 528,783,
Feb. 21, 1966. This application July 13, 1970, Ser.
No. 56,211

Int. Cl. C07c 155/04; C08f 27/06
U.S. Cl. 260-79.5B

No Drawing. 11 Pages Specification

N-isopropyl-N-cyclohexylthiocarbamyl-N,N'-dimethylsulfenamide is an accelerator of the vulcanization of diolefin rubbers, including butadiene-styrene, polybuta-

diene and polyisoprene rubbers, said accelerator has the following structure:

**T889,010****ELECTRICAL CAPACITORS**

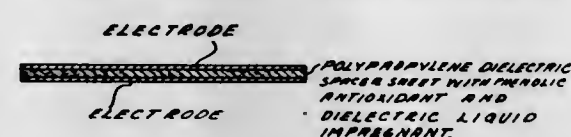
John Graham Tapley, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Aug. 18, 1970, Ser. No. 64,807
Claims priority, application Great Britain, Aug. 25, 1969, 42,260/69

Int. Cl. H01g 3/04

U.S. Cl. 317-259

1 Sheet Drawing, 7 Pages Specification



Electrical capacitors containing polypropylene spacer sheets which contain 0.01 to 1.0% by weight of a phenolic antioxidant; the capacitor is also impregnated with a dielectric liquid comprising a saturated solution of the phenolic antioxidant. These capacitors have increased life at elevated temperatures as compared with those in which the dielectric liquid is free of the phenolic antioxidant.

T889,011**SULFUR DIOXIDE RECOVERY FROM STACK GASES**

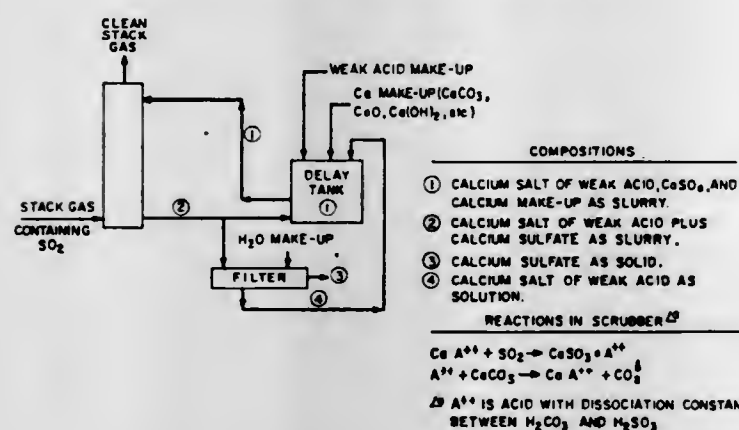
Archie V. Slack, Wilson Lake Shores, Sheffield, Ala. 35660, and John M. Potts, 1010 Linwood Ave., Florence, Ala. 35630

Filed Aug. 28, 1970, Ser. No. 67,860

Int. Cl. B01d 53/34

U.S. Cl. 23-25Q

1 Sheet Drawing, 16 Pages Specification



USE OF WEAK ACIDS TO IMPROVE LIME SLURRY SCRUBBING CLOSED-LOOP OPERATION

An improved process for utilizing limestone slurry to scrub sulfur oxides from power plant stack gas which consists of adding a weak acid to a water slurry of limestone, being circulated in a stack gas scrubber, to solubilize the limestone and hasten its reaction with sulfur dioxide; separating the solid reaction product consisting of calcium sulfite and sulfate; washing the reaction product to recover weak acid and using the separated liquor and wash liquor along with fresh limestone as make-up

slurry to be fed to the stack gas scrubber. The weak acid should be stronger than carbonic so that it will react with calcium in limestone to solubilize it and displace carbon dioxide, and it should be weaker than sulfurous so that it will be displaced and reconstituted by sulfurous acid formed by dissolution of sulfur dioxide from stack gas; benzoic acid meets the qualifications and is highly satisfactory.

T889,012**PRODUCTION OF OIL-PRILLED UREA-AMMONIUM POLYPHOSPHATE FERTILIZERS**

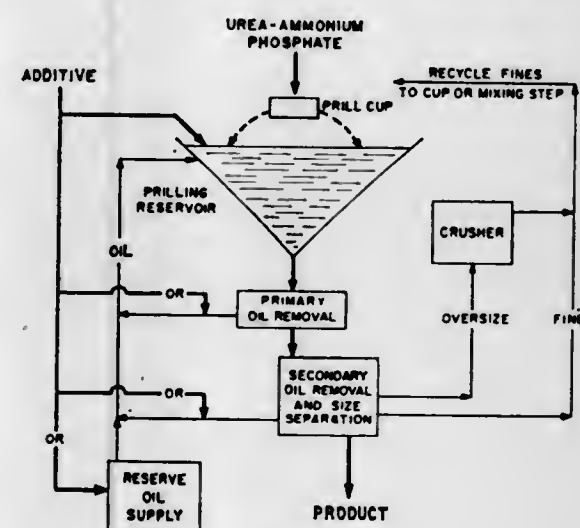
John E. Jordan, Sheffield, Ala., assignor to Tennessee Valley Authority

Filed Aug. 28, 1970, Ser. No. 67,878

Int. Cl. C05b 19/00; C05c 9/00

U.S. Cl. 71-29

3 Sheets Drawing, 28 Pages Specification



METHODS OF INCORPORATING ADDITIVES IN OIL PRILLING PROCESS FOR PRODUCTION OF UREA-AMMONIUM PHOSPHATES

Process for oil prilling urea and/or urea-ammonium phosphates. Improvements include increased oil removal from the products by (1) including small amounts of additives in the oil prilling bath, (2) selecting a prilling bath oil having a low viscosity, and (3) washing the oil-prilled products during the oil removal process. Methods result in increased oil recovery and in products of enhanced value because of the lowered oil content. The enhanced values include improvement in storage properties and quality of liquid fertilizer made from these products. Additives include certain fatty acids. Washing media include methyl alcohol and phosphoric acid. Prilling bath oil is selected from naphthenic and/or isoparaffinic based hydrocarbons, for prevention of urea adduct formation in the production of liquid fertilizer.

T889,013**ADHERENCE OF ALKALI-RESISTANT RESIN TO HARDENED GELATIN LAYERS**

William C. Gray, Jr., and Frederick A. Stahly, both % Eastman Kodak Co., Kodak Park Division, Rochester, N.Y. 14650

Filed Sept. 17, 1970, Ser. No. 73,178

Int. Cl. G03c 1/48

U.S. Cl. 96-76

No Drawing, 12 Pages Specification

The bonding of alkali-resistant, resinous coatings, such as those comprising poly(vinyl acetal), poly(vinyl butyrol), poly(vinyl formal), copolymers of vinyl chloride and vinyl acetate, and copolymers of vinyl chloride and vinylidene chloride, to hardened gelatin layers is improved by the incorporation of relatively small amounts

of isocyanate crosslinking agents, such as tolylene diisocyanate, hexamethylene diisocyanate, octamethylene diisocyanate, 4,4'-diisocyanato-3,3'-dimethyldiphenylmethane, and various polyisocyanates, in the resinous coating. Alkali-resistant resin-coated hardened gelatin layers find particular usage in reception elements in color image transfer processes, since such coatings can withstand prolonged contact with alkaline processing compositions and will remain firmly bonded to the hardened gelatin layer.

Receiving layers, silver halide emulsions and elements coated as described can be chemically sensitized, e.g., with noble metal sensitizers alone or in combination with sulfur or selenium sensitizers. They can contain spectral sensitizers, incorporated color-forming couplers, incorporated developing agents, other antifoggants, hardeners, plasticizers, other coating aids, vinyl polymers, and other suitable photographic addenda such as described in U.S. Pat. 3,297,446 of Dunn issued Jan. 10, 1967 (columns 4-9).

T889,014**HEAT-STABILIZED SILVER HALIDE PRINTOUT PHOTOGRAPHIC MATERIAL**

Deborah E. Beach, 229 E. 21st St., New York, N.Y. 10010, and Cynthia Geer Ulbing, Kodak Park, Rochester, N.Y. (Fairport, N.Y. 14450)

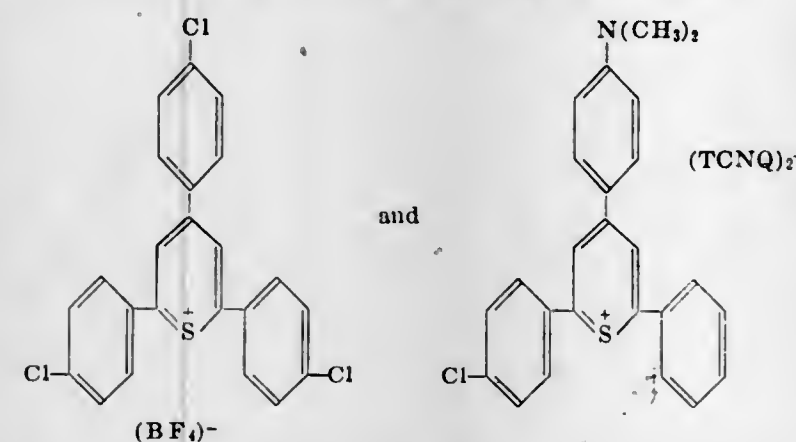
Filed Sept. 18, 1970, Ser. No. 73,598

Int. Cl. G03c 1/28

U.S. Cl. 96-108

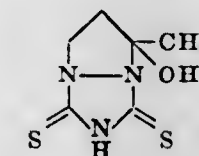
No Drawing, 13 Pages Specification

It is disclosed that direct-print photographic emulsions containing silver halide grains formed in the presence of trivalent metal ions and having a halogen acceptor contiguous to said silver halide grains, such as those disclosed by Bacon and Barbier, U.S. Pat. 3,447,927, issued June 3, 1969, are improved by the addition of a thiapyrylium compound. Exemplary thiapyrylium compounds which may be used are those having the formulas:



wherein TCNQ represents the tetracyanoquinodimethan radical. Additional thiapyrylium compounds, as disclosed in Rauner et al. U.S. Pat. 3,330,314, issued Jan. 24, 1967, may be employed.

An example of a suitable halogen acceptor is one having the formula



Additional halogen acceptors such as those disclosed in Bacon and Barbier, U.S. Pat. 3,447,927 may be employed.

An improvement is noted in that lower minimum density, increased contrast, and shorter exposure latitude are obtained.

A similar beneficial effect is obtained by the addition of diphenylnitron to emulsions of this type, particularly in the presence of a spectral sensitizing dye.

Silver halide emulsions and elements described contain silver halide grains formed in the presence of a trivalent metal ion, such as antimony, bismuth, arsenic, gold, iridium, or rhodium. They may contain dispersing agents, coating aids, plasticizers, sensitizing dyes, hardeners and other suitable addenda as described in said U.S. Pat. 3,447,927 of Bacon and Barbier.

T889,015**GRAIN INHIBITOR FOR VACUUM-DEPOSITED SILVER HALIDE ELEMENTS**

Arthur A. Rasch, Kodak Park, Rochester, N.Y. 14650

Filed Sept. 18, 1970, Ser. No. 73,676

Int. Cl. G03c 1/06, 5/30

U.S. Cl. 96-66.4

No Drawing, 10 Pages Specification

The addition of 3-amino-4-methyl-2-(3H)-thiazolethione, either in a hydrophilic colloid overlayer on a photoelement prepared with vacuum-deposited silver halide or to the developing composition for such an element, operates to reduce the graininess of the developed photographic silver image.

T889,016**PHOTOGRAPHIC MATERIALS**

Earl J. Van Lare, Rochester, and Arthur Fumia, Jr., Hilton, N.Y. (both of Kodak Park, Rochester, N.Y. 14650)

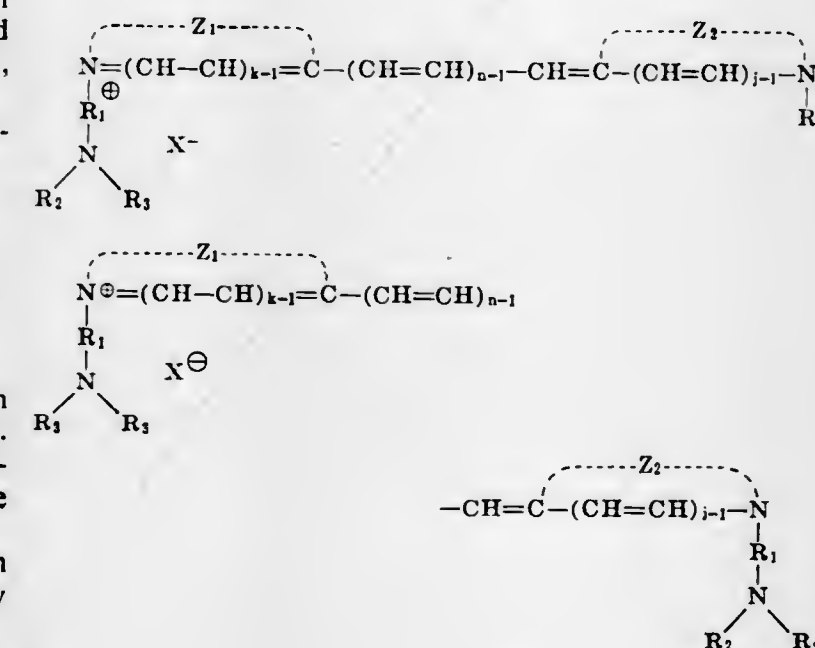
Filed Sept. 25, 1970, Ser. No. 75,786

Int. Cl. G03c 1/14

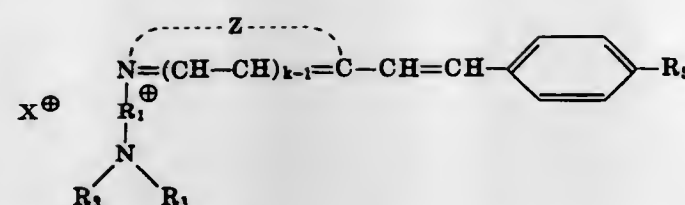
U.S. Cl. 96-127

No Drawing, 39 Pages Specification

This disclosure relates to novel dyes and photographic materials. In one aspect it relates to photographic silver halide emulsions spectrally sensitized with cyanine and hemicyanine dyes having a tertiary aminoalkyl group substituted on the heterocyclic nitrogen atom of the basic nucleus. In one preferred embodiment, unsymmetrical cyanine dyes are provided comprising first and second nuclei joined by a linkage selected from a trimethine linkage and a pentamethine linkage; the first nucleus being a nitrogen-containing basic heterocyclic nucleus of the type used in cyanine dyes, said hetero-nitrogen atom having attached thereto a tertiary aminoalkyl group; and the second nucleus being a nitrogen-containing basic heterocyclic nucleus of the type used in cyanine dyes, said hetero-nitrogen atom having attached thereto an alkyl group. Highly useful photographic spectral sensitizing symmetrical cyanines and hemicyanines are also provided. Typical useful dyes have one of the following formulas:



or



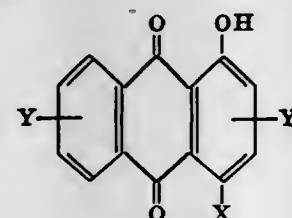
wherein n represents 1 to 3, k and j each represents 1 or 2; Z_1 and Z_2 each represents the non-metallic atoms required to complete a 5- to 6-membered nitrogen-containing basic heterocyclic nucleus; R_1 represents an alkylene group containing from 2 to 6 carbon atoms; R_2 and R_3 each represents a member of the group consisting of alkyl, aryl and, R_2 or R_3 taken together, represent the atoms to complete, with the nitrogen atom to which they are attached, a heterocyclic nucleus containing from 5 to 6 atoms; R_4 represents an alkyl group or an aryl group; R_5 represents halogen, nitro, cyano or amino; Z represents the atoms required to complete a basic heterocyclic nucleus; and X represents an acid anion. A typical useful dye is 5-chloro-1,3'-diethyl-3-(2-morpholinoethyl)benzimidazolothiacarbocyanine iodide.

T889,017**USE OF QUINIZARIN AS AN IMAGE-FORMING DYE DEVELOPER**

Judith M. Harblson, Kodak Park, Rochester, N.Y. 14650
Filed Sept. 25, 1970, Ser. No. 75,787
Int. Cl. G03c 1/40, 5/54
U.S. Cl. 96-29

No Drawing. 15 Pages Specification

Photographic elements are disclosed comprising a silver halide emulsion having associated therewith as an image-forming dye developer, a quinizarin, preferably having the formula:



wherein X is hydroxyl or amino and Y is hydrogen, hydroxyl, amino, substituted amino, substituted or unsubstituted lower alkyl or alkoxy containing 1 to 5 carbon atoms, cyano, chloro, bromo or iodo. In a diffusion transfer system, a diffusible dye is formed after treating the exposed silver halide with an alkaline processing solution. The diffusible dye diffuses to a dye image-receiving layer to provide a positive dye image. The dye image-receiving layer may be located integral with the photosensitive element or may be located on a separate support adapted to be superposed on the photosensitive element after exposure thereof.

T889,018**PHOTOGRAPHIC COLOR REVERSAL PROCESS**

William R. Weller, 1669 Lake Ave.,
Rochester, N.Y. 14650
Filed Sept. 25, 1970, Ser. No. 75,788
Int. Cl. G03c 5/32, 5/50
U.S. Cl. 96-59

No Drawing. 4 Pages Specification

Improvement in image sharpness in reversal color processes is obtained by carrying out the initial black-and-white development step, bleaching and removing the resultant silver images using a non-hardening bleach solution such as acid copper sulfate or acid permanganate bleaching solutions, and after color development, bleaching the reversal developed silver with a bleach solution hardening the emulsion layers in the region of the silver.

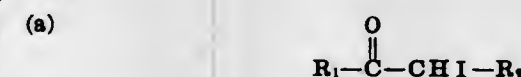
**T889,019
ALPHA-IODO KETONES AND PHOTOGRAPHIC ELEMENTS CONTAINING THEM**

Fredrick L. Hamb, 1669 Lake Ave.,
Rochester, N.Y. 14650
Filed Oct. 1, 1970, Ser. No. 77,379
Int. Cl. G03c 1/00
U.S. Cl. 96-88

No Drawing. 17 Pages Specification

Alpha-iodo ketones having an electron-attracting group in the beta position are light sensitive and when exposed to visible light decompose with evolution of free radicals. When coated on a photographic support with a component which changes color upon attack by free radicals, e.g., a starch-potassium iodide mixture or a triphenylmethane dye, a photographic element is obtained which is capable of print-out image formation upon exposure. The ketone can be coated above, below or with the starch-iodide component.

The light sensitive alpha-iodo ketones are of the structure

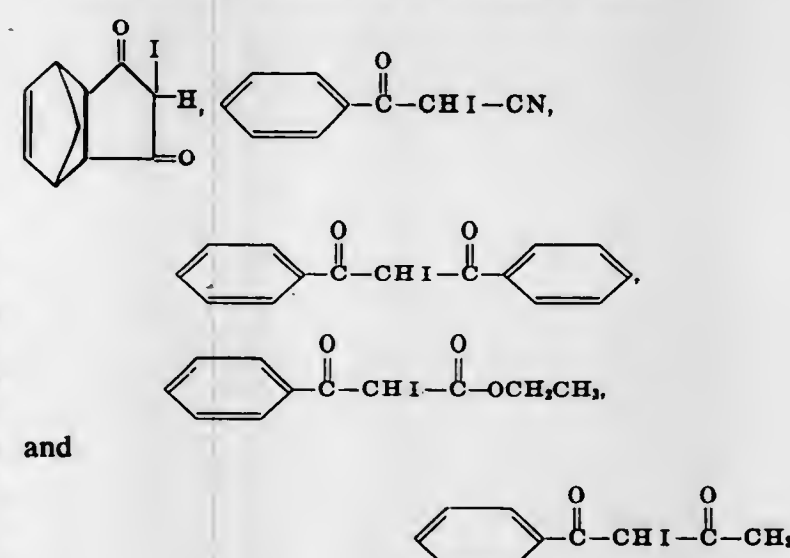


wherein R_1 is a hydrocarbon group such as aryl, e.g., phenyl or alkyl, e.g., lower alkyl; and R_2 is an electron-withdrawing group such as alkylcarbonyl, alkoxy carbonyl, arylcarbonyl, cyano or the like; or



wherein Q represents the atoms necessary to complete a saturated or unsaturated hydrocarbon ring. The image can be fixed by removing the unexposed alpha-iodo ketone with a solvent.

Examples of the alpha-iodo ketones include:

**T889,020****BINDER MATERIALS FOR PHOTOCONDUCTIVE LAYERS CONTAINING BLENDS OF RESINS**

Oris L. Stanton, 1669 Lake Ave.,
Rochester, N.Y. 14650
Filed Oct. 6, 1970, Ser. No. 78,578
Int. Cl. G03g 5/04
U.S. Cl. 96-15

No Drawing. 18 Pages Specification

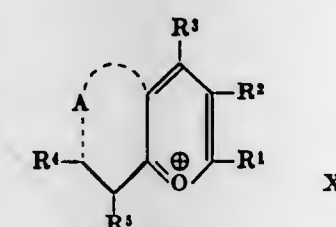
The electrical contrast of electrophotographic elements is lowered while keeping speed reasonably high by using novel blends of resins as binder materials for organic or inorganic photoconductors in the photoconductive layers of the electrophotographic elements. The blends comprise a polycarbonate, polyester or polystyrene resin with a polymer which causes reduction of the electrical contrast of the photoconductive layer. The latter polymer can

be (a) an alkylated styrene polymer having a softening point from about 100-150° C., or (b) a β -pinene polymer having a softening point around 100° C. or (c) a terpene-phenol copolymer having a softening point around 100° C. An example is a composition containing (a) 150 parts by weight of a 50/50 blend of bisphenol A polycarbonate and alkylated polystyrene of which the styrene rings have one ethyl or two methyl substituents as a binder for (b) 50 parts of the organic photoconductor phenyl-dibenzylamine and (c) one part of a pyrylium sensitizing dye. The mixture is coated on a subbed nickel support and used as a xerographic plate. After charging in the dark to a surface potential of about 600 volts, its gamma for a positive charge is 1.07 and the ratio of electrical H & D shoulder and toe speed is 2000/25. The use of the alkylated styrene polymer, the β -pinene polymer or the terpene-phenol copolymer for blending with other binder resins enables one to prepare photoconductive elements of a desired contrast level.

T889,021**ELECTROPHOTOGRAPHIC COMPOSITION AND ELEMENT**

George A. Reynolds and James A. Van Allan, Kodak Park Works, Rochester, N.Y. 14650
Filed Oct. 5, 1970, Ser. No. 78,611
Int. Cl. G03g 5/06
U.S. Cl. 96-15

No Drawing. 13 Pages Specification
Compounds having the formula:

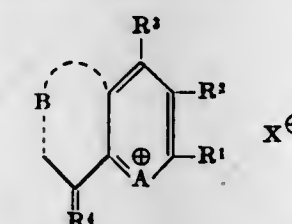


are sensitizers for photoconductors wherein R^1 , R^2 , R^3 , R^4 , and R^5 may represent separate moieties; wherein R^1 and R^2 , when taken together, may represent a fused aromatic nucleus; wherein R^4 and R^5 , when taken together, may represent a fused aromatic nucleus; and wherein A may represent a heteroethylene moiety, an alkylene moiety or a branched alkylene moiety.

T889,022**ELECTROPHOTOGRAPHIC COMPOSITION AND ELEMENT**

George A. Reynolds and James A. Van Allan, Kodak Park Works, Rochester, N.Y. 14650
Filed Oct. 5, 1970, Ser. No. 78,612
Int. Cl. G03g 5/06
U.S. Cl. 96-15

No Drawing. 13 Pages Specification
Compounds having the formula:

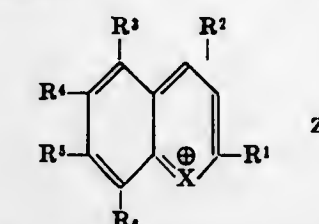


are sensitizers for photoconductors wherein R^1 , R^2 , R^3 , and R^4 may represent separate moieties; wherein R^1 and R^2 may be taken together to complete a fused aromatic ring; wherein A represents a hetero atom, e.g. oxygen or sulfur; and wherein B represents a radical having the formula $(CH_2)_n$ wherein n represents a positive integer having a value of from 2 to 9.

T889,023**ELECTROPHOTOGRAPHIC COMPOSITION AND ELEMENTS**

George A. Reynolds and James A. Van Allan, Kodak Park Works, Rochester, N.Y. 14650
Filed Oct. 5, 1970, Ser. No. 78,613
Int. Cl. G03g 5/00, 7/00
U.S. Cl. 96-16

No Drawing. 37 Pages Specification
Benzo[b]pyrylium salts and benzo[b]thiapyrylium salts of the formula



are sensitizers for photoconductors wherein R^1 , R^2 , R^3 , R^4 , R^5 , and R^6 may represent separate moieties including amono- or polycyclic, heterocyclidenemethyl radical wherein; when taken together, any two of R^3 , R^4 , R^5 , and R^6 attached to adjacent carbon atoms represent the atoms necessary to form a fused ring; and wherein X is a hetero atom, e.g. oxygen or sulfur.

T889,024**ELIMINATION OF MAGNESIUM GELS IN LIQUID AND SUSPENSION AMMONIATED POLYPHOSPHATE FERTILIZERS DERIVED FROM WET-PROCESS PHOSPHORIC ACID**

Thomas M. Jones, 208 Stevenson Court, Sheffield, Ala. 35660, and Alva W. Frazier, Florence, Ala. 35630
Filed Oct. 16, 1970, Ser. No. 81,591
Int. Cl. C05b 7/00
U.S. Cl. 71-34

No Drawing. 18 Pages Specification

Strong gels form in liquid and suspension fertilizers produced from ammoniated wet-process phosphoric acids high in magnesium and low in aluminum and containing fluorine and polyphosphate. During storage, fluidity decreases and the fertilizers cannot be satisfactorily pumped, poured, or distributed to the soil. The strength of the gel increases with storage time and temperature, the gel is difficult to break, and immediately reforms when broken. Conventional methods of reducing the gel strength were unsatisfactory; for example, dilution with small amounts of water increased the gel strength, and increasing the polyphosphate level up to 50 percent of the P_2O_5 did not prevent unsatisfactorily high gel strength.

A method of preventing or destroying the strong gel consists of adding aluminum in an acid-soluble form to the wet-process orthophosphoric acid to increase the $Al_2O_3:MgO$ weight ratio to 1.0, 1.5 being preferred; in some phosphates the $Al_2O_3:MgO$ weight ratio is 0.5 to 0.8. Some sources of aluminum found to be satisfactory were $AlPO_4$, $Al(NO_3)_3$, $Al_2(SO_4)_3$, spent acid from aluminum processing plants, wet-process phosphoric acid with high Al_2O_3 , and Florida leached zone ore.

T889,025**METHOD OF SPLICING WEB MATERIAL, AND SPLICER THEREFOR**

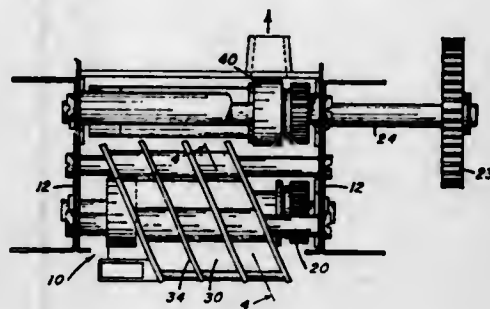
Lawrence A. Ulmschneider and Lawrence R. Witherow, both of 1669 Lake Ave., Rochester, N.Y. 14650
Filed Oct. 19, 1970, Ser. No. 81,970
Int. Cl. G03d 15/04
U.S. Cl. 156-159

1 Sheet Drawing. 10 Pages Specification

Two end portions of web material such as photographic film or paper are spliced together by providing perforations through the end portions, positioning the end portions adjacent one another, placing thermoplastic resin on opposite sides of the end portions, and then causing the thermoplastic resin to flow through the perforations

to unite the thermoplastic resin layers. Both butt and lap splicing can be performed in this way. The thermoplastic resin can be injection molded around the end portions, or solid layers of resin can be positioned in contact with the end portions and then heated in situ. The latter technique can be performed with a preformed sealer comprising two layers of resin which are joined between their ends, but are unjoined at their ends, such sealers being readily cut from a roll.

path to the next and adjacent loop path. The displacement of the passageways must be at least equivalent to the



width of the web of material being transported or processed.

T889,026
SKIVING AROMATIC POLYIMIDE SHAPES
Frank Clyde Starr, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of application Ser. No. 711,487, Mar. 8, 1968. This application Oct. 28, 1970, Ser. No. 84,872
Int. Cl. B29d 7/18, 7/24
U.S. Cl. 264—158

No Drawing. 9 Pages Specification

A process for skiving a shaped article such as a cylindrical blank of aromatic polyimide polymeric material is provided wherein the cylindrical blank of polyimide such as poly-N,N'-(4,4'-oxydiphenylene) pyromellitimide is mounted on a lathe and rotated at a constant speed, e.g. 20 r.p.m. and heated to, for example, 250° C. A heated skiving knife is brought into contacting relationship with the surface of the polyimide cylinder so that the knife contacts the cylinder at an angle of between about 5° and about 20°. A strip is skived from the polyimide cylinder while maintaining the temperature of the skiving knife and the temperature of the surface of the polyimide cylinder at between about 250° C. and about 500° C.

T889,027
LITHOGRAPHIC PRINTING PLATE
Gale F. Nadeau, Jr., 1669 Lake Ave., Rochester, N.Y. 14650
Filed Nov. 20, 1970, Ser. No. 91,603
Int. Cl. G03f 7/02
U.S. Cl. 96—33

No Drawing. 8 Pages Specification

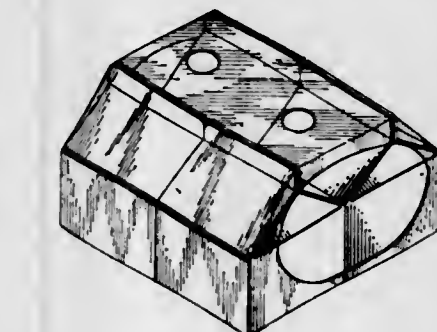
Photographic supports such as anodized aluminum and polyethylene coated paper are coated with a mixture of a maleic anhydride copolymer and an epoxy compound followed by heating to yield a hydrophobic surface useful for coating with sensitive layers such as silver halide emulsion layers or light-sensitive polymer layers. The products can, for example, be used for the production of lithographic printing plates by forming resist images on the polymeric surfaces and hydrolyzing the non-printing areas with alkaline solution. Alternately, the hydrophobic surface can be treated locally imagewise with alkaline solution to obtain a planographic printing plate.

T889,028
ROLLER TRANSPORT MECHANISM FOR A WEB OF MATERIAL
Harold E. Peiffer and George M. Reitter, both % Eastman Kodak Co., Kodak Park Division, Rochester, N.Y. 14650
Filed Dec. 4, 1970, Ser. No. 95,185
Int. Cl. B65h 23/32
U.S. Cl. 226—189

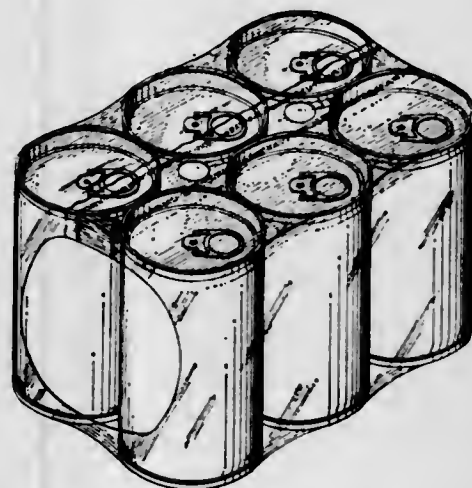
3 Sheets Drawing. 16 Pages Specification

An assembly of rollers which are arranged to move a web of material in a continuous path comprising a plurality of adjacent loop paths. The loop paths are formed by a particular arrangement of the rollers which, in turn, are of such length that a plurality of loop paths can be formed in the axial direction thereof. At one end of the loop paths, a member is arranged which has a plurality of adjacent passageways which are angularly disposed with respect to the planes of movement for the loops so that the web of material can be directed from one loop

The design relates to a package of beverage cartons or similar article, substantially as shown.

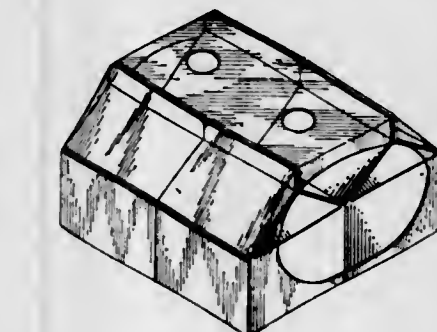


T889,029
CAN PACKAGE OR SIMILAR ARTICLE
Joseph Daniel Greenwell, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of design application Ser. No. 14,148, Oct. 23, 1968. This application Feb. 27, 1970, Ser. No. 21,667
Int. Cl. D9—99
U.S. Cl. D9—176
2 Sheets Drawing. 1 Page Specification



The design relates to a can package or similar article, substantially as shown.

T889,030
PACKAGE OF BEVERAGE CARTONS OR SIMILAR ARTICLE
Keith Stewart Carmichael, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of design application Ser. No. 14,936, Dec. 12, 1968. This application Feb. 27, 1970, Ser. No. 21,668
Int. Cl. D9—99
U.S. Cl. D9
1 Sheet Drawing. 1 Page Specification



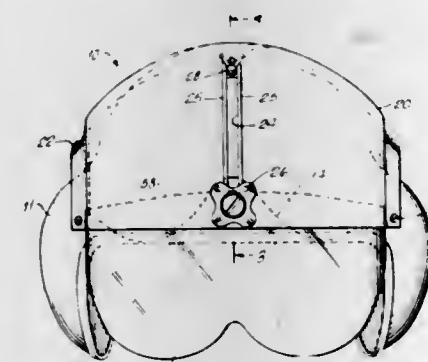
The design relates to a package of beverage cartons or similar article, substantially as shown.

PATENTS

GRANTED AUGUST 31, 1971

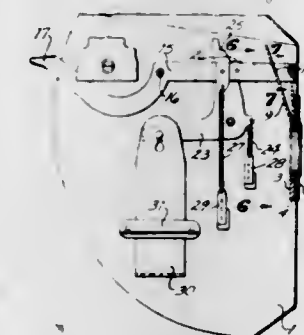
GENERAL AND MECHANICAL

3,601,813
SAFETY HELMET WITH TWO EYE SHIELDS
Jackson Anthony Aileo, Carbondale, Pa., assignor to Gentex Corporation, Carbondale, Pa.
Filed Aug. 20, 1969, Ser. No. 851,549
Int. Cl. A42b 3/00
U.S. Cl. 2—6
17 Claims



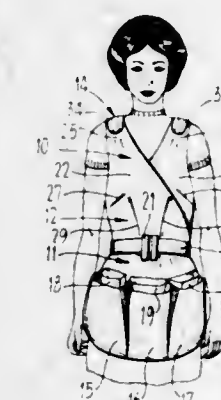
A safety helmet having inner and outer eye shields each movable between a retracted position and an eye-shielding position, a cover mounted on the helmet for protecting the eye shields in retracted position, and a handle for each eyeshield projecting through a slot in the cover for effecting movement of the shield to which the handle is attached. The handle of the inner eyeshield projects outwardly above an upper portion of the outer eyeshield so that downward movement of the inner eyeshield below the outer eyeshield is blocked by the upper portion of the outer eyeshield. Thus the inner shield can be moved down into eye-shielding position only when the outer shield is already in eye-shielding position.

3,601,814
EXTERNAL SHUTTER CONTROL FOR A WELDER'S HELMET
Curtis T. Manz, P. O. Box 2466, Long Beach, Calif.
Filed June 5, 1969, Ser. No. 830,734
Int. Cl. A61f 9/06
U.S. Cl. 2—8
5 Claims



In a welder's helmet, which has a movable transparent window, it is of importance to enable the user to slide the transparent window to a position either over the eyes of the user or spaced above the eyes of the user. For this purpose the transparent window is mounted in a frame within the welder's helmet, and which can be elevated manually by means of a pivoted yoke, and which can be released by a chinstrap which controls the latch engaging the yoke.

3,601,815
APRON OR LIKE GARMENT
Bonnie Strehlan, 2318 Mono Ave., El Cerrito, Calif.
Filed July 14, 1969, Ser. No. 841,395
Int. Cl. A41d 13/04
U.S. Cl. 2—48
9 Claims

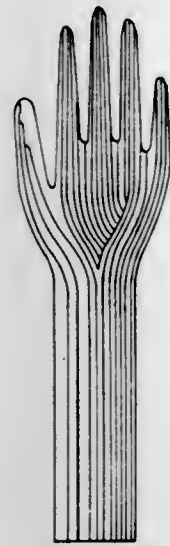


An apronlike garment having pockets adapted to support relatively heavy loads therein such as those carried by "change girls" that provide coin in exchange for paper money for persons playing slot machines and similar devices at gambling casinos. The apron is effective to distribute such heavy loads about the waist and over the shoulders of a person wearing the garment so that such loads are not concentrated at one location as is usually the case. The apron includes a depending skirt having one or more pockets, a bib attached to the skirt so as to extend upwardly therefrom to the shoulders of a person wearing the garment, a back section releasably attached to the bib adjacent the shoulders and equipped with a backband for encircling the waist of such person to snugly secure the back section thereto, and a waistband attached to the skirt and bib and extending rearwardly therefrom so as to overlie the backband. Means are provided for releasably interconnecting the waistband with the backband so as to transfer and distribute a portion of the load to the back section.

3,601,816
MULTISIZE GLOVE
Maurice Pordes, Paris, and Andre Veber, Drancy, both of France, assignors to Mapa-Fit, Les Lilas, France
Filed Mar. 13, 1969, Ser. No. 807,767
Claims priority, application France, Mar. 12, 1968, 143,400
Int. Cl. A41d 19/00
U.S. Cl. 2—167
5 Claims

A multisize glove which may be worn by persons having different hand sizes. The glove is made, at least partly, of polymeric material. The gauntlet and the back side of the glove body are provided with a substantially continuous series of longitudinal adjacent sinusoidal preshaped corrugations which are formed as alternate protrusions and depres-

sions. The corrugations are oriented in the direction which is substantially parallel to the longitudinal axis of the glove. The corrugations are oriented in the direction which is knit strip. Opposite end portions of the knit strip are joined together by edge binding stitching surrounding the opening



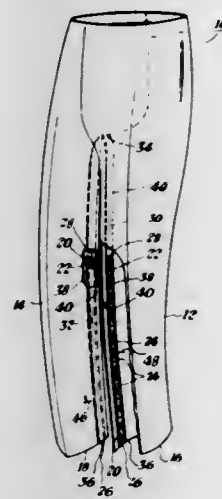
Each finger stall has at least one corrugation extending therealong.

3,601,817

GARMENT ALTERATIONAL MEANS AND METHODS
Milton Abrams, 5151 Rosecrest Drive, and Melvin Singer, 5120 Rosecrest Drive, both of Pittsburgh, Pa.
Filed July 9, 1969, Ser. No. 840,428
Int. Cl. A41d 1/02, 27/00

U.S. Cl. 2—227

10 Claims



We disclose a garment having an elongated alterable section, an alterational tape adhered to and extending longitudinally of said section, and measuring indicia on said tape for denoting an altered length of said section in terms of the location of an inwardly folded edge portion of said garment section.

3,601,818

LOW-CUT SOCK AND METHOD

Robert E. Chesebro, and Raymond R. Sindelar, both of Sheboygan, Wis., assignors to Wigwam Mills, Inc., Sheboygan, Wis.

Filed Sept. 29, 1969, Ser. No. 861,860

Int. Cl. A41b 1/00

U.S. Cl. 2—239

6 Claims

A support tab is formed above the heel-embracing portion of the sock and is adapted to extend downwardly over the heel portion of a shoe to prevent the rear portion of the sock from sliding down into the shoe. The support tab is in the form of a loop and is formed as an integral part of the blank from which the sock is to be formed. The support loop includes a plurality of partial courses of equal length having selvaged opposite side edges and forming a relatively narrow



which is adapted to receive the foot of the wearer therethrough.

3,601,819

SHEATH DEVICE FOR AIDING PLACEMENT OF PROSTHETIC LIMBS

Harry H. Herrmann, 9646 Bolton Ave., Riverside, Calif.

Filed Feb. 4, 1970, Ser. No. 8,473

Int. Cl. A61f 1/00, 1/02

U.S. Cl. 3—1

4 Claims



A sheath device for aiding the proper fitting of the limb stump of an amputee the the artificial limb or prosthesis therefor. Specifically, the device comprises a doubled-back sheath of resilient material, the ends of which are joined together to an elongate guide member; the latter is constructed for insertion through the normally provided vacuum hole communicating with the suction socket of the prosthesis. The sheath is fabricated of a knitted fabric such as ladies' hosiery, and when placed upon the limb stump, tightly grips the same so that the user, in pulling upon the same, will easily, firmly secure the stump area of the prosthesis. The user rolls the sheath off the stump within such socket by pulling solely on the outside layer thereof until the entire device is freed from the stump and withdrawn through the prosthesis aperture communicating with the socket thereof.

3,601,820

FLUSH APPARATUS

Charles L. Sargent, Ypsilanti; Marshall W. Miller, Ann Arbor, and Gary R. Adiska, Milan, all of, Mich., assignors to Thetford Corporation, Ann Arbor, Mich.

Filed Oct. 13, 1969, Ser. No. 865,864

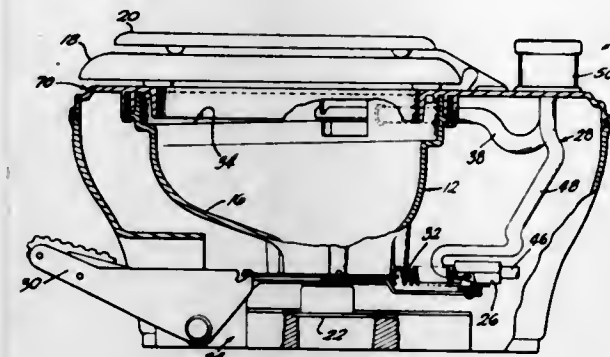
Int. Cl. E03d 1/10, 1/08

U.S. Cl. 4—92

13 Claims

Apparatus for flushing a generally circular vessel, such as a toilet bowl, whereby optimum rinsing of the bowl surface occurs while using a minimum charge of a flushing liquid. Means are provided for injecting a stream of the flushing

liquid into the bowl so that it will flow generally in a vortex pattern. The injection means discharges the liquid onto a auxiliary cover is raised to support the auxiliary cover to thereby provide a backrest for a child. Retractable straps for holding



3,601,821

PORTABLE TOILET

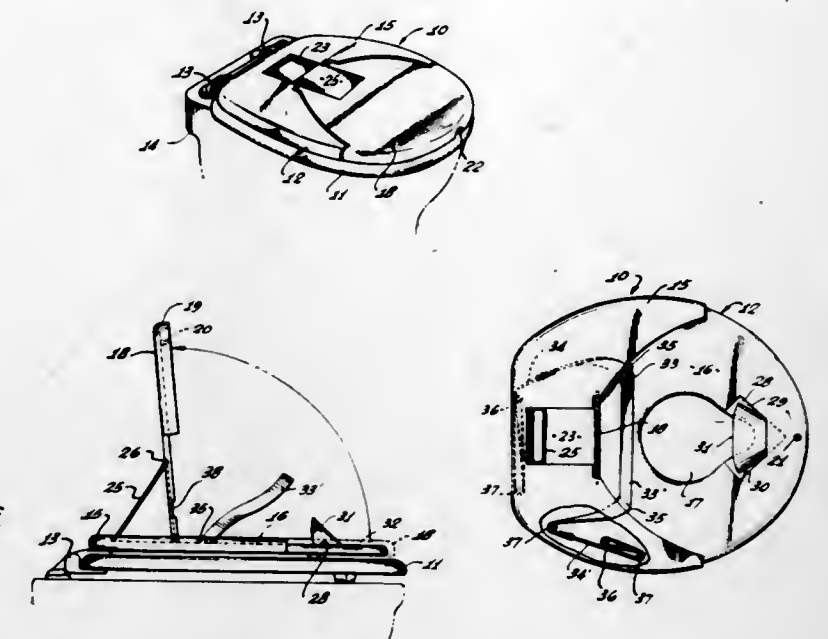
Anthony J. Corsiglia, P. O. Box 644, Vineland, N.J.

Filed June 16, 1969, Ser. No. 833,328

Int. Cl. A47k 1/102

U.S. Cl. 4—116

2 Claims



ledge formed in the wall of the bowl to facilitate spilling of the liquid uniformly over the interior surface of the bowl.

a child in position and a deformable, resilient splash guard are also provided.

3,601,823

UNITARY PLASTIC CAP, NUT AND WASHER COMBINATION

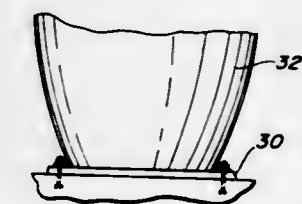
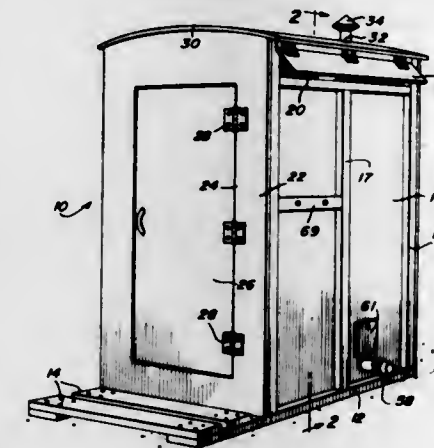
Harold Isaacs, 3107 Wilmette Ave., Wilmette, Ill.

Filed May 22, 1970, Ser. No. 39,788

Int. Cl. E03d 1/100

U.S. Cl. 4—252

4 Claims



A waste-storing tank enclosed within a shelter. The tank includes an outlet pipe extending through the shelter for permitting the emptying of the tank during use of the facility. The shelter includes exterior structural members to minimize the number of dirt-collecting corners and edges in the interior.

3,601,822

COMBINATION TOILET SEAT AND COVER

Sol Weiss, 17227 Quesan Place, Encino, Calif.

Filed July 7, 1969, Ser. No. 839,335

Int. Cl. A47k 13/00, 13/08

U.S. Cl. 4—234

11 Claims

This invention is a children's toilet seat and a cover for standard toilet seats. It is conventionally attached to a standard toilet seat and comprises a rearwardly positioned, U-shaped elevated section, a forwardly positioned, depressed section having a child-sized opening therein, and an auxiliary cover which substantially conforms to the shape of the depressed section and which is pivotally mounted behind the child-sized opening for closure thereover so that the top surface of the cover of this invention is substantially planar. The auxiliary cover is provided with a brace which is pivotally attached at one end thereto and which normally rests in a recess therein. The free end of the brace travels within an aligned guide recess in the U-shaped section when the aux-

3,601,824

COLLAPSIBLE STRETCHER HAVING REMOVABLE BED SECTION

John G. Bradford, 56 St. Margaret's Road, Ancaster, Ontario, Canada

Filed Mar. 13, 1970, Ser. No. 19,255

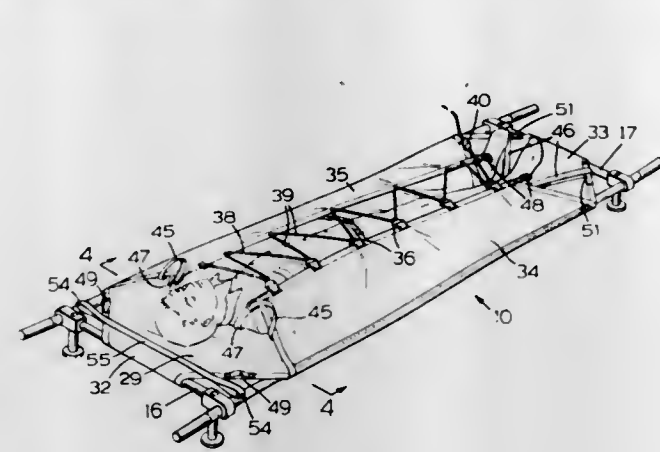
Int. Cl. A61g 7/10

U.S. Cl. 5—82

12 Claims

A collapsible and portable stretcher having a breakdown rectangular frame and a flexible sheet forming a bed for the stretcher but removable therefrom. The flexible sheet has side flaps which can be drawn and held together over the bed by way of hooks on one flap and cord-receiving members on the other flap, a cord being threaded through the cord-receiving members to form loops which are caught on the hooks, the cord then being drawn tight and snugged. The

stretcher is rapidly disassembled and packed into a compact carrying pack formed from the bed itself and the removable sleeve for compressing and inserting said core in a cover. Panel tape release means attached to the zipper and extend-



flexible sheet can itself, without frame, be utilized for securing and carrying a patient.

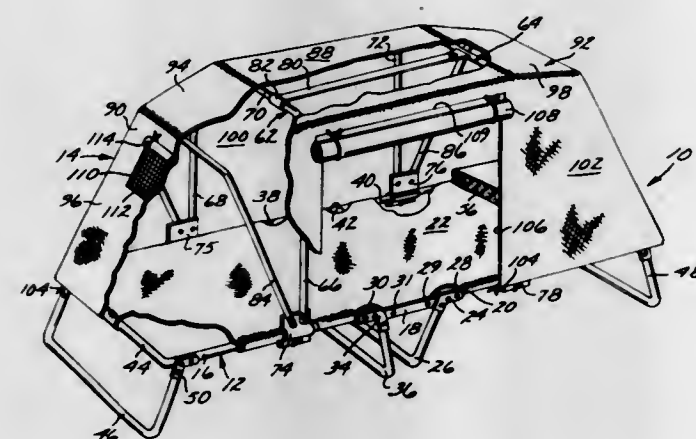
3,601,825 QUICKLY MOUNTABLE AND DEMOUNTABLE ACCESSORY

Alice L. Moorhead, and Paul G. Moorhead, both of 2111 Fairweather Road, Santa Ana, Calif.
Continuation-in-part of application Ser. No. 696,674, Dec. 11, 1967, now abandoned. This application Apr. 1, 1969, Ser. No. 811,879

Int. Cl. A47c 29/00

U.S. Cl. 5-113

3 Claims



There is disclosed a cot and cot-cover combination in which the side rails of the cot comprise three sections which extend to form elongate, straight rails and which fold to U-shape. Two canopy brace structures, one at each end of the cot, are pivotally carried on hinged brackets which embrace the side rails. The brackets slide along the rails to reduce spacing of the canopy brace structures to facilitate folding of the cot and its cover and to increase canopy brace spacing to increase the space within the pliant cot covering carried by the canopy braces.

3,601,826 MATTRESS COVER FITTING DEVICE

Imre Jack Smith, 283 Hillhurst Blvd., Toronto, Ontario, Canada

Filed Apr. 23, 1969, Ser. No. 818,689

Int. Cl. A47g 9/00; B65b 1/20

U.S. Cl. 5-335

A two-panel zipper-connected resilient core compressing

Panel tape release means attached to the zipper and extend-



ing outside said cover wherein the core is release from the sleeve and the sleeve is withdrawn from the cover.

3,601,827 SELF-CONTAINED UNDERWATER BUOYANCY SYSTEM

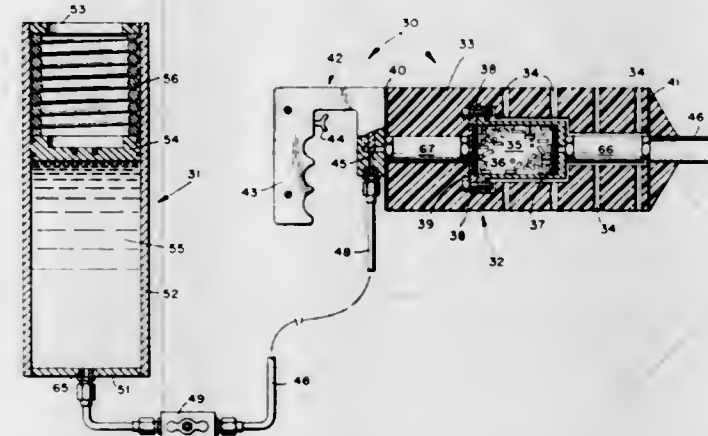
Donald Miller, China Lake, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Dec. 16, 1968, Ser. No. 783,974

Int. Cl. B63b 21/52

U.S. Cl. 9-8

5 Claims



A self-contained underwater buoyancy system comprising a lifting assembly having separately connected upper and lower portions connected in separated condition by a pair of load lines, a fuel tank containing a monopropellant fuel and a gas generator assembly having a main body portion housing a catalyst bed which causes the monopropellant fuel to turn into a gas and a pistol-type grip with a trigger valve for controlling the flow of monopropellant fuel to the catalyst bed.

3,601,828 WATER-WALKING APPARATUS

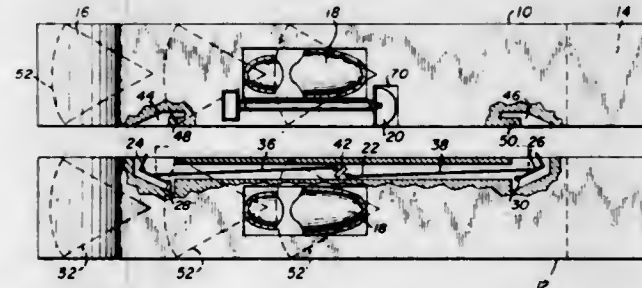
Bennie R. Fairchild, 2695 Compton Heights Drive, Fortuna, Calif.

Filed June 27, 1969, Ser. No. 837,092

Int. Cl. A63c 15/00

U.S. Cl. 9-310 D

4 Claims



Water-walking apparatus including a pair of buoyant shoes for attachment to a user's feet so as to enable him to propel himself over water. The shoes have a plurality of flexible flip-

pers attached to the bottom thereof and include a simplified means for securing the shoes together for use as a single unit. Collapsible seat means are also provided for enabling the user to rest thereupon when the shoes are secured together.

3,601,829 EQUIPMENT TO PREVENT INJURY DURING A PARACHUTIST'S LANDING

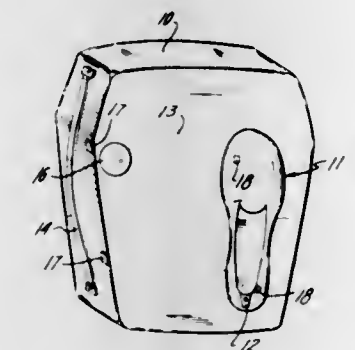
Henry Doherty, 19 B Byrne Court, Wayne, N.J.

Filed Dec. 12, 1969, Ser. No. 884,573

Int. Cl. B63c 9/18

U.S. Cl. 9-316

6 Claims



A landing float pad for parachutists which is worn deflated and folded as an overshoe on the right-foot boot before and when jumping and is inflated before landing. Made of fabric and rubber, it is held in folded condition by magnets. It is inflated by air released from a compressed-air container by pressure of the left foot. The pad serves as a cushion when falling to the ground and as a float when falling in water.

3,601,830 SELF-LOCKING BOLT AND MANUFACTURE THEREOF

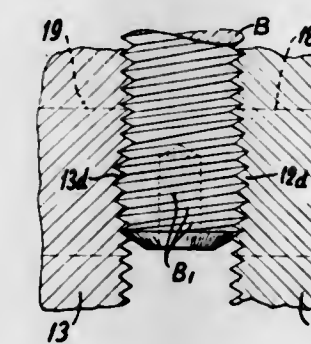
Jordan H. Stover, 5222 E. Camino Apolina Skyline, Bel Air Estates, Tucson, Ariz.

Filed Oct. 24, 1968, Ser. No. 770,359

Int. Cl. B21k 1/44; B23g 9/00; B21h 3/06

U.S. Cl. 10-27

5 Claims



A thread is rolled on the bolt blank around a predetermined length thereof, and during the thread-rolling operation the bolt is indented at diametrically opposed parts of its threaded length, to give a portion of this length a generally elliptical cross section which is near but spaced from the leading end of the bolt. The indented portion surrounds a central axial bore which opens through the leading end of the bolt, the bore diameter being 0.35D to 0.50D and the bore length being about 1D, where D is the nominal outer diameter of the thread on the bolt. The pitch diameter of the thread on the major axis of the elliptical cross section is slightly greater than the normal pitch diameter above the elliptical section, such as about 1.03 times the normal pitch diameter, to provide the self-locking action. Thus the friction which causes the self-locking action occurs along the flanks of the threads, rather than at the crests and roots.

3,601,831 METHOD FOR CONSTRUCTING SHOES

Helmut Daum, Steiermarkstrasse 4, 82 Rosenheim, Germany

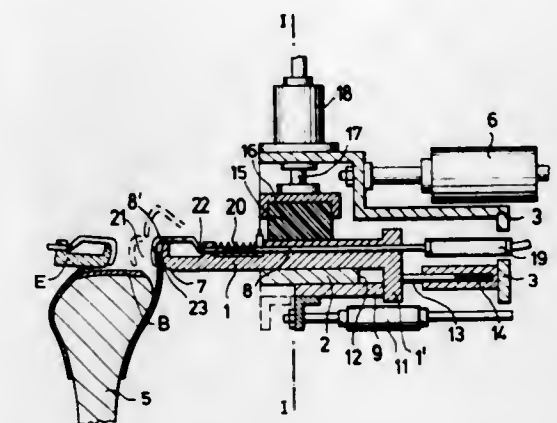
Filed Oct. 14, 1969, Ser. No. 7,321

Claims priority, application Germany, Oct. 15, 1968, Dec. 31, 1968, P 18 03 131.7; P 18 17 539.8

Int. Cl. A43d 21/00

U.S. Cl. 12-145

4 Claims



Shoes are constructed on a last by loosely placing an upper over the last and properly centering it thereon by bringing marks on the upper and the last into registration, loosely pulling the centered upper over the last, clamping the upper to clamping implements, successively stretching the upper longitudinally and laterally by the implements, and attaching the lip of the upper to the insole on the last.

3,601,832 AIRCRAFT-WASHING APPARATUS

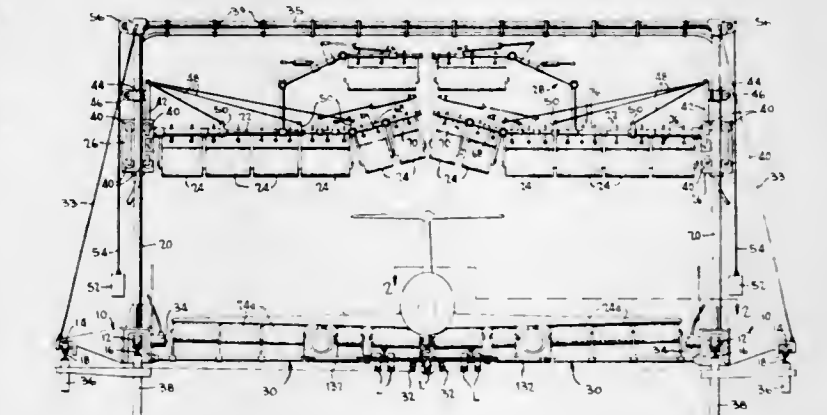
Vernon H. Cook, Rte. 2, Far Hills, N.J.

Filed Sept. 10, 1969, Ser. No. 856,603

Int. Cl. B64f 5/00

U.S. Cl. 15-21 E

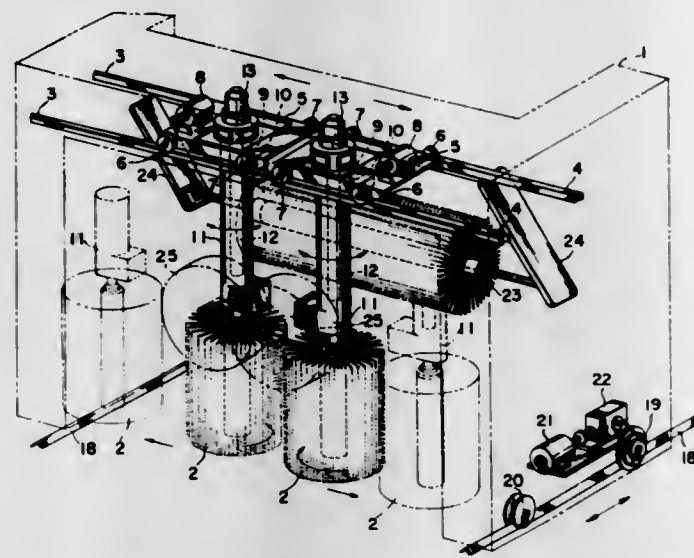
16 Claims



scrubbing self-propelled portable frame guided for longitudinal movement in a horizontal direction, there being a pair of rigid horizontal booms guided on said frame for vertical movement and power means for effecting such movement of the booms simultaneously with the horizontal movement of the frame so that the booms traverse a path having any desired horizontal and vertical components to conform substantially to the longitudinal profile of the aircraft surfaces to be cleaned. Each boom supports a plurality of power-driven scrubbing means for operative engagement with the aircraft surfaces and includes articulated sections adjustable to various angular positions to clean the aircraft fuselage and rudder. An auxiliary boom composed of articulately interconnected sections is carried by and above the main boom and has power means for angularly adjusting its sections so that scrubbing means carried thereby may be positioned for operative engagement with an elevated tail surface of the aircraft. Spray nozzles carried by the respective booms and boom sections are adapted to direct a detergent solution toward the aircraft for washing purposes or, if desired, to direct deicing fluid toward the aircraft for removal of ice and snow therefrom. The scrubbing means of the booms are

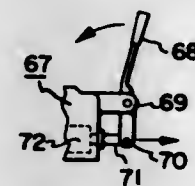
swingable into and from the path of the spray ejected from the nozzles so as to indirectly deliver the spray onto the aircraft surfaces, when desired, or to permit the spray to impinge directly on the surfaces of the aircraft. A lower, fixed level boom is similarly provided with spray nozzles and power-driven scrubbing means and is adapted for operation on the downwardly directed surfaces of the wing and fuselage of the aircraft.

3,601,833
OPERATION CONTROL FOR SIDE BRUSHES OF AUTOMATIC CARWASHING APPARATUS
Shigeo Takeuchi, Nagoya, Japan, assignor to Takeuchi Tekko Kabushiki Kaisha, Nagoya, Japan
Filed Nov. 4, 1969, Ser. No. 873,979
Claims priority, application Japan, June 9, 1969, 44/44673
Int. Cl. B60s 3/06
U.S. Cl. 15-21 1 Claim



Two pairs of guide rails are mounted on a travelling frame of a carwashing apparatus and a truck is mounted on each pair of the guide rails for movement thereon. A supporting shaft from which a side brush is swingably suspended is rotatably supported by each truck and two cam discs are fixedly mounted on the supporting shaft for selectively actuating sensing members provided on each truck, according to the angle of inclination of the side brush, and thereby for controlling a prime mover for operating the trucks or the traveling frame.

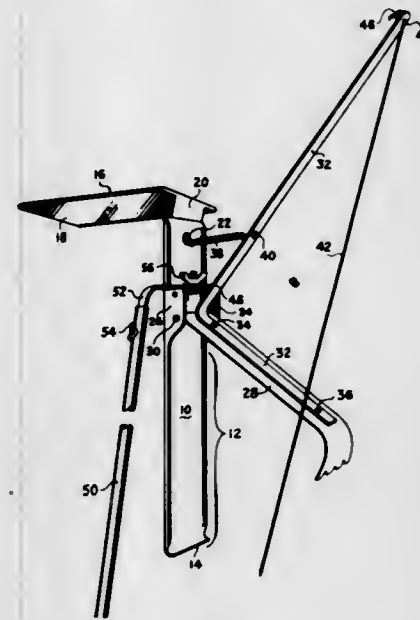
3,601,834
SCRAPING MACHINE AND ALLIED STRUCTURE
Ray Morgan Dyreng, Mantl-Apex Hatcheries & Poultry Breeding Farm, Mantl, Utah
Filed Feb. 25, 1969, Ser. No. 802,128
Int. Cl. E01h 1/00
U.S. Cl. 15-93 2 Claims



The present invention relates to vehicles which may be designed and used for scraping unwanted debris such as poultry droppings from particular collector bed to a desired locale such as a conveyor trough. The vehicle of the invention, though provided with a power plant such as an internal combustion engine, is nonetheless fluid-pressure driven, with its blade structure also preferably being actuated by fluid pressure. In a preferred form of the invention, a setting of the hydraulic drive, so as to predetermine the direction of travel of the vehicle, will simultaneously position the blade cor-

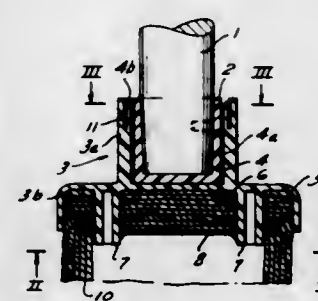
rectly for appropriate scraping or at appropriate neutral position. Only a slight adjustment is needed to convert the blade structure to scrape in an opposite direction. Appropriate steering means is provided to selectively brake opposite sides of the vehicle.

3,601,835
GUTTER CLEANER
Edwin E. Morgan, 318 Taylor Ave., Glen Ellyn, Ill.
Filed July 15, 1970, Ser. No. 55,042
Int. Cl. E04d 13/06
U.S. Cl. 15-105 10 Claims



This gutter cleaner is designed to facilitate the safe and efficient removal of dead leaves and other debris from roof-mounted rain gutters by an operator controlling the same from ground level. It comprises a normally vertically disposed frame having a stationary jaw member at its lower portion and an inspection mirror secured adjacent its upper portion to permit the ground-level operator to view the inside of the gutter being cleaned. A complementary movable jaw member is pivotally mounted on the frame and disposed in a closed position to register with the stationary jaw member to form grasping jaws. The movable jaw member is remotely controlled by actuating means such as an attached lever arm and nonrigid line or rope leading to the operator. The assembly is mounted on the elongated rod or pole which is preferably sectioned so that the length thereof can be adjusted to accommodate various gutter heights.

3,601,836
MOP
Juan Gunfaus, Av. J. de Sagrera, S/N., Tarrasa, Barcelona, Spain
Filed Apr. 3, 1969, Ser. No. 813,264
Int. Cl. A47i 13/24
U.S. Cl. 15-229 AP 9 Claims



A mop includes a handle and a sleeve member which caps one end portion of the handle. A mophead includes a holder member for mopping material and the holder member is provided with a recess so dimensioned as to accommodate the sleeve member therein. Friction-promoting projections are

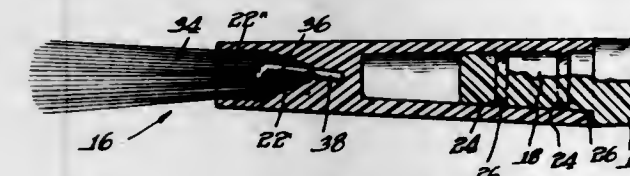
provided on the exterior of the sleeve member or in the interior of the recess so as to establish a releasable frictional connection between the sleeve member and the holder member when the former is inserted into the recess of the latter. Rotation-preventing means is provided for preventing relative rotation of the members when the mop is in use.

3,601,837
APPARATUS FOR CLEANING THE EDGES OF STRIP MATERIAL BY THE APPLICATION OF FLUID UNDER PRESSURE
Lucas J. Conrad, and John R. Everhart, both of Winston-Salem, N.C., assignors to Archer Products, Incorporated, Winston-Salem, N.C.
Division of Ser. No. 432,758, Apr. 21, 1967, Pat. No. 3,479,852
Filed Aug. 28, 1969, Ser. No. 870,752
Int. Cl. B08b 5/02
U.S. Cl. 15-302 3 Claims



The fluid cleaning apparatus comprises a tube having an open end and diametrically opposite slits through which the edge of the material passes. Compressed air is supplied to the hose and blows away any splinters or particles clinging to the edges. The compressed air cleaning is employed after a rolling or brushing operation.

3,601,838
BRUSH CONSTRUCTION
Nathaniel M. Marx, Chicago, Ill., assignor to Montrose Products, Inc., Chicago, Ill.
Filed Jan. 17, 1969, Ser. No. 792,034
Int. Cl. A46b 3/16
U.S. Cl. 15-195 5 Claims

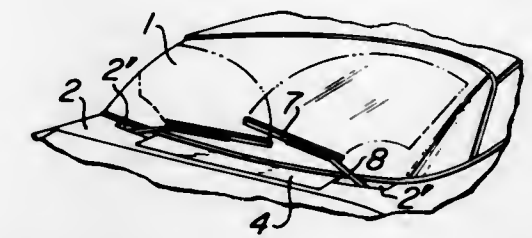


A brush construction of a type specifically designed for children and employing a novel assembly arrangement that insures both safety and long life in the use thereof. The brush includes a body section having an end portion provided with an axial socket, and a bristle arrangement assembled therein. The bristle arrangement is comprised of a plurality of individual elongate bristle elements having a wire element twisted about the approximate midpoint thereof, whereby said elements may be doubled over upon themselves to provide a completed arrangement. The wire element has exposed, tinelike ends whereby when said arrangement is disposed in said axial socket, said tinelike ends will pierce the end wall of said socket to maintain the bristle arrangement in assembly.

3,601,839
WINDSHIELD WIPER APPARATUS
Masumi Kato, Aichi-gun, Japan, assignor to Nippon Denso Kabushiki Kaisha, Kariya-shi, Japan
Filed Aug. 5, 1969, Ser. No. 847,559
Claims priority, application Japan, Aug. 12, 1968, 43/57208
Int. Cl. B60s 1/08
U.S. Cl. 15-250.19 12 Claims

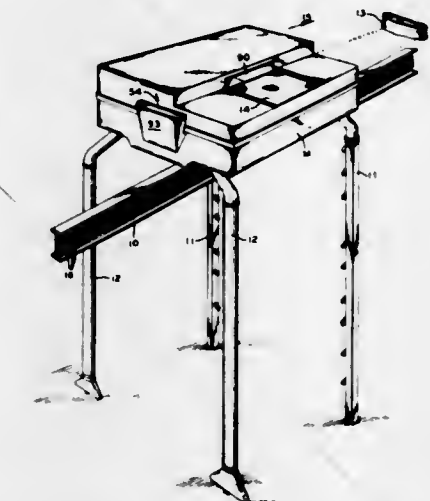
A windshield wiper apparatus of the type that is provided with a cover for shielding wiper blades when they are not in use, in which means are provided to maintain the cover in its

closed position when the wiper blade and arm assemblies are both in their stowed or parking positions and in their wiping



operations and to open the cover only when the assemblies are moved into or out of their stowed positions.

3,601,840
CLEANING MACHINE FOR TEXTILE FACTORY
George R. Pipes, Euclid, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Oct. 21, 1968, Ser. No. 769,322
Int. Cl. A47i 5/14
U.S. Cl. 15-312 A 15 Claims

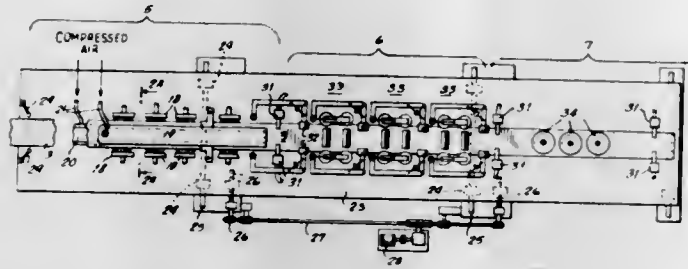


A cleaning machine for a textile factory has a filter through which air moves from the machine under pressure against textile machinery for loosening lint. A second filter in a suction chamber of the machine collects the lint as it is moved through the chamber of the machine by suction generated in the machine. The machine traverses a fixed path over the textile machinery and the first filter is cleaned as the machine moves past a vacuum cleaner nozzle. The second filter is cleaned by moving it first out of the suction chamber, this movement bringing it into position to be cleaned by the same vacuum nozzle. During cleaning of the filters, a shutter shuts communication between the filters and the air-moving mechanism of the machine. The shutter and the movable filter are actuated incidental to movement of the machine its fixed path under predetermined control.

3,601,841
APPARATUS FOR CLEANING THE EDGES OF STRIP MATERIAL BY BRUSHING
Lucas J. Conrad, and John R. Everhart, both of Winston-Salem, N.C., assignors to Archer Products, Incorporated, Winston-Salem, N.C.
Division of Ser. No. 632,758, Apr. 21, 1967, Pat. No. 3,479,852
Filed Aug. 28, 1969, Ser. No. 870,751
Int. Cl. B65h 23/24
U.S. Cl. 15-308 2 Claims

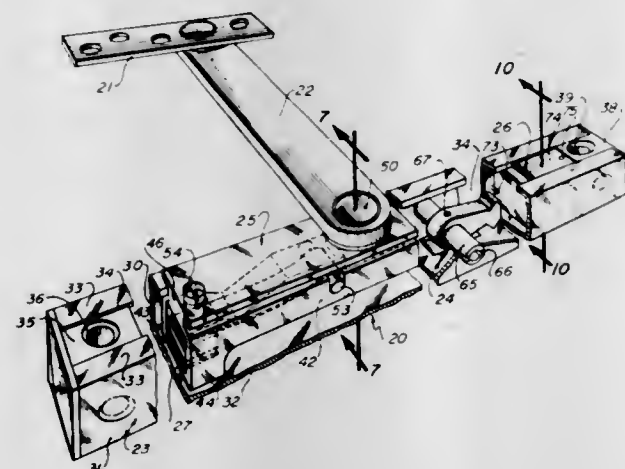
Apparatus for rounding the edge of an elongated strip of metal, e.g., aluminum. The edge is rounded by rolling and cleaning techniques. Edge-forming rolls rotate on vertical axes and have round grooves which receive an edge of the

strip. Edge-thickness-control rolls overlap the edges of the strip and engage the marginal flat surfaces thereof. The edge-thickness-control rolls are mounted on caster supports so that their axes of rotation tend to assume directions at right



angles to the motion of the strip. Both the edge-forming rolls and the edge-thickness-control rolls are rotated only by their contact with the moving strip. Rolls are readily demountable. Supports allow rolls to follow lateral movements of strip without stressing it.

3,601,842
DOOR HOLDER
Richard J. Morrison, Wilmette; Arthur A. Schlumpf, Chicago, and Albert J. Martino, West Dundee, all of, Ill., assignors to Rixson Inc., Franklin Park, Ill.
Filed June 22, 1970, Ser. No. 48,091
Int. Cl. E05f 3/00
U.S. Cl. 16-49 10 Claims



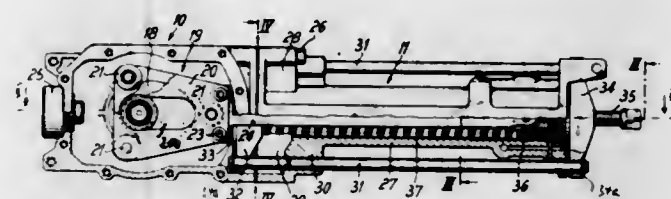
A latch-type door holder having a door frame mounting bracket and a door-supported channel formed with an elongated guide slot. The channel houses latch, hold-open pin and stop-shock assemblies. A drive arm pivoted to the mounting bracket moves the hold-open pin assembly to selectively engage the latch for door holding, or alternatively to contact the stop-shock assembly to effect a cushioned stop.

The hold-open pin assembly comprises a slide block fabricated of self-lubricating plastic and presenting a substantial number of sliding surfaces to the channel to improve the durability of the holder. The slide block houses an elongated generally flat hold-open spring, one end of which is coupled to an adjustment screw, and the other end to a vertically movable hold-open pin. An intermediate portion of the spring rests against a projecting cam section which is in an integral part of the slide block.

The latch assembly includes a latch pivoted upon a shaft so that the latch may selectively engage the hold-open pin or be removed from possible contact with the pin.

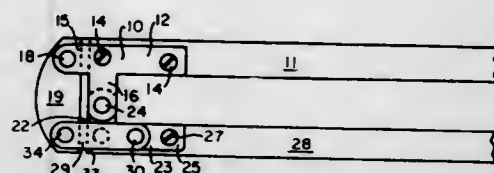
The slide block is preferably fabricated of a solid plastic, such as nylon, containing a homogeneously dispersed solid lubricant, such as molybdenum disulfide.

3,601,843
CLOSER FOR DOORS AND THE LIKE
Dietrich Jentsch, Ennepetal-Voerde, Germany, assignor to Dorken & Mankel KG, Ennepetal-Voerde, Germany
Filed Aug. 15, 1969, Ser. No. 850,349
Claims priority, application Germany, Aug. 17, 1968, P 17 84 545.3
Int. Cl. E05f 3/10, 3/22
U.S. Cl. 16-53 10 Claims



An elongated housing has longitudinally spaced ends. A slide means is arranged in the housing longitudinally slidable towards and away from one of the ends between a rest position and a working position. Connecting means operatively connects the slide means with the door to cause movement of the slide means between the positions thereof in response to movement of the door in its open and closed positions. Biasing means permanently urges the slide means to rest position. Adjusting means adjusts the biasing force exerted by the biasing means and includes a pair of parallel rods slidably extending from the interior of the housing beyond the other end of the housing to the exterior thereof, with the rods having first end portions located within and second end portions located without the housing. An inner connecting member connects the first end portions and is associated with the biasing member, and an outer connecting member connects the outer end portions exteriorly of the other end of the housing.

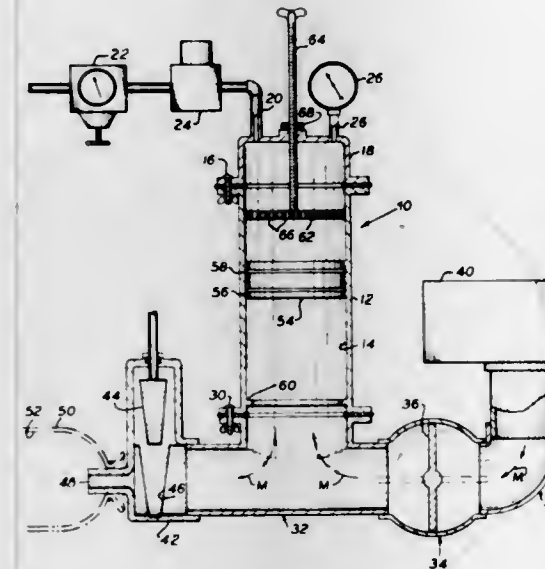
3,601,844
HINGE
Lewis O. Bodine, P.O. Box 703 1720 Deats Road, Dickinson, Tex.
Filed Apr. 16, 1969, Ser. No. 816,521
Int. Cl. E05d 3/06
U.S. Cl. 16-163 8 Claims



A hinge comprising a substantially T-shaped base member, a substantially L-shaped hinging member rotatably attached adjacent an end of a leg thereof to the shank of said T-shaped base member, and a linking member rotatably connected adjacent one end thereof to the other leg of said L-shaped member intermediate the ends thereof, said linking member extending from said rotatable connection toward and beyond the apex of said L-shaped base member a distance such that upon parallel alignment of said leg of said L-shaped member to which said linking member is attached and said linking member, said linking member shall extend beyond the apex of said L-shaped member a distance substantially equal to the arm of said T-shaped member extending in the same direction.

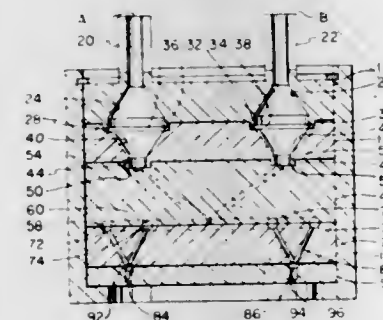
3,601,845
SAUSAGE CASING STUFFING APPARATUS
Arthur Mavrich, 26-67 Ellen Road, Bellmore, N.Y.
Filed July 25, 1969, Ser. No. 844,901
Int. Cl. A22c 1/102
U.S. Cl. 17-35 4 Claims
A piston-operated sausage casing (or similar container) stuffing apparatus in which the piston is actuated through

movement during its power stroke by pressure fluid, such as compressed air, and is then moved back to its ready position, preparatory to another power or casing-stuffing stroke, by the ground meat which is admitted into the apparatus and which is to be used for stuffing the next casing. Additionally, the



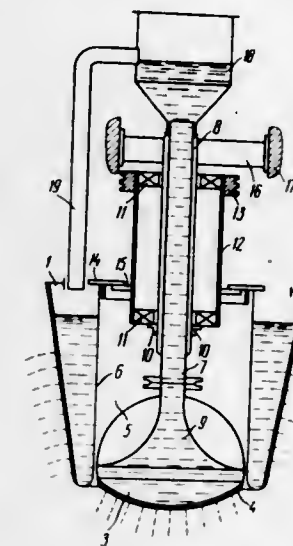
A device for granulating melts including a chamber with perforated lateral walls provided with a drive for rotating said chamber about its vertical axis and a stationary compartment with a perforated bottom mounted near the bottom of said chamber with perforated lateral walls in coaxial relationship with said chamber.

3,601,846
SPINNERET ASSEMBLY FOR MULTICOMPONENT FIBERS
Thomas W. Hudnall, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 26, 1970, Ser. No. 5,501
Int. Cl. D01d 3/00
U.S. Cl. 18-8 SC 5 Claims



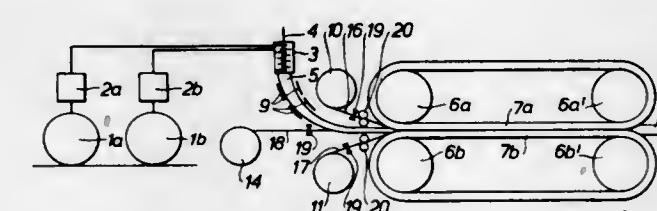
A spinneret assembly for providing multicomponent fibers with intimate contact along their length, and including three separately formed plates positioned in contiguous, coextensive alignment, and having separate feed inlets for two or more separate spinnable mediums with a separate flow path for each spinnable medium, the separate flow paths coming together within a counterbore recess in the downstream surface of the second plate for subsequent conjoint flow of the spinnable mediums from the second plate and through the third plate.

3,601,847
DEVICE FOR GRANULATING MELTS
Veniamin Nikolaevich Shalygin, ulitsa Uritskozo; 10a kv. 53, Dzerzhinsk; Stanislav Valerievich Yablonsky, ulitsa Pravo-Bulachnaya 27, kv. 12, Kazan, and Peter Stepanovich Voloshin, ulitsa Pravdy, 6, kv. 99, Dzerzhinsk, all of, U.S.S.R.
Filed Oct. 27, 1969, Ser. No. 869,512
Claims priority, application U.S.S.R., Oct. 28, 1968, 1281113
Int. Cl. B29c 5/04, 23/00; B22d 23/08
U.S. Cl. 18-2.6 2 Claims



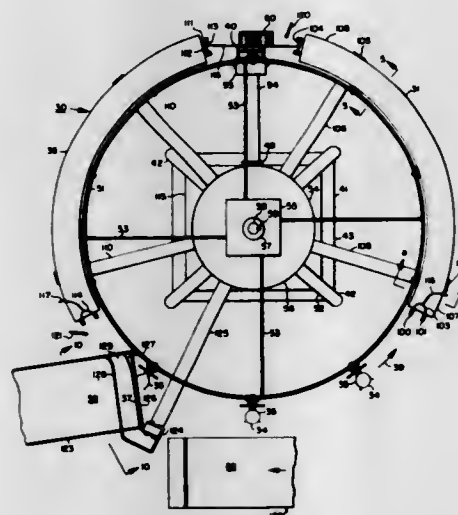
A device for granulating melts including a chamber with perforated lateral walls provided with a drive for rotating said chamber about its vertical axis and a stationary compartment with a perforated bottom mounted near the bottom of said chamber with perforated lateral walls in coaxial relationship with said chamber.

3,601,848
MACHINES FOR MAKING TUBES, LAMINATED RODS, AND LAMINATED STRIPS FROM LIQUID MULTICOMPONENT PLASTIC MATERIAL
Richard Zippel, Jr., 12-27, Bremer Strasse, 344 Eschwege, Germany
Filed Feb. 26, 1969, Ser. No. 802,519
Claims priority, application Germany, Mar. 7, 1968, P 17 29 133.7
Int. Cl. B29c 15/00
U.S. Cl. 18-4 B 11 Claims



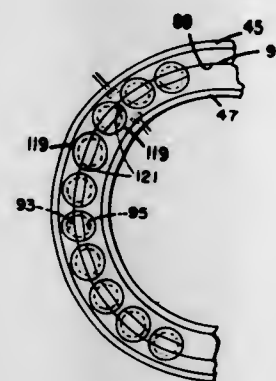
A machine for making tubes, pipes, laminated rods, and laminated strips from liquid multicomponent plastic material comprises two endless traveling moulding belts between which the plastic material is introduced while in a viscous or pastelike state through a nozzle while a core material and if desired outer layer material are simultaneously introduced between the belts. The core material may be a hose, means being provided for feeding a fluid under pressure to the hose to blow it up into tubular shape, means being provided for removing the hose from the tube when being formed. Alternatively, the nozzle may form the end of a mandrel which carries one or two lengths of hose, a pulsating fluid being supplied to the hose or hoses to inflate and deflate the same, the mandrel reciprocating in synchronism with the pulsations of the fluid. If two hoses are provided, one hose may be mounted on a tubular member reciprocatably mounted on the mandrel, movements of the mandrel and the tubular member being in counterphase to one another.

3,601,849
APPARATUS FOR HEAT TREATING END PORTIONS OF HAIR ROLLERS
 Harry W. Meyer, 1388 Hibiscus St., Clearwater, Fla.
 Division of Ser. No. 426,169, Jan. 18, 1965, Pat. No. 3,434,193
 Filed Mar. 13, 1968, Ser. No. 750,684
 Int. Cl. B29h 21/00
 U.S. Cl. 18—6 R 5 Claims



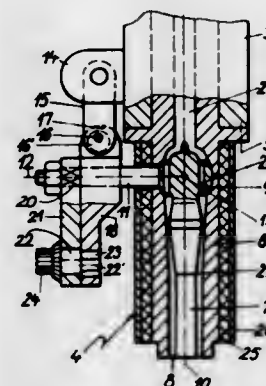
A hair roller has a brush and an internally supported tubular net component that is provided with shrunken filaments at its ends to retain the support in a proper position in the assembly. With heat shrinkable netting material, the filaments at the ends of the supported tubular component are heat shrunk and then followed with a water or air quench to ambient temperatures before the brush is inserted in the tubular net. Heating and quenching are accomplished with an apparatus having spaced heaters with associated quenching devices, and a carriage for conveying the internally supported tubular component through the heaters. The carriage is equipped with cam actuated holders for inverting the held items between heaters.

3,601,850
APPARATUS FOR MAKING NETLIKE STRUCTURES OF CURVED CONSTRUCTION
 Theodore H. Fairbanks, West Chester, Pa., assignor to FMC Corporation, Philadelphia, Pa.
 Filed Aug. 6, 1969, Ser. No. 848,009
 Int. Cl. B29f 3/00
 U.S. Cl. 18—12 N 7 Claims



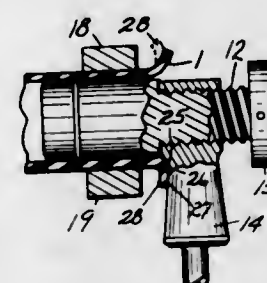
Apparatus for making netlike structures of curved construction in which composite extrusion nozzles are each turned through an angle of 180° alternately with relative movement between nozzle sections along arcuate paths extending about a common center.

3,601,851
ANNULAR NOZZLE FOR AN EXTRUDER
 Stefan Heidinger, Heidenheim, (Brenz), Germany, assignor to J. M. Voith GmbH, (Brenz), Germany
 Filed Feb. 11, 1970, Ser. No. 10,442
 Claims priority, application Germany, Feb. 22, 1969, P 19 08 933.9
 Int. Cl. B29d 23/04
 U.S. Cl. 18—14 V 8 Claims



An extruder nozzle has a core swivelly mounted within the passage of the nozzle body so as to define an annular space at the discharge opening of the nozzle. An adjusting lever extends laterally from the swivel point of the core with the axis of the lever passing through the swivel point and being perpendicular to the longitudinal axis of the nozzle. An arrangement of levers and adjustable eccentrics are connected to the adjusting lever on the exterior of the nozzle to permit swiveling of the nozzle core to vary the cross section of the annular discharge opening.

3,601,852
PIPE FLARING TOOL
 Bendt G. Bjalme, Erie, Pa., assignor to Reed Manufacturing Company, Erie, Pa.
 Filed May 27, 1969, Ser. No. 828,260
 Int. Cl. B29c 17/02
 U.S. Cl. 18—19 TE 11 Claims



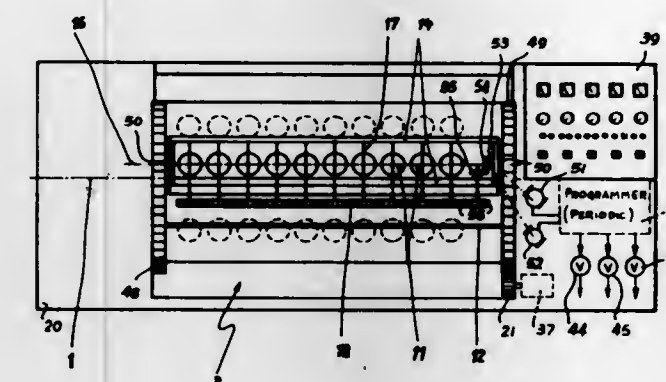
A pipe flaring tool for thermoplastic pipe such as polybutylene, polyethylene, polyvinyl, etc., used for domestic water service in which the pipe to be flared is solidly gripped against an internal mandrel while the flaring is accomplished by a spinning tool rotated about the axis of the pipe. The flare is effected by local deformation accompanied by heating by internal and external friction in the plastic.

3,601,853
ROTARY-CASTING MACHINE
 Anton Johannes Vox, Ruit, Germany, assignor to Thermovox GmbH, Kunststoffmaschinen, Ruit, Germany
 Filed Mar. 4, 1969, Ser. No. 804,224
 Claims priority, application Germany, Mar. 5, 1968, P 17 04 384.4
 Int. Cl. B29c 5/04
 U.S. Cl. 18—26 RR 9 Claims

A rotary-casting machine, especially for the casting of hollow bodies of a thermoplastic synthetic resin, which has a drum with a horizontal axis and a number of axially extending cylindrical sectors each constituting a row of centrifugal-casting molds. The housing surrounds the drum along at least

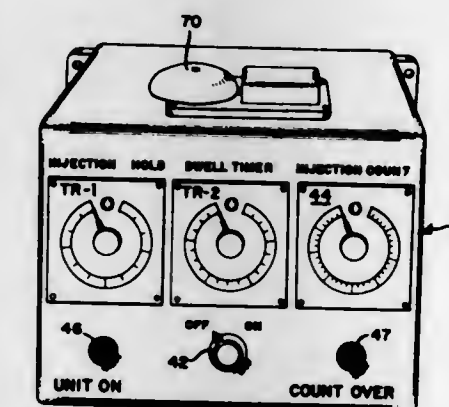
two of the sectors to define a heating and a cooling chamber therealong, the chambers being separated by a radially extending thermally insulating wall. The individual forms are

strength and the article is much easier to handle for subsequent firing. Also disclosed is a glass-ceramic powder com-



spun about two mutually perpendicular axes including at least one axis perpendicular to the axis of rotation of the drum.

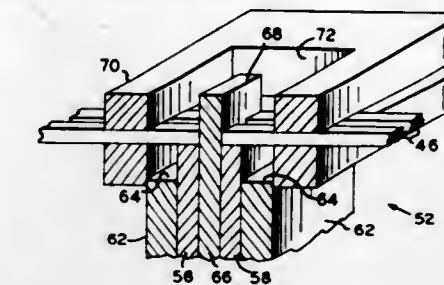
3,601,854
AUTOMATIC PURGING AND SHUTDOWN FOR PLASTIC INJECTION MACHINES
 Raymond Lee Trueblood, New Carlisle, Ohio, assignor to Trueblood, Inc., Tipp City, Ohio
 Filed Mar. 5, 1969, Ser. No. 804,608
 Int. Cl. B29f 1/04
 U.S. Cl. 18—30 CM 8 Claims



An automatic purging and shutdown system combined with a reciprocating screw-type plastic injection machine provides for the automatic operation of the machine, after shutdown of the heater elements, to continue the heating, plasticizing and ejecting of plastic material until the extruder barrel has reached a temperature which permits complete shut down of the extruder without degradation to the plastic material remaining within the barrel.

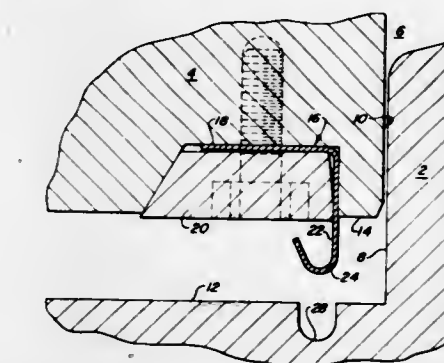
3,601,855
APPARATUS FOR FORMING A COMPOSITE METAL-CERAMIC ARTICLE
 Edward Meyer, Russell, Pa., assignor to Sylvania Electric Products Inc.
 Division of Ser. No. 761,164, Sept. 20, 1968, Pat. No. 3,487,044
 Filed June 17, 1970, Ser. No. 46,882
 Int. Cl. B29c 1/00
 U.S. Cl. 18—34 R 5 Claims

Disclosed are techniques for fabricating metal-ceramic articles wherein a hermetic seal is desired between the metal-ceramic jointure. The technique involves utilization of a powdered ceramic containing a binding material which is compressed in a mold around the metal part or parts to be incorporated therein. The green part so formed exhibits superior



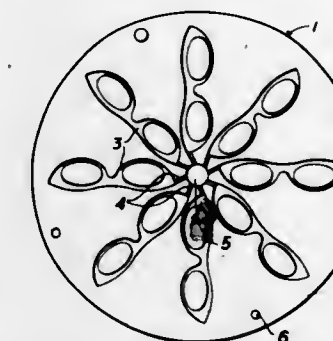
position ideally suited to this process, together with methods for treating the metal parts to insure a hermetic seal.

3,601,856
PRESSURE SEAL FOR COMPRESSION MOLDING
 Joseph R. Harris, Jr., Canton; Walter A. Hartz, Cuyahoga Falls, and Paul L. Rossomme, Uniontown, all of, Ohio, assignors to The General Tire & Rubber Company
 Filed Aug. 5, 1969, Ser. No. 847,650
 Int. Cl. B29c 1/00
 U.S. Cl. 18—42 R 15 Claims



This invention concerns a pressure seal mounted around a mold cavity formed by two mold members to prevent the exudation of molding compound from the cavity during the mold-closing and holding steps in the molding cycle and comprises a strip of material surrounding the mold cavity mounted along one edge thereof to the first mold member, the strip having a sealing portion adapted to engage a receiving surface on the second mold member and including a spring-loaded portion, to provide initial force for the sealing portion to form a tight seal during the initial part of the mold-closing step in the molding cycle, and a rigid-deflectable portion to provide secondary force for the sealing portion, upon final mold closure, and means for mounting the strip to one of the mold members.

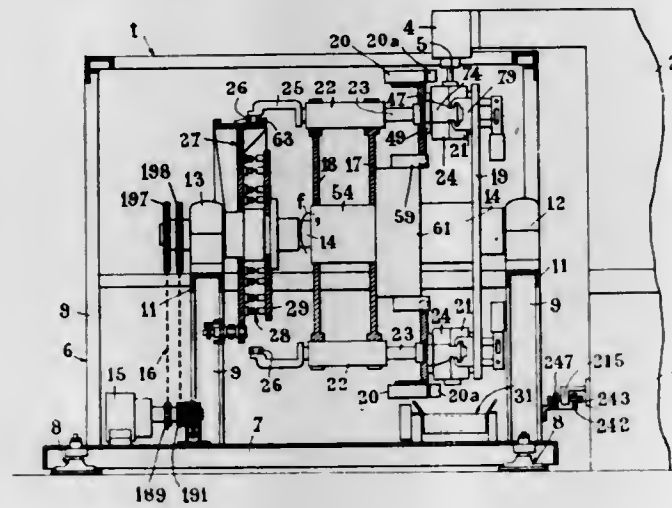
3,601,857
SPLIT MOULD FOR MANUFACTURING SYNTHETIC RESIN MOULDINGS
 Gerald Hampel, Vienna, Austria, assignor to Optipatent AG, Zug, Switzerland
 Filed Jan. 24, 1969, Ser. No. 793,725
 Int. Cl. B29c 1/02; B28b 7/06, 7/34
 U.S. Cl. 18—47 R 3 Claims



A split mould made of epoxy resin and polyaminoamide. Cross-linking is controlled to provide rigidity at room tem-

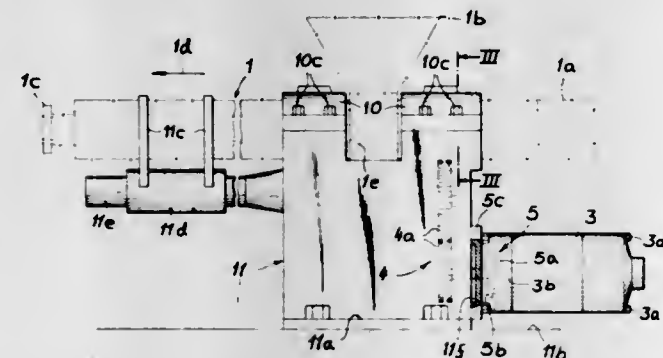
perature but low ball indentation hardness at operating mould temperatures to seal between abutting mould sections.

3,601,858
EXTRUDING-BLOWING MACHINE FOR MAKING HOLLOW PLASTIC ARTICLES
Hubert Blanchard, Le Havre, France, assignor to Sidel, Societe Anonyme, Le Havre, France
Filed Jan. 29, 1970, Ser. No. 6,757
Claims priority, application France, Feb. 5, 1969, 69 02576
Int. Cl. B29c 5/06
U.S. Cl. 18—5 BP 16 Claims



A machine for manufacturing plastic hollow bodies by extrusion-blowing, which comprises an extruder adapted to produce a continuous tubular blank or parison delivered in a vertical direction and a plurality of molds disposed at spaced intervals about the axis of rotation of a rotatable shaft. This machine is characterized in that it comprises double-acting longitudinal pneumatic actuators of the cylinder-and-piston unit type, carried by the support of the molds, an opening ramp and a closing ramp carried by a fixed transverse plate and extending along circular arcs centered to said axis of rotation, and rollers carried by the rear ends of the rods of said pneumatic actuators, said rollers engaging said opening and closing ramps.

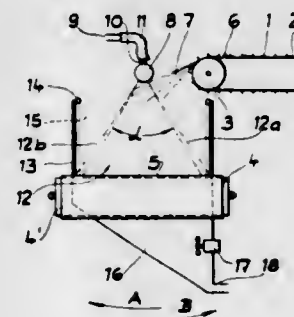
3,601,859
PLASTIFYING SCREW ASSEMBLY FOR EXTRUSION AND INJECTION-MOLDING PRESSES
Hans-Werner Seibach, Lohe, Germany, assignor to Firma Rolf Kestermann Maschinenfabrik, Bad Oeynhausen, Germany
Filed Nov. 26, 1968, Ser. No. 779,182
Claims priority, application Germany, Dec. 5, 1967, P 17 29 184.8
Int. Cl. B29f 3/00
U.S. Cl. 18—12 SP 6 Claims



A plastifying worm assembly for extrusion presses and injection-molding presses adapted to shape a thermoplastic material in which the worm, worm cylinder, worm-drive gears and thrust-bearing assembly constitute a replaceable unit of predetermined plastifying characteristics adapted to

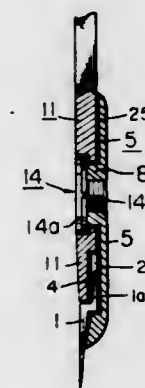
be mounted interchangeably with other units upon a drive structure constituting the second unit of the assembly. The drive structure includes the motor and transmission means including drive gears adapted to mesh with the worm-drive gears of the processing unit. The gears of the interchangeable units are meshable with the driving gears of the drive unit and have the same gear-tooth characteristics except for the number of teeth.

3,601,860
METHOD OF AND APPARATUS FOR FORMING A WEB OF FIBROUS MATERIAL
Heinz Keib, Wertheim, Germany, assignor to Werner Hugo Wilhelm Schuller, Munich, Germany
Filed Feb. 26, 1969, Ser. No. 802,592
Claims priority, application Germany, Mar. 7, 1968, P 16 85 546.2
Int. Cl. D01g 25/00
U.S. Cl. 19—156.3 22 Claims



A method of an apparatus for forming a nonwoven web of fibrous material. A pervious supporting surface travels in a predetermined direction. One or more spray pipes are arranged above and spaced from the supporting surface either in parallelism with or inclined to the direction of travel of the surface. Liquid is sprayed from the spray pipes as a liquid curtain or curtains downwardly towards the supporting surface. A supply arrangement advances a stream of staple fibers into the path of the liquid curtain or curtains so that the staple fibers are entrained by the liquid and deposited on the pervious supporting surface in the form of a fibrous web.

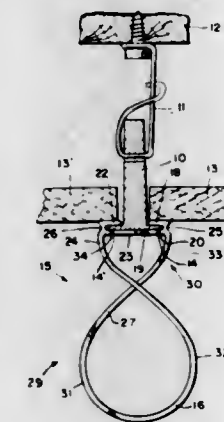
3,601,861
TOP COMB MECHANISM OF A COMBING MACHINE
Akira Moriwaki, Ikeda-shi, Japan, assignor to Nitto Shoji Kabushiki Kaisha, Osaka-shi, Osaka, Japan
Filed May 20, 1969, Ser. No. 826,124
Int. Cl. D01g 19/10
U.S. Cl. 19—221 8 Claims



A top comb mechanism used for a combing machine wherein a ribbon for supporting combing needles is held tightly being sandwiched by a top comb plate and a fastener plate combined in a detachable pressure contact. The combing needles are bent towards a nip point of detaching rollers for closer approach thereto. A suitable elastic member is attached to the mechanism as a shock absorber of impact loading during combing action. Particularly designed lateral cross-sectional profile of the combing needles enables com-

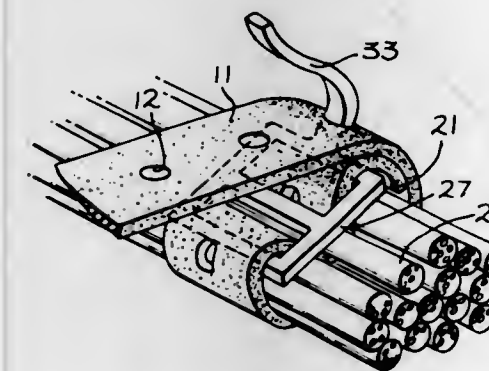
pulsive liberation of entangled fibers in the processed fiber mass.

3,601,862
LIMITED-STRESS HANGER CLIP
Donald J. Hargadon, 881 W. 86th St., Indianapolis, Ind.
Filed July 24, 1969, Ser. No. 844,570
Int. Cl. A44b 21/00; E04g 17/18
U.S. Cl. 24—73 B 7 Claims



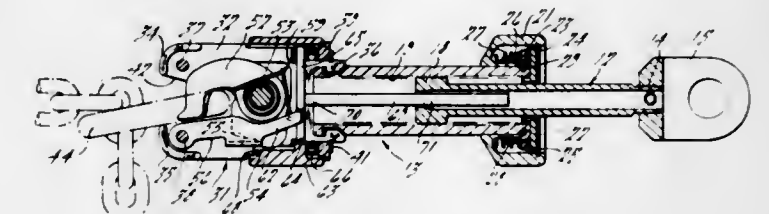
A hanger clip intended for supporting decorations and the like from the hanger bars of conventional acoustical ceiling structures, the clip being designed for ready attachment to the flanges or arms of such a bar under its own inherent resiliency and further being designed to yield under a predetermined load suspended therefrom in order to prevent damage to the hanger bar or its conventional suspension. In a preferred form, the clip is an integral, injection-molding comprising a simple strip of inherently resiliently flexible synthetic plastic provided, at its opposite ends, with finger pairs projecting from a common surface of the strip to define, when the strip is bent to cross its ends, mutually facing, open mouths for engagement with such hanger bar arms, said fingers being formed of inherently brittle synthetic plastic material.

3,601,863
CABLE BINDER
Milton Dorsey, 16637 Kelsloan St., Van Nuys, Calif.
Filed May 21, 1969, Ser. No. 826,597
Int. Cl. B65d 63/00
U.S. Cl. 24—16 BP 5 Claims



A cable binder is disclosed herein having an elongated, flexible band formed with a plurality of apertures arranged in a row along the longitudinal axis of the band. A rigid coupling means is adapted to be insertably disposed through selected ones of the apertures to retain the band about a single cable or a cable bundle. Other selected apertures may be employed to secure the banded cable or bundle to supporting structure.

3,601,864
CHAIN TENSIONER
Arnold E. Roberts, and Charles F. Crissy, both of Jackson, Mich., assignors to Aeroquip Corporation, Jackson, Mich.
Filed Mar. 12, 1970, Ser. No. 19,052
Int. Cl. B65d 63/00; A43c 11/00
U.S. Cl. 24—68 CT 12 Claims

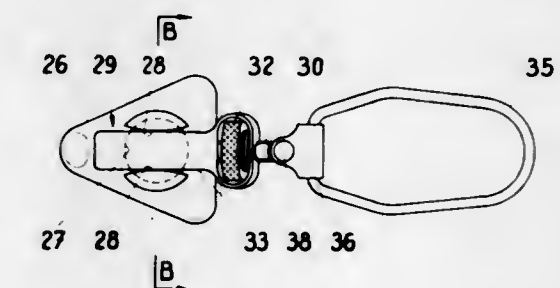


A device for creating tension in a chain used to tie down cargo. A shaft has one end attachable to a deck and the other threadably adjustable in a hollow body the outer end of which carries a chain attaching head. A hook-shaped latch in the head is movable between a releasing position and a latching position in which it will hold a captive grab link carried by the chain. The latch is released by a rotatable ring on the head. When in its released position, the latch is ready to receive the grab link for relatching.

3,601,865
SHOE CLOSURE DEVICE WITH ROTATABLE MEMBER
Robert Schoch, Singen, Hohentwiel, Germany, assignor to Weinmann Aktiengesellschaft, Schaffhausen, Switzerland
Filed Aug. 27, 1969, Ser. No. 853,319
Int. Cl. A43c 11/14
U.S. Cl. 24—69 SK 3 Claims

WEINMANN AKTIENGESELLSCHAFT
SCHAFFHAUSEN (SCHWEIZ)

2 Blatt
2. Blatt

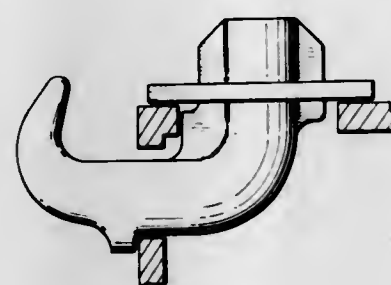


A closure device for a shoe upper has two interengageable closure means, at least one of which is mounted to rotate in a plane substantially parallel to the respective part of the upper.

3,601,866
FASTENING HOOK FOR CONTAINERS
Nils Per Gunnar Odén, Malmö, Sweden, assignor to Seasafe Transport AB, Stockholm, Sweden
Filed June 10, 1969, Ser. No. 831,900
Claims priority, application Sweden, June 17, 1968, 8206/68
Int. Cl. F16b 17/00; A44b 13/00
U.S. Cl. 24—230.5 TD 5 Claims

Fastening hook intended for the lashing of containers on decks, the hook having a neck, center section bent at right angles thereto, a point bent at more than a right angle in relation to the center section and a web plate on the neck at right angles thereto, the neck embodying two axial fins situated opposite one another in the same plane as the center

section and extending towards the same, one fin serving as a stop against an upper hole in the corner box of the container, one end at right angles to the bolt and slightly larger than the bore by a predetermined amount. The nut is tightened until



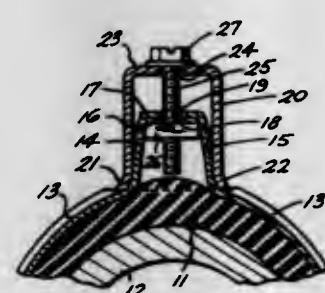
there being further a detent at the central section for abutment against the outside of said box.

3,601,867 HOSE CLAMP

George L. Turner, Hickory Corners, Mich., assignor to American Stamping Co., Battle Creek, Mich.
Filed June 25, 1969, Ser. No. 836,529
Int. Cl. B65d 63/00

U.S. Cl. 24-278

9 Claims



This hose clamp is of a highly simplified type to be made in various fixed sizes, depending upon the length of the band used, to fit and clamp various corresponding specific diameters of hose or the like. The ends of the band are out-turned for a short distance and then intumed so that this intumed portion of each will be substantially parallel and fit substantially flat on each other in operating position. These intumed ends are perforated in alignment to receive a bolt for engaging a nut on the underside of the pair of overlapping intumed ends. A preferably rectangular cross section cap receives the out-turned and then intumed terminal ends of said band in the lower portion of same. The top of the cap is perforated so that the bolt can pass through same and engage the nut. This bolt is preferably just a little shorter than the height of the cap, and when tightened it is placed in tension so that tightening rotation will pull the end portions of the band up into the cap and thus tighten the hose clamp.

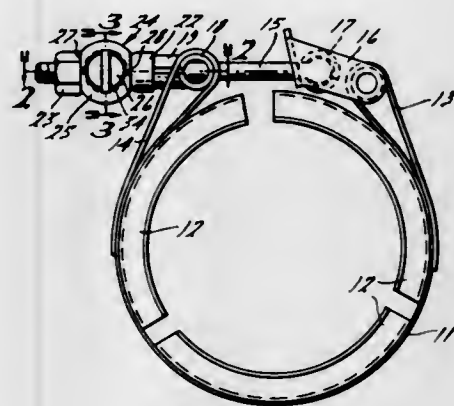
3,601,868 BOLT TENSION GAUGE

Edwin C. Elsner, Tujunga, Calif., assignor to Aeroquip Corporation, Jackson, Mich.
Filed May 14, 1969, Ser. No. 824,464
Int. Cl. B65d 63/06; F16b 31/02

U.S. Cl. 24-279

7 Claims

A T-bolt used to clamp a strap is tightened by a nut. A gauge is disposed between this nut and an abutment carried by the strap. The gauge comprises a cylindrical shell flattened on opposite sides and with a bore of predetermined diameter. A plug is disposed within this bore and has a bar at



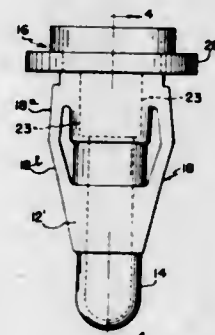
this bar may be manually pushed into the elongated bore at which point a predetermined bolt tension has been achieved.

3,601,869 FASTENERS

Laurence H. Flor, deceased, late of North Olmsted, Ohio; by Mary I. Flor, executrix, North Olmsted, Ohio, and Cleveland Trust Company, executor, Cleveland, Ohio, assignors to Eaton Yale & Towne Inc., Cleveland, Ohio
Division of Ser. No. 655,248, Dec. 22, 1966, Pat. No. 3,478,395
Filed Aug. 13, 1969, Ser. No. 849,928
Int. Cl. F16b 13/06

U.S. Cl. 24-73 SP

10 Claims



A plastic fastener including a bored head portion, a pair of tab portions extending downwardly from the head portion, a bored body portion including a plunger member extending downwardly from the head portion with the upper end of the plunger member being severably connected to the tab portions, and a pair of resilient leg portions connecting the head portion to the body portion adapted to be deformed outwardly with movement of the plunger member between the tab portions upon self-threading movement of a threaded member through the lower end of the body portion, and abutments on the body portion adapted for engagement with the tab portions to limit upward movement of the body portion toward the head portion.

3,601,870 STINGER CONTROL

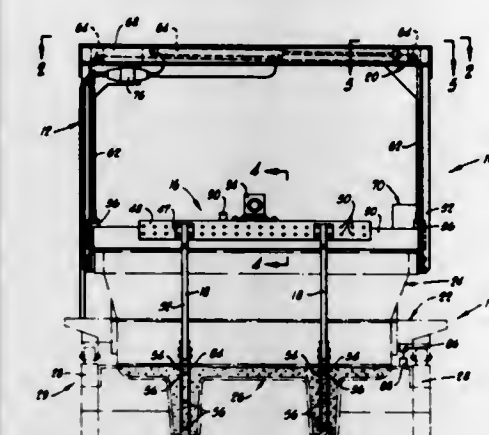
Cordis W. Jones, Sallina, Kans., assignor to Hastings Dynamold Corporation, Hastings, Nebr.
Filed Feb. 2, 1970, Ser. No. 7,610
Int. Cl. B28b 7/00

U.S. Cl. 25-41 R

4 Claims

This invention is a stinger control device for use with a moving apparatus for placing and form pouring of concrete. It is used with an apparatus having a supporting structure, a concrete distribution hopper and means to move and control same when in operation moving over concrete forms. The stinger control device of this invention is mounted on the concrete placing and form pouring apparatus, and in operation compacts the placed concrete in the form. More particularly, the stinger control device includes a probe extending

downwardly from the hopper and has apparatus to position same within the form and vibrate same. There is a control to



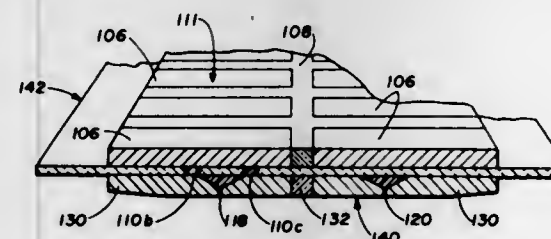
withdraw the probe automatically upon contact with the form or a foreign object therein or upon reaching a bulkhead within the form.

3,601,871 METHOD FOR FABRICATING MAGNETIC READ-WRITE HEAD ARRAY AND PRODUCT

Joe T. Pierce, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Sept. 30, 1968, Ser. No. 763,817
Int. Cl. H01f 7/06

U.S. Cl. 29-603

5 Claims



A method for fabricating an array of read-write heads for a magnetic storage means, such as a disk or drum, is disclosed. Each head is comprised of a flux-carrying means, such as a gapped magnetic loop inductively coupled to a flux-producing means, such as a pair of coils. The coils, together with a portion of the associated addressing circuitry, are formed on a high resistivity substrate. The halves of the magnetic loops that lie on opposite sides of the coil assembly are fabricated in the relative position on two separate assemblies. The two assemblies are then bonded to opposite sides of the coil assembly so that the halves of the magnetic loops mate through holes in the substrate to form the complete gapped magnetic loops. The excess material of the assemblies is then cut away as required to leave magnetically isolated magnetic loops and the associated coils embedded within a solid body.

The sensing gaps of the magnetic loops are formed by vacuum depositing a thin layer of nonmagnetic material on a face of one ferrite part, disposing a second ferrite part against the thin nonmagnetic layer and bonding the two ferrite parts together, taking a section of two ferrite parts normal to the nonmagnetic layer, and bridging the nonmagnetic layer with a third ferrite part to complete the magnetic loop.

The loop assemblies may be formed by cutting grooves in the faces of ferrite blocks to form a number of ferrite mesas corresponding to the number of read-write heads. The grooves are then filled with a nonmagnetic material to magnetically isolate the ferrite mesas. The loop assemblies are then bonded to opposite sides of the coil assembly before being separated from the ferrite block. Alternatively, the ferrite assembly may be formed by laminating a layer of ferrite material, or two layers of ferrite material separated by a thin layer of nonmagnetic material for forming a sensing gap, between two layers of nonmagnetic material, slicing the layers in a plane normal to the layers to produce a number of

slices each having a strip of ferrite disposed between strips of nonmagnetic material, then laminating these slices such that each strip of ferrite is isolated by nonmagnetic material. This laminated structure is again sliced normal to the last laminating joints to produce slices having individually isolated ferrite islands extending normal to the slice. Each ferrite island is then incorporated into a magnetic loop.

3,601,872

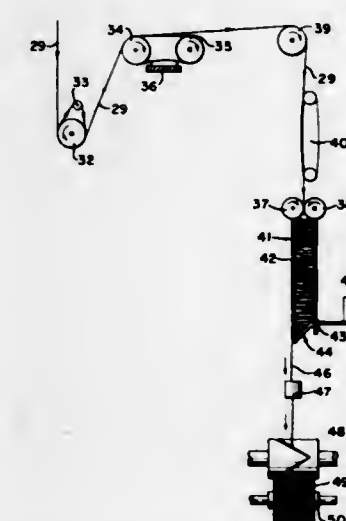
MANUFACTURE OF CRIMPED YARNS

Hendrik Potman, Arnhem; Jannes Eshuis, Arnhem, and Hendrinus Sempel, Rheden, all of, Netherlands, assignors to American Enka Corporation, Enka, N.C.

Filed Dec. 11, 1968, Ser. No. 783,089
Claims priority, application Netherlands, Dec. 12, 1967, 67-16844
Int. Cl. D02g 1/00

U.S. Cl. 28-1.2

13 Claims



A method for the manufacture of a crimped synthetic yarn which comprises introducing two crimps, separately, into a yarn, a latent crimp being introduced into the yarn by heating the yarn asymmetrically while under tension, and a direct crimp being introduced into the yarn by subjecting the yarn to a direct crimping treatment. Also an apparatus for carrying out this method and the yarn obtained by the method are disclosed.

3,601,873

METHOD OF MAKING NONWOVEN STITCH-REINFORCED FABRIC

Leslie E. Williams, East Point, Ga., assignor to Unlroyal, Inc., New York, N.Y.

Filed July 17, 1969, Ser. No. 842,619
Int. Cl. C08j 1/50

U.S. Cl. 28-74 R

6 Claims



An improved method of making a nonwoven fabric reinforced by stitching wherein a web or batting made of a multiplicity of substantially parallel fibers is reinforced by stitching yarn and is then stretched in a direction parallel to the substantially parallel fibers whereby to greatly improve the surface characteristics of the cloth. The fabric is especially useful as a backing for a polymeric coating in making simulated leather products, outerwear and the like.

3,601,874 ROTARY RASPING SURFACE SCARIFYING ATTACHMENT

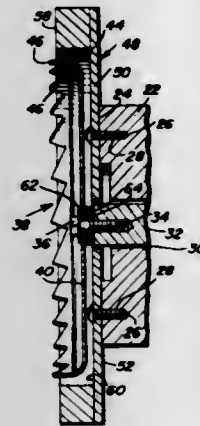
Minoru Sakamoto, and Tokuchi Nagato, both of Honolulu, Hawaii, assignors to Shuichi Sakamoto, Honolulu, Hawaii, a part interest

Filed Sept. 5, 1969, Ser. No. 855,532

Int. Cl. B23d 67/00; B27c 1/00

U.S. Cl. 29—76

5 Claims



A rotary rasping surface texturing attachment comprising a cupped rotary saw and a companion depth-of-cut adjusting safety guard. This attachment can, if desired, replace a detachable circular saw and safety guard assembly on a portable handle-equipped electric power unit. No alterations in the power unit are resorted to. All that is necessary is to detach the usual circular saw and guard and substitute the herein disclosed attachment, using the same bolting means to mount and retain it in place. The stated attachment lends itself for use in (1) producing a rough-sawn but desired surface finish on suitably receptive lumber and timber and (2) for use in removing paint, stains and the like from wood surfaces and (3) scarifying room wall surfaces in preparation for application of new plaster and similar wall-finishing jobs.

3,601,875 RENEWABLE ROLLER MILL ROLL

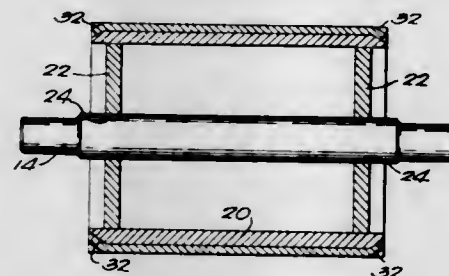
Robert F. Skelton, Bluffton, Ind., assignor to Mix-Mill, Inc., Bluffton, Ind.

Filed Feb. 10, 1969, Ser. No. 797,961

Int. Cl. B21b 31/08

U.S. Cl. 29—129

7 Claims



A roll for a feed mill including a basic or support roll having a number of slots around the periphery of each end of the roll and a renewable shell or sleeve press fitted onto the support roll having tabs at each end of the sleeve corresponding to the slots provided in the support roll for securing the sleeve to the support roll.

3,601,876 METHOD OF MANUFACTURING A ONE-PIECE FAN

Norman B. Vogt, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 17, 1969, Ser. No. 807,686

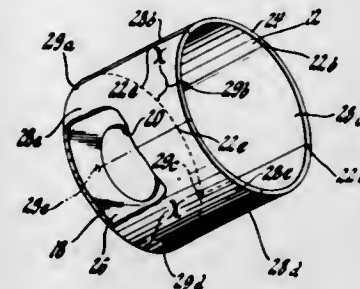
Int. Cl. B21k 3/04; B23p 15/02, 15/04

U.S. Cl. 29—156.8 B

9 Claims

A method of manufacturing a one-piece axial flow fan including the following steps: (1) forming one end of a cylindrical tube into a partially closed flat end surface having an

opening therein of a predetermined diameter; (2) separating the wall of the cylinder into a predetermined number of arcuate sections; (3) bending the sections to extend radially outwardly from the partially closed end; (4) trimming off the edges of the radial extensions and portions of the bottom flat



surface to form fan blades and a hub; and (5) twisting the blades to the desired final curvature, the final product being a one-piece axial flow fan having blades, each with one edge thereof on the same plane as the hub and a trailing edge bending away from the leading edge.

3,601,877 METHOD FOR MAKING PROSTHETIC CARDIAC VALVE

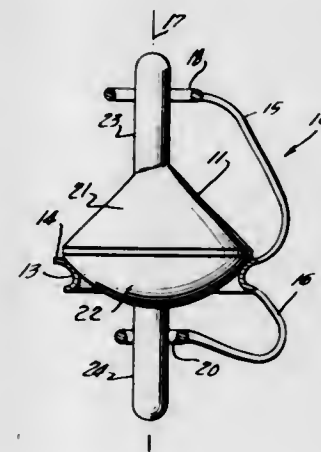
Carl C. Goosen, Winter Park, Fla., assignor to Lancer Scientific Corporation, Orlando, Fla.

Filed Jan. 12, 1970, Ser. No. 2,189

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26

U.S. Cl. 29—157.1 R

22 Claims



A method for making a heart valve of the type having a frame with a ring member adapted for attaching a sewing ring and having a seat for a valve element and either one or two extending arms, each arm having smaller rings on their extremities and being aligned with the center axis of the main ring. The valve element for an aorta valve has protrusions for extending through the smaller rings to either side of main ring and a portion adapted for sitting in the seat which is a section of a sphere less than a hemisphere on one side and a truncated cone on the other. The mitral valve has a generally lenticular shaped member with a T-shaped protrusion extending therefrom for passing through a smaller ring. Several embodiments of the method are provided to produce a high-quality valve utilizing commercially available tubing in one embodiment, sheet material for stamping in another embodiment and bar stock in a third embodiment.

3,601,878 METHOD FOR FABRICATING A HEAT EXCHANGER

John Karmazin, 3776 11th St., Wyandotte, Mich. Division of Ser. No. 648,314, June 23, 1967, Pat. No. 3,515,208

Filed Nov. 24, 1969, Ser. No. 877,601

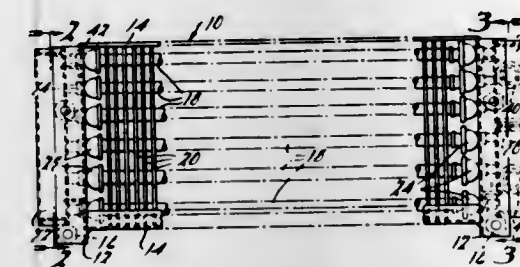
Int. Cl. B21d 53/02

U.S. Cl. 29—157.3 D

4 Claims

A heat exchanger and method for making a heat exchanger consisting of a rectangular framework, within which a plurali-

ty of spaced parallel sheets of material are disposed having spaced-apart integral tapered tubular projections positioned in aligned nested relationship defining a plurality of conduits extending and clamped between opposed sides of the



framework. The assembly is brazed in a furnace, effecting a bonding and sealing of the joints formed by the projections and the connections of the framework forming an integral structure of accurate dimension and of increased durability and ruggedness.

3,601,879 CARTRIDGE-TYPE MATRIX CORE-THREADING APPARATUS

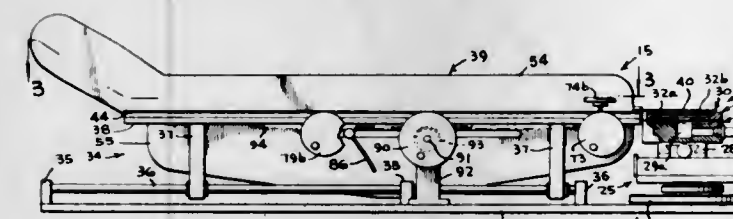
John A. Raickle, Hopewell Junction, N.Y., assignor to Industrial Micronics Incorporated, Leesburg, Va.

Filed Nov. 4, 1969, Ser. No. 873,810

Int. Cl. H05k 13/04; B23p 19/04

U.S. Cl. 29—203 MM

29 Claims



A machine for threading wire through an array of magnetic cores on filler plates to form a memory matrix having a rectilinearly reciprocative carriage on which plural hollow needles threaded with wires to be passed through the cores on the filler plate are removably supported as a group within a changeable cartridge. The needles may be advanced by an arming mechanism to a protruding position projecting beyond the leading end of the cartridge, and the carriage together with the cartridge can then be activated through an advance stroke feeding the needles and wires through parallel rows of the cores, after which the wires are retained while the needles are retracted to leave the wires threaded through the cores, and the wires are then cut adjacent the proximal edge of the array. The cartridge can be removed from the carriage and another cartridge of different size needles adapted to feed wires through different size cores can be readily substituted on the carriage to facilitate use of the machine to form memory matrices with different size cores.

3,601,880 METAL-WORKING TOOL

Elmore Brown, Jr., R.R. #4, Taylorsville, Ky.

Filed Feb. 4, 1969, Ser. No. 796,497

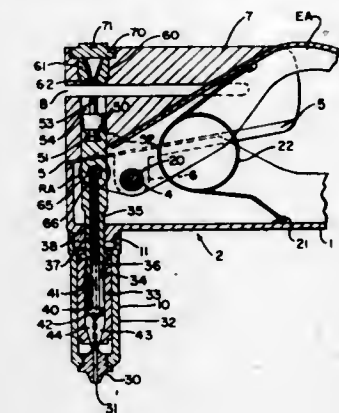
Int. Cl. B23p 19/00

U.S. Cl. 29—200

19 Claims

Discloses a hand tool, comprising a combination punch and pop riveter. A drawbar actuated by means of a handle in the form of a lever moves the punch from retracted to extended position and in the same motion actuates the pop rivet assembly so as to pull the shaft of the pop rivet assembly through the collar forming the fastener so as to flare

the collar and form a bottom flange. The combination of the two attachments operated off the same mechanism eliminates



the necessity of carrying a separate punch or drill on the job for use with the pop riveter.

3,601,881 APPARATUS FOR ASSEMBLING WHEELS OF AUTOMOTIVE VEHICLES OR THE LIKE

Walter Seidewitz, Hamburg, Germany, assignor to Ottensener Eisenwerk GmbH, Hamburg, Germany

Filed Mar. 26, 1969, Ser. No. 810,586

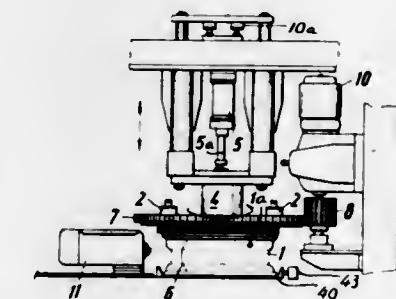
Claims priority, application Germany, Mar. 27, 1968, P 17

52 051.3

Int. Cl. B23p 19/04

U.S. Cl. 29—208 R

22 Claims



Apparatus for assembling rims and flanges of wheels for automotive vehicles comprises first and second turning devices for respectively locating successively furnished rims and flanges in predetermined angular positions at two separate stations, and a conveyor which transports oriented rims into registry with oriented flanges. The flanges are thereupon inserted into and welded to corresponding rims.

3,601,882 METHOD FOR BUILDING WALL PANELS

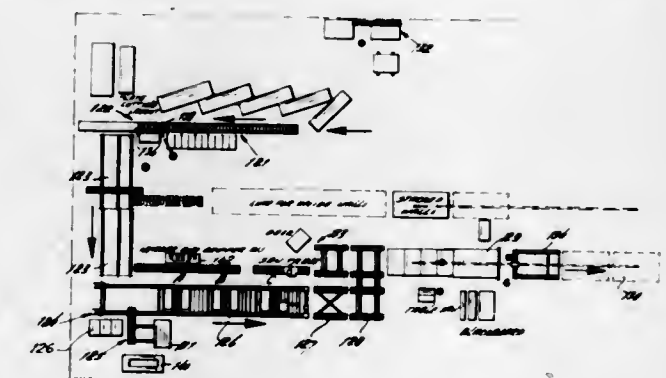
James L. McRae, P.O. Box 4195, Meridian, Miss.

Filed June 25, 1970, Ser. No. 49,735

Int. Cl. B23q 17/00

U.S. Cl. 29—407

11 Claims



Method for custom manufacturing housing wall panels of the type including parallel top and bottom plates, intersected

by a plurality of vertically extending studs, particularly an assembly line system for cutting, marking and assembling plates and stud components.

3,601,883

METHOD OF ASSEMBLING CLOSURE LATCHES

Alfonso Arlauskas, Troy, and Wieslaw S. Zaydel, Sterling Heights, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

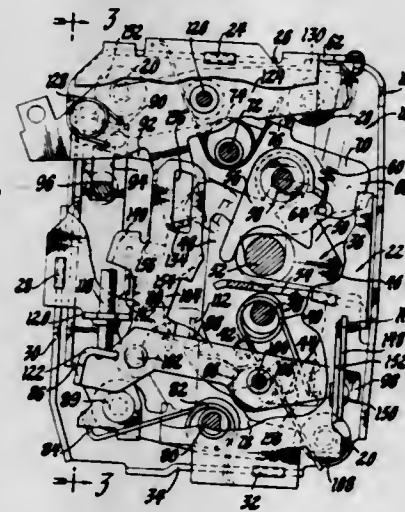
Division of Ser. No. 726,973, May 6, 1968, Pat. No. 3,545,800

Filed June 8, 1970, Ser. No. 44,115

Int. Cl. B23p 19/00; B23q 17/00; B23p 21/00

U.S. Cl. 29-434

2 Claims



A door lock is assembled by mounting the fork bolt, the detents, and various links for the detents on a main frame to provide a latching mechanism subassembly capable of being tested. The outside and inside operating members, the intermittent member, and the locking lever are mounted on the auxiliary frame to provide an unlatching mechanism subassembly capable of being tested. Both subassemblies are tested and then assembled as a unit.

3,601,884

METHOD OF CONSTRUCTING PARTS SUITABLE FOR HIGH HEAT FLUX REMOVAL IN ARC HEATERS

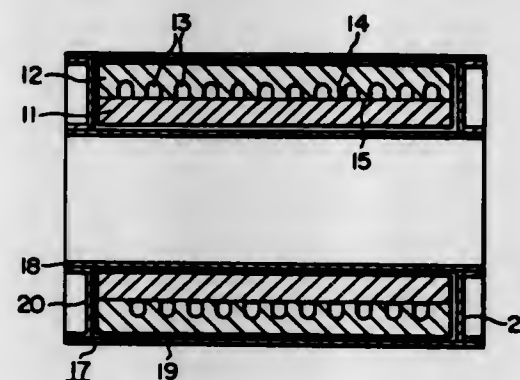
George A. Kemeny, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 499,494, Oct. 21, 1965. This application May 20, 1968, Ser. No. 730,424

Int. Cl. B23k 31/02

U.S. Cl. 29-471.5

20 Claims



A component to have a passageway or passageways therein, for example for the flow of cooling fluid, is formed in two or more parts which fit closely together so that one surface of one part is adjacent a surface of the other part. At least one of the mating surfaces has grooves or channels therein which are to form the passageways for the cooling fluid. Thereafter the channels or grooves are evacuated and a vacuum seal provided. According to one process or method

the parts have extending lips which are welded or otherwise joined together to form a seal for the evacuated channels. According to another method or process, the two parts after being fitted together are enclosed in a thin walled metal jacket of resilient material and the jacket evacuated and sealed. The sealed parts are then subjected for a suitable time and at a suitable temperature, as by placing in an autoclave, to a pressure in excess of that required to force the mating surfaces into intimate contact and sufficient to produce some deformation, with a resulting good bond but without so greatly reducing the cross-sectional area of the grooves or channels as to make them unsuitable for use as fluid flow passageways. One process aforesaid is also a process for healing internal flaws. After the bonding is complete, the assembly is cooled and removed from the jacket, or the lips machined off, according to the process employed. An additional step may include annealing to produce further grain growth across the boundary between the parts joined together. In a further process, the passageway is filled with an inert gas at low pressure during the autoclave run. In an additional process, the passageway contains a solid or fluid "getter" material. In a still further process the passageway or passageways are continually pumped out while the assembled parts are being heated and subjected to external pressure.

3,601,885

METHOD OF PRODUCING HIGH STRENGTH CARBON STEEL PLATE

Louis I. Mandich, Kennet Square, Pa., assignor to Lukens Steel Company, Coatesville, Pa.

Division of Ser. No. 785,730, Dec. 20, 1968, Pat. No. 3,499,757 which is a continuation-in-part of application Ser. No. 642,324,

May 31, 1967, now abandoned, continuation-in-part of application Ser. No. 415,184, Dec. 1, 1964, now abandoned, continuation-in-part of application Ser. No. 354,764, Mar.

25, 1964, now abandoned

Filed Aug. 7, 1969, Ser. No. 864,245

Int. Cl. B23k 19/00

8 Claims

A method of making high strength readily weldable carbon steel plates for railroad tank cars in the "as rolled" condition and in the normalized condition for pressure vessels, including tank cars which are intended for moderate and low temperature service, wherein steel is melted in a furnace to include, in addition to iron and incidental impurities, 0.15-0.50 percent silicon, 0.01-0.47 percent copper, 0.05-0.35 percent nickel, 0.05-0.25 percent chromium, and 0.01-0.15 percent molybdenum, the nickel and chromium content totaling at least about .20 percent; including 0.008 to 0.015 percent aluminum in the melt; adding sufficient manganese whereby the manganese content will fall within a range of a maximum of about 1.50 percent, and a minimum of 1.00 percent or 5.0 to 6.5 times the desired carbon content at pour, whichever is greater; refining the melt to a carbon content within a range of a maximum of 0.25 percent and a minimum of 0.20 percent or forty percent of the predetermined gauge in inches of the plate to be produced from the melt, whichever is lesser; pouring the melt into a mold to form an ingot; and rolling the ingot into plate of the predetermined gauge. Considerable economy can be realized through inclusion of a high percentage of scrap metal in the melt to attain the desired levels of copper, nickel, chromium and molybdenum. For normalizing, the rolled plates are heated to a temperature of 1525-1650° F., held at such temperature forty-five minutes for each inch of plate thickness and air cooled.

3,601,886

AUTOMATIC TOOL CHANGING APPARATUS

Horst Gohren, Hannover, and Werner Hesse, Langenhagen, both of, Germany, assignors to Max Muller Brinker Maschinenfabrik, Langenhagen, Germany

Filed Feb. 24, 1969, Ser. No. 801,484

Claims priority, application Germany, Feb. 24, 1968, P 16 52 706.3

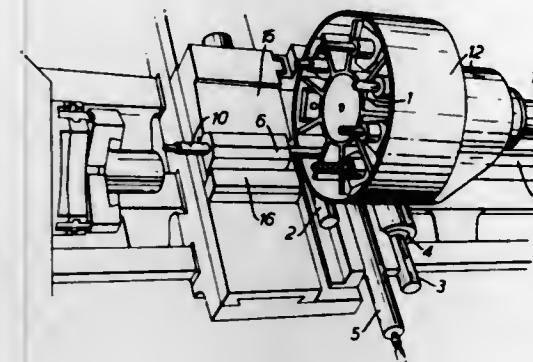
Int. Cl. B23q 3/155; B23b 29/24

U.S. Cl. 29-568

4 Claims

A lathe has a magazine mounted on a cross slide and arranged to be rotatable about its axis which is parallel to the

longitudinal axis of the lathe. The magazine has a plurality of semiconductor body. The semiconductor devices thus tool holders slidably mounted in it and a desired tool holder fabricated are characterized by having regions doped with can be brought into a change position by appropriate



magazine movement. A feeding device, movable longitudinally of the lathe, engages the selected tool holder in the change position and slides it onto a clamping slide rest positioned between the tool magazine and the workpiece.

3,601,887

FABRICATION OF THERMOELECTRIC ELEMENTS

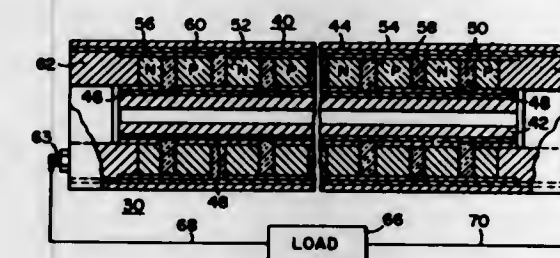
Phillip V. Mitchell, Bethesda, Md., and William P. Blankenship, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 593,528, Nov. 10, 1966, now abandoned. This application Mar. 12, 1969, Ser. No. 806,585

Int. Cl. B01j 17/00; H01n 15/00; H01n 49/00

U.S. Cl. 29-573

13 Claims



An isostatic hot compressing process step is employed to exert a pressure of from 5,000 p.s.i. to 50,000 p.s.i. on the exterior surfaces only of a hollow cylindrical thermoelectric element having thermoelectric material disposed between exterior and interior cylindrical shell members to plastically deform the exterior surfaces of the element and reducing the annular cross-sectional area of the element from 1 percent to 15 percent to provide at least an intimate physical contact between the body of thermoelectric material contained therein and the inner and outer members of the element. The inner member of the element is in compression after the hot isostatic compression is removed. Isostatic cold compressing may be applied to the element prior to the isostatic hot compressing process step.

3,601,888

SEMICONDUCTOR FABRICATION TECHNIQUE AND DEVICES FORMED THEREBY UTILIZING A DOPED METAL CONDUCTOR

William E. Engeler, Scotia, and Marvin Garfinkel, Schenectady, both of, N.Y., assignors to General Electric Company

Filed Apr. 25, 1969, Ser. No. 819,186

Int. Cl. B01j 17/00; H01 5/00

U.S. Cl. 29-578

16 Claims

Semiconductor devices are produced by utilizing a metallic conductor having conductivity-type determining impurities therein and deposited at selected locations on a surface of the semiconductor body. The deposited metallic conductor not only provides good thermal, mechanical, and electrical contact to the surface of the semiconductor body, but in addition acts as an impurity source for a controlling step of diffusing the conductivity-type determining impurities into the



conductivity-type determining impurities which are substantially coextensive with juxtaposed metal conductors having conductivity-type determining impurities therein.

3,601,889

METHOD OF MANUFACTURING THIN FILM RESISTOR ELEMENTS

Ryoichi Kaneoya, Kawasaki-shi, and Minoru Nagata, Tokyo, both of, Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan and Fujitsu Limited, Kawasaki, Japan, part interest to each

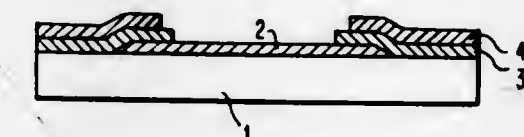
Filed Feb. 26, 1969, Ser. No. 802,384

Claims priority, application Japan, Feb. 27, 1968, 43-12438

Int. Cl. H01c 7/00, 17/00

U.S. Cl. 29-620

3 Claims



Described is a method of manufacturing thin film resistor elements. The method is characterized in that intermediate layers consisting of a metal having a temperature coefficient different from the temperature coefficient of a resistor film and capable of preventing diffusion of the soldering material and readily solderable terminal metal layers are provided on terminal parts of the resistor film and the temperature coefficient of resistance is minutely adjusted by removing parts of said intermediate layers.

3,601,890

METHOD OF AND APPARATUS FOR FABRICATING CONTACTS AND ASSEMBLING THEM IN GROUPS WITH CONNECTOR BLOCKS

Albert F. Pityo, and William D. Pityo, both of Pinellas Park, Fla., assignors to Federal Tool Engineering Co., Cedar Grove, N.J.

Filed Nov. 4, 1969, Ser. No. 873,944

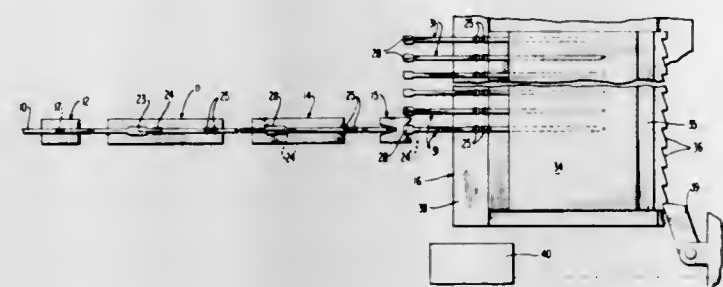
Int. Cl. H01r 9/00; H05k 13/04

U.S. Cl. 29-630 C

14 Claims

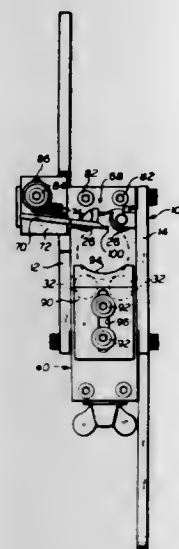
Contact assemblies are produced in a straight line process and are individually inserted into a temporary holder formed of styrofoam or the like, with linear indexing of the holder at the required pitch to produce even spacing of the contact assemblies in a group. The holder is brought adjacent to a

clamping fixture which clamps the exposed ends of the contact assemblies and removes them from the temporary holder



and inserts them in unison into a prefabricated connector block.

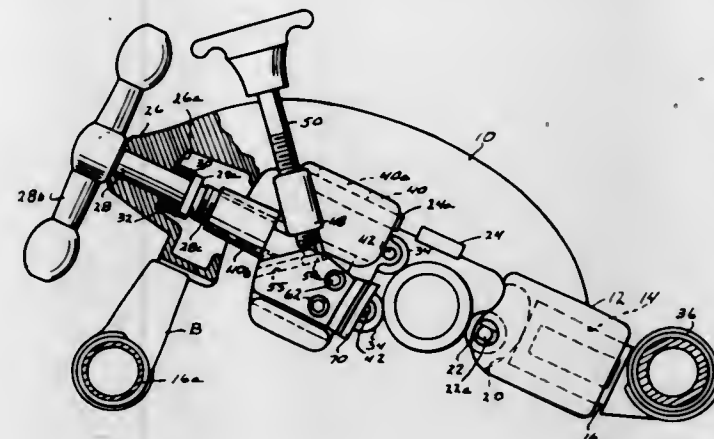
3,601,891
STRIPPING TOOL FOR REMOVING SEMI-CONDUCTING INSULATION SHIELD
Frank P. Destito, 53 Laurel Drive, Little Silver, N.J.
Filed Aug. 1, 1969, Ser. No. 846,731
Int. Cl. H02g 1/12
U.S. Cl. 30—90.1



This stripping tool has a guide adjustable to different diameters of electrical cable. During relative longitudinal and rotary movement of the cable and guide, a cutter knife removes material from the outside of the cable; and the knife is adjustable angularly about axes in different planes for removing an insulation shield; a sheath and insulation shield simultaneously; an insulation and conductor shield; and for tapering the insulation or other material for a part of the length of the cut. The guide has roller contact with the cable, and the adjustable rollers are carried by a sliding block.

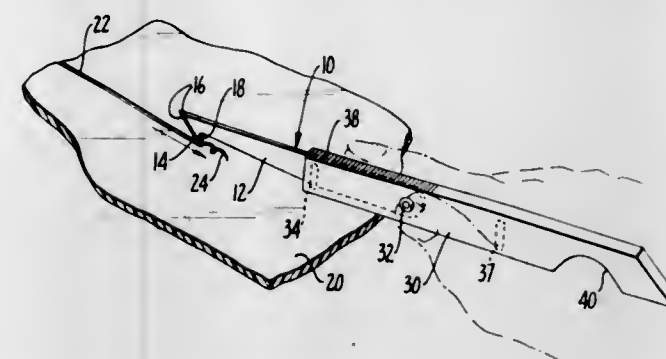
3,601,892
PIPE AND ROD CUT-OFF TOOL
Heinrich H. Frank, Amherst, Ohio, assignor to Emerson Electric Co., St. Louis, Mo.
Filed May 22, 1969, Ser. No. 826,875
Int. Cl. B23d 21/10
U.S. Cl. 30—94

4 Claims
A C-shaped frame carries a pipe or rod engaging roller at one end. The frame has ways upon which a carriage is slidably disposed and may be moved on the ways by a screw means rotatably journaled in the other end of the frame. The carriage has a pair of pipe engaging rollers which engage the opposite side of the pipe from the first roller. The carriage in turn has ways which slidably carry a cutoff holder. The tool is



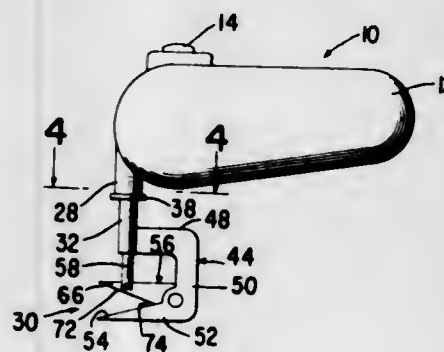
locking sliding engagement with an angularly disposed cam surface on the cutoff tool holder.

3,601,893
CUTTING TOOL FOR SHEET MATERIAL
Lyle N. Knox, 832 Lausanne, Daly City, Calif.
Filed Feb. 5, 1969, Ser. No. 796,758
Int. Cl. B26b 3/00; B26f 1/00; B26b 3/06
U.S. Cl. 30—164.9



A cutting tool having a blade and a hollow handle into which the blade may be folded. The blade is formed into a beveled cutting tooth to be repetitively drawn across hard sheet material, such as plastic, to cut the same to a depth sufficient to allow clean breakage of the material along the cut line.

3,601,894
PORTABLE ELECTRIC SHEARING DEVICES
Susan E. Baturay, Andover, N.J., and Gary W. Keegan, Bronx, N.Y., assignors to The Singer Company, New York, N.Y.
Filed Feb. 18, 1970, Ser. No. 12,374
Int. Cl. B26b 15/00
U.S. Cl. 30—228

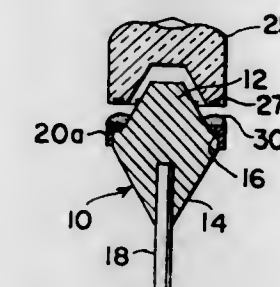


4 Claims
This disclosure relates to a portable electric shearing device having a pair of offset coacting cutting blades capable

of turning about an axis of rotation during operation of said tool whereby the line of cut will correspond to the direction in which the device is moved, whether or not the device is turned bodily in said direction.

3,601,895
METHOD OF MAKING A DENTAL CROWN WITH GOLD APRON
Frank L. Zollner, 2535 36th St., Long Island City, N.Y.
Filed Jan. 27, 1970, Ser. No. 6,170
Int. Cl. A61c 5/08
U.S. Cl. 32—12

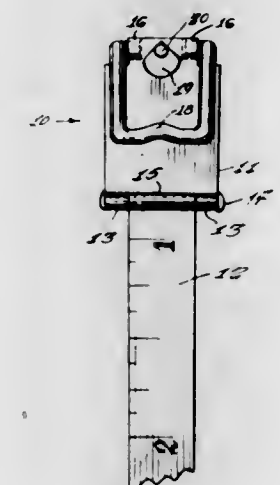
9 Claims



In a method of making a dental crown, a die is made from an impression of a tooth. A ringlike apron which is preformed is swaged on the die. Alternatively, the apron is formed as a casting made from an impression of the die. A porcelain jacket is then formed on the apron and die. The jacket is then bonded to the apron. The assembly of apron and jacket are then installed on the tooth by cementing both the jacket and apron to the tooth.

3,601,896
MEASURING TAPE CLIP
Ernest P. Ledene, 82 and Madison Streets, Hinsdale, Ill.
Filed Sept. 26, 1968, Ser. No. 762,889
Int. Cl. G01b 3/02, 3/10
U.S. Cl. 33—137

1 Claim

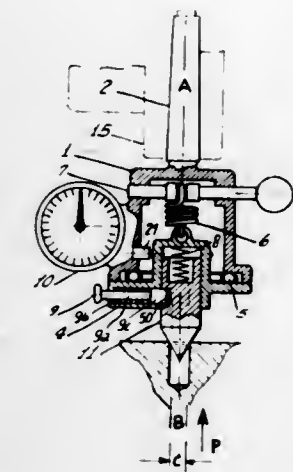


An improved measuring tape clip having self-releasing characteristics so as to eliminate the necessity of a person to return to a starting point for disengagement of the clip from a securing nail or other hooking means, a pivotable spring clip member secured to a clip body.

3,601,897
AXIAL ALIGNMENT ADJUSTMENT APPARATUS
Georg Muller, deceased, late of Uznach (by Martha Muller-Schalchli), assignor to Moswey AG, Zurich, Switzerland
Filed Feb. 25, 1969, Ser. No. 802,763
Claims priority, application Switzerland, Feb. 27, 1968, 3016/68
Int. Cl. G01b 5/00

8 Claims
U.S. Cl. 33—172 D
There is disclosed an axial alignment adjustment apparatus for aligning an object with respect to the axis of rotation of a spindle of a machine tool. According to the invention, there

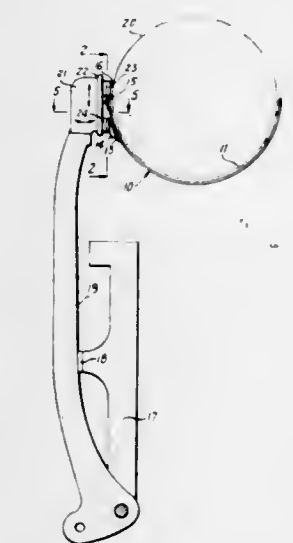
is provided a support or housing which is secured by means of a shaft to the spindle. A slide member, at which there are exchangeably secured by means of a locking device insertable feeler elements, is mounted at this housing so as to be dis-



placeable through a predetermined amount radially with respect to the spindle axis and rotatable about such axis. These displacements can be read-off at a dial gauge through the agency of a feeler or a sensing device provided internally of the housing or support.

3,601,898
TYPE SOLDERING GAUGE OR JIG
Robert C. Lokey, Box A75356, Tamal, Calif.
Filed Nov. 5, 1969, Ser. No. 874,282
Int. Cl. G01b 3/38
U.S. Cl. 33—183

10 Claims

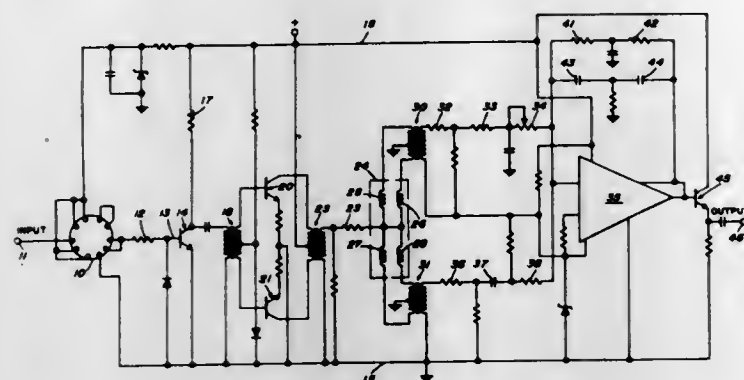


A self-adjusting gauge to enable the soldering of new type faces on typewriter type bars with speed and accuracy. The gauge cooperates with the typewriter platen and a single accurate typeface for preliminary placement in the correct use position. No attaching screws or other fasteners are required and the gauge is characterized by extreme simplicity and economy.

3,601,899
SINGLE CORE SOLID-STATE COMPASS
Mahlon R. Artz, Nashua, N.H., assignor to The United States of America as represented by the Secretary of the Navy
Filed July 3, 1969, Ser. No. 838,942
Int. Cl. G01c 17/28

4 Claims
U.S. Cl. 33—222
A compass with no moving parts, the sensing element consisting of four coils equally spaced around a single toroidal core. Diametrically opposite coils are connected to opposite

sides of a center-tapped transformer so that in the absence of an external magnetic field the signals cancel out. The



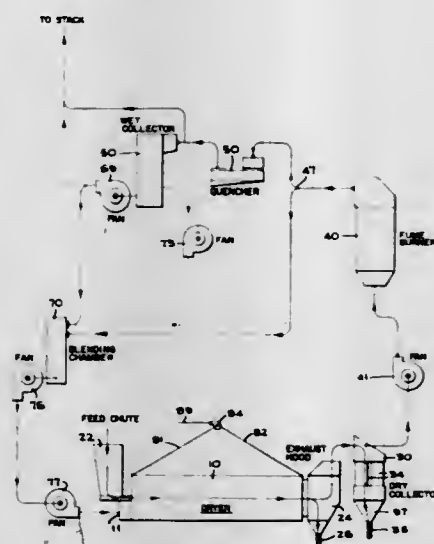
presence of an external magnetic field will then unbalance the coils and produce a directional signal.

3,601,900 METHOD AND APPARATUS FOR DRYING METAL SCRAP

Maurice J. Erisman, Oak Park; Leonard M. Kaczmariski, Chicago, Ill., and Wesley W. Coffin, deceased, late of Elmhurst, Ill. (by Betty B. Coffin, executrix), assignors to FMC Corporation, San Jose, Calif., by said Erisman and said Kaczmariski

Filed Mar. 27, 1969, Ser. No. 814,884
Int. Cl. F26b 3/00

U.S. Cl. 34-26



Metal scrap having water and cutting oils thereon is cleaned and dried by hot treated gas. The gas circulates through a drying chamber containing the scrap and causes the water and cutting oils to evaporate into a vapor which mixes with the drying gas. The resultant combustible mixture is treated for recycling through the dryer by first passing it through a dry dust collector which removes practically all of the solid particles which are unavoidably picked up by the gas as it comes in contact with the metal scrap. The combustible gas mixture is then fed into a furnace where burners ignite the gas to render it inert and raise its temperature. The resultant hot inert gas is split into two streams, one stream going directly to a blending chamber and the remaining stream being directed into a quencher for cooling. Upon leaving the quencher it passes through a wet dust collector to remove any remaining solid particles that were not removed in the dry dust collector. The relatively cool gas leaving the wet dust collect is blended with the hot gas that went directly to the blending chamber from the furnace, and emerges as a gas having a temperature intermediate that of the separate streams. This blended gas stream is subsequently blown into the dryer to clean more metal scrap and repeat an identical cycle.

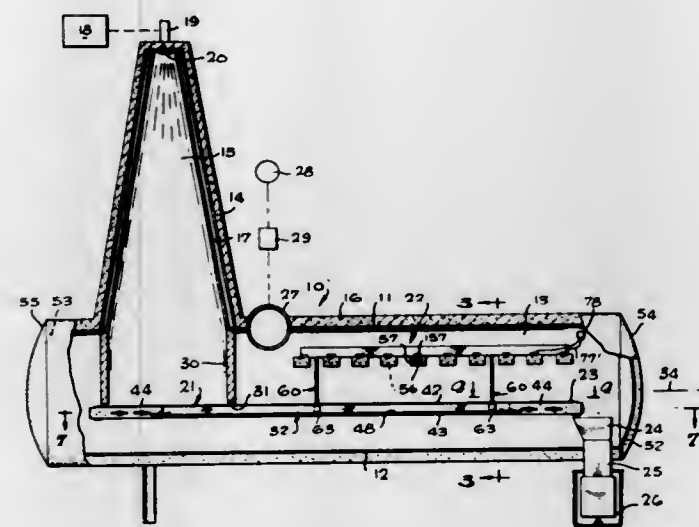
3,601,901 FREEZE DRYING APPARATUS WITH REMOVABLE CONVEYOR AND HEATER STRUCTURES

Earl L. Rader, 154 W. Providencia, Burbank, Calif.

Filed Sept. 12, 1969, Ser. No. 857,364

U.S. Cl. 34-92

10 Claims



A freeze drying machine in which particles in frozen condition are advanced along a predetermined drying path within a vacuum chamber by a conveyor, with heaters being provided along the path for drying the particles while they remain in frozen condition, and with the conveyor being mounted for bodily sliding movement as a unit from the vacuum chamber for repair or cleaning. The heater elements are desirably mounted to the frame of the removable conveyor unit, for removal therewith, and in a manner allowing separation of the heater structure from the conveyor after both have been withdrawn from the vacuum chamber.

3,601,902 DRYING CYLINDER FOR WEBS

Christian Schiel, Heidenheim (Brenz), Germany, assignor to J.M. Voith, GmbH, Heidenheim, Germany

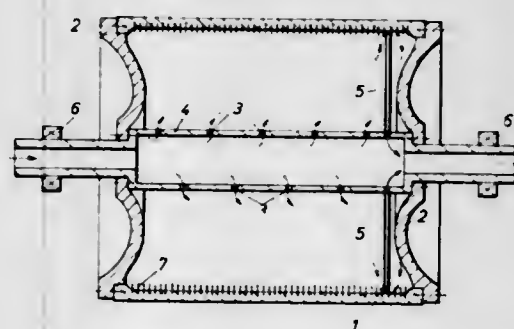
Filed Nov. 17, 1969, Ser. No. 877,124

Claims priority, application Germany, Nov. 20, 1968, June 27, 1969, June 27, 1967, P 18 09 910.0; P 19 32 639.7; P 19 32 702.7

Int. Cl. F26b 11/02

U.S. Cl. 34-124

18 Claims



The specification discloses a drying cylinder having a jacket constructed to exhibit high strength and having bodies or members of high heat conductivity embedded in the jacket to conduct heat from the inside of the jacket to the outside surface thereof. The heat exchange connection of the inserted bodies, or members, with the jacket may be improved by a heat conductive filler material disposed between the bodies, or members, and the surface of the holes in the jacket in which they are mounted. In one modification of the invention, the bodies, or members, inserted into the cylinder jacket serve also at least to assist in supporting heating coils on the inside surface of the jacket.

3,601,903 TUMBLER DRYER

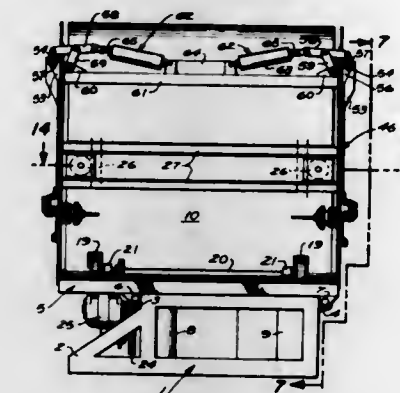
Benjamin H. Freze, Stanton, Calif., assignor to Challenge-Cook Bros., Incorporated

Filed May 25, 1970, Ser. No. 39,976

Int. Cl. F26b 11/02

U.S. Cl. 34-133

14 Claims U.S. Cl. 35-13



A tumbler dryer which includes a cylindrical housing having an opening at each end and arranged to be tilted selectively in opposite directions so that either opening may serve as an inlet or outlet for clothes. The dryer also includes a perforated cylindrical rotatable drum having conical ends confronting the ends of the housing. The dryer further includes a hot air supply system that introduces a predetermined percentage of hot air into the top of the drum and the remaining air equally into the conical ends of the drum; the air being extracted from the bottom side of the drum.

3,601,904 MULTIPLE STUDENT TEACHING APPARATUS AND METHOD

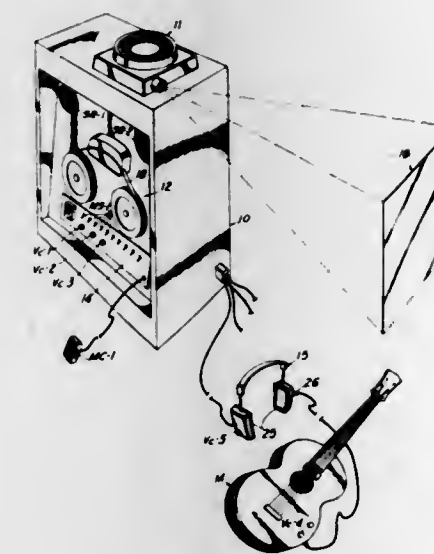
Leonard T. Elliott, Jr., 2895 N. Fulton Drive N.E., Atlanta, Ga.; Oliver B. Elliott, 516 Loreel Terrace, N.E., Atlanta, Ga., and James B. Godwin III, Atlanta, Ga.

Filed June 24, 1969, Ser. No. 835,948

Int. Cl. G09b 5/06, 15/00

U.S. Cl. 35-8 A

4 Claims



An audio-visual multiple student teaching method and device including a master control with a visual display device and means for relating the movement of the visual display device with a sound recording and a plurality of student headphones connected to the master control with input means for student inputs and means for superimposing audio signals from the student onto the signals from the sound recording in the student headphones.

3,601,905 COMPUTER TEACHING MACHINE

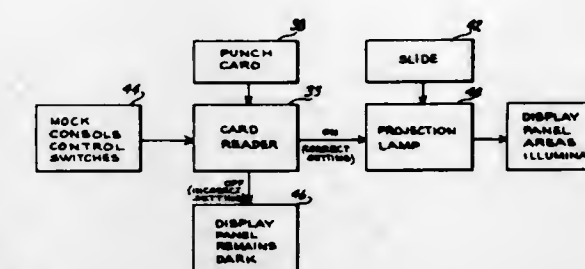
Alan Epstein, New York, N.Y., assignor to Programming Sciences Corporation, New York, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,585

Int. Cl. G09b 25/02

14 Claims U.S. Cl. 35-13

4 Claims



A device is provided for teaching the operation of an electronic computer. The device includes a mock control panel display having an overall configuration and appearance substantially identical to that of the display of the actual computer. The mock display includes simulated light and control elements of like type and kind to those of the actual computer. A projector is provided, designed to project an image viewable from the front of the mock display thereby causing portions of the mock display to resemble an illuminated light array of the computer display.

3,601,906 TEST GRADING DEVICE

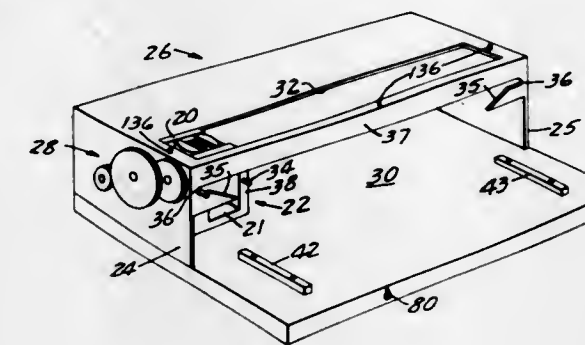
John L. Roche, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 10, 1969, Ser. No. 798,016

Int. Cl. G09b 7/00

U.S. Cl. 35-48 R

21 Claims



A test grading device in which movable sensors scan the corresponding answer indication areas of stationary answer sheets and an answer key; marking pens place marks on the answer sheet in the vicinity of the answer indication areas as to which the student's answer indication disagrees with the answer indication in the corresponding answer indication areas of the answer key; a counting wheel steps in response to such disagreements; and the counting wheel count is printed on the answer sheet. In response to the scanning sensors' repetitious movement across a stack of answer sheets, the counting wheel is reset before any answer indication areas of the answer sheet are scanned; feed legs for separately removing each scored answer sheet are cocked; the marking pen and counting wheel are enabled for each question following the completion of the scanning of the answer indication areas for the question; the sensors are reset prior to scanning the answer indication areas of each question; the marking pens mark the answer sheet; the score is printed on the answer sheet and the feed legs are released to remove the scored answer sheet from the test grading device. The feed legs remove only the top answer sheet from the stack by exerting through gripping pads a gripping force on the top answer sheet which force increases in response to feed leg movement until the top answer sheet is torn from a holding pin and then relaxes upon release of the top answer sheet from the holding pin. In a preferred embodiment, each sen-

sor includes a photocell connected to the gate of an SCR reverse blocking triode thyristor. In this embodiment a reed switch with its coil connected between the anodes of corresponding SCRs closes to enable the marking pens and counting wheel when only one photocell of a corresponding pair senses a darkened answer indication area.

3,601,907

HEEL WITH ORNAMENTAL RING

Michele Frattalone, Fulvia Villa Piazza Porte Guelfa, 3/50123, Firenze, Italy

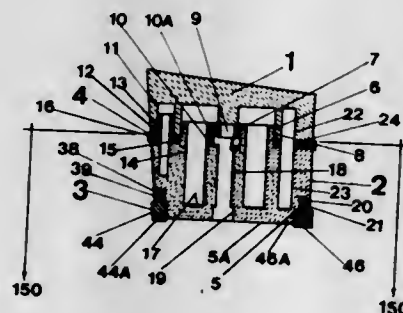
Filed Aug. 18, 1969, Ser. No. 851,037

Claims priority, application Italy, Aug. 21, 1968, 4687A

Int. Cl. A43b 21/00

U.S. Cl. 36-34

2 Claims



A shoe heel is described which has an ornamental ring and a detachable bore or calibrated section comprising a cylindrical connective member with recesses. The ring is attached by pins to the connective member. The detachable calibrated or bore section has a bottom section or lift externally applied to a built-in heel tap and is attachable to the connective member by interlocking protrusions.

3,601,908

MOLDED INSOLE

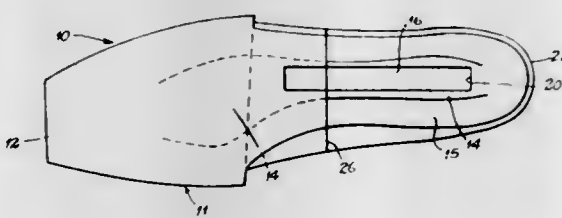
Francis M. Gilkerson, 20 Lindworth Drive, St. Louis, Mo.

Filed May 15, 1969, Ser. No. 824,911

Int. Cl. A43b 13/38

U.S. Cl. 36-43

7 Claims



A precast or molded insole for shoes adapted for use with several different heights of high heels comprising a main body, a first fiber board member formed to receive a preformed steel shank bonded to the bottom of the main body and a second fiber board member for nailing purposes bonded to the main body above said first fiber board member, said main body having a forepart shown as paddle-shaped, a shank depression in the first fiber board member extending longitudinally from in the heel area forwardly to about midway of the insole for the reception of a metal shank, and the like, after lasting, the heel portion rearwardly of the shank depression increasing in thickness. The insole is suitably contoured beneath for elimination of the use of a filler. A thin piece of paper product material is bonded to the forward two-thirds of the insole to assist in cementing the turned under portion of the upper or its lining and the outsole to the insole.

3,601,909

REMOVABLE DECORATIVE SHOE COVERING

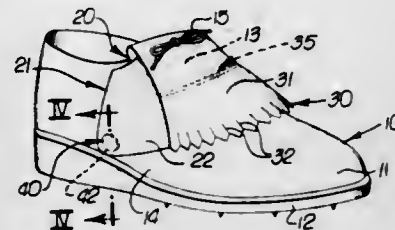
Dudley E. Amendola, San Diego, Calif., assignor to Robert W. Harlan, San Diego, Calif. and George Coladonato, San Diego, Calif., part interest to each

Filed Mar. 5, 1970, Ser. No. 16,683

Int. Cl. A43b 23/26

U.S. Cl. 36-54

10 Claims



A removable decorative shoe covering includes a pair of side flaps with the outer ends thereof carrying releasable securing means, such as snaps which mate with snaps provided in the shoe body adjacent the sole thereof, and with the inner ends elastically secured together. A kiltie may be secured to cover the juncture of the side flaps. The releasable securing means, alternatively to the snaps, may be Velcro pads, hooks extending into slots in the sole for engaging pins therein, or openings into which L-shaped pins from the sole may be inserted to releasably secure the decorative shoe covering over a portion of the shoe.

3,601,910

DITCH BUILDING MACHINE

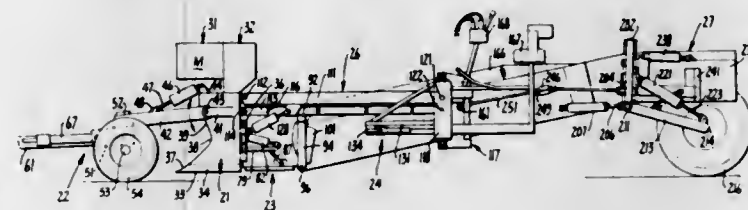
Kenneth P. Goltz, Clovis, Calif., assignor to Small Business Administration, San Francisco, Calif.

Filed Aug. 21, 1968, Ser. No. 754,271

Int. Cl. E02f 5/02

U.S. Cl. 37-98

11 Claims



A ditch building machine has a front lister on which a prime mover and hydraulic pump are mounted and has a forward extending steering tongue which may be pivoted about its transverse horizontal and vertical axes. Behind the front lister are movable listers pivotally attached about a vertical axis to vary the width of the bottom of the ditch. Behind each movable lister is a moldboard pivoted thereto about both vertical and transverse horizontal axes. The rearward end of each moldboard is supported by a ground wheel which rests on the ground to the outside of the ditch. Structure is provided for controlling the angle of the moldboard relative to the longitudinal horizontal axis of the machine and relative to the horizontal to vary the width and depth of the ditch (and likewise the slope of the sides). Spoil blades are pivotally mounted to the rear of the moldboards to smooth the banks ahead of the rear wheels.

3,601,911

REPLACEABLE FORK TINE WEAR TIP

Donald L. Wood, Medford, Oreg., assignor to Concrete Steel Corporation

Filed Aug. 25, 1969, Ser. No. 852,725

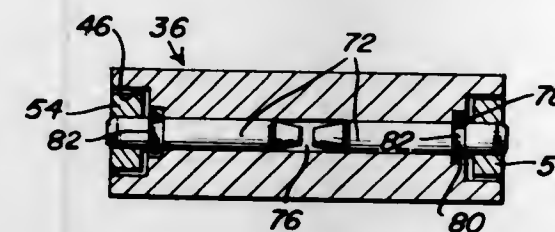
Int. Cl. E02f 9/28

U.S. Cl. 37-142 R

5 Claims

A replaceable wear tip mountable on the leading end of a fork tine or the like through an adapter welded to the tine. The adapter includes a forwardly projecting tongue portion which is received within a mating socket defined in the wear tip. The wear tip includes a pair of rearwardly projecting in-

tegral ears which lie along the opposed sides of the projecting adapter tongue and through which a pair of opposed



knockout pins are engaged for a releasable locking of the tip to the adapter and hence to the tine.

3,601,912

WOVEN SCREEN STRETCHING FRAME

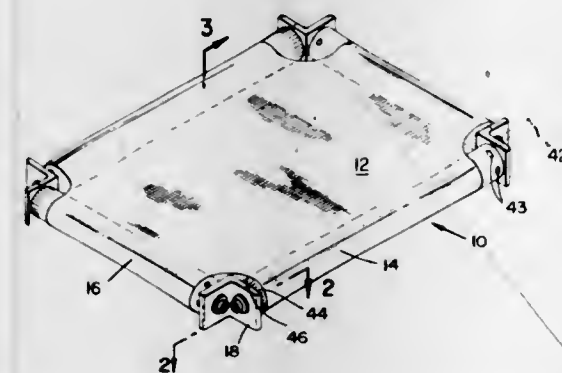
Wendell P. Dubbs, 470 Nevada Ave., Palo Alto, Calif.

Filed Oct. 25, 1968, Ser. No. 770,595

Int. Cl. D06c 3/08; C14b 1/26

U.S. Cl. 38-102.91

8 Claims



A frame for supporting and stretching a rectangular printing screen of woven material comprised of pairs of opposite frame members connected by and journaled within corner members at their ends. The frame members have means for gripping the screen material along each edge and are rotatable within the corner members to apply tension to the screen in either dimension to create the desired amount of stretch in it.

3,601,913

MAGNETIC TRANSACTION CARD AND METHOD IN FORMING THE SAME

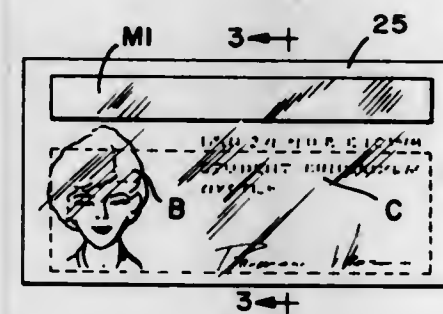
Michael D. Pollock, Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed July 22, 1968, Ser. No. 746,466

Int. Cl. G09f 3/02

U.S. Cl. 40-2.2

4 Claims



A magnetic transaction card, employed for identifying the card holder and recording transactions, is formed with an identification article of nonmagnetic material, and with a layer of magnetic material on the identification article forming a magnetic field along a plane surface thereof. Imprinting means alter the magnetic transaction card so as to form coded indicia detectable visually, by touch and by magnetic sensing devices.

3,601,914

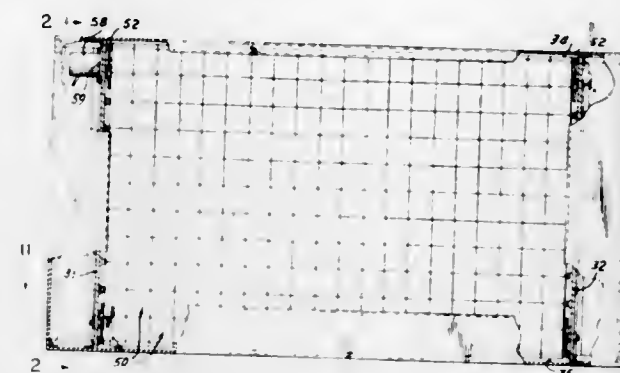
DISPLAY APPARATUS

Francis A. Fuller, Jr., Dallas, Tex., assignor to Science Associates, Inc., Garland, Tex.

Filed Aug. 14, 1969, Ser. No. 850,158

U.S. Cl. 40-28 C

28 Claims



A display apparatus having a plurality of horizontally extending panels pivotally connected to form an endless belt, the belt of panels being movable in a closed path having a front vertical view portion, each of the panels having a plurality of longitudinally spaced groups of light passages, each group of passages being arranged in horizontal rows and vertical columns, from lamps positioned behind the panels when they are in the front view portion of their paths of movement for transmitting light through the light passages, each of the light passages having a closure operatively associated therewith and movable between an upper inoperative position wherein light passages are open and a lower operative or closing position wherein the closure prevents transmittal of light through its associated light passage. The display apparatus also includes means for moving selected ones of the closures from their inoperative to their operative positions whereby each of the groups of light passages may present a desired alphanumeric visual information.

3,601,915

CHART HOLDER

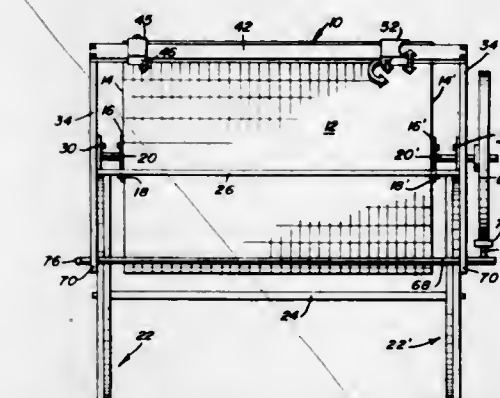
Bruce V. Millam, R. R. 01 Box 40, Dayton, Oreg.

Filed Nov. 26, 1968, Ser. No. 779,093

Int. Cl. G09f 11/02

U.S. Cl. 40-68

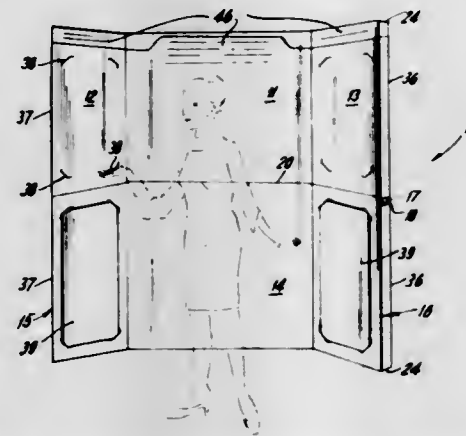
5 Claims



A rotating drum mounted on a stand wherein charts containing columnar material are attached to the drum to be rotated past a horizontally extending indicator crossbeam. Indicia peculiar to the columnar chart is located on the crossbeam as well as movable indicators to allow interpolation of the columnar data or solutions of problems involving the columnar data.

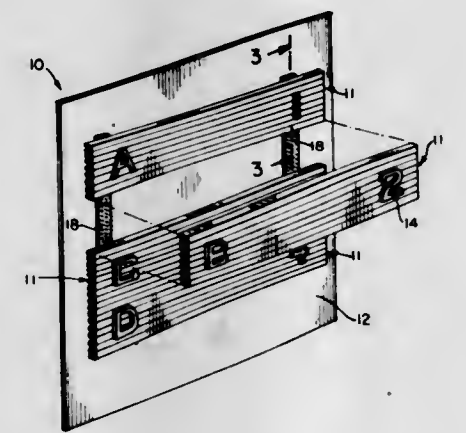
Heretofore, when large tables of columnar material, such as logarithmic tables, time tables or similar conversion tables, have been used it has been necessary to print these in large multipage books wherein continuity therebetween is lost in leafing through pages. Similarly, when arranging data in columns on many paged books it is often necessary to duplicate the horizontal and vertical entries into the data as well as some of the data to achieve some sort of continuity between subsequent pages of the data.

3,601,916
PAPERBOARD FOLDABLE SCREEN
 Stanley H. Epstein, Belle Harbor, N.Y., assignor to Weight Watchers International, Inc., Great Neck, N.Y.
 Filed Oct. 13, 1969, Ser. No. 865,685
 Int. Cl. G09f 1/10
 U.S. Cl. 40—125 H 8 Claims



A speaker or lecturer's screen is made of foldable paperboard, foldable into an area of a single, large panel of the screen. The panels in erected or unerected form are rigidized by paperboard supports. The sections in open position are interlockable. The screen may also exhibit display material.

3,601,917
DISPLAY DEVICES
 Seymour Shankman, Long Island, N.Y., assignor to International Patterns, Inc., Carle Place, L.I., N.Y.
 Filed July 3, 1969, Ser. No. 838,807
 Int. Cl. G09f 7/06
 U.S. Cl. 40—143 5 Claims

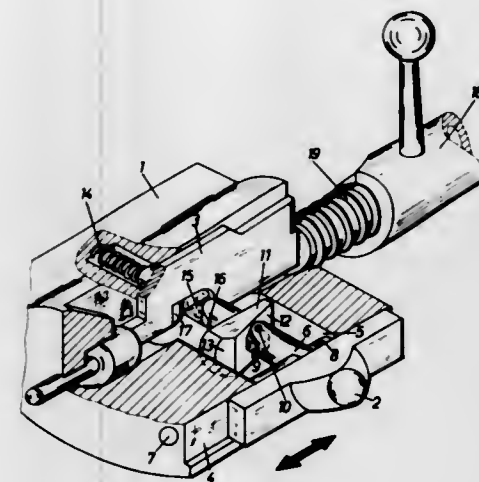


Display devices particularly useful to convey periodically changing information are disclosed. The new display devices include a rigid baseboard member and corrugated panel sections removably mounted thereon by hooked and looped nylon fastening strips. The corrugated panels are adapted to support removable characters.

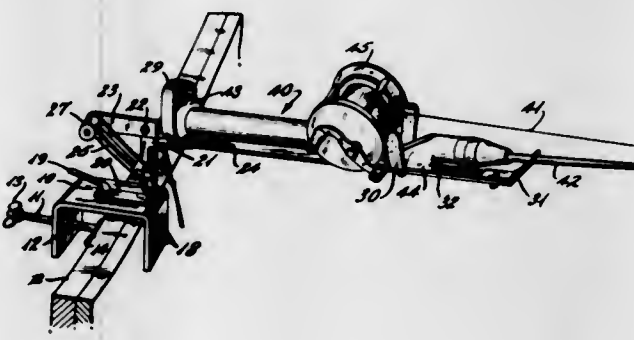
3,601,918
FIRING PIN SAFETY MECHANISM
 Dieter Keppeler, Ulm Donau, Germany, assignor to Carl Walther Sportwaffenfabrik
 Filed Jan. 22, 1970, Ser. No. 4,899
 Int. Cl. F41c 17/04
 U.S. Cl. 42—70 F 5 Claims

A firing pin having a transverse groove is secured in a locked position by a spring-loaded thrust member moveable transversely to the firing pin through the groove. The thrust member is also provided with a transverse groove through which the firing pin moves when disengaged. An inclined surface on the thrust member adjacent the groove cams against

an inclined surface on a rear edge of the firing pin groove to move the firing pin rearwardly and secure the firing pin



3,601,919
FISHING ROD AND REEL HOLDER FOR BOAT AND LAND FISHING
 Billie B. Nixon, 2601 Virginia Ave, Fort Smith, Ark.; Adrian B. Mooney, Fort Smith, Ark., and Charles A. Bradley, 1702 N. 52nd St., Fort Smith, Ark.
 Filed June 26, 1969, Ser. No. 836,787
 Int. Cl. A01k 97/10
 U.S. Cl. 43—21.2 2 Claims



A holder for a fishing rod and reel anchorable in the earth or on a boat, with a bracket which can rotate about a vertical axis for direction and about a horizontal axis for angularity, and with a socket for receiving the butt end of the pole and spaced brackets adjustably mounted for supporting the pole, for preventing its rotation while supported, and for engagement with the reel to prevent pull on the line from releasing it, and with such bracket also including means for attachment of a fish stringer.

3,601,920
FISHING PLUG RETRIEVER
 Phillip Steiner Mason, Jr., 1810 S. 2nd, Tucumcari, N. Mex.
 Filed Feb. 6, 1970, Ser. No. 9,348
 Int. Cl. A01k 97/00
 U.S. Cl. 43—17.2 10 Claims

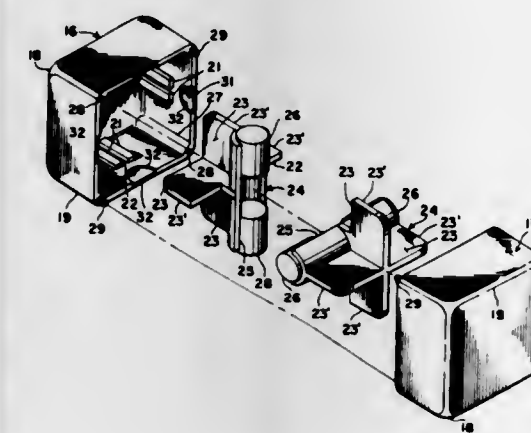
A fishing plug retriever comprising a flexible, annular chain having a plurality of interconnected links and having

cord means secured thereto for manipulating the chain down



to an entangled fishing plug after the chain has been slipped over the fishing pole.

3,601,921
MAGNETIC TOY OR BUILDING BLOCK
 Robert F. Strohmaier, P.O. Box 92, E. Main St., Yates City, Ill.
 Filed July 22, 1969, Ser. No. 843,488
 Int. Cl. A63h 33/08
 U.S. Cl. 46—25 6 Claims

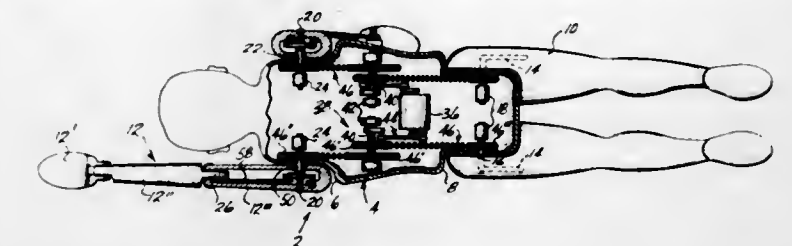


A magnetic toy or building block having four of the six faces provided with magnetic pieces, with the same polarity being provided with the opposite faces, whereby the blocks upon being assembled together need to be assembled so faces of unlined polarity are joined and wherein the faces of line polarity or with no magnets in them will not properly be joined in the structure. The completed building block structure after the blocks are properly joined will be unitary mass so that upon lifting the mass by one of the blocks the other blocks will be lifted in mass with it. The blocks will be made of separate top and bottom sections and crossed magnetic retainer elements placing all magnets in the same central plane. The block sections and magnets within and retainers are joined together by adhesive or cement. A plastic coated metal plate is provided to which two of the blocks can be attached to illustrate the manner of attaching the blocks together and for testing the polarity of the respective side faces of the block.

3,601,922
SWIMMING DOLL
 James W. Shaffer, Seattle, Wash., assignor to Essie May Schaffer, Seattle, Wash.
 Filed July 9, 1970, Ser. No. 53,483
 Int. Cl. A63h 23/10
 U.S. Cl. 46—92 10 Claims

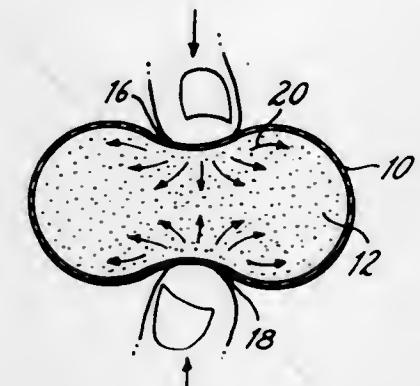
A mechanical doll is disclosed, whose arms and legs simulate the crawl stroke and flutter kick used by a person swimming in the water. Each arm of the doll has relatively articulated upper and lower portions, and while the legs kick in

opposite phase to the arms on alternate sides of the doll, reciprocable operating means not only rotate the arms in opposite alternate directions in relation to the trunk of the doll, after intervening periods of lost motion with respect thereto; but also, during such periods, rotate the lower arm portions



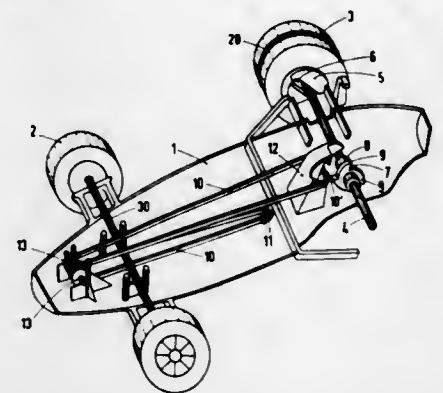
in opposite alternate directions in relation to the upper arm portions. In addition, means interconnect the upper and lower arm portions of each arm for conjoint rotation when the arm undergoes rotation in relation to the trunk of the doll.

3,601,923
AMUSEMENT DEVICE EMPLOYING DILATANT SUSPENSION FILLER
 Bruce L. Rosenberg, 23 N. Chelsea Ave., Atlantic City, N.J.
 Filed Oct. 7, 1968, Ser. No. 765,307
 Int. Cl. A63h 3/00
 U.S. Cl. 46—151 10 Claims



An amusement device or toy comprised of an impervious elastic container in a desired configuration and a dilatant suspension enclosed therein whereby jabbing, squeezing or pulling the same creates unusual distortions, recovery and flow properties which are not only fascinating but also enhance human tactile and kinesthetic perception of materials.

3,601,924
DRIVE FOR A TOY VEHICLE
 Walter Lechner, Siegelstorf near Nurnberg, and Franz Eberle, Nurnberg, both of, Germany, assignors to Helmut Bross, Furth, Bavaria and Heino Stelter, Furth, Bavaria, Germany
 Division of Ser. No. 776,641, Nov. 18, 1968
 Filed Jan. 26, 1970, Ser. No. 5,496
 Int. Cl. A63h 17/00
 U.S. Cl. 46—206 11 Claims

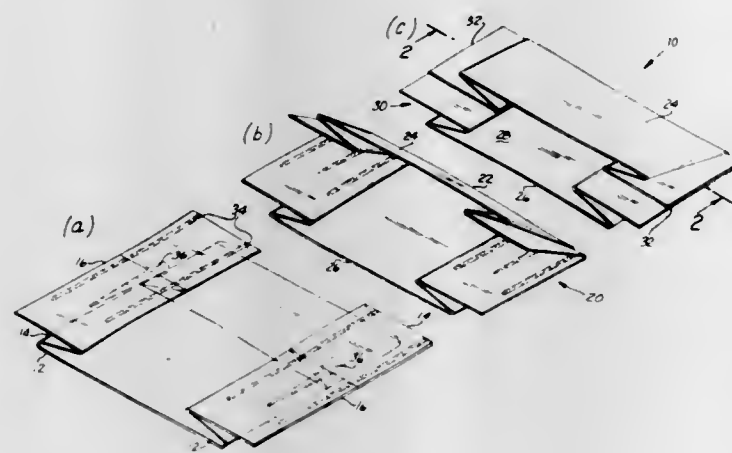


This invention relates to a drive for a toy vehicle and a toy vehicle having such a drive. Basically, the drive comprises a

drive axle, a coupling member and an elastically stretchable drive cord. When the drive axle is rotated in one predetermined direction thereof the coupling member will engage the cord drive causing it to be stretched and wound about the drive axle. The wound cord is then allowed to unwind from about the axle to thereby cause the drive axle to rotate in the opposite direction. Once the cord drive has been unwound it is released from the coupling member.

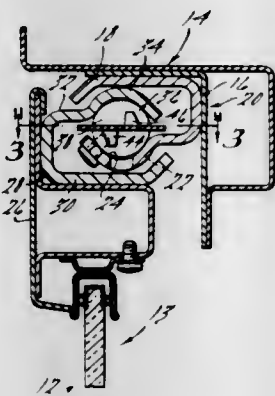
3,601,925 GUM CUP BAG

Robert W. Bolling, and Kenneth E. Perry, both of Savannah, Ga., assignors to Union Camp Corporation, Wayne, N.J.
Filed Jan. 28, 1970, Ser. No. 6,430
Int. Cl. A01g 23/14; B65d 31/10
U.S. Cl. 47-11 7 Claims



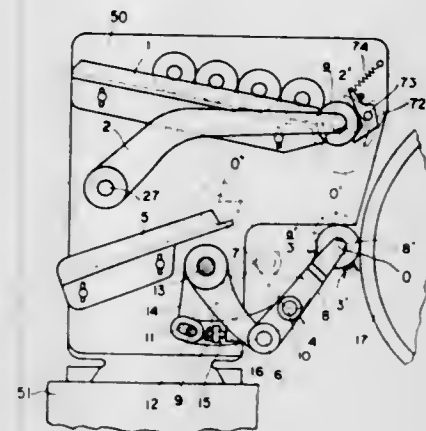
A gum collecting bag having front and rear panels, end overfolded, and Z-shaped side gussets connecting the panels. Extended side seam fins terminating beyond the periphery of the panels permit the bag to be readily affixed to gum trees and to assume the proper shape. A coating of a material which does not contaminate a gum melt, such as a polyamide resin or cellulose acetate, may be applied to the bag to enhance its capacity to withstand weathering during collection. The bag may have a reinforcement fold extending along the top of the longer panel and integral gussets and fins thereof.

**3,601,926
SLIDING DOOR AND SUPPORT**
Donald P. Weiher, Toledo, Ohio, assignor to Kaiser Jeep Corporation, Toledo, Ohio
Filed July 18, 1969, Ser. No. 842,863
Int. Cl. E05d 13/02
U.S. Cl. 49-409 7 Claims



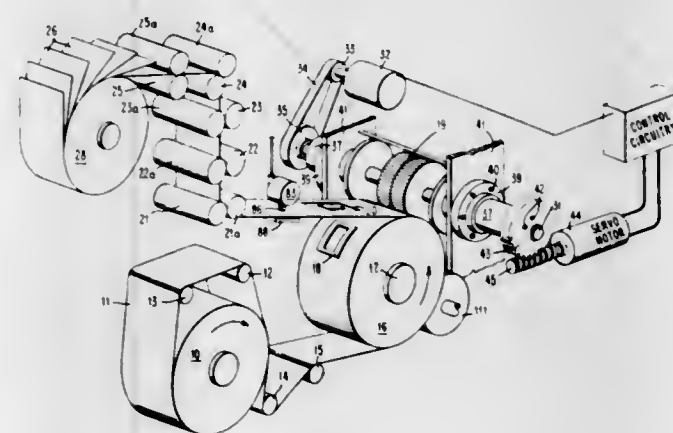
A support for a sliding door for an automotive vehicle which support includes a ball and cage for minimizing friction.

**3,601,927
AUTOMATIC LOADING AND UNLOADING DEVICE FOR A GRINDING MACHINE**
Makoto Kikuchi, Asahimachi, Japan, assignor to Toyota Koki Kabushiki Kaisha, Asahimachi, Kariya, Japan
Filed Oct. 28, 1969, Ser. No. 871,824
Claims priority, application Japan, Oct. 29, 1968, Dec. 5, 1968, 43/79015; 43/88810
Int. Cl. B24b 47/02
U.S. Cl. 51-215 R 11 Claims



In a double arm-type automatic loading and unloading device for loading and unloading workpieces in a grinding machine, wherein an unfinished workpiece is brought up to the grinding position by a loading arm and a finished workpiece is moved out of the grinding position by an unloading arm, the improvement wherein the device employs an unloading arm embodying two rodlike members pivotally connected to each other and being able to be shortened or extended so that the workpiece to be carried into grinding position by the loading arm and the workpiece to be carried out of that position by the unloading arm do not clash or interfere with each other during operation of the device.

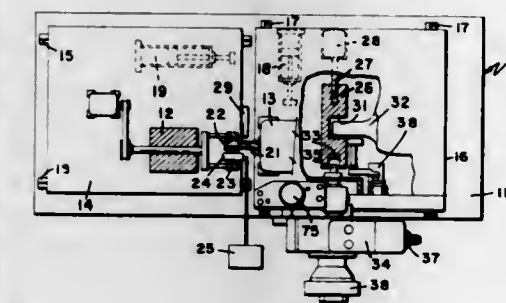
**3,601,928
ACCURATELY POSITIONABLE HIGH SPEED MACHINE TOOL**
Robert C. Miller, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 1, 1969, Ser. No. 862,754
Int. Cl. B24b 49/00
U.S. Cl. 51-165.8 10 Claims



The position of a rapidly rotating tool relative to a work surface is very precisely controlled by driving the tool from a shaft that is eccentrically supported within bearings. The shaft and hence tool are movable in an arcuate path toward and away from the surface by gear means that can effect minute variations in rotative position of the bearings and hence in depth of penetration of the surface. A servo unit controls the gear means as necessary to maintain actual load on the tool equal to a predetermined load that corresponds to a desired position of the tool relative to the work surface. Actual load is sensed by a signal proportional to the rectified

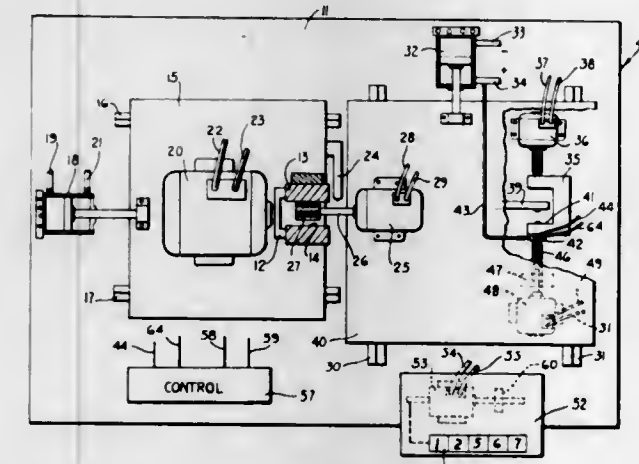
voltage corresponding, for example, to the input current to one phase of a three-phase motor that powers the tool; and desired position (depth of penetration) of the tool corresponds to a reference voltage predetermined to provide that position taking into account the physical characteristics of said surface. The actual position (depth of penetration) of the tool is sensed. The motor automatically is shut off if actual depth is low when actual load is high, indicating dulling of the tool.

**3,601,929
GRINDING MACHINE**
Herbert R. Uhtenwoldt, Worcester, and Frederick A. Holder, Holden, both of, Mass., assignors to The Heald Machine Company, Worcester, Mass.
Filed Nov. 24, 1969, Ser. No. 879,038
Int. Cl. B24b 49/00
U.S. Cl. 54-165.9 3 Claims



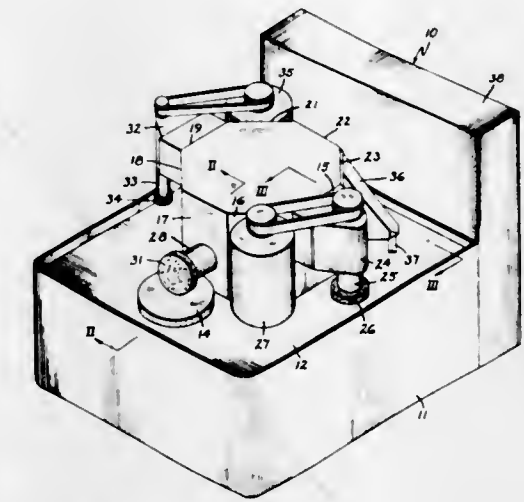
This invention relates to a grinding machine and, more particularly, to apparatus for finishing a surface of revolution by the abrasive process, including means for maintaining the quality of the finished surface despite changes in abrasive wheel diameter.

**3,601,930
GRINDING MACHINE**
Edward G. Robillard, Cherry Valley, Mass., assignor to The Heald Machine Company, Worcester, Mass.
Filed Nov. 17, 1969, Ser. No. 877,092
Int. Cl. B24b 49/00
U.S. Cl. 51-165.8 5 Claims



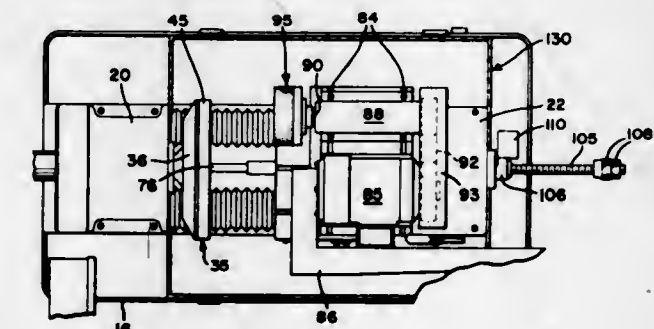
This invention relates to a grinding machine and, more particularly, to apparatus for generating a surface of revolution by the abrasive process using the controlled-force principle wherein the force is regulated by control of feed using electrical means.

**3,601,931
GRINDING HIGH-TEMPERATURE ALLOYS**
Robert S. Hahn, Northboro, Mass., assignor to The Heald Machine Company, Worcester, Mass.
Division of Ser. No. 445,298, Feb. 15, 1965, Pat. No. 3,431,685
Filed Jan. 14, 1969, Ser. No. 791,110
Int. Cl. B24b 1/00 2 Claims



This invention relates to the grinding of high-temperature metals and, more particularly, to a method for removing stock from a workpiece by the abrasion process at an unusually rapid rate by operation in a restricted range of force intensities.

**3,601,932
GRINDING METHOD**
Jesse W. Elliott, Dayton; Ralph R. Nevin, Pigua; Howard D. Wilkin, New Burlington, Ohio, and William G. Huerth, Torrance, Calif., assignors to H & H Industries, Inc., Dayton, Ohio
Filed Apr. 2, 1969, Ser. No. 812,778
Int. Cl. B24b 1/00 2 Claims

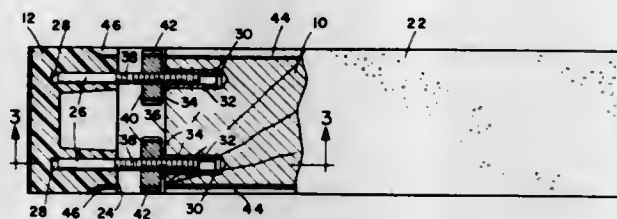


A precision flat surface is formed on a circular memory disk by rotating the disk on its axis and feeding a rotating annular grinding wheel axially into engagement with the disk under a substantially constant pressure. The grinding wheel is formed of a rigid foam material having abrasive particles dispersed therein and is supported for substantially friction-free axial movement.

**3,601,933
SANDING BLOCK**
Stuart F. Bowen, 5626 Vale Way, San Diego, Calif.
Filed Feb. 27, 1970, Ser. No. 15,047
Int. Cl. B24d 15/02 8 Claims

A sanding block for a continuous loop type sanding belt, comprising a basic rectangular block with an end block ele-

ment which is longitudinally adjustable by means of screw jack elements to clamp tightly inside the sanding belt. The

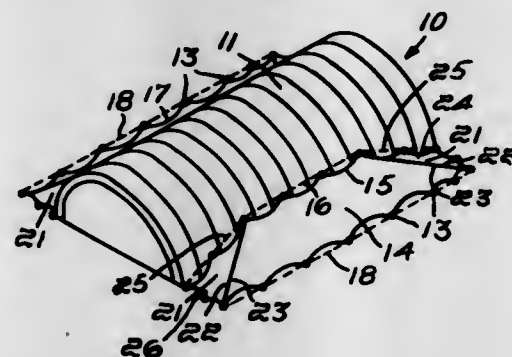


screw jack elements are readily accessible and are operable without tools.

3,601,934
WIND APRON FOR AIR SUPPORTED SHELTERS
Albert E. Dietz, Birmingham, Ala.

Filed July 29, 1969, Ser. No. 845,814
Int. Cl. E04g 11/04; E04h 14/00
U.S. Cl. 52-2

2 Claims

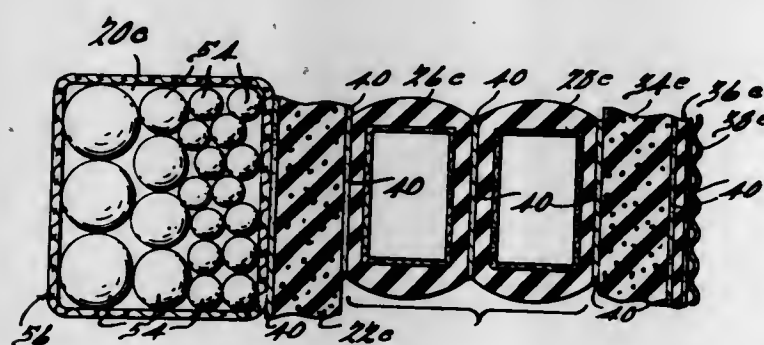


Wind aprons made of flexible material in sheet form are attached to the sidewalls of an air supported shelter and to the ground to stabilize the shelter against the effects of high velocity winds.

3,601,935
SHOCK SHIELDING STRUCTURE
Sidney M. Cadwell, 436 Washington Road, Grosse Pointe, Mich.

Filed Sept. 30, 1968, Ser. No. 763,740
Int. Cl. E04b 1/345; E04h 9/04
U.S. Cl. 52-2

2 Claims



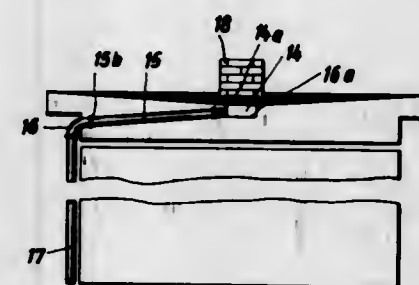
A shelter for protecting a wall of a structure or a structure against the adverse effects of shock waves produced by an explosion or the like, wherein the shelter embodies a wall structure adapted to attenuate the shock wave impinging against the shelter as a result of the explosion to a very high degree. The wall structure includes a series of adjacently oriented shielding layers or laminations, with at least some of the layers having dissimilar or mismatched resilient characteristics. Also, as a supplement, at least one of the shielding layers may be rendered easily deformable in response to a shock wave impinging against the shelter, and at least one of the layers may be inflatable and therefore adapted to be in-

ternally pressurized or inflated to a predetermined internal pressure, whereby a portion of such layer is adapted to move inwardly or "retreat" in response to a pressure wave striking the wall structure.

3,601,936
ROOF ELEMENT
Johan George Schmidt, Gibsonstraat 31, Deventer, Netherlands

Filed Nov. 19, 1968, Ser. No. 777,076
Claims priority, application Germany, Dec. 8, 1967, June 11, 1968, Sch 43 850/37C; P 17 59 813.9
Int. Cl. E04d 13/08
U.S. Cl. 52-14

3 Claims

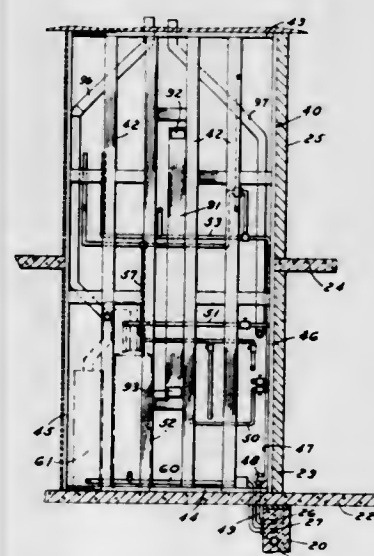


A building roof structure designed for efficient drainage of rain. The roof structure consists of a plurality of flat components of simple geometric configuration respectively having outer edges distributed along the peripheral upper edge of the building and being respectively joined one to the next and inclined downwardly and inwardly from their outer edges. These components terminate in inner edges which define a simple polygon and which form the upper edges of a receiving receptacle from which rain water can be drained through a suitable pipe.

3,601,937
MULTIPLE STORY BUILDING CONSTRUCTION
Henry Fred Campbell, Belleville, Mich., assignor to Campbell Research Corporation, Detroit, Mich.

Filed July 15, 1969, Ser. No. 841,785
Int. Cl. E04f 17/08; E04c 2/52; E04b 1/348
U.S. Cl. 52-27

23 Claims

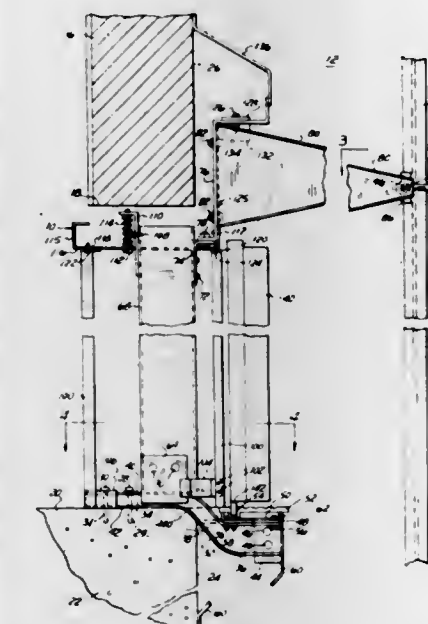


A multistory building comprising a plurality of laterally spaced parallel foundation beams which have prestressed horizontal planks thereon and vertical load bearing walls on the planks. A second set of prestressed horizontal planks are provided to form a second floor. A service wall core unit is mounted on the first floor. The service wall core unit comprises a body which has service conduits therein that are connected to supply conduits in the foundation beams.

3,601,938
UNIVERSAL ELEVATOR SHAFT ENTRANCE CONSTRUCTION
Charles M. Loomis, Box 453, Arkansas City, Kans.

Filed Jan. 16, 1970, Ser. No. 3,335
Int. Cl. B66b 9/00
U.S. Cl. 52-29

9 Claims



A pair of laterally spaced parallel unfolded Z-brackets have upper arms bolted to the sill footing of the building and downwardly offset parallel lower arms overhanging the elevator shaft and supporting a shallow channel member which in turn supports an elevator entrance sill. Resting upon the upper arms are the lower ends of two hollow columns, the upper ends of which are connected by a pair of angle gussets to a bridging hanger plate. Secured to and extending rearwardly from the opposite ends of the hanger plate are two triangular hanger plate support brackets, the apexes of which are adjustably clamped to the conventional parallel vertical elevator car guide rails fixedly secured to the building structure on opposite sides of the elevator shaft. Angle spring brackets secured to the upper ends of the columns yieldingly support a horizontal head panel which is self-adjusting to the elevator shaft entrance opening. An improved precision swinging drilling jig is attachable to the elevator car platform and sill for accurately drilling the bolt holes in the sill footing for anchoring the upper arms of the Z-brackets. This entrance construction is universal in that it is mounted in any elevator entrance opening without requiring any special design thereof.

3,601,939
MEANS FOR CONNECTING TOGETHER RELATIVELY INCLINED REINFORCED CONCRETE SUPPORTING MEMBERS
Hugh Mary Clyne, 251 Slon Road, Glenageary, and Peter Joseph Faherty, Park Ave., Dalysfort Road, Salthill, Galway, both of, Ireland

Filed Mar. 19, 1969, Ser. No. 808,533
Claims priority, application Ireland, Mar. 22, 1968, 336/68
Int. Cl. E04b 1/41
U.S. Cl. 52-91

4 Claims

A simple, strong but extremely neat joint is provided for elongated reinforced concrete members such as a stanchion and rafter which are required to be detachably connected together in end-to-end relation with their longitudinal axes relatively inclined. The abutting surfaces of the members are stepped and anchor devices consisting of a triangular assembly of metal elements are embedded in the end of each member and arranged so that one element of each anchor

device is in axial alignment with one element of the other anchor device, said elements intersecting the stepped surface

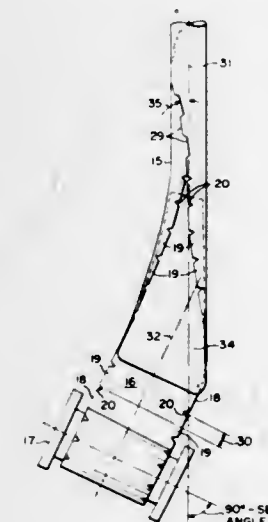


and at least one of said elements being tubular to receive the end of a connecting bar, while tie bolts extend between the anchor devices to clamp them together.

3,601,940
EXTENDIBLE BOOM
Albert B. Simon, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 16, 1968, Ser. No. 706,037
Int. Cl. E04h 12/18
U.S. Cl. 52-108

4 Claims



An improved extendible tubular boom, particularly suitable for use in space, wherein interlocking side edges of the curled thin strip material of the boom cooperate to form a helical seam along the length of the boom.

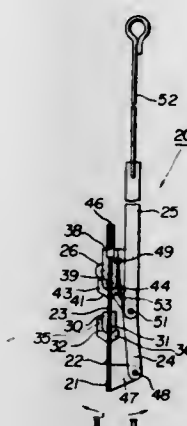
3,601,941
GROUND ANCHOR
Hikoitsu Watanabe, No. 5-13, I-chrome, Ehara-cho, Nakano-ku, and No. 4-8, I-chrome, Ehara-cho, Nakano-ku, No. 4-8, I-chrome, Ehara-cho, Nakano-ku, both of Tokyo, Japan

Filed Aug. 8, 1969, Ser. No. 848,570
Claims priority, application Japan, Nov. 29, 1968, Feb. 14, 1969, 43/86924; 44/12239
Int. Cl. E02d 5/80
U.S. Cl. 52-162

4 Claims

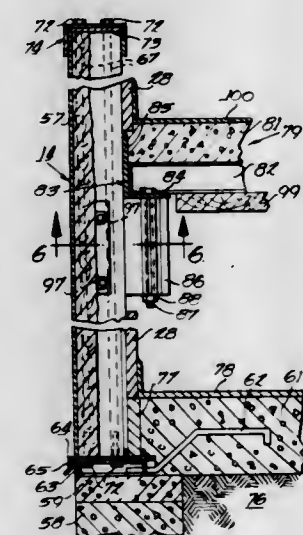
A ground anchor includes a plurality of resistance plates hingedly connected with one another in order to slantly drive them from a predetermined depth so that they are set in such a manner that their maximum effective bearing or resisting surfaces may be easily directed substantially toward the direction of the tension force applied thereto. These resistance plates are held stationarily colinear or coplanar, until

they reach the predetermined setting depth, by a regulating or retaining member and the force applied to the regulating member for securely holding these resistance plates in said



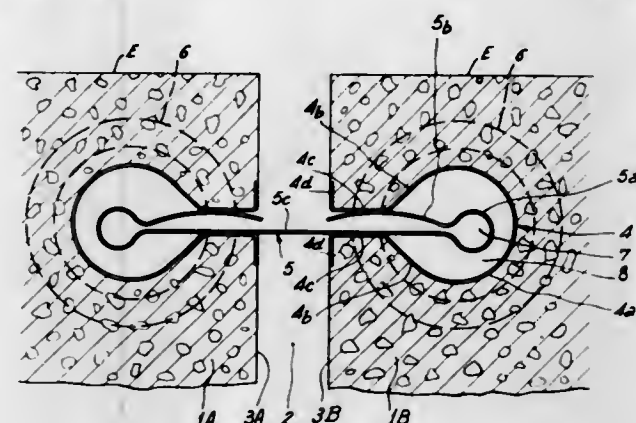
stationary and coplanar state is released when they reach the predetermined depth from the ground surface, whereby they are slantly driven into the soil in desired directions.

3,601,942
BUILDING WALL CONSTRUCTION
James D. Wilson, 2514 Laurel Lane, Wilmette, Ill.
Filed Feb. 6, 1969, Ser. No. 797,136
Int. Cl. E04b 2/18; E04c 2/08
U.S. Cl. 52—300



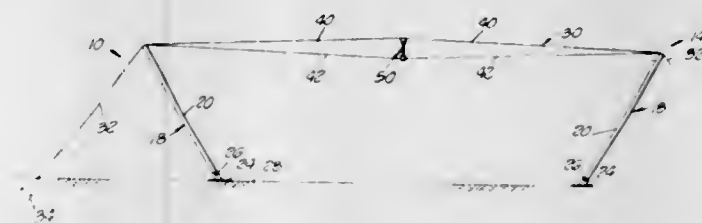
A building wall construction for one story or multiple story buildings where large wall units are delivered to the building site with their exterior surfaces completely finished, and the units are ready to be assembled together with bolted or similar connections only and are connected together to form a structure capable of accepting loads along its entire length. The wall system utilizes large metal L-shaped extrusions, plurally adjacent, having an exterior with a permanent finish applied. One leg of the extrusion provides the exterior wall surface terminating in an inset tongue and the other leg extends inwardly from the exterior wall and provides a socket or recess to receive the tongue of an adjacent wall unit. The other leg also is provided with vertical passages receiving elongated rods or bolts to tie the wall units to head and sill members.

3,601,943
EXPANSION JOINT FOR SEALING A GAP BETWEEN PANELS
Andre Danois, Maisons-Laffitte, France, assignor to Etablissements J. Danois et Fils, Carrieres-sous-Poissey, Yvelines, France
Filed Nov. 18, 1968, Ser. No. 776,654
Claims priority, application France, Nov. 21, 1967, 129025
Int. Cl. E04b 1/68
U.S. Cl. 52—573 4 Claims



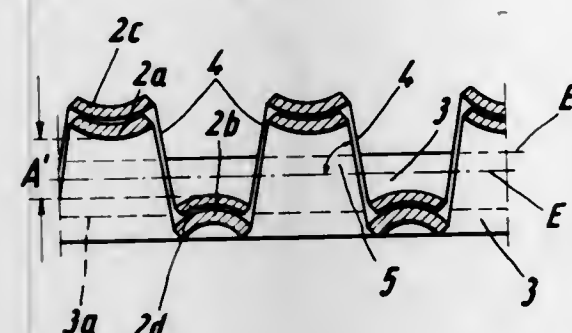
A gap formed between two juxtaposed panels is sealed by an expansion joint in the form of a sheet-metal strip with a central portion spanning the gap and two edge portions bent back onto the central portion to form a tubular bight along each major edge of the strip, this bight being received with clearance in an occluded longitudinal recess of the corresponding panel. The connecting central portion traverses a narrow passage giving access to the recess, this passage also receiving the free edge portion of the strip which is resiliently biased away from the central portion whereby the two portions are maintained in sealing engagement with opposite walls of the passage.

3,601,944
BUILDING FRAME WITH CABLE TRUSSES
Willard W. Shepherd, Whittier, Calif., assignor to Shepherd Machinery Co., Industry, Calif.
Filed Aug. 4, 1969, Ser. No. 847,106
Int. Cl. E04b 1/347, 1/342; E04h 6/44
U.S. Cl. 52—641 6 Claims



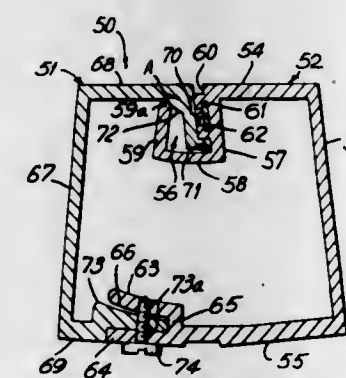
A building frame comprising: two laterally spaced supporting frames forming opposite sides of the building; laterally extending cable trusses spanning the space between and carried by the supporting frames and including upper and lower cables; and a rigid, longitudinally extending truss located midway between the supporting frames and disposed between the upper and lower cables of the cable trusses to space them apart vertically. The upper cables slope downwardly from the central truss to the supporting frames so that this truss forms a central longitudinal ridge. The cable trusses are anchored laterally outwardly of the supporting frames to the surface on which the building frame is erected. The supporting frames slope laterally outwardly and upwardly so that the interior of the building frame, viewed in cross section, has the general configuration of an inverted trapezoid. This makes the building frame particularly suitable for use as a hangar frame of minimum width since the lateral spacing of the bottoms of the supporting structures may be less than the wingspan of an airplane to be hangared therein.

3,601,945
STRUCTURAL UNITS, SUITABLE FOR USE IN REINFORCING CONCRETE
Jean P. Bernold, Walenstadt, Switzerland, assignor to Hans Walter Pfeiffer, a part interest
Filed Feb. 12, 1969, Ser. No. 798,747
Int. Cl. E04c 2/42
U.S. Cl. 52—673 8 Claims



A corrugated, load-bearing, panellike structural unit which is especially adapted to line tunnels, to strengthen trenches, to form carriageways, etc., is disclosed herein. Additionally, improved methods and apparatus for building tunnels, trenches, roadways, etc., with the aforementioned corrugated structural units are disclosed herein.

3,601,946
INTERLOCKING MULLION CONSTRUCTION
Wilhelm F. Rothmund, Flushing, N.Y., assignor to Samson Window Corporation, Woodside, N.Y.
Filed May 8, 1969, Ser. No. 822,950
Int. Cl. E04c 3/30
U.S. Cl. 52—731 2 Claims



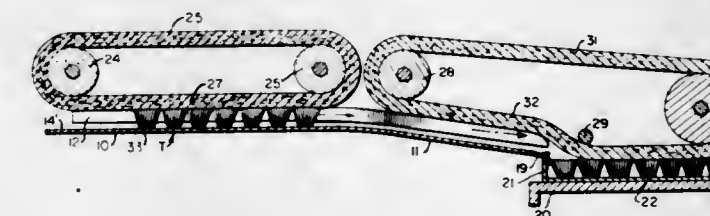
An interlocking mullion construction and curtain wall assembly incorporating the same, characterized by the provision of mullion half sections forming, respectively, the leading edge of one curtain wall preassembly, and the trailing edge of an adjacent curtain wall preassembly, the half sections being insertable into partial interlocking engagement by tilting of one section relative to the other section and sidewise relative movement of the sections to insert a trunion member of one section into an open mouth bearing pocket of the other section, subsequent pivotal movement of the sections into coplanar alignment serving to interlock the two mullion half sections to prevent relative movement of the sections and to form a mullion assembly of a structural strength comparable to an integrally extruded hollow mullion.

3,601,947
APPARATUS FOR ONSITE ROLL FORMING AND APPLICATION OF ROOFING SHEETS
Leslie A. Hurd, 2616 Columbus, Muskogee, Okla.
Filed Feb. 27, 1970, Ser. No. 14,978
Int. Cl. E04d 15/04, 15/06
U.S. Cl. 52—749 13 Claims



A method and apparatus for mechanically roll forming and applying full length roofing sheets in a continuous operation at a job site.

3,601,948
METHOD AND APPARATUS FOR PACKING CANDY IN BOXES
Albert Ludwig Ehe, Jamaica Estates, N.Y., assignor to Multicup Automation Company, Inc., Long Island, N.Y.
Filed Jan. 6, 1970, Ser. No. 963
Int. Cl. B65b 63/02
U.S. Cl. 53—24 12 Claims

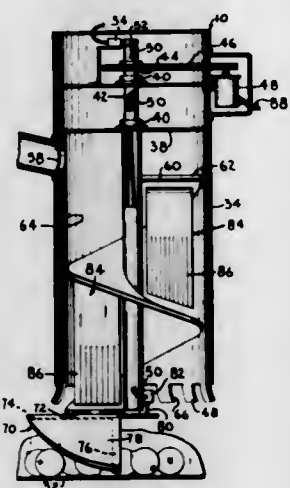


This specification discloses a method of packing candy pieces contained in fluted conical cups into boxes and apparatus for carrying out the method. The method begins with trays of filled cups. The trays are moved rectilinearly and as they are so moved, the cups are compacted in a direction transverse to their movement. They are then delivered to an open top box and as they are so delivered the cups are compacted in the direction of their movement. The apparatus for carrying out this method consists essentially of a horizontal table which receives the trays, fixed guides at the sides of the table including converging portions, endless belt pushers spaced above the table, and a support for candy boxes.

3,601,949
METHOD AND APPARATUS FOR FILLING CARTONS WITH DELICATE ITEMS
Emmet G. Slusher, 2102 South, Apt 3, Lexington, Mo.
Filed Jan. 26, 1970, Ser. No. 5,763
Int. Cl. B65b 1/12 20 Claims

An upright, padded, helical auger rotates in a padded tubular housing to lower items onto a rotating, padded, laterally extending distributor plate disposed to receive the items emanating from the housing and to spread the items uniformly throughout a carton or the like. The items are moved by centrifugal force outwardly of the auger vane and frictional resistance of the housing padding causes the items to gently roll down the rotating vane toward the plate. Baffles carried by the auger intermediate its ends reduce the velocity

of movement of the items. The distributor plate is swingable upwardly on engagement with the items accumulated in the



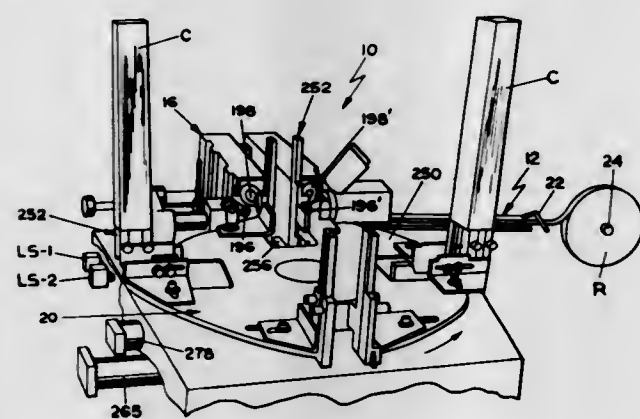
carton to actuate mechanism for progressively moving the discharge point for the items responsive to the level of accumulated items in the carton.

3,601,950

LABEL HANDLING AND STACKING APPARATUS
Donald H. Drent, Belding; Burton E. Jones, Sr., Norton Shores, and Chester A. Goldner, Belding, all of, Mich., assignors to Rospach Corporation, Grand Rapids, Mich.
Filed Mar. 17, 1969, Ser. No. 807,894
Int. Cl. B65b 63/04, 5/10; B65c 9/18

U.S. Cl. 53—51

1 Claim



Apparatus for converting printed label tape into packed containers of labels, employing a combination of components for cutting the label tape, folding the labels, advancing each to stacking comb means, and specially elevating each stack into synchronously advanced containers of a packer.

The packer employs an intermittently advanced and locked turntable synchronously cooperative with the label stacking and elevating functions.

3,601,951

APPARATUS FOR INTRODUCING BOTTLES INTO CRATES OR THE LIKE

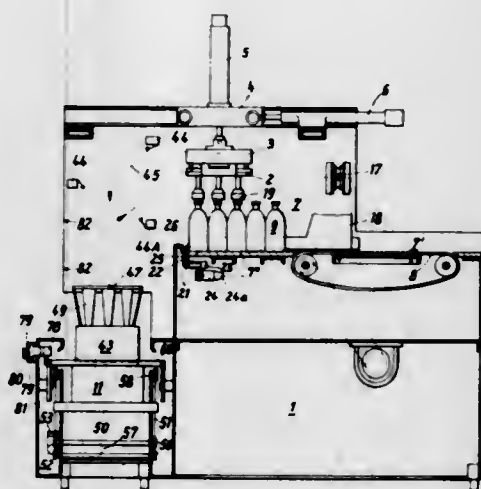
Günther Bargel, Dortmund; Robert Eggert, Dortmund; Wilhelm Kortenbach, Castrop, and Helmut Lorken, Dortmund, all of, Germany, assignors to Holstein & Kappert Maschinenfabrik Phoenix GmbH, Dortmund, Germany
Filed May 15, 1969, Ser. No. 824,881
Int. Cl. B65b 57/10, 35/30

U.S. Cl. 53—61

14 Claims

Apparatus for introducing arrayed bottles into crates comprises an arraying table which receives randomly distributed bottles from an upper feed conveyor and includes devices for arranging the bottles in a series of rows so that the foremost bottle of each row advances toward and tilts one of a series of control levers. When all of the levers are tilted by the bottles of the resulting array on the table, they permit a light

sensitive signal generator to actuate a transfer unit which comprises pneumatically operated grippers movable along a path having vertical, horizontal and downwardly inclined portions. The grippers then move downwardly to engage the bottles of an array, upwardly above the table, sideways along a horizontal, thereupon along a downwardly inclined and finally along a vertical portion of the path to introduce the



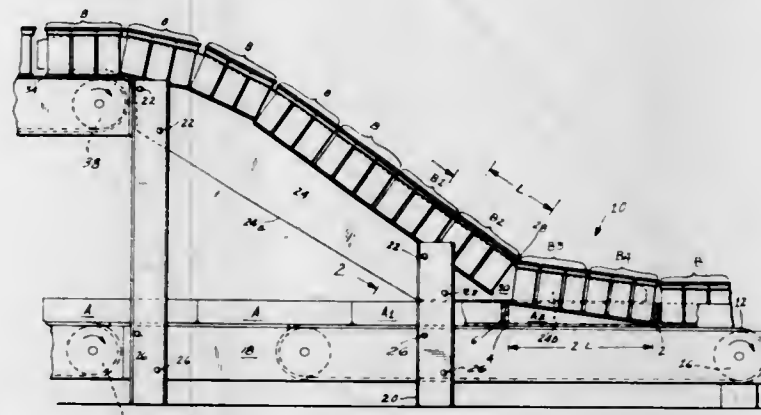
array into a crate which is held in raised position by a vertically reciprocable platform forming part of a lower feed conveyor which advances empty crates to receiving positions located below and laterally adjacent to the arraying table. The crates are staggered during movement with the second feed conveyor, and the apparatus is further provided with guides which engage and guide the bottles of an array during downward movement with the grippers toward a raised crate.

3,601,952

TRAY PACKING METHOD AND APPARATUS
Carl P. Cato, Lynchburg, Va., assignor to Dacam Corporation, Lynchburg, Va.
Filed Oct. 22, 1969, Ser. No. 868,351
Int. Cl. B65b 5/10

U.S. Cl. 53—35

16 Claims



A method of packing a plurality of contents elements into a series of trays in a continued sequence by separating the elements at their lower ends into groups at a packing station and lowering each of said groups sequentially into adjacent trays as they pass the packing station. Apparatus for carrying out said method comprises a guide rail which changes direction at the packing station for supporting the elements from their top ends and guiding them to the packing station.

3,601,953

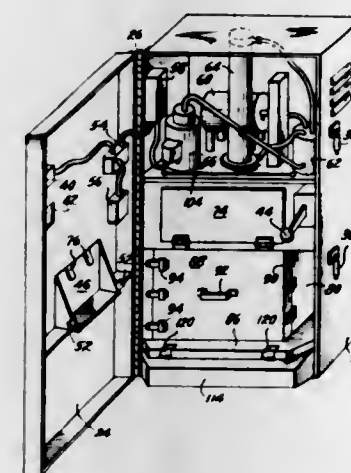
MACHINE FOR COMPACTING TRASH IN DISPOSABLE CARTONS
John A. Boyd, Fairfax, Va., assignor to Compackager Corporation, Washington, D.C.
Filed July 24, 1968, Ser. No. 747,218
Int. Cl. B65b 1/20, 63/02, 37/02

U.S. Cl. 53—124 B

1 Claim

A machine for compacting trash in a disposable carton mounted within a sleeve means in the lower portion of the

machine casing. The casing can be opened to permit the sleeve means to be slid outwardly and the sleeve means can then be opened to permit the filled carton to be removed therefrom. The machine includes a vertically movable ram



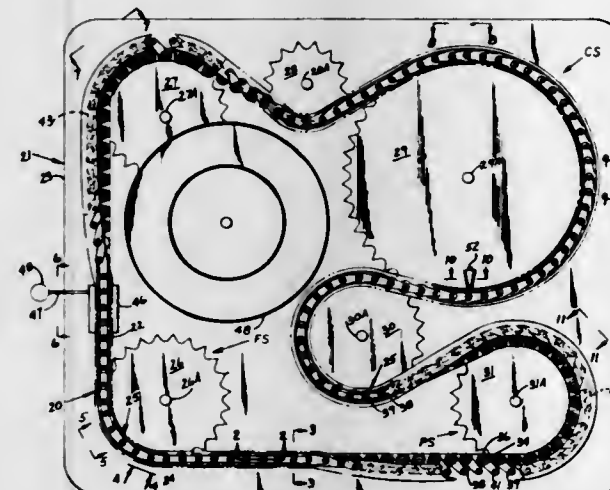
which compacts the trash within the carton and when the ram is lowered to its compacting position, a blocking means prevents further trash from being introduced so that no trash can fall on top of the ram.

3,601,954

APPARATUS FOR CONVEYING AND FILLING CAPSULES
Theodore F. Aronson, Glen Cove, N.Y., assignor to Eli Lilly and Company, Indianapolis, Ind.
Filed Nov. 15, 1968, Ser. No. 776,128
Int. Cl. B65b 1/00, 7/28

U.S. Cl. 53—282

21 Claims



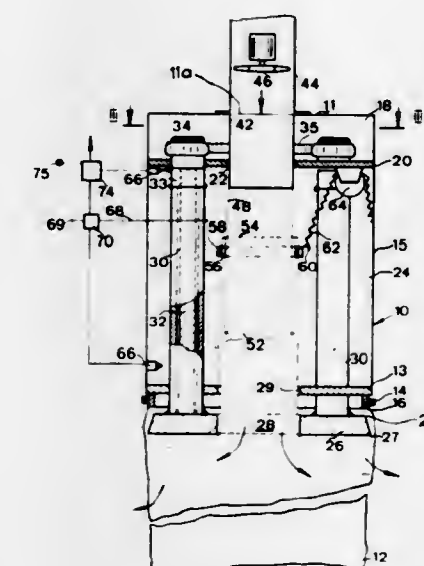
This disclosure is directed to an apparatus for conveying and handling a capsule of the type having a cap portion and body portion interfitted to one another. The apparatus comprises essentially of a conveyor preferably in the form of an endless flexible chain having connected thereto relatively movable complementary capsule holding means which are adapted to move into and out of alignment as the conveyor is moved in a predetermined path to effect sequentially the feeding, separation, filling, reassembly and finally ejection of the filled capsule therefrom. Thereafter the arrangement is such that the respective complementary capsule holding portions can be individually purged; and the cycle of operation repeated.

3,601,955

APPARATUS FOR SEPARATING FIBERS FROM A CONVEYING AIR STREAM
Johann Walter Ferri, Uster, Switzerland, assignor to Luwa AG., Zurich, Switzerland
Filed Apr. 30, 1969, Ser. No. 820,352
Claims priority, application Switzerland, May 2, 1968, 6496/68
Int. Cl. B01d 46/00

U.S. Cl. 55—295

16 Claims

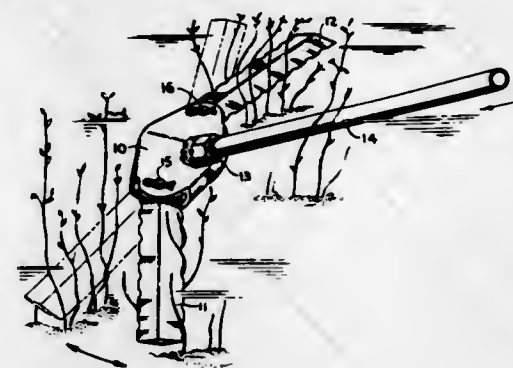


Separating fibers from a conveying air stream which conducts said fibers through a stationary inlet into a separating apparatus. The apparatus contains a filter and the separated material is ejected into a container or the like. According to an important aspect of the invention, an axially displaceable plunger mechanism is operably connected with a drive arrangement, this plunger mechanism possessing an opening which communicates via a telescopic or flexible member, defining the aforementioned filter, with the stationary inlet means.

3,601,956

UNDERWATER CUTTING DEVICE
Andreas O. Akermanis, 3401 N. Westmoreland Drive, Orlando, Fla.
Filed Feb. 24, 1969, Ser. No. 801,675
Int. Cl. A01d 45/08
U.S. Cl. 56—8

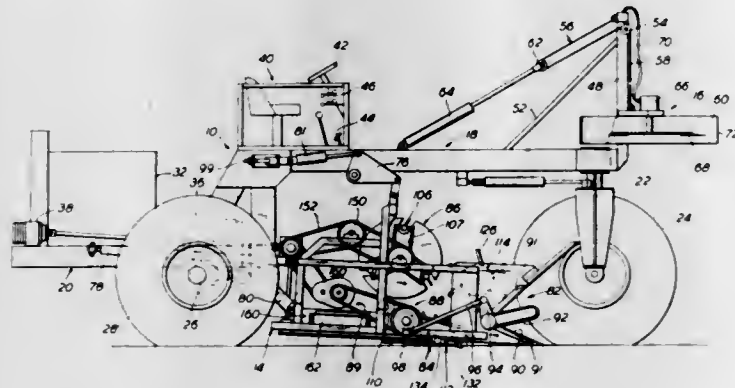
7 Claims



A hand operated cutting device to be utilized for the removal of underwater weeds and other growths, using pivotally mounted double-edged blades that automatically change position each time the direction of movement of the device changes, thus assuring that the blades will possess a desirable amount of sweepback when cutting, and enabling uncut weeds to slip off the end of the blades and thereby avoid fouling the device.

3,601,957
SUGAR CANE COMBINE
 Richard A. Duncan, Lafourche Parish, La., assignor to Thomson Machinery Company, Inc., Thibodaux, La.
 Filed Apr. 18, 1968, Ser. No. 722,286
 Int. Cl. A01d 45/10
 U.S. Cl. 56—13.8

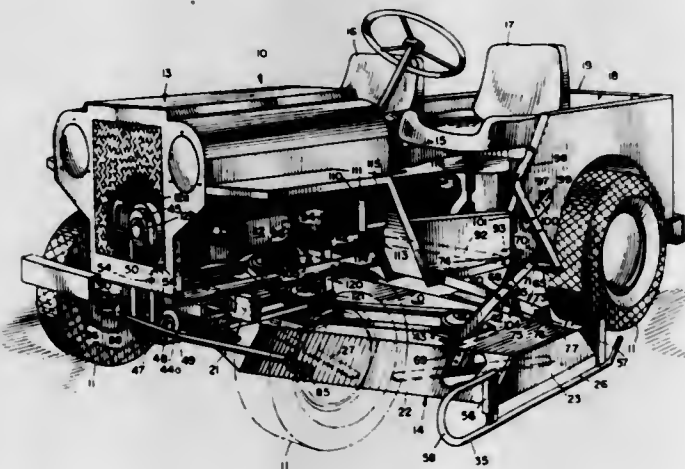
10 Claims



A three-wheel, self-propelled sugarcane combine having a rotary cutter mounted on the front of the frame for cutting off the tops of the stalks, and a harvesting frame containing a rotary ground knife for severing the stalks from the roots, revolving, reciprocating sickle bars for preliminarily processing the cane by cutting it into short segments, pickup and feeding means for picking erect as well as down cane and feeding it perpendicularly to the sickle bars and then transporting it to a hopper. A conveyor transports the cut cane from the hopper to a transport wagon. A hugger chain atop of the elevating section of the conveyor prevents tumble-back.

3,601,958
SELF-PROPELLED ROTARY MOWER
 Earl O. Roof, 1228 N. Walnut St., Pontiac, Ill.
 Filed Aug. 22, 1968, Ser. No. 754,682
 Int. Cl. A61d 35/26
 U.S. Cl. 56—13.7

8 Claims



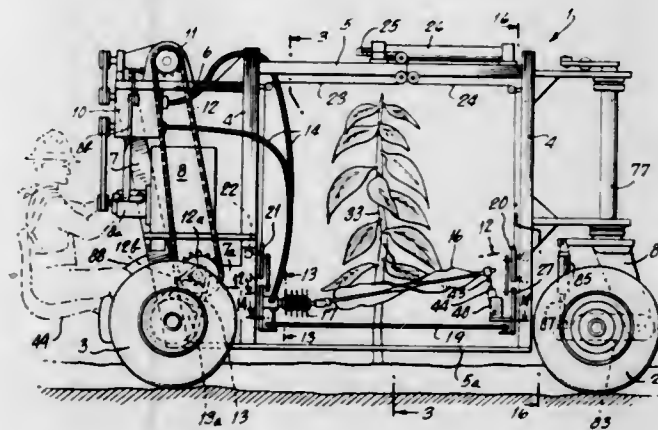
A rotary mowing or cutting unit is suspended beneath the central portion of a jeep-style traction vehicle which has a low center of gravity and is capable of speeds up to 14 miles per hour. Three cutting blades are arranged within a mower deck for cutting slightly overlapping swaths in the direction of travel of the vehicle, and combining to cut an overall swath which is greater than the vehicle width. The mowing unit is provided with side runners which extend forward of the deck and rear rollers for engaging ground obstructions and limiting downward movement of the mower unit. The deck is mounted to the vehicle by a mechanism which permits an operator to adjust the height of the cutter blades while allowing the unit to be raised should it encounter an

elevation in the ground. The mounting mechanism prevents the cutter unit from tilting fore and aft while allowing one side of the unit to lift if the runner on that side engages a ground elevation. A spring-biased counterbalancing system offsets most of the weight of the mowing unit to permit a fast vertical reaction at high ground speeds. The mowing unit is designed to cut the volume required at these speeds while separating out debris struck by the blades.

3,601,959
METHOD AND APPARATUS FOR HARVESTING TOBACCO

Jessee R. Pinkham, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
 Continuation-in-part of application Ser. No. 825,625, May 19, 1969. This application Aug. 29, 1969, Ser. No. 854,058
 Int. Cl. A01d 45/16
 U.S. Cl. 56—27.5

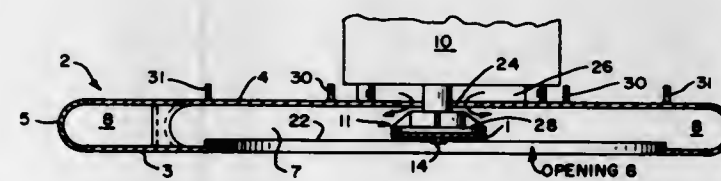
13 Claims



Method and apparatus for defoliating vertically limited sections of tobacco plants including a vehicle capable of straddling and passing along a row of tobacco plants and a defoliator mounted on the vehicle for stripping the leaves from the stalks upon movement of the vehicle. The defoliator comprises a pair of flexible rotating webs having scalloped, twisted edges; a pair of leaf removal means, one on each side of the apparatus, carry away the leaves to collector boxes, the leaf removal means being provided with a device for preventing the leaves from being trapped between or falling between the two leaf removal means. There are also provided: a device for positioning misaligned stalks; a mechanism for positioning the defoliator both transverse to the row of plants and vertically along selected sections of the plants; a device for steering the vehicle along a path longitudinal of the row of plants; and independent means connecting at least each of the front wheels to the frame of the apparatus, and operable to change the vertical position of each wheel relative to the frame, so as to accommodate changes in the contour of the ground.

3,601,960
LAWN MOWER OF THE ROTARY BLADE TYPE
 Ralph L. Buechler, 16 Oxford Drive, New Albany, Ind.
 Filed Apr. 13, 1970, Ser. No. 27,510
 Int. Cl. A01d 55/18
 U.S. Cl. 56—320.2

12 Claims



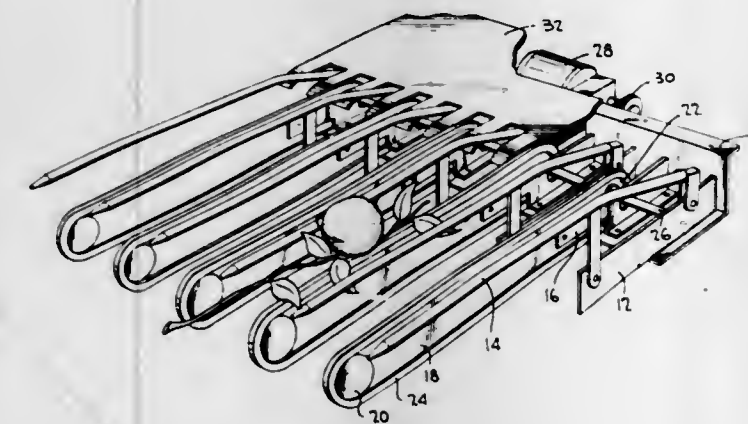
A lawn mower of the type wherein a blade, which is located in an annular outwardly open blade chamber of a casing having an inwardly open scroll around the blade chamber, is operative, when rotated, to create a main stream

of air flowing from a bottom inlet outwardly through the annular chamber and rotationally through the volute chamber. It also creates a similarly flowing supplementary stream, which enters the casing through a top inlet opening concentric to the axis of rotation.

The supplementary stream enables the lawn mower to cut wet grass satisfactorily because it sweeps across the ceiling of the blade chamber and thereby prevents the creation and growth on that ceiling of wet grass deposits which lead to clogging and unsatisfactory operation. Freedom from clogging is also promoted by grass-intercepting gutters on the blade and the use of smooth obstruction-free cornerless surfaces on the blade and on the casing walls.

3,601,961
PICKING HEAD FOR FRUIT HARVESTER AND METHOD OF HARVESTING
 Ernest L. Kenton, Kissimmee, Fla., assignor to Kid Glove Harvesters, Inc., Orlando, Fla.
 Division of Ser. No. 353,062, May 26, 1966, Pat. No. 3,412,542
 Continuation-in-part of application Ser. No. 794,821, Nov. 22, 1968, now Patent No. 3,521,432, dated July 21, 1970.
 This application Feb. 20, 1970, Ser. No. 12,933
 Int. Cl. A01g 19/08
 U.S. Cl. 56—328

10 Claims



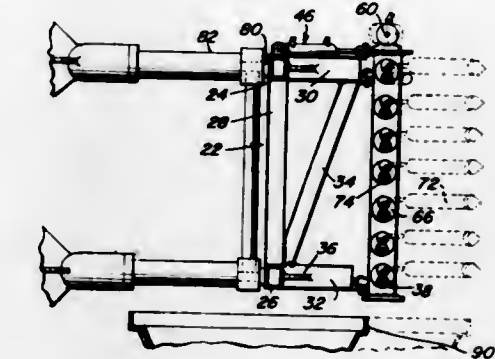
A picking head for a fruit harvester and a method of harvesting comprises the use of a high friction endless belt and a low friction polished pipe spaced apart by less than the diameter of the fruit to be picked. The spaced apart belt and pipe are "combed" through a tree causing the tree branches to pass between the belt and the pipe. Since the separation between the belt and the pipe is less than the diameter of the fruit to be picked, the belt and the pipe exert a tensile force on the lower portion of the fruit. In addition, the high friction surface of the endless belt is continuously rotated in order to impart a twisting moment to the fruit to be picked. Thus, the fruit is subjected to a tensile force by the combing action and a twisting force by the moving belt. The combination of these two forces severs the stem thereby picking the fruit.

3,601,962
FRUIT HARVESTER WITH OFFSET FRUIT REMOVING DEVICE
 Curtis J. Townsend, P. O. Box 374, Port Orange, Fla.
 Filed May 22, 1969, Ser. No. 826,833
 Int. Cl. A01g 19/08
 U.S. Cl. 56—328 R

6 Claims

An attachment for a fruit harvester incorporating a plurality of rotary elements oriented in substantially vertical alignment with each rotary element including an offset beater in the form of a bar or tine which orbits about a rotational axis

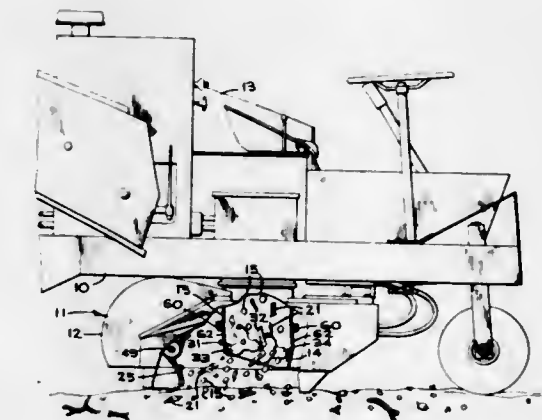
in a manner to engage fruit adjacent its connection with the stem for dislodging the fruit from the stem and causing the



dislodged fruit to move in an outward trajectory in relation to the canopy of the tree toward the fruit harvester which serves as a device for catching and collecting the fruit.

3,601,963
APPARATUS FOR FRACTURING DEBRIS IN HARVESTER
 Glen E. Rauth, Winter Park, Fla., assignor to FMC Corporation, San Jose, Calif.
 Filed May 16, 1969, Ser. No. 825,231
 Int. Cl. A01d 51/00
 U.S. Cl. 56—328 R

10 Claims



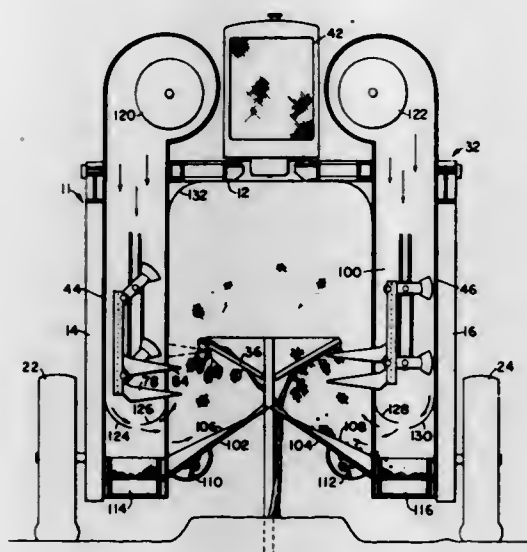
A nut harvesting machine with a suction opening to receive the nuts is disclosed. Two stick-breaking rotors are mounted in the opening for rotation on parallel axes. Each rotor has angularly spaced bars which intermesh with the bars of the other rotor. The two rotors are rotated in unison to fracture sticks drawn therebetween. The rotors are reversible to dislodge an oversize stick therefrom. A freely hanging wiper plate engages the bars of the rotating rotors to remove any vegetation therefrom.

3,601,964
GRAPE HARVESTING MACHINE
 Robert E. Fisher, Berkeley; Gerald L. Claxton, Albany, and John J. Witt, Jr., Walnut Creek, all of, Calif., assignors to Up-Right, Inc., Berkeley, Calif.
 Filed Mar. 18, 1968, Ser. No. 713,799
 Int. Cl. A01g 19/00
 U.S. Cl. 56—330

6 Claims

A machine, having a framework which straddles two horizontal parallel wires along which are trained fruiting canes, is propelled along the wires in such position. The machine includes a pair of horizontally spaced batons which move upward to strike each wire in a desired pattern along the length of the wire to provide the maximum effectiveness in detaching the grapes from the canes by the impact of the batons. The grapes, along with some foreign matter, are collected in resilient slanting aprons. Airblasts pass over the aprons to blow away much foreign material which might otherwise fall onto the aprons with grapes. A vibratory motion is imparted to the aprons to agitate the material col-

lected thereon, so that the airblasts can blow away much of the foreign matter which might have fallen onto the aprons. of which has attached thereto an elongated handle. The other rake head is movably supported by the elongated handle, and



The vibratory motion and slant of the aprons also act to feed the grapes onto conveyors which carry them from the machine.

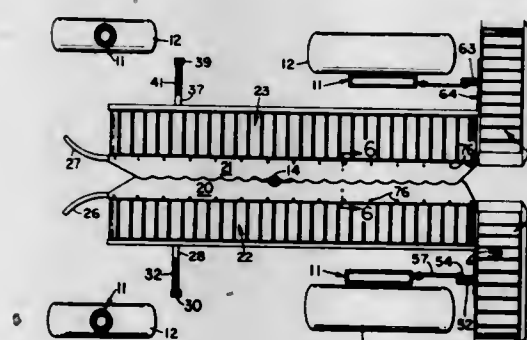
3,601,965

HARVESTING MACHINE WITH FLEXIBLE CLOSURE
Heinrich Kaessbohrer, Berkeley, and Darrell C. Horn, Lafayette, both of, Calif., assignors to Up-Right, Inc., Berkeley, Calif.

Filed Oct. 6, 1969, Ser. No. 864,127
Int. Cl. A01g 19/00

U.S. Cl. 56—330

19 Claims



A harvesting machine which straddles and moves along a row of fruited plants, such as grapevines, and is provided with a pair of resilient closure members underneath the plants to catch the fruit knocked from the plants. The closure members are flexible and have a lesser resistance to upward flexing at their inner edges than at their outer edges. The inner edges of the closure members are scalloped in the plane of the members, pleated and overlapped along the centerline of the plants so that the trunk or plant support can pass between the overlapped edges with a minimum of opening of the closure members. Additionally, the closure members are free to move in unison transversely of the machine so that they will remain centered on the row of plants in spite of steering errors or tilting of the machine.

3,601,966

COMBINATION RAKE AND PICKUP DEVICE
Byron Joseph Kerry, 6561 Calhoun, Dearborn, Mich.
Filed Dec. 12, 1969, Ser. No. 884,642
Int. Cl. A01d 7/10

U.S. Cl. 56—400.12

3 Claims

A combination rake and pickup device consisting of a pair of oppositely disposed conventional broom rake heads, one



may be selectively shifted to either an inoperative retracted position, or an advanced position where it enters into a holding relationship with the first mentioned rake head.

3,601,967

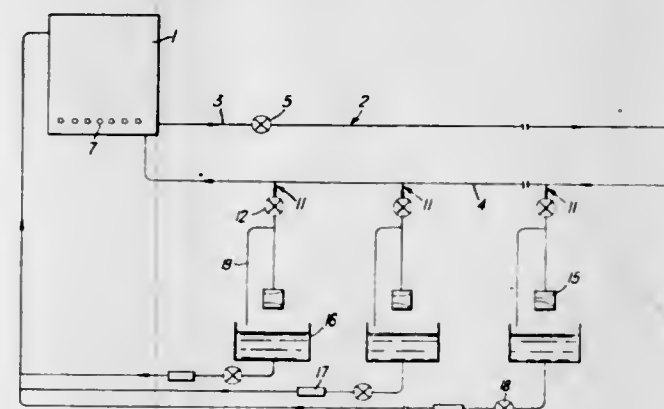
MANUFACTURE OF MULTICONDUCTOR CABLES
Brian John Wardley, Billinge, near Wigan, England, assignor to British Insulated Callender's Cables Limited, London, England

Filed Mar. 25, 1969, Ser. No. 810,092
Claims priority, application Great Britain, Apr. 5, 1968, 16462/68

Int. Cl. B65h 81/08; H01b 13/14, 13/24

U.S. Cl. 57—7

16 Claims



A multiconductor cable core is provided with a barrier of sealing material by pumping the sealing material from a thermostatically controlled storage vessel to a cable feeding station while at a temperature just above that at which crystallization begins and transferring sealing material from the cable feeding station to the cable core while still at such a temperature. The material is cooled to effect crystallization by abstraction of heat by the insulated conductors constituting the core to cause sufficient sealing material to become solidified to form an effective moisture barrier. The sealing material while at such a temperature is preferably continuously circulated around a ring main in which is located a plurality of cable feeding stations for transferring the material to a core curing a conventional stranding process.

3,601,968

ELECTRICALLY HEATED, UNILATERALLY SUPPORTED DRAWROLL HAVING COOLING MEANS
Armin Wirz, Dietlikon, Switzerland, assignor to Rieter Machine Works Ltd.

Filed Dec. 8, 1969, Ser. No. 882,875
Claims priority, application Switzerland, Dec. 13, 1968, 18,585/68

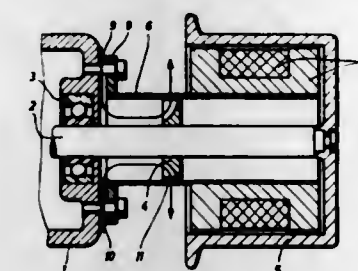
Int. Cl. D01h 13/28; H05b 1/00

U.S. Cl. 57—34

8 Claims

A drawroll is disclosed for use with a drawtwisting or drawwinding machine or the like, supported upon one end of a

rotating shaft which is rotatably mounted at its other end in a suitable bearing, and having electrical heating means within the drawroll. The heating means is rigidly secured to the machine frame by a hollow supporting tube surrounding the



shaft; a fan means is disposed within the tube to draw cooling air along the shaft and expel it through radial openings adjacent the heating means. A hood may be provided externally of the supporting tube to enclose the space extending axially from the machine frame to the heating means.

3,601,969

METHOD AND APPARATUS FOR PERFORMING AN OPEN-END SPINNING OPERATION

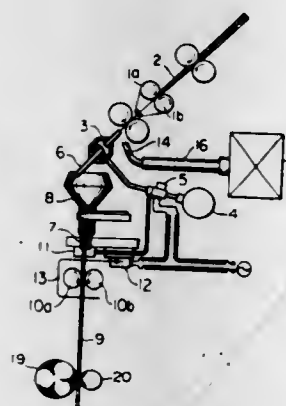
Kozo Susami, Otsu-shi; Masaaki Tabata, Otsu-shi; Masakazu Hirota, Saka-gun, Shiga-ken; Keiichi Minami, Otsu-shi, and Teiryō Kojima, Otsu-shi, all of, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Jan. 27, 1969, Ser. No. 794,019
Claims priority, application Japan, Feb. 2, 1968, Feb. 26, 1968, Mar. 1, 1968, Mar. 13, 1968, Mar. 29, 1968, 43/6025; 43/11940; 43/2866; 43/15871; 43/20022

Int. Cl. D01h 1/12, 13/16

U.S. Cl. 57—58.91

23 Claims



A method and apparatus for operating a yarn in an open end spinning system utilizing pneumatic suction force and a centrifugal force due to a high speed rotation of the spinning rotor at a time of stopping or restarting the spinning operation. Tension of the spinning yarn delivered from the rotor is detected. By positively insertion of the yarn into the rotor when a yarn tension below a predetermined value is detected, an upstream yarn end is maintained in the rotor without any contact with fibers accumulated upon the inside wall of the rotor during abnormal rotation of the rotor. The mentioned contact is revived when a normal rotation is recovered. Combination of a mechanical insertion mechanism with a pneumatic insertion mechanism assures further preferable result in the yarn piecing operation.

3,601,970

COMPOSITE STRUCTURE OF METALLIC YARNS
John A. Roberts, North Chelmsford, and Joseph R. Quirk, Woburn, both of, Mass., assignors to Brunswick Corporation

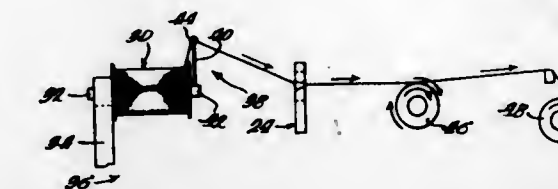
Division of Ser. No. 707,162, Feb. 21, 1968, Pat. No. 3,503,200, Division of Ser. No. 464,721, June 17, 1965, Pat. No. 3,378,999
Filed Jan. 6, 1970, Ser. No. 1,008

Int. Cl. D02g 3/12

U.S. Cl. 57—153

7 Claims

A metal yarn structure wherein the filaments are set under pressure while in a substantially nonelastic state to be free of



fecting constriction thereof to fluidize the filaments and permit the setting thereof upon release of the constriction forces in the torsion-free helical configuration.

3,601,971
TEXTILE

George Waterhouse, Macclesfield, England, assignor to Ernest Scragg & Sons Limited

Filed Apr. 11, 1969, Ser. No. 815,357
Claims priority, application Great Britain, Apr. 16, 1968, 17809/68

Int. Cl. D02g 3/06

U.S. Cl. 57—155

16 Claims



A filament is made by curling a ribbon of suitable material transversely of its elongation, and drawing the curled ribbon. The resulting filament has a cross section resembling a tight spiral and may be hollow or solid. Thermoplastics may be used as the ribbon material. An apparatus and a method are disclosed for making this filament.

This invention relates to filaments and methods and apparatus for making them.

3,601,972

DRAWING AND BULKING OF SYNTHETIC FILAMENT YARNS

Paul Rogers, and Roy Spencer Holliss, both of Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

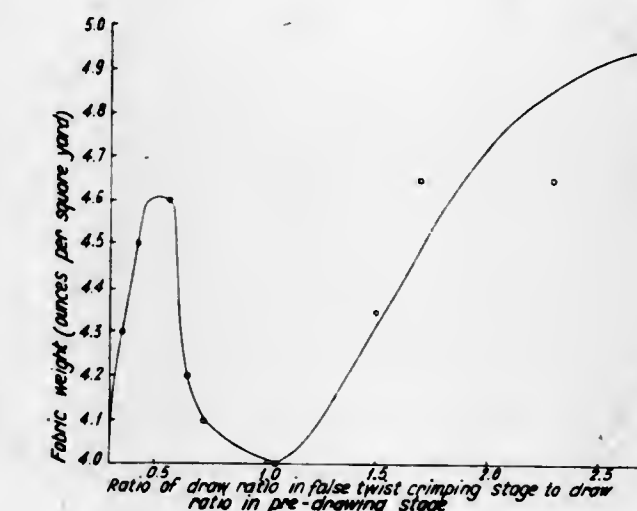
Filed June 23, 1969, Ser. No. 835,714

Claims priority, application Great Britain, July 12, 1968, 33365/68

Int. Cl. D02g 1/00, 1/02

U.S. Cl. 57—157

7 Claims



In a process for producing false twist crimped synthetic yarn from crimpless undrawn yarn comprising: partially

drawing the crimpless undrawn yarn to less than full extent; imparting potential crimp by immediately and continuously imparting false twist to the partially-drawn yarn and heating the same under sufficient tension to complete the drawing; and releasing the tension.

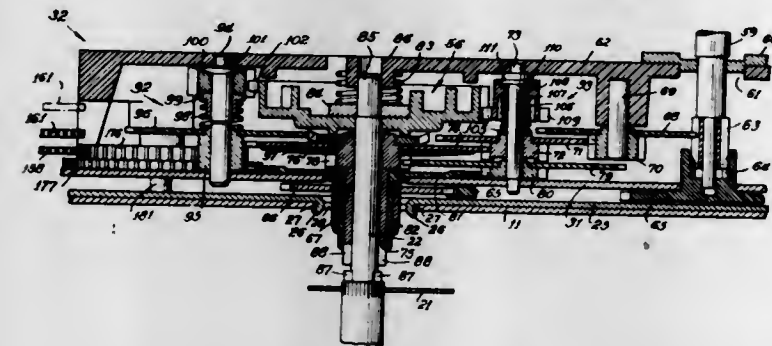
3,601,973

MOTOR DRIVEN TIMER

Ronald M. Bassett, and Joseph F. Gluth, both of Chicago, Ill., assignors to P. R. Mallory & Co., Inc.
Continuation-in-part of application Ser. No. 817,500, Apr. 18, 1969, now abandoned. This application Nov. 21, 1969, Ser. No. 878,618
Int. Cl. G04f 3/08

U.S. Cl. 58—21.14

7 Claims



A compact motor-driven timer for cooking stoves includes a dial plate carrying time markings with one or more hands rotatable relative thereto on a shaft rotatably mounted on a mechanism plate on which the dial plate is supported. A plastic mechanism case encloses a gear train interconnecting a synchronous motor mounted on the case and the hand or hands. Shouldered portions of the case extend through the mechanism plate which has deformable ribs to hold the shouldered portions of the case and thereby the case itself in place. Screws extend through the case to secure it and the motor to the mechanism plate. The gear train includes one or more clutches to rotate an interval hand at different speeds. A buzzer arm is released to vibrate in the magnetic field of the motor at the end of the manually preset interval. Time indicating hands are also driven by the motor. The interval hand is concentrically mounted with the time indicating hands or is offset therefrom. A notch is provided in the mechanism case to hold the ends of the leads to the motor temporarily in position. The gear train also operates a range timer which includes contacts that are closed at the beginning of a variable time cycle to start a cooking operation at a preset time of day. The contacts are opened at the end of the preset time cycle. The range timer can be set for manual operation by manual closure of the contacts.

3,601,974

ELECTRONIC TIMEPIECES

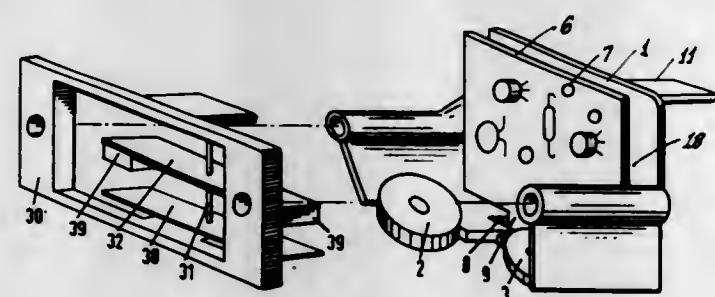
Albrecht Haag, Schwennigen; Fritz Rothfuss, Schura; Roland Siefert, Bad Durrheim, and Herbert Krosche, Schwennigen, all of, Germany, assignors to Kienzle Uhrenfabriken GmbH, Schwennigen a.N., Germany

Filed Apr. 17, 1970, Ser. No. 29,536
Claims priority, application Germany, Apr. 19, 1969, Apr. 19, 1969, Aug. 20, 1969, G 69 15 760.4; G 69 15 762.6; G 69 32 794.2

Int. Cl. G04c 3/04

U.S. Cl. 58—28

16 Claims



The invention relates to an electronic clock with a balance oscillatory system which is mounted in an oscillating frame

and which carries at least one permanent magnet. This permanent magnet moves over at least one fixed coil carried by a coil holder which is detachably connected with the aforesaid frame, a conductor plate being further provided for carrying electric components of an electronic circuitry.

3,601,975

HOROLOGICAL MOVEMENT UTILIZING A RADIOACTIVITY DETECTOR AND SOURCE

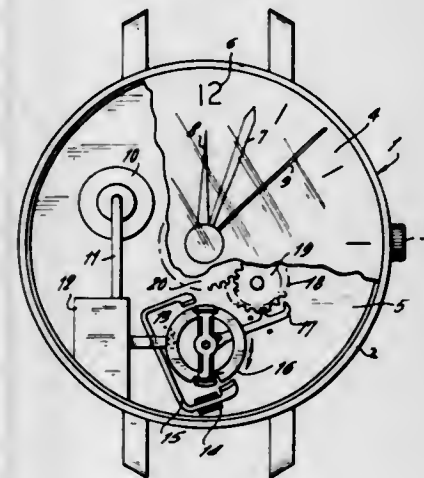
Paul Wuthrich, Woodbury, Conn., assignor to Timex Corporation

Filed Apr. 23, 1969, Ser. No. 818,628

Int. Cl. G04c 3/04

U.S. Cl. 58—28

2 Claims



A horological instrument includes an oscillating member as its time base. The oscillator, for example, a balance wheel, carries a radioactive source. The path of movement of the radioactive source is within the range of a radiation detector fixed to the base of the instrument. The radiation detector controls an electronic switch which is connected to a power source and provides an impulse to a coil. The coil provides a driving impulse to the oscillator.

3,601,976

CALENDAR WATCH

Jean Tripet, Blenne, Switzerland, assignor to Gruen Industries, Inc., New York, N.Y.

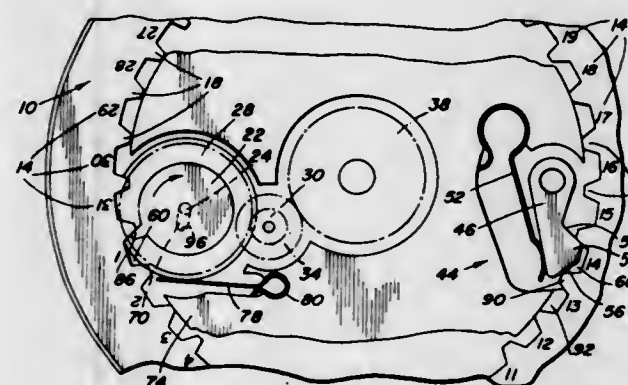
Filed Sept. 15, 1969, Ser. No. 857,685

Claims priority, application Switzerland, Sept. 16, 1968, 13,841/68

Int. Cl. G04b 19/24

U.S. Cl. 58—58

7 Claims



A calendar watch date indicator drive mechanism including a rotatably driven cam carried by a shaft slidably disposed in a guide groove, the cam being effective, in combination with a jumper, to cause a delayed, sharp, rotational advance of the date indicator means when sliding movement of the cam is mechanically arrested.

3,601,977

AIR-ADMITTING EXPANSIBLE LINK BRACELET

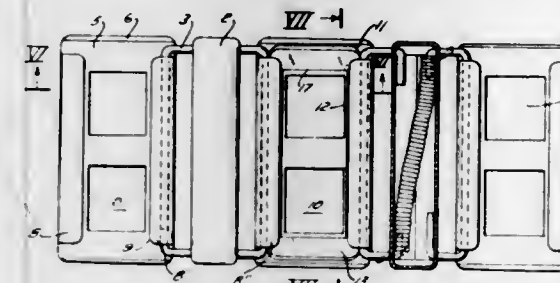
Ludwig Kunzmann, Pforzheim, Germany, assignor to Rodt & Wienerberger Aktiengesellschaft, Pforzheim, Germany
Filed Nov. 12, 1969, Ser. No. 875,640

Claims priority, application Germany, Nov. 12, 1968, P 18 08 344.8

Int. Cl. F16g 13/24

U.S. Cl. 59—79 R

10 Claims



The outer links of a two-layer link bracelet are substantially wider in the longitudinal direction of the bracelet than the inner links, which are in contact with the skin of the wearer so that the outer links are spaced from the skin. Openings in the outer links permit air to flow into the spaces under the outer links and between the inner links.

3,601,978

SHORTENING CLAW

Werner Helmut Rieger, Haus Haselbach, Unterkochen, Wurttemberg, Germany

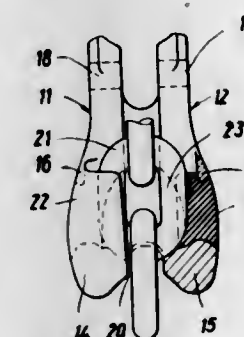
Filed Sept. 23, 1969, Ser. No. 860,254

Claims priority, application Germany, Sept. 27, 1968, P 17 75 813.3

Int. Cl. F16g 17/00

U.S. Cl. 59—93

8 Claims



A double prong chain shortening claw having two hooks forming a pocket or pockets to receive the link of a chain, at least one of the pockets having an elastic insert thereon.

3,601,979

HYDRODYNAMIC POWER CONVERTER

Grover C. Singer, 1234 Russell Drive, Apt. 503, Brownsville, Tex.

Filed Oct. 9, 1969, Ser. No. 865,066

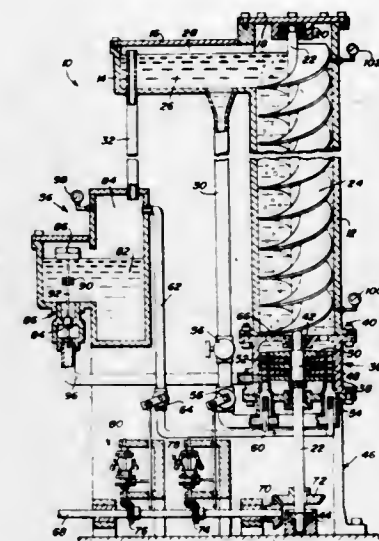
Int. Cl. F01b 21/00

U.S. Cl. 60—6

16 Claims

Flow of liquid and air through a closed circuit wherein the relative densities of the liquid and air causes upward movement of air bubbles through the liquid. Both the air and liquid are impelled upwardly by an auger to which torque is

applied through a turbine driven power shaft. A storage tank houses a body of liquid at a predetermined level to maintain



a predetermined pressure of the air injected into a gravity induced flow of liquid through the turbine.

3,601,980

POWER PLANT FOR SURFACE SKIMMERS AND HYDROFOILS

Egon Faber, Lucerne, Switzerland, assignor to Motoren-Und Turbinen-Union, Friedrichshafen GmbH, Friedrichshafen, Germany

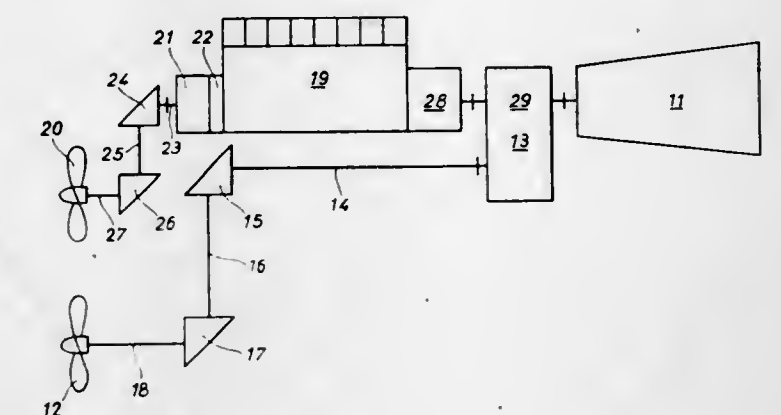
Filed Aug. 19, 1969, Ser. No. 851,340

Claims priority, application Germany, Aug. 23, 1968, P 17 81 103.9

Int. Cl. F01k 23/14

U.S. Cl. 60—11

18 Claims



A drive installation for surface skimmers and hydrofoils in which a main engine, preferably a gas turbine drives a main propeller and an auxiliary engine, preferably a Diesel engine, drives an auxiliary propeller, and in which the main propeller is also driven by the auxiliary engine by way of a variable speed transmission and a further transmission with multiple inputs for the main engine and the auxiliary engine.

3,601,981

CONTROL SYSTEMS FOR HYDRAULIC TRANSMISSION SYSTEMS

Richard Joseph Ifield, Beecroft, New South Wales, Australia, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Nov. 3, 1969, Ser. No. 873,411

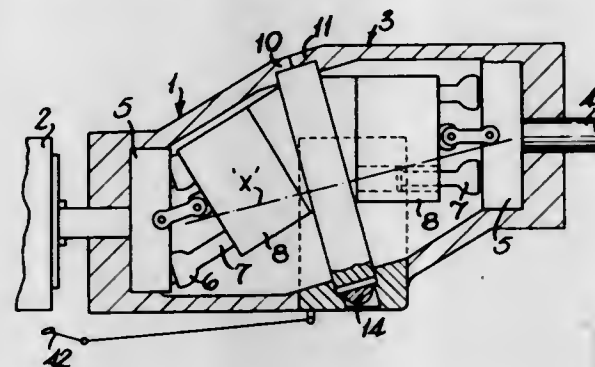
Int. Cl. F16d 31/02

U.S. Cl. 60—19

11 Claims

An hydraulic control system for hydraulic automatic transmission systems of the kind including a pump and motor of piston type and a common ported member having a pair of ports through which air flows between the pump and the motor, the control system being arranged to move the common

ported member angularly by means of a piston and cylinder type servo device, admission of fluid to the servo device being controlled from an auxiliary engine driven positive displacement type pump by a valve in the passage means leading to the servo cylinder, the passage means being controlled in accordance with whichever of the two pressures in the two



ports of the ported member is lower through a relief valve, the arrangement being such that the pressure from the auxiliary pump is applied to said valve in the passage means to allow entry of fluid at the pressure of the lower of the two ports to enter the cylinder of the servo device to control the angular position of the ported member, and thus to control the strokes of the pump and motor.

3,601,982

EMISSION CONTROL DEVICE

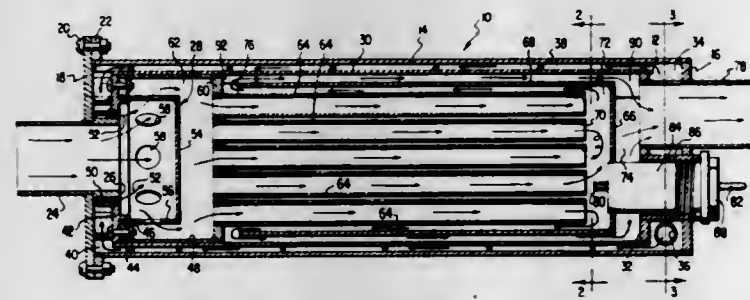
James W. McCrocklin, Alexandria, Va., assignor to A. S. Calaway

Filed June 25, 1969, Ser. No. 836,472

Int. Cl. F01n 3/14

U.S. Cl. 60—30

5 Claims



Concentric inner and outer housings of a combined acoustical muffler and afterburner for internal-combustion engines form a passageway through which fresh air is introduced. As the fresh air flows along the passageway, it is preheated by conduction through the wall of the inner housing and it is then mixed with the incoming exhaust gas. The mixture is passed through tubes in the inner housing and is then ignited whereafter the afterburning mixture is caused to flow first in one direction along the outsides of the tubes thereby superheating the mixture as it passes through the tubes, and then in the opposite direction, while scrubbing along the inner surface of the wall of the inner housing, thereby preheating the incoming fresh air. A wire filling the space between the inner and outer housings is spiraled around the inner housing to lengthen the passageway for the incoming fresh air so as to maximize the heat transfer between the hot combustor wall and the incoming fresh air.

3,601,983

BY-PASS VALVES FOR GAS TURBINES

Jack Guillot, Blanc-Mesnil, France, assignor to Etablissements Benes Marrel, Saint-Etienne (Loire), France

Filed Oct. 27, 1969, Ser. No. 869,695

Claims priority, application France, Nov. 8, 1968, 50607

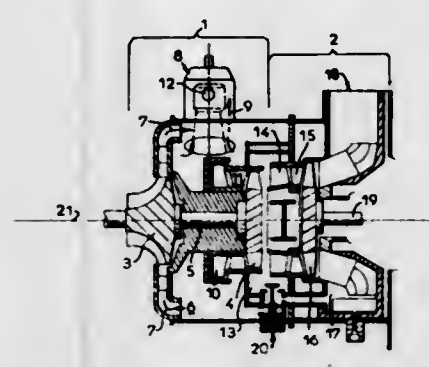
Int. Cl. F02c 3/10

U.S. Cl. 60—39.16

3 Claims

A device for a gas turbine comprising a gas generator mechanically separated from an output rotary shaft, the

latter carrying a turbine rotor, and at least one bypass valve located between the gas generator and the turbine output rotor, each bypass valve being submitted to the action of a calibrated spring which has a tendency to open it in order to partially deflect hot gases directly to exhaust, while the pressure of the air compressed in the gas generator before being



3,601,984

TEMPERATURE RATE CONTROL SYSTEM

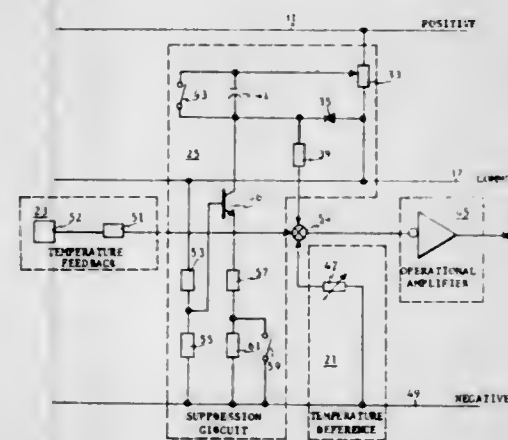
Richard K. Davis, Roanoke, Va., assignor to General Electric Company

Filed Oct. 27, 1969, Ser. No. 869,538

Int. Cl. F02c 9/08

U.S. Cl. 60—39.28

5 Claims



A temperature rate control system for a gas turbine having sensors in the path of the exhaust gases which produce an electrical signal proportional to temperature. A reference circuit provides a signal proportional to maximum allowable temperature which opposes the feedback signal at a summing junction. A third signal applied to the summing junction in opposition to the reference signal and varying toward zero as a function of time results in the summing junction output signal which varies the turbine fuel input inversely whereby the temperature increase rate of the turbine is held to a predetermined value.

3,601,985

VIBRATION DAMPING DEVICE FOR A COMBUSTION CHAMBER

Louis Jules Bauger, Vanves, France, assignor to Societe Nationale D'Etude et de Construction de Moteurs d'Aviation

Filed Sept. 10, 1969, Ser. No. 856,687

Claims priority, application France, Sept. 12, 1968, 165,973

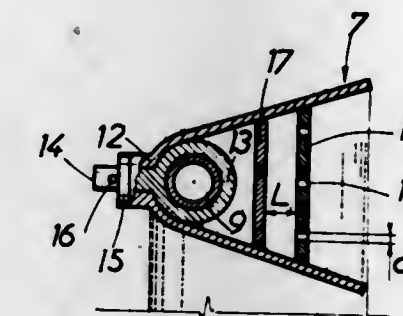
Int. Cl. F02k 3/10; F23r 1/00

U.S. Cl. 60—39.72 P

3 Claims

A device for damping vibrations originating in a combustion chamber through which a gas flow is passing and which is equipped with at least one burner, said device com-

prising an arrangement of at least two plates spaced at an interval from one another in the neighborhood of said burner



and located transversely in relation to the general direction of the gas flow, one of said plates containing orifices whilst the other does not.

3,601,986

HYDRAULIC CONTROL SYSTEM

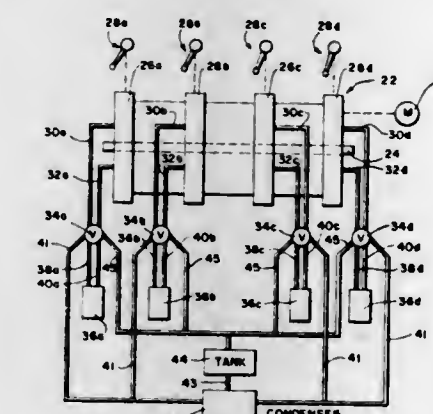
Lester J. Becker, 5605 Franconia Road, Alexandria, Va.

Filed Sept. 16, 1969, Ser. No. 858,290

Int. Cl. F15b 15/18, 18/00

U.S. Cl. 60—52 VS

5 Claims



A hydraulic control unit includes a plurality of radial pump units driven by a common drive means. Each of the pump units is provided with an individual control assembly in the form of a control lever for rotating a cam which adjusts the eccentricity of a guide ring coupled to the radial pistons of a pump unit. In this way, the direction and magnitude of flow from the pump is controlled, being fed to or from the pump through a pair of conduits. The conduits are connected to a valve which, in response to the direction of flow in the conduits, is shifted to direct fluid flow in one of two directions through a hydraulic work unit. The valve also serves to direct fluid received from the work unit to a common condenser.

3,601,987

DEVICE FOR BUILDING-UP FLUID PRESSURE PULSES

German Petrovich Chermensky, ulitsa Nevskogo, 11 kv. 3; Mikhail Andreevich Nikiforov, ulitsa Kirova, 33, kv. 19; Jury Vladimirovich Gaiduk, ulitsa Shkolnaya, 21, kv. 13; Mikhail Fedorovich Gladikh, ulitsa Chernomorskaya, 2, kv. 25; Klavdia Mikhailovna Khvoshevskaya, ulitsa Kirova, 7, kv. 39, and Igor Borisovich Natapov, Rynochny proezd, 3, kv. 11, all of Novokuznetsk, U.S.S.R.

Filed Dec. 24, 1969, Ser. No. 888,003

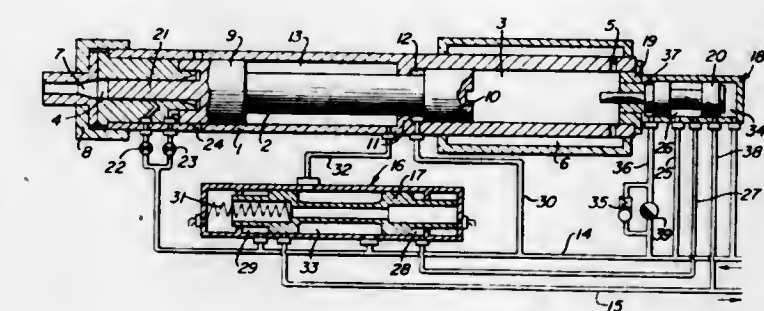
Int. Cl. F15b 7/00

U.S. Cl. 60—54.5 HA

1 Claim

The invention describes a device for building-up fluid pressure pulses comprising a cylinder with a piston which divides the cylinder cavity into a high-pressure chamber and low-pressure chamber of which the first one has a hole and is filled with fluid while the second one communicates with a vessel containing compressed gas which accelerates the piston and the latter strikes the fluid contained in the first chamber so that said fluid is discharged under pressure through a hole in the chamber. The piston is of a differential

design and its step of a larger diameter is located at the side of the first chamber while the step of a smaller diameter is located at the side of the second chamber, the cylinder between the steps being divided by a partition which, together with the piston steps, forms two hydraulic chambers.



One of these chambers, located at the side of the step of a smaller diameter is in constant communication with the pressure line while the second one, located at the side of the step of a larger diameter is put periodically in communication with the first hydraulic chamber and simultaneously with the pressure line, and also with the drain line.

3,601,988

DEVICE FOR BUILDING-UP FLUID PRESSURE PULSES

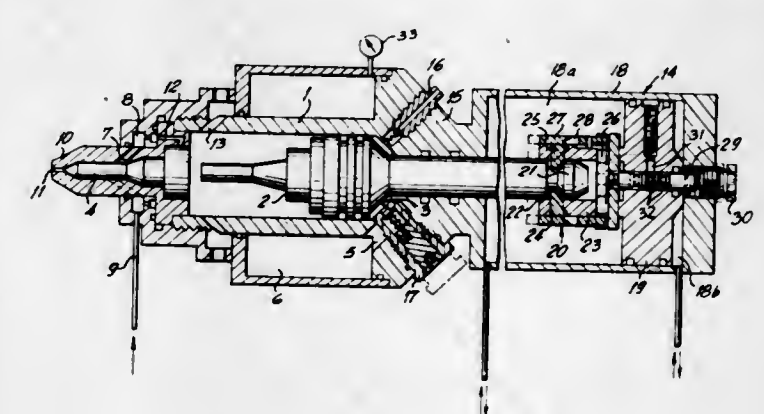
German Petrovich Chermensky, Kemerovskoi Oblasti, ulitsa Nevskogo, 11, kv. 3, and Mikhail Andreevich Nikiforov, Kemerovskoi Oblasti, ulitsa Kirova, 33, kv. 19, both of Novokuznetsk, U.S.S.R.

Filed Oct. 28, 1969, Ser. No. 871,860

Int. Cl. F15b 7/00

U.S. Cl. 60—54.5 HA

2 Claims



The invention relates to a device for building up fluid pressure pulses, said device comprising a cylinder and a piston reciprocating inside said cylinder and dividing its cavity into two chambers. The first chamber is in communication with a compressed gas vessel whereas the second one is filled with fluid and has a hole for the discharge of the fluid under the pressure built up by the impact of the piston which is accelerated by the compressed gas contained in the first chamber. The device incorporates a means for replenishing the first chamber with gas (air) pumped from the atmosphere and for bypassing it into the compressed gas vessel during the progressive movement of the piston.

3,601,989

MARINE PROPULSION SYSTEM

Kenneth A. Austin, Hove, England, assignor to Avco Corporation, Stratford, Conn.

Filed Aug. 29, 1969, Ser. No. 854,236

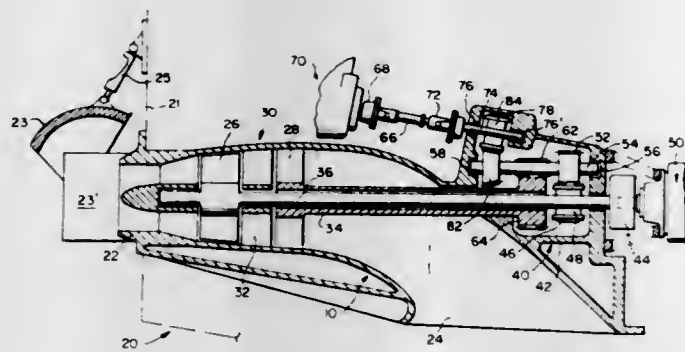
Int. Cl. B63h 23/10, 21/28

U.S. Cl. 60—221

9 Claims

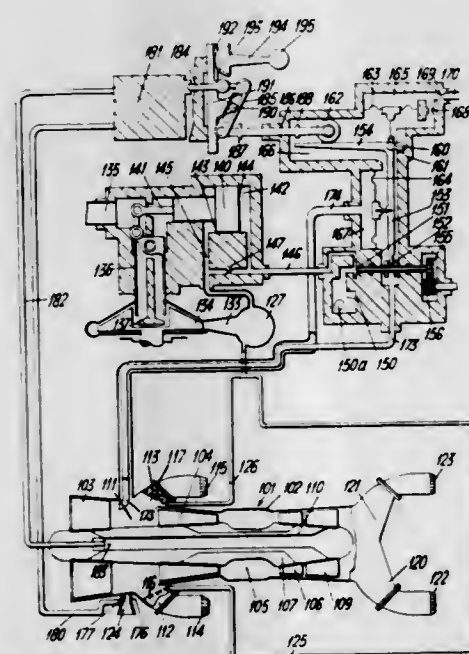
A marine propulsion system including a multistage, ducted pump creating a jet of propelling water is driven from conventional power plants one being a relatively low horsepower Diesel; the other a high output gas turbine. The former is connected to a single, large diameter first pump stage; the latter to both the single large diameter stage and the second

smaller diameter stage, whereby the second state is operated at a higher rotational speed. Suitable clutch means,



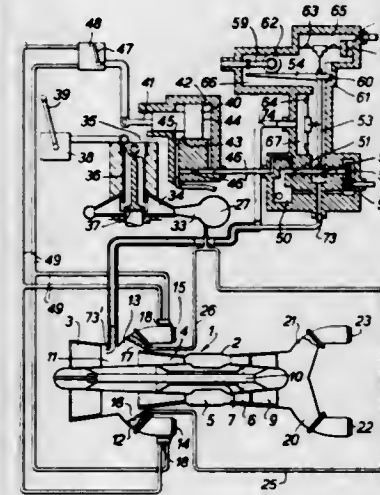
preferably over running clutches provide for smooth transition from the Diesel to turbine power mode and vice versa.

3,601,990
GAS TURBINE JET PROPULSION ENGINE
Christopher Linley Johnson, Derby, England, assignor to Rolls-Royce Limited, Derbyshire, England
Filed June 20, 1969, Ser. No. 835,082
Claims priority, application Great Britain, June 24, 1968, 30104768
Int. Cl. F02k 3/02; F02c 9/08
U.S. Cl. 60-224



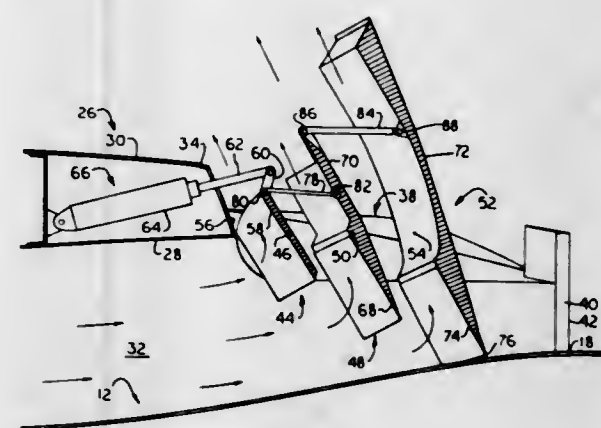
A gas turbine jet propulsion engine having compressor means, main combustion equipment, turbine means and first nozzle means in flow series; second nozzle means which receive compressed air from at least part of the compressor means via conduit means which bypass the main combustion equipment and turbine means; additional combustion equipment for burning fuel in the said conduit means; a fuel supply control unit for controlling the supply of the said fuel, measuring means for measuring the dynamic pressure in the conduit means upstream of the additional combustion equipment and for measuring a pressure functionally related to the dynamic pressure at the second nozzle means when fuel is supplied to the additional combustion equipment; and control means which are acted upon by said measuring means and which control the fuel supply to the additional combustion equipment to maintain a substantially constant relationship between the said dynamic pressures in the conduit means upstream of the additional combustion equipment and at the second nozzle means.

3,601,991
GAS TURBINE JET PROPULSION ENGINE
Christopher Linley Johnson, Derby, England, assignor to Rolls-Royce Limited, Derbyshire, England
Filed Sept. 9, 1969, Ser. No. 856,427
Claims priority, application Great Britain, Sept. 11, 1968, 43258/68
Int. Cl. F02k 1/18, 3/00
U.S. Cl. 60-224



The invention concerns a gas turbine jet propulsion engine having compressor means, main combustion equipment, turbine means and first nozzle means in flow series; variable area second nozzle means which receive compressed air from at least part of the compressor means via conduit means which bypass the main combustion equipment and turbine means; nozzle area adjustment means for varying the area of the second nozzle means; additional combustion equipment for burning fuel in the said conduit means; a fuel supply control unit for controlling the supply of the said fuel, measuring means for measuring the dynamic pressure in the conduit means upstream of the additional combustion equipment, and control means which are acted upon by said measuring means and which control the nozzle area adjustment means.

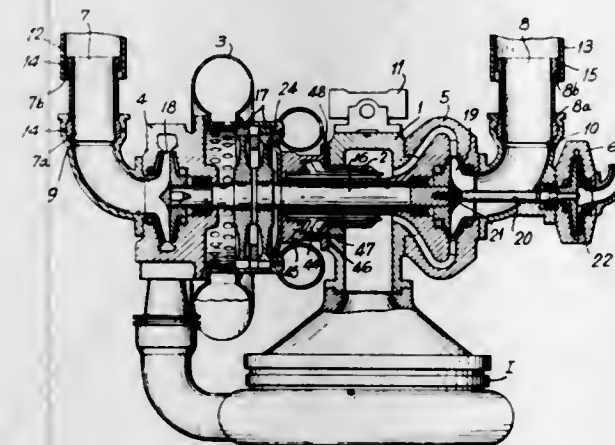
3,601,992
THRUST REVERSING APPARATUS
Richard L. Maison, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed June 10, 1970, Ser. No. 45,139
Int. Cl. F02k 3/02
U.S. Cl. 60-226



Fan jet engine has cowl surrounding engine and terminating in jet exhaust nozzle. Elongate streamlined shroud surrounds fan and engine to define annular duct for fan air terminating forward of exit end of nozzle. Main body of shroud terminates in transverse plane, and peripherally spaced support struts extend rearwardly to define peripherally spaced outflow passages for diverted fan air. Nozzle ring may be attached to aft ends of support struts to provide unit structure. Set of blocker doors overlies each other in each passage and

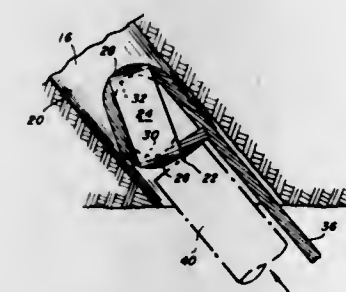
are pivoted on transverse axes which are spaced fore and aft. All doors in a set are stowed and deployed in unison by an actuator. Aft ends of aft doors when deployed contact cowl and block rearward flow. When deployed, all doors diverge forward to produce cascade effect with forward air flow component. Forward doors do not contact shrouds, and aft end of each succeeding door is closer to the cowl to intercept and deflect different portions of air stream. Forward ends of doors are similarly stepped to deliver reverse thrust air at different radial distances outward of the shroud.

3,601,993
TURBOPUMP FOR ROCKET ENGINES
Henri Bringer, 26 Allee des Penitents, Vernon 27, France
Filed Apr. 2, 1970, Ser. No. 24,993
Claims priority, application France, Apr. 3, 1969, 6910190
Int. Cl. F02k 3/00
U.S. Cl. 60-240



A turbopump is provided for a liquid-fuel rocket engine using two power propellants, namely a noncryogenic oxidizer and a noncryogenic fuel. The turbopump feeds the rocket engine at high pressure. The pump-driving turbine of the turbopump is fed by gases from a generator produced by the combustion of the two propellants and cooled by the injection of water. A regulator is connected between the generator and the propellant pumps of the turbopump to control the speed of the turbine in accordance with engine combustion pressure to maintain a substantially constant pressure. The propellants are fed to the engine injection via a balancing device which regulates the propellant delivery pressures so that they are equalized.

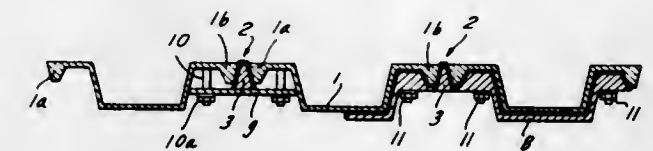
3,601,994
METHOD AND APPARATUS FOR MINE ROOF SUPPORT
Alex J. Galis, Box 480, Rte 3, Albany, Ga.
Filed Aug. 14, 1969, Ser. No. 849,963
Int. Cl. E21d 21/00
U.S. Cl. 61-45 R



A roof support for underground mines having angular support holes drilled in the roof adjacent the pillar walls. One end of a flexible cable reeved about a wedge member is inserted in one of the support holes and the end of the cable is wedged against the side walls of the support hole. The other end of the cable is inserted in the other support hole on the

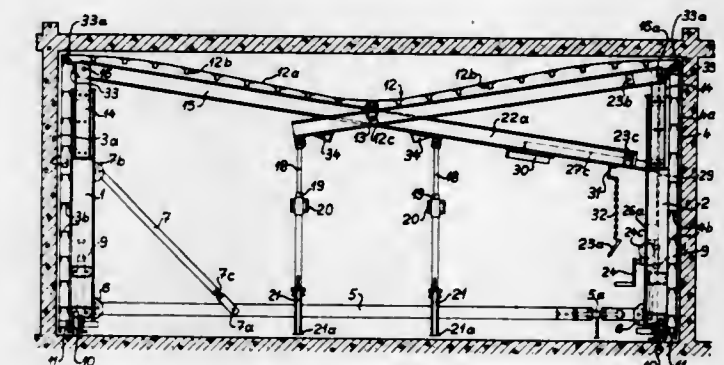
opposite side of the passageway with the cable end portion reeved about a wedge member. The wedge member with the cable end portion is urged upwardly into the other support hole until the cable stretches a preselected amount. The wedge member is then released and wedges the cable end portion against the walls of the other support hole to provide a cable under tension extending between the angularly positioned support holes and supporting the roof therebetween. Where desired, elongated support members may be positioned between pairs of tensioned cables and the roof to provide additional support. Another embodiment includes inserting separate strands of flexible cable in both support holes, connecting the free ends of the strands to each other and wedging one cable in one support hole and exerting a force on the other wedge member in the other bolt hole to tension the connected strand members.

3,601,995
SHORING CONSTRUCTION
Rudolf Siez, Herrsching, Ammersee; Hans-Gunther Lichtenbaumer, Ottweiler (Saar); Joachim Neefe, Bochum; Wolfgang Scheer, Bochum; Franz Gantke, Dortmund-Wickede, and Walter Zywiets, Dortmund-Kirchhorde, all of, Germany, assignors to Hoesch AG, Dortmund, Germany and Bochumer Eisenhütte Heintzemann & Co., Bochum, Germany
Filed Dec. 12, 1968, Ser. No. 784,295
Claims priority, application Germany, Dec. 12, 1967, P 16 58 739.6
Int. Cl. E21d 11/22
U.S. Cl. 61-45



A shoring for underground passages includes a plurality of annular supporting frame members which are arranged axially of one another and whose adjacent axial end portions are provided with juxtaposed endfaces, each two juxtaposed endfaces defining with each other a circumferentially extending gap. An annular wedging frame closes the respective gaps in such a manner as to provide for substantially uniform transmission of tensile or compressive stresses between the adjacent supporting frame members at all circumferential locations, and provides for such closing regardless of the angular inclination of the juxtaposed endfaces with respect to one another as long as this inclination is within a predetermined range.

3,601,996
RETRACTABLE TUNNEL-TYPE SHUTTERING
Victor Levy, Lille, France, assignor to Building Equipments Corporation S. A., Fribourg, Switzerland
Filed Dec. 30, 1969, Ser. No. 889,355
Int. Cl. E21d 19/04
U.S. Cl. 61-45 C



Retractable shuttering comprising a pair of frame members for supporting a length of side and top formwork for casting

a tunnel, each frame member comprising a pair of side uprights an extensible member connectable between lower end portions of said side uprights and a pair of members each articulated to an upper end of said uprights and articulated to one another at or near the central plane of said tunnel, the pair of members articulated to one of said pairs of uprights extending to the other pair of uprights and being movable vertically along said other pair of uprights, said pair of members being solidly joined by at least one section substantially in the plane of said pair of members to a rack and pinion device to enable lifting or lowering said pair of members respectively to or from an in-line position.

3,601,997

PIT PROP UNIT SENSING DEVICES

Hans Riesel, Miltenberg, and Bodo-Werner Ratz, Essen, both of Germany, assignors to Bergwerksverband GmbH, Essen-Kray, Germany

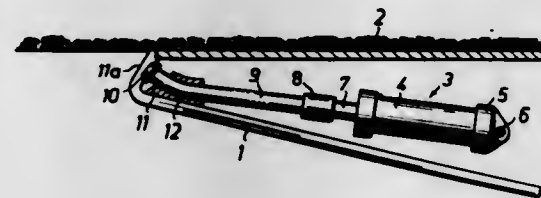
Filed Sept. 15, 1969, Ser. No. 857,879

Claims priority, application Germany, Sept. 20, 1968, P 17 83 025.0

Int. Cl. E21d 23/06

U.S. Cl. 61-45 D

2 Claims



This invention relates to a pit prop unit having a device which acts to sense obstructions located in the vicinity of the working face and in the path of the self-advancing mine-roof support unit as it moves forward, this device having a thrust-piston mechanism actuated by pressurized fluid and attached to a cap piece on the forward side of the unit, the thrust-piston mechanism being extended by a laterally flexible sensor which acts to feel an obstruction and finds abutment against it to counteract the thrust of the thrust-piston mechanism.

3,601,998

CONTROL OF MINE ROOF SUPPORT ASSEMBLIES

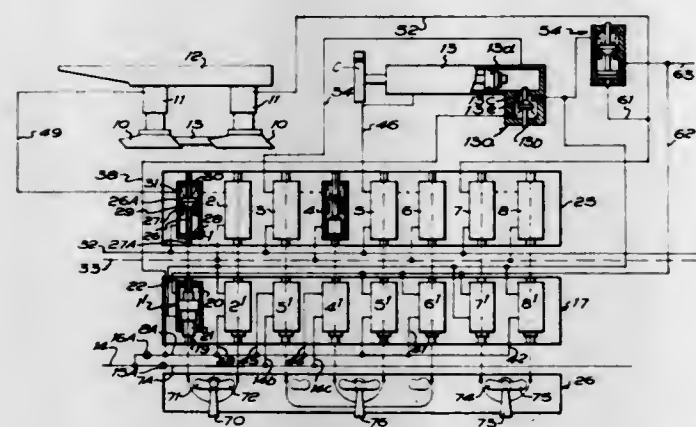
Lewis R. Bower, Sheffield, England, assignor to A. G. Wild & Co., Limited

Filed Feb. 19, 1969, Ser. No. 800,663

Int. Cl. E21d 15/44

U.S. Cl. 61-45

6 Claims



A hydraulic system for controlling the advance of a series of self-advancing, powered mine roof supports of the type each having at least one double acting advancing ram arranged generally horizontally, and at least two roof supporting chock legs arranged substantially vertically, and each connected to an armored face conveyor, the system comprises one or more fluid pressure lines and one or more fluid exhaust lines connected to each support, a pilot pressure line,

and a "pull" conduit and a "push" conduit connected to each support and to said pilot pressure line whereby supply of fluid along the "pull" conduit causes the advance of that support relative to the conveyor, and whereby supply of fluid along the "push" conduit causes the advance of conveyor relative to the supports. A hold circuit is provided for actuation during the advancing operation to trap fluid in the ram of each support not being advanced to hold the conveyor in place to assure forward movement of the then advancing support.

3,601,999

METHODS OF GROUTING OFFSHORE STRUCTURES

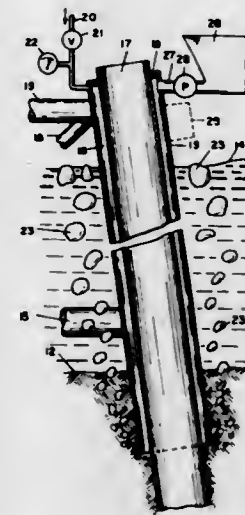
Horace W. Olsen, 2038 North Blvd., Houston, Tex., and Max Bassett, P.O. Box 808 South, South Houston, Tex.

Filed Sept. 18, 1969, Ser. No. 858,951

Int. Cl. E02b 17/00; E02d 5/24

U.S. Cl. 61-46

1 Claim



Compressed air is introduced into an annular space existing between the jacket and piling in the legs of an offshore structure, so that water is expelled from the annular space through the lower end of the jacket and grouting material is then introduced into the annular space. The introduction of compressed air and grouting material is effected from above the waterline, thus avoiding the necessity of performing the grouting operation by divers at the sea bed.

3,602,000

REINFORCED STEEL PIPE PILING STRUCTURE

Homayoun Joe Meheen, Box 515, Rte. 3, Golden, Colo.

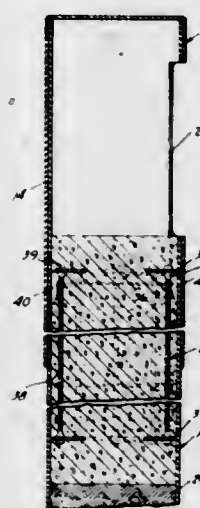
Continuation-in-part of application Ser. No. 712,187, Mar. 11, 1968, now Patent No. 3,403,707, dated July 16, 1969.

This application Sept. 19, 1969, Ser. No. 859,403

Int. Cl. E02d 5/40, 5/58; E04c 3/34

U.S. Cl. 61-46

10 Claims



Reinforcement for steel pipe piles and piling structure such as that supporting an offshore oil platform, which has deteriorated and lost its strength. The pile is reinforced in situ by

cutting an access opening into its interior, or cutting such an access opening through the pile to communicate with the interior of a steel bracing pipe in the structure, and introducing a partially prestressed and partially reinforced concrete column inside the steel shell.

3,602,001

THERMOELECTRIC HEATING AND VENTILATING DEVICE

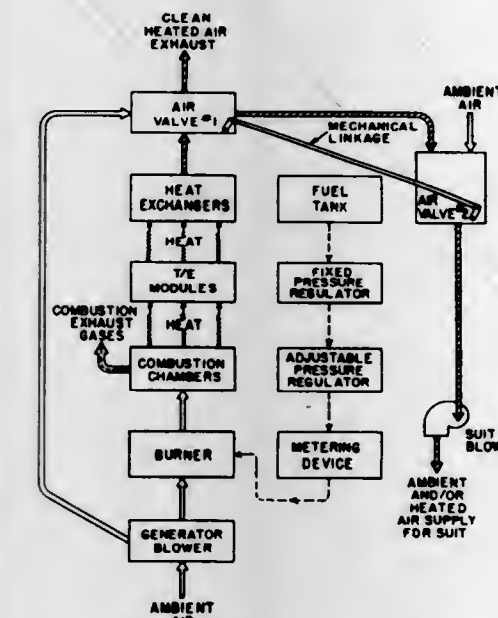
Siegfried F. Bauer, Lima, Ohio; Andrew M. Bernard, McMurray, Pa.; Leonard J. Fox, Lima, Ohio, and Leo A. Spano, Cumberland, R.I., assignors to The United States of America as represented by the Secretary of the Army

Filed May 5, 1970, Ser. No. 34,779

Int. Cl. F25b 21/02

U.S. Cl. 62-3

9 Claims



A self-powered, heating and ventilating device for ventilating the interior of an impermeable garment which utilizes an electrically powered fan to propel heated or ambient air within the garment. The electrical energy is produced by a thermoelectric generator which converts thermal energy, produced by the combustion of a liquid fuel, to electrical energy. The heated air utilized to heat the interior of said garment is obtained from heat rejected by finned elements on the cold side of the generator.

3,602,002

FLUID HANDLING AND STORING OF MAKE-UP REFRIGERANT

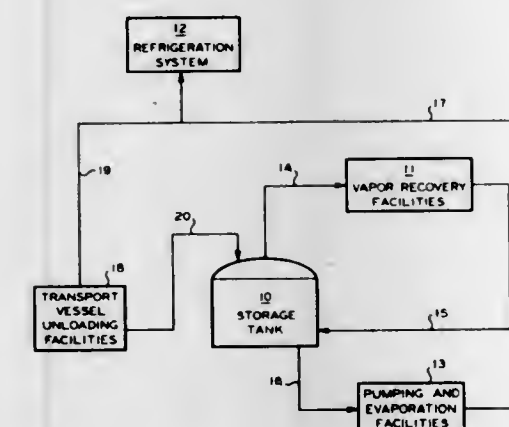
Dunn M. Bailey, and Joseph T. Karbosky, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed June 2, 1969, Ser. No. 829,254

Int. Cl. F17c 7/02; F25b 45/00

U.S. Cl. 62-53

6 Claims



Liquid cryogenic refrigerant is transferred from a pressurized transport vessel to a low-pressure supply tank in cryogenic refrigeration system by passing vapors from the

vessel to the refrigeration system and passing the resulting cooled liquid from the vessel to the supply tank.

3,602,003

METHOD OF AND APPARATUS FOR TRANSPORTING CRYOGENIC LIQUIDS

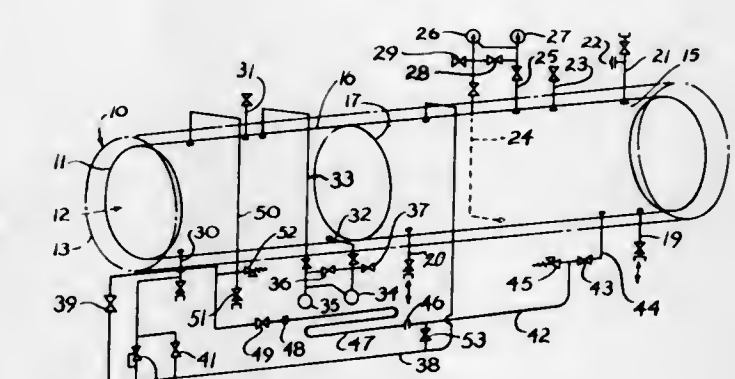
Robert S. Hampton, Livermore, Calif., assignor to Lox Equipment Company, Livermore, Calif.

Continuation-in-part of application Ser. No. 756,554, Aug. 30, 1968, now abandoned. This application Mar. 20, 1969, Ser. No. 808,765

Int. Cl. F17c 13/00; B65d 25/00

U.S. Cl. 62-54

12 Claims



A method of and apparatus for reducing the rate at which the heat content of a cryogenic liquid such as liquefied oxygen or nitrogen increases as a consequence of its being necessarily shipped in a partially filled container. The method includes dividing a predetermined volume of the liquid which ordinarily would be loaded into a shipping container therefor into major and minor fractions, the first of which is significantly larger than the second. The major fraction is confined within a container compartment having substantially the same volume as that of the major fraction, and the minor fraction is confined within a container compartment having a substantially larger volume than that of the minor fraction so as to accommodate any enlargement in the volume of the major fraction as a consequence of increases in the heat content thereof. Any such increases in the volume of the major fraction are withdrawn from the container compartment confining the same and are delivered to the container compartment confining the minor fraction.

The apparatus includes a tank car having a large container provided with inner and outer wall structures separated from each other to define a heat-insulated space therebetween. The container is subdivided by a bulkhead into major and minor compartments, and means are provided for filling the container with a cryogenic liquid and for withdrawing such liquid therefrom. The minor and major compartments are flow interconnected by valve-equipped conduits that enable any overflow of liquid from the major compartment resulting from temperature-induced volumetric increases in the liquid confined therein to pass into the minor compartment.

3,602,004

HEAT EXCHANGE DEVICE

James E. Peavler, Maryland Heights, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Apr. 2, 1969, Ser. No. 812,765

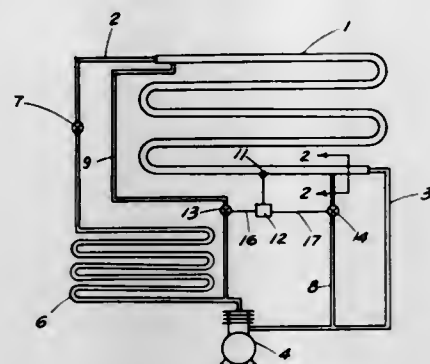
Int. Cl. F25b 41/00

U.S. Cl. 62-197

7 Claims

A heat exchanger to temper a selected fluid having a first conduit adapted to receive a first fluid of selected temperature to transfer a tempering effect to the selected fluid and a second conduit disposed in heat transfer relation with the first conduit where the fluid to be tempered passes over the surface of the second conduit. A gas is selectively supplied to

the second conduit to control the rate of heat transfer through the second conduit and the pressure of the gas in the



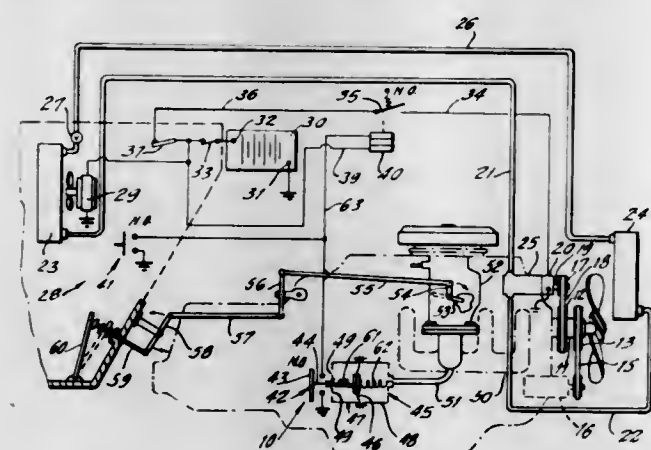
annular chamber is varied to control the surface temperature of the second conduit.

3,602,005 AUTOMATIC CONTROL FOR AUTOMOTIVE AIR CONDITIONER

Henry B. Kaye, 857 Schenck Ave., Brooklyn, N.Y.
Filed Nov. 7, 1969, Ser. No. 874,775
Int. Cl. F25b 27/00

U.S. Cl. 62-230

2 Claims



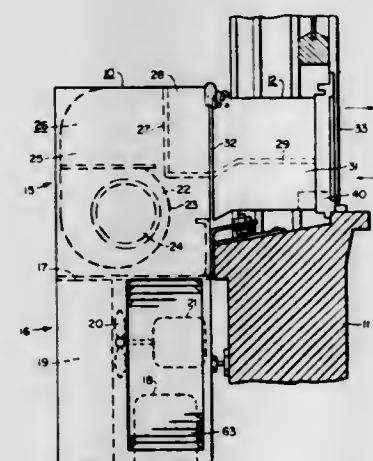
Energization and deenergization of the magnetic clutch coupling an air conditioner compressor to an automobile engine is controlled automatically by a vacuum switch responsive to the vacuum level in the intake manifold.

3,602,006 ROOM AIR CONDITIONER

Frederick S. Metcalfe, Columbus, and Edward M. Wuesthoff, Worthington, both of Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 15, 1969, Ser. No. 857,914
Int. Cl. F25d 23/12

U.S. Cl. 62-262

8 Claims



A room air conditioner of the character having a main section depending along an outside building wall below the

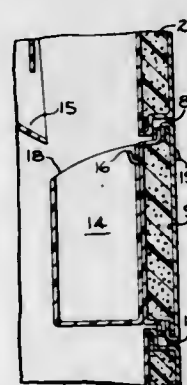
building opening and with a duct section connected to the building opening, the main section including an upper room air section and a lower outside air section, the room air section including a pair of centrifugal fans disposed with their axes extending horizontally and located in the lower part of the room air section with the centrifugal fan housings oriented to provide an upblast disposition, the fan discharge being conveyed upwardly and forwardly through a pair of ducts having expanding end sections at the upstream face of an evaporator extending across substantially the entire width of the room air section and disposed in registry with the upper air passage of the duct section.

3,602,007 REFRIGERATOR INCLUDING THROUGH-THE-DOOR ICE SERVICE

Philip J. Driegl, Wheaton, Ill., assignor to General Electric Company
Filed Oct. 16, 1969, Ser. No. 866,832
Int. Cl. F25c 5/18

U.S. Cl. 62-344

5 Claims



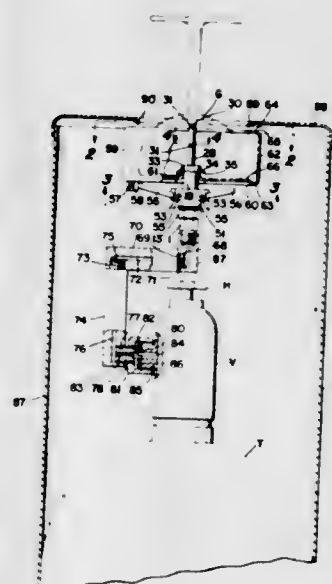
A refrigerator having an automatic ice maker includes an ice piece storage receptacle carried by a pivotally mounted ice access door in the freezer door and tiltable to an open position for providing access to the stored ice without opening of the freezer door.

3,602,008 DRINKING GLASS FROSTER

Zar W. Kelley, 8438 Broadview Road, Cleveland, Ohio
Filed Nov. 28, 1969, Ser. No. 880,874
Int. Cl. F25d 17/00

U.S. Cl. 62-373

3 Claims



A drinking glass froster is provided which enables a glass, such as a cocktail or champagne glass, to be frosted both internally and externally, to thereby retain the glass in its cold condition for longer periods. The froster is of extremely compact construction and design, and is characterized by the fact that it can be quickly and easily assembled and disassembled, with all parts readily accessible for repair or replacement

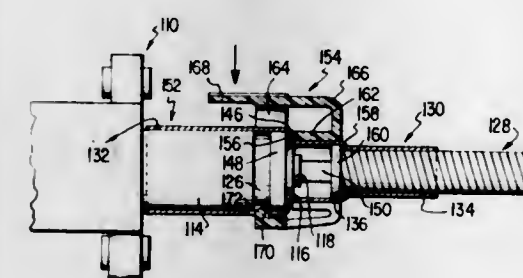
purposes. It is designed especially for use in conjunction with small tanks of liquid carbon dioxide.

3,602,009 SNAP ON FERRULE

Patrick L. Powell, Franklin Park, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill.
Filed Sept. 25, 1969, Ser. No. 861,056
Int. Cl. F16c 1/06

U.S. Cl. 64-4

5 Claims



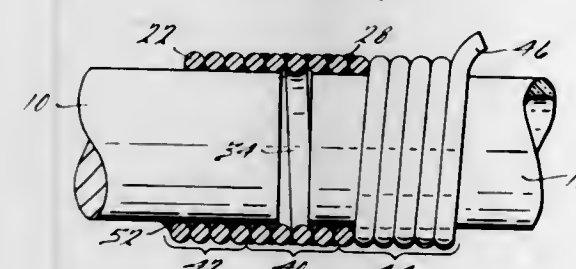
A unitary plastic ferrule for coupling a speedometer cable to a speedometer input shaft is formed of two different sized tubular portions having a longitudinally extending, flexible, integral latch, intermediate of the ends of one of the tubular portions to present full circumferential contact between the concentric ferrule and the tubular boss to which it is latched.

3,602,010 SHAFT COUPLING MEANS FOR HIGH TEMPERATURE ROLLS AND THE LIKE

Eugene W. Hines, Saline, Mich., assignor to New Hudson Corporation, New Hudson, Mich.
Filed Apr. 29, 1969, Ser. No. 820,248
Int. Cl. F16c 3/52

U.S. Cl. 64-15 C

8 Claims



There is herein disclosed shaft coupling means comprising a coiled spring means mounted in gripping engagement with and circumjacent spaced cylindrical end portions with a coil retainer means associated with a central portion of the coiled spring means.

3,602,011 APPARATUS FOR FORMING A KNITTED PILE ON A BASE FABRIC

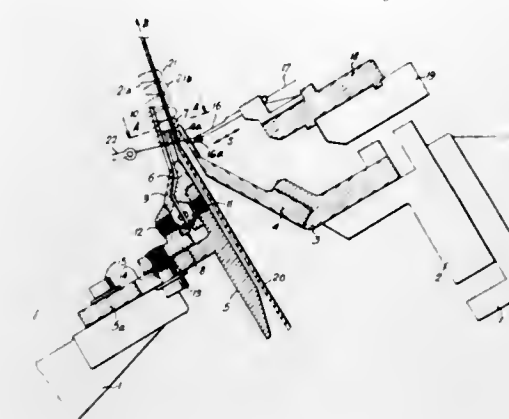
Bohumil Barton, Kdyně, and Jaromir Sedlecký, Praha, both of Czechoslovakia, assignors to Elitex, Zavody Textilního Strojirenství, Generalní ředitelství, Liberec, Czechoslovakia
Filed Mar. 4, 1969, Ser. No. 804,141
Claims priority, application Czechoslovakia, Mar. 5, 1968, 1717/68
Int. Cl. D04b 23/06

U.S. Cl. 66-85

10 Claims

Pile loops are knitted into a base sheet by reciprocating latch needles which penetrate in a forward stroke the base

sheet between stationary, but adjustable plush sinkers and then receive pile threads from thread guides so that the pile



3,602,012 DETACHABLE HOSE WITH KNITTED FABRIC LOOPS

Aaron Burleson, Burlington, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.
Filed July 2, 1968, Ser. No. 742,082
Int. Cl. D04b 9/54

U.S. Cl. 66-172

6 Claims



A stocking welt is provided with integral, knitted fabric loops by which the stockings are attached to a panty or girdle garment by a fastener of small and thin dimensions. The loops are formed by float stitching wherein a number of selected needles are pulled down to sinker level, where they do not take any yarn, kept there for a selected number of courses and then placed back in action with the needles again taking yarn.

3,602,013 RUN-RESISTANT STOCKING TAB

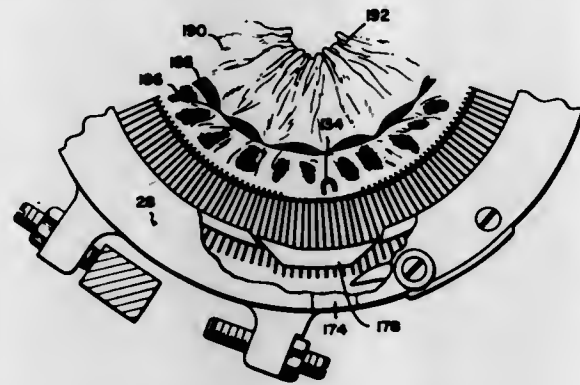
John J. Millar, Laconia, N.H., assignor to Scott & Williams, Inc., Laconia, N.H.
Division of Ser. No. 703,949, Feb. 8, 1968, Pat. No. 3,488,981, which is a continuation-in-part of application Ser. No. 680,226, Nov. 2, 1967, now abandoned. Divided and this application June 6, 1969, Ser. No. 840,893
Int. Cl. D04b 9/24, 9/54

U.S. Cl. 66-172

1 Claim

A stocking knit of thermoplastic yarn with a turned welt. A tab knit of thermoplastic yarn is knit to the welt and in-

cludes a group of intermediate courses in which stitches are heat fused with concatenating stitches to present a barrier to



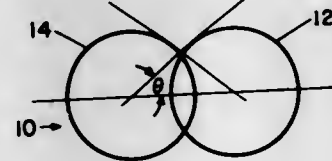
running. Terminal tab courses are removed by breaking the embrittled fused stitches of intermediate courses.

3,602,014

LADIES HOSIERY OF IMPROVED STRETCH PROPERTIES MADE FROM BIFILAMENT YARNS
James MacDonald, Jr., Columbia, S.C.; Thomas F. Ballentine, Hopewell, and Orville E. Snider, Petersburg, Va., assignors to Allied Chemical Corporation, New York, N.Y.
Filed May 31, 1968, Ser. No. 733,491
Int. Cl. D04b 1/16

U.S. Cl. 66-202

1 Claim



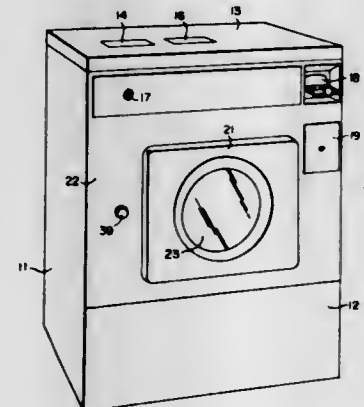
Textile garments such as ladies' hosiery and panty hose have improved stretch characteristics when knitted from bifilament yarns possessing a figure-eight-type cross section comprised of two prominent lobes connected by concave side portions of uniform symmetry. The particular geometry of these bifilaments causes preferential alignment at yarn crossing points whereby a random amount of twist is imparted to a knitted construction and entrapped between loop sections forming the network of the garments to enhance their stretch characteristics as compared to garments prepared from yarns having differently shaped cross sections.

3,602,015

ELECTROMECHANICAL INTERLOCK FOR LAUNDRY APPARATUS
John D. Hughes, Loudonville, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 17, 1969, Ser. No. 807,712
Int. Cl. D06f 33/02, 39/14

U.S. Cl. 68-12

2 Claims



Interlock for the door of a clothes washing machine or the like. The interlock is characterized by the provision of a sole-

noid-actuated door lock, which solenoid is operatively connected to a source of electrical power by means of a condition responsive structure and also by a manually operable switch. Energization of the solenoid serves to unlatch the door lock to thereby provide a "fail-safe" device, which can only be opened when the machine is not operating and by actuation of the manual operable switch.

3,602,016

APPARATUS FOR THE TREATMENT OF YARNS AND FABRIC

Paul Dubach, Wetzikon, Switzerland, and Paul Guillemin, le Coteau, France, assignors to Heberlein & Co. AG., Wattwil, Switzerland

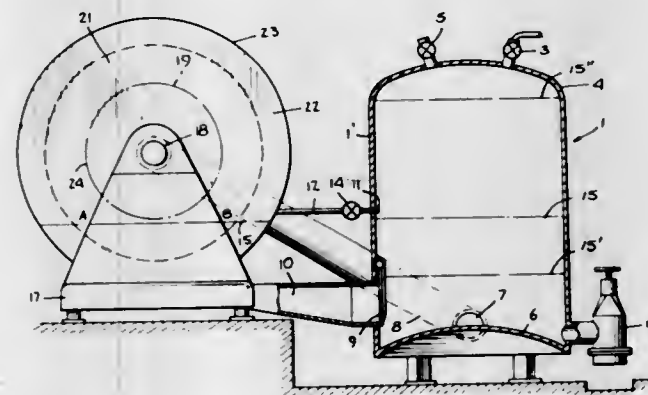
Filed Feb. 9, 1970, Ser. No. 9,482

Claims priority, application Switzerland, Mar. 31, 1969, 4863/69

Int. Cl. B05c 8/02

U.S. Cl. 68-150

6 Claims



Apparatus for treating yarns and webs of material wherein a rotating perforated drum is positioned within a closed casing and has an inner centrifugal pump delivering treating fluid through the perforations to yarns or webs wound on the outer surface of the drum.

3,602,017

LOCKING MECHANISM

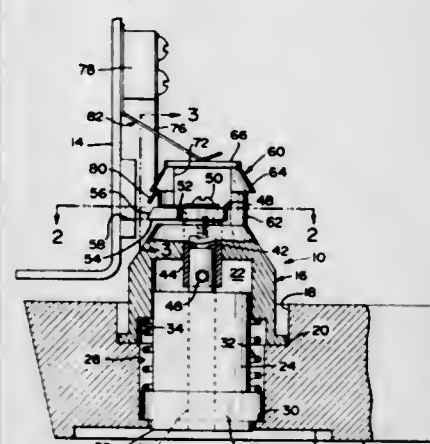
Werner R. Bauer, Radnor, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Feb. 13, 1970, Ser. No. 11,079

Int. Cl. E05b 59/00, 65/44

U.S. Cl. 70-78

12 Claims



A locking mechanism including a mounting member carrying a slotted housing with a protruding edge around an end thereof, a lock cylinder slidably disposed in a bore in the mounting member and having a key plug rotatably housed therein, an L-shaped pawl coupled with the key plug and disposed in a cutaway portion of the housing to permit rotation thereof, a latching spring arm aligned with a slot in the housing and engaging the protruding edge to latch the locking mechanism, and a spring member abutting the housing to force the housing away from the latching arm. The locking mechanism is unlatched by axial movement of the

lock cylinder which causes the pawl to disengage the latching arm from the protruding edge.

3,602,018

MOTOR VEHICLE LOCK

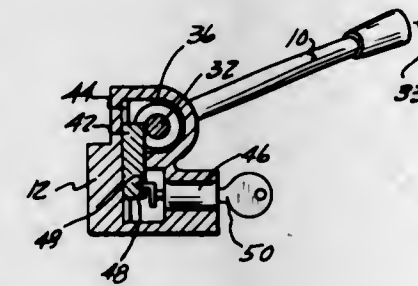
Arnold Eisenman, 18636 Cherrylawn, Detroit, Mich.
Division of Ser. No. 616,522, Feb. 6, 1967, Pat. No. 3,431,755

Filed Mar. 7, 1969, Ser. No. 840,557

Int. Cl. G05g 5/06; B60r 25/06

U.S. Cl. 70-202

3 Claims



A locking mechanism for preventing the control or shift lever of a motor vehicle from being manually displaced from a latched position to an unlatched position permitting the lever to shift the transmission by angular displacement to predetermined positions. A restraining member is engaged with a portion of the lever or with the unlatching means to hold the lever in a latched position when a lock, to which the restraining member is operatively connected, is locked. When the lock is unlocked the restraining member is disengaged from the lever or from the latching means and permits the lever to be unlatched.

3,602,019

DOOR-LOCKING ARRANGEMENT FOR AUTOMOTIVE VEHICLE

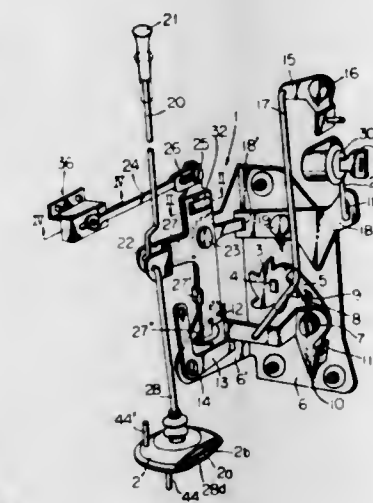
Kenichi Kazaoka, Kariya-shi, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed July 1, 1969, Ser. No. 838,125

Int. Cl. E05b 65/36, 65/38

U.S. Cl. 70-264

7 Claims



A locking arrangement for the automotive vehicle doors in which a manipulating means is connected with a locking means in a disengageable connection normally engaged for moving said locking means from the locked position to the unlocked position, or vice versa, as required. The locking means moves together with the manipulating means until the locking or unlocking is completed. After the locking or unlocking is accomplished, the manipulating means can continue further movement for the sake of operating a switching means to connect an energy source with an automatic locking means, leaving the locking means in the locked or unlocked position.

3,602,020

LOCK

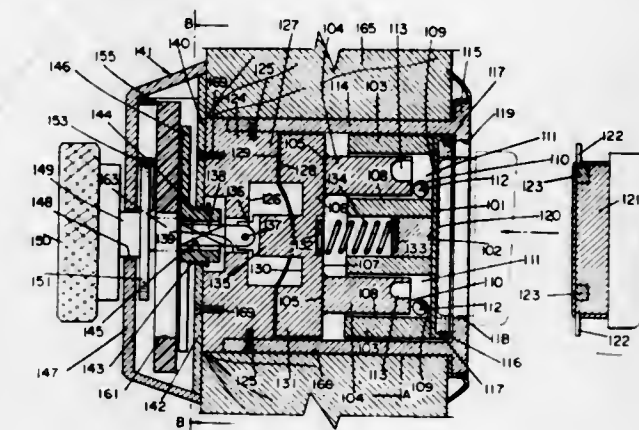
Tomomasa Kajita, 545 Ooka-shi, Abeno-ku, Maruyama-dori 2-chome 3 ban 18-go, Osaka, Japan

Filed Mar. 25, 1969, Ser. No. 810,191

Claims priority, application Japan, Jan. 20, 1969, 44/4241
Int. Cl. E05b 47/00, 27/00

U.S. Cl. 70-276

9 Claims



The present invention relates to a locking instrument effective to be easily constructed with simple structure, wherein said locking instrument can be released or locked by depositing floating balls to a predetermined position through magnetic attraction exerted by a magnetic key, said floating balls being freely movably mounted in cylindrical spacings formed between cylindrical barrels having one end closed and piston-like members relatively slidably engaging each other defining therewith a shallow ball chamber, the diameter of each floating ball being smaller than that of each bottom plane of said cylindrical barrels and slightly less than the depth of the ball chamber while locking axial sliding of said pistonlike member, said floating balls being effective to enter into and snugly be accommodated in the interior of a recessed portion provided on the free end plane of the pistonlike member, additaments being provided in said free end plane to oppose movement of said ball into a position aligned with said recess and means coupling said barrel member and pistonlike member to an actuating member whereby when said ball is aligned with said recess said pistonlike member is freed to penetrate into said barrel member and said actuating member is conditioned to move from said locking to said unlocking position.

3,602,021

COMBINATION LOCK

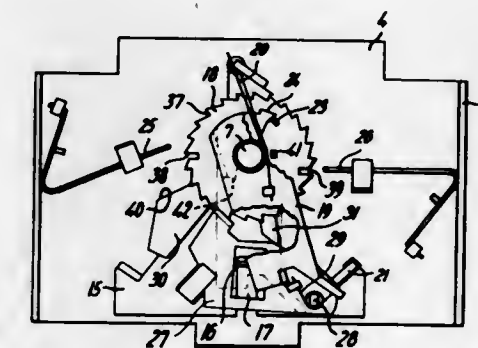
Poul Martins, Lybaekgade 10, 2300 Copenhagen, Denmark
Filed Dec. 18, 1969, Ser. No. 886,361

Claims priority, application Denmark, Dec. 19, 1968, 6249/68

Int. Cl. E05b 37/00, 67/28

U.S. Cl. 70-313

11 Claims



A combination lock having a single ratchet wheel with at least one tooth space of greater depth than the other tooth spaces. The ratchet wheel is moved in a predetermined com-

bination along a single plane and rotationally advanced in a continuous manner. A cancelling member is capable of releasing the ratchet wheel if the predetermined combination is not followed. The lock is released after the predetermined combination has been followed and the ratchet wheel is moved in a transverse direction to the plane of the combination movements.

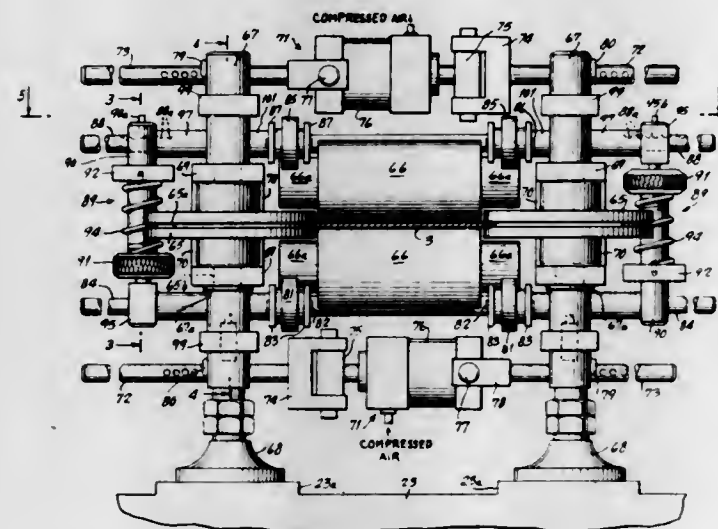
3,602,022

REMOVABLE ROLL APPARATUS FOR ROLLING THE EDGES OF STRIP METAL

Lucas J. Conrad, and John R. Everhart, both of Winston-Salem, N.C., assignors to Archer Products, Incorporated, Winston-Salem, N.C.
Division of Ser. No. 632,758, Apr. 21, 1967, Pat. No. 3,479,852
Filed Aug. 28, 1969, Ser. No. 870,753
Int. Cl. B21b 45/00, 31/08

U.S. Cl. 72—40

2 Claims U.S. Cl. 72—60



Apparatus for rounding the edge of an elongated strip of metal, e.g., aluminum. The edge is rounded by rolling and cleaning techniques. Edge forming rolls rotate on vertical axes and have round grooves which receive an edge of the strip. Edge thickness control rolls overlap the edges of the strip and engage the marginal flat surfaces thereof. The edge thickness control rolls are mounted on caster supports so that their axes of rotation tend to assume directions at right angles to the motion of the strip. Both the edge forming rolls and the edge thickness control rolls are rotated only by their contact with the moving strip. Rolls are readily demountable. Supports allow rolls to follow lateral movements of strip without stressing it.

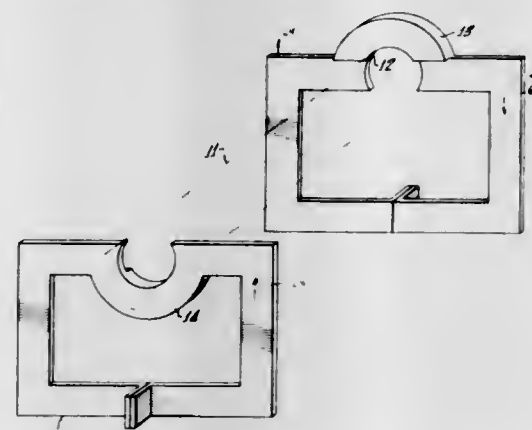
3,602,023

TWO PIECE MAGNETIC SWAGING DEVICE

Harold P. Furth, 55 Locust Lane, Princeton, N.J.
Filed Feb. 7, 1969, Ser. No. 807,476
Int. Cl. B21d 26/14

U.S. Cl. 72—56

7 Claims



This invention relates to devices for coupling metallic tubes and in particular to a two piece magnetic swaging

device having a split single turn winding in the form of a rectangular assembly with upper and lower symmetrical parts with semicylindrical recesses therein selectively joined to form the swaging device. The upper and lower pieces each consists of a solid half-turn coil with an extension which overlaps the extension of the other piece to provide parallel current paths and reduced circuit inductance.

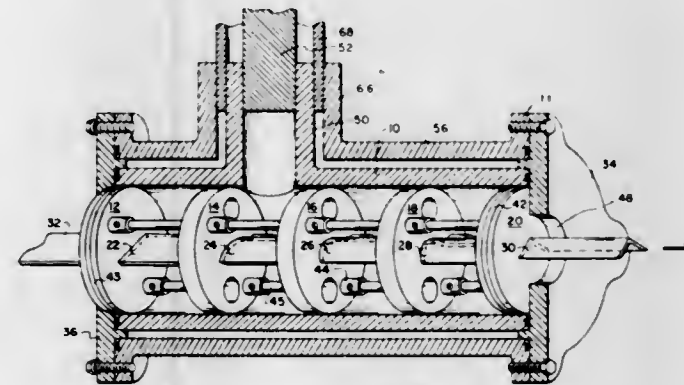
3,602,024

HYDROSTATIC BENDING AND DIE FORMING

Alvin M. Sabroff, Columbus, and Robert J. Fiorentino, Worthington, both of, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio
Continuation of application Ser. No. 683,522, Nov. 16, 1967, now abandoned. This application May 8, 1970, Ser. No. 33,167

Int. Cl. B21c 3/10

6 Claims



A process and apparatus for bending and forming an elongated workpiece into an article of defined cross-sectional shape which consists of pulling the workpiece continuously through a sequence of dies disposed to bend and form the workpiece to the final desired shape while subjecting the surface of the workpiece to fluid hydrostatic pressure.

3,602,025

CONTINUOUS TRANSVERSE ROLLING PROCESS AND APPARATUS

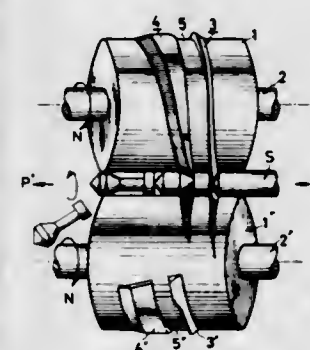
Taikichi Awano, and Atsushi Danno, both of Nagoya-shi, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkijusko, Nagoya-shi, Japan

Filed Feb. 25, 1969, Ser. No. 801,932
Claims priority, application Japan, Mar. 1, 1968, 43/13729

U.S. Cl. 72—71

Int. Cl. B21h 1/00, 8/00, 9/00

10 Claims



An improved process of and apparatus for continuous transverse rolling utilizing a pair of identical rolls, each having on its surface a V-shaped forming projection and a line-shaped feeding projection disposed helically and parallel to one another so that the basic lead angle of said V-shaped forming projection is equal to the lead angle of said feeding

projection, said pair of rolls being driven by shafts held in parallel planes, but the shafts being tilted in said planes so that projections of their center lines onto a plane perpendicular to the shortest line between said shafts will intersect at a point falling on the feed line for stock to be inserted between the rolls, each projected center line of said shafts making the same angle with said feed line, and said angle being equal to the lead angle of said feeding projection and the basic lead angle of said forming projection.

3,602,026

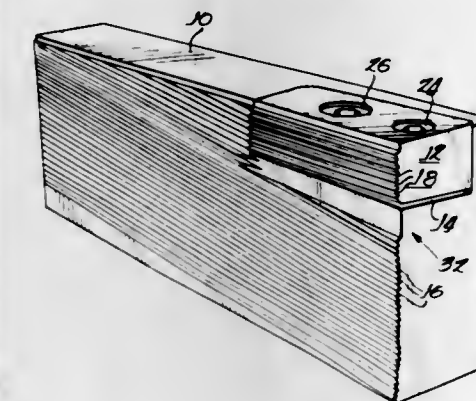
PRODUCTION OF PREVAILING TORQUE THREADED FASTENING DEVICES

Charles J. De Caro, Rockford, and Donald F. Coyne, Davis Junction, both of, Ill., assignors to Elco Industries, Inc., Rockford, Ill.

Filed May 27, 1969, Ser. No. 828,137
Int. Cl. B21h 3/06

U.S. Cl. 72—90

7 Claims



Threaded fastening devices of preselected prevailing torque are produced on conventional thread rolling machines, including flat die and planetary die types, by providing opposed dies with parallel thread-forming grooves, at least one of said dies having provision for adjustably mounting a die insert with identical parallel thread-forming grooves and adjustment means for controlling the angular relationship of the respective thread-forming grooves of the die and die insert.

3,602,027

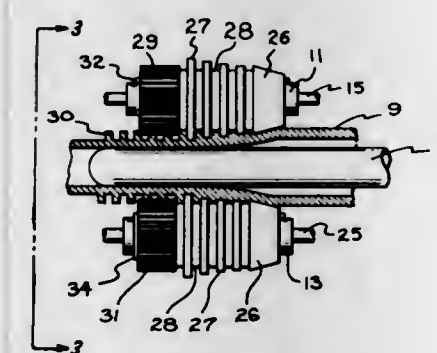
SIMULTANEOUS FINNING AND REFORMING OF TUBULAR HEAT TRANSFER SURFACE

William A. Klug, and Chester D. Ware, both of La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Apr. 1, 1969, Ser. No. 812,053
Int. Cl. B21h 3/00

U.S. Cl. 72—98

6 Claims



An improved machine for forming integral, radially extending, helical fins on tubes incorporates a novel spindle which both forms and then modifies the fins after they are formed to improve heat transfer characteristics of the tubing. Two modifying operations, knurling and bending or shaping the newly formed helical fins, are shown. The improved spindle can be utilized on virtually all finning machines to produce tubing of desired geometry.

3,602,028

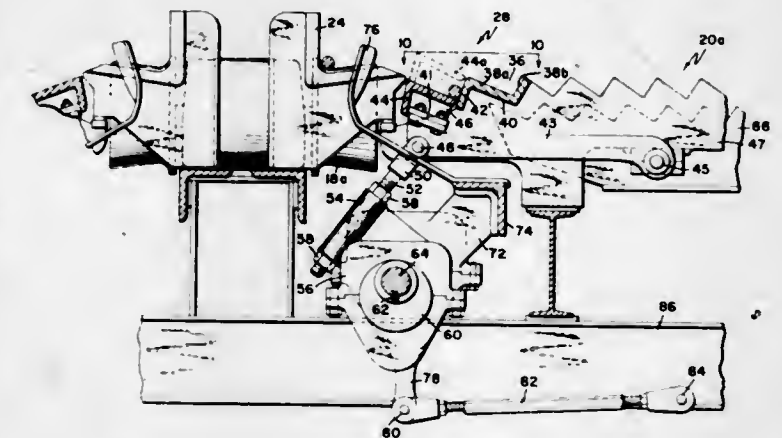
TRANSFER MECHANISM

Kenneth L. Klusmier, Worcester, Mass., and Edmund S. Murrah, Hilton Head Island, S.C., assignors to Morgan Construction Company, Worcester, Mass.

Filed Nov. 14, 1968, Ser. No. 775,670
Int. Cl. B21b 39/20, 43/00, 43/10

U.S. Cl. 72—201

2 Claims



An apparatus for laterally transferring successive axially advancing product lengths from the run-on table of a rolling mill to the receiving end of the cooling bed. The apparatus includes a first sliding notch extending along one side of the run-on table and a second laterally adjacent sliding notch at the receiving end of the cooling bed. Immediately upon being transferred laterally by sweep-off arms from the run-on table into the first notch, a given product length begins to slide to rest. One side of the first notch is then elevated to laterally transfer the sliding product length into the second notch, where it eventually comes to rest. While the product length is being removed from the second notch by the cooling bed carryover rack, the sweep-off arms have already deposited the next successive product in the first sliding notch. The operation of the sweep-off arms and the movable side of the first notch is controlled by eccentrics mounted on a common rotatable shaft.

3,602,029

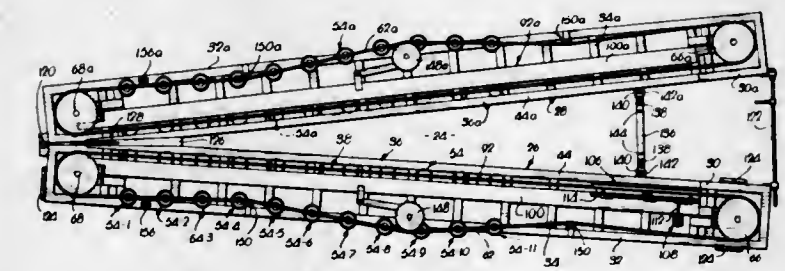
ROLL FORMING ASSEMBLY

Gordon Harold Burke, Jr., Shawnee, Kans., assignor to Reed-Joseph Company, Greenville, Miss.

Filed Apr. 23, 1969, Ser. No. 818,562
Int. Cl. B21d 7/02

U.S. Cl. 72—220

11 Claims



A bending machine has a pair of assemblies, each of which is in turn provided with a pair of counterpart dies. One of the dies is an elongated, stationary form. The other die is a train of progressive rolls mounted on continuous chains and movable along the form to gradually bend the stock of material to the shape of the form. Rollers for each roll engage corresponding backup rails during the bending operation.

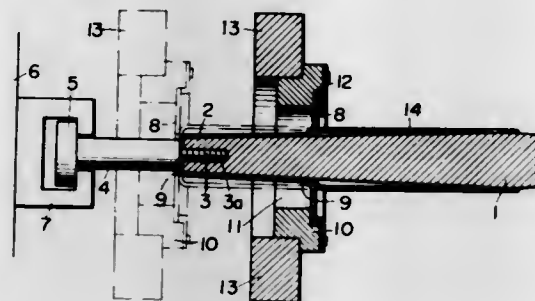
3,602,030 METHOD AND APPARATUS FOR PRODUCING TAPERED TUBE

Yoshio Noda, and Hiromichi Sugiyama, both of Shizuoka-ken, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Oct. 29, 1968, Ser. No. 771,515
Claims priority, application Japan, Feb. 8, 1968, May 15, 1968, May 15, 1968, 43/7568;43/32432;43/39589
Int. Cl. B21c 3/00

U.S. Cl. 72-347

6 Claims



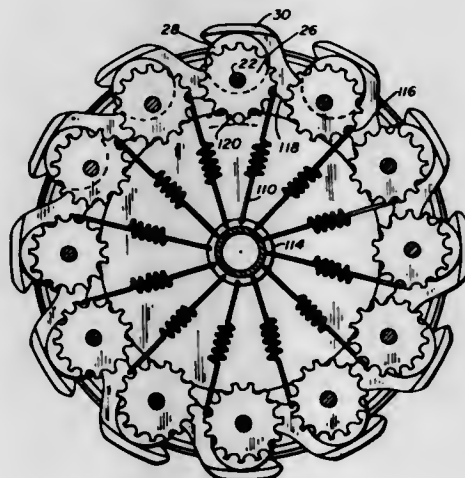
A production method of tapered tube comprising the steps of passing a tube blank made of a metal over the surface of a tapered core; placing on the outer surface of said tube blank a die consisting of a material having a plasticity and elasticity, but the resistivity thereof against the plastic deformation being higher than that of said tube blank, and having an inner bore of substantially equal diameter to that of the narrower end of said tapered core; shifting said tapered core and said die against each other so that the die is conveyed from one end to the other end of the tapered core; and forming said tube blank into a tapered tube in accordance with the surface of said tapered core.

3,602,031 INTERNAL PIPE RADIUS CONTROL

Dan H. Graff, General Delivery, Coweta, Okla.
Filed Sept. 19, 1969, Ser. No. 859,314
Int. Cl. B21d 41/02

U.S. Cl. 72-393

10 Claims



A self-powered internal pipe radius control having suitable external control means includes a pair of powered wheels for propelling the radius control device internally through pipe sections. In one embodiment the power to propel the device and to operate the various components is supplied from a self-contained air tank which can be pressured before insertion of the device in a pipe section, or, if desired, may be repressured by suitable air connections during operation of the device. A guiding framework supports the powered wheels and tensionable guide wheels and provides support for the air tank and for radially extendable shoe members which can be driven by suitable air motors to contact the interior surface of a pipe section to effect the proper radius control. Two similar sets of shoe members are provided on

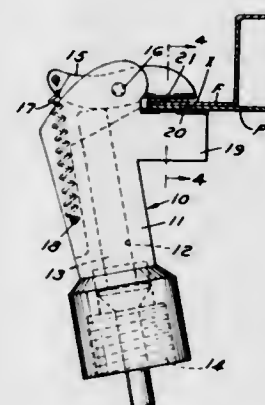
the framework. Each set is individually controlled by its own air motor. Each motor drives rotatably a circumferential chain member which in turn rotates a sprocket operating an eccentric member which bears against an internal radius of a shoe member to move the shoe member radially of the device. Each eccentric operates against a shoe member which is rotatably positioned on a shaft adjacent to the shaft on which the eccentric moves. Another embodiment of the radius control is powered by self-contained electric motors, which may be furnished electric power by batteries.

3,602,032 FLANGING TOOL FOR ATTACHMENT OF SIDE PANELS ON AUTOMOBILE DOORS

George Skintzis, 31936 Pinehill Drive, Warren, Mich.
Filed Apr. 25, 1969, Ser. No. 819,282
Int. Cl. B23p 11/00

U.S. Cl. 72-445

3 Claims



A flanging tool for use with an air hammer for attachment of side panels on automobile door frames comprising a body having a longitudinally extending opening therein in which a shaft is reciprocally mounted. One end of the shaft is adapted to be actuated by the air hammer and the other engages one end of a pivoted force member for yieldingly urging the other end of the pivoted force member against a fixed pressure member.

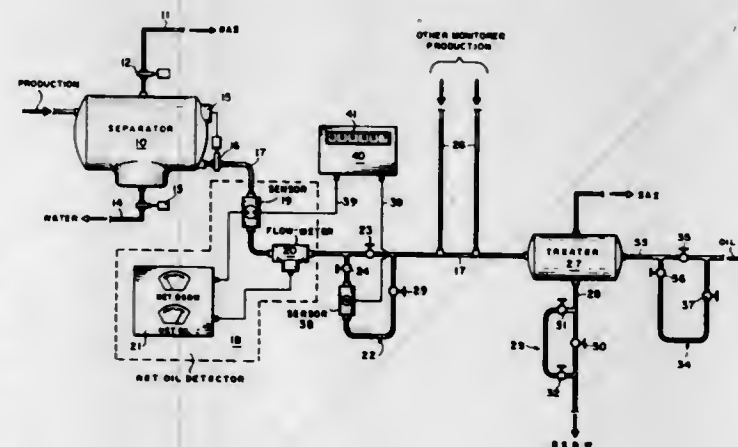
3,602,033 CALIBRATION METHOD FOR PERCENT OIL DETECTOR

George R. Burrell, Houston, and Dennis G. Perkins, Bellaire, both of Tex., assignors to Esso Production Research Company

Filed June 30, 1969, Ser. No. 837,742
Int. Cl. G01n 27/00

U.S. Cl. 73-1 R

8 Claims



Method and apparatus for rapidly calibrating, under dynamic conditions, sensing means for sensing the percentage of constituents (e.g., oil and water) in a fluid mixture (e.g., crude oil) flowing through fluid passageway (e.g., a

pipeline), and generating a quantitative response indicative of that percentage. A calibrated sensor, which generates a reference signal having a quantitative response indicative of the true percentage of constituents in the fluid mixture, is arranged with the sensing means in a spacing which permits the calibrated sensor to sense and respond to essentially the same portion of a fluid mixture flowing through the passageway as sensed and responded to by the sensing means. Contemporaneously with the generation of these responsive signals, a selected characteristic of the signal generated by the sensing means is compared with the identical characteristic of the reference signal by comparison means which indicate the direction and degree of adjustment to be made to the sensing means to cause the quantitative response of the sensing means to a portion of fluid mixture to match the quantitative response of the calibrated sensor to that same portion. The sensing means is calibrated by making the indicated adjustment.

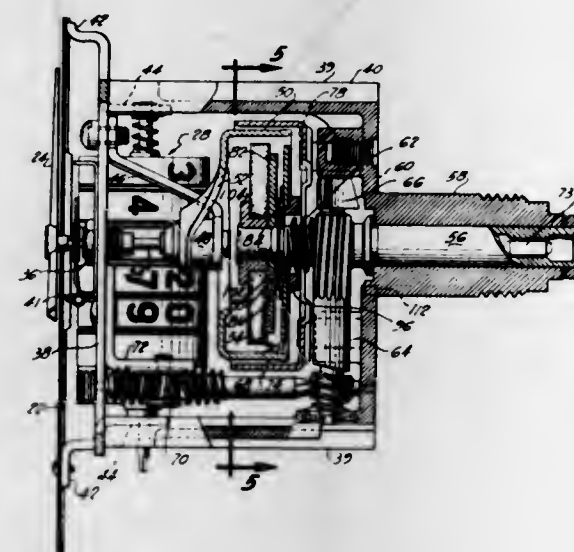
3,602,034 SPEEDOMETER CALIBRATION APPARATUS

Patrick L. Powell, Franklin Park, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed Aug. 14, 1969, Ser. No. 850,077
Int. Cl. G01c 25/00

U.S. Cl. 73-2

2 Claims



A calibration arrangement for an eddy cup-type speedometer is disclosed in which a magnetic shunt is carried on a bearing sleeve located on a magnet shaft, with the shunt located intermediate the frame backwall and the shaft magnet. A spring biases the shunt against rotation relative to the magnet. Aligned apertures in the frame and housing backwalls located radially outwardly of the magnet shaft and radially inwardly of the shunt periphery enable receipt of a tool for engaging a rearwardly extending tang on the shunt to hold the shunt against rotation while the magnet is rotated to thereby adjust the angular relationship between the magnet and shunt for calibrating the speedometer.

3,602,035 APPARATUS FOR TESTING THE LUBRICATING PROPERTIES OF AN OIL

Carl R. Spohn, Natrona Heights, and Ross M. Stewart, Pittsburgh, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

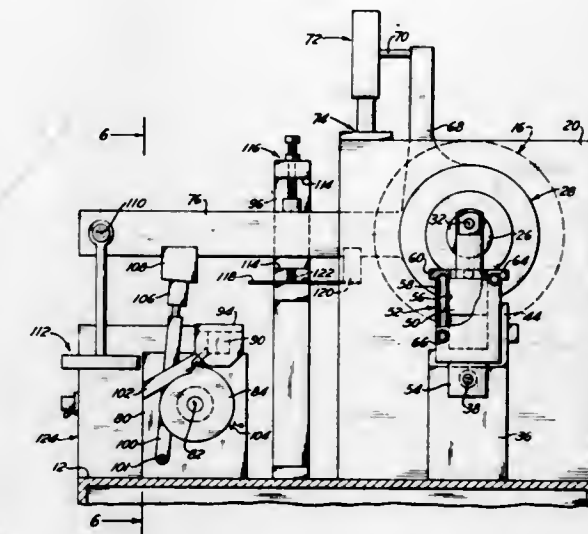
Filed Nov. 28, 1969, Ser. No. 880,838
Int. Cl. G01n 3/56, 33/26

U.S. Cl. 73-10

11 Claims

Apparatus for testing the friction-reducing characteristics of an oil utilizing a cylinder piston rod and piston assembly and a cantilever spring which tends to cock the piston in the

cylinder as it is cranked. This simulates severe friction conditions encountered in an engine under some starting condi-



tions. Means to control the temperature of the cylinder and means to run tests automatically are also provided.

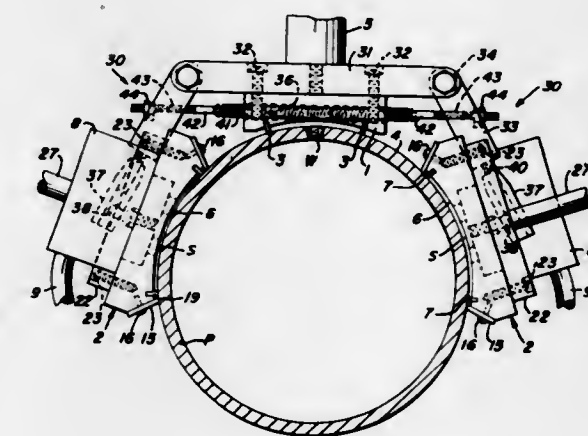
3,602,036 ULTRASONIC PIPE-TESTING EQUIPMENT

Axel H. Peterson, Jefferson Borough, Pa., assignor to United States Steel Corporation

Filed Aug. 13, 1969, Ser. No. 849,657
Int. Cl. G01n 29/04

U.S. Cl. 73-67.8

14 Claims

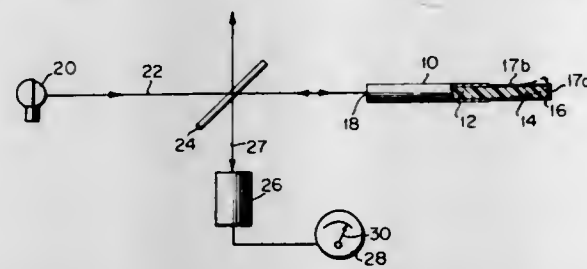


Ultrasonic pipe inspection apparatus having an articulated support for holding contoured inspection shoes on a pipe in operative positions on opposite sides of a weld to be inspected. The articulated support comprises a linkage having a resilient bias for moving the shoes to positions in engagement with the surface of the pipe, and a universal connection mounting the shoes for limited swiveling of floating movement so that they can follow lateral movement of the pipe and irregularities in its surface. Wiper blades extending axially along opposite edges of the shoes hold the liquid couplant for the transmission of ultrasonic vibrations against leakage circumferentially from the space between the shoes and the pipe, and thereby enable the spacing between the shoes and the surface of the pipe to be increased and provide a greater radial depth of the liquid couplant on the surface of the pipe. A manifold on each shoe delivers the liquid couplant to the space between the wiper blades through openings provided for this purpose in the shoe. The universal mounting for the shoes, the wiper blades along opposite edges thereof, and the manifold for delivering liquid thereto cooperate to provide an improved liquid couplant for the transmission of ultrasonic vibrations between the pipe and a transducer mounted on the shoes.

3,602,037
APPARATUS FOR MEASURING MINUTE DEFLECTIONS
 Franklin D. Neu, 2855 Shane Drive, Richmond, Calif.
 Filed July 9, 1969, Ser. No. 840,267
 Int. Cl. G01d 21/00

U.S. Cl. 73-70.2

6 Claims

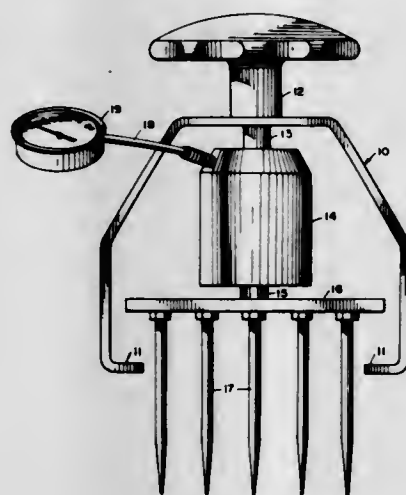


An apparatus for measuring minute deflections comprising a straight rod of a flexible light-conducting material, such as a glass fiber having one of its ends and the adjacent end portion provided with a coat of a light-reflecting substance, such as silver, a source of light arranged to direct a collimated beam through a beam splitter into the opposite end of the rod coaxially therewith, a photomultiplier located to be impinged upon by the light beam reflected by the coated end portion of the rod and deflected by the beam splitter, and means measuring the output of the photomultiplier. When the coated end portion of the rod bends, as it does when exposed to a flowing fluid, or when in contact with a vibrating surface, absorption losses of the reflected beam increase within the coated end portion of the rod, the light received by the photomultiplier decreases and the output of the photomultiplier decreases in proportion to the degree to which the coated end of the rod is bent. The bend of the coated end of the rod in turn is proportionate to the speed of flow of the fluid or the amplitude of the vibrations to which the surface is subjected.

3,602,038
MEASURING THE TENDERNESS OF MEAT
 Leo J. Hansen, Clarendon Hills, Ill., assignor to Armour and Company, Chicago, Ill.
 Continuation-in-part of application Ser. No. 705,722, Feb. 15, 1968, and a continuation-in-part of 776,234, Nov. 15, 1968.
 This application Oct. 29, 1969, Ser. No. 872,336
 Int. Cl. G01n 3/48

U.S. Cl. 73-81

13 Claims



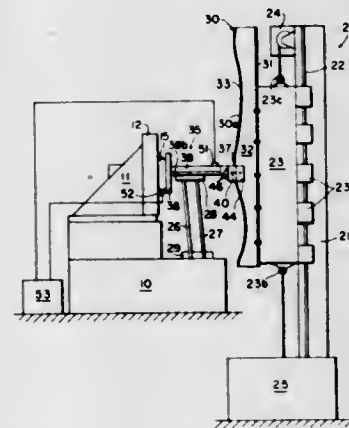
To test raw meat in order to determine how tender it will be upon cooking, a pointed probe is probed is pressed into the meat and the resistance of the meat to the movement of the probe is measured and the result compared with a standard established by similar tests on meat of the same class under similar conditions. The meat may be supported or suspended when the probe is introduced into the meat, and preferably the probe is pressed to a predetermined depth in the meat and at an angle to the grain of the meat. The apparatus employed may include retainer means for holding or suspending the meat to be tested, pointed probe means for

penetrating the meat, stop means for limiting the extent of penetration to a predetermined depth, and means for measuring the force of the penetration.

3,602,039
MULTIRATE COMPRESSION TEST APPARATUS
 Walter H. Trask, Joseph, Oreg., and Laverne H. Gillette, Walnut Creek, Calif., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Dec. 2, 1969, Ser. No. 881,361
 Int. Cl. G01n 3/32

U.S. Cl. 73-94

6 Claims

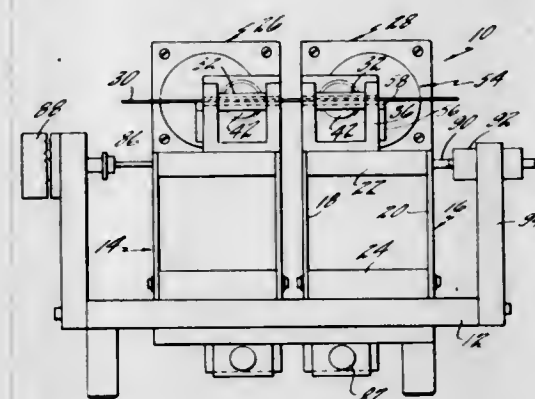


A heavy duty elongate beam carrying a multiple-contoured T-shaped rib is secured to a vertical carriage to reciprocally pass through an orthogonally disposed cam follower. The cam follower includes a cam follower portion having two sets of substantially opposed needle rollers mounted on laterally extending shafts to form a T-shaped passageway. The passageway receives the rib and imparts an orthogonal reciprocating motion to an elastomer sample secured on a relatively immovable bed. Multiple compressive shocks of selectively variable duration as to period and intensity are thusly transferred to the elastomer sample. Interchangeable elongate ribs having differently contoured surfaces are passed through the cam follower to deliver compressive and tensile shocks to the elastomer sample in accordance with varying conditions.

3,602,040
HIGH SPEED FILAMENT TENSILE TESTER
 Charles E. Shulze, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
 Filed Dec. 8, 1969, Ser. No. 882,978
 Int. Cl. G01n 3/02

U.S. Cl. 73-95.5

4 Claims

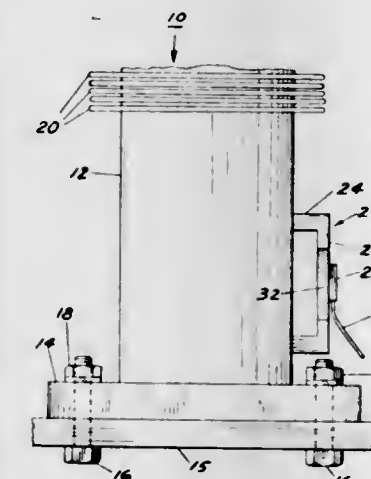


A filament tensile testing apparatus comprising first and second flexural supports each having a free end, aligned gripping means mounted on the free end of each support for gripping a specimen filament, the supports being deflectable to displace the gripping means while maintaining coaxiality therebetween, means for applying a deflecting force to the first support and means for measuring the deflection of the second support when the filament is gripped by the gripping means and a deflecting force is applied to the first support.

3,602,041
ENGINE WEAR LIFE MEASUREMENT
 Bruce R. Weinert, Dearborn, Mich., assignor to The United States of America as represented by the Secretary of the Army
 Filed May 28, 1969, Ser. No. 828,518
 Int. Cl. G01n 3/32

U.S. Cl. 73-116

4 Claims

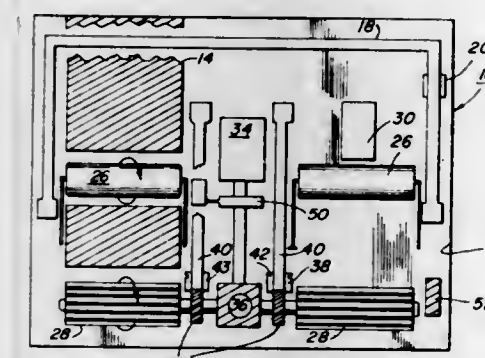


A method and apparatus for the measurement of elapsed wear life of internal combustion engines using stress life history gages, (S/N Fatigue Life Gages) and strain amplifiers is disclosed.

3,602,042
BRAKE TESTER
 Wallace F. Mitchell, Arlington Heights, Ill., assignor to Amco Tools, Inc., North Chicago, Ill.
 Filed Jan. 27, 1969, Ser. No. 794,058
 Int. Cl. G01l 3/14

U.S. Cl. 73-126

8 Claims



A brake tester includes a weighing scale, wheel-engaging drive rollers for rotating the wheels at a fixed speed, idler rollers for controlling the footprint of the wheels on the drive rollers and display devices for indicating brake pedal pressure, vehicle weight on the wheels under test, and the actual braking torque of each wheel.

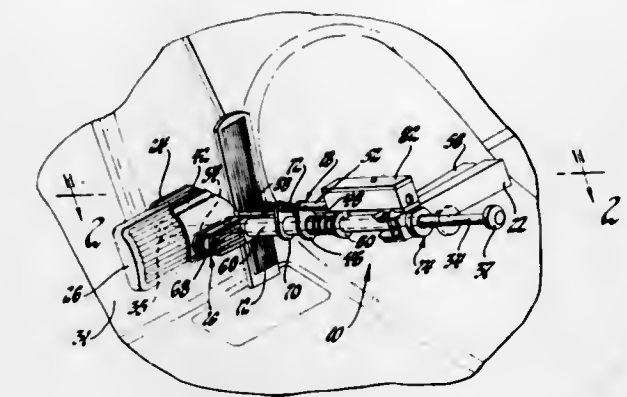
3,602,043
PEDAL TRAVEL MEASURING TOOL
 Francis J. Markey, Lewisburg, Ohio, assignor to General Motors Corporation, Detroit, Mich.
 Filed May 4, 1970, Ser. No. 34,481
 Int. Cl. G01l 5/32

U.S. Cl. 73-132

7 Claims

A brake system inspection tool which measures the travel of the brake pedal upon application of a specified pedal

force. The tool is clamped to the brake pedal and as brake applying force is applied a scale indicates the travel of the

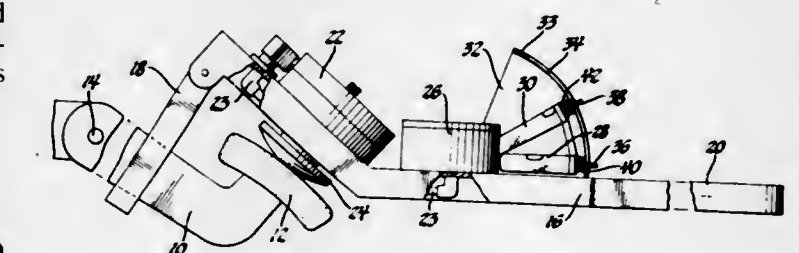


pedal. A force indicating assembly signals the test operator when the specified force has been applied.

3,602,044
PEDAL TEST INSTRUMENT
 Francis J. Markey, Lewisburg, Ohio, assignor to General Motors Corporation, Detroit, Mich.
 Filed May 13, 1970, Ser. No. 36,870
 Int. Cl. G01l 5/22

U.S. Cl. 73-132

3 Claims



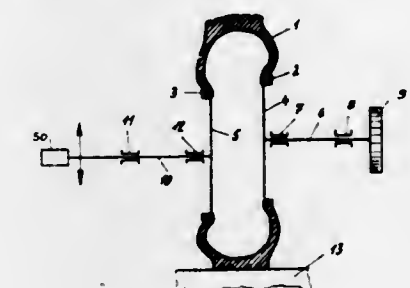
A brake system test instrument which measures the force applied to the brake pedal upon actuation of the brake pedal through a specified arcuate displacement. The test instrument is attached to the brake pedal and brake applying force is applied to the handle of the test instrument causing the brake pedal to rotate about its pivot point. A spirit level device indicates the arcuate displacement of the pedal and a hydraulic pressure cell and gauge provides a means of measuring the force applied to the pedal.

3,602,045
APPARATUS FOR TESTING THE BONDING STRENGTH OF TIRE BEADS
 Franz Pernau, Vienna, and Karl Klerr, Mollersdorf, both of Austria, assignors to Semperit Österreichisch Amerikanische Gummiwerke Aktiengesellschaft, Vienna, Austria

Filed Aug. 14, 1969, Ser. No. 850,000
 Claims priority, application Austria, Aug. 19, 1968, A 8066/68

Int. Cl. G01m 17/02; B60c 15/00
 U.S. Cl. 73-146

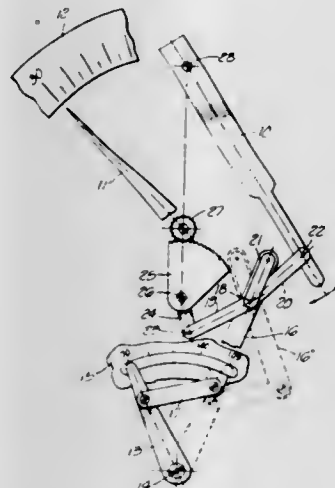
14 Claims



There is disclosed an apparatus for testing the bonding strength of tire beads through periodic loading thereof, and, if desired, by rolling the tire contact or running surface on a

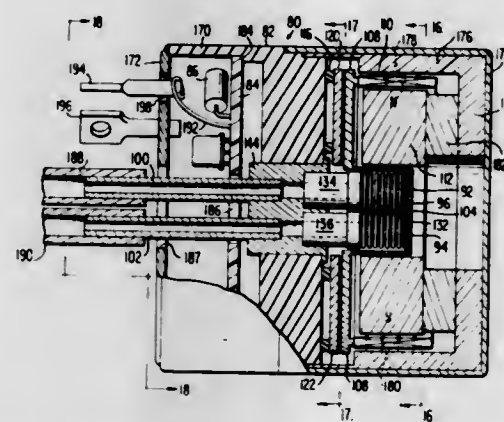
drum. The apparatus incorporates two rim members for retaining the tire beads. These rim members are arranged upon two shaft members which are independent of one another.

3,602,046
SPECIFIC GRAVITY LINKAGE ADJUSTMENT FOR LIQUID LEVEL INDICATOR
Victor N. Lawford, Pasadena, and Anthony De Rosa, La Habra, both of, Calif., assignors to International Telephone & Telegraph Corporation, New York, N.Y.
Filed June 26, 1968, Ser. No. 740,299
Int. Cl. G01f 23/14
U.S. Cl. 73-299



A linkage adjustment operable between a driving arm and a dial pointer to cause a pressure-sensitive liquid level indicator to read directly in the weight, volume, or other quantity of a liquid in a reservoir regardless of the specific gravity of the liquid. The linkage includes a pair of mutually pivoted links between the arm and pointer. A third link controls the mutual pivot of the other two links. The position of the third link is then made adjustable dependent upon the specific gravity of the liquid.

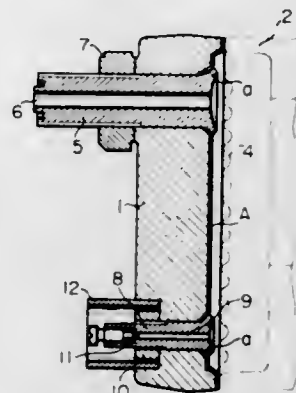
3,602,047
SERVO PRESSURE TRANSDUCER
Walter P. Kistler, Clarence, N.Y., assignor to Kistler Instrument Corporation, Clarence, N.Y.
Continuation-in-part of application Ser. No. 812,193, Apr. 1, 1969. This application June 24, 1969, Ser. No. 836,004
Int. Cl. G01p 9/12
U.S. Cl. 73-398



Disclosed is a servo- or force-balance-type pressure transducer incorporating as the sensing element a bending beam comprising at least one bellows having a flat, flexible metal strip along one side. The beam is cantilevered at the open end of the bellows and the opposite closed end of the bellows carries a movable capacitor plate and a forcer coil. The moving assembly is balanced about the sensitive axis of the beam which coincides with its center of gravity. The forcer coil applies a restoring torque to the beam which balances out the bending forces due to pressure within the bellows, and the

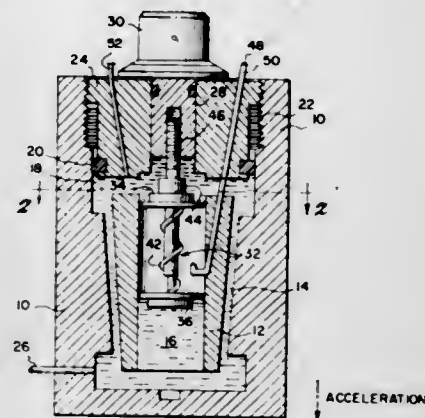
amount of current through the coil is an indication of this pressure.

3,602,048
FLUID RECEIVING PORTION OF A HOUSING OF A PRESSURE GAUGE
Eiji Murata, and Kohoku Ito, both of Tokyo, Japan, assignors to Honeywell Inc., Minneapolis, Minn.
Filed July 18, 1969, Ser. No. 843,081
Claims priority, application Japan, July 19, 1968, 43/61898
Int. Cl. G01f 7/00
U.S. Cl. 73-420



A unique cover for a fluid pressure chamber having (1) a member that is subject to corrosion, (2) a corrosive resistant metal sheet in contact with a surface of the member that forms an inner wall of the chamber, (3) a corrosive resistant metal tube that forms a passageway extending through the member and the corrosive resistant sheet into the chamber and, (4) tapered stepped portions on the inner end of the tube for physically engaging the sheet to provide a noncorrosive fluidtight joint between the corrosive resistant metal sheet and tube.

3,602,049
FLUID ACCELEROMETER
William C. Albert, Waldwick, N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J.
Filed June 7, 1968, Ser. No. 735,260
Int. Cl. G01p 7/00, 15/02
U.S. Cl. 73-503

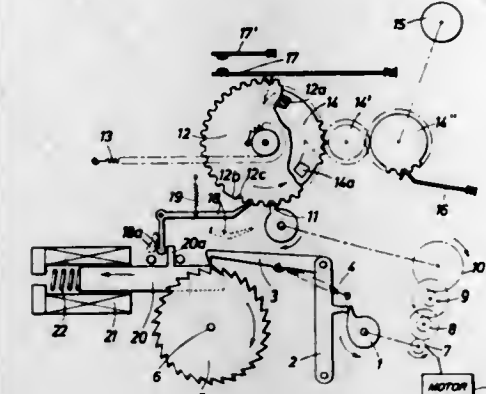


A fluid accelerometer in which a proofmass assembly containing a volume of inert gas is disposed in a passage containing a damping fluid, and translates in the passage in response to acceleration.

3,602,050
PROGRAMMERS FOR ELECTRIC HOUSEHOLD APPLIANCES
Jean Jullien-Davin, Valence, France, assignor to Crouzet, Paris, France
Filed July 9, 1969, Ser. No. 840,414
Claims priority, application France, July 15, 1968, 159,434
Int. Cl. G05g 21/00
U.S. Cl. 74-3.5

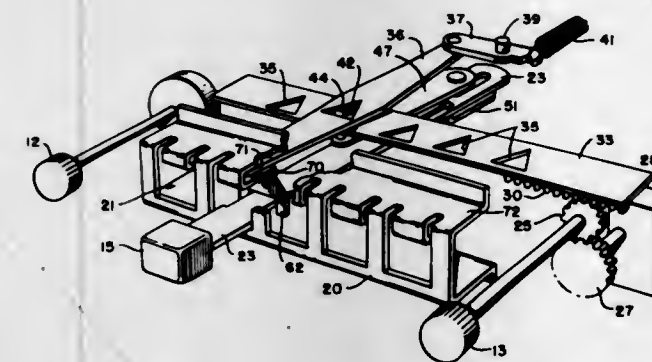
Programmer for electric household washing machines, of the type comprising electromagnetic means for interrupting

the step-by-step forward rotary motion of the cam unit throughout the duration of predetermined operations of the control cycle of the machine and means for restoring said forward rotary motion after a period of time which may be varied, which comprises an adjustable auxiliary timer which



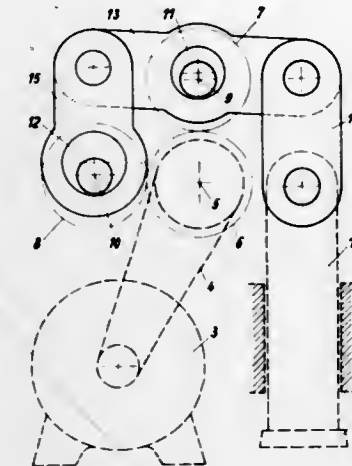
actuates a switching element on expiration of the selected time interval so as to cause resumption of the step-by-step motion, the time base of said auxiliary timer being constituted by the motor means for driving the programmer at a constant speed.

3,602,051
PUSHBUTTON TUNING MECHANISM
Emery E. Olah, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed June 9, 1970, Ser. No. 45,168
Int. Cl. F16h 35/18
U.S. Cl. 74-10.35



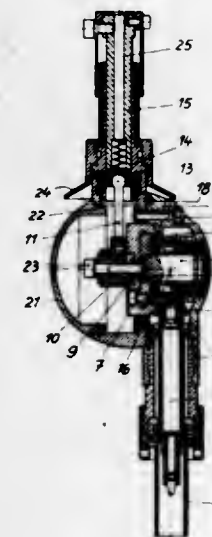
The pushbutton tuning mechanism for operating the tuner of a radio receiver includes a tuning slide, with five triangularly shaped apertures therein, for lateral movement in accordance with the tuning of the receiver. Corresponding to each of the triangular apertures in the tuning slide is a pushbutton slide mechanism having a memory plate with a similar triangularly shaped aperture overlying a corresponding aperture in the tuning slide. Each memory plate is positioned laterally in the direction of the movement of the tuning slide by a floating pin when the pushbutton is pulled out to release a clamp and then pushed back in, with the pin aligning the memory plate aperture with the aperture in the tuning slide. The memory plate then is clamped into position upon full depression of the pushbutton. Subsequent depression of the pushbutton causes the pin to position the tuning slide in accordance with the clamped position of the memory plate to thereby tune the radio receiver to the preselected station corresponding to the depressed pushbutton.

3,602,052
RAM DRIVE WITH ADJUSTABLE STROKE
Konrad Frost, Berlin, Germany, assignor to Hermann Prauter, Ludwigsburg, Wurttemberg, Germany
Filed July 22, 1969, Ser. No. 843,466
Claims priority, application Germany, July 27, 1968, P 17 75 321.8
Int. Cl. F16h 21/32; B26d 5/16, 5/14
U.S. Cl. 74-40



An adjustable reciprocating motion drive mechanism which includes a pair of eccentrics coupled by means of a link assembly. Each of the eccentrics is mounted upon a spur gear, and both of the spur gears engage a drive gear driven by a motor. The link assembly connecting the eccentrics is secured to a ram spindle for example of a gear-shaping machine having mounted thereon a generating cutter. Means are provided for varying the position of the spur gears upon which the eccentrics are mounted so as to vary their angular relationship. Indicia are located upon the face of the drive gear as well as upon at least one of the spur gears to provide visual indication of the angular relationship of the eccentrics.

3,602,053
MECHANICALLY DRIVEN HANDTOOL
Johann Steiner, No. 5, Neuenburger, Berlin 61, Germany
Filed Apr. 29, 1969, Ser. No. 820,047
Claims priority, application Germany, Apr. 30, 1968, P 17 52 278.0
Int. Cl. F16h 21/22; A16c 3/08
U.S. Cl. 74-44



A mechanically driven hand tool for carrying out strokelike and adjustable working movements comprises a ball-shaped casing accommodating drive means and consisting of a ball cup; a bearing tube pivoted to said ball cup; a casing member of ball race configuration rotatable about a

main shaft for adjustment; and a detachable ball cup serving as a cover.

3,602,054

CHAIN AND BELT TIGHTENER

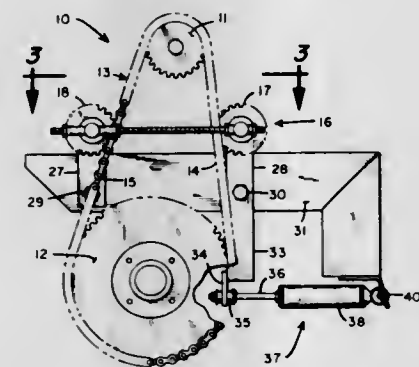
Donald A. Monteith, Jackson, and William G. Robison, Alpha, both of, Minn., assignors to AG-Chem Equipment Co., Inc., Minneapolis, Minn.

Filed Feb. 9, 1970, Ser. No. 9,534

Int. Cl. F16h 7/08, 7/12, 7/10

U.S. Cl. 74-242.9

5 Claims



Chain tightener means for power transmission systems including a driver pulley and a driven pulley and having an endless flexible coupling means extending therebetween defining a normal tension span and a normal slack span, the tightener means extending between said spans and including a pair of idler pulleys disposed outwardly of the spans with spacer means adjustably spacing said idler pulleys apart a predetermined distance, each of said idler pulleys being journaled for rotation about idler spindles secured to ends of individual elongated support arm means, said support arm means having opposed ends with a shank zone therebetween; means pivotally mounting each of said support arms at intermediate points along the shank zone and about support points spaced from said idler spindles to permit simultaneous rockable shifting of each of said support arms about said support points; and coupling means secured adjacent to the opposed end of at least one of said support arm means for securing said arm to shock absorber means, said shock absorber means reversibly resisting and decelerating shifting motion of said support arms.

3,602,055

TRANSMISSION

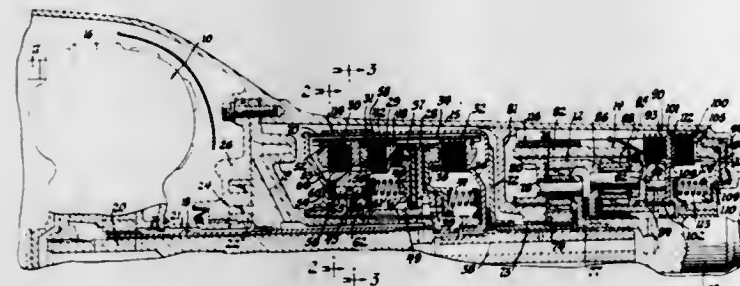
Gilbert K. Hause, Bloomfield Hills, and Jerry R. Mrlik, Birmingham, both of, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 2, 1970, Ser. No. 15,647

Int. Cl. F16h 57/10, 5/18

U.S. Cl. 74-759

3 Claims

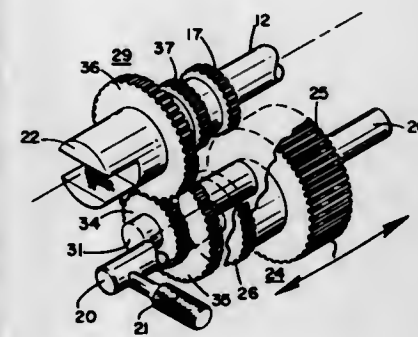


A vehicle transmission having a hydrodynamic torque converter and planetary gearing combined with four friction brakes, three friction clutches and three one-way devices to provide four forward drives including an overdrive and also to provide a reverse drive.

3,602,056
SPEED CONTROL FOR DRIVE SHAFT
Fred A. Ohlinger, 540 W. Solano Drive, Phoenix, Ariz.
Filed May 4, 1970, Ser. No. 34,076
Int. Cl. F16h 3/08

U.S. Cl. 74-331

4 Claims

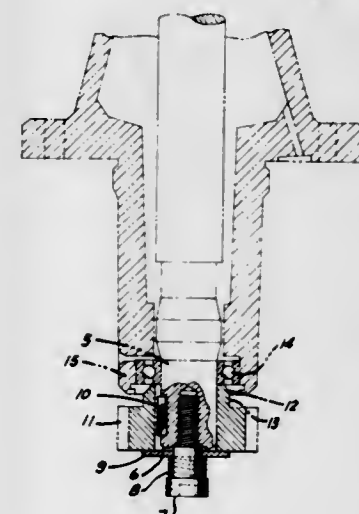


A control mechanism for the drive shaft of a motor which provides a plurality of speeds axially of the rotor shaft.

3,602,057
OVERLOAD DEVICE FOR GEARS AND THE LIKE
Glenn A. McEntire, 1101 Anthony Ave. N.E., Valdese, N.C.
Filed Nov. 18, 1969, Ser. No. 877,640
Int. Cl. F16h 1/02

U.S. Cl. 74-412

3 Claims



This invention consists of a socket head shoulder screw that is adapted to secure a spring-loaded gear or the like on the end of a shaft. A convex or concave spring washer and a polyethylene key go to make up the other parts of this novel invention. The aforesaid polyethylene key secures the gear to the shaft in the usual manner known to those experienced in the mechanical power transmission arts. The end of the hub of the gear is tapered to rest against the face of a ball bearing which supports the end of the aforesaid shaft.

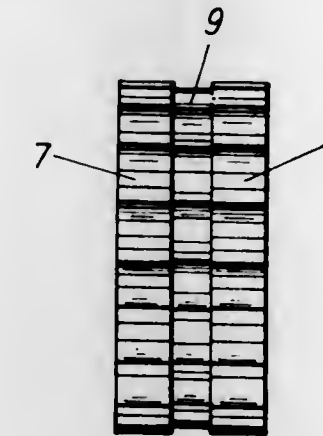
3,602,058
GEARS HAVING DEFORMABLE AND INDEFORMABLE TEETH
Brian Beddoe, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Nov. 21, 1969, Ser. No. 878,816
Claims priority, application Great Britain, Dec. 12, 1968, 59089/68
Int. Cl. F16h 55/04, 55/14

U.S. Cl. 74-434

10 Claims

Composite gearing wherein the load is transferred via hard

teeth only when it exceeds a certain level. This is achieved by moved when the lever is subsequently swung on the pin in a plane at right angles to the plane of swinging of the gimbal ring. The gimbal ring is provided with locking fingers which overlap in notches in respective pairs of shift rods, depending

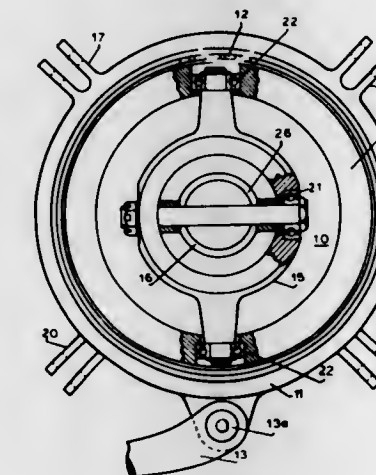


employing a first set of deformable teeth disposed slightly in advance of the hard teeth.

3,602,059
SWASH PLATE CONTROL MECHANISMS
Robert J. Jupe, Yeovil, Somerset, England, assignor to Westland Aircraft Limited, Yeovil, Somerset, England
Filed July 11, 1969, Ser. No. 840,944
Claims priority, application Great Britain, Aug. 9, 1968, 38197/68
Int. Cl. G05g 1/00

U.S. Cl. 74-469

4 Claims



A swash plate control mechanism comprising a gimbal-mounted inner portion with a fixed central mounting and an outer portion rotatable about a predetermined arc of movement; the inner portion is tiltable about any axis through the fixed center mounting independently or in cooperation with the rotational movement of the outer portion.

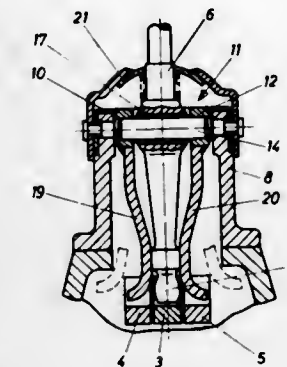
The mechanism is operably associated with mechanically linked control rods on the outer and inner portions of the swash plate mechanism, so that rotation of the outer portion will increase or decrease the range of movement between pairs of controls rods, giving a variable differential ratio between said pairs of rods controlled by the movement of the swash plate mechanism.

3,602,060
GEARSHIFT LEVER MECHANISM
Alfred Magg, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Germany
Filed Sept. 17, 1969, Ser. No. 858,607
Claims priority, application Germany, Oct. 1, 1968, P 18 00 163.3
Int. Cl. G05g 9/02

U.S. Cl. 74-477

6 Claims

A gearshift lever is universally mounted by means of a pin carried in a gimbal ring. The lever can swing in two planes, the swinging in one plane by virtue of the gimbal ring being to a particular position for selection of a shift rod to be

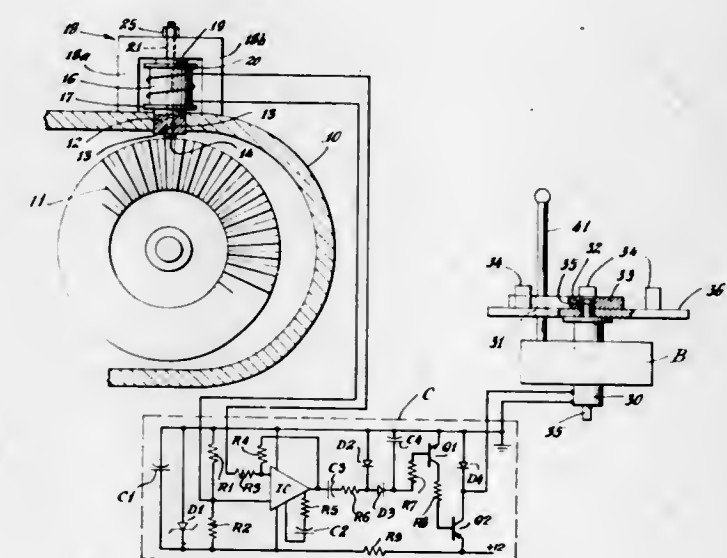


upon the direction of swinging of the lever for selection of a shift rod. The action thus provides for locking in position those shift rods which are not intended to be shifted. Antifriction bearings and bushings are used for ease of operation.

3,602,061
ANTIPLUGGING MECHANISM
Robert Nemiroff, Philadelphia, Pa., assignor to Eaton Yale & Town Inc., Cleveland, Ohio
Filed Nov. 3, 1969, Ser. No. 873,536
Int. Cl. F16h 57/06

U.S. Cl. 74-476

12 Claims



A magnetic field is established within the gear housing of a part of the transmission system of a vehicle. A gear that rotates in the housing when the vehicle is driven, moves through the magnetic field. The gear teeth vary the magnetic flux and these variations are transmitted by a magnetic pickup to a coil. As a particular feature, the pickup is utilized to hold the magnet and coil assembled to the gear housing. The variations in the magnetic field induce a current in the coil. This current is amplified and is used to energize a solenoid having an armature which locks a directional shift level against directional shifting until the solenoid is deenergized. The lever may at all times be shifted to neutral, however.

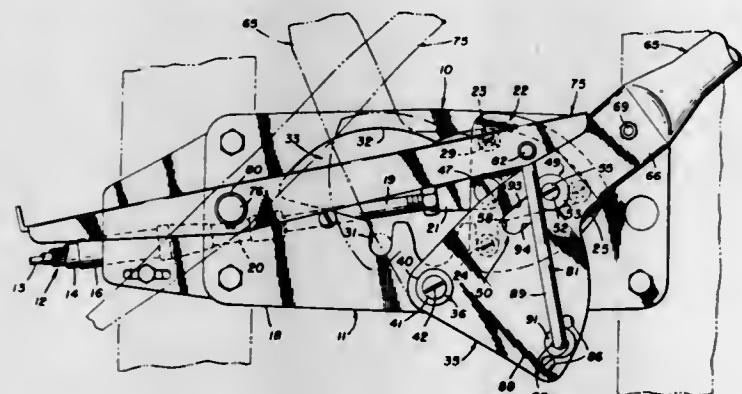
3,602,062
HAND AND/OR FOOT ACTUATING APPARATUS FOR A CONTROL DEVICE
Richard D. Houk, Stow, and Dale F. Leuenberger, Cuyahoga Falls, both of, Ohio, assignors to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Oct. 31, 1969, Ser. No. 872,987
Int. Cl. G05g 11/00

U.S. Cl. 74-481

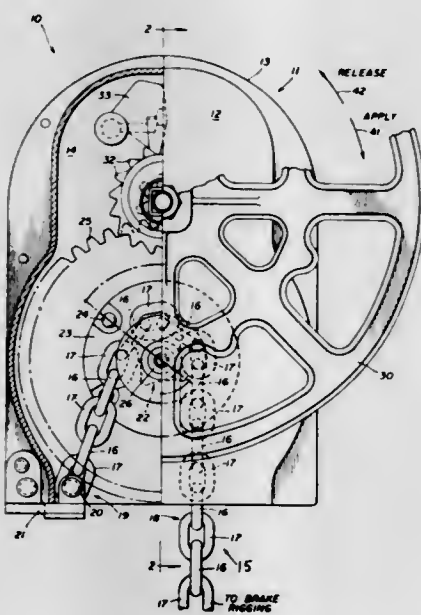
5 Claims

An actuating apparatus selectively operable by a foot pedal or hand lever, each movable only about a single axis of rota-

tion, to swing a throw member alternately about at least two spaced, pivotal axes. Such an actuating apparatus may be employed to advantage with a control for imparting movement to a motion transmitting device as a nonlinear function of the movement applied to the throw member thereof, the latter being movable about at least two, spaced, pivotal axes. The apparatus has a driving member that is mounted to rotate about a single drive axis located generally medially of



3,602,063
RAILWAY CAR HANDBRAKE MECHANISM WITH SQUARE CHAIN-WINDING DRUM
William F. Koehler, Chicago, Ill., assignor to Cleveland Hardware & Forging Company, Inc., Cleveland, Ohio
Filed Nov. 6, 1969, Ser. No. 874,639
Int. Cl. G05g 1/08
U.S. Cl. 74-505 5 Claims



The force exerted by the chain of a handbrake-applying mechanism is increased by tensioning the chain over a square drum that is rotated by a hand wheel through a pinion and gear. The drum has an outer square configuration for receiving flatwise alternate links of the chain and an inner square configuration, tangent to the outer square configuration, for receiving the intermediate chain links at right angles to the axis of rotation of the drum. The intermediate chain links are held in nonkinking relation to the alternate chain links by radially extending ribs located where the configurations are tangentially related at the ends of the sides of the inner square configuration which are concave and conform to the ends of the juxtaposed intermediate links. The square con-

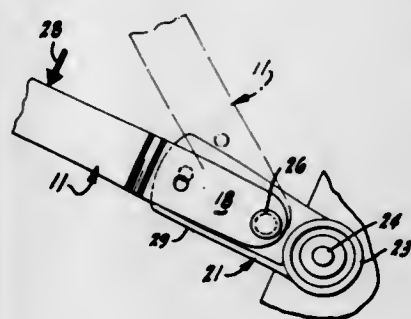
figurations provide pockets in a malleable iron casting for receiving the links of a 1/2-inch alloy steel chain which conforms to the specifications of the National Association of Chain Manufacturers. When the hand brake mechanism is of the two way type, one end of the chain is connected to the brake rigging and the other end is connected directly to the handbrake mechanism housing or to a part of the car frame. With a quick release hand brake mechanism, the other end of the chain is connected through shock-absorbing anchor means to the car frame.

3,602,064
PARKING BRAKE CONTROL
Philip L. Francis, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 30, 1970, Ser. No. 23,604
Int. Cl. G05g 1/14
U.S. Cl. 74-512 2 Claims



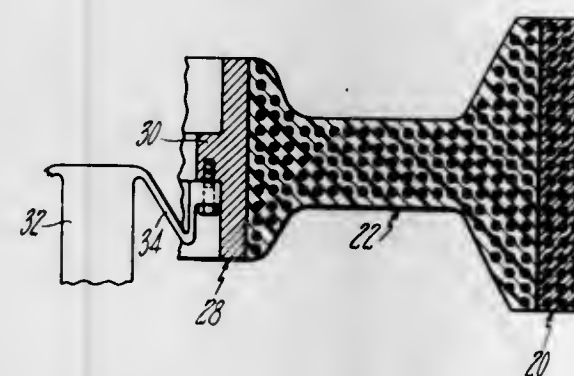
A parking brake control mechanism for motor vehicles that maintains braking effort despite relaxation of any of the parking brake system components. A brake lever to which the brake cable is attached is biased in a cable tensioning direction by a torsion spring to provide the antirelaxation mechanism of this invention.

3,602,065
SAFETY LEVER FOR LOAD-SUSTAINING DEVICE
Ralph A. Ratcliff, 614 Mountain View Ave. P.O. Box 543, Belmont, Calif.
Filed Apr. 2, 1970, Ser. No. 25,210
Int. Cl. G05g 1/04
U.S. Cl. 274-524 6 Claims



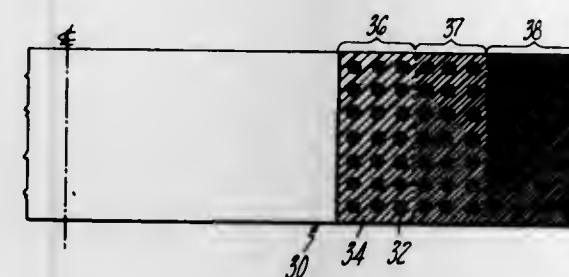
A safety lever for a load-sustaining device which prevents overloading of the device during use. The safety lever is constructed of two cooperable interconnected parts having shear pin means interposed therebetween which will sever upon force applied to the operating lever in excess of a predetermined rated amount. A stop shoulder is included with the lever which restricts movement of the lever in one direction when the shear pin is severed so that operation injury is precluded. Movement of the lever in the opposite direction upon shearing of the shear pin is unrestricted so that the load-sustaining device is rendered inoperable until the shear pin is replaced.

3,602,066
HIGH-ENERGY FLYWHEEL
Arthur E. Wetherbee, Jr., Newington, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Sept. 18, 1969, Ser. No. 859,014
Int. Cl. F16h 15/30
U.S. Cl. 74-572 7 Claims



A rotary device, for example, a flywheel is built up of layers of circumferentially extending high-strength filaments embedded in a matrix to form a composite with a hub attached for supporting the wheel, in which the characteristics of the composite, at least near the inner diameter, are selected so that under load the hub and wheel are strain compatible where they are connected together.

3,602,067
FLYWHEEL
Arthur E. Wetherbee, Jr., Newington, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Sept. 18, 1969, Ser. No. 859,013
Int. Cl. F16h 15/30
U.S. Cl. 74-572 7 Claims

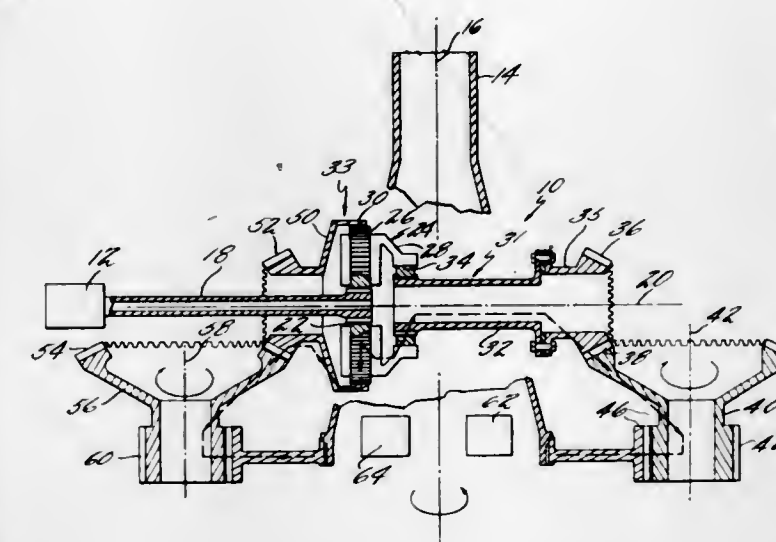


A rotary device, for example, a flywheel, is built up of a plurality of layers of circumferentially extending high strength filaments embedded in a matrix with the matrix fraction or matrix composition controlled such that the modulus ratio, that is the ratio of the modulus of elasticity in the circumferential direction, to the modulus of elasticity in the radial direction may be controlled to produce the most effective high energy wheel. By effective control of the modulus ratio a flywheel type of device of very high energy may be produced that will not fail prematurely in the conventional burst-type of failure, i.e., a failure by radial cracking resulting from overstressing in a circumferential direction. In effect, the control of the modulus ratio is a balancing of the strength distribution with the stress distribution.

3,602,068
SPLIT-POWER TRANSMISSION
Graham White, Monroe, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Apr. 27, 1970, Ser. No. 031,888
Int. Cl. F16h 37/06
U.S. Cl. 74-674 14 Claims

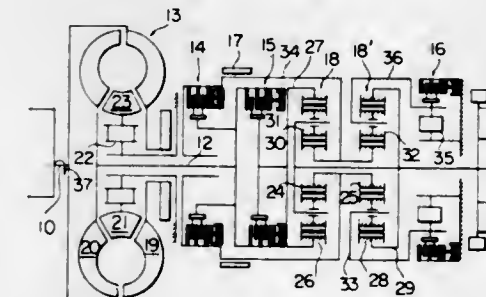
A split-power transmission in which a high-speed engine drives a substantially lower speed drive shaft, such as a helicopter rotor drive shaft, through a counterrotating epicyclic gear unit in which the oppositely rotating planet carrier and ring gear are drivingly connected to opposite

sides of the drive shaft to provide substantially equal load, split power paths thereto and, preferably, wherein a second



such transmission connects a second engine to the drive shaft so that there are four substantially equal load equally spaced drive gear connections to the drive shaft.

3,602,069
LINE PRESSURE CONTROL SYSTEM FOR AUTOMOTIVE AUTOMATIC TRANSMISSION
Yoichi Mori, and Hirohisa Ichimura, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed Oct. 29, 1969, Ser. No. 872,307
Claims priority, application Japan, Oct. 30, 1968, 43/78832
Int. Cl. F16h 5/40, 5/42, 5/110
U.S. Cl. 74-751 7 Claims

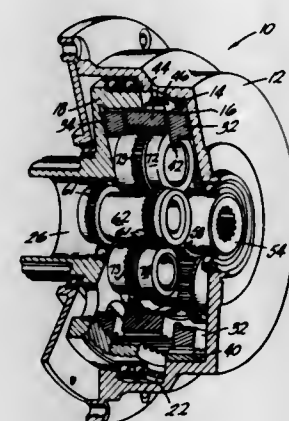


A system for electronically controlling the hydraulic line pressure for an automatic transmission of an automotive vehicle which pressure changes in response to the variation of the twisting torque of the turbine shaft of a torque converter. This system generally comprises electric pickup means for picking up the twisting torque of the driven shaft and an electronic circuit for regulating the line pressure in response to the variation of the torque.

3,602,070
MECHANICAL TRANSMISSION
Kenneth W. Verge, Farmington, and Donald B. Kantz, Farmington, Mich., assignors to The Bendix Corporation
Continuation-in-part of application Ser. No. 780,494, Dec. 2, 1968. This application Apr. 10, 1970, Ser. No. 27,308
Int. Cl. F16h 1/28
U.S. Cl. 74-804 13 Claims

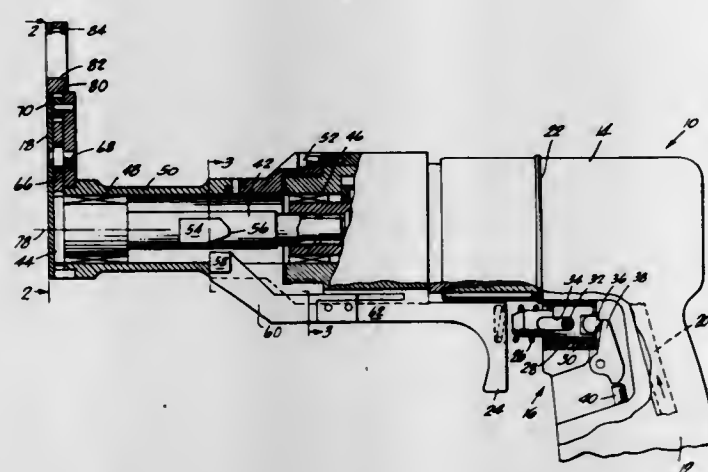
A rotary-to-rotary transmission comprising concentric sta-

tionary and output gears and a coaxing floating ring gear which is eccentric thereto and is driven by a drive shaft and



roller assembly so that the ring gear axis orbits about the stationary gear axis and drives the output gear.

3,602,071
OFFSET WRENCH APPARATUS
Daniel P. Juhasz, Gardena, Calif., assignor to Monogram Industries, Inc., Los Angeles, Calif.
Filed Feb. 24, 1970, Ser. No. 13,686
Int. Cl. B25b 17/00, 21/00
U.S. Cl. 81-57.14



A pneumatically driven motor assembly causing rotation of the drive shaft, the drive shaft rotating a drive gear which rotates an idler gear assembly including a pair of simultaneously driven, spaced-apart, idler gears, a wrench gear being driven by the pair of idler gears with the wrench gear having a radial opening therein to be able to cooperate with a polygonal-shaped fastening device, a positioning pawl secured to the drive shaft, a stop being longitudinally movable along the drive shaft upon actuation of the trigger, upon release of the trigger the stop contacts the positioning pawl thereby locating the wrench gear in a particular predetermined position.

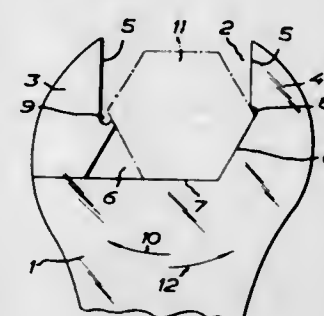
3,602,072
COUPLING AND UNCOUPLING DEVICE
Duffy Sensat, Rte 1, Box 338, Welsh, La.
Filed Oct. 3, 1969, Ser. No. 863,575
Int. Cl. B25b 13/48

U.S. Cl. 81-71
This disclosure relates to a device for coupling or uncoupling pipes, collars, casing and the like, including a gripping head mounted on a threaded shaft and a telescopic casing engaging the shaft, said casing normally intended to receive the shaft. As the casing telescopes an internal follower engages the shaft causing the shaft and head to rotate.

gages the casing and shaft allowing extension of the casing without rotation of the head.

3,602,073
RATCHETING NUT WRENCHES
Olle Lennart Siwersson, Gartnergatan 4 252 51, and Karl Gunnar Tell, Malmogatan 3A 252 49, both of Halsingborg, Sweden

Filed Nov. 27, 1968, Ser. No. 779,553
Claims priority, application Japan, Nov. 30, 1967, 42/76975
Int. Cl. B25b 13/02
U.S. Cl. 81-119

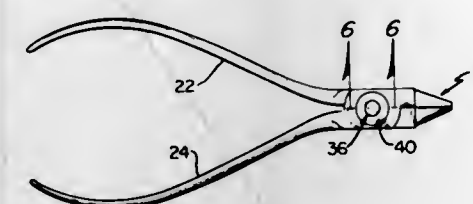


A ratcheting nut wrench comprises jaws spaced apart by an aperture and having first parallel aperture boundary faces and second aperture boundary faces connected to the first aperture boundary faces and making an angle with said first aperture boundary faces and with one another, a third aperture boundary face which makes an angle with, and is located between, the other aperture boundary faces, and a projection and a recess, respectively, provided in the regions between the first and the second aperture boundary faces and facing respectively towards and away from the third aperture boundary face.

3,602,074
ADJUSTABLE, SELF-ALIGNING JOINT FOR PLIERS, SHEARS AND THE LIKE
Eugene F. Smith, Denver, Colo., assignor to Rocky Mountain Dental Products Co., Denver, Colo.
Filed June 5, 1968, Ser. No. 734,652
Int. Cl. B25b 7/06; F16c 11/00

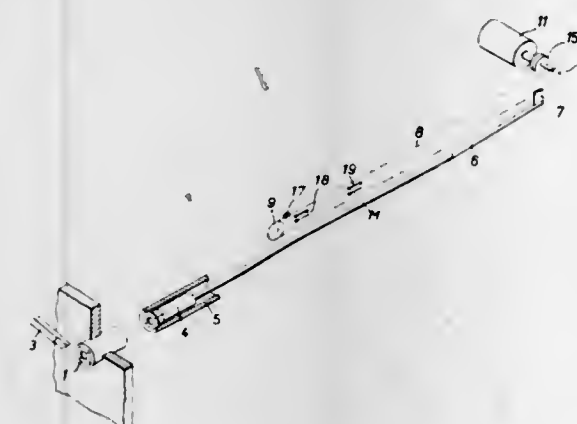
U.S. Cl. 81-416
A tool including a pair of members mounted for relative rotation with respect to each other about a pivot column in which said pivot column is nonfrictionally, rigidly mounted with respect to one of said members and rotatably mounted

with respect to the other of said members and in which said pivot column and said members include means for maintaining one of said members in a predetermined pivotal relationship with the other said member during operation thereof.



3,602,075
ARRANGEMENT ON A SWISS AUTOMATIC LATHE FOR FEEDING BAR STOCK
Gottlieb Waefler, Roches, Switzerland, assignor to Fabrique de machines Andre Bechler S.A. Moutier, Canton of Berne, Switzerland
Filed Apr. 9, 1969, Ser. No. 814,601
Claims priority, application Switzerland, Apr. 19, 1968, 5842/68
Int. Cl. B23b 13/02

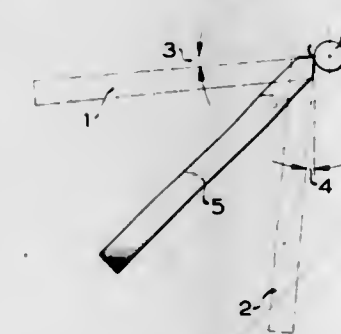
U.S. Cl. 82-2.5



A chain driven through a slip clutch by a motor pushes a ram against the bar stock to feed the latter. A member on the chain operates a switch that reduces the r.p.m. of the work spindle until the bar stock has entered a collet of the work spindle.

3,602,076
TURNING TOOL ARRANGEMENTS FOR ROTATING CUTTER HEADS IN AUTOMATIC LATHES
Siegfried Puck, Neviges, Germany, assignor to Hugo Karrenberg & Sohn K.-G., Velbert, Germany
Filed Feb. 13, 1969, Ser. No. 798,965
Claims priority, application Germany, Feb. 13, 1968, P 16 52 693.5

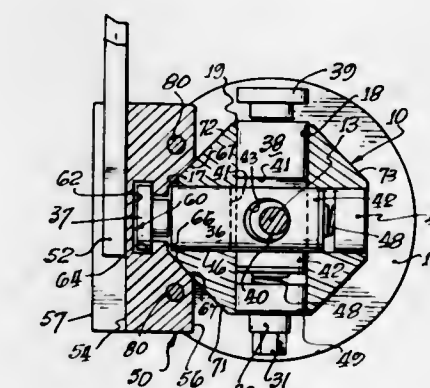
U.S. Cl. 82-20



The present invention relates to a turning tool arrangement, in automatic lathes, for rotating cutter heads with tool

3,602,077
TOOL POST AND HOLDER
George A. Mitchell, 687 Prospect Crescent, Pasadena, Calif.
Filed Nov. 9, 1970, Ser. No. 87,935
Int. Cl. B23b 29/04

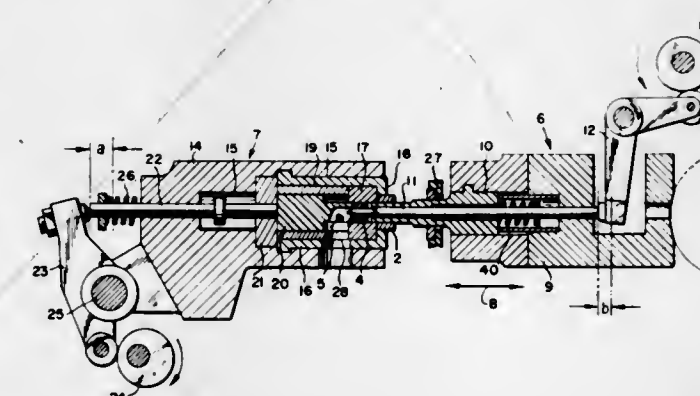
U.S. Cl. 82-36 R



A toolpost is formed of a block with the horizontal sectional form of an octagon with equal angles and with two mutually perpendicular side faces of equal width, with an axial bore and with two cross bores perpendicular to the respective equal side faces and radially intersecting the axial bore. Headed plungers slide in the cross bores and are controlled by a common shaft journaled in the axial bore to clamp a toolholder releasably at either of the equal side faces of the block.

3,602,078
METHOD AND APPARATUS FOR THE MANUFACTURE OF TWO ANNULAR BODIES FITTING ONE WITHIN THE OTHER
Peter Schindler, Basel, Switzerland, assignor to F. B. Hatebur AG, Basel, Switzerland
Filed Aug. 19, 1969, Ser. No. 851,270
Claims priority, application Netherlands, Aug. 22, 1968, 6811971

U.S. Cl. 83-32



A method and apparatus for manufacturing two annular members from a preformed blank, wherein the blank is supported in a female die, a coaxial blanking punch is moved relative to the die to separate inner and outer annular parts of the blank, the inner annular parts of the blank, the inner annular part being supported against axial displacement by a coaxial inner female die during perforation of the inner part by a perforating punch mounted coaxially on the blanking punch, the two female dies moving relatively while the separation of the blank parts takes place.

3,602,079

UNIVERSAL DIE SET

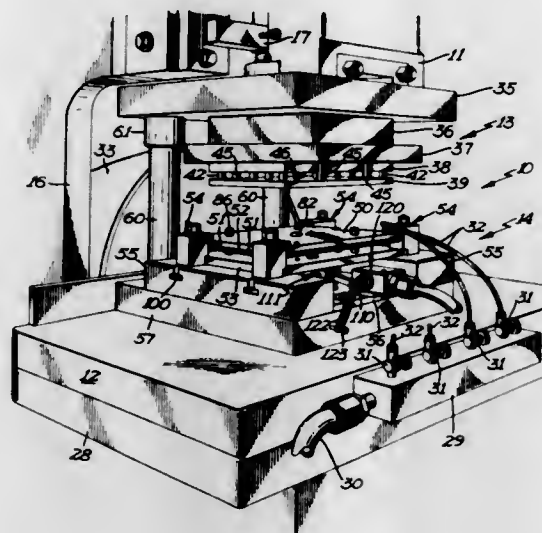
Ernest G. Carlson, 5733 1st Ave., South Minneapolis, Mich.

Filed June 12, 1969, Ser. No. 832,560

Int. Cl. B26d 5/20; B26f 1/40

U.S. Cl. 83—67

10 Claims U.S. Cl. 83—637



A die set for use in a temporary compound die which provides a high degree of flexibility in placement of supports beneath the blanking punch and its mounting plate, and in placement of ejector pins above the stripper plate. The invention thereby makes changeover to produce different shaped and sized pieces a greatly simplified procedure. In addition means is provided for sensing the advance of material being fed into the die to prevent press actuation in the event that material is not properly fed.

3,602,080

CHAD REMOVAL MEANS

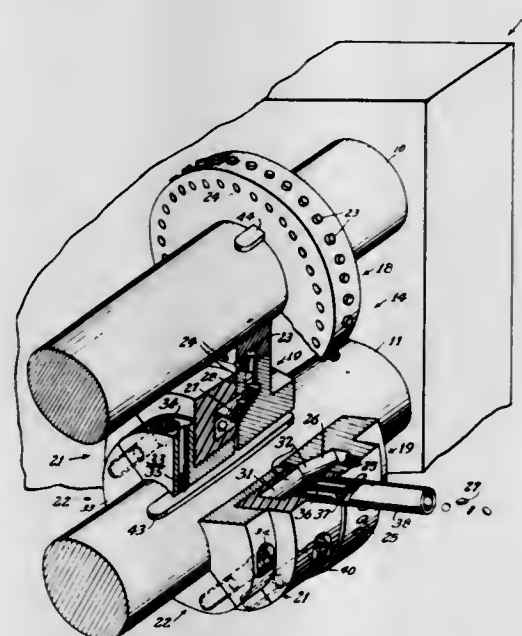
Farrell L. Sickel, 702 S. Clay St., Green Bay, Wis.

Filed Aug. 6, 1969, Ser. No. 856,233

Int. Cl. B26d 7/18

U.S. Cl. 83—100

4 Claims



Paper chad and fuzz removal means for a rotary punch wheel associated with a complementary rotary female die wheel, the female die wheel having an open annular discharge slot in one side thereof communicating with its punch bores, a stationary chad collector ring or manifold having an open annular slot in one side thereof in registry with the annular slot in the female die wheel to form a joint chamber therewith for receiving chad, and a source of vacuum communicating with the joint chamber for removing chad from the joint chamber.

3,602,081

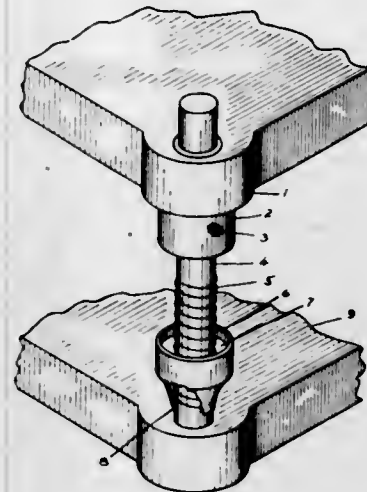
LUBRICATING DEVICES

Fred Ballas, 117 Baumford Ave. S.E., Canton, Ohio

Filed Sept. 24, 1969, Ser. No. 860,484

Int. Cl. B26d 7/26; F16n 7/20

2 Claims



This apparatus is a simple but efficient lubricating device consisting of two parts, an oil cup and a compression-type coil spring. Its purpose is to lubricate the bushings of a die set or other such device as the die set or other device is being driven up and down in a cyclic fashion as in a punch press operation.

3,602,082

RANDOM PERCUSSION MUSICAL INSTRUMENT

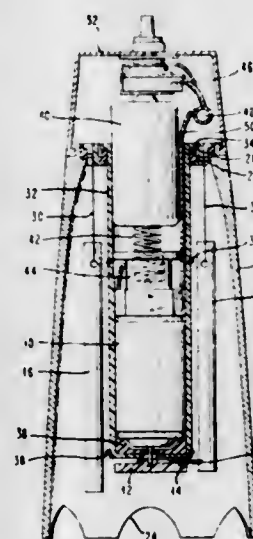
Harold G. Hoagland, 38 Caryl Ave., Yonkers, N.Y.

Filed Aug. 28, 1970, Ser. No. 67,742

Int. Cl. G10f 1/08; G10d 13/08

U.S. Cl. 84—103

16 Claims



A hammer is rotated by a driving means through a lost motion connection to strike bells positioned around the hammer in a random sequence.

3,602,083

HOUSING FOR KEYBOARD MUSICAL INSTRUMENTS

Masakatu Iijima, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Aug. 18, 1970, Ser. No. 64,654

Claims priority, application Japan, Aug. 21, 1969, Aug. 21, 1969, Aug. 21, 1969, 44/79475; 44/79476; 44/79477

Int. Cl. G10c 3/02; G10b 1/08

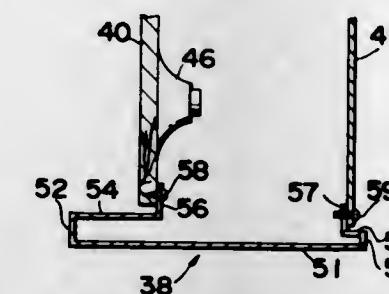
U.S. Cl. 84—177

7 Claims

A housing for a keyboard musical instrument comprising a pair of sideboards of metal extending downward from a pair of sidearms supporting a keyboard, each of the sideboards

having an outside member, front and rear end members bent substantially perpendicular to the outside member at front and rear ends thereof, and front and rear inside members extending from the front and rear end members respectively

intersection line or lines where they intersect a center of symmetry of the plate are at an angle β smaller than 46° rela-



3,602,084

BULLET FEED MECHANISM WITH AUTOMATICALLY RELEASED HOLDING COLLET

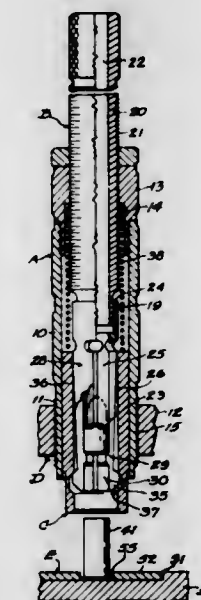
Lyle S. Corcoran, 730 N. Mariposa Ave., Los Angeles, Calif.

Filed Jan. 26, 1970, Ser. No. 5,621

Int. Cl. F42b 33/04

U.S. Cl. 86—43

8 Claims



A device for feeding bullets into cartridge cases including a collet throat normally holding a bullet and expanded by contact of an upwardly moving cartridge case holder, to drop the bullet into a case moved upwardly by the holder.

3,602,085

PHOTOGRAPHIC IMAGE-FOCUSING DEVICE

Kurt Wagner, Jena, Germany, assignor to Veb Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany

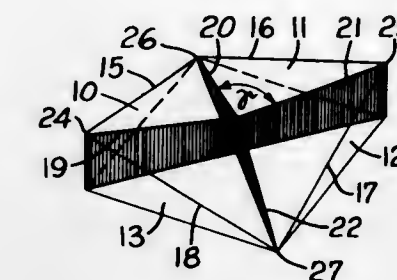
Filed June 17, 1968, Ser. No. 737,569

Int. Cl. G03b 13/18

U.S. Cl. 88—1.5 R

3 Claims

An image-focusing plate for cameras comprises two or four parts formed from wedge prisms arranged to form an image-intersection line which is displaced along its length through an angle not exceeding 100° or intersects another image intersection line at an angle γ not exceeding 100° . The image-



3,602,086

AIR IGNITION SYSTEM AMMUNITION

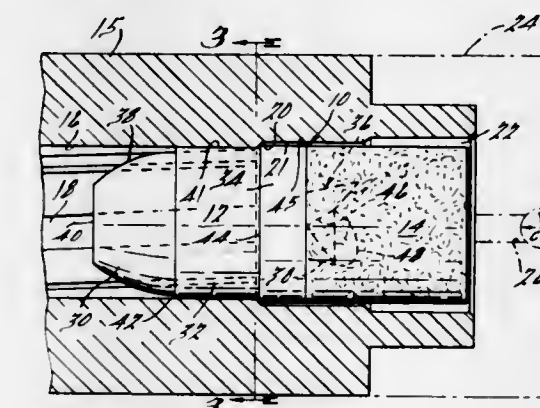
Eugene E. Billingslea; Richard I. Daniel, and Claude A. Shope, all of Rogers, Ark., assignors to Victor Comptometer Corporation, Chicago, Ill., by said Billingslea

Filed Dec. 9, 1968, Ser. No. 782,291

Int. Cl. F41f 1/00; F42b 5/18

U.S. Cl. 89—7

7 Claims



There is herein disclosed a new and improved round of ammunition of the caseless type adapted for use in air-ignition system firearms and having a relatively narrow width shot start abutment shoulder and relatively short length rifling surface located at the rear of the projectile portion whereby a high degree of accuracy and optimum velocity are obtained.

3,602,087

OBTURATOR FOR MACHINEGUN HAVING LATERALLY SLIDING BREECHBLOCK

John J. Scanlon, Jr., Monroe, Conn., assignor to The United States of America as represented by the Secretary of the Army

Filed Feb. 6, 1970, Ser. No. 9,303

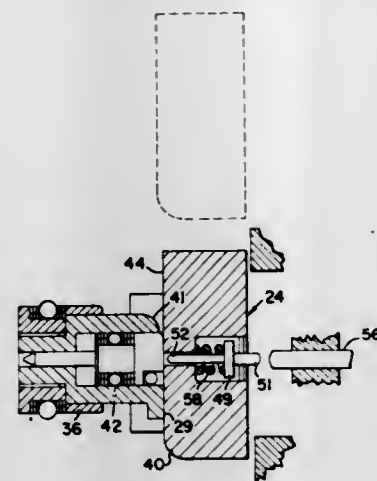
Int. Cl. F41d 11/16; F41f 11/04

U.S. Cl. 89—26

6 Claims

A consumable cartridge firing machinegun having a firing chamber obturator mounted in a longitudinally movable cartridge-chambering rammer. The rammer has an aperture

which receives a breechblock which slides laterally therein to engage a rearwardly projecting portion of the obturator for



limiting obturator rearward movement when a cartridge is fired.

3,602,088

ARMORED TANK VEHICLE WITH ANTI-AIRCRAFT ARMAMENT

Timo Spring, Dubendorf, Switzerland, assignor to Contraves AG, Zurich, Switzerland

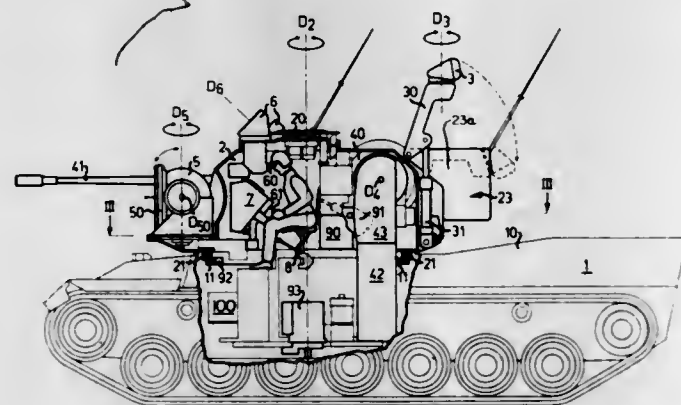
Filed Mar. 25, 1969, Ser. No. 810,143

Claims priority, application Switzerland, Apr. 3, 1968, 4993/68

Int. Cl. F41h 5/16; F41f 23/06

U.S. Cl. 89—36 K

6 Claims



A novel armored tank vehicle with anti-aircraft armament is disclosed, such vehicle having at least one anti-aircraft gun, a search radar means and a target-tracking radar-aiming means all mounted on a freely rotatable turret, at least one optical periscope being inserted in the turret cover. In the interior of the turret, seats are provided for the operating crew as are periscope oculars and, beneath such oculars, consoles with radar screens. Also provided in the interior of the turret is a firing computer functioning to automatically determine the firing parameters for the guns in dependence upon the target location data as continuously determined by the target-tracking radar-aiming means. Further provided within the interior of the turret are manually operable means as well as ammunition storage areas for the guns. All of the above components are provided in such a manner that the armored vehicle comprises a completely autonomous automotive and armored weapon system for weather-independent anti-aircraft operations by mobile fighting units.

3,602,089

AMMUNITION LOADING DEVICE

Lucien Beaufre, Bourges, France, assignor to Etat Francais

Filed Dec. 19, 1969, Ser. No. 886,701

Claims priority, application France, Dec. 19, 1968, 179,260

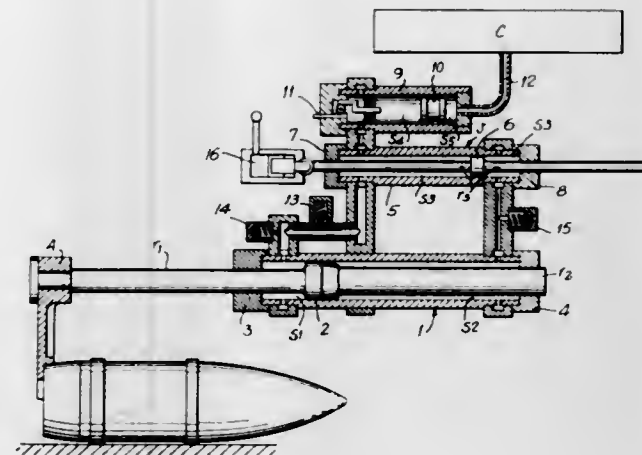
Int. Cl. F41f 17/16

U.S. Cl. 89—47

10 Claims

A device is provided which is connected to an oleo cylinder of a weapon which cylinder is used to return the

recoil mass of the weapon to the firing position. The device is pressurized by gas pressure in the oleo cylinder upon return of the recoil mass of the weapon to its firing position. A jack is pressurized by the oleo cylinder and a releasable abutment holds the piston of the jack in cocked position. The jack is coupled to a piston of a ram with chambers of unequal sec-



tions and the ram is pressurized by the jack to apply net force on the ramp piston. When the abutment is released, the ram piston is displaced by the net pressure and carries with it ammunition which is loaded into the weapon. The abutment then returns to its original position and returns the jack piston to cocked position and the ram piston to its original supply position.

3,602,090

MILLING MACHINE CONTROL SYSTEM AND MILLING FORCE SENSOR THEREFOR

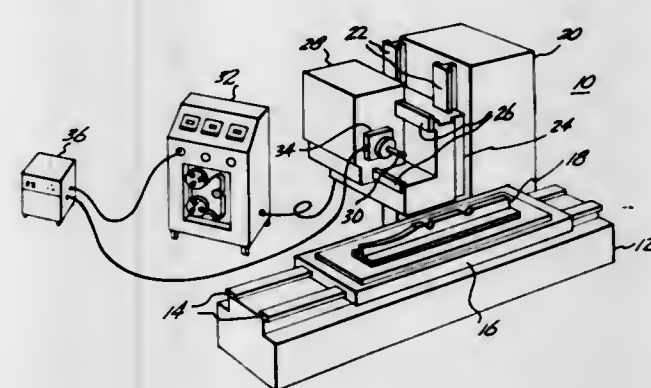
William J. Whetham, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Feb. 27, 1970, Ser. No. 15,043

Int. Cl. B23c 1/16

U.S. Cl. 90—11 A

10 Claims



An improved force sensor useful in automatic feedrate control systems for milling machines which utilize a single input variable. The sensor includes a plurality of magnetic transducers which are disposed about the periphery of a portion of the machine spindle. The transducer primaries are provided with an AC exciting voltage and the secondaries are connected in opposition so that the common output signal therefrom has a zero DC content under conditions of zero spindle loading. When a sideload or end load is supplied to the cutting tool, and thus to the spindle, during the milling process, the common output signal principally comprises an AC component which is amplitude modulated in proportion to the degree of spindle deflection. A demodulator converts the amplitude modulated component into a DC signal representative of milling force. This signal is then supplied to a controller in the feedrate system. A modification of such controllers is also taught which compensates for undue cutting element wear due to high preset feedrates. This improved controller reduces the actual feedrate to a value

equal to one-half of that preset when the cutting element first engages the workpiece.

3,602,091

TWO-STAGE HOLDBACK DEVICES AND MEANS FOR OPERATING THEM

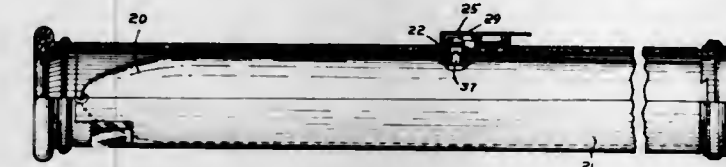
Gilbert G. Fryklund, Winchester, and Richard A. Emanuel, Dedham, both of, Mass., assignors to Norris Industries, Inc., Los Angeles, Calif.

Filed Jan. 29, 1969, Ser. No. 794,902

Int. Cl. F41f 3/04

U.S. Cl. 89—1.806

11 Claims



The invention is illustrated as a two-stage holdback device in a container-missile combination, the device consisting of missile and container supported rotatable members having complementary tongue-and-groove portions held connected against lengthwise movement by shear means. The tongue-and-groove connection is disposed normally at right angles to the missile axis to provide resistance to shear forces of a high order and is disposed lengthwise of the container to yield to shear forces developing when the missile is fired. Operating means for rotating the members are also disclosed.

3,602,092

KEY-POSITIONING VISE ASSEMBLY FOR AUTOMATIC KEY CUTTER

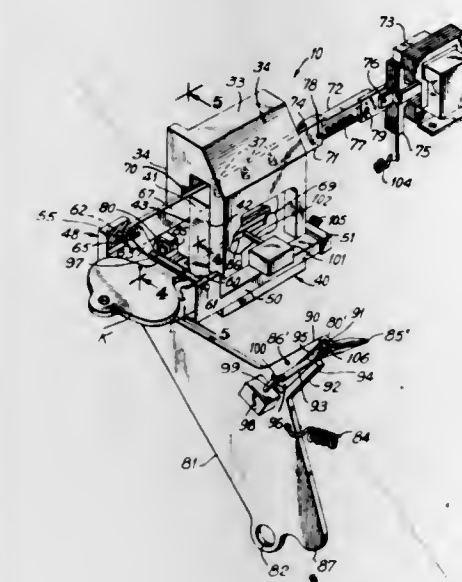
Robert H. Richens, Leominster, Mass., assignor to Ilco Corporation, Fitchburg, Mass.

Filed Dec. 4, 1969, Ser. No. 882,236

Int. Cl. B23c 1/16

U.S. Cl. 90—13.05

16 Claims



In a key-cutting machine of the type in which a cutter and stylus are moved relative to a key blank and a key, an improved vise assembly for automatically, accurately positioning the key and blank in a predetermined tracing and cutting disposition.

The vise assembly includes a clamp head for picking up the key and blank in a partially aligned position responsive to tripping of a switch by insertion of a key and blank and thereafter advancing the same to a selected tracing and cutting position automatically, thus eliminating the likelihood that an improper cutting operation can be performed.

3,602,093

APPARATUS AND METHOD FOR MACHINING METAL BLANKS

Peter Fischer, 50 Bundtacherstr., 8127, Forch; Adolf Klausberger, Kronenstr. 489, Dielsdorf, ZH, and Wilhelm Maurer, Wehtalerstr. 536, 8046, Zurich, all of, Switzerland

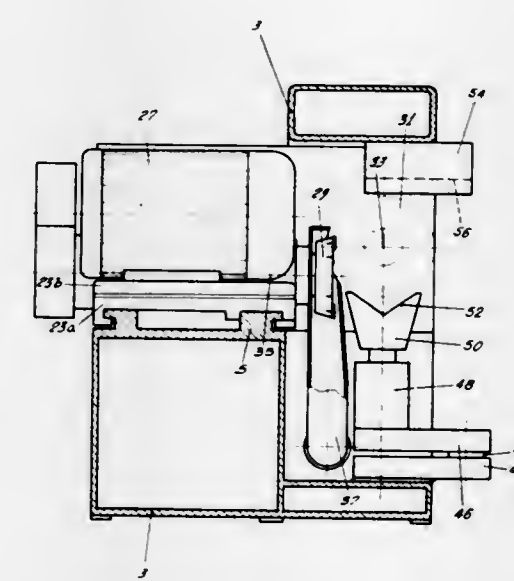
Filed July 9, 1968, Ser. No. 743,477

Claims priority, application Switzerland, July 1, 1968, July 12, 1967, 9827/68; 9938/67

Int. Cl. B23c 3/04

U.S. Cl. 90—15

5 Claims



A tubular or cylindrical metal blank is rotated and supported between a headstock and a tailstock while the lateral surface of the blank is milled by a rotary milling unit which is slidable in parallel to the axis of the blank. The axis of rotation of the milling unit is at right angles to the blank axis and may be raised or lowered relative thereto. Upon its release from the headstock and tailstock, the blank may be supported by holding means which are adjustable to bring the blank axis into parallelism with the milling unit axis, so that both ends of the blank may be milled.

3,602,094

HORIZONTAL MILLING MACHINE

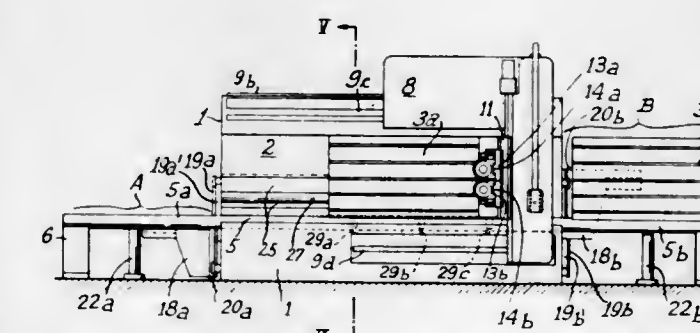
Roger Bardiau, 2 rue l'Abbe Dery, 94 Vitry, France

Filed Dec. 5, 1968, Ser. No. 781,486

Int. Cl. B23d 7/08

U.S. Cl. 90—15

9 Claims



A horizontal milling machine has two machining tables, one of which may be in a horizontal workpiece loading or removing position, while the other may be in a vertical machining position, and means for translating and pivoting the tables between these two positions.

3,602,095

DEVICE FOR MACHINING METAL STRIP EDGES

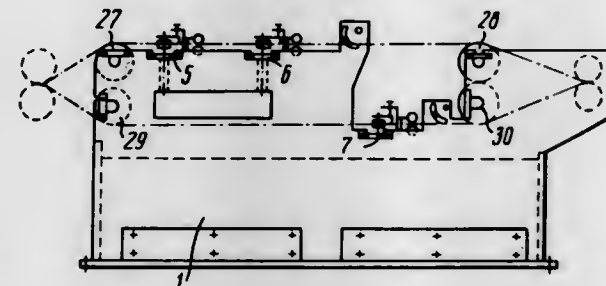
Boris Mikhailovich Bocharov, ulitsa Vesnina, 3, kv. 1; Vladimir Ivanovich Vishnevsky, ulitsa Alivazovskogo, 75, and Stepanovich Alexandr, ulitsa Ivanovskaya, 16, kv. 6, all of Zaporozhie, U.S.S.R.

Filed Dec. 27, 1968, Ser. No. 787,401

Claims priority, application U.S.S.R., Oct. 3, 1968, 1108872 Int. Cl. B23d 1/00

U.S. Cl. 90—24 F

7 Claims



Apparatus for machining edges of metal strips includes a plurality of carriages slidably supported freely on a frame in a direction perpendicular to the direction of feed of the metal strips. The carriages are supported in planes differing in elevation and include rests for guiding the metal strips longitudinally and rectilinearly. The rests include cutters for engaging opposite longitudinal sides of the metal strips for cutting same simultaneously.

3,602,096

PROGRAM CONTROL APPARATUS

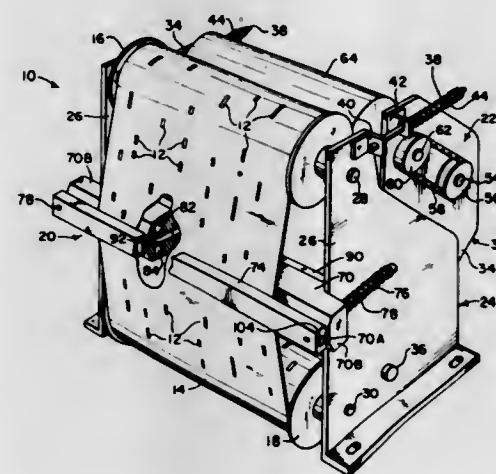
Alex Toth, Lincolnwood, Ill., assignor to Ellis Corporation, Chicago, Ill.

Filed Aug. 6, 1969, Ser. No. 847,834

Int. Cl. F15b 21/02; G05b 19/14

U.S. Cl. 91—37

12 Claims



A moving perforated chart or other record medium selectively uncovers sensing openings in the face of a sensing or reading member. A pressurized region within the sensing member communicates through passages exposed to the sensing openings with pressure-responsive devices, such as diaphragm-operated valves or switches. When a sensing opening is exposed to atmosphere by a chart perforation, the corresponding pressure-responsive device experiences a pressure reduction as pressure is released through the exposed sensing opening. The reduction of pressure is abrupt since the passage from the pressurized region is arranged to discharge directly through the opening. Because the pressure-responsive devices are normally pressurized, each may be controlled not only by the chart but also by a remote pressure-releasing valve located at any desired point in the conduit leading to the device.

3,602,097

FLUID-OPERATED VALVE ASSEMBLIES

Dennis Stephen Dowdall, Morden, Surrey, England, assignor to Telektron Limited, West Molesey, Surrey, England

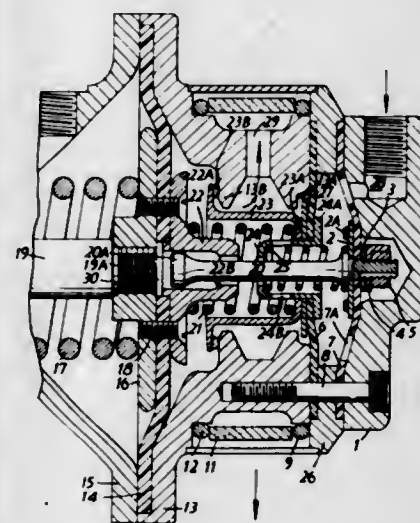
Filed Mar. 21, 1969, Ser. No. 809,085

Claims priority, application Great Britain, Mar. 26, 1968, Oct. 30, 1968, 14524/68; 51523/68

Int. Cl. F01l 15/14, 23/00

U.S. Cl. 91—267

9 Claims



A fluid-operated valve assembly of the present invention comprises a thrust diaphragm (14) adapted for connection to a driven member and peripherally held at one end of the valve housing. This diaphragm is biased towards a rear position by a bias member (17) from which position it is movable forward under pressure exerted by fluid introduced into the housing to a first position at which mechanical contact is made between the thrust diaphragm and a rear valve part (7). This rear valve part carries an inlet valve member (2A) which is moved forward with the valve part to separate a fluid-inlet port (28) from the thrust diaphragm and mechanical contact is made between the rear valve part and a central valve part (2A, 24A). Further forward movement of the thrust diaphragm moves the central valve part forward to open an outlet valve (23B, 13B) so that fluid under pressure is lost from the housing through an outlet port (29) and then the thrust diaphragm is moved rearward by the bias member to move the rear part rearwards to open the inlet valve and close the outlet valve. The central valve part and the rear valve part are both biased rearwardly by bias members (21, 25). The assembly is capable of automatic reciprocation when fluid pressure is applied and is of application to supply fluid pressure to a fluid-operated motor.

3,602,098

HYDRAULIC PRESS WITH HIGH AND LOW CAPACITY RECIPROCATING FLUID MOTORS IN TANDEM

Jerome E. Balke, Fountain Valley, Calif., assignor to Murock, Inc., Compton, Calif.

Filed Aug. 24, 1969, Ser. No. 844,287

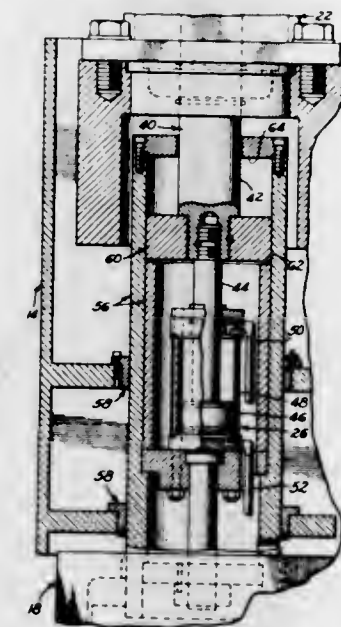
Int. Cl. F15b 11/16

U.S. Cl. 91—411 A

3 Claims

A hydraulic press comprising high and low capacity reciprocating motors structurally connected in tandem and

independently controlled. With this construction, the high capacity motor provides high-tonnage forming forces, while each two ports. During radial or angular movement, of the port member, the rings move radially in annular grooves of



the low capacity motor provides more accurate forming forces at low tonnages.

3,602,099

BALANCING ARRANGEMENT FOR A FLUID HANDLING CONTROL BODY HAVING PARTS

Karl Eickmann, Hayama-machi, Kanagawa-ken, 2420 Isshiki, Japan

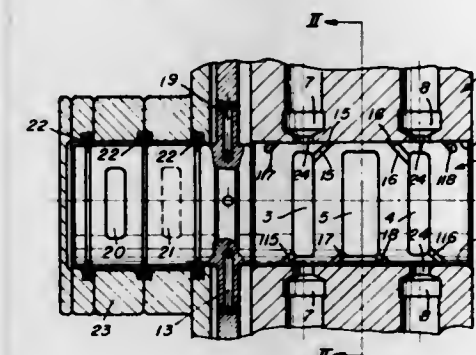
Filed June 4, 1969, Ser. No. 830,299

Claims priority, application Great Britain, June 7, 1968, 27114/68

Int. Cl. F15b 11/08

U.S. Cl. 91—418

12 Claims



A control body has two pairs of control ports, each pair cooperating with a group of working chambers, and the control ports of each pair being located on opposite sides of a control body. At least one pressure balancing recess is located on either side between two control ports on the same side of the control body, and communicates with the two control ports on the opposite side for balancing the pressure exerted by fluid flowing through the same on the control body.

3,602,100

SEALING ARRANGEMENT FOR A RADIALLY MOVABLE PORT MEMBER

Karl Eickman, Hayama-machi, Kanagawa-ken, 2420 Isshiki, Japan

Filed June 4, 1969, Ser. No. 830,298

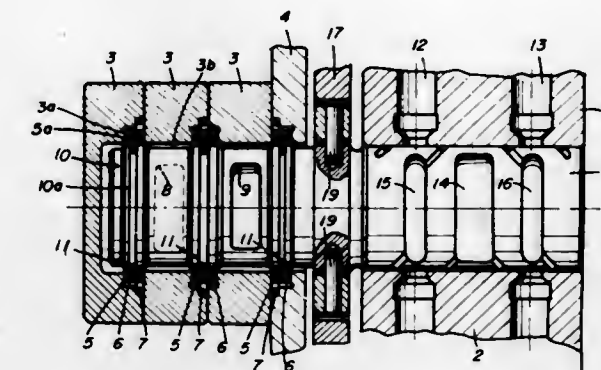
Claims priority, application Great Britain, June 7, 1968, 27113/68

Int. Cl. F15b 11/08

U.S. Cl. 91—418

8 Claims

A radially movable port member is located in a housing spaced from its inner surface, and carries a ring between



the housing while lateral faces thereof slide in sealing contact on lateral faces of the respective grooves so that a sealed chamber is formed for each port.

3,602,101

AUXILIARY POWER STEERING, ESPECIALLY FOR MOTOR VEHICLES

Erich Jablonsky, Schwabisch Gmund, and Dieter Elser, Bobingen-rem, both of Germany, assignors to Zahnradfabrik Friedrichshafen, Aktiengesellschaft, Friedrichshafen, Germany

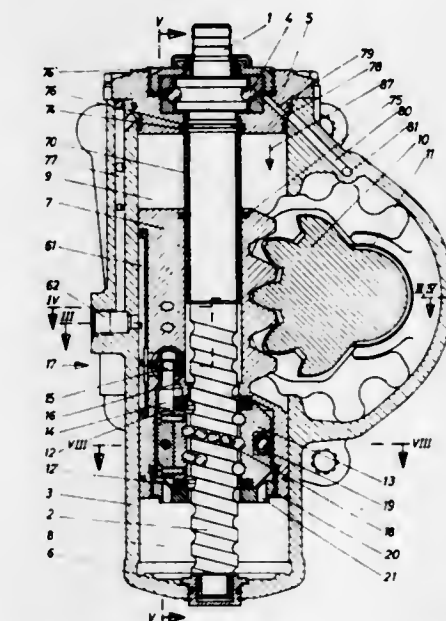
Filed Dec. 22, 1969, Ser. No. 887,100

Claims priority, application Germany, Dec. 21, 1968, P 18 16 295.3

Int. Cl. F15b 11/08, 13/14

U.S. Cl. 91—422

20 Claims



A power-steering device using hydraulic pressure is provided of very compact construction utilizing a ball nut on a steering spindle worm disposed in a pressure piston wherein the ball nut is housed within the piston and actuates a spool valve which controls pressure to and from both ends of the piston. The valve itself is carried in the piston transversely of the axis and displaced radially therefrom and driven by an actuator connection with the ball nut. The device has a housing providing suitable flow passages for pressure feed and exhaust from the valve, the piston having elongated longitudinal passages, among others, which maintain flow communication with housing passages at all positions of the piston.

3,602,102

FLUID PRESSURE ACTUATOR APPARATUS

Thomas S. Fenari, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 19, 1970, Ser. No. 21,011

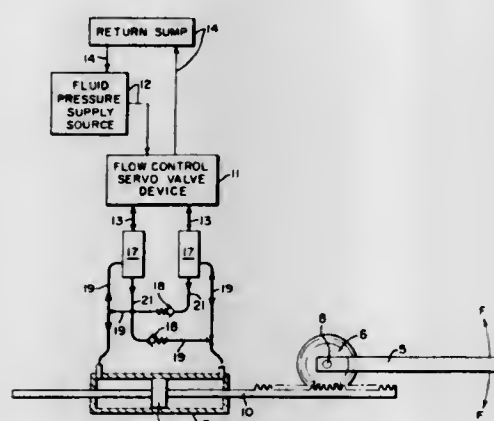
Int. Cl. F15b 11/08, 13/042

U.S. Cl. 91—438

4 Claims

An improved fluid-pressure actuator apparatus of the type comprising a fluid-pressure supply source, a fluid-pressure-operated actuator, a pivotal work member driven angularly

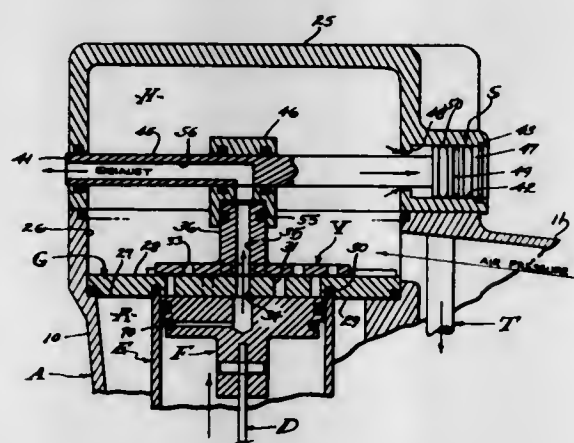
by such actuator, a flow control servo valve device between source and actuator, and overload-preventing means having a relief valve means for bleeding off actuator pressure above a certain release value. The improvement resides in the use of



a relief-valve means having a release pressure that is significantly below the source pressure, and in the inclusion of a relief-valve interlock means to render the relief-valve means nonresponsive during flow of fluid under pressure to the actuator.

3,602,103

SLIDE-LATCH VALVE FOR AIR-DRIVEN TOOLS
Richard E. Powers, San Marlon, Calif., assignor to Powers Wire Products Co., Inc., El Monte, Calif.
Filed July 31, 1969, Ser. No. 846,316
Int. Cl. F15b 11/08, 13/042; B25c 1/04
U.S. Cl. 91-443 28 Claims



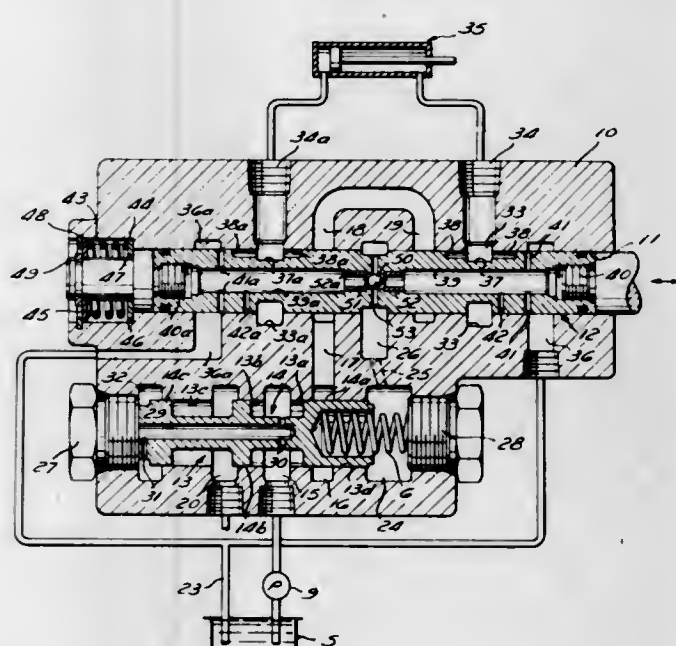
A latch valve of the slide type is provided in the air storage chamber of an air-operated cylinder and piston tool which requires a percussive or striking action followed by return to a condition prepared for subsequent and rapidly repeated action. In the returned and prepared condition the latch valve captures a charge of compressed air in the storage chamber while exhausting the cylinder so as to permit the preceding return stroke. In the fired condition the latch valve opens the storage chamber directly into the cylinder while closing the exhaust. In one form the latch valve includes a port that opens into a return air reservoir when in the fired condition to charge the same. In another form the latch valve includes a transfer tube that cooperates with said port to exhaust the return air reservoir after each full cycle of operation.

3,602,104

PRESSURE-COMPENSATED FLOW CONTROL
Donald A. Stremple, Strongsville, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed July 8, 1969, Ser. No. 839,844
Int. Cl. F15b 11/08, 13/042
U.S. Cl. 91-446 12 Claims

Spool valve having its inlet flow rate regulated by a pressure-compensating piston that is reference to the low-pres-

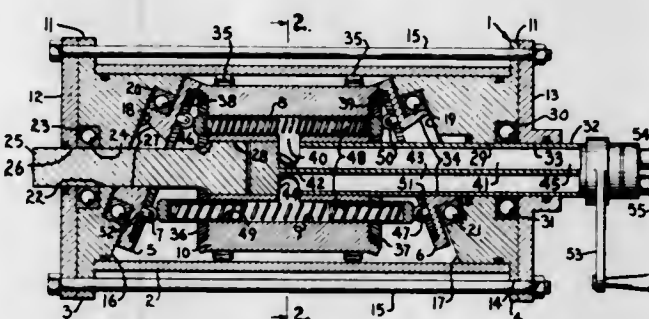
sure return when the valve spool is in its neutral position holding a load. In a first embodiment the valve spool itself carries a ball shuttle valve that determines which motor port of the spool valve is connected to the pressure-compensating piston. In a second embodiment the bypass flow provided by



the pressure-compensating piston may go to another load circuit, such as another pressure-compensated spool valve, or to the low-pressure return. In both embodiments, the pressure-compensating piston acts as a load check in the event of inlet pressure failure.

3,602,105

HYDRAULIC APPARATUS
Emmet G. Slusher, P.O. Box 472, Higginsville, Mo.
Filed July 9, 1969, Ser. No. 840,346
Int. Cl. F04b 1/02, 1/22
U.S. Cl. 91-483 6 Claims

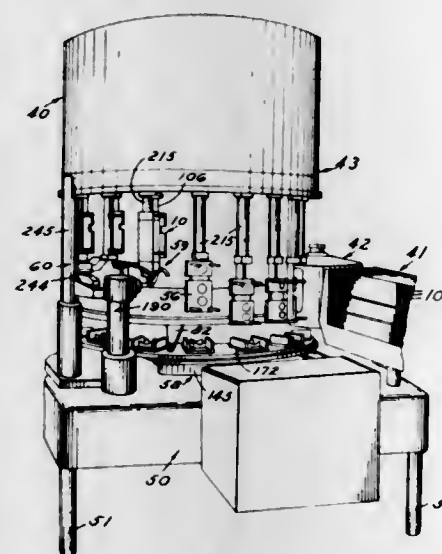


A hydraulic apparatus, such as a pump or motor, is contained within an elongated tubular casing having end heads closing opposite ends thereof. An elongated cylinder member is rotatably mounted within the casing and has a plurality of circumferentially spaced cylinder forming bores therein with an elongated piston member movably mounted within each bore, resilient means being arranged for urging the piston members outwardly relative to the cylinder member. Fluid intake or input and outlet flow means communicate with the cylinders for flow of fluid through the pump or motor. A cam or wobble plate is turnably supported on one end head and has piston-engaging portions in the form of a plurality of circumferentially spaced bearing members arranged to be in a plane at an acute angle to the longitudinal axis of the cylinder member whereby rotation of the cam plate effects or is in response to reciprocation of the piston members. The wobble or cam plate has portions thereon meshing with gear means on the adjacent end of the cylinder member for a positive driving connection therebetween for transmitting rotary motion between a power member and the cylinder member and cam plate.

3,602,106

MACHINE FOR FORMING PAPERBOARD CONTAINER BOTTOM CLOSURE

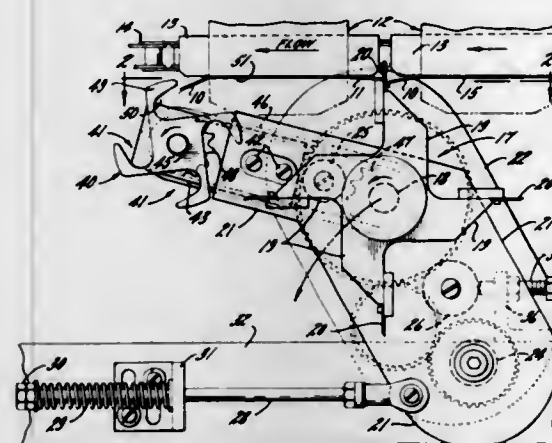
Robert J. Allen, Farmington, Mich., assignor to Ex-Cello-O Corp., Detroit, Mich.
Filed June 18, 1969, Ser. No. 835,308
Int. Cl. B31b 1/02
U.S. Cl. 93-44.1 20 Claims



A continuous motion container-fabricating machine for forming a paperboard container bottom closure. The machine comprises a support means, a rotary turret provided with a plurality of working stations with a vertically reciprocable container carrier means at each station, a container bottom heater means including floating heater carrier plate and adjustable heater heads on the carrier plate, a bottom closure folding and tucking means including a pair of rotating breaker fingers mounted on the same shaft and operatively associated with a pair of water-cooled guide rails, and a floating pressure rail means operating with a pressure arm sealing assembly.

3,602,107

CARTON FLAP FOLDER
Richard C. Zimmer, and Robert F. Lense, both of Rockford, Ill., assignors to Riegel Paper Corporation, New York, N.Y.
Filed June 20, 1969, Ser. No. 835,035
Int. Cl. B31b 1/26
U.S. Cl. 93-49 6 Claims

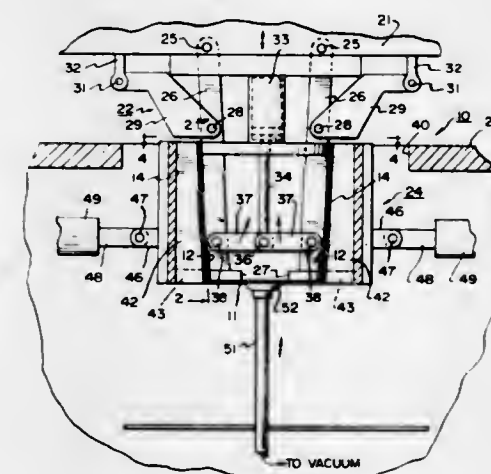


A machine for folding the leading and trailing flaps of cartons being advanced one by one by a chain along a predetermined path. The leading flaps are folded by a wheel with a number of retarders spaced about the periphery of the wheel. The wheel turns to bring a retarder into intersecting relation with the path of each carton ahead of the leading flap. When in intersecting relation with the path, the retarder moves in the flow direction of the cartons but at a slower speed. The leading flap thus catches up with the retarder and is engaged by the latter. Due to the difference in speed, the carton passes by the retarder, and the leading flap is folded. The

wheel is rotated in timed relation with the advance of the cartons by a drive directly connected to the drive for a cutter rotor which is rotated in timed relation with the advance of the cartons. The trailing flaps of the cartons are folded by a folding rotor which is driven in timed relation with the advance of the cartons by the same drive chain which advances the cartons.

3,602,108

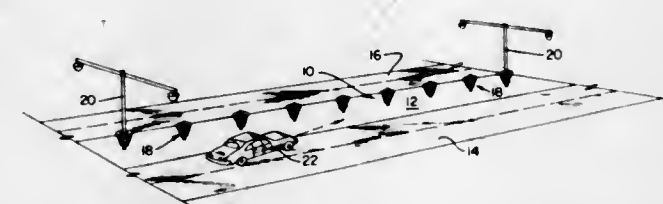
APPARATUS FOR FORMING CONTAINER BODY
Ralph O. Vuilleumier, Malvern, Pa., and Leroy Jones, Ooltewah, Tenn., assignors to Container Corporation of America, Chicago, Ill.
Filed Aug. 14, 1969, Ser. No. 849,978
Int. Cl. B31b 1/44
U.S. Cl. 93-51 3 Claims



Apparatus for forming a container body from a cut and scored blank of paperboard or the like, the container body having an essentially polygonal-shaped base, such as rectangular or square, and curved sides fairing from the base and terminating in the upper boundaries thereof in a generally closed rim in the form of a circle or an ellipse. The apparatus is characterized by structure engageable with the cut and scored blank while supported on a plane, the structure moving with respect to the aforesaid plane in such a fashion as to cause the sides to move into angular relationship with respect to the base panel of the blank and into overlapping relationship along the side margins thereof. The aforesaid structure cooperates with structure external of the so formed blank to firmly press the marginal edges of the sides into firm engagement, the structure internal of the blank being adapted to be collapsed for the subsequent withdrawal thereof at the conclusion of the forming of the container body.

3,602,109

HIGHWAY SAFETY GUARD-ROLL BARRIER
Daniel C. Harrington, 2844 Depew St., Denver, Colo.
Filed Aug. 4, 1969, Ser. No. 847,157
Int. Cl. E01c 23/16
U.S. Cl. 94-1.5 6 Claims



Total barrier or guard-roll assembly comprises series of individual guard-roll barrier units spaced along one or both sides of a roadway. Each unit comprises support and guard structure rotatable about generally upright axis with upper portion closer to roadway axis to form overhang. When vehicle strikes one or more units they start rotating, attenuate impact, and redirect the vehicle. The overhang effect prevents

climbing and keeps vehicle on ground. Impact surfaces are pneumatic low-pressure rubber tubes arranged to form frustocones rotating on vehicle spindle. They may also be of uniform diameter or may be single resilient conical bodies but are preferably series of heavy rubber tubes of variable diameter arranged to provide maximum surface to impacting vehicle. The attitude of the spindle may vary from vertical to permit use of uniform buffer elements.

Barrier elements may be arranged in tandem parallel to the road shoulder to intercept errant vehicles and promote straight line attenuation. For positive arrest, elements are deployed in lead-in lines in paired sequences to promote pocketing. Lateral spacing between paired elements converge to attenuate by actuating wringer effect. Special pocketing arrangements may be used to trap and decelerate trucks at critical locations.

3,602,110

LIGHTWEIGHT STEEL LAND MAT

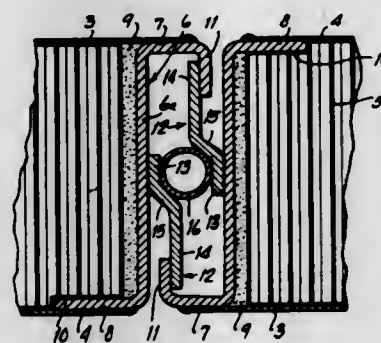
Thomas H. Wiggins, Akron, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio

Filed Oct. 31, 1968, Ser. No. 772,174

Int. Cl. E01c 5/00

U.S. Cl. 94-13

9 Claims



A lightweight rectangular structural panel comprising two stainless steel facing sheets bonded to an aluminum honeycomb core and having identical sheet steel edge-connector rails fastened to the core and facing sheets on four sides which cooperate with the identical rails on a similar panel in combination with a spline tube to lock the panels together to form a composite mat which is suitable for use as a road or landing strip on rough and uneven terrain.

3,602,111

PAVING BLOCKS

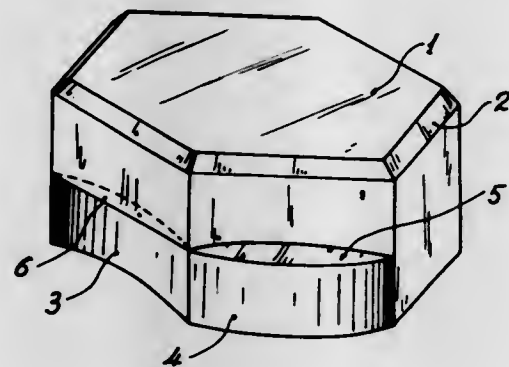
Fermin Laguardia Clemente, Pablo Garnica, 8, Torrelavega, Santander, Spain

Filed June 9, 1969, Ser. No. 831,581

Int. Cl. E01c 5/00

U.S. Cl. 94-13

2 Claims



Paving blocks for the formation of paving by which it is avoided cracks produced by flexing, or expansion and contraction on continuous pavings or large paving flags, and repair and replacement is readily and easily done. These blocks are prefabricated in concrete, ceramic, plastic or

other materials, upper part of which presents a prismatic shape with a regular polygonal section, preferably hexagonal, and with the lower part provided with curved surface depressions and protrusions that determine and allow at the same time for their linkage and articulation.

3,602,112

CONCRETE-PAVING MACHINES

Albert E. Burks, Lambley, England, assignor to Robert McGregor & Sons Limited, Chesterfield, England

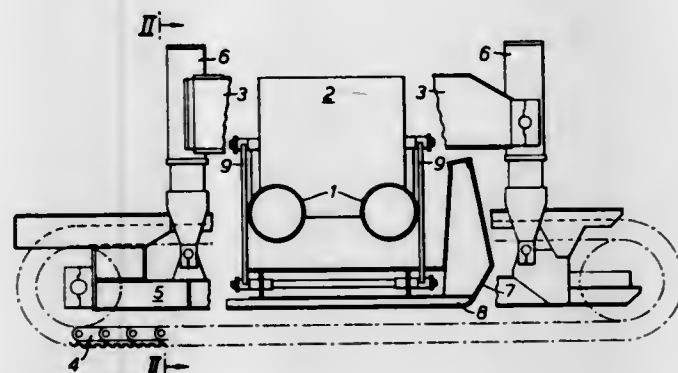
Filed Sept. 10, 1969, Ser. No. 856,736

Claims priority, application Great Britain, Sept. 18, 1968, 44350/68

Int. Cl. E01c 19/12

U.S. Cl. 94-44

7 Claims



A concrete-paving machine of the kind embodying a conforming plate which, as the machine advances, levels plastic concrete preplaced in front of the machine, has the conforming plate mounted for controlled lateral displacement on the machine so providing supplementary control over its path of travel independent of the machine's steered course.

3,602,113

AUTOMATIC CROWNING SYSTEM FOR PAVERS

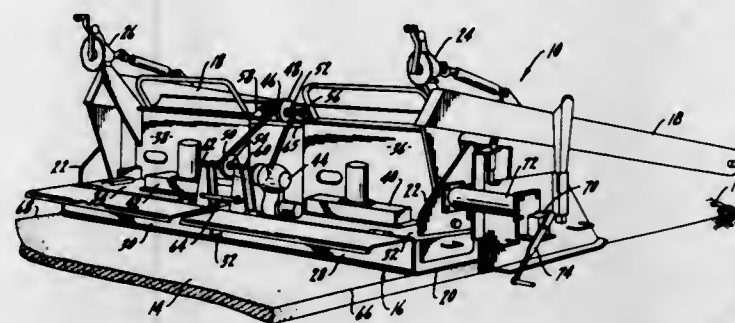
Donald R. Davin, Shelbyville, and Thomas I. Files, Mattoon, both of, Ill., assignors to Blaw Knox Company, Pittsburgh, Pa.

Filed Oct. 22, 1969, Ser. No. 868,427

Int. Cl. E01c 19/22

U.S. Cl. 94-45

15 Claims



A paver for depositing paving material into a mat along a roadway. The crown of the mat is automatically varied through operation of a control system sensing a preestablished crown reference. Different forms of the invention provide either mechanical or electrical feedback to null out crown control signals.

3,602,114

ITEMS HAVING INDICIA THEREON AND METHOD OF PRODUCING SAME

Edwin J. Peters, 2220 Dallas, Royal Oak, Mich.

Filed Oct. 17, 1968, Ser. No. 768,280

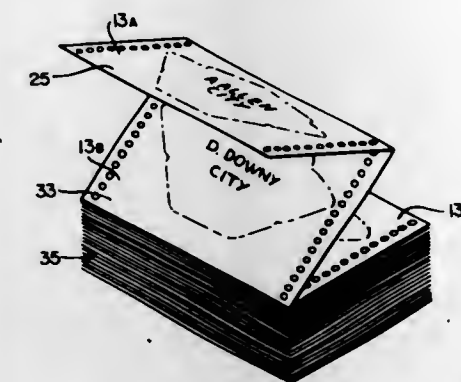
Int. Cl. B31b 1/00

U.S. Cl. 93-61 R

10 Claims

Method of addressing and forming envelopes by first printing on one side of alternate perforated sections of fanfolded

paper, and then printing on the reverse side of those sections skipped in the first printing. Forming a stack having the



printed addresses aligned, and then cutting all the addressed sections into envelope blanks in one diecutting step. Folding and gluing the blanks into addressed envelopes.

3,602,115

PAVING APPARATUS

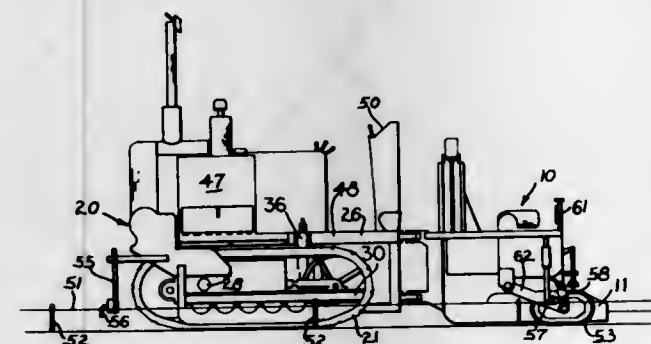
Raymond A. Hanson, Box 19148 Spokane International Airport, Spokane, Wash.

Filed Sept. 18, 1969, Ser. No. 858,986

Int. Cl. E01c 19/48

U.S. Cl. 94-46

9 Claims



A paving apparatus designed specifically for sidewalks, curbs, and similar concrete paving applications. Included is a paving head pivotally mounted to and trailed behind a mobile supporting unit. The mobile supporting unit includes a rigid frame that carries the paving head. Independent drive assemblies at each side of the rigid frame are mounted to it by a pivotal axle and adjustable suspension units.

3,602,116

TYPE-COMPOSING MACHINES

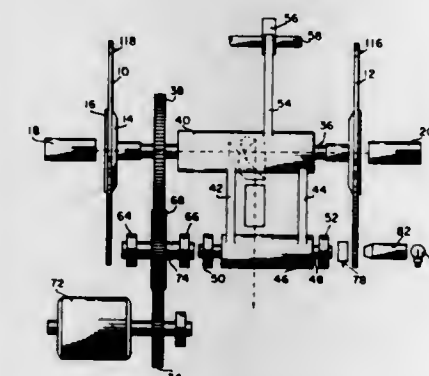
Louis M. Moyroud, c/o Photon Inc., 355 Middlesex Ave., Wilmington, Mass.

Continuation-in-part of application Ser. No. 726,129, May 2, 1968. This application Aug. 22, 1969, Ser. No. 852,324

Int. Cl. B41b 21/24

U.S. Cl. 95-4.5

2 Claims



A photocomposing machine includes a pair of interchangeable discs removably mounted for rotation on a common

shaft, a pair of prisms which act as a beam splitter for merging character images from each disc along a common optical path, the prisms also being designed such that all images have a single orientation when they arrive at an image-receiving surface, a lens turret for changing size, and a style-shifting mechanism which moves the discs in unison. In addition, a lens positioned in the optical path between the prisms and the lens turret is adapted to form a first (or intermediate) aerial image of each projected character prior to the character image being focused on the image-receiving surface.

3,602,117

ENCODED FILM HOLDER

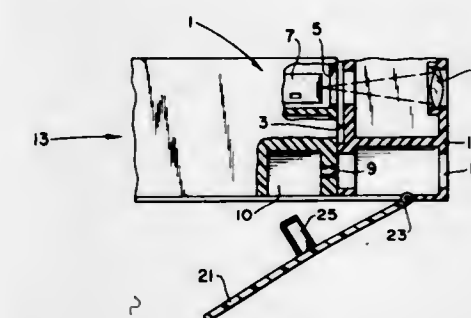
John H. Eagle, deceased, late of Irondequoit, N.Y.; by Lee A. Eagle, executrix, Irondequoit, N.Y.; Lincoln Rochester Trust Co., executor, Rochester, N.Y., and Allen G. Stimson, Brighton, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 26, 1969, Ser. No. 853,220

Int. Cl. G03b 17/26, 19/04, 19/18

U.S. Cl. 95-10 C

3 Claims



A film holder is encoded by means of an aperture and/or a filter in accordance with one or more photographic characteristics of film contained therein to control the amount and/or type of scene light passing to a photocell of an exposure-control system in an associated camera to adjust said system in accordance with said one or more characteristics.

3,602,118

HOUSING FOR PHOTOGRAPHIC CAMERAS

Robert Oberhelm, Neu Isenberg, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany

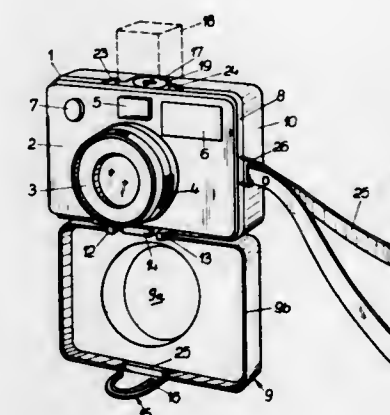
Filed June 3, 1968, Ser. No. 733,892

Claims priority, application Germany, June 7, 1967, B 92 896

Int. Cl. G03b 17/04, 17/56

U.S. Cl. 95-11

18 Claims



The housing of a still camera comprises a body whose front wall carries the lens mount, shutter release trigger and certain other components and which further defines one or more chambers for one or more film magazines. A frame of the body is pivotally connected with a front cover which can be moved to closed position to overlie the front wall and a rear cover which can be moved to a closed position to overlie

and to seal the chamber or chambers. Both covers are hingedly connected to a bottom portion of the frame and each thereof can be releasably coupled to the body in closed position. The front cover can be locked in open position in which it permits the operator to use the camera and this front cover can be completely separated from the body to afford access to a socket by means of which the body is connectable to a tripod.

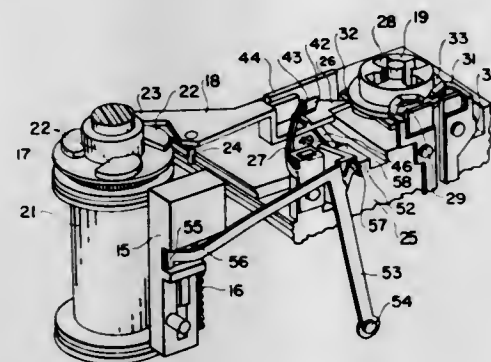
3,602,119
DRIVE MECHANISM FOR ROTATABLE FLASHCUBE SOCKET

Paul J. Ernise, and Robert L. Reynolds, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 27, 1969, Ser. No. 802,866
Int. Cl. G03b 17/48

U.S. Cl. 95-11 L

4 Claims



A flashcube socket incorporated in a photographic camera is rotated intermittently by a pivotable drive lever actuated by a cam on a manually rotatable film winding member. A simple and reliable latch member carried by the drive lever disables the latter each time the socket has rotated through a predetermined angle to bring the next flashcube bulb into operative position, whereby the continuing rotation of the winding member has no influence on the socket until the latch member has been released by operation of the camera shutter.

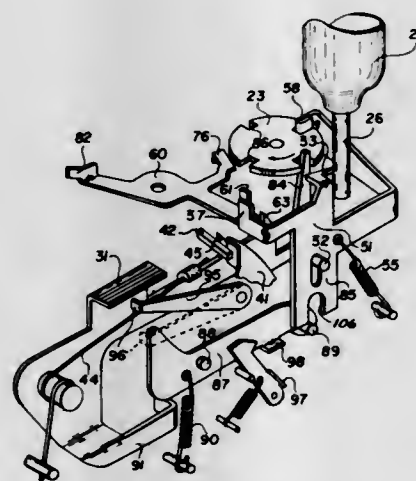
3,602,120
MECHANISM FOR USE WITH PHOTOGRAPHIC APPARATUS TO AUTOMATICALLY CONTROL FLASH IN RESPONSE TO SCENE BRIGHTNESS

Floyd M. Galbraith, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 14, 1968, Ser. No. 767,140
Int. Cl. G03b 15/04

U.S. Cl. 95-11.5 R

11 Claims



Photographic apparatus such as a still camera for accepting flashlamp units having lamps fireable by striking and selectively controlling the firing of the lamps by selectively either manually or automatically preventing such striking.

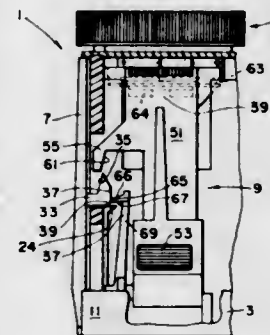
The lamps may be incorporated in a multilamp unit, and the apparatus may have a mechanism to index the unit only when the lamp is operative position is fired.

3,602,121
CAMERA LATCH WITH WINDING CLUTCH
Paul J. Ernise, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 27, 1969, Ser. No. 802,865
Int. Cl. G03b 19/04; E05b 63/20

U.S. Cl. 95-31 R

3 Claims



An improved one-piece camera latch which may be formed from plastic or other moldable material and which includes a latching lug for releasably latching the cover member in a closed position, a resilient abutment member for urging the cover member to an open position when the latching lug is in a releasing position, and an end portion for moving a camera film-winding clutch member between an extended position when the latching lug is in a latching position and a retracted position when the latching lug is in a releasing position.

3,602,122
SHUTTER FOR PHOTOGRAPHIC APPARATUS
Gunter Fauth, Unterhaching, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

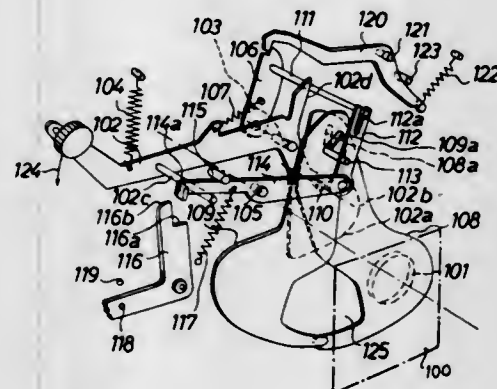
Filed Dec. 11, 1968, Ser. No. 782,840

Claims priority, application Germany, Dec. 22, 1967, P 15 97 099.7

Int. Cl. G03b 9/10

U.S. Cl. 95-59

20 Claims

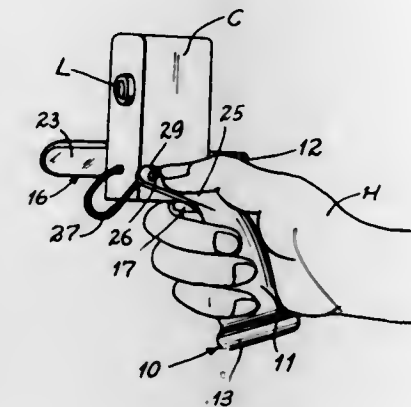


A shutter for still cameras wherein two blades define an adjustable movable opening which moves toward, in registry with and beyond a fixed light-transmitting opening when the user makes an exposure. The size of the movable opening is adjusted before this opening moves into registry with the fixed opening so that the selected size of the movable opening remains unchanged while scene light passes through the two openings during that interval when the movable opening registers with the fixed opening.

3,602,123
CAMERA HANDGRIP
Jackson J. Shinkle, 1904 N. Geyer Road, St. Louis, Mo.
Filed July 10, 1968, Ser. No. 743,826
Int. Cl. G03b 17/56

U.S. Cl. 95-86

3 Claims

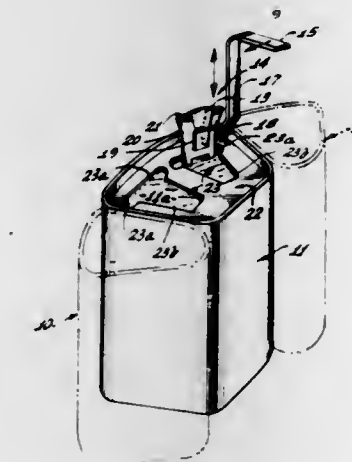


A handgrip for a camera. The handgrip has an index finger guide for aiming of the camera and has a thumb-operated shutter release.

3,602,124
FILM PROCESSOR WITH FLOATING COVER
Wilbur G. Allen, 1807 Kelly St., Oceanside, Calif.
Filed Mar. 24, 1969, Ser. No. 809,502
Int. Cl. G03d 3/00, 3/10

U.S. Cl. 95-89 D

10 Claims



A film-processing apparatus having an arcuate row of processing tanks with open upper ends for admitting a film carrier vertically into and out of the treating liquids in the tanks, the film carrier being advanced step-by-step relative to the tanks and moved into and out of each tank by a conventional feeding mechanism. A protective cover of stable and buoyant plastic is floated on the developer liquid in one tank to prevent aeration of the portion of the liquid under the cover, and has two shaped openings surrounding the upper ends of two immersion zones within the liquid for admitting the carrier with a close clearance fit into the liquid.

3,602,125
FILM-PROCESSING TANK
Seymour L. Hersh, Freehold, N.J., assignor to The United States of America as represented by the Secretary of the Army

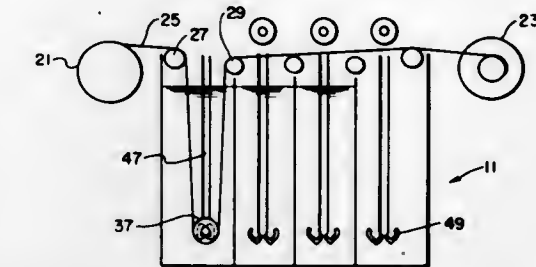
Filed June 3, 1969, Ser. No. 830,069
Int. Cl. G03d 3/00

U.S. Cl. 95-94 R

2 Claims

A tank for processing filmlike material that is transported through discrete sections of the tank in looped configuration. Each tank section is provided with a discrete weighted roller,

that differs in weight or buoyancy from the other rollers, and each of which ride in guide rails to carry the material into the



tank sections. The material is confined by the rollers in its passage through the several sections.

3,602,126
HEATING AND VENTILATION INSTALLATION FOR A MOTOR VEHICLE
Werner Breitschwerdt, Stuttgart-Botnang, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed May 21, 1969, Ser. No. 826,438
Claims priority, application Germany, May 22, 1968, P 17 55 559.8

Int. Cl. B60h 1/24

U.S. Cl. 98-2 C

5 Claims



A heating and ventilation installation for a motor vehicle in which the inner covering of the door and body sidewalls consists of a tough and hard foamed material which itself forms two channels provided, respectively, with upwardly and downwardly directed openings.

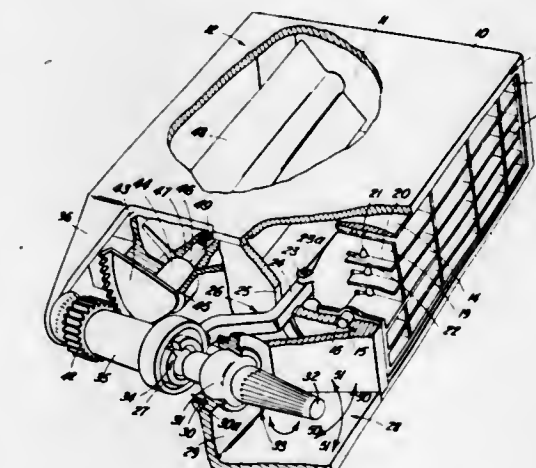
3,602,127
AIR VENTS
Brian Allison Walker, and Roy Ernest Stringer, both of Coventry, England, assignors to Rootes Motors Limited, London, England

Filed Feb. 6, 1970, Ser. No. 9,388
Claims priority, application Great Britain, Mar. 21, 1969, 14,997/69

Int. Cl. E06b 7/08

U.S. Cl. 98-110

9 Claims



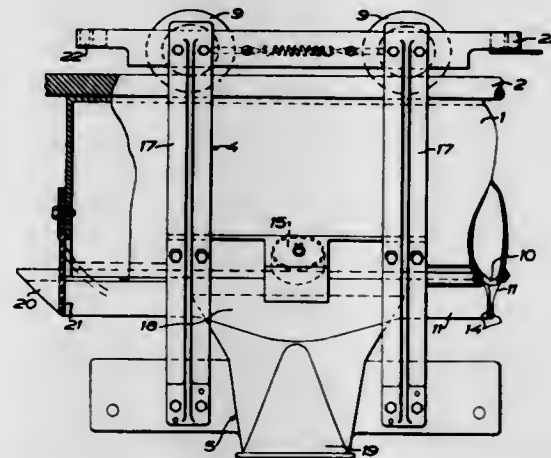
An air vent which comprises a casing in which a housing having a throughway is rotatably mounted about an axis ex-

tending across the casing. Spaced fixed vanes extend across the throughway parallel to the axis of rotation and further vanes extend transversely to the fixed vanes and are rotatably mounted on the fixed vanes. A control member is drivably connected to the further vanes so that movement of the member in one plane pivots the further vanes and in a transverse plane pivots the housing to vary the direction of egress of air from the casing.

3,602,128

EXHAUST SYSTEMS FOR REMOVAL OF FUMES
Erik Allan Lindkvist, Korpralsvagen 44a, 902 53 Umea, Sweden

Filed May 12, 1969, Ser. No. 823,601
Claims priority, application Sweden, May 13, 1968, 6421/68
Int. Cl. F23j 11/00
U.S. Cl. 62—115 VM 3 Claims

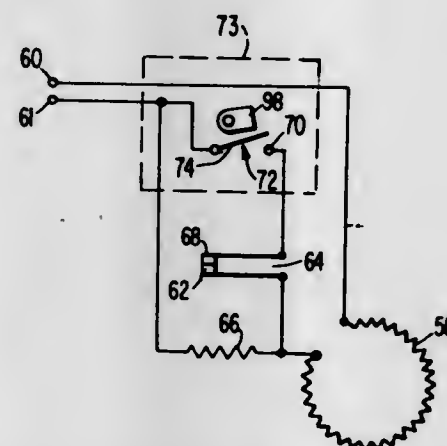


An exhaust system for removal of fumes, gases, vapors and other contaminants from sources of contaminant, such as movable working stations and/or work objects, permits continuous exhaust of contaminant while the working stations and/or work objects are being moved. To this end, communication is established between the source of contaminant and the exhaust fan through fixed duct portions and movable duct portions. These fixed and movable duct portions are interconnected over openings in the fixed duct portions, which openings are kept closed by elastic strips, and over tapping units associated with the movable duct portions, said tapping units being adapted to move aside the elastic strips to establish connection between the fixed and the movable duct portions. The fixed duct portions are arranged along at least certain portions of an overhead track on which run trolleys carrying the tapping units and the movable duct portions.

3,602,129

PERCOLATOR-CONTROL LATOR
Vincent W. Cherre, Rochester, N.Y., assignor to Andex Corporation, Rochester, N.Y.

Filed May 28, 1969, Ser. No. 828,602
Int. Cl. A47j 31/00
U.S. Cl. 99—282 4 Claims



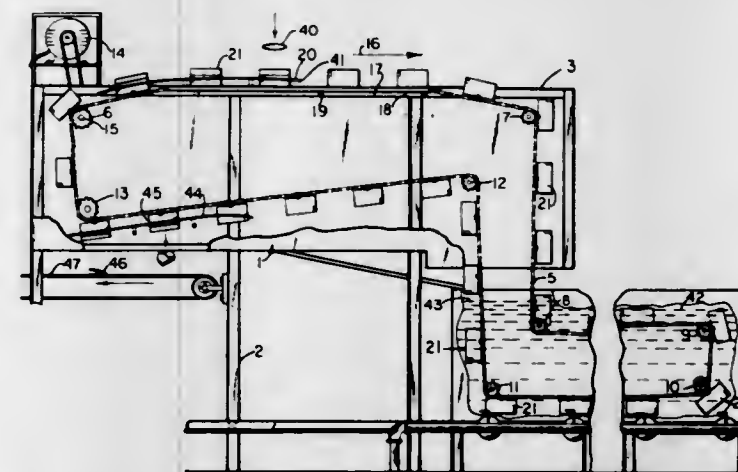
A coffeepot for extracting the desirable quantity of soluble solids from ground coffee at a temperature lower than the

boiling point of water. The pot comprises a water-coffee container supporting a grounds-holding basket on a stem member and including a pressurizer chamber for receiving water from the stem member and discharging same at a temperature of $195 \pm 5^\circ \text{F.}$ into coffee grounds in the basket. The pot also includes a detachable heating unit where the heating unit comprises a spring-operated timing switch connected in series with a thermally operated switch and a resistance heater.

3,602,130

CONTINUOUS TACO MOLDING AND FRYING MACHINE

Jesse J. Perez, Kansas City, Kans., assignor to Frank L. Herrera, d.b.a. Casa Herrera, Los Angeles, Calif.
Filed Apr. 22, 1970, Ser. No. 30,893
Int. Cl. A47j 27/00
U.S. Cl. 99—404 6 Claims

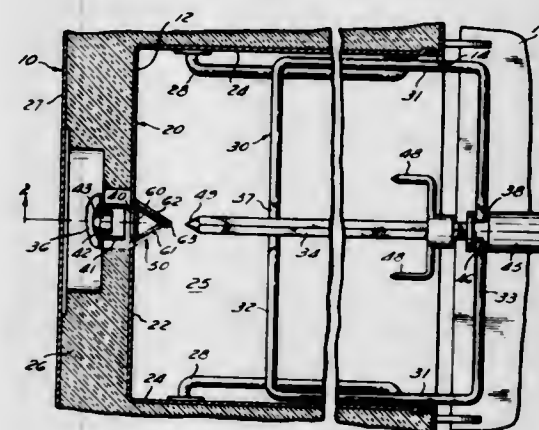


Taco dough holders secured in spaced relation along a pair of continuously moving adjacent endless chains are each composed of a central dough-receiving inverted V portion with outer edges. Side wings are hingedly connected at these edges and are adapted to cooperate with guide rods positioned along the path of the chains for selectively rotating the wings to an open position for receiving the taco dough or discharging taco shells. Springs selectively urge the wings to a closed position for retaining the dough in folded condition during cooking.

3,602,131

PENDANT COVER FOR ROTISSERIE SPIT HOLE
Thomas E. Dadson, Franklin, Mich., assignor to Kelvinator, Inc., Grand Rapids, Mich.

Filed Apr. 15, 1969, Ser. No. 816,245
Int. Cl. A37j 37/04
U.S. Cl. 99—421 6 Claims

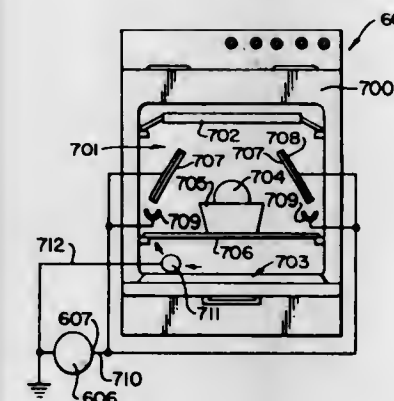


This invention relates generally to ovens of the type used in household ranges and more particularly to ranges of the self-cleaning or pyrolytic type having a rotisserie using an external drive motor.

3,602,132

COOKING APPARATUS HAVING AN OVEN AND ELECTROSTATIC ELECTRODE MEANS IN THE OVEN
Robert R. Candor, 5940 Munger Road, and James T. Candor, 5440 Cynthia Lane, both of Dayton, Ohio

Continuation-in-part of application Ser. No. 848,055, Aug. 6, 1969. This application Aug. 3, 1970, Ser. No. 60,337
Int. Cl. A47j 27/00; F27d 11/00; A21b 1/22
U.S. Cl. 99—444 4 Claims

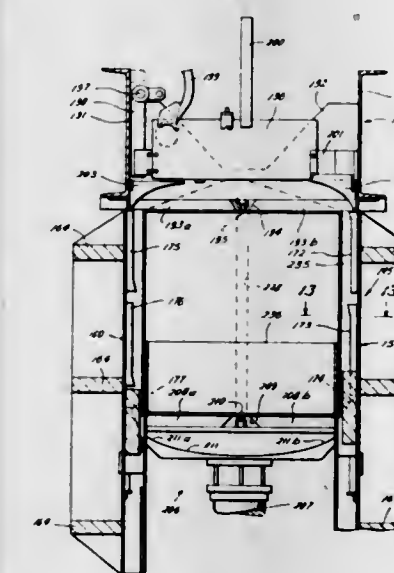


A cooking apparatus having an oven, heating means for heating said oven, and support means to support article means in said oven to be effected by the output of the heating means. Electrode means carried by the apparatus and being disposed in the oven, said electrode means being in electrically spaced relation to the article means. A potential differential imposed between the article means and the electrode means to tend to cause soiling particles of the article means to move toward the electrode means during the heating thereof by the heating means to tend to prevent soiling of the cooking apparatus. Means for creating air movement in said oven to direct the soiling particles toward the electrode means and means can be provided to ionize such soiling particles so that the same are more readily attracted by the electrode means.

3,602,133

BALE BANDING APPARATUS
Joseph C. Neltzel, Denton; G. W. Dickson, Dallas, and James A. Nelson, Dallas, all of, Tex., assignors to Murray Company of Texas, Inc., Dallas, Tex.

Filed June 12, 1968, Ser. No. 736,335
Int. Cl. B65b 13/04
U.S. Cl. 100—26 8 Claims

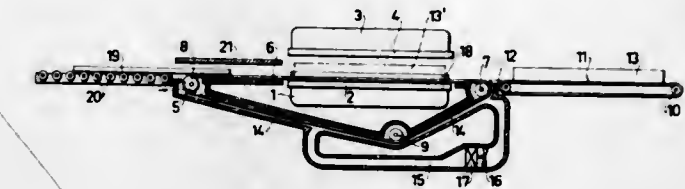


A fiber baling press is provided with automatic means for applying longitudinal as well as transverse banding to the bale, such means consisting of tracks and banding heads arranged so as to permit normal opening of the side and end doors of the press for releasing the bale.

3,602,134

METHOD AND ARRANGEMENT IN HEAT PRESSES
Bengt J. Carlsson, and Mauritz R. G. Sundberg, both of Motala, Sweden, assignors to Aktiebolaget Motala Verkstad, Motala, Sweden

Filed Oct. 9, 1968, Ser. No. 766,175
Claims priority, application Sweden, Oct. 19, 1967, 14346/67
Int. Cl. B02c 11/08; B30b 15/34
U.S. Cl. 100—38 6 Claims



A method and apparatus for use in heat presses is provided and includes an endless conveyor belt drawn through a press opening between two hot plates. Goods to be pressed are placed on the upper part of the conveyor belt and the section of the conveyor belt receiving goods for immediate movement into the press is heated. Apparatus is provided for heating the conveyor belt and the goods thereon immediately prior to movement of the goods into the press for processing therein.

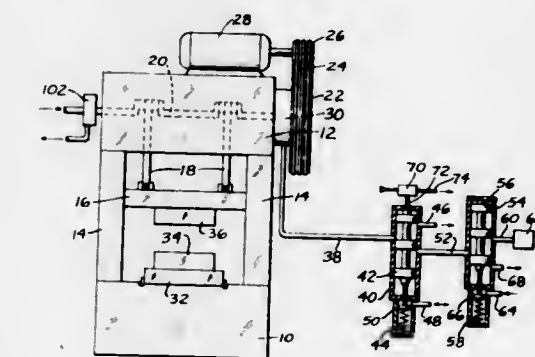
ERRATUM

For Class 100—53 see:
Patent No. 3,602,237

3,602,135

FLUIDIC PRESS CONTROL SYSTEM
Philip V. Monnin, Minster, Ohio, assignor to The Minster Machine Company, Minster, Ohio

Filed Oct. 21, 1968, Ser. No. 769,221
Int. Cl. B30b 15/14
U.S. Cl. 100—53 28 Claims



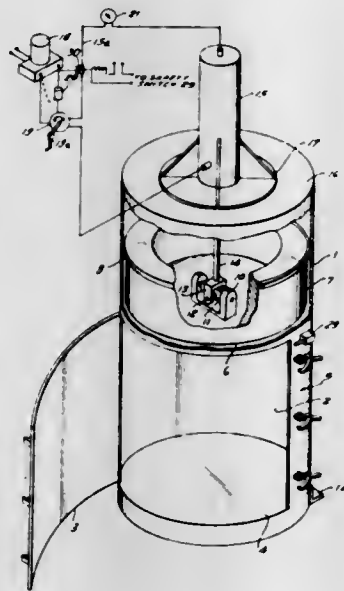
A control system for a press in which the press has a fluid-actuated clutch and brake mechanism with a fluid-operated control valve and a fluidic system for controlling the supply of actuating fluid to the control valve, said fluidic system comprising a plurality of fluidic components connected in circuit and operated by pushbuttons and selector switches to provide continuous cycling of the press, single cycling of the press, and inching of the press, as well as emergency stopping and top stopping thereof.

3,602,136

REFUSE COMPACTOR
David R. Ligh, 193 Main St., Madison, N.J.
Filed Feb. 18, 1969, Ser. No. 800,220
Int. Cl. B30b 15/00 13 Claims

A refuse compactor has an upright housing whose internal compacting chamber is accessible by a door provided in its circumferential wall. A compacting head fills the cross section of the chamber and is guidedly slidable in axial direction

thereof. A power source and motion-transmitting arrangement are provided for advancing the compacting head towards an end wall of the housing to thereby compact refuse



between the end wall and the compacting head, and for subsequently withdrawing the compacting head in direction away from the one end wall for enabling removal of the compacted refuse.

3,602,137

EMBOSSING DISC WITH BACK-FILLED CHARACTERS
James A. Fort Camp, Middleburg Heights, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio
Filed Dec. 18, 1968, Ser. No. 784,561
Int. Cl. B44b 5/02

U.S. Cl. 101-29

5 Claims

Mated punch and die discs manufactured from workable sheet material, with embossed characters backfilled to provide resistance to embossure collapse.

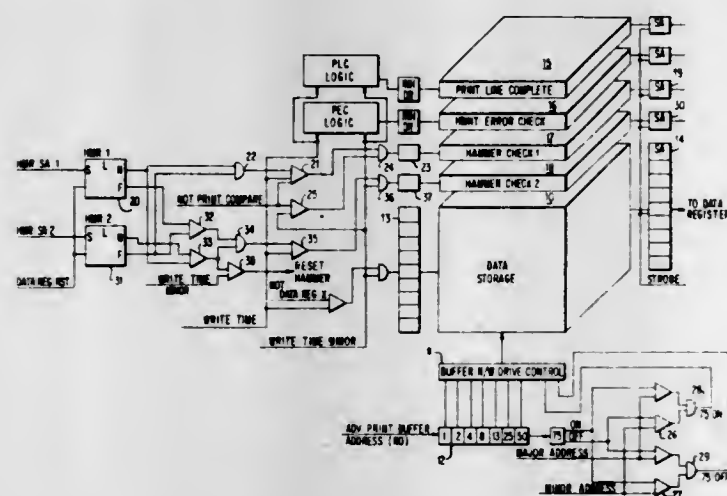
3,602,138

HAMMER DRIVER TIMING FROM A PRINT BUFFER RING

James G. Barcomb, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 30, 1969, Ser. No. 889,022
Int. Cl. B41j 9/00, 1/20; G06f 7/00

U.S. Cl. 101-93

5 Claims



There is disclosed timing logic which is useful in high speed chain printer apparatus. The function of the logic is to time the print hammers accurately to any pulse duration that is needed regardless of the print scan timing. In the version specifically described, the logic times the hammer pulse to

2.5 print scans by modifying the hammer address by one-half of a print scan.

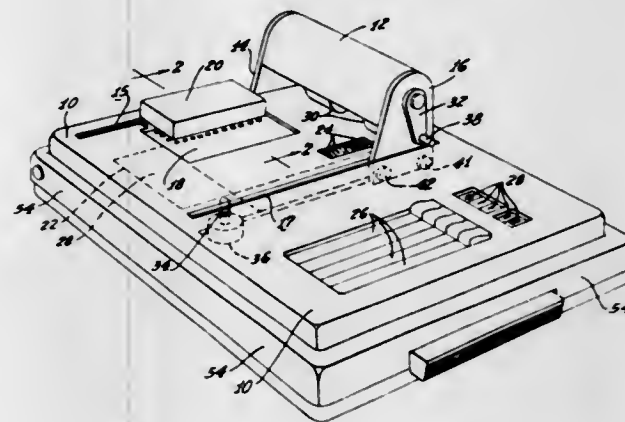
3,602,139

CREDIT CARD IMPRINTER WITH COMPARISON AND CHECKING MEANS

Davies Allport, 966 Muirlands Vista Way, La Jolla, Calif.
Filed Sept. 9, 1968, Ser. No. 758,214
Int. Cl. B41f 3/04; G06k 7/02; H04q 3/70

U.S. Cl. 101-269

8 Claims



An improved and simplified matching identification unit is provided which is particularly suited for automatically checking the status of identification cards or badges, credit cards, or the like. The embodiment of the invention to be described is a combined credit card imprinter and fluidic computer. The computer includes a master code data storage member which is easily replaceable for updating purposes, and which shall be termed herein as the "executive." The credit card, identification card, or its equivalent, has a code pattern formed thereon by embossments, apertures, or other means. The fluidic computer includes a comparator for matching the code on the card with the code on the executive, so that if the code pattern on the card matches a particular code combination previously set into the executive, for example, the card is rejected.

3,602,140

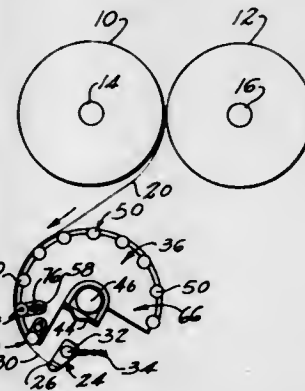
ROTARY ANTISMUT DEVICE HAVING RADIALLY ADJUSTABLE SHEET-SUPPORTING WHEELS

Ralph E. Sudduth, 4701 Danforth Road S.W., Atlanta, Ga.
Continuation-in-part of application Ser. No. 624,050, Mar. 17, 1967, now abandoned. This application Feb. 9, 1970, Ser. No. 9,572

Int. Cl. B41f 21/00

U.S. Cl. 101-420

15 Claims



A method for eliminating the marking on a conventional lithographic press by spacing the sheet after it is lithographed and while it is still wet from the skeleton wheels by small, rotary members of "Teflon" plastic or the like at spaced intervals beyond the periphery of each skeleton wheel. For example, a conventional Harris-Seybold Company, Cleveland, Ohio press L.T.P. or L.U.P., lithographic press has a plurality of spaced, skeleton wheels or discs on a shaft about which

the wet sheets are moved as the sheets are pulled from the press by the chain grippers. Marking which has occurred at this point is substantially eliminated through the use of a plurality of small, individual "Teflon" discs or rollers which have a thin, circular edge around the periphery and which are spaced apart arcuately around the periphery of each skeleton wheel so that the sheet is engaged by these small disc members in sequence as it is pulled by the grippers from the press so that the sheet is not visibly marked. In one form means is provided for simultaneous adjustment of all of the rollers from one control plus a scale for setting.

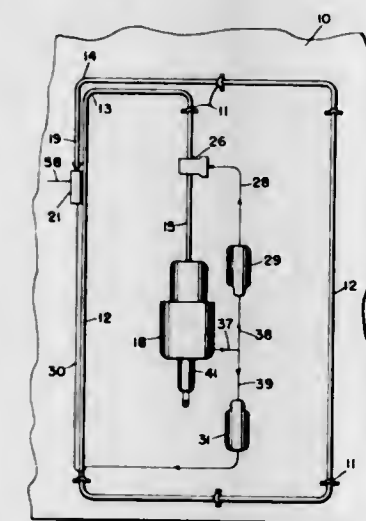
3,602,141

DETONATING SYSTEM

Raymond C. Sutter, and Joseph M. Di Philippo, both of Philadelphia, Pa., assignors to The United States of America as represented by the Secretary of the Army
Filed Nov. 19, 1969, Ser. No. 878,122
Int. Cl. F42b 1/02

U.S. Cl. 102-1

5 Claims



A detonating system for providing an emergency escape exit in an aircraft fuselage or the like, in which a liquid shaped charge tubing is secured in a predetermined manner to a wall for providing a potential escape port therein. The system includes a mixing pump with plural liquid explosive component chambers and a piston responsive to an initiator for expelling a predetermined mixture of the liquid explosive through a nozzle to fill the tubing. A hammer closes the filled tubing when actuated by a 2-second time delay initiator prior to being detonated by a 3-second time delay initiator located in a bypass conduit that interconnects the actuating initiator with the tubing.

3,602,142

CONTACT-TYPE ACTUATING SAFETY DEVICE
Pierre Bignon, Meudon; Rene Berroir, Fresnes; Jacques Raymond Raynaud, Savigny-sur-Orge; Georges Malefond, Montreuil-Sous-Bois; Jacques Leys, Villejuif, and Claude Nee, Antony, all of France, assignors to Nord-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France

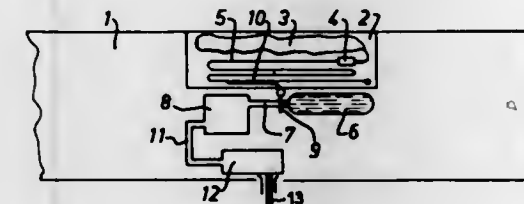
Filed Sept. 30, 1969, Ser. No. 862,311

Claims priority, application France, Oct. 2, 1968, 168,498

Int. Cl. F42b 25/02

U.S. Cl. 102-4

7 Claims



A device for triggering a safety sequence such as the release of a parachute from the load which was suspended from it, at the time of impact of the ground.

3,602,143

TUNNEL WEAPON AMMUNITION

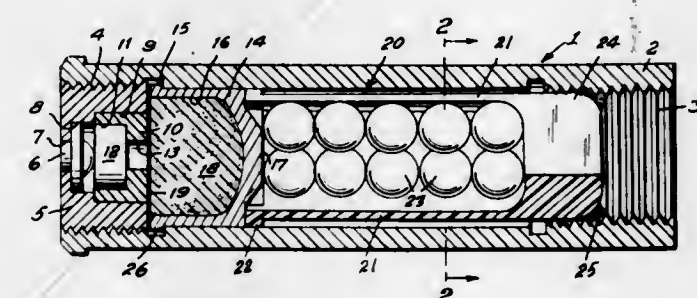
John L. Critcher, Cockeysville, Md., assignor to The United States of America as represented by the Secretary of the Army

Filed Dec. 9, 1969, Ser. No. 883,497

Int. Cl. F42b 7/02, 7/08

U.S. Cl. 102-42 C

6 Claims



A tunnel, or canister-type ammunition which consists of a steel cartridge case containing a tubular, a separable sabot of a plastic-type material capsulating spheroidal missiles, a hollow steel piston containing a propellant and a breech plug including a firing pin and a primer. Upon firing the primer and propellant in a gun, the piston propels the sabot which, when emerging from the gun barrel, will fall apart to free the missiles for scattering.

3,602,144

SPIN ATTENUATOR STRUCTURE FOR MECHANICAL TIME FUZES

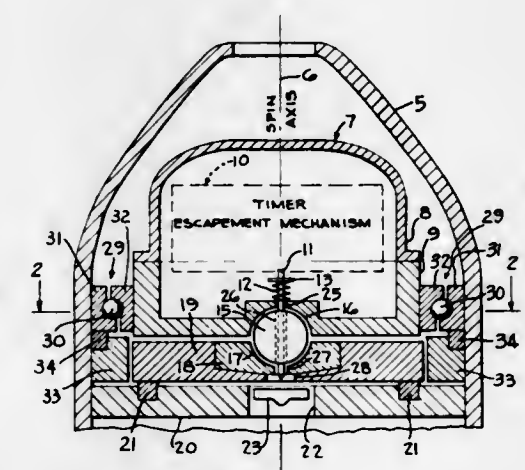
Abraham L. Korr, Philadelphia, Pa., assignor to The United States of America as represented by the Secretary of the Army

Filed Jan. 26, 1970, Ser. No. 5,456

Int. Cl. F47c 9/04, 19/02

U.S. Cl. 102-84

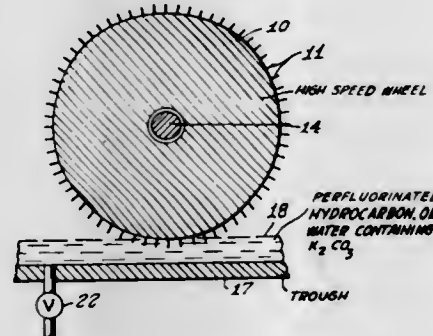
6 Claims



A cylindrical fuze housing is rotatably mounted in a shell case on the spin axis and supported by an inner or central rear ball thrust bearing on said axis and by an outer ring or annular ball bearing within the shell case. The outer ring bearing is supported by a deformable thrust ring and the rear thrust ball is likewise mounted in a housing which, in turn, is supported by a second deformable thrust ring connected with

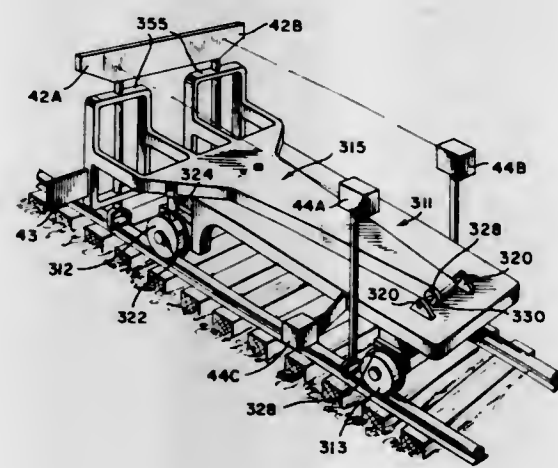
the casing. The deformable rings take up the setback shock, and the bearings provide rotational movement between the shell case and the timing mechanism of the fuze, thereby protecting it from error due to shock and rotation.

3,602,145
**AIR-LIQUID CUSHIONED WHEELS FOR SUPPORTING
EXTREMELY HIGH VELOCITY VEHICLES**
John C. St. Clair, Box 216, R.R.5, London, Madison, Ohio
Filed Apr. 16, 1969, Ser. No. 816,713
Int. Cl. B60v 3/06
U.S. Cl. 104—1



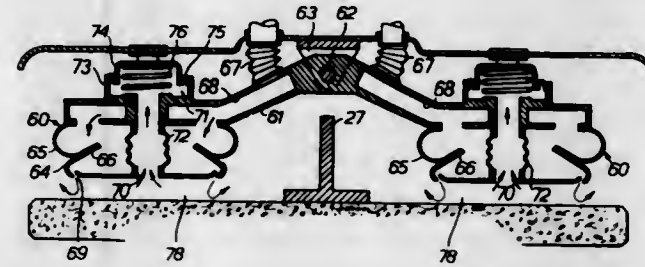
Wheels capable of supporting vehicles at velocities from 100 to 800 miles per hour with little loss of power are made with 0.25 inch square shallow cups on the treads. The wheels rotate at the speed of travel practically eliminating shear stresses between the wheel tread and the water in a trough a wheel has as a track. The cups press down on the water but air is trapped in the cups which acts as a cushion to prevent excessive pressures on the water at points which cause power losses.

3,602,146
MOVING FRAME TRACK CORRECTION MACHINE
John Kenneth Stewart, Columbia, S.C., assignor to Tamper Inc., Columbia, S.C.
Filed Sept. 5, 1969, Ser. No. 855,590
Int. Cl. E01b 32/02
U.S. Cl. 104—7 B



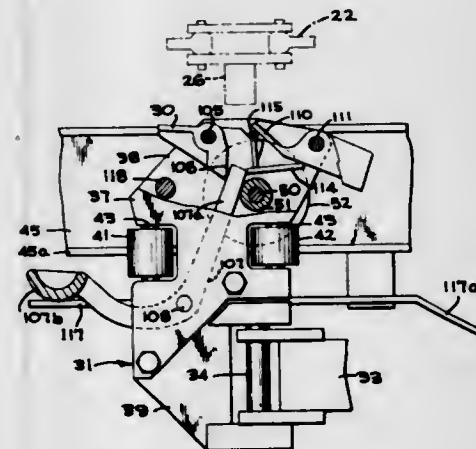
This invention relates to a correction device for railway track lifting and preferably also for track aligning in which track engaging clamps are mounted on the tamping head carrying frame of a track tamping machine. The tamping head carrying frame forms part of a correcting frame which is mounted on a base frame, track lifting jacks and track slewing jacks being positioned on the device for lifting and slewing the track at the point where it is engaged by the clamps.

3,602,147
GAS CUSHION LOAD SUPPORTING DEVICE
William Barrie Hart, Burwell, England, assignor to Tracked Hovercraft Limited, London, England
Filed June 23, 1969, Ser. No. 835,582
Claims priority, application Great Britain, June 24, 1968, 29982/68
Int. Cl. B60v 1/04
U.S. Cl. 104—23 FS



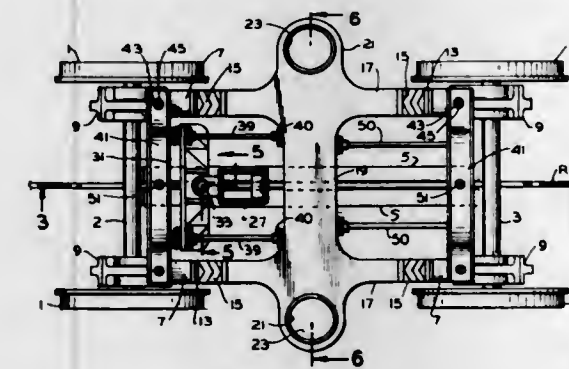
A peripheral jet gas cushion load bearing or supporting device, particularly useful for a tracked gas cushion vehicle, has a deformable chamber for suspension between the member which forms a peripheral gas jet for containing the cushion and a supporting structure. Gas is fed to the gas jet independently of the chamber, and a passage interconnects the cushion and the deformable suspension chamber. Since the cushion pressure is dependent on the load carried, the pressure in the deformable suspension chamber will automatically adjust itself to the load in the vehicle.

3,602,148
CONVEYING APPARATUS
Horace M. Swartz, Doylestown, Pa., assignor to FMC Corporation, San Jose, Calif.
Filed Feb. 5, 1969, Ser. No. 796,676
Int. Cl. B65g 17/42; B61j 3/04
U.S. Cl. 104—96



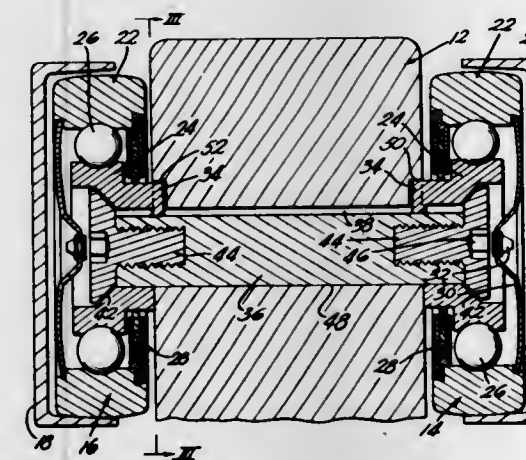
A conveyor trolley for use in a conveyor system of the type referred to as "power and free systems" is provided with a driving pawl and a backup pawl at its forward end, and means for lowering both pawls as the trolley is moved through a transfer station from a powered main line to a powdered, secondary storage or processing line. The trolley is also provided with a normally inactive dog on its rearward end that is raised only at the transfer station into the path of the pushers of the main line so that, when the driving pawl on the front of the trolley has been diverted onto a secondary line and moved out of contact with the pusher on the main line, the next pusher on the main line will engage the raised dog and positively move the trolley through the transfer station and onto the secondary line.

3,602,149
LINEAR MOTOR DRIVEN RAILWAY VEHICLE TRUCK
Richard L. Lich, Town and Country, Mo., assignor to General Steel Industries, Inc., St. Louis, Mo.
Filed Mar. 28, 1969, Ser. No. 811,530
Int. Cl. B61b 13/12; B61c 3/00; H02k 41/02
U.S. Cl. 104—148 LM



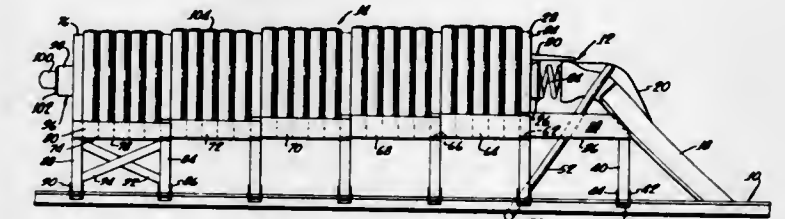
Suspensions for linear induction motor railway vehicles comprising rail-supported antifriction devices, truck framing supported from said devices, springs carried by said framing at both sides thereof, vehicle body structure carried by said springs for vertical, transverse and swivel movements thereon, and elongated linear motor stator structure supported from said framing independently of said springs and in fixed vertical relation with said framing.

3,602,150
SUSPENDED TROLLEY CONVEYOR SYSTEM
Ruben E. Frost, and Fredrick R. Sytsma, both of Grand Rapids, Mich., assignors to C. L. Frost & Son, Inc., Grand Rapids, Mich.
Filed May 1, 1969, Ser. No. 820,897
Int. Cl. B60b 37/10; B61b 3/00; B65a 17/24
U.S. Cl. 104—172 S



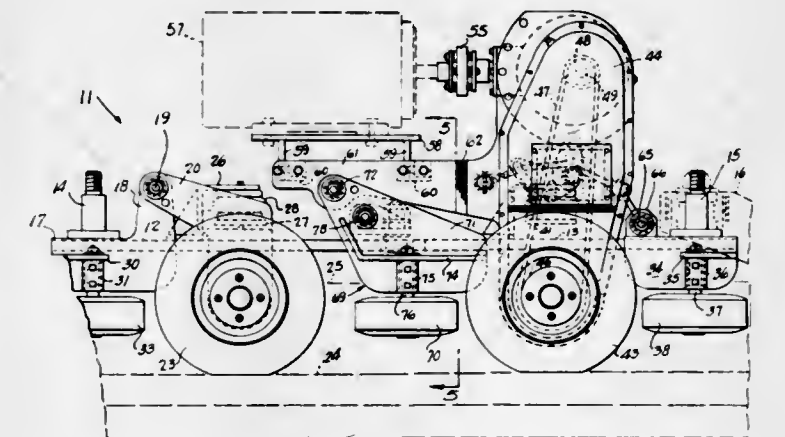
This disclosure relates to a trolley construction, preferably for a power-and-free conveyor system, wherein a central casting is supported on either side by a plurality of wheels. Each wheel has an outer race and an inner race separated by bearings. The inner race of each wheel is removably fixed to a shaft which extends from a central casting so that the wheels can be removed and replaced or repaired. Key locks on the inner race engage milled slots on the central casting and/or the supporting shaft to prevent relative rotation between the central casting, the supporting shaft and the inner race.

3,602,151
ENERGY DISSIPATING CONSTRUCTION FOR TRAINS
Grant W. Walker, 4339 Lahtzy Court, Sacramento, Calif.; Bruce O. Young, 410 Blackwood St., Sacramento, Calif.; and Duane B. Ford, 2811 Hocking St., Placerville, Calif.
Filed Nov. 20, 1968, Ser. No. 777,395
Int. Cl. B61k 7/18; F16f 9/10
U.S. Cl. 104—256



An energy dissipating construction for absorbing and dissipating the kinetic energy of moving trains is disclosed which comprises a backstop fixedly secured with respect to the rails which support the train, a plurality of telescoping diaphragm members each consisting of a vertical diaphragm plate and a horizontal support plate and an energy dissipating assembly comprising a plurality of vertical liquid containing resilient cylinders between the backstop and the first diaphragm plate and between succeeding diaphragm plates, each of the cylinders having one or more openings adapted and constructed to permit escape of the liquid therefrom at a rate commensurate with the energy of impact on the construction. Upon impact each of the diaphragm assemblies telescopes with the adjacent diaphragm assembly thereby crushing the resilient liquid filled cylinders and forcing the liquid therefrom to thereby dissipate the kinetic energy of the train and bring the train to a stop.

3,602,152
ARTICULATED MONORAIL CAR TRUCK
Alan B. Hawes, 8504 Seaview Ave., Wildwood Crest, N.J.
Filed Dec. 4, 1968, Ser. No. 781,045
Int. Cl. B61b 13/06; B61c 9/06, 13/08
U.S. Cl. 105—145



An articulated truck assembly for a monorail car. The truck assembly consists of a pair of segments universally swivel-hinged to rotate relative to each other both around vertical and transverse horizontal axes. The segments are provided with pairs of opposite load-supporting monorail wheels with buffer springs between the truck segments and the wheel axle assemblies. One of the segments carries a driving motor which is drivingly connected to the associated pair of monorail wheels. A pair of vertically-journalled guide wheels is provided at the swiveled connection of the truck segments, engageable with an upstanding monorail center guide rib. Additional similar vertically-journalled pairs of guide wheels engageable with the center guide rib are provided on the segments at the opposite ends of the truck assembly, linkages being employed between the segments and the supporting wheel axle assemblies to avoid rubbing action

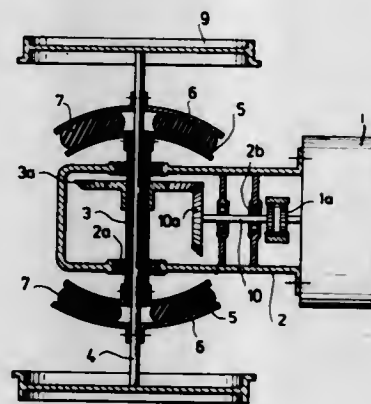
by the center guide rib on the guide wheels when the truck segments angle relative to each other.

3,602,153

RESILIENTLY CONNECTED WHEEL DRIVE SET
Gerhard Korn, Muelheim-Ruhr, Germany, assignor to Rhein-stahl Huttenwerke AG, Essen, Germany
Filed Feb. 4, 1970, Ser. No. 8,642
Claims priority, application Germany, Feb. 19, 1969, P 19 08 176.6

Int. Cl. B61c 9/44, 9/48, 9/52
U.S. Cl. 105—131

7 Claims



A drive bogie has a motor driving hollow front and rear shafts through which front and rear wheel shafts pass. To the ends of the hollow shafts are connected the end portions of the respective wheel shafts by elastic coupling means having matching concave and convex coupling members connected by an elastic member which is radially compressed during relative movement of the hollow shaft and wheel shaft caused by the weight of the motor.

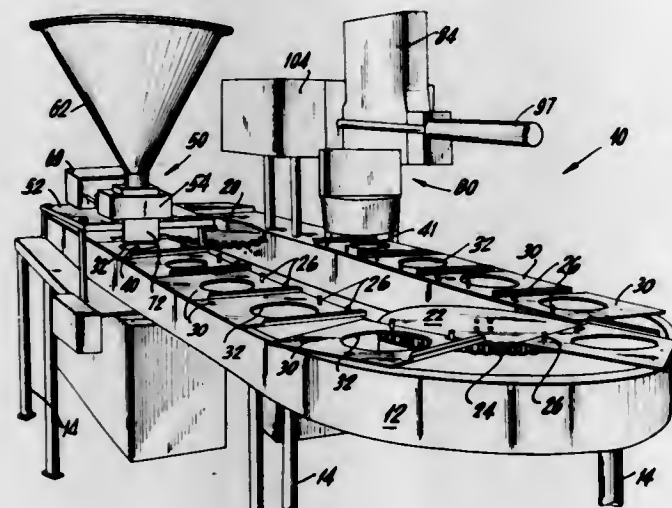
3,602,154

FOOD DISPENSING APPARATUS

Erwin H. Schimkat, Garden City Park; John Nardoza, Bayside, and Joel Tropp, Valley Stream, all of, N.Y., assignors to Autoproduct, Inc., Brooklyn, N.Y.
Filed May 15, 1969, Ser. No. 824,980
Int. Cl. A23g 3/00

U.S. Cl. 107—1 R

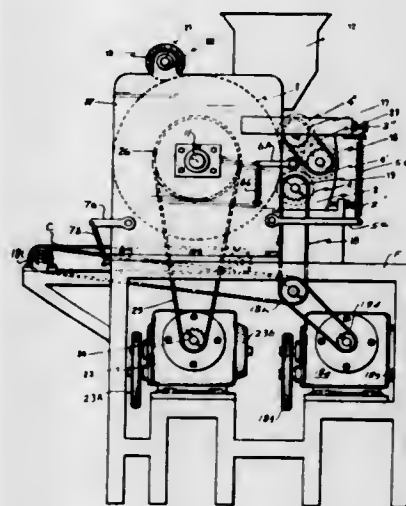
13 Claims



A food dispensing device for depositing food products upon a base is provided with a conveyor for automatically moving the base to a sauce dispenser, in timed sequence, for receiving an even deposit of a measured amount of sauce thereupon and then to a cheese dispenser where a measured amount of cheese is evenly deposited upon the base. Provision is made for shredding or grating a supply of a solid food ingredient to be applied to the base, and for applying varying amounts of a food product upon the base of varying sizes.

3,602,155
AUTOMATIC MACHINES FOR SHAPING FOODSTUFFS SUCH AS CORNCACKS AND THE LIKE
Fausto C. Mendoza, Cumbria de Acultzingo N 185 Lomas de Chapuetic, Mexico City, Mexico
Filed July 28, 1969, Ser. No. 845,171
Claims priority, application Mexico, Jan. 9, 1969, 108252
Int. Cl. A21c 5/04; B28b 5/10
U.S. Cl. 107—8 D

9 Claims



The invention pertains to an automatic machine for forming articles from materials of doughlike consistency. The machine has a rotatable forming roller with radial cavities which rotates so as to carry the cavities past the discharge opening of a hopper in which the doughlike material is contained. The doughlike material fills the cavities and excess material is stripped from the roll so that the cavities are always precisely filled without leaving any excess dough. The cavities have movable bottoms which are pushed outwardly to eject the articles from the forming roll and are then pushed inwardly so the cavities can receive a fresh charge.

3,602,156

DOUGH DEPOSITING MACHINE

Albert F. Verhoeven, Grand Rapids, Mich., assignor to Werner Lehara, Inc., Grand Rapids, Mich.
Filed May 20, 1969, Ser. No. 826,154
Int. Cl. A21c 1/116

U.S. Cl. 107—27

9 Claims



This disclosure relates to depositing of flowable materials such as cookie dough, jams, and the like, the depositing being carried out by forcing the flowable material out through an effluent port of a hopper onto a continuous belt which is moved intermittently between each depositing cycle. A cam wheel and a cam follower finger intermittently force the flowable material out through the effluent port. The cam follower is shaped so as to create suction at the effluent port after the depositing cycle is completed.

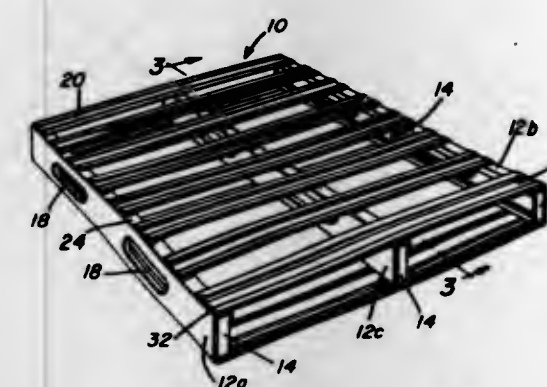
3,602,157

PALLET

Abie Cohen, P.O. Box 584, and Louis Cohen, P.O. Box 2313, both of Abilene, Tex.
Filed Sept. 30, 1968, Ser. No. 763,613
Int. Cl. B65d 19/00

U.S. Cl. 108—51

1 Claim



An industrial pallet having a plurality of parallel spaced channel members which transversely mount a number of parallel hollow spaced slats between respective upper and lower sides of the channel members. The channel members include plates at spaced intervals therein for rigidifying the channels. The slats are corrugated for increasing the structural strength of the pallet. A second embodiment provides overhanging slats including rigidifying bars therein for permitting straddle lifting of the pallet.

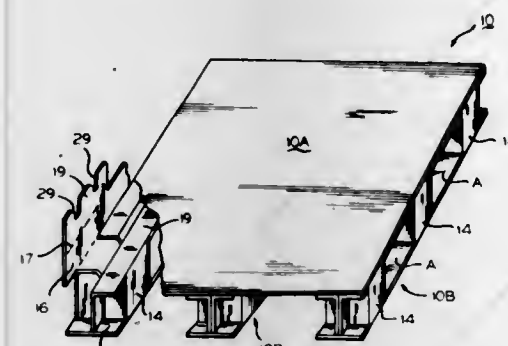
3,602,158

PAPERBOARD PALLET RUNNER

Boyd T. Skaggs, Ravenna, Ohio, assignor to Container Corporation of America, Chicago, Ill.
Filed June 6, 1969, Ser. No. 830,982
Int. Cl. B65d 19/00

U.S. Cl. 108—56

5 Claims



A paperboard pallet runner formed from a cut and scored sheet which is folded and secured to a pallet deck beneath the same. The runners are spaced apart and have spaced side openings therein, so that the resulting pallet may be entered by the tines of a forklift truck from four different directions.

It is a principal object of this invention to provide a pallet runner formed from a cut and scored sheet of paperboard, and to provide in the sidewalls of such a runner a plurality of spaced openings, so that when the runners are secured in spaced relationship to the underside of a pallet deck, the resulting pallet may be entered from four different directions by the tines of a lift truck.

The structure according to the present invention constitutes an improvement over Hermann, U.S. Pat. No. 3,000,603, which shows a pallet runner wholly lacking in openings as disclosed in this application and for the purpose as set forth herein.

889 O.G.—55

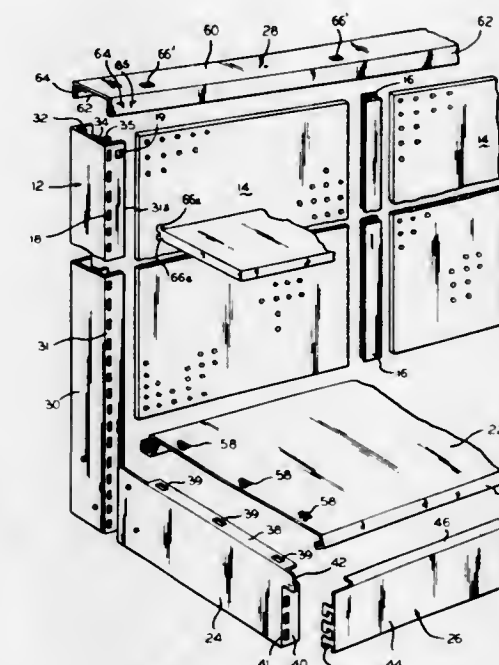
3,602,159

DISPLAY RACK

Howard J. Marschak, 865 W. North Ave., Chicago, Ill.
Filed Aug. 18, 1969, Ser. No. 850,942
Int. Cl. A47b 3/00; A47f 5/00, 5/10

U.S. Cl. 108—111

6 Claims



A display rack so constructed that it may be shipped disassembled and may be readily assembled and interlocked without the use of any tools, bolts, nuts or extraneous fastening elements. It is interlocked by merely positioning the parts relative to each other and interengaging the locking elements. The display rack includes a pair of uprights, a base having side members, a detachable shelf member with a detachable kick plate, and means extending between the uprights for supporting the bottom of the display board, which may be an apertured board or the like.

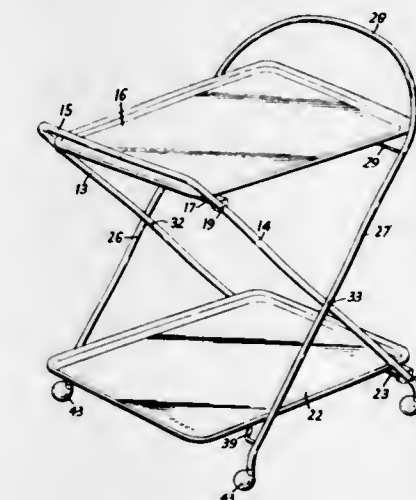
3,602,160

FOLDING TROLLEYS AND THE LIKE

Robert G. Heal, Twickenham, England, assignor to Staples & Company Limited, London, England
Filed May 16, 1969, Ser. No. 825,248
Claims priority, application Great Britain, May 17, 1968, 23691/68
Int. Cl. A47b 3/02

U.S. Cl. 108—119

6 Claims



A folding trolley comprises two pivotally interconnected U-shaped frame members and two trays pivotally mounted between the side portions of one frame member. In an opened condition of the trolley the frame members are mutually inclined and the trays supported one above the other on crossbars provided on the other frame member. The

upper crossbar is straight, but the lower crossbar has cranked end portions. The length of the side portions of the frame members and position of the axis of pivotal interconnection of the frame members are so chosen that when the trolley is folded the upper tray is folded downwards over the upper crossbar and the lower tray is folded upwards by the sliding engagement of the lower crossbar. In the folded condition the cranked ends of the lower crossbar extend in a direction at an angle to the lower tray and engages in a recess between the tray and a lip of a stop provided on the tray.

3,602,161

SMOKELESS TRASH INCINERATOR

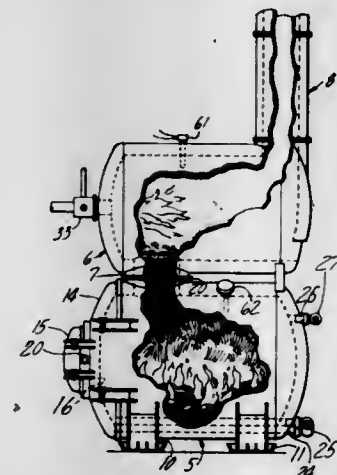
David J. Wyrrough, Roxboro, N.C., assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Dec. 19, 1967, Ser. No. 691,765

Int. Cl. F23g 5/12

U.S. Cl. 110-7

14 Claims



An incinerator for trash and other waste material having a lower trash-receiving chamber, an upper smoke-incinerating chamber in communication therewith, an air supply system for feeding air into selected regions of the chambers in accordance with certain preselected temperatures as measured in both chambers, and a burner in the upper chamber supplied by liquid or gaseous fuel.

3,602,162

TRASH AND GARBAGE DISPOSAL APPARATUS INCLUDING MOBILE UNIT

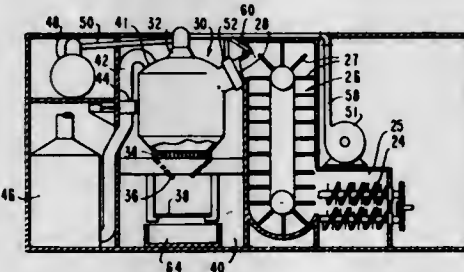
Steele D. Williams, 18 N. Seminole Drive, Chattanooga, Tenn.

Filed Apr. 29, 1969, Ser. No. 820,135

Int. Cl. F23g 5/02

U.S. Cl. 110-8 R

10 Claims



This invention relates to a trash and garbage disposal apparatus and method. The apparatus may be stationary, for treatment of disposal material brought to such apparatus, or the apparatus may be mobile to be truck mounted and to operate on trash and garbage as collected, and while in transit. In either case, the garbage, and trash, as combustible material, are fed into a continuously operating furnace, where they are burned. Any resulting ash is accumulated. The products of combustion, from the burning operation of the garbage are picked up and entrained in a stream of air through this furnace and they are then fed into an aqueous filter solution, in which those products of combustion are absorbed, and recovered, and the clean air freed to go back into the atmosphere.

Quantities of the saturated filter solution may be periodically withdrawn and mixed in with quantities of accumulated

ash, or alternatively, the resulting saturated solution is periodically dried into cake, which is added to and mixed with the accumulated ash. The mixture, by either method, is then sacked, as a soil nutrient mix, later to be sold to nurseries, farmers and other users of fertilizer. This filter solution exemplified herein, is an alkaline solution.

Glass bottles, tin cans and metal, as noncombustibles, are conveyed to a set of twin crushing rollers where the glass is crushed and broken and dropped into a receiving bin, while the tin cans and metal are flattened and delivered to a transport system, which may include a magnetic unit for separation. The tin cans are then discharged into an automatic press and compressed into bales. Before being compressed and baled, the tin cans will have been passed through a flame furnace to burn off any labels or adhering food particles, and the products of combustion recovered as previously explained.

3,602,163

INCINERATOR

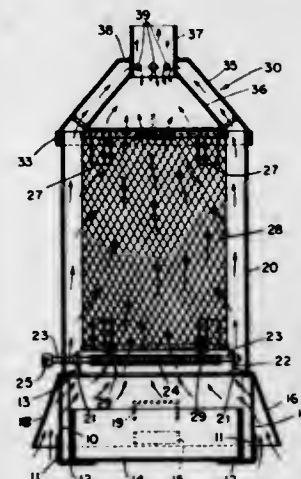
Robert P. Wahler, 724 Tucker St., Williamsport, Pa.

Filed Dec. 31, 1969, Ser. No. 889,579

Int. Cl. F23g 5/00

U.S. Cl. 110-18 R

9 Claims



This application discloses an incinerator or trash burner construction of the basket type which provides controlled air and combustion gas flow for improved combustion, cooler outflow gases, cooler outer exposed surfaces, reduced outflow of fly particles, and an improved overall structure.

3,602,164

MATERIAL REDUCING SYSTEM HAVING OXYGEN DEFICIENT ATMOSPHERE

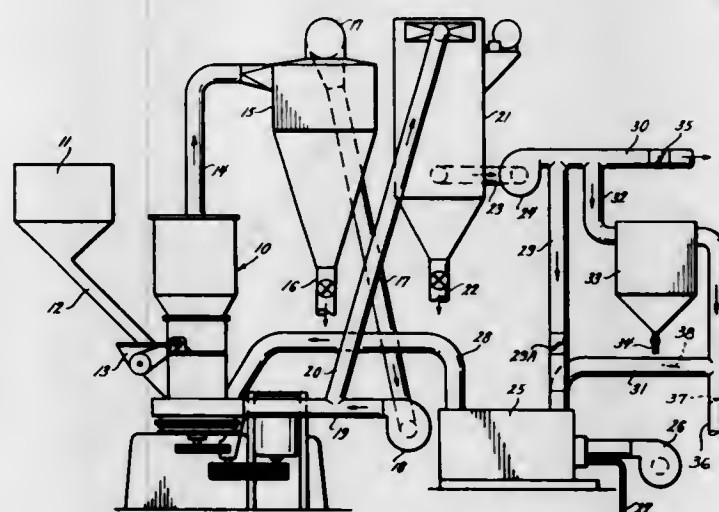
Harold Reintjes, 25 East Lane, Short Hills, N.J.

Filed Apr. 8, 1970, Ser. No. 26,596

Int. Cl. F23k 1/04

U.S. Cl. 110-106

6 Claims



A material reducing mill, crusher, or grinder system having means connected thereto to establish an oxygen deficient atmosphere that approaches a zero condition by extracting moisture from the system to enhance the production of a use-

ful product at a temperature below that at which spontaneous combustion might be initiated.

3,602,165

DAMPER ASSEMBLY

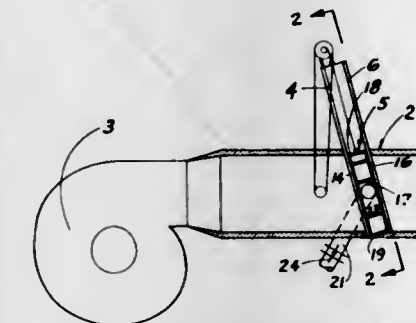
Robert G. Huntington, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Nov. 10, 1969, Ser. No. 875,143

Int. Cl. F23I 13/06

U.S. Cl. 110-163

3 Claims



An isolation damper assembly for a gas-conducting conduit including a hollow primary damper structure movable to extend transverse the gas-conducting conduit in closed position, the gas-conducting conduit including a venting conduit communicably connected with the hollow primary damper structure to vent the same when in closed position.

3,602,166

CHEMICAL APPLICATOR

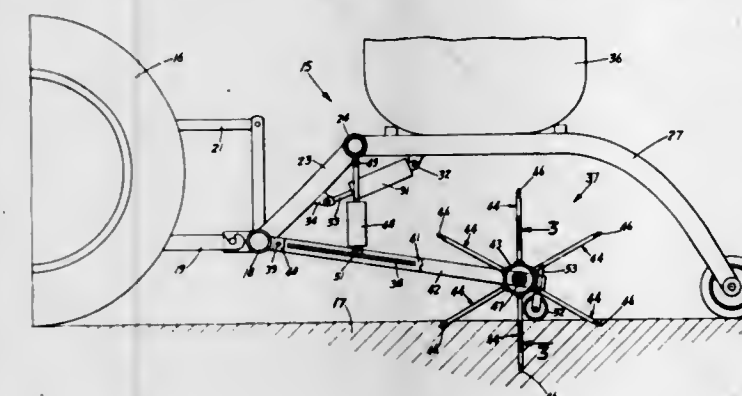
Maurice L. Peterson, Kerkhoven, Minn.

Filed June 27, 1969, Ser. No. 837,019

Int. Cl. A01c 23/02

U.S. Cl. 111-6

14 Claims



A machine for injecting fluid chemicals into the ground attachable to the lift arms of a farm tractor. The machine has a number of injector units having rotatable drums carrying spikes adapted to penetrate the ground. Each spike has a dispensing tip having a discharge valve operable to permit the discharge of fluid chemicals when the spike is in ground penetrating down position. A valve operating mechanism functions to open the valve when the spike is in the down position and close the valve when the spike is in the up position out of the ground.

3,602,167

LOOP TAKER DRIVE MECHANISM FOR SEWING MACHINES

Reinhold Papajewski, Buchig, Germany, assignor to The Singer Company, New York, N.Y.

Filed June 3, 1970, Ser. No. 43,061

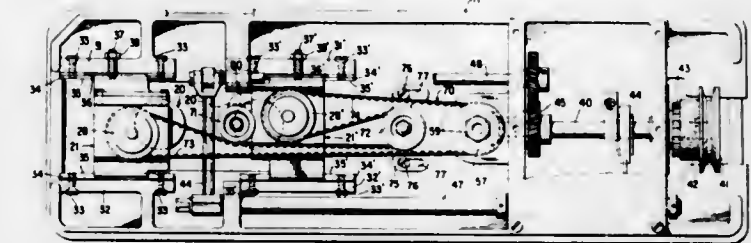
Int. Cl. D05b 1/08

U.S. Cl. 112-167

3 Claims

A drive mechanism for a pair of loop takers each cooperating with a separate needle of a two-needle sewing machine in which a single timing belt is used to drive both loop takers.

An arrangement is disclosed which permits the spacing between the loop takers to be changed without disturbing the driving connections, and which provides for regulation of a single one of the connections in the loop taker drive with



respect to the needle drive in order to reestablish proper timing of both of the loop takers with respect to the respective needle reciprocation when the spacing between loop takers is changed.

3,602,168

CHAIN STITCH FORMING DEVICE FOR A LOCK STITCH SEWING MACHINE

Chikao Yamashita, Aichi-ken, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Miyuho-ku, Nagoya-shi, Japan

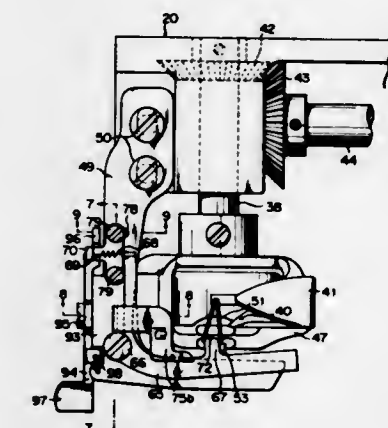
Filed May 19, 1970, Ser. No. 38,853

Claims priority, application Japan, May 23, 1969, Sept. 6, 1969, Dec. 2, 1969, Dec. 24, 1969, Feb. 18, 1970, Feb. 19, 1970, 44/40463;44/70768;44/97046;44/104709;45/15935;45/16443

Int. Cl. D05b 1/14

U.S. Cl. 112-168

10 Claims



A chain stitch forming device is provided with a movable loop retaining member for retaining a thread loop released from the loop taker of a lock stitch sewing machine. After the needle which is to be brought down next time into the thread loop held by the retaining member has passed through the throat plate, the retaining member is so actuated as to release the thread loop by a separate operating means, thus enabling a chain stitch to be formed using a lock stitch sewing machine.

3,602,169

AUTOMATIC CONTROL AND THREAD CUTTER FOR SEWING MACHINES

Robert F. Miller, Camp Hill, and Roy E. Miller, Mechanicsburg, both of Pa., assignors to The Reece Corporation, Waltham, Mass.

Division of Ser. No. 725,579, Apr. 19, 1968, Pat. No. 3,528,379, which is a continuation-in-part of application Ser. No. 432,721, Feb. 15, 1965, now abandoned

Filed Sept. 11, 1969, Ser. No. 856,966

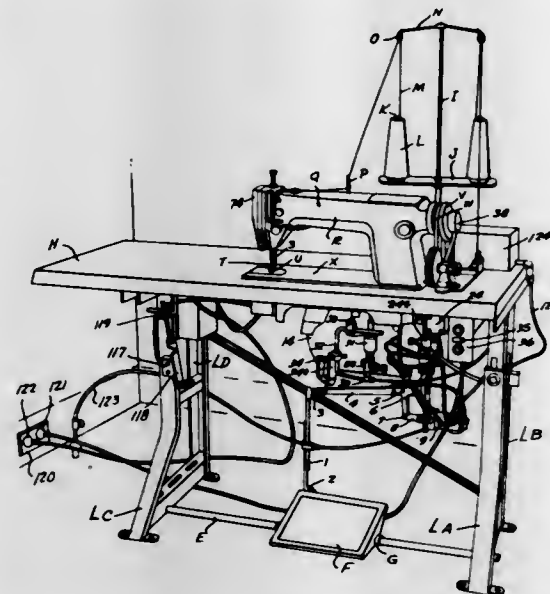
Int. Cl. D05b 29/00

U.S. Cl. 112-238

1 Claim

The present attachment for sewing machines automatically positions the needle, raises and lowers the pressure foot, properly tensions the sewing thread, and severs said sewing thread and includes a control for starting, speeding up, slow-

ing down, or stopping the operation of the sewing machine. The attachment also permits the operator thereof to put a plurality of stitches or single stitch at a time into the work-piece before automatically severing the thread therefrom and also provides means for automatically positioning the needle



in its top position or lowermost position as well as means for stopping the sewing machine when the needle is in its up position opening said positioning means so that the operator can down position the needle and lift the pressure foot for turning the workpiece around the needle.

3,602,170

THREAD CUTTER IN SEWING MACHINE

Hitoshi Sakashita, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

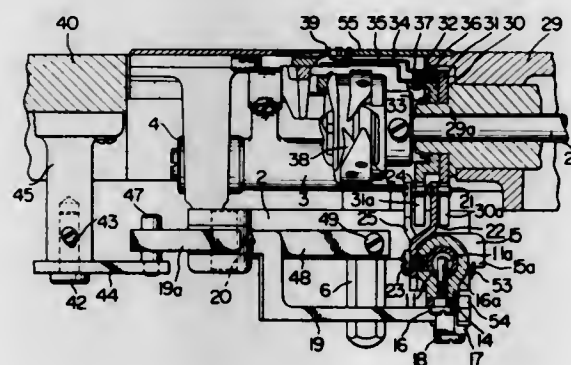
Filed Mar. 23, 1970, Ser. No. 21,751

Claims priority, application Japan, Mar. 24, 1969, 44/21707

Int. Cl. D05b 65/00

U.S. Cl. 112—252

7 Claims



An improved thread cutter in a sewing machine including a reciprocative thread cutter blade and thread holder member both disposed above shuttle race means so as to work in coordination with each other, the thread cutter blade being capable of simultaneously cutting both the upper and under threads of the sewing machine while the threads are held under tension by the thread holder member. The thread cutter blade and the thread holder member are respectively coupled with a pair of rotary members which are respectively turned round by means of a pair of shaft-mounted sliders energized with an elastic member. Actuated by a solenoid and the like, the thread cutter blade and the thread holder member are thus moved from their standby positions on one side above the shuttle race means to the other side thereof and, en route, get hold of the upper and under threads together. Thereafter the threads held by the thread holder member is severed by the thread cutter blade that has then started moving rapidly back to its initial position. And only after the severance of the threads is the thread holder

member permitted to return to its initial position in succession to the thread cutter blade.

3,602,171

THREAD CUTTING DEVICE FOR SEWING MACHINES

Rolf Åke Claesson, Malsryd, Sweden, assignor to AB J. A. Peterson & Co., Malsryd, Sweden

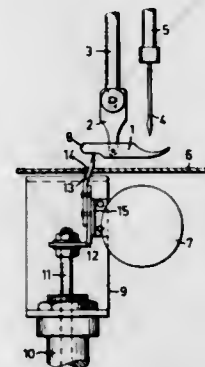
Filed Oct. 13, 1969, Ser. No. 865,715

Claims priority, application Sweden, Oct. 14, 1968, 13823/1968

Int. Cl. D05b 65/00

U.S. Cl. 112—252

2 Claims



A thread cutting device for sewing machines comprises an exclusively cutting knife mounted for displacement behind the needle axis upon release of a driving impulse independent on the drive mechanism of the machine, a knife support and the knife being mounted beneath the feed plate and the knife being movable upwards through an opening in the feed plate against the presser foot behind the needle axis.

3,602,172

VACUUM THREAD TRIMMER

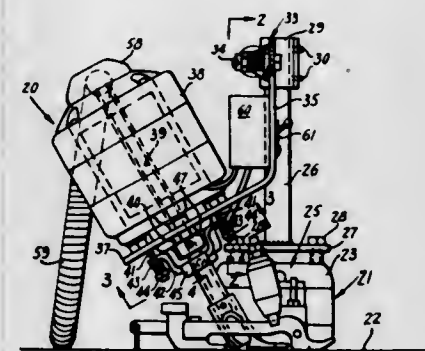
Murel B. Bray, 3108 Alameda Ave., El Paso, Tex.

Filed Oct. 29, 1969, Ser. No. 872,100

Int. Cl. D05b 65/06

U.S. Cl. 112—252

3 Claims



A vacuum thread trimmer in which a hollow shafted electric motor drives a rotating cutter tube inside a stationary cutter tube with the hollow shaft of the motor communicating with a vacuum pump at one end and with the hollow rotating cutter tube at the other end so that threads to be trimmed are drawn by vacuum up into the rotating cutter tube cut free by the rotation of the cutter tube with respect to the stationary cutter tube and moved on to a collection point.

3,602,173

PRODUCTION OF SHAG PILE

Leone Helen Estabrook, 301 S. Comita, Burbank, Calif.

Filed Dec. 20, 1968, Ser. No. 785,728

Int. Cl. D05c 3/00

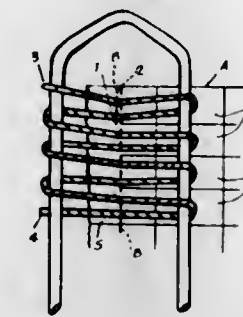
U.S. Cl. 112—266

6 Claims

A method of producing shag pile fabric by forming a series of yarn loops around a looper which is then positioned onto a backing sheet; securing the series of yarn loops to the backing sheet by first stitching them along their center; then

cutting one of the row of loops so formed so that the looper with the other row of loops may be moved over to the cut loops and across the stitching; securing with a second line of

and riser. The tower rotates with the ship and a fluid swivel is provided between the upper end of the riser and the tower to accommodate relative rotation. In addition, vertical transla-



stitching the other row of loops to the backing sheet; cutting such other row of loops, freeing the looper; and thereafter repeating these steps over the entire backing to form the shag pile fabric.

3,602,174

TRANSFER RISER SYSTEM FOR DEEP SUBOCEANIC OILFIELDS

Francis T. Gorman, Lomita, Calif., assignor to North American Rockwell Corporation

Filed June 27, 1969, Ser. No. 837,290

Int. Cl. B63b 35/00, 21/52

U.S. Cl. 114—0.5

8 Claims



A transfer system for offshore petroleum production has a vertically movable riser extending from the ocean surface to the ocean floor and is attachable to a surface vessel during flowing operation. To accommodate the wide range of vertical movement associated with varying wind and the tide effects on the surface vessel, the riser is formed by a three-element linkage, each element being restrained to limit its movement to not more than one dominant direction. The articulation of the riser prevents excessive structural loads from being imposed thereon due to such vertical movement.

3,602,175

OIL PRODUCTION VESSEL

George W. Morgan, Anaheim, and Bruno R. Naczowski, Newport Beach, both of, Calif., assignors to North American Rockwell Corporation

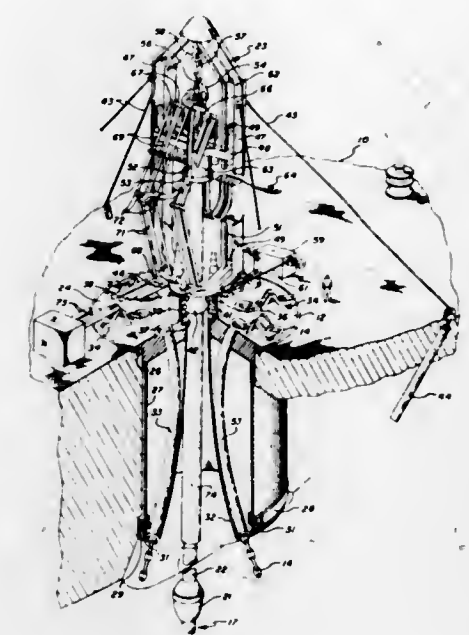
Filed July 2, 1969, Ser. No. 838,434

Int. Cl. B63b 35/00; 21/52

U.S. Cl. 114—0.5

4 Claims

A ship is described which is useful for recovery of fluid minerals from the ocean floor. A rotatable mooring swivel through an aperture in the ship's hull near the bow is moored to the sea floor. A riser pipe from the ocean floor passes through the center of the mooring swivel and is connected to a substantially vertically extending tower above the ship. This permits the ship to "weathervane" about the moored plug



3,602,176

VALVE MEANS FOR APPARATUS FOR RAISING SUBMERGED VESSELS

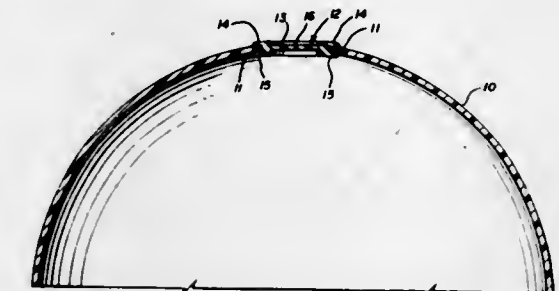
Jim D. Helbig, Brighton, Colo., assignor to Cyclo Manufacturing Company, Denver, Colo., a part interest

Filed Apr. 1, 1969, Ser. No. 812,198

Int. Cl. B63c 7/12

U.S. Cl. 114—52

5 Claims



Valve means for buoyant hollow elements used in apparatus for raising submerged vessels constructed to require a predetermined pressure differential internally and externally of the buoyant elements to permit passage of either air or water into or out of the elements, and which will not allow passage of air or water in either direction until a predetermined pressure differential has been reached. The valve means may embody a flexible apertured diaphragm or a pair of ball valves which function to permit passage of air or water only when the aforementioned pressure differential exists.

3,602,177

APPARATUS FOR RAISING SUBMERGED VESSELS

Jim D. Helbig, Brighton, Colo., assignor to Cyclo Manufacturing Company, Denver, Colo.

Filed Apr. 1, 1969, Ser. No. 812,156

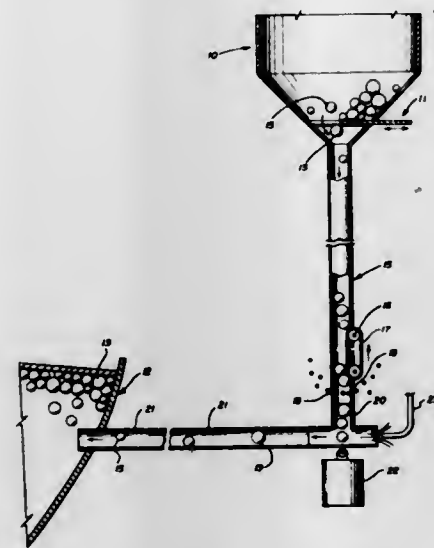
Int. Cl. B63c 7/12

U.S. Cl. 114—54

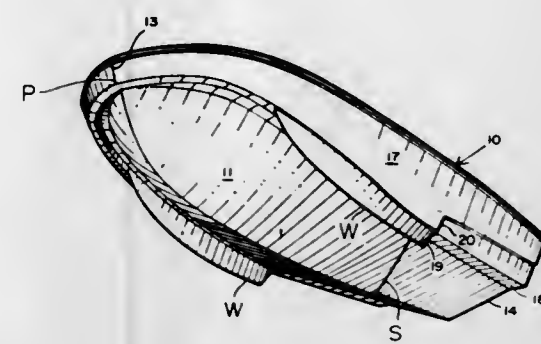
5 Claims

Apparatus for raising submerged vessels by hollow buoyant elements which have been pretreated to make the internal pressure in the elements approximately equal to the external pressures to which they are subjected when in a submerged

vessel. The apparatus comprises a pressurized air conduit through which the elements pass into a water conduit or a water filled lower portion of the air conduit communicating



the sponsons, the shelf portion extending to the stern of the boat whereby upon either sponson becoming submerged a



strong lifting action is imparted to that side of the boat tending to right the boat.

3,602,180 SAIL COVER

Tracy S. Holmes, 649 Hightree Road, Santa Monica, Calif.
Filed Mar. 19, 1970, Ser. No. 20,940
Int. Cl. B63h 9/04

U.S. Cl. 114-107

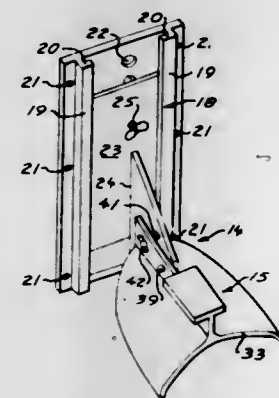
11 Claims

3,602,178
BOAT PLANING AND BRAKE APPARATUS
William B. White, 798 Lampson St., Victoria, British Columbia, Canada

Filed Mar. 27, 1970, Ser. No. 23,179
Int. Cl. B63b 1/22

U.S. Cl. 114-66.5 P

5 Claims



Boat planing and brake apparatus having a fin connectable to a transom of a boat and adapted to be swung between a horizontal planing position and on inclined braking position, the fin having an undersurface concave about a longitudinal axis.

3,602,179
HYDROPLANE BOAT
Richard C. Cole, 19701 Whispering Pines Road, Miami, Fla.
Filed May 1, 1970, Ser. No. 33,835
Int. Cl. B63b 1/16

U.S. Cl. 114-66.5 S

1 Claim

A hydroplane boat adapted to have increased fore and aft and lateral stability at minimal planing speeds having a substantially V-shaped hull with a slot positioned at approximately amidships extending outwardly from the keel wherein at said speeds said slot becomes submerged and forming two distinct leading edges aft of the slot to thereby lift the stern and prevent the bow from rising to an unstable position. Mounted about the bow of the hull to the position of the slot is a sponson having a keel substantially parallel to the keel of the hull and a shelf portion positioned between the hull and

A sailboat having a plurality of triangular sails each provided with an integrated sail cover in the form of two elongated strips of weather-resistant cover material attached to the foot and the leech of the sail to overlie the exposed portions thereof between successive convolutions of the associated edges when the sail is furled in a conventional manner on a rotatable supporting element such as a luff wire extending along and secured to one edge thereof.

3,602,181
OUTBOARD MOTOR STEERING CONTROL
Garrett H. Harris, 157 S. Denver St., Jackson, Miss.
Filed June 20, 1969, Ser. No. 835,168
Int. Cl. B63h 21/26

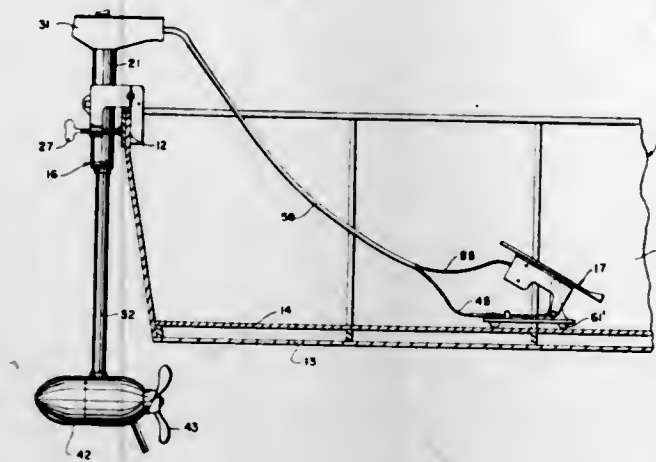
U.S. Cl. 114-153

11 Claims

An outboard motor including a hollow casing assembly for mounting on a boat. A upstanding tubular shaft is rotatably mounted in the casing assembly. A hollow pinion is mounted on the shaft and a rack meshes with the pinion. The rack is coupled to a steering control pedal and is mounted for movement in the casing transversely of the shaft. An electric motor is mounted on a lower end of the shaft, and a propeller is driven by the motor and directed transversely of the shaft. The rack is moved transversely of the shaft for turning the



direction of the propeller for steering the boat. Leads to the motor extend through the hollow pinion and along the shaft.



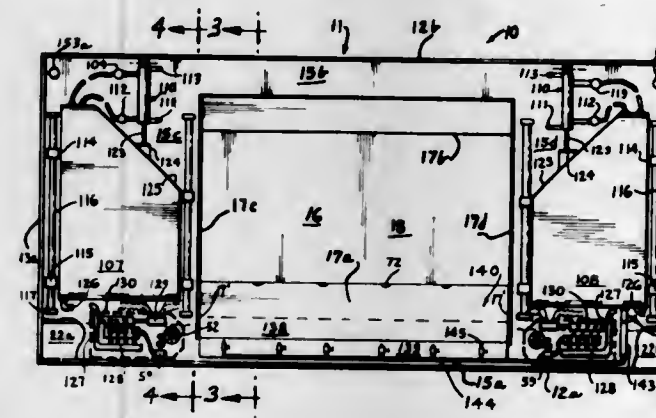
A second pinion which meshes with the rack, carries a direction indicating pointer.

3,602,182 TUMBLE BARGE

Albert B. Cady, Jr., Houston, Tex., and Thomas R. Hency, Jr., 2707 57th St., Galveston, Tex.
Division of Ser. No. 709,408, Feb. 29, 1968, Pat. No. 3,473,501
Filed Aug. 20, 1969, Ser. No. 864,249
Int. Cl. B63b 13/02, 35/30

U.S. Cl. 114-198

3 Claims



The tumble barge takes load and is towed, unmanned, to dump site. Ballast tanks on bow and stern also serve as compressed air reservoirs to supply operational air, upon actuation of barge apparatus, as by remote control, to open flood valves on one side (port) and to open scupper valves on such side. Vessel normal metacenter and floodable space relationship is such that list increases with flooding until vessel capsizes almost 180° completely to dump hold contents. The ballast arrangement is designed to build up a righting moment in clock direction counter to clock direction of capsizing, thus to right the barge. Apparatus may be actuated by remote control to admit compressed air to open and close flood valves and scupper valves.

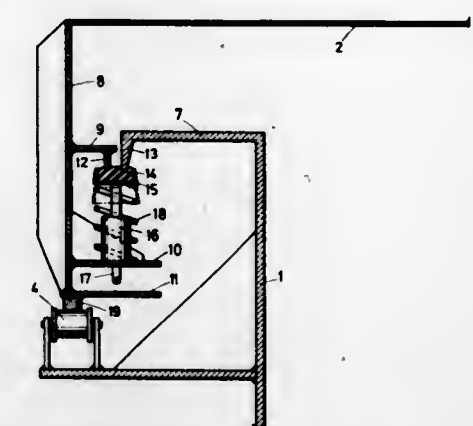
3,602,183
HATCH COVER OF THE SIDE-ROLLING TYPE
Reinhardt Olai Aarvold, Stenkullen, and Erik Holger Isaksson, Goteborg H, both of, Sweden, assignors to Associated Cargo Gear AB, Goteborg H., Sweden
Division of Ser. No. 721,989, Mar. 14, 1968 abandoned
Filed Sept. 12, 1969, Ser. No. 857,312
Int. Cl. B63b 19/18

U.S. Cl. 114-202

3 Claims

In order to minimize the obstacles on the deck surrounding a hatch opening adapted to be covered by sideways rolling

cover sections, fixed wheels are arranged on the coaming and on pillars outside the coaming, respectively, and located in lines forming extensions of two parallel sides of the coaming. Each section is at two sides being parallel to the moving



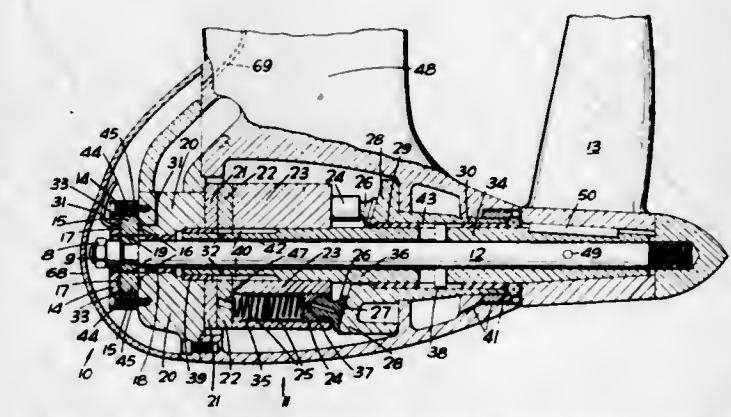
direction, provided with a downwardly directed side portion extending along, but at some distance from the pertaining side of the coaming, mechanically operated sealing members being arranged to bridge the gap between such a downwardly directed portion and the adjacent side of the coaming.

3,602,184 DRIVING UNITS

Edward James Gratex, Bracknell, England, assignor to Premier Precision Limited, Bracknell, England
Filed Mar. 18, 1969, Ser. No. 808,171
Claims priority, application Great Britain, Mar. 25, 1968, 14232/68
Int. Cl. B63h 23/26

U.S. Cl. 115-41

12 Claims

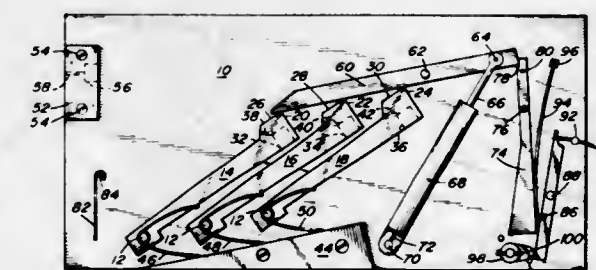


A stowable marine propulsion unit having a propeller shaft with a propeller at one end, a thrust bearing to resist axial movement of the propeller shaft and an axial piston hydrostatic motor positioned between the thrust bearing and the propeller.

3,602,185
BURGLAR-FIRE ALARM
Jewel M. McGavic, 1072 Brownlee, Memphis, Tenn., and Doyle A. Johnson, 4120 Village Road, Memphis, Tenn.
Filed Jan. 13, 1970, Ser. No. 2,523
Int. Cl. G08b 13/08

U.S. Cl. 116-87

7 Claims



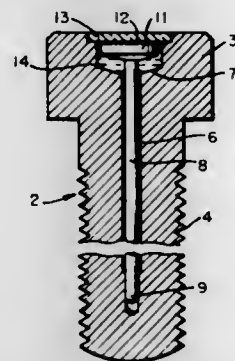
An alarm which may be used as a warning of the unauthorized intrusion of a burglar, or the existence of a fire. Three spring urged hammers, containing either a blank car-

tridge or a percussion cap, are held in cocked position by a retaining bar. When either of the monitored conditions occurs, the retaining bar is released, freeing the hammers in sequential order so that the cartridges or caps are exploded. Movement of the retaining bar is controlled by an air cylinder which determines the pause between successive striking of the hammers.

3,602,186
OPTI-MECHANICAL STRESS-STRAIN INDICATOR
Charles H. Popenoe, 6307 Wiscasset Road, Bethesda, Md.
Filed Aug. 6, 1970, Ser. No. 61,764
Int. Cl. G01d 21/00

U.S. Cl. 116-114

9 Claims

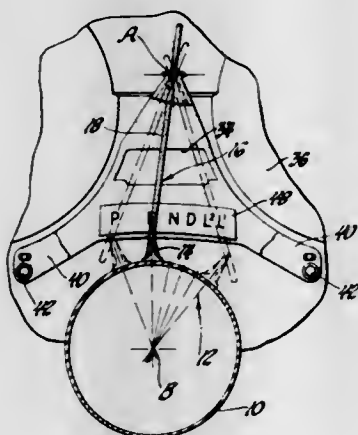


A purely mechanical device for indicating the stress condition between two portions of a machine or structure, typically in the form of a threaded fastener or bolt used to fasten or connect the two points. In one form of the invention, an unstressed pin is inserted loosely in an axial bore in the bolt and fastened to it at one end; the free end of the pin terminates in an indicator head having an exposed area, preferably brightly colored, normal to the pin axis, which area in the unstressed condition of the bolt rests flush against the transparent or translucent window set into the head of the bolt, and the space surrounding the pin and head is filled with a preferably dark fluid which absorbs the color of the exposed indicator area. When stress is applied between the ends of the bolt, as by tightening it, the indicator head of the unstressed pin is retracted away from the window, and the colored fluid enters behind the window absorbing the color of the indicator area at a predetermined stress, and causing an apparent change of color of the indicator window. If the bolt later becomes loosened, the indicator window reverts to its original bright color, providing a warning of the looseness.

3,602,187
TRANSMISSION CONTROL INDICATOR
Theodore Lambiris, Walled Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 27, 1970, Ser. No. 58,554
Int. Cl. G09f 9/00

U.S. Cl. 116-124

5 Claims



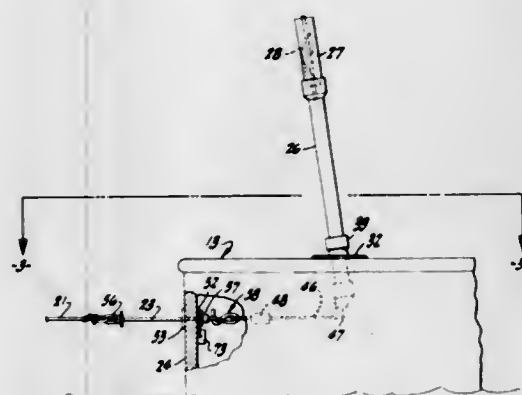
Transmission control indicator in which an indicator pointer is secured directly to a transmission control tube hav-

ing limited rotation with respect to a pivot axis. The pointer has a pivot joint adjacent to the tube below an indicator shift quadrant having indications of transmission operating modes. There is a sliding pivotal connection for connecting the extending end of the pointer above the shift quadrant so that the sweep of the pointer is reduced allowing a more compact shift quadrant. In the preferred embodiment the sliding pivotal connection point is in a vertical plane parallel to plane containing the pivot axis of the control tube to centralize the point of convergence of predetermined pointer positions. A hollow support tube connecting the indicator housing to an instrument panel provides a light passage to improve illumination of the pointer and shift quadrant.

3,602,188
SKI BOAT WARNING APPARATUS
Daniel M. Penafior, 5129 Valpey Park Ave., Fremont, Calif.
Filed Oct. 20, 1969, Ser. No. 867,830
Int. Cl. G08c 5/00

U.S. Cl. 116-132

6 Claims

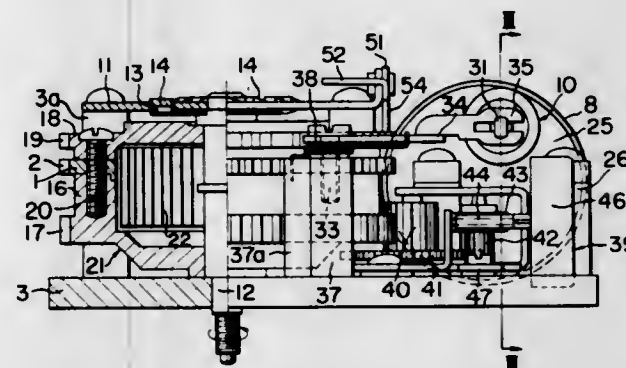


A flag system for ski boats automatically operated by a release of tow line tension to raise a flag for warning other boats of "skier down." A spring loaded flag standard is retracted by tension on a tow line for water skiers and upon tension release automatically raises the warning flag. A normally closed switch in the system operates a warning light visible to a boat operator upon skier release of the tow line.

3,602,189
DEVICE FOR AUTOMATICALLY SOUNDING WIND INSTRUMENTS
Yoshito Suzuki, Tokyo, Japan, assignor to Tokyo Pigeon Kabushiki Kaisha, Kaga, Itabashi-ku, Tokyo-to, Japan
Filed July 28, 1970, Ser. No. 58,968
Claims priority, application Japan, July 28, 1969, 44/70912
Int. Cl. G01k 5/00

U.S. Cl. 116-137

3 Claims

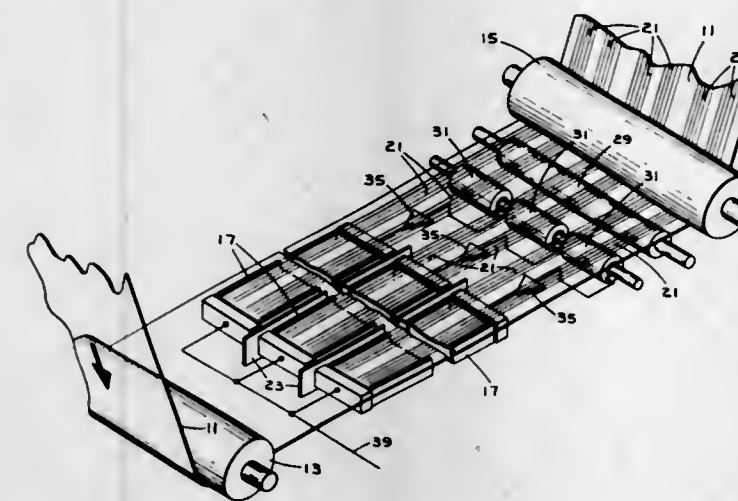


A whistle is blown by air supplied by a bellows operated by a bellows-actuating cam, by which the sound duration and loudness can be controlled, and the pitch of the sound thus produced is controllably varied by a pitch-control cam, both cams being mounted on the periphery of a spring-operated barrel, whereby whistle sound compositions of great variety can be rendered automatically.

3,602,190
MULTIPLE VAPORIZING SYSTEM
James Kral, Jr., Hickory Hills, and Otto T. Masopust, Jr., Cicero, both of, Ill., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Oct. 30, 1968, Ser. No. 771,725
Int. Cl. B05c 11/00

U.S. Cl. 118-5

3 Claims U.S. Cl. 118-48

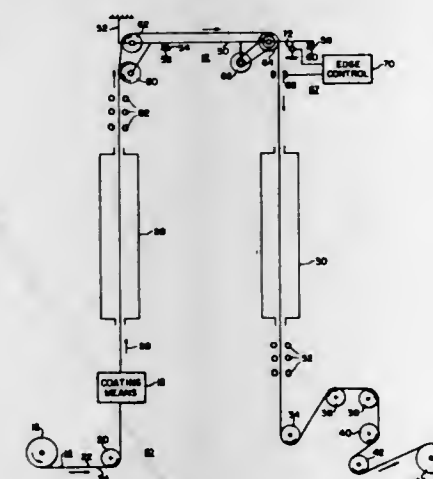


An apparatus for depositing a metal coating on a wide strip of dielectric material wherein the thickness of deposition is maintained uniform across the width of the dielectric by vaporizing the metal in a plurality of individually controlled electric pots positioned across the width of the dielectric strip and wherein the energy supplied to each individual pot is controlled by an individual circuit sensing the resistance of the deposited metal at a lateral position across the width of the dielectric that is the same as the lateral position of the associated vaporizing pot that the circuit controls.

3,602,191
WEB GUIDING APPARATUS
William S. Gorton, Jr., Athens, Ga., and Dean C. Westervelt, Acme, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 17, 1969, Ser. No. 842,507
Int. Cl. B05c 11/12

U.S. Cl. 118-6

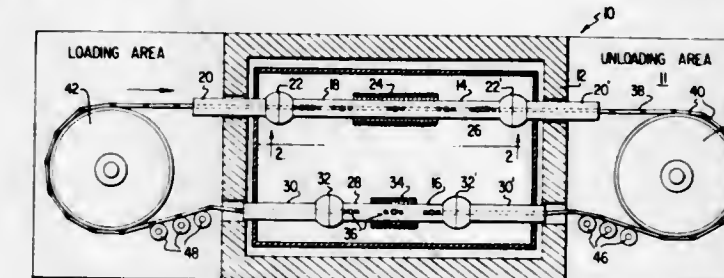
10 Claims



Apparatus for directing a moving web, such as metallic foil, about two 90° turns, including means for simultaneously preventing wrinkles in the web, controlling web tension, and accurately guiding the web. The means for performing these functions are mounted on a pivotable support, which pivots in response to edge guide control means to maintain the desired tracking of the web without creating distortion therein.

3,602,192
SEMICONDUCTOR WAFER PROCESSING
Edward G. Grochowski, Wappingers Falls, and Vincent J. Lyons, Poughkeepsie, both of, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 19, 1969, Ser. No. 825,894
Int. Cl. C23c 11/00

6 Claims

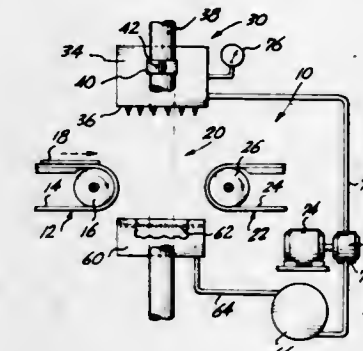


The continuous processing of semiconductor wafers transported through a reactor system having a series of reaction zones permitting separate process functions, with zone isolation achieved through the use of dynamically sealed vapor-purged isolation chambers. An in-line, vertical arrangement of gas inlets and outlets and planar work supports effect a laminar flow of gaseous materials.

3,602,193
APPARATUS FOR PREPARING COATINGS WITH EXTRUSIONS
John R. Adams, Sutherland, and Willis W. Hill, Lebanon, both of, Oreg.
Filed Apr. 10, 1969, Ser. No. 815,173
Int. Cl. B05c 5/00

U.S. Cl. 118-315

7 Claims



Method and means for preparing adhesive coatings. A bank of extrusion devices forms extrusions of adhesive that fall to form smooth-flowing filament streams of adhesive that make flowing contact with the face of the object being coated. A striped pattern of adhesive is produced which is converted into a substantially continuous glue line with the application of heat and pressure. A veneer-handling conveyor line for producing plywood panels, where veneer pieces travel on a conveyor and thence are directed either through an adhesive-application station or a course which bypasses such station. The veneer pieces are reassembled downstream from such station to form a traveling series of veneer pieces comprising veneer pieces with adhesive coatings interspersed with veneer pieces free of adhesive. The veneer pieces are then stacked in the order that they appear in said traveling series to complete the layup of plywood panels.

3,602,194
METHOD OF FISH CULTURE
Leif L. Marking, Onalaska, Wis., assignor to The United States of America as represented by the Secretary of the Interior
Filed Feb. 6, 1970, Ser. No. 9,438
Int. Cl. A01k 61/00

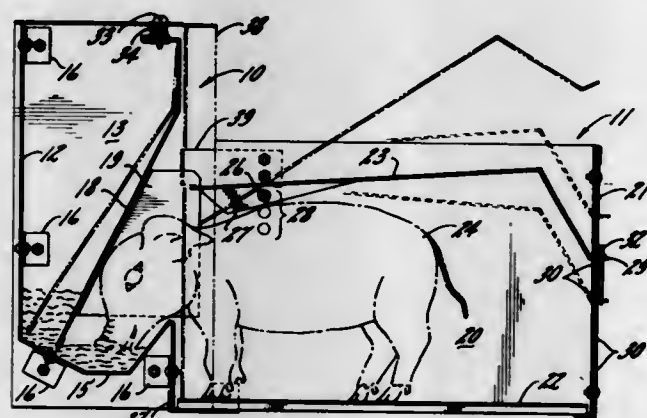
U.S. Cl. 119-3

7 Claims

Efficiency and economy of fish culture techniques all enhanced by destroying all undesirable fish species inhabit-

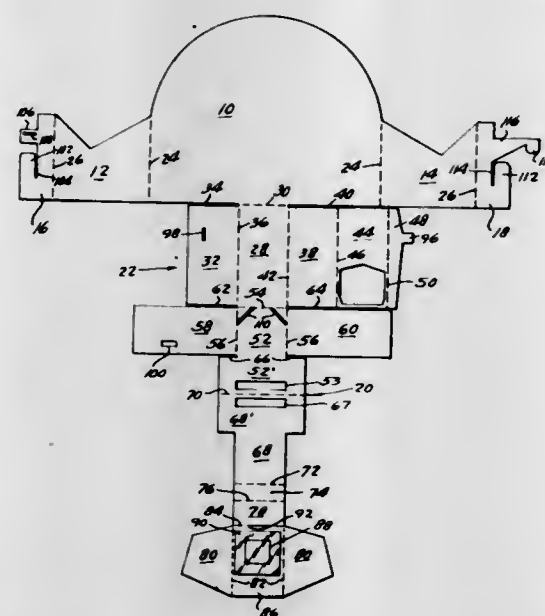
ing a water body by treatment with juglone, allowing the juglone to degrade to form nontoxic components and thereafter introducing a desired species of fish into the water body.

3,602,195
WEANING DEVICE
Ronald S. Blough, Fairfield, Iowa, assignor to Fairfield Engineering and Manufacturing Co., Fairfield, Iowa
Filed July 31, 1969, Ser. No. 846,389
Int. Cl. A01k 15/00, 01/00, 05/00
U.S. Cl. 119-18



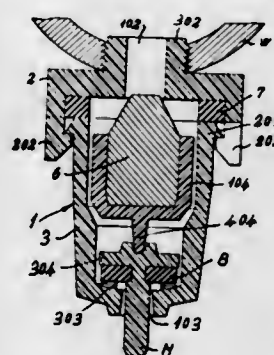
A device adapted for weaning baby pigs in which a feeder bin and trough are placed at the end of a plurality of individual cages in which each baby pig is placed. The internal height and width of the cages are insufficient to allow the animal to turn around, and a resiliently mounted guide member forming part of the feeder bin is sloped downward over the trough so that the animal's reflexive forward movement upon encountering the rear of the cage causes its nose to be directed into the trough.

3,602,196
COLLAPSIBLE COMBINATION BIRD SHELTER AND FEEDER
Julius C. Tucci, 181 W. 2nd St., Weston, W. Va.
Filed Nov. 14, 1969, Ser. No. 876,800
Int. Cl. A01k 31/00
U.S. Cl. 119-23



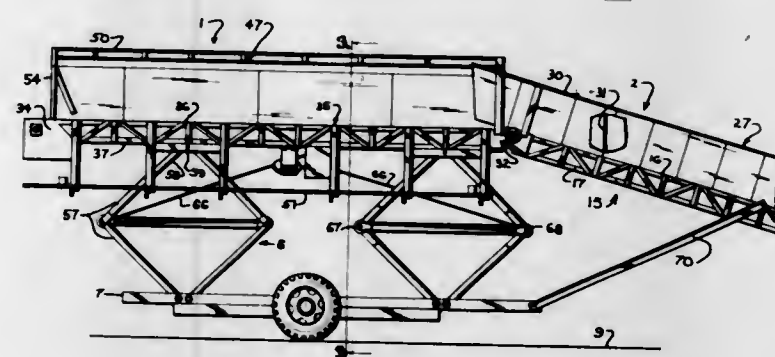
A combination bird shelter and housing or feeding station formed from one or more blanks formed from a sheet or sheets of cardboard, plastic or the like, cut and scored to fold into a roofed shelter surrounding and supporting a feeder station or bird house, a prime characteristic with the structure being that it may be assembled from the flat by interengaging tongues and slots without any requirement for stapling or adhesive.

3,602,197
DRINK DISTRIBUTION SYSTEM FOR POULTRY
Mirella Fioretto, 15 Via Casagrande, S. Quirino, Pordenone, Italy
Filed Mar. 26, 1969, Ser. No. 810,482
Claims priority, application Italy, Apr. 1, 1968, Oct. 29, 1968, 6923A;7443A
Int. Cl. A01k 07/00



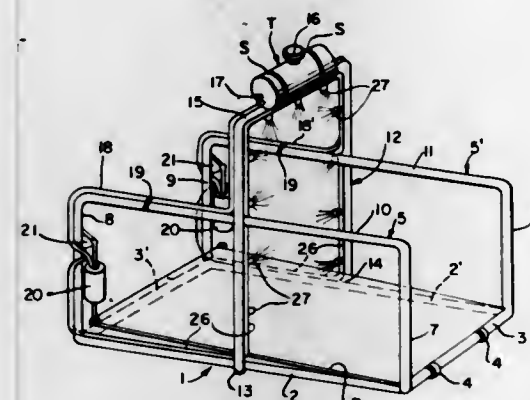
For the watering of courtyard animals, and particularly of poultry, valves are mounted with their inlet connected to a distributing pipe and their outlet permitting the dripping of some water, in such a position as to allow the watering of the said animals. The valves are provided with a depending nipple adapted to be operated by the same animal wishing to drink. At each nipple operation, the outflow of a very limited quantity of water, i.e. that contained in the valve body, is permitted, while the connection of the valve inlet with the distributing pipe is practically intercepted by a plug, until the valve outlet is open.

3,602,198
POULTRY LOADING APPARATUS
Robert B. Tackett, Rte 4, and Henry O. Markley, Box 235, both of Warrensburg, Mo.
Filed Jan. 27, 1969, Ser. No. 794,095
Int. Cl. A01k 29/00
U.S. Cl. 119-82



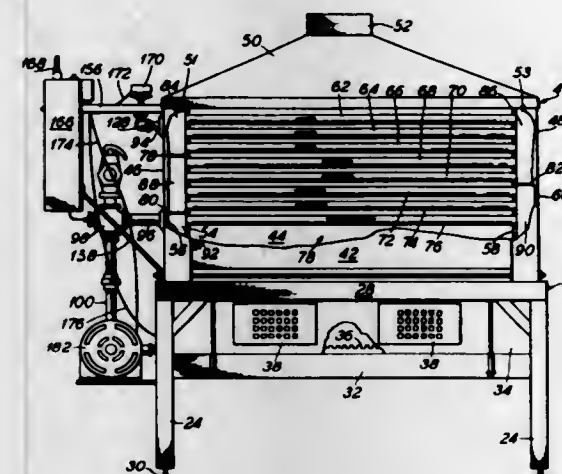
A poultry loading apparatus has an inclined conveyor having an upper end pivotally mounted at one end of a horizontal conveyor which is raised and lowered by power operated scissor linkages to position the horizontal conveyor at an elevation corresponding to cages being loaded with poultry. Belts on the inclined conveyor and on the horizontal conveyor are driven to move poultry up the inclined conveyor onto the horizontal conveyor and thereafter where the poultry is manually removed and placed in the cages. The loading apparatus has operation control and cooperative mechanism to prevent excessive quantities of poultry being delivered to the unloading station of the structure. The poultry loading apparatus is mounted on a mobile frame and has a poultry retaining structure above the belt on the inclined conveyor and above the belt on the horizontal conveyor.

3,602,199
AUTOMATIC LIVESTOCK SPRAYER
Richard E. Diggs, 210 N. River St., P.O. Box 588, Carthage, Mo.
Filed Oct. 24, 1969, Ser. No. 869,175
Int. Cl. A01k 29/00
U.S. Cl. 119-159



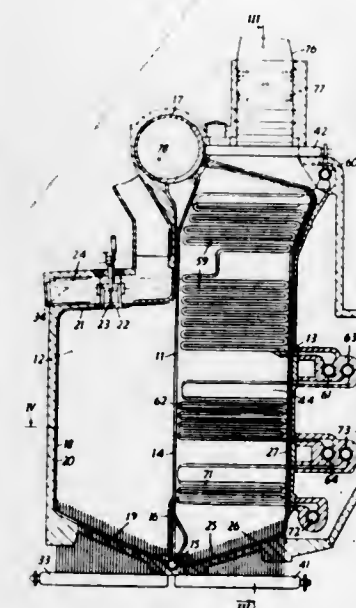
An automatic livestock sprayer including frame means having means for confining the path of livestock traveling therethrough, the frame means including a base to one end of which is pivotally connected a treading platform over which the livestock is constrained to pass, and a pair of insecticide pump and treading supporting hydraulic pressure cylinders fixed to opposite corners of the frame at one end thereof, the pressure cylinders supporting the free end of the treading platform and effecting automatic spraying of insecticide on livestock stepping on and depressing the treading platform, said pressure cylinders having means regulating pressure and spray rate regardless of the weight of the livestock or speed of treading action, and means for effecting repositioning of the treading platform.

3,602,200
INSTANTANEOUS SANITIZING WATER HEATING UNIT
Grover C. Evans, and Thomas J. Evans, both of Little Rock, Ark., assignors to G. C. Evans Products Corporation, Little Rock, Ark.
Filed Apr. 15, 1970, Ser. No. 28,811
Int. Cl. F22b 15/00
U.S. Cl. 122-264



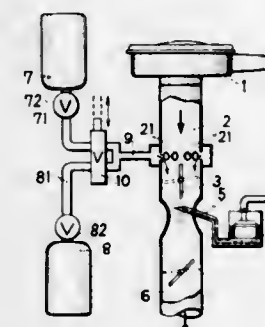
A water heater for heating large amounts of water quickly. Water moves back and forth in rows of horizontal, heated tubes, reversing direction in plenum compartments and moving in a generally downward direction, countercurrent to burner gases rising from firebox. Cold water enters through a pressure-reducing valve, into three or more rows of heater tubes in parallel and progressively passes through reducing numbers of tubes to thereby progressively increase water velocity and turbulence, decrease nonmoving film thickness, and increase heat conductivity to a maximum in the high heat zone adjacent the firebox.

3,602,201
VAPOR GENERATOR
Neil P. Baillie, London, England, assignor to Babcock & Wilcox, Limited, London, England
Filed Sept. 22, 1969, Ser. No. 859,926
Claims priority, application Great Britain, Sept. 23, 1968, 45198/68
Int. Cl. F22g 7/14
U.S. Cl. 122-478



A vapor generator adapted for use in a ship propulsion system requiring both superheated and reheated steam for ahead operation and only superheated steam for astern operation, the vapor generator having two parallel gas flow passes with dampers to regulate gas flow therethrough and including serially connected sections of superheater surface disposed in both of the gas passes and an attenuator connected to receive vapor from a first set of the superheater sections for flow therethrough to a second set of the superheater sections, where each set of sections is disposed in both gas passes.

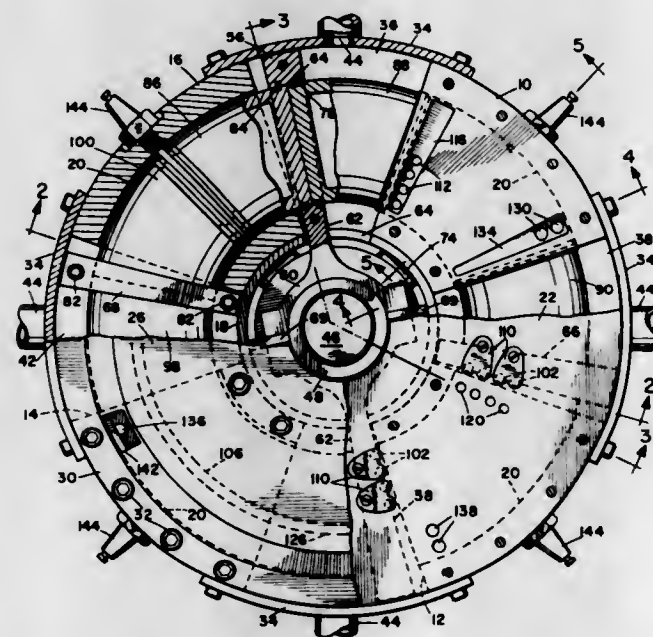
3,602,202
METHOD AND APPARATUS FOR REDUCING POLLUTANTS IN THE EXHAUST GAS OF AN INTERNAL COMBUSTION ENGINE
Akira Kobayashi, Nagoya-shi, Japan, assignor to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Japan
Filed Nov. 25, 1969, Ser. No. 879,702
Claims priority, application Japan, Nov. 30, 1968, 43/87731
Int. Cl. F02b 75/10; F02m 25/00
U.S. Cl. 123-1 A



A method and apparatus for reducing pollutants in the exhaust gas of an internal combustion engine of the type wherein air-fuel mixture is supplied to the engine combustion chamber through an air suction pipe having a carburettor with a main nozzle and a throttle valve, and comprising means for feeding oxygen to the air-fuel mixture in said carburettor when the throttle is between its closed and one-fourth open positions and the engine is operating at light load, means for stopping said oxygen feed and feeding inactive gas to the air-fuel mixture in the carburettor when the

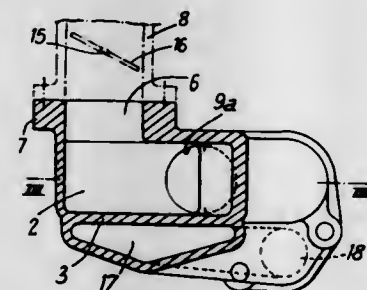
throttle valve is approximately between one-fourth and three-fourths open and the engine is operating at medium load condition, and means for stopping said inactive gas feeding and again feeding oxygen to the air-fuel mixture in the carburetor when the throttle valve is between approximately three-fourths and fully open, and the engine is operating at full load condition.

3,602,203
TOROIDAL TWO-CYCLE ENGINE
Robert C. Mowry, 3672 Princeton Ave., San Diego, Calif.
Filed Jan. 29, 1970, Ser. No. 6,850
Int. Cl. F02b 53/06
U.S. Cl. 123—18



A toroidal two-cycle engine in which two opposed pairs of pistons oscillate in opposition in four toroidal cylinders, dual power strokes occurring at each reversal of piston motion. An intake manifold connecting all cylinders is charged with combustible mixture through a uniflow scavenging system, utilizing the motion of the pistons in both directions. The engine is of simple construction and the inertia of the moving parts is equal and opposite about a common axis, so that vibration and stress are minimized. Functional parts of the engine are readily accessible and the structure is easily dismantled for servicing.

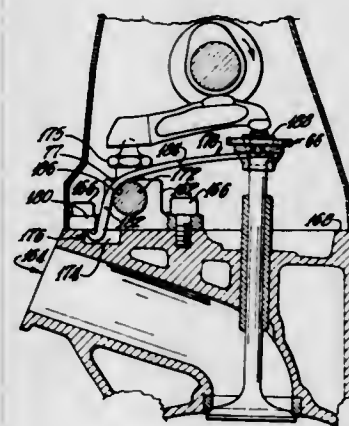
3,602,204
INTERNAL-COMBUSTION ENGINE INLET MANIFOLD
Albert Grosseau, Chaville, France, assignor to Societe Anonyme Andre Citroen, Berlet, Panhard, France
Filed July 7, 1969, Ser. No. 839,537
Claims priority, application France, July 8, 1968, 3526
Int. Cl. F02b 25/26, 75/10, 27/00
U.S. Cl. 123—52 M



An inlet manifold for an internal-combustion engine comprises a chamber having a circular aperture in the top surface thereof through which aperture gaseous fuel is fed from a carburetor. Two adjacent sidewalls of the chamber are disposed at an angle not greater than 90° and are joined by a curved portion, the axis of which coincides with the axis of the circular aperture. The entrance portions of passages

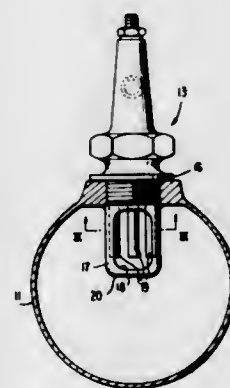
which lead from the chamber to the respective cylinders of the engine are rectangular in cross section and the axes thereof converge towards the axis of the circular aperture. The cross section of each passage progressively changes so as to be circular at the outlet end, and the entrance portion of each passage is located on the same side of a plane containing the axis of carburetor and the axis of the throttle valve in the carburetor.

3,602,205
DUAL BEAM VALVE SPRING
Michael C. Turkish, Lyndhurst, Ohio, assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio
Filed May 13, 1969, Ser. No. 824,169
Int. Cl. F011 3/10; F161 1/18
U.S. Cl. 123—90.65



A valve spring, comprising an elastic beam in bending, having a high natural vibration frequency to practically eliminate the presence of spring surge, as encountered with the common helical coil spring in high-speed internal combustion engine valve gear. The natural vibration frequency of the beam spring is considerably higher than the helical coil spring which it replaces, being about two to four times greater. The beams have novel shape and are designed to have a high and relatively uniform maximum stress in the flexed region. Dual beams are used to provide an assembly to operate each individual valve. Further, the adaptability and the low profile can decrease the required engine height or make possible the use of the invention in heavy duty engines for improved valve stem cooling.

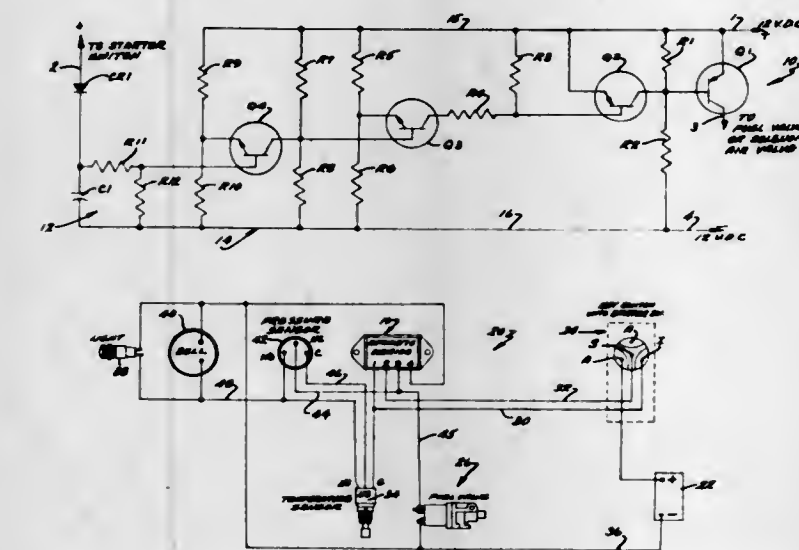
3,602,206
FLAME HEATER PLUG FOR AIR-COMPRESSING INTERNAL COMBUSTION ENGINES
Werner Kern, Stuttgart-bad Cannstatt; Friedrich-Wilhelm Hase, Stuttgart-bad Cannstatt, and Hartmut Glatzel Stuttgart-Rohracker, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Feb. 5, 1969, Ser. No. 796,851
Claims priority, application Germany, Feb. 7, 1968, P 16 01 345.9
Int. Cl. F02m 3/12, 3/16
U.S. Cl. 123—122 G



A flame heater-plug for air-compressing internal combustion engines which is arranged in the suction pipe and has

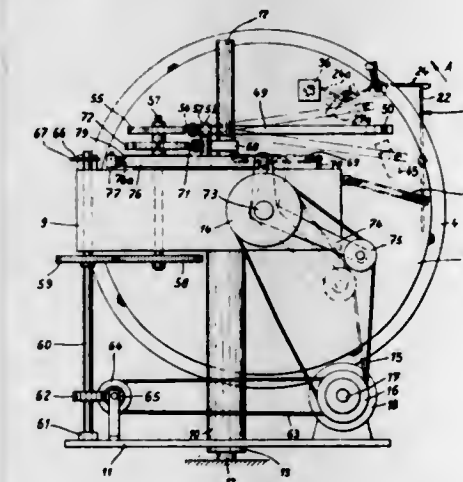
at least one heater element; the part of the plug projecting into the suction pipe is surrounded by a protective cap that is open in the direction toward the internal combustion engine and is closed in the other direction.

3,602,207
AUTOMATIC OVERRIDE FOR ENGINE SAFETY SHUTDOWN SYSTEMS
Paul R. Kilmer, LeRoy, Mich., assignor to Kysor Industrial Corporation, Cadillac, Mich.
Filed Aug. 22, 1969, Ser. No. 852,354
Int. Cl. F02n 11/08, 11/10; F02b 77/08; 184 6 D
U.S. Cl. 123—179



A solid-state electronic device which senses stator voltage during normal restart of an internal combustion engine following intentional shutdown of during attempted restart of an engine following shutdown thereof by a system detecting abnormal engine operating conditions, and which overrides the shutdown system to permit at least temporary engine operation during a predetermined interval in which abnormal operating conditions may persist. The override device includes a reactive charging and discharging timing stage which determines the override period by a controlled discharge commencing when starter operation ends, as well as amplification and switching stages which actuate an engine-controlling component to both initiate and end the override period in response to the operation of the reactive timing stage.

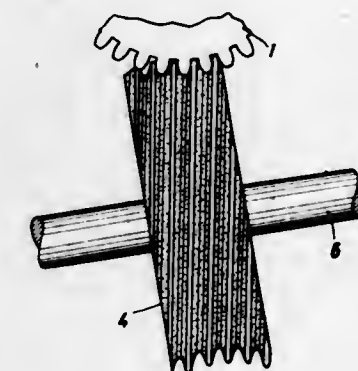
3,602,208
DEVICE FOR PROJECTING PROJECTILES AT CYCLICALLY VARYING AZIMUTH AND ALTITUDES
Paul Huerlimann, Zentralstrasse 64 CH-5430, Wettingen, Switzerland
Filed Nov. 8, 1968, Ser. No. 774,303
Claims priority, application Switzerland, Nov. 21, 1967, 16311/67
Int. Cl. F41b 15/00
U.S. Cl. 124—6



Balls are thrown from a rotating spiral-shaped guideway by the action of the centrifugal force through an outlet which is

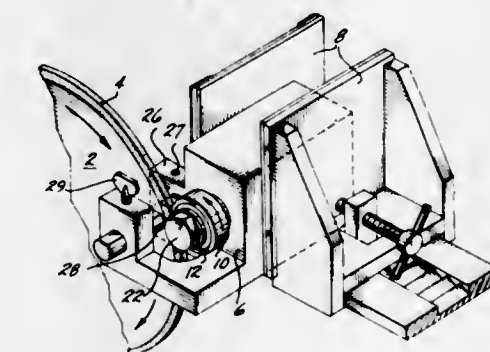
opened for the passage of an ejected ball. The speed of rotation, the elevation angle, the azimuth angle, and the frequency of the ejections are cyclically varied by rotary cams driven from an electric motor.

3,602,209
DRESSING TOOL FOR FORMING AND DRESSING HELICALLY RIBBED GRINDING WHEELS
Fritz Bocker, 34, Bahnhofstrasse, 4703, Bonen, Westphalia, Germany
Filed July 16, 1968, Ser. No. 745,216
Int. Cl. B24b 53/06, 1/00
U.S. Cl. 125—11 R



The invention provides a dressing tool for and a method of forming and dressing helically ribbed grinding wheels for grinding the tooth flanks of spur gears and other profiles that can be generated by rolling, wherein at least the tooth flanks which form the working surfaces of the dressing tool are provided with diamonds embedded in a matrix, and the addendum of the teeth of the dressing tool is about $1.2 \times m$ and the dedendum is about $1.4 \times m$, whereas the addendum of a gearwheel that is to be ground is about $1.0 \times m$ and the dedendum is about $1.2 \times m$, m being the module of the dressing tool and of the gear wheel that is to be ground with the helically ribbed grinding wheel.

3,602,210
ABRASIVE IMPREGNATED WHEEL DRESSING APPARATUS
Jerome Appleton, 722 N. 3rd St., Kent, Wash.
Filed June 27, 1969, Ser. No. 837,047
Int. Cl. B24b 53/14; B23d 73/04
U.S. Cl. 125—11 CD



Apparatus for dressing, smoothing and reshaping the cutting surface of an abrasive impregnated cutting wheel. Apparatus includes a frame member suitable for mounting in the object vise of a cutting machine having a diamond impregnated cutting wheel, a rotatable cylindrical dressing surface mounted on the frame member, and guide means to hold the cutting wheel in proper position. The dressing surface engages the periphery of the cutting wheel under pressure to smooth and shape it by a peening action of the rotating cylindrical dressing surface upon the periphery of the cutting wheel.

3,602,211

HOT AIR GENERATOR UNIT

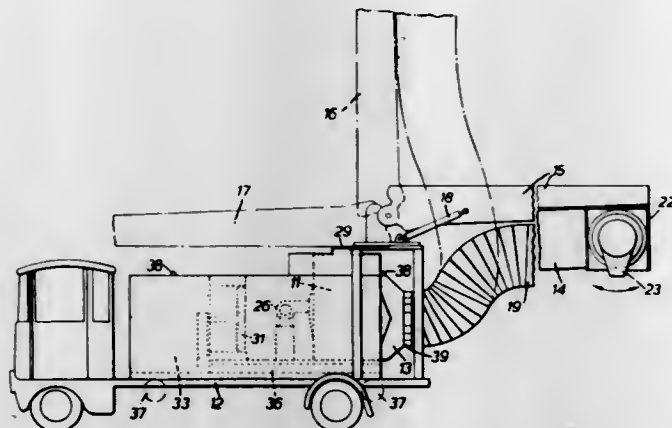
Walter Herbert Nelson Charman, "Westleigh", Furzehill, Wimborne, England

Filed Sept. 26, 1969, Ser. No. 861,442

Int. Cl. F24h 3/02

U.S. Cl. 126—271.2 R

9 Claims



The invention is a portable generator of vast quantities of hot air for industrial processes or for deicing aircraft surfaces. The complete unit on wheels or on a lorry has a heat-exchanger, an engine driven air fan and a burner using fuel oil from a tank in the unit, and the hot air output can be directed at a surface to be treated.

3,602,212

SURGICAL OPERATING THEATRE WITH STERILE AIR ADMITTING MEANS

Frederick H. Howorth, Withnall, Chorley, England, assignor to James Howorth & Company Limited, Bolton, England

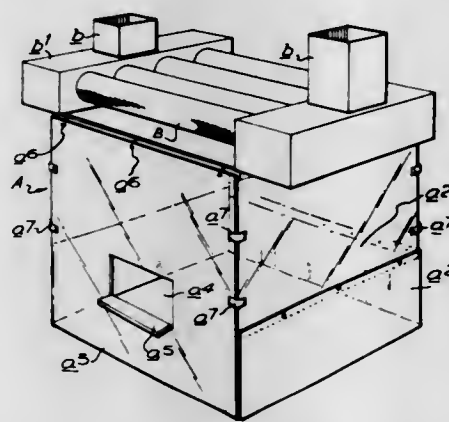
Filed Apr. 28, 1969, Ser. No. 819,582

Claims priority, application Great Britain, May 2, 1968, 20,764/68

Int. Cl. A61b 19/00

U.S. Cl. 128—1 R

3 Claims



A method and apparatus for carrying out surgical operations in which the operation is carried out in a transparent chamber or cubicle of a size to house the operating team and patient and through which a vertically downward fan actuated flow of sterile air passes and is changed some 300 times per hour and in which the air is introduced through tubes of porous textile material the pores in which contract when the fan is stopped to prevent contaminated air from reentering the tubes through the fabric.

3,602,213

APPARATUS FOR PHOTOELECTRIC DERMACHROMOGRAPHY

William L. Howell, Washington, D.C., and William B. Leaf, Silver Spring, Md., assignors to Prototypes, Inc., Kensington, Md.

Filed Feb. 13, 1968, Ser. No. 705,209

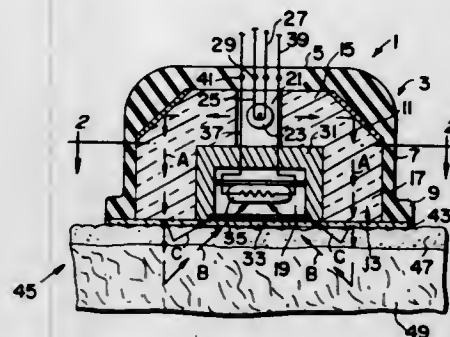
Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 F

11 Claims

A method and apparatus for detecting occlusions in one of the internal carotid arteries by the differential sensing of

epidermal blood flow in the supraorbital areas. A pair of photoelectric transducers that sense the relative absorption or reflection of light by the blood at the surface of the skin as an indication of blood flow are positioned over the supraorbital notches above the eyes. The blood contributions to these areas from the superficial temporal, angular and occipital arteries are eliminated by compression, leaving the internal carotids as the only suppliers. The sensor outputs are



then compared, and any unbalance indicates an occlusion in one of the carotid arteries. Same may also be detected by momentarily compressing the supraorbital areas as well, and then comparing the refilling curves produced by the sensors. The location of the occlusion above or below the carotid bifurcation may be determined by removing all compression and repositioning the transducers to sense the external carotid flows.

3,602,214

METHOD OF PHANTOM LEVEL SENSING IN A CENTRAL VENOUS PRESSURE MONITORING SYSTEM

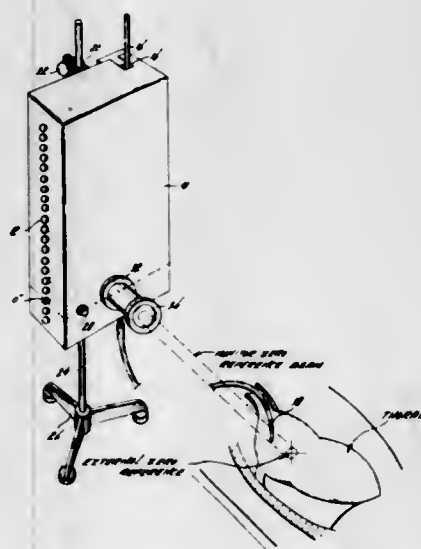
Seymour B. London, and Rose E. London, both of 35 E. DiLido Drive, Miami Beach, Fla.

Continuation-in-part of application Ser. No. 710,485, Mar. 5, 1968. This application Sept. 23, 1969, Ser. No. 860,326

Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 D

7 Claims



Method of sensing phantom level in central venous pressure monitoring systems of the type supporting liquid in column relatively to the right atrial chamber of the heart. The method includes projecting of a reference light beam from the liquid column gravimetric zero reference point to the right atrial chamber gravimetric zero point referenced on the patient's thorax. The light beam shining upon the thorax enables readjusting of the height of the liquid column, accordingly as the reference beam is projected above or below the referenced point on the thorax.

3,602,215

ELECTRODE FAILURE DETECTION DEVICE

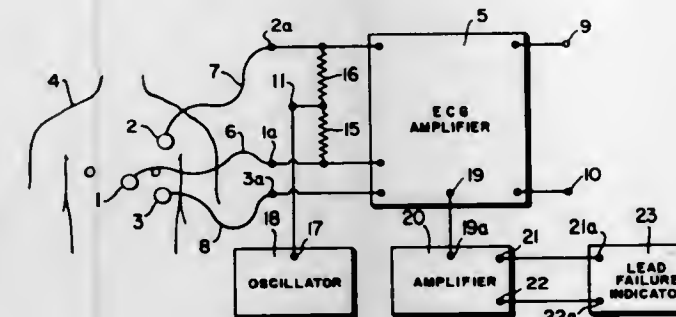
John Parnell, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 16, 1968, Ser. No. 759,871

Int. Cl. A61b 5/04

U.S. Cl. 128—2.06 B

2 Claims



Apparatus is provided for detecting the failure of a set of lead means used in conjunction with an ECG amplifier. The apparatus includes a constant current source connected to the individual lead means for generating a voltage therebetween representative of the transmission impedance of the lead means. Amplifying and level detecting means are connected to the lead means for generating trigger pulses indicative of lead failure whenever the transmission impedance of the lead means exceeds a predetermined magnitude. An indicator means driven by the trigger pulses is included to indicate the occurrence of lead failure.

housing. The device may utilize either an ordinary dry cell battery or a rechargeable battery to actuate the vibrating means.

3,602,218

STERILE DISPOSABLE FINGER PIN

Daniel C. Riordan, New Orleans, La., and Arthur D. Steffe, Cleveland, Ohio, assignors to Zimmer Manufacturing Company, Warsaw, Ind.

Filed Apr. 16, 1969, Ser. No. 816,513

Int. Cl. A61f 5/04

U.S. Cl. 128—92 B

5 Claims



A finger pin made from Kirschner wire is mounted to a hub and sealed within a plastic container. The hub mates with the tip of a hypodermic syringe or another nonsterile handle so that the pin is easily inserted into the finger with the hub closely adjacent the surface of the skin. The hub prevents the pin from penetrating further into the finger and provides a means for easily removing the pin after the fracture has healed. The tip of the pin is specially shaped to aid the pin in penetrating the finger.

3,602,219

RESPIRATOR HAVING SOUND DIAPHRAGM PROTECTIVE CAVITY

Ernst Warncke, Lubeck, Germany, assignor to Dragerwerk Aktiengesellschaft, Lubeck, Germany

Filed Mar. 5, 1969, Ser. No. 804,440

Int. Cl. A61f 9/04

U.S. Cl. 128—146.5

7 Claims

A respirator or gas mask includes an inlet with an inlet check valve permitting flow of inhalation air in the mask body past a front viewing window. An inner auxiliary mask is formed within the mask body in a central area of a size accommodating the nose and the mouth of the wearer. The inner mask is provided with a vibration diaphragm or speaking membrane which permits the transmission of the sound of the speech of the wearer to the outside. The membrane is

3,602,217

EYE TREATMENT DEVICE

Robert L. Felton, Clifton, N.J., and Joseph Gladstone, New York, N.Y., assignors to Richard Dupont, New York, N.Y.

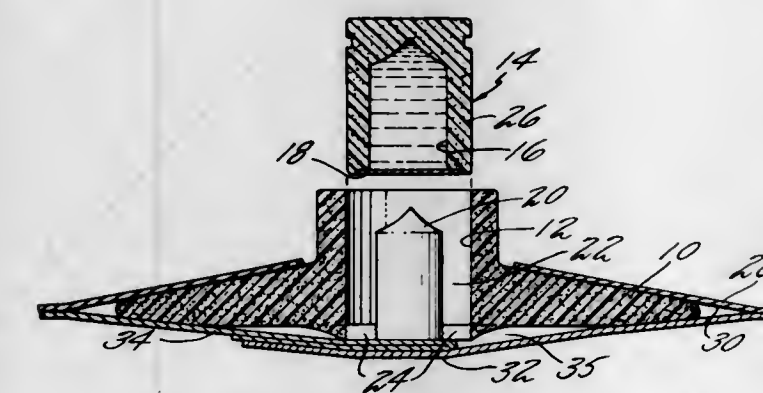
Filed Apr. 15, 1969, Ser. No. 816,189

Int. Cl. A61h 1/00

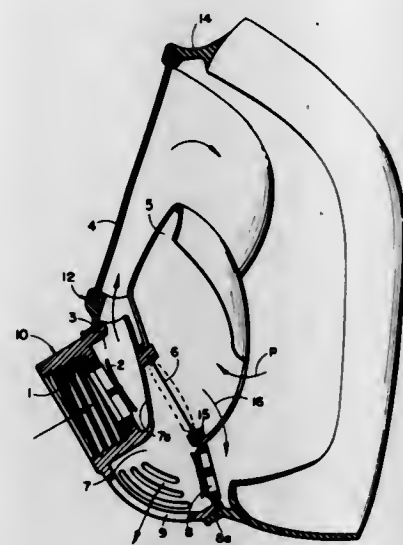
U.S. Cl. 128—36

6 Claims

An eye treatment device which comprises a housing having battery-operated vibration means therein and an eyecup portion at one end of the housing. The eyecup portion

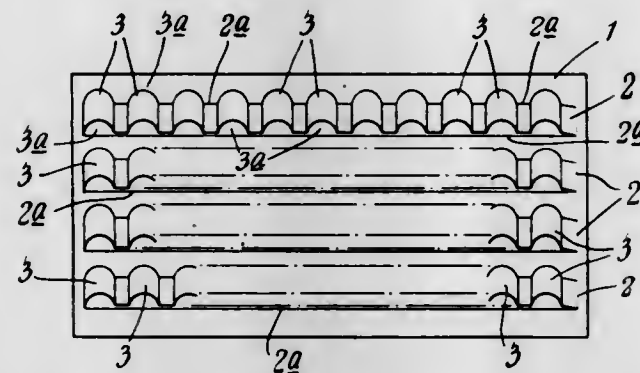


located over an external cavity which is formed directly adjacent the inlet of the mask. An outlet valve is arranged to receive exhalation air from the auxiliary mask cavity inside



the mask and to discharge it in the vicinity of the antechamber or cavity adjacent the speaking membrane and the inlet passage.

3,602,220
SURGICAL DRESSINGS INCLUDING BANDAGE AND THE LIKE
John Bunyan, 22 Seymour St. Portman Square, London, England
Filed Aug. 29, 1969, Ser. No. 854,053
Int. Cl. A61f 13/00
U.S. Cl. 128-156 10 Claims

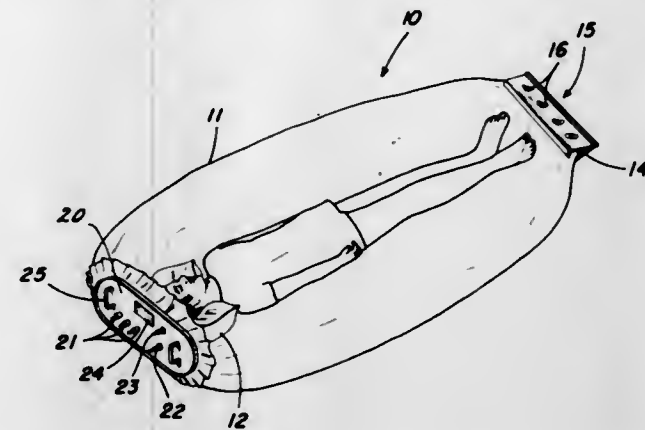


An outer covering for the absorbent material of a surgical dressing is formed of a sheet or layer of flexible plastic material having therein openings, for the passage of exudation, in the form of hollow open-ended tunnel-like portions upstanding from one face of the sheet. The interiors of these portions communicate with both faces of the sheet and may be arranged in spaced parallel rows.

3,602,221
PORTABLE RECOMPRESSION CHAMBER
Eric V. Bleicken, 29 Canterbury St., Hingham, Mass.
Filed Sept. 25, 1969, Ser. No. 861,105
Int. Cl. A61m 16/02
U.S. Cl. 128-204 2 Claims

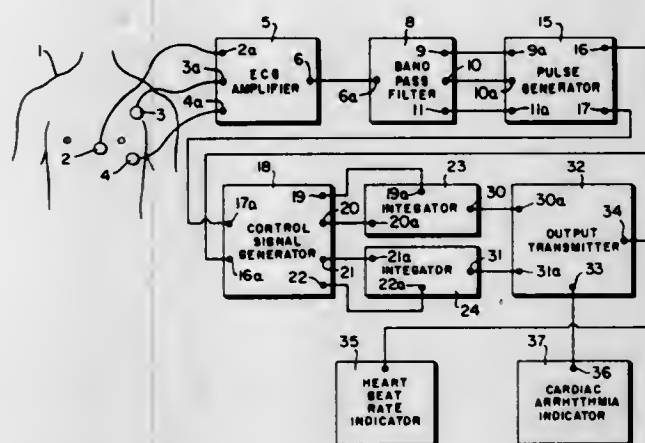
An elongate, flexible, inelastic sleeve is sized to contain a diver suffering a decompression sickness, such as a gas embolism, and terminates in one end in a control panel provided with gas inlet and outlet fittings for transferring pressurized gas to and from the interior. Gauges and additional fittings are optionally provided to facilitate treatment. The opposite end of the flexible sleeve is formed with a large flexible opening closed by a clamp traversing the sleeve's lateral dimensions. Being constructed of a lightweight plasticlike material, which for aiding diagnosis and treatment is transparent, renders the instant invention completely portable and trans-

portable by divers to on-the-job work sites. If a diver suffers an embolism caused by too rapid an ascent, or insufficient decompression, he is immediately placed into the sleeve through the large flexible open end which is then quickly



closed by the clamp. Pressurized gas from any of many suitable sources is fed to the interior via the gas inlet fittings, immediately recompressing the diver, such immediate treatment being of the greatest importance to avoid death or permanent injury arising from delayed treatment.

3,602,222
RATE METER, PARTICULARLY A BEAT-BY-BEAT CARDIOTACHOMETER
Richard A. Herndon, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Sept. 16, 1968, Ser. No. 759,961
Int. Cl. A61b 5/04
U.S. Cl. 128-2.06 F 7 Claims

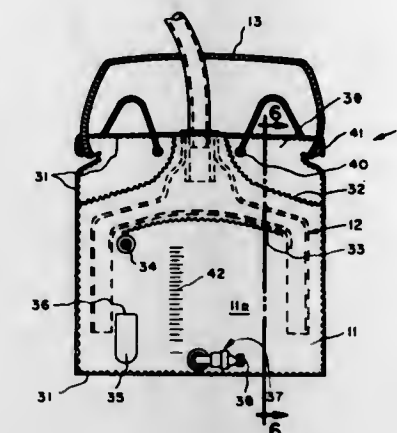


A ratemeter, particularly a cardiometer is provided having means for detecting, amplifying and transmitting only the R-waves of a patient's ECG. A pulse generator including a level detector is responsive to the R-waves to generate beat pulses. Signal generator means are responsive to the beat pulses to produce control signals to alternately operate first and second integrators. The integrators generate output pulses proportional to the beat-by-beat heart beat rates which pulses are then displayed on first indicator means. Second indicator means are included to detect and indicate cardiac arrhythmia.

3,602,223
BODY FLUID DRAINAGE CONTAINER
Harvey J. Engelsheer, Yonkers, N.Y., assignor to Horizon Industries, Ltd., Bronx, N.Y.
Filed Oct. 7, 1969, Ser. No. 864,355
Int. Cl. A61f 5/44
U.S. Cl. 128-275 12 Claims

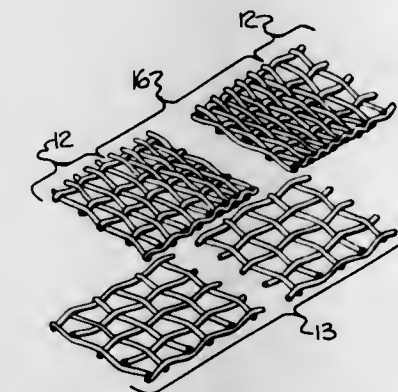
A container for the collection of body fluids such as urine, has a semirigid tubular frame disposed within a flexible bag. The frame serves first as a supporting structure with its cross-bar extending across the top of the bag and legs extending

down the sides, thus preventing the bag from being bent across either vertical or horizontal axis. Secondly, the frame serves as a fluid conduit from a central inlet to the bag's main



chamber. The lower part of each leg is cut away leaving an open channel to avoid any clogging of the fluid as it is discharged from the conduit into the main chamber.

3,602,224
PREFOLDED AND SEWN DIAPER AND FABRIC THEREFOR HAVING IMPROVED WEAR-RESISTANCE AND MOISTURE-HOLDING CHARACTERISTICS
Donald M. Abec, Alken, and Arther M. Pressley, Ware Shoals, both of, S.C., assignors to Riegel Textile Corporation, Ware Shoals, S.C.
Filed Dec. 13, 1968, Ser. No. 783,488
Int. Cl. A61f 13/16
U.S. Cl. 128-284 4 Claims



A prefolded and sewn diaper and fabric therefor comprising at least two plies of material characterized by providing increased fabric density and a less open construction than conventional gauze diaper material for increased wear resistance in a first one of the plies and providing less fabric density and a more open construction than conventional gauze diaper material for increased moisture-holding characteristics in a second one of the plies. The diaper and fabric therefor preferably includes two spaced-apart warpwise extending strips in the first ply of material which have a greater fabric density and a less open construction for increased wear resistance than the remaining portion of the first ply and are so located as to form the outside folded edges of the prefolded and sewn diaper for combating wear therealong.

3,602,225
BIODEGRADABLE ABSORBENT PAD
Edward A. Wielicki, Philadelphia, Pa., assignor to FMC Corporation, Philadelphia, Pa.
Filed May 7, 1969, Ser. No. 822,735
Int. Cl. A61f 13/16
U.S. Cl. 128-287 9 Claims

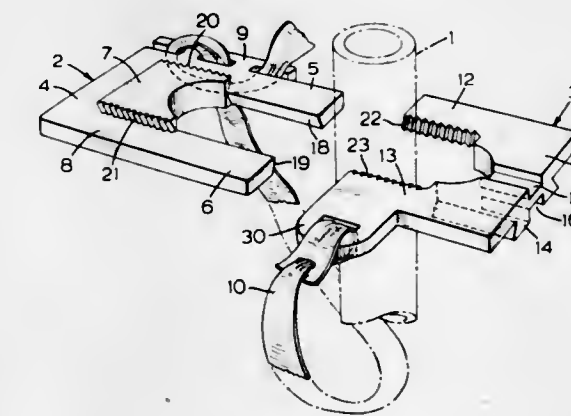
A disposable, absorbent pad containing biodegradable absorbent filler and a highly biodegradable cellulose moisture barrier film is disclosed herein.

3,602,226
SELF-INFLATING CATHETER WITH MEANS TO PREVENT LOSS OF INFLATION FLUID
Richard E. Erickson, Barrington, Ill., assignor to The Kendall Company, Boston, Mass.
Filed Nov. 19, 1965, Ser. No. 508,672
Int. Cl. A61m 25/00
U.S. Cl. 128-349 B 18 Claims



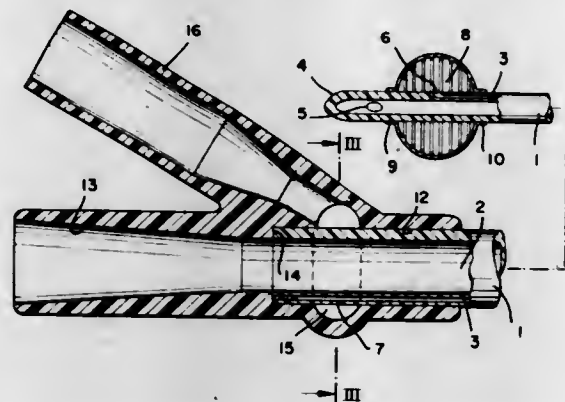
An inflatable retention catheter's resilient inflated reservoir retaining a fluid under pressure is contained in a fluid impervious jacket to prevent loss of the inflation fluid from the reservoir and to insure adequate inflation of the retaining means by the inflating fluid upon release of said inflating fluid from the reservoir.

3,602,227
ENDOTRACHEAL TUBE CLAMP
Daniel E. Andrew, 250 Westcourt Place, Waterloo, Ontario, Canada
Filed July 18, 1969, Ser. No. 843,020
Int. Cl. A61m 25/02; F611 3/10
U.S. Cl. 128-351 5 Claims



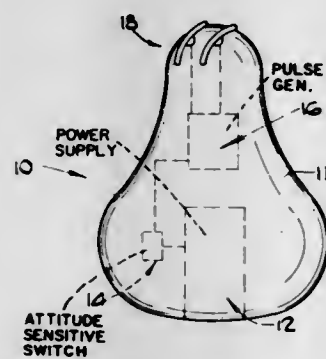
A disposable clamp for holding an endotracheal tube or the like during use comprises a pair of superimposed wafer-like clamping members formed with complementary cutaway portions to define an aperture for receiving the tube. The members provide respective pairs of parallel upstanding walls of sawtooth profile which engage one another to prevent separation of the clamping members. The members are retained in superimposed relation by means of interfitting dovetail or equivalent formations. When assembled, the clamping members can be separated only by breaking one of the clamping members, for which purpose a line of easy fracture is provided.

3,602,228
FUNNEL UNIT FOR PLASTIC CATHETER
 Calvin C. Cowley, Los Angeles, Calif., assignor to C. R. Bard Inc., Murray Hill, N.J.
 Filed Oct. 3, 1968, Ser. No. 764,736
 Int. Cl. A61m 25/00
 U.S. Cl. 128—349 2 Claims



A funnel unit for assembly on an extruded plastic Foley catheter comprising a Y-connector attachable to the catheter tube and provided with an annular internal recess in communication with the inflation funnel and designed to register with the inlet to the inflation lumen in all rotational positions of the unit on the tube.

3,602,229
A METHOD OF FIBRILLATING A HEART AND APPARATUS THEREFOR
 George Gustav Jaros, 401 Jakaranda, Beckett Street, Transvaal Province, Arcadia; Johannes Petrus Gous, 107 Kronendal, 32 Troye Street, Transvaal Province, Sunnyside; Johan Samuel Loubser, 690 Stuart Street, Transvaal Province, Deerness, and Johannes Christiaan Van Der Spuy, Waterkloof Ridge, all of Pretoria, South Africa
 Filed Aug. 26, 1968, Ser. No. 755,041
 Claims priority, application South Africa, Sept. 8, 1967, Jan. 15, 1968, 67/5376; 68/0275
 Int. Cl. A61n 1/38
 U.S. Cl. 128—421 2 Claims

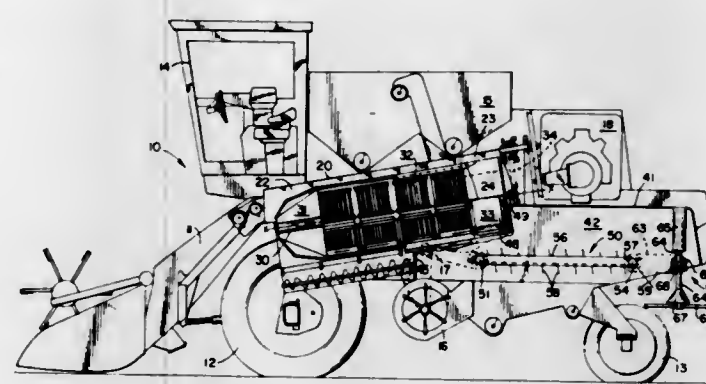


Fibrillation of a heart by inducing arrhythmias in the heart muscle fibers separately and successively in small groups by the application of a multiple of low voltage electrical pulses across the surface of the heart. The flow of electrical current is concentrated along the outer surface of the heart. A fibrillator comprising pulse-generating means housed within a small casing having a pair of electrodes on the outer surface of the casing and connected operatively to the pulse-generating means, the fibrillator being in the form of a single self-contained unit and being sterilizable as a whole by introduction into a sterilizing zone.

3,602,230
DUST-SETTLING DEVICE
 William H. Knapp, Davenport, Iowa, assignor to International Harvester Company, Chicago, Ill.
 Filed Jan. 10, 1969, Ser. No. 790,223
 Int. Cl. A01f 12/48
 U.S. Cl. 130—29 4 Claims

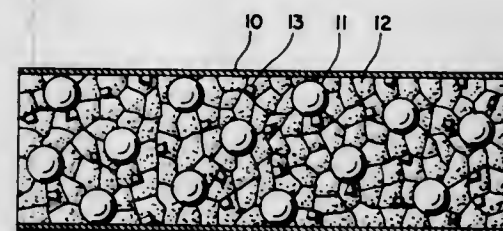
An apparatus for settling the dust and chaff discharged with the straw from the cylinder of an axial flow combine be-

fore releasing this material into the atmosphere. An elongated settling chamber having a material inlet opening and a



bottom conveyor moving from the inlet opening toward an exit opening that is vented to the atmosphere.

3,602,231
MEANS FOR AUDIBLE DETECTION OF THE ACTIVATION OF A FILTER FOR SMOKING DEVICES
 Mortimer Russell Dock, New York, N.Y., assignor to The H-2-D Filter Corporation, New York, N.Y.
 Filed Dec. 12, 1969, Ser. No. 884,542
 Int. Cl. A24d 01/04; A24f 25/02
 U.S. Cl. 131—10.1 1 Claim



The present invention provides means for creating audible evidence of the activation of a filter by the rupture of crisp or brittle material included in a filter having rupturable fluid-containing bodies therein.

3,602,232
DEVICE FOR COMPENSATING THE INCOMPLETE NONHOMOGENEOUS BURNING PROCESS OF TOBACCO PREFERABLY IN THE FORM OF CIGARETTES
 Kurt Grauvogel, 6682 Ottweiler, Gassling, and Herbert Jahnke, 8951 Unterthingau über Kaufbeuren, both of, Germany
 Filed Mar. 21, 1969, Ser. No. 809,087
 Int. Cl. A24c 05/50; A24d 01/04
 U.S. Cl. 131—10.5 4 Claims



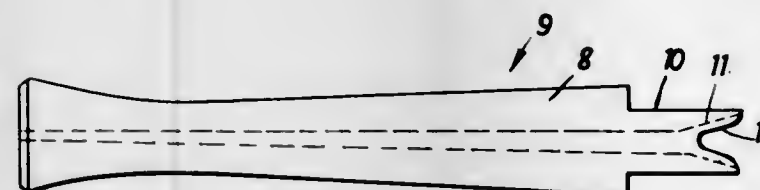
A tobacco smoking device particularly in the form of cigarettes having an insert member disposed behind the tobacco filler for deviating the smoke radially outwardly within the envelope.

3,602,233
SMOKING DEVICE INCORPORATING MICROPOROUS GLASS PARTICLE FILTER
 Joseph J. Hammel, Pittsburgh, Pa., and John D. Mackenzie, Schenectady, N.Y., assignors to P P G Industries, Inc., Pittsburgh, Pa.
 Continuation-in-part of application Ser. No. 736,670, June 13, 1968, now abandoned. This application May 6, 1969, Ser. No. 822,213
 Int. Cl. A24b 15/02; A24f 13/06
 U.S. Cl. 131—10.7 4 Claims



A tobacco smoke filter medium of microporous glass. A suitable microporous glass is an acid-leached, phase-separated, borosilicate glass, especially alkali borate silicate glass. The porous glass is used in bulk, granular, or fibrous form. The porous glass may be treated in an atmosphere of water vapor to increase the concentration of hydroxyl groups on the surfaces of the pores. The microporous glass filtering material is disposed in a downstream end of the smoke conduit of a smoking device which is adapted to accommodate a charge of tobacco. The glass particles present a microporous skeletal structure in which the SiO₂ content is at least about 90 percent by weight.

3,602,234
TOBACCO PIPE MOUTHPIECE
 Friedel Recht, 7, Fassbenderkaul, Cologne-Arnoldshöhe, Germany
 Filed July 23, 1969, Ser. No. 844,124
 Claims priority, application Germany, Aug. 8, 1968, P 17 82 255.8
 Int. Cl. A24f 07/00
 U.S. Cl. 131—227 4 Claims

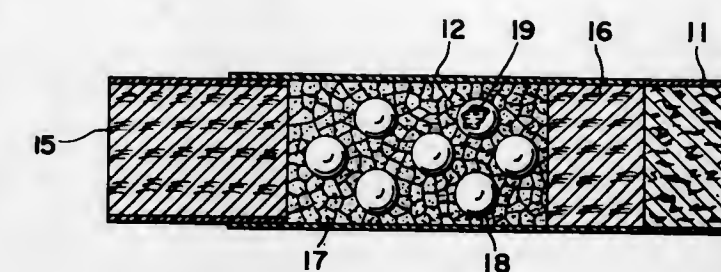


A tobacco pipe mouthpiece comprising a body portion and a neck portion of reduced cross section coaxially aligned with said body portion and formed integral with one end of said body portion. An axial bore extends through said body portion and said neck portion and has a conical end portion opening into the free end of said neck portion. A substantially V-shaped slot is formed in the free end of said neck portion and throughout the cross section thereof so as to extend vertically when the mouthpiece is in use.

3,602,235
ADJUSTABLE FILTERING DEVICE FOR SMOKING ARTICLES
 Mortimer Russell Dock, New York, N.Y., assignor to The H-2-O Filter Corporation, New York, N.Y.
 Filed Oct. 16, 1969, Ser. No. 867,074
 Int. Cl. A24d 01/04; A24f 13/06, 25/02
 U.S. Cl. 131—261 A 2 Claims

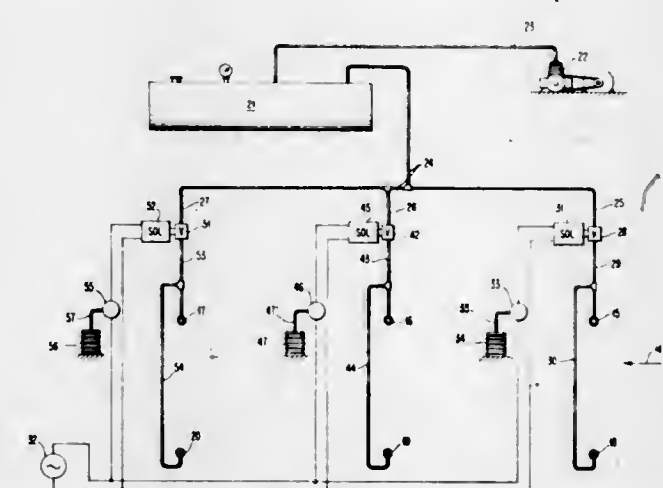
This invention relates to a means for filtering the smoke in cigars, cigarettes and the like by means of an adjustable filter

which may be compressed to provide maximum filtration or



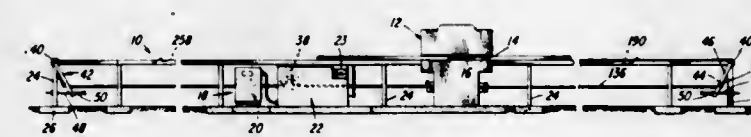
partially compressed to effect a lesser filtration of the smoke.

3,602,236
APPARATUS FOR METERING A CLEANING SOLUTION FOR A VEHICLE WHEEL
 Clyde F. Larkin, Jr., 285 Taylor Drive, Lexington, Ky.
 Filed Sept. 27, 1968, Ser. No. 763,067
 Int. Cl. B08b 3/04
 U.S. Cl. 134—45 8 Claims



Linearly spaced spray nozzles are disposed on opposite sides of a vehicle path for spraying a cleaning solution on the wheels of a vehicle. As the vehicle wheel engages a trip mechanism for each pair of aligned nozzles, a portion of the area of the wheel is sprayed with the cleaning solution. A predetermined quantity of the cleaning solution is metered through each of the spray nozzles irrespective of the time that the wheel remains in engagement with the trip mechanism.

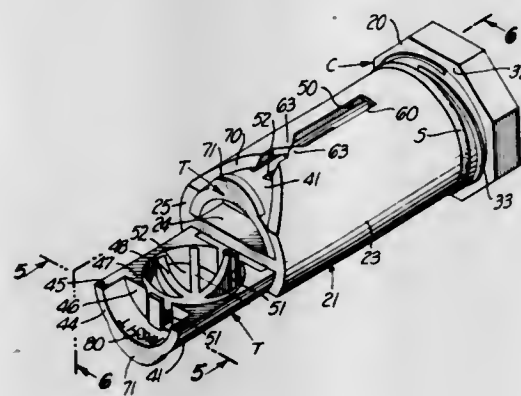
3,602,237
WOODEN FRAMING FABRICATION SYSTEM
 John C. Jureit, Coral Gables, and Oscar Csakvary, Miami, both of, Fla., assignors to Automated Building Components, Inc., Miami, Fla.
 Division of Ser. No. 676,943, Oct. 20, 1967, Pat. No. 3,443,513
 Filed Mar. 26, 1969, Ser. No. 810,501
 Int. Cl. B30b 15/16
 U.S. Cl. 100—53 10 Claims



The fabrication system comprises a conveyor operable to advance a jig table carrying wooden frame members positioned thereon forming a truss, panel or the like to successively locate the longitudinally spaced butt joints thereof below a press platen for embedment of nailplates of the type

having a plurality of teeth stuck therefrom into the butt joints. The conveyor and press are controlled via a circuit including an index wheel actuated switch which automatically and sequentially stops the conveyor when successive butt joints are located below the press, actuates the press to embed the nailplates, and restarts the conveyor to advance the jig table to locate successive butt joints below the press. The index wheel is driven from the conveyor and has a plurality of recesses spaced a predetermined distance one from the other about the periphery thereof representing a predetermined distance of conveyor advance. A plurality of magnetic pins are inserted in selected recesses of the wheel and project to successively actuate the switch controlling the conveyor and press. The selectivity of the spacing between adjacent pins permits fabrication of trusses, panels or the like of different sizes and types.

3,602,238
CONTACT LENS CASE
Frank E. Brown, Glendale, Calif., assignor to Allergan Pharmaceuticals, Santa Ana, Calif.
Filed Mar. 25, 1969, Ser. No. 810,319
Int. Cl. B08b 3/00
U.S. Cl. 134-117



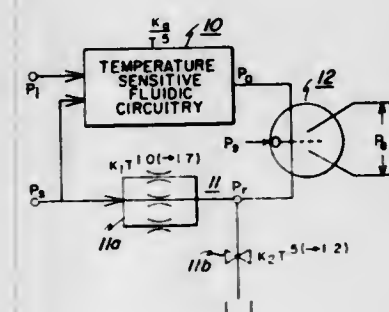
A case for storing and cleaning contact lenses comprising a normally upwardly opening, fluid-handling receptacle, a carrier with a cap portion releasably engageable with the receptacle to close the upper open end thereof and a receiver portion depending into the receptacle and a volume of cleansing fluid therein, the receiver portion slidably receiving a pair of trays; each tray having a lens-receiving cavity therein which cavity is covered by a portion of the receiver portion when the tray is fully engaged therein and which is uncovered and accessible when the tray is partially withdrawn from the receiver portion, the trays and receiver portion having venting means to assure the free flow of air and cleansing fluid in, through, and between the receiver portion, trays and lens-receiving cavities upon engagement and disengagement of the carrier in and with the receptacle.

3,602,239
COMBINED MANUAL AND SAFETY VALVE
Robert James Battersby, Lomita, and Paul Dietlker, Redondo Beach, both of Calif., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 16, 1970, Ser. No. 19,970
Int. Cl. F16k 35/02; F23n 5/10
U.S. Cl. 137-66

A thermocouple-energized safety valve and manually operable control valve combination wherein the cover for the valve combination is formed with notches to cooperate with arms on a knob for actuating the control valve. The arms are designed to cooperate with the notched cover to permit axial movement of the knob only in a "pilot" position of the control valve to actuate the safety valve to its "open" position.

8 Claims
valve to its "off" position. The construction enables the cover and knob to be inexpensively molded out of plastic material.

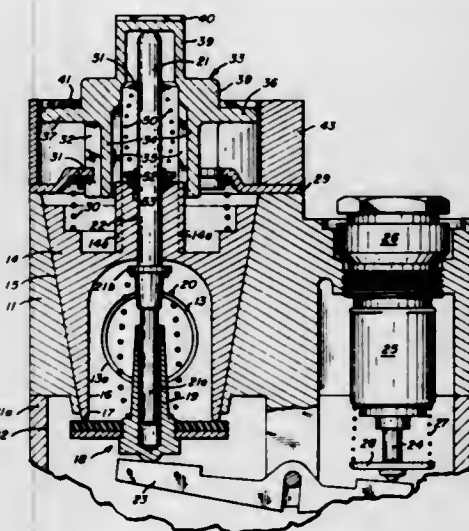
3,602,240
TEMPERATURE-COMPENSATING FLUIDIC REFERENCE CIRCUIT
Jeffrey N. Shinn, Scotia, and Thomas H. Vogelsang, Schenectady, both of N.Y., assignors to General Electric Co.
Filed Mar. 9, 1970, Ser. No. 17,786
Int. Cl. F15c 4/00
U.S. Cl. 137-81.5



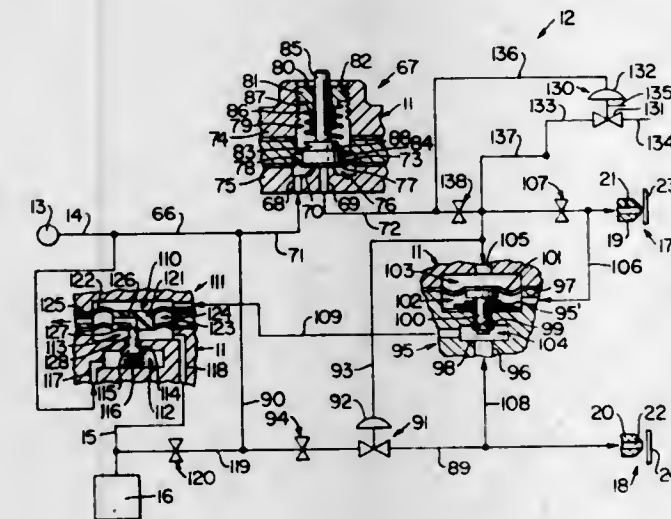
A passive fluidic reference circuit includes at least a first fluid flow restrictor connected between a pneumatic supply pressure source P_s and the circuit output P_r , and second restrictor connected between the circuit output and a vent. The first and second restrictors are of types which obtain pressure drops thereacross varying with absolute temperature T as the functions $P_s - P_r = K_1 T^{\alpha}$ and $P_r = K_2 T^{\beta}$, respectively. Operation of the passive circuit and a temperature-sensitive fluidic circuit whose output pressure signal P_o varies with temperature as $(P_o/P_s) = (K_a/T^{\gamma})$ is made essentially insensitive to temperature changes for the conditions $x = \gamma - \alpha$ and $(K_2/K_1) = K_a$ which establishes a reference operating point $P_o = P_r$.

3,602,241
PNEUMATIC CONTROL SYSTEM AND RESET VALVE FOR SUCH A SYSTEM OR THE LIKE
Louis M. Puster, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Mar. 4, 1970, Ser. No. 16,479
Int. Cl. G05d 23/00; G05b 11/50
U.S. Cl. 137-84

A pneumatic control system having a source of control fluid providing two different control pressure levels for respectively switching the control device of the system from one operating condition thereof to another operating condition thereof, the control device comprising a pair of condition controller means each having a sensor and a bleed-type

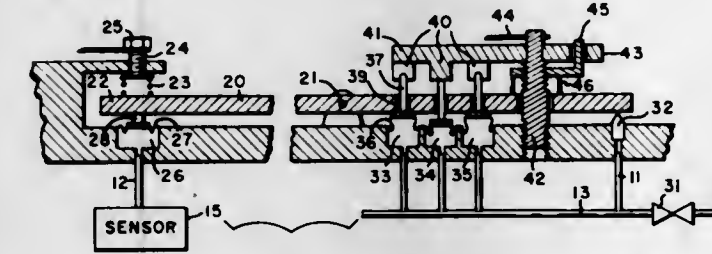


pneumatic valve operated thereby together with relay means operatively interconnected to the source for directing a branch signal of the control fluid to the source for directing a branch signal of the control fluid to a pneumatically operated device in relation to a pilot signal directed to a pilot chamber



of the relay means by one of the control means. A pressure responsive means is provided for switching the system from one condition controller means to the other in relation to the pressure level of the source, and a reset means is provided for overriding the pressure responsive means.

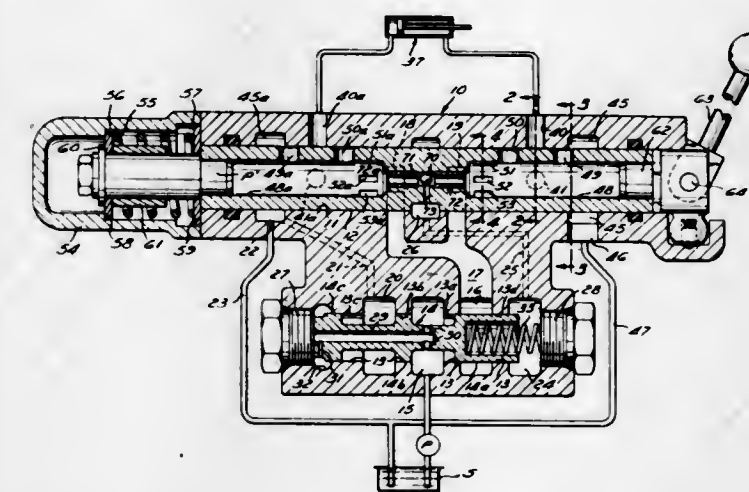
3,602,242
CONDITION CONTROLLER
Richard C. Mott, Harwood Heights, Ill., assignor to Honeywell, Inc., Minneapolis, Minn.
Filed Mar. 30, 1970, Ser. No. 23,915
Int. Cl. G05d 16/00, 23/00
U.S. Cl. 137-85



A condition controller of the type used in a pneumatic control system having wholly independent set-point adjustment means and proportional band adjustment means. The proportional band adjustment comprises a plurality of feedback elements selectively operable to vary the amount of feedback and therefore the proportional band. Compensating means are provided which nullify the effect on the set point of rendering one or more of the feedback elements operable or inoperable.

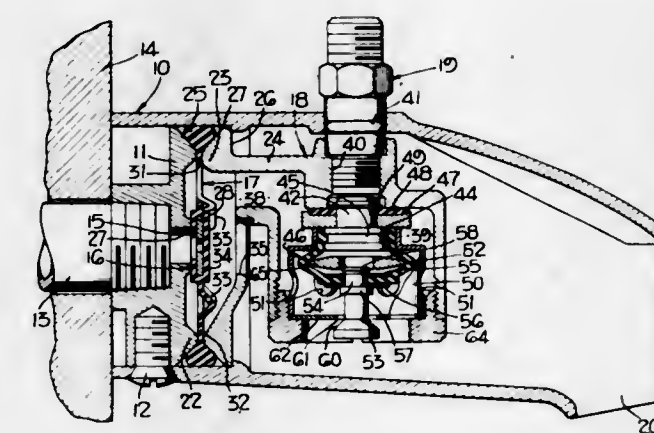
3,602,243
PRESSURE COMPENSATED MULTIFUNCTION CONTROL VALVE
Ray G. Holt, Westlake; Austin E. Pettyjohn, Parma, and Donald A. Strempke, Strongsville, all of Ohio, assignors to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed July 7, 1969, Ser. No. 839,222
Int. Cl. F15b 11/16; F16k 11/18
U.S. Cl. 137-115

A flow control valve having a control member which is rotatable to select any several fluid motors to be operated



the flow rate through the flow control valve for any selected rotational and axial position of the control member.

3,602,244
VALVE ASSEMBLY
Irving A. Ward, Hacienda Heights, Calif., assignor to Modern Faucet Mfg. Co., Los Angeles, Calif.
Filed Oct. 22, 1969, Ser. No. 868,526
Int. Cl. F03c 1/04; F16k 31/143
U.S. Cl. 137-119

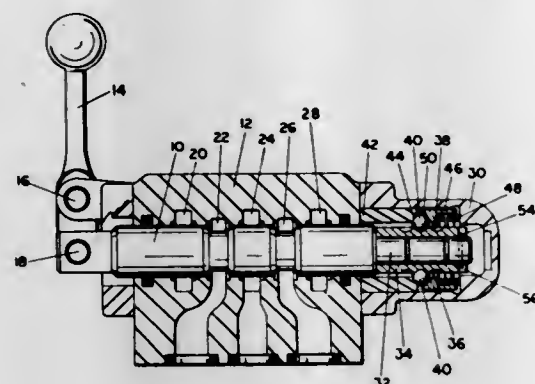


There is disclosed herein a valve assembly principally for use with a tub filler or spout and a spray head. The spout is connected with a fluid supply, and the valve assembly is mounted within the spout. The assembly includes an anti-siphon valve. The valve assembly further includes a button member and seat arrangement for allowing fluid to pass from the inlet to the outlet of the spout or to divert the fluid to a spray head coupled with the valve assembly. Diversion of fluid to the spray head occurs upon operation of the spray head and as a result of a differential pressure operating on components of the valve assembly.

3,602,245
UNIVERSAL DETENT POSITIONER
William H. Meisel, Columbus, Ohio, assignor to Abex Corporation, New York, N.Y.
Filed Feb. 26, 1970, Ser. No. 14,364
Int. Cl. F16k 35/04, 51/00
U.S. Cl. 137-270

A positioner is disclosed for use in a hydraulic directional control valve of the type having a valve body and a valve spool longitudinally slidable therein. The positioner is a detent mechanism having a resiliently biased, radially operative detent means and a locking-recess means cooperating therewith for releasably locking the spool in its valve spool

positions. One embodiment of the recess means is a sleeve having several dissimilar longitudinal series of recesses spaced circumferentially around the sleeve. Either the sleeve or the detent means is positionable at a plurality of angular positions relative to the other so that the detent means may lockingly cooperate with a selected series of recesses. The recesses may be spaced around the exterior of the sleeve, in which case the detent means is spaced outwardly therefrom. Alternatively, the recesses may be spaced around the interior



of the sleeve, in which case the detent means is spaced inwardly thereof. This detent mechanism provides standardized structures which can be mounted in several valves where each valve has a dissimilar series of valve functions. The locking-recess sleeve and the detent means are angularly positioned so that the detent means cooperates with the series of recesses on the sleeve corresponding to the valve spool positions of the particular control valve in which it is used. Similar embodiments are also disclosed for use with rotary valves.

3,602,246

FLUID-OPERATED LOGIC ELEMENTS

Gerhard Hettinger, Ingelfingen, and Albert Lang, Belsenberg Krs. Kunzelsau, both of, Germany, assignors to Christian Burkert Bau Elektrischer Geräte GmbH, Wurttemberg, Germany

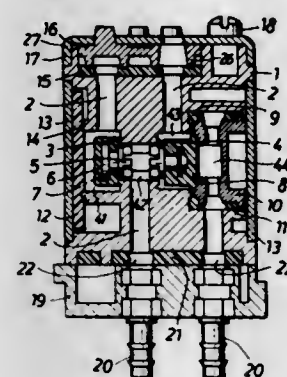
Filed Oct. 2, 1969, Ser. No. 863,256

Claims priority, application Germany, Oct. 2, 1968, P 18 00 551.1

Int. Cl. F16k 11/10, 31/12

U.S. Cl. 137-270

8 Claims



A fluid logic element which has a base block provided with a plurality of channels and valving means disposed within said block and response to fluid pressure for establishing or interrupting direct communication between channels, a plurality of routing elements each adapted to be secured to one face of said base block in a plurality of angular positions, to be connected to selected ones of said channels, thus permitting the conversion of the internal fluid circuit of said logic element to perform any of a plurality of possible fluid logic functions.

3,602,247

MULTIPLE-POPPET VALVE STRUCTURE

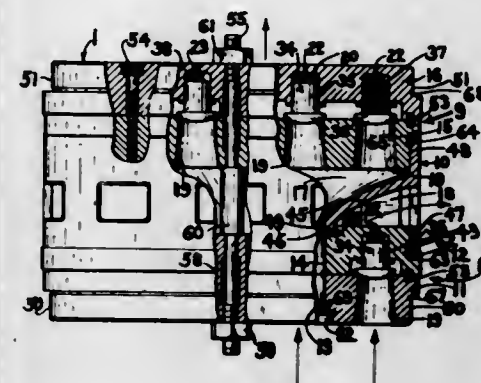
Stuart E. Bunn, and Herbert B. Owsley, both of P. O. Box 388, Shawnee Mission, Kans.

Filed Nov. 10, 1969, Ser. No. 875,431

Int. Cl. F16k 15/06

U.S. Cl. 137-270

11 Claims



A valve assembly for controlling flow of fluid under pressure through a portion of a fluid-moving structure is formed of a plurality of elements adapted to be arranged to form either an intake or an exhaust valve assembly and to form single- or multiple-deck valve assemblies. The valve assembly includes one or more decks each having a seat member and a cage member with a plurality of valve member resiliently mounted therebetween to open and close fluid flow passages through said respective deck in response to differential pressure. The cage members each have a guide bore for each valve member and a vent passage through the cage member for each guide bore and a wafer valve member is mounted within each guide bore at the vent passage for cushioning movement of the respective valve member and for effecting positive seating thereof. In multiple-deck valve assemblies a spacer member is mounted between and in engagement with facing surfaces of adjacent decks for controlling the direction of flow of fluid through the assembly.

3,602,248

TERMITE CONTROL SYSTEM

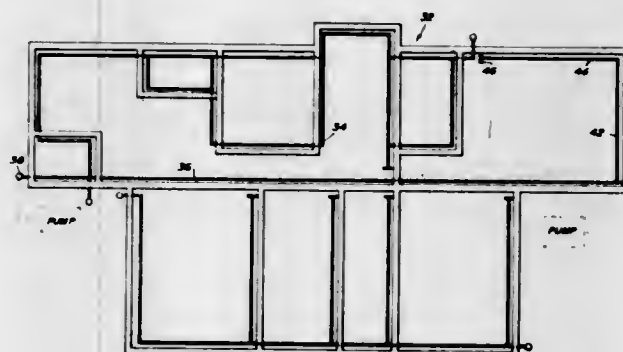
Richard C. Peacock, 2726 Wai Wai Loop, Honolulu, Hawaii

Filed Oct. 8, 1969, Ser. No. 864,782

Int. Cl. A01m 1/20

U.S. Cl. 137-357

3 Claims



A pipe system is laid out according to the floor plan of a structure and is disposed below the structure foundation slab. Pump means communicate with the pipe system to cause circulation of insecticide. The pipe members have apertures formed therein to permit the distribution of insecticide into the ground thereby preventing infestation by termites.

3,602,249

SAFETY VALVE

Jakob Zingg, Arau, Switzerland, assignor to Codetem, Compagnie Pour le Développement de Techniques Modernes S. a. r. l., Lausanne, Switzerland

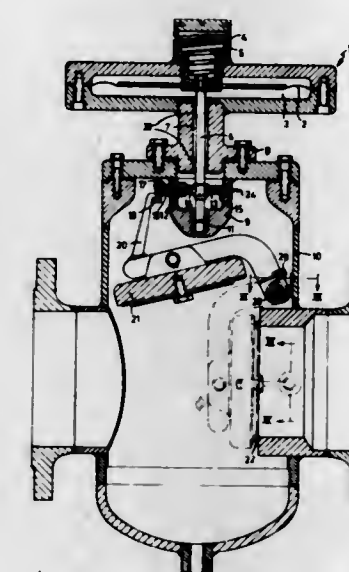
Filed Apr. 22, 1969, Ser. No. 818,352

Claims priority, application Switzerland, Dec. 3, 1968, 68/17299

Int. Cl. F16k 17/08

U.S. Cl. 137-377

6 Claims



A safety valve intended for use between a supply source and a pressure regulator in a gas transmission system. The valve is "bidirectional," that is, it responds whenever the gas pressure exceeds a predetermined upper limit or falls below a predetermined lower limit. An important aspect of the invention is the fact that the operating mechanism for the valve is contained in a sealed chamber and the mechanism is, therefore, totally protected from potentially dangerous corrosion from the atmosphere and from the operating gas.

3,602,250

FLUID SHUTOFF VALVE

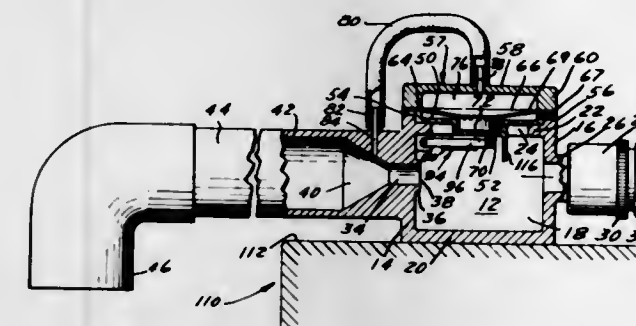
John S. Neenan, 415 Crest Road, Orange, Calif.

Filed Mar. 10, 1969, Ser. No. 805,604

Int. Cl. F16k 21/18

U.S. Cl. 137-386

13 Claims



A fluid shutoff valve that may be attached to an ordinary lawn hose for controlling the flow of water into a swimming pool. A magnet on a diaphragm holds a movable valve member in the open position and an air chamber at one side of the diaphragm has a fluid connection with a venturi, the chamber also having a fluid connection the open end of which is disposed in the pool at the height whereat it is desired to cut off the supply of water to the pool. The venturi causes air to flow from the second connection and through the chamber when the second fluid connection is above water level in the pool, the flow of air through the chamber being stopped when the water level reaches the open end of the second connection. Air pressure in the chamber is then reduced causing the diaphragm to deactivate the magnet's holding of the movable valve member so that said movable valve member is actuated to the closed position by gravity.

3,602,251

FLUENT MATERIAL LEVEL CONTROL SYSTEM

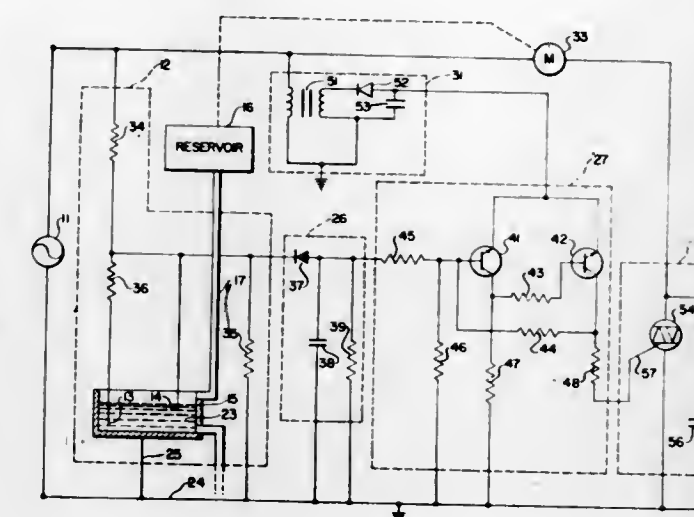
John Carroll Hill, Rochester, Mich., assignor to Standard International Corporation, Andover, Mass.

Filed July 22, 1969, Ser. No. 843,511

Int. Cl. F16k 21/18

U.S. Cl. 137-392

10 Claims



A system for detecting, indicating and controlling the level of a fluent material in a container. This system applies alternating current to two electrodes in a container, the electrically conducting paths through the electrodes to the container being included in a voltage divider network. A solid-state circuit controls a pump and motor in response to the output of the voltage divider network to regulate the level of the material in the container.

3,602,252

CONSTANT FLOW HEATER VALVE

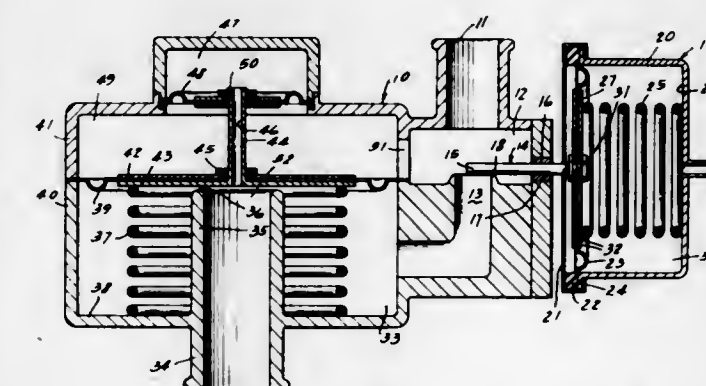
Gene A. Barnes, Skokie, Ill., assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio

Filed Aug. 18, 1969, Ser. No. 850,768

Int. Cl. G05d 7/01

U.S. Cl. 137-495

9 Claims



A valve which has gradually increasing flow with increasing pressure and a constant flow valve. The increasing flow valve has a shear-type valve at the inlet for adjusting water flow from an automobile engine or the like. The shear-type valve is operated by a vacuum motor and introduces a desired flow rate into a control chamber. The control chamber has a sensor diaphragm disposed thereacross and the pressure across the sensor diaphragm is provided to be the same as the pressure across the shear-type valve at the inlet of the system. Also, a compensator chamber is provided together with a compensator diaphragm. The pressure across the compensator diaphragm is provided to be the same as the pressure across the throttle area associated with the sensor diaphragm. The sensor diaphragm is biased by means of a coil spring away from its outlet thereby tending to open the outlet. Increasing pressure across the shear-type valve causes increasing pressure across the sensor diaphragm which tends to throttle the flow and thereby close the outlet. However,

the pressure across the throttle is also the same pressure which is across the compensator diaphragm and which is oppositely directed. The compensator diaphragm has a larger area than the throttle area, and accordingly increasing pressure tends to increase the flow by opening the sensor diaphragm. The effect is similar to increasing the spring force on the sensor diaphragm with increasing pressure at the inlet. The constant flow valve has a butterfly plate which is operated by a vacuum motor and which has a diaphragm disposed in the path of the liquid flow and which thereby uses the liquid flow to oppose the action of the vacuum motor on the butterfly plate. In this way the action of the flow is opposed to the opening of the butterfly valve and accordingly a constant rate of flow from the inlet to the outlet is maintained.

3,602,253

VALVE CAP FOR AN EXCHANGE COLUMN

Rene Henri Louis Bahout, Argenteuil, and Pierre Raymond Gicquel, Paris, both of, France, assignors to Societe Pour L'Equiptement Des Industries Chimiques Speichim, Paris, France

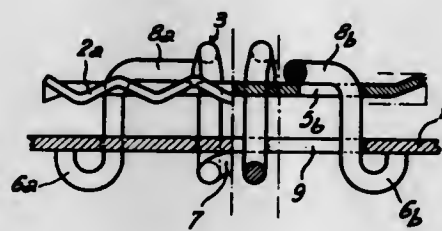
Filed May 2, 1969, Ser. No. 821,250

Claims priority, application France, May 9, 1968, 151186

Int. Cl. B01d 47/00

U.S. Cl. 137-513.5

12 Claims



A valve cap for an exchange column and having a separately formed clip for limiting valve lift, the clip being assembled to the cover by passing legs of the clip through apertures in the cover before the clip is deformed to prevent separation of the clip and cover. The deformation may be caused either by elastic deformation before assembly or plastic deformation after assembly.

3,602,254

VALVE POSITION INDICATING SYSTEM

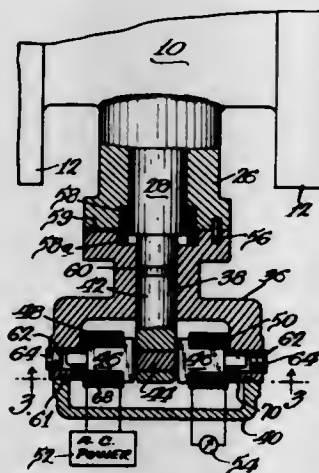
Donald G. Fawkes, Aurora, Ill., assignor to Henry Pratt Company

Filed Jan. 30, 1970, Ser. No. 7,195

Int. Cl. F16k 37/00; G08c 19/12

U.S. Cl. 137-554

12 Claims



A valve position indicator particularly suited for use with valves having a first shaft driven by an operator and a second stub shaft for journaling the valve member. A piece of magnetically conductive material is imbedded in an end of the stub shaft which protrudes from the valve casing and which is

received in a housing formed in part of magnetically conductive material. Within the housing is a pair of magnetic pole pieces each having an electrical winding associated therewith. One of the windings is connected to AC power while the other may be connected to a meter so that, dependent upon the position of the magnetically conductive material imbedded in the stub shaft and thus the position of the valve, a greater or a lesser amount of current will be induced in the second winding with the amount of current induced in the second winding being indicative of the valve position.

3,602,255

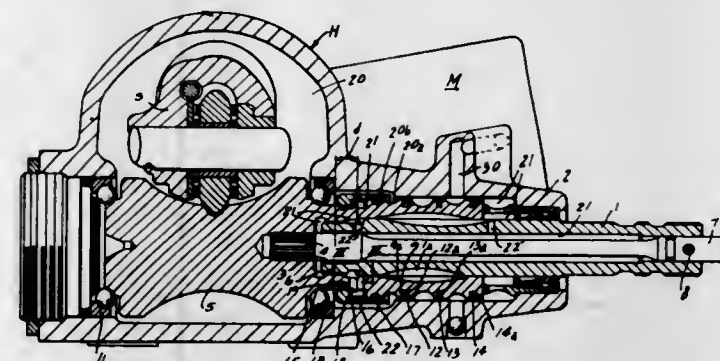
POWER STEERING VALVE SYSTEM

Arthur E. Bishop, 24 Brinker Road, Barrington, Ill.
Filed Jan. 30, 1970, Ser. No. 7,013

Int. Cl. F16k 11/02; F15b 9/10

U.S. Cl. 137-560

10 Claims



A minimum slack connection between the steering shaft, power steering valve components, and steering gear worm, in which limited universal motion is permitted to accommodate manufacturing tolerances without interference with precise steering control; and incorporating provision against application of axial pressures to the steering components in response to power steering hydraulic pressures in the system.

3,602,256

LIQUID CONVEYING ARRANGEMENT, ESPECIALLY FOR FUEL INJECTION INSTALLATION

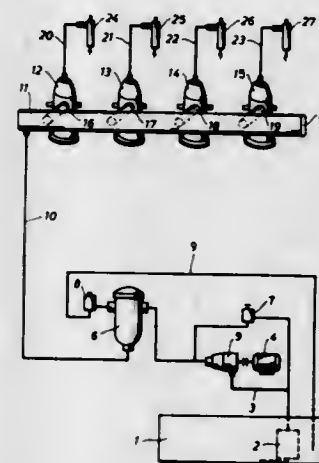
Jerzy Olszewski, Aegidienberg; Rolf Honicke, Cologne, and Reiner Moeres, Siegburg, all of, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany

Filed Nov. 3, 1969, Ser. No. 873,308

Int. Cl. F04b 23/04

U.S. Cl. 137-567

8 Claims



A liquid conveying arrangement with one or more intermittently operating consumers, for instance, an installation with a plurality of intermittently conveying pumps directly or through short connections connected to a collecting feeding pipe, especially for fuel injection installations for internal combustion engines, in which the feeding pipe of each consumer at least in the vicinity of the withdrawing area from

the feeding pipe is provided with a cross section which differs from a circular cross section and, for instance, has a flat rectangular or flat oval cross section.

3,602,257

SONICALLY WELDED CHANNEL PLATES

Walter J. Berleyoung; Kenneth G. Kreuter, and Klaus P. Mueller, all of Goshen, Ind., assignors to Robertshaw Controls Company, Richmond, Va.

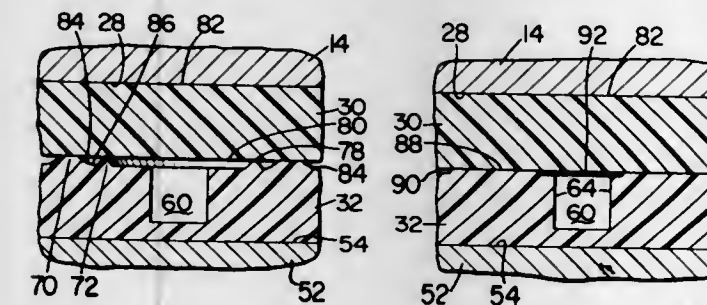
Division of Ser. No. 628,700, Apr. 5, 1967, Pat. No. 3,508,986

Filed Feb. 6, 1970, Ser. No. 9,279

Int. Cl. F16k 11/10; B29c 27/08; B06b 3/00

U.S. Cl. 137-594

16 Claims



This application discloses a method of sonically welding a channel between one of a pair of thermoplastic plates. Ridge means are placed along the sides of the channel. The crests of the ridge means provide a relatively small frictional area which is to be sonically welded adjacent the sides of the channel. The ridge means includes an outer ridge and an inner ridge along the sides of the channel with the outer ridge being higher than the inner ridge. Openings may be provided in either of the plates or both of the plates, which openings are connected with the channel, so that fluid may be circulated into or out of the channel through either or both of the plates. A tube or tubes may be connected with the openings in the plates for guiding the fluid into or out of the channel.

3,602,258

AUTOMATIC CONNECTOR DEVICES FOR SERVICE CONDUITS IN RAILWAY VEHICLE COUPLINGS

Aldo Gnani, and Giacomo Di Bartolomeo, both of Turin, Italy, assignors to Compagnia Italiana Westinghouse Freni E Segnali an Italian Joint Stock Company, Turin, Italy

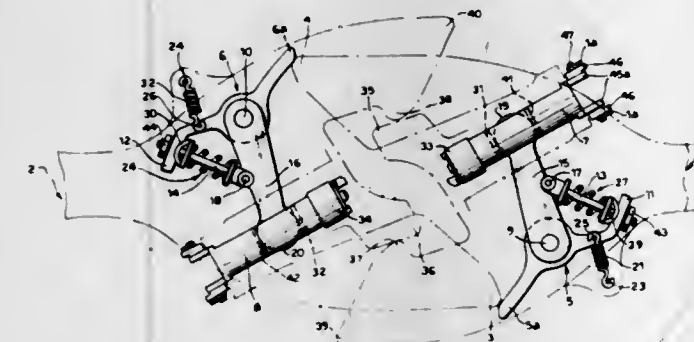
Filed Feb. 24, 1970, Ser. No. 13,406

Claims priority, application Italy, Feb. 25, 1969, 50 723-A/69

Int. Cl. F16k 11/10; F16l 39/00

U.S. Cl. 137-594

12 Claims



In an automatic railway vehicle coupling, automatic connectors for service conduits such as pneumatic lines and electrical conductors are provided, each coupling head carrying a respective connector member which is pivotally suspended from the head for swinging movement to permit accurate alignment of the connector members when the heads are coupled.

3,602,259

DIRECTIONAL CONTROL VALVE

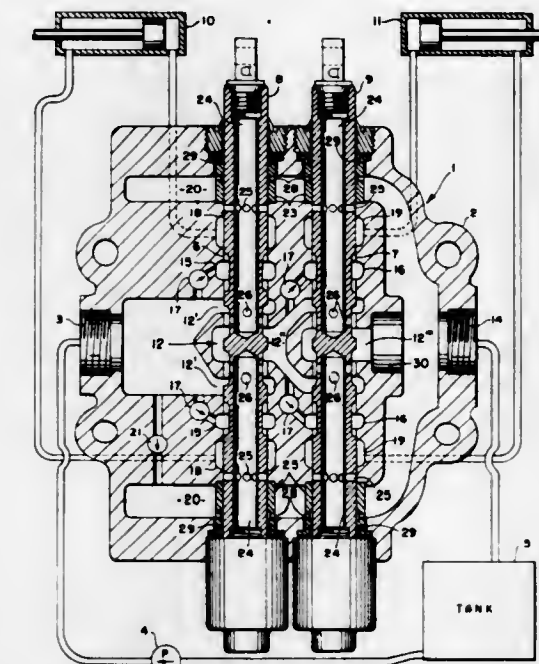
George J. Martin, Lyndhurst, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Feb. 24, 1970, Ser. No. 13,683

Int. Cl. F16k 11/07, 11/10

U.S. Cl. 137-596.12

5 Claims



A series circuit spool valve assembly characterized in that the upstream valve spool bore has tubular members closing the normal return passages which are adjacent the respective motor passages and in that the upstream valve spool is hollow with passages therein which communicate a return flow motor passage with a portion of the bypass passage which is between the upstream and downstream valve spool bores whereby, upon operation of the downstream valve spool, the fluid displaced from the upstream motor is employed to actuate the downstream motor thus to secure series operation. The invention is further characterized in that the valve housing has the same coring as is employed for a parallel circuit wherein any one or more or all spools may be operated to control the respective fluid motors and for a series parallel circuit wherein only one spool at a time may be operated to control its respective fluid motor.

3,602,260

SOLENOID VALVE

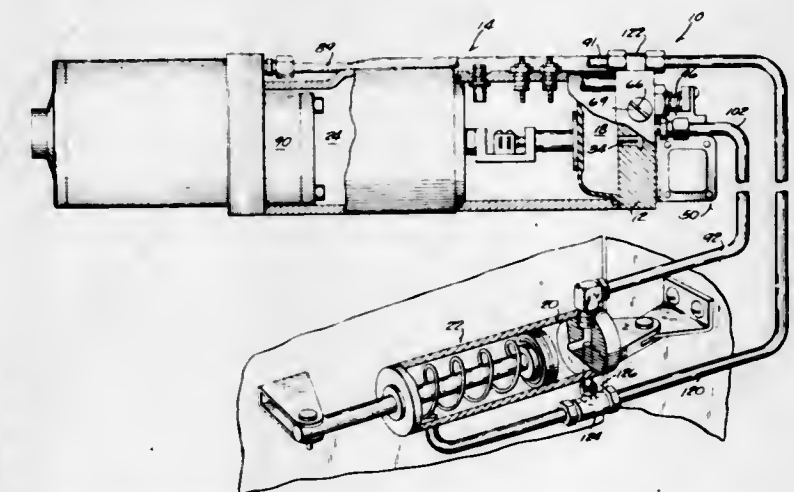
Raymond H. Boehm, and George L. Boehm, both of Racine, Wis., assignors to Crown Industries, Inc., Racine, Wis.

Filed Dec. 19, 1968, Ser. No. 785,148

Int. Cl. F16k 31/02

U.S. Cl. 137-596.17

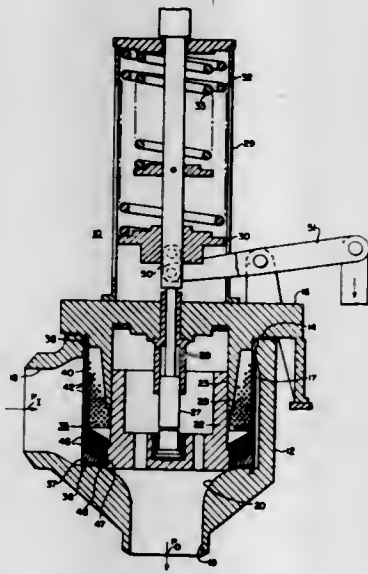
16 Claims



Disclosed herein is a solenoid actuated valve having a slide block or plunger containing a resilient plastic sealing insert

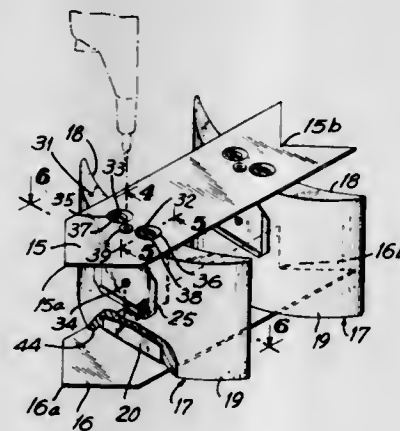
and moved by an eccentric cam into sealing engagement with an externally adjustable valve plug having a valve seat to control flow in passages whose arrangement is optional and O-ring seals to seal the valve plug in said passages.

3,602,261
STREAM TURBINE CONTROL VALVE STRUCTURE
Robert O. Brown, Media; Edwin G. Noyes, Jr., Newtown Square, and Joseph D. Conrad, Jr., Glen Mills, all of, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 27, 1969, Ser. No. 811,007
Int. Cl. F15d 1/00; F16k 47/14
U.S. Cl. 137-625.3 1 Claim



The invention provides novel valve structure for controlling the supply of hot pressurized steam to a steam turbine with a minimum of noise and vibration, especially in the partially open position where a large degree of throttling is attained. Tubular structure having a large number of perforations that are progressively uncovered as the valve plug is moved in opening direction is provided, thereby imposing a large number of small throttlings in the steam flow (instead of the usual single large throttling) with attendant reduction in noise and vibration level over the entire operating range of the valve.

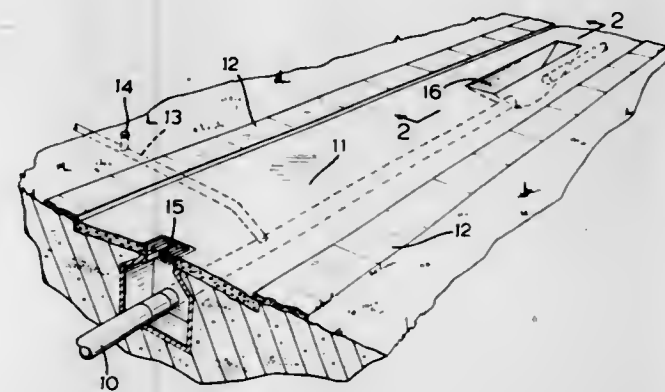
3,602,262
AIR TURNING ASSEMBLY
Milton Hinden, Massapequa, N.Y., assignor to Duro-Dyne Corporation, Farmingdale, N.Y.
Filed Mar. 30, 1970, Ser. No. 23,753
Int. Cl. F15d 1/04
U.S. Cl. 138-39 9 Claims



An air turning assembly and bracket for holding readily compressible fibrous air turning vanes within an air conduit. The assembly is characterized by a compression bracket for holding the fibrous vanes in position between supporting

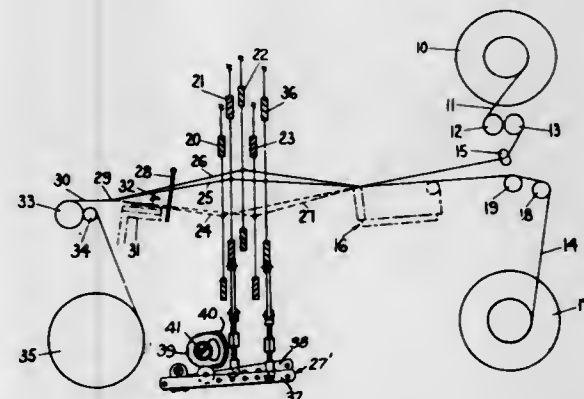
parallel rails, and connection between the vane and brackets being such as to minimize wind resistance and prevent the transmission of vibration and noise to the duct assembly.

3,602,263
PIPE RELINING METHOD AND APPARATUS
Raymond M. Bremner, 102 Lynedock Crescent, Don Mills, Ontario, Canada
Filed Nov. 4, 1968, Ser. No. 773,084
Int. Cl. F16l 55/18
U.S. Cl. 138-97 8 Claims



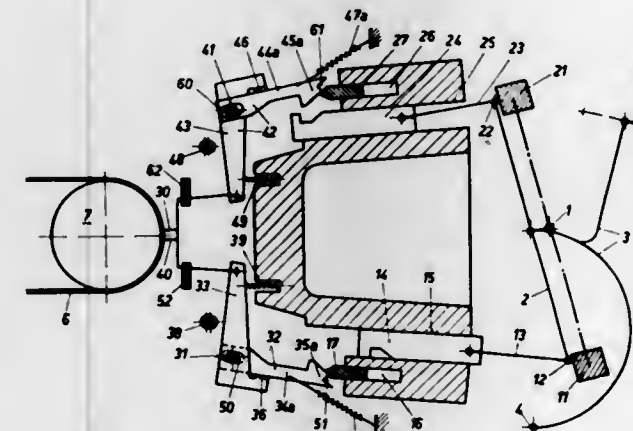
A sewer pipe is relined by reaming the old pipe to remove protrusions and obstructions and provide a relatively smooth interior surface; a liner of plastic material is inserted by pulling it along the pipe while vibrating the entire liner from the leading end. Openings are formed in the wall of the liner to provide for lateral connections and these openings are plugged while grout is injected between the inner surface of the existing pipe and the liner, the plugs being removed after the grout has set.

3,602,264
TERRY LOOM WARP CONTROL MEANS AND METHOD
Stanley C. Tiernan, Bellingham, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Sept. 15, 1969, Ser. No. 861,543
Int. Cl. D03d 39/22
U.S. Cl. 139-25 7 Claims



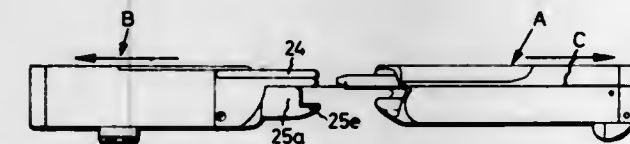
A terry warp yarn control means and method for shuttleless looms which during the weaving of terry fabric is effective in maintaining the warp yarns of the upper terry warp sheet in alignment with a minimum amount of tension when lowered during shedding to cross with the lower terry warp sheet so as to prevent an interference between the end of a cut length of filling being inserted into a shed and the yarns of said upper terry warp sheet.

3,602,265
DOBBY MACHINE
Joseph Palau, Frankreich, France, and Rudolf Schwarz, Horgen-Zurich, Switzerland, assignors to Staubli Ltd., Horgen-Zurich, Switzerland
Filed Apr. 1, 1969, Ser. No. 813,810
Claims priority, application Switzerland, Apr. 2, 1968, Mar. 21, 1969, 4863/68; 4268/69
Int. Cl. D03c 1/06
U.S. Cl. 139-71 10 Claims



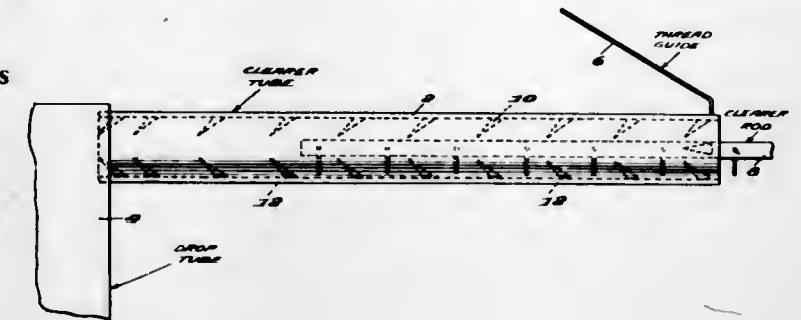
A dobby machine has retaining hooks which are guided for rectilinear reciprocal movement and are connected by pivoted links to opposite ends of a rocking member connected by linkage with a heald or dobby shaft. Each of two two-part levers comprises two lever parts which are pivoted about a common pivot and are movable relative to one another. One lever part has a hook portion and constitutes a holding hook engageable with the respective retaining hook. The other lever part carries a reading needle for sensing a pattern controlling the machine and has a portion engageable with the holding hook lever part to control whether or not the holding hook is in position to engage the respective retaining hook. When the hooks are engaged with one another, a locking member releasably engages the holding hook to hold it in engaged position. However, the holding hook is movable longitudinally relative to its pivot to free it from the locking member.

3,602,266
CARRIERS FOR SHUTTLELESS LOOMS
Jean Duplessy, 132, Ave. Hassan II, Casablanca, Morocco
Filed Aug. 21, 1969, Ser. No. 852,024
Claims priority, application France, Aug. 27, 1968, 50 331
Int. Cl. D03d 47/20
U.S. Cl. 139-122 10 Claims



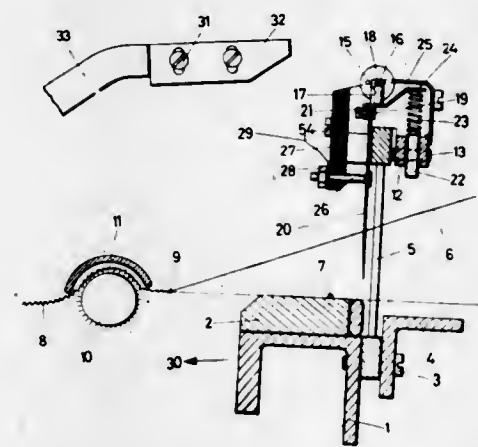
The present invention refers to giving and taking carriers (sometimes referred to as inserting and withdrawing carriers) for shuttleless looms with two rapiers or tapes to which carriers for the filling insertion are attached. These carriers are adapted to function without adjustment for a wide variety of sizes and types of filling. Each is self-contained and while unlatching of one and latching of the other of the filling clamping elements is accomplished outside the warp shed, the releasing of one and the clamping function of the other are effected by the carriers themselves at the transfer point within the shed.

3,602,267
DEVICE FOR EXTRACTING UNIFIL THREAD WASTE
Joseph P. Pilkington, 1111 N. 3rd St., Lanett, Ala.
Filed Aug. 15, 1969, Ser. No. 850,488
Int. Cl. D03d 45/02
U.S. Cl. 139-256 2 Claims



In order to extract thread wastes in connection with a loom winder mounted on a loom, a clearer tube is provided into and out of which a clearer rod is moved. The clearer tube is provided on the inside with teeth sloping in the direction of its outlet, while the clearer rod is provided with transverse projections, which move in the spaces between the teeth.

3,602,268
WEFT STOP MOTION FOR WEAVING MACHINES
Oskar Bernath, Umiken, AARGAU, Switzerland, assignor to Georg Fischer Ltd., Brugg, Switzerland
Filed Jan. 21, 1969, Ser. No. 792,484
Claims priority, application Switzerland, Feb. 28, 1968, 2 898/68
Int. Cl. D03d 51/34
U.S. Cl. 139-370 5 Claims

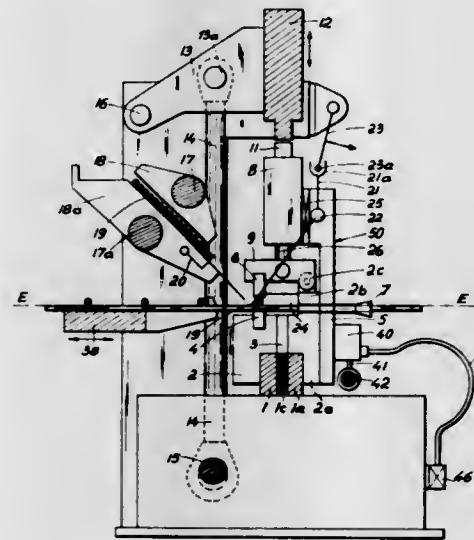


The present invention relates to a weft stop motion for weaving machines of the type in which weft is drawn from supply cones arranged outside the shed of a fabric being woven and a needle monitoring the weft thread so controlled that it is briefly trapped in or woven into the fabric when the weft thread is present, but is not held when the weft thread is absent, and serves then to initiate stopping of the weaving machine at each missing or incomplete pick of weft.

3,602,269
WIRE MESH WELDING MACHINE
Hans Gott; Josef Ritter; Klaus Ritter, and Gerhard Ritter, all of Graz, Austria, assignors to EVG Entwicklungs- & Verwertungs-Gesellschaft mbH, Vinzenz Muchitsch Str. 36, Graz, Austria
Filed Oct. 31, 1969, Ser. No. 873,037
Int. Cl. B21f 27/10
U.S. Cl. 140-112 10 Claims

A wire mesh welding machine for making welded wire mesh consisting of longitudinal wires and transverse wires welded to each other at their crossing points includes a row

of welding heads which are movable laterally across the path of movement of the longitudinal wires through the machine to adjust the spacing of the longitudinal wires in the mesh produced by the machine. The heads are individually movable by means of a power-driven conveying device and each of the welding heads is provided with its own coupling with an

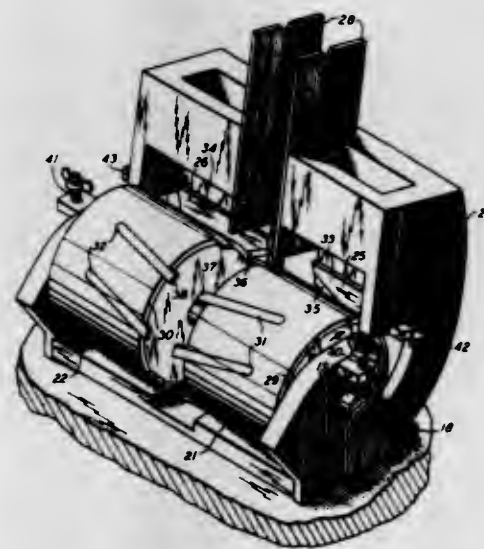


individual control by which the welding head can be either connected to the conveying device so that it is moved by the device or disconnected from the conveying device. In this way the distances by which the heads are moved by the conveying device when this is in operation can be individually controlled and hence the lateral spacing of the heads and of the longitudinal wires can be varied as required.

3,602,270
APPARATUS FOR REMOVING FLASH AND STRAIGHTENING LEADS ON MOLDED COMPONENTS
Billy T. Disher, and Robert R. Swanson, both of Winston-Salem, N.C., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 2, 1969, Ser. No. 863,169
Int. Cl. B21f 1/02
U.S. Cl. 140-147

5 Claims

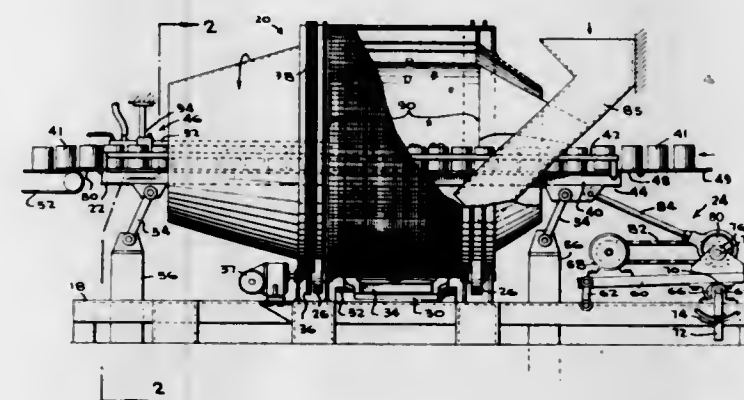


A conventional lead straightener is modified to remove flash from electrical components in addition to straightening leads. The rubber rollers and shoes between which the leads of a component are rolled in the conventional lead straightener are modified by the addition of metal inserts which crush the flash from the lead. The metal inserts are positioned at an angle to the rollers such that the leads maintain contact with rubber when engaged by the metal inserts.

3,602,271
METHOD AND APPARATUS FOR FILLING CONTAINERS
William E. Neal, Archbold, Ohio, assignor to Food Packers Equipment Company, Inc., Corydon, Ind.
Filed Oct. 17, 1969, Ser. No. 867,157
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-12

15 Claims



A food packing machine for the cascade filling of containers in which an elongated platform extends through a rotary filling drum and is supported on pivot links to be reciprocated by a variable speed motor simultaneously with a horizontal component of motion and a vertical component of motion for causing the cans to move through the filling drum while simultaneously compacting the food particles received within the containers with the drive means for the platform being adjustable to vary the vertical component of reciprocation of the platform in order to vary the compactness with which the particles are packed in the can.

3,602,272
MANUAL SYRINGE FILLING DEVICE
Theodore H. Stawski, Union, N.J., assignor to Becton Dickinson and Company, East Rutherford, N.J.
Filed May 7, 1969, Ser. No. 822,658
Int. Cl. B65b 3/32; B67c 3/16

U.S. Cl. 141-27

5 Claims

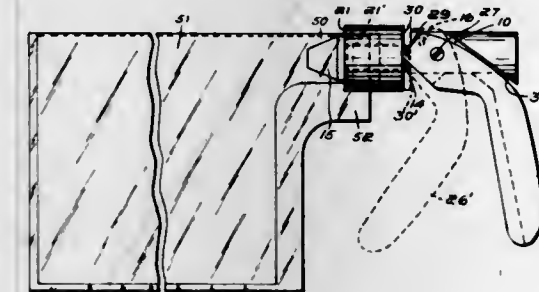


An improved device for controlling the amount of medicant that may be drawn into the barrel of a syringe from a container of the type provided with a transfer needle assembly having a hub with spaced radial flanges is provided. The device includes means for limiting the displacement of the syringe barrel plunger relative to the syringe barrel and for securing the transfer needle assembly.

3,602,273
ATTACHMENT FOR FLUID DISPENSER
Robert L. Flentge, Prattville, Ala., and Gerald L. Schulz, Holliston, Mass., assignors to The United States of America as represented by the Secretary of the Army
Filed Jan. 14, 1970, Ser. No. 2,772
Int. Cl. B65b 1/18

U.S. Cl. 141-313

5 Claims

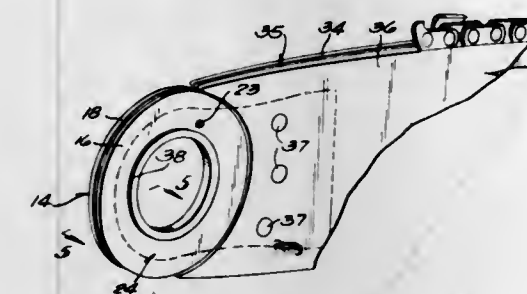


An attachment for a fluid dispenser having an adapter which fits into an opening in the end of a sleeve-like portion of a flexible film container and through which a fluid is dispensed into the flexible film container. The adapter comprises an expansion sleeve made of resilient material which, upon being compressed from end to end, expands circumferentially to produce a fluidtight seal between the expansion sleeve, the sleeve-like portion of the flexible film container, and an inwardly flanged collar on the attachment. The expansion of the sleeve is accomplished by the forward movement of the collar induced by the pivoting of a handle pivotally attached to the body of the attachment.

3,602,274
ROLLER NOSE FOR CHAIN SAW CUTTER BAR
Frederick R. Barrett, Peterborough, Ontario, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed May 20, 1969, Ser. No. 826,172
Int. Cl. B27b 17/04

U.S. Cl. 143-32 H

4 Claims



Disclosed herein is a nose roller for the cutter bar of a chain saw. The nose roller is an assembly of two annular or washer-shaped sideplates, a mounting tongue, a plurality of roller bearings, and an annular fastening member. The fastening member has two out-turned deformable lips or flanges which are pressed over the sideplates to assemble the nose roller components. The fastening member also has a radial extension with a peripheral surface which forms the inner race for the roller bearings. The outer race for the bearings is in an interior annular wall surface in an aperture in the mounting tongue.

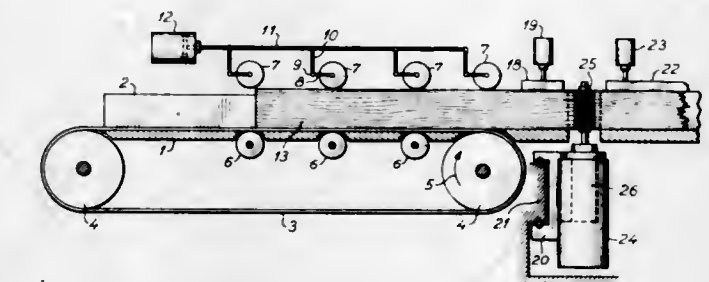
3,602,275
WOODWORKING MACHINE
Richard Bent Nissen, Langaa, Denmark
Filed Oct. 2, 1968, Ser. No. 764,463
Claims priority, application Denmark, Oct. 3, 1967, Oct. 10, 1967, 4898/67; 5409/67
Int. Cl. B27c 9/00

U.S. Cl. 144-3 R

5 Claims

A woodworking machine for endwise joining of oblong wooden members by means of finger joints. The machine includes a magazine for storing of wooden members to be

joined, feeding means for successively feeding wooden members from the magazine, a joining station for receiving the wood members, cutting fingers in opposed ends of two wooden members, applying glue to the cut fingers and joining

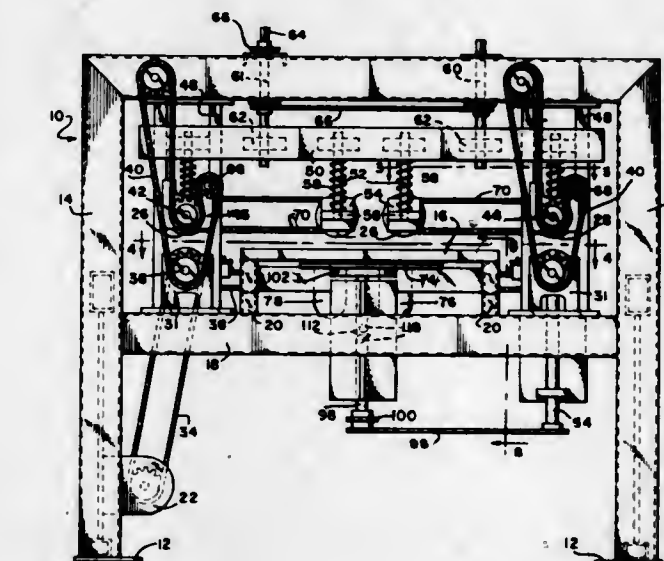


the glued cut fingers in meshing relationship, whereby cutting, glueing and joining of the wooden members are accomplished at the same station in the machine. The machine may further include a cutoff station and an end stop mechanism.

3,602,276
PANEL-GROOVING APPARATUS
Andrew M. Kvalheim, 823 Petaluma Blvd. S., P.O. Box 77, and Irwin S. Kvalheim, 823-825 Petaluma Blvd. S., P.O. Box 77, both of Petaluma, Calif.
Filed Dec. 10, 1968, Ser. No. 782,643
Int. Cl. B27c 5/00

U.S. Cl. 144-136

13 Claims



The invention is a panel-grooving apparatus for treating the surface of a wood panel or the like, comprising a frame structure having a work bed and banks of feed rollers therein for transporting panels through the device, and a reciprocating cutter mechanism which has banks of routers thereon for cutting various designs in the undersurface of a panel passing thereover. An unique feed roller system includes means for moving the rollers aside in the vicinity of the cutter mechanism for access to the cutter mechanism. Means are provided allowing movement of the cutter along three axes. The cutters may be replaced by burners, scribes, or other apparatus to pattern the panel surface as desired. Finally, means are provided for painting or staining the grooves.

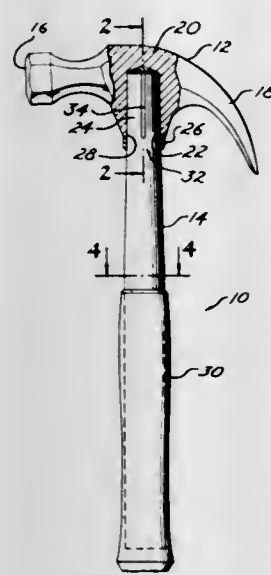
3,602,277
HANDTOOLS
Harry B. Stump, Ashtabula, Ohio, assignor to True Temper Corporation, Cleveland, Ohio
Filed Jan. 27, 1969, Ser. No. 794,050
Int. Cl. B25c 1/00; B25g 3/34; B25d 1/00

U.S. Cl. 145-29

8 Claims

A metallic hammerhead is provided with a socket, and a nonmetallic hammer handle has an end portion adapted to be drive fitted into the socket. The socket is provided with a coating of epoxy bonding material on about two-thirds of the

circumference of its inner wall, and the end portion of the handle is provided with longitudinally extending grooves. ing the onions after the head and root portions have been removed. A holder which moves up and down is included



which has a blower nozzle which permits pressurized gas to blow off the outer skin.

3,602,280 VEGETABLE PEELER

Halbert R. Hill, and Garfield C. Siverson, both of Harris County, Tex., assignors to Moore & Stephenson, by said Hill, Houston, Tex., part interest to each
Filed May 16, 1969, Ser. No. 825,228
Int. Cl. A23n 7/02

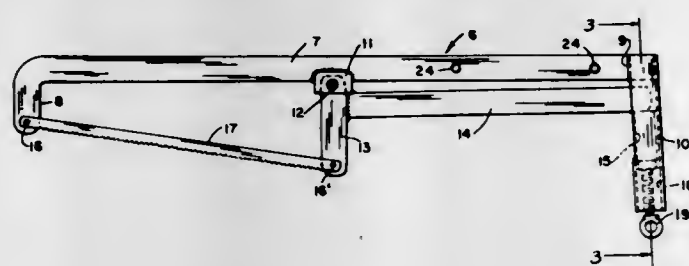
U.S. Cl. 146—50

4 Claims

3,602,278
EXTENSION HACKSAW FRAME
Thomas J. Brucken, 1425 W. 28th St., Sioux Falls, S. Dak.
Filed June 5, 1969, Ser. No. 830,614
Int. Cl. B27b 21/02

U.S. Cl. 145—33 A

5 Claims



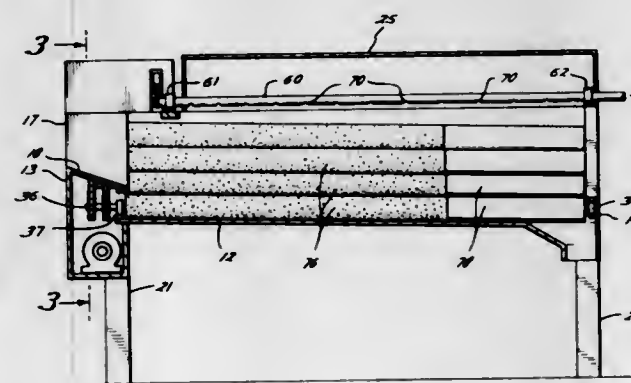
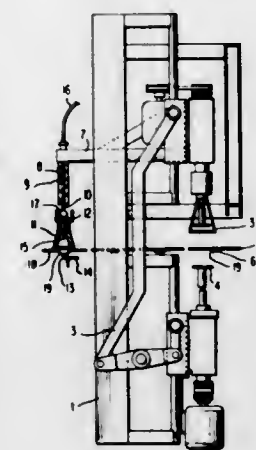
A hacksaw frame particularly designed to permit a full stroke of the blade in cutting off so-called "drift bolts" in a narrow space between wide parallel timbers without injury to the hand of the operator, a frame in which positioning of the blade is such as to both expedite the cut and reduce to a minimum possibility of the blade being broken, and a removable attachment to the frame whereby a pruning blade may be substituted for the customary blade with the saw thus becoming adaptable as a pruning instrument.

3,602,279
MACHINE FOR SKINNING ONIONS AND LIKE BULB-TYPE VEGETABLES
Albertus Van Raaij, Debbesholk 18, Uft, Netherlands
Filed Apr. 1, 1969, Ser. No. 811,767
Int. Cl. A23n 7/00

U.S. Cl. 146—43 R

4 Claims

A machine for skinning onions and bulblelike plats is described. Openings or depressions are provided for receiv-



An apparatus for cleaning and peeling large quantities of vegetables, such as potatoes or the like, in a continuous operation comprising a trough formed of a plurality of rotatable rollers having brushes and polishing means thereon with a movable pressurized spray positioned thereabove for spraying such vegetables to remove the peelings therefrom.

3,602,281 FRUIT-ORIENTING SYSTEM

Gerald R. Anderson, Campbell, and William C. Wann, Jr., San Jose, both of, Calif., assignors to FMC Corporation, San Jose, Calif.

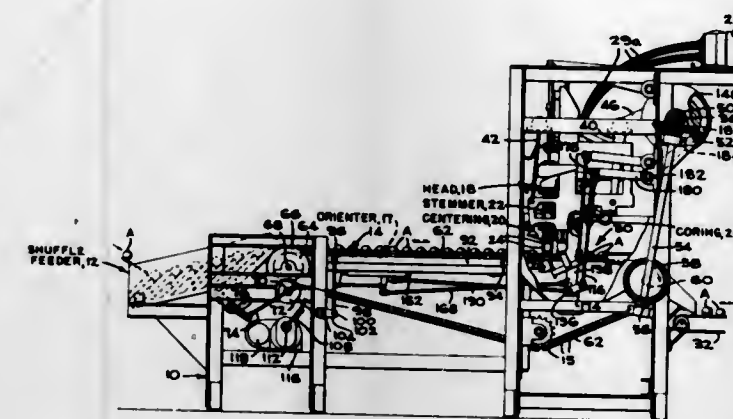
Filed Jan. 22, 1970, Ser. No. 5,073
Int. Cl. A23n 3/12

U.S. Cl. 146—52

14 Claims

Apples are oriented for coring on a cup conveyor. Indent-finder wheels are rotatably mounted below the cup conveyor on a reciprocating finding-wheel carriage which is linked for reciprocation with an apple-coring carriage. A bellcrank linkage arrangement, part of which is mounted on the coring carriage is operated to retract the finder wheels near the end of their advanced reciprocation and to reintroduce the wheels to a new set of cups after they have been reciprocated in a direction contrary to the cup-conveyor motion. Successive finder wheels are rotated in opposite directions. The conveyor cups are vertically vibrated to insure that fruits of all

sizes are oriented by the finder wheels, without requiring the use of locating rings disposed above the cups. In a modified wire clip having end portions engaged in a recessed formation in the exterior surface of the potentiometer body and engaging the screwshaft around a major portion of the



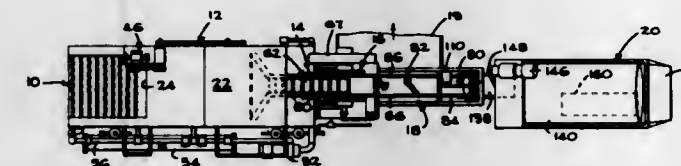
form, the finder wheels are on a chain which advances with the fruit cups.

3,602,282
PEELING TREATED FRUIT TO MINIMIZE SEWAGE WASTE
Katsuji Hirahara, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Oct. 31, 1969, Ser. No. 872,972
Int. Cl. A23n 7/00

U.S. Cl. 146—222

19 Claims



Pears are treated in a hot caustic bath, subjected to a holding step and steamed to loosen the skins. The pears are then confined between upper and lower, downwardly inclined coarse nettings and the nettings are oscillated to lightly abrade and dislodge the loosened skins. The loosened skins and associated caustic are collected separately for drying and incineration. The partially peeled pears are delivered to a brush washer wherein remaining fragments are removed by abrasion and flushing, thereby minimizing the amount of skins and caustic that must be sent as waste to the sewage disposal system.

3,602,283
PRIMING MIXTURE FOR AMMUNITION
Allen F. Schlack, Bucks, Pa., assignor to The United States of America as represented by the Secretary of the Army
Filed Nov. 24, 1969, Ser. No. 879,477
Int. Cl. C06c 1/00

U.S. Cl. 149—28

2 Claims

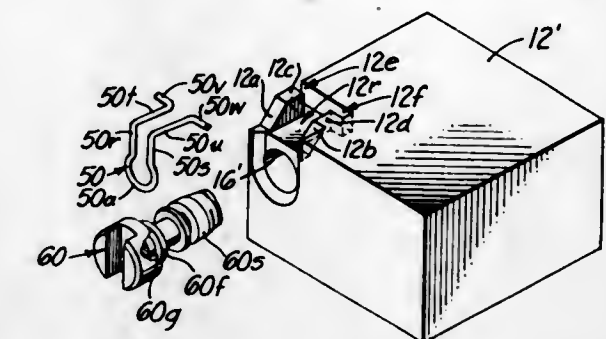
A noncorrosive priming mixture for use with 7.62 mm. solid caseless cartridges, said mixture consisting of 30-40 percent lead styphnate, 10-15 percent tetracene, 20-25 percent barium nitrate, 7-10 percent lead dioxide, 5-10 percent antimony sulfide, 7-10 percent zirconium, and 3-5 percent pentaerythritol tetranitrate.

3,602,284
VARIABLE RESISTOR SCREWSHAFT RETAINER
Ronald E. Smith, Riverside, and Raymond T. Dion, Rialto, both of, Calif., assignors to Bourns, Inc.
Filed Sept. 22, 1969, Ser. No. 859,626
Int. Cl. F16b 43/00

U.S. Cl. 151—69

1 Claim

A potentiometer screwshaft-retaining structure in which the screwshaft comprises an annular groove adjacent the shaft head exterior of the potentiometer body, and a spring-

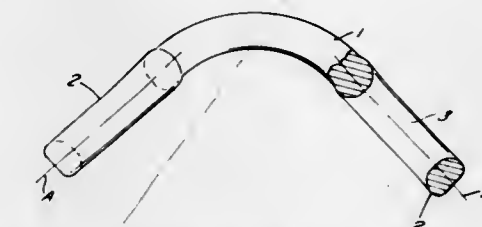


periphery thereof in the annular groove and compressively engaging the body of the potentiometer to hold the clip to the body and to prevent translation of the screwshaft relative to the body.

3,602,285
PROTECTIVE MAIL MESH
Walter Siepmann, Beleck/Mohne; Walter Siepmann, Jr., Beleck/Mohne; Hans-Jurgen Vogt, Beleck/Mohne, and Herbert Sobota, Warstein(Sauerl.), all of, Germany, assignors to Siepmann-Werke KG, Beleck/Mohne, Germany
Filed Dec. 26, 1968, Ser. No. 786,931
Claims priority, application Germany, Dec. 27, 1967, P 16 80 500.8
Int. Cl. B60c 27/02

U.S. Cl. 152—171

60 Claims

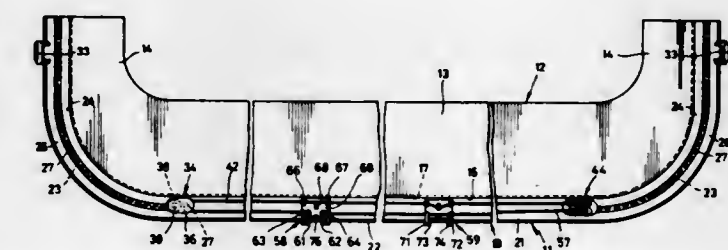


A protective mail mesh and a method of making the same. A plurality of one-piece members are fabricated each consisting of at least two closed loop portions and a connecting portion connecting the same. Each of the loop portions has an opening which is so dimensioned as to permit sliding insertion therethrough of another loop portion of another member only when the loop portions of the members have a predetermined orientation with reference to one another. Each connecting portion of each of the members extends through and is at least in part slidably accommodated in a loop portion of at least one other of the plurality of members whereby all members are connected movable with respect to each other and together constitute a mail mesh particularly suitable for protecting the vehicle tires.

3,602,286
CURTAIN ROD AND CORD LINE PULL SYSTEM
Wilhelm Hachtel, 6994 Niederstetten, Germany
Filed Nov. 15, 1968, Ser. No. 776,017
Claims priority, application Germany, Dec. 22, 1967, P 16 54 059.3
Int. Cl. A47h 5/032

U.S. Cl. 160—344

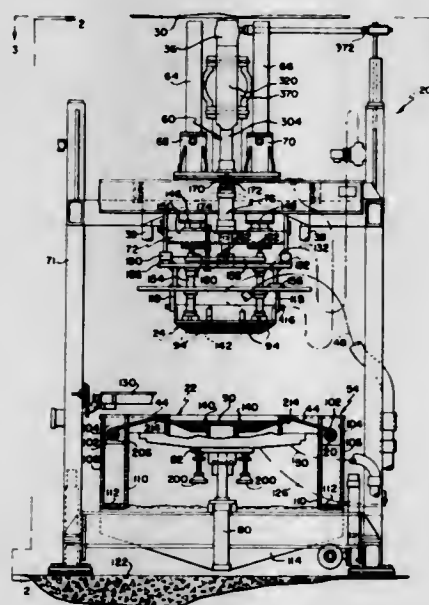
14 Claims



A ceiling mounted curtain rod and cord line pull system. The rod has a front attachment rod with a rib on its front. A

pair of identical engaging pieces are drawn along the rod by cords mounted to respective ones of them and supported on the upper side of the engaging pieces and the web. Each engaging piece is releasably engaged to draw along separate curtain supports which separably engage the rod to support the curtain.

3,602,287
APPARATUS FOR FORMING A MEMBER FROM A SLURRY OF MATERIAL
 Martin Eversdyk, Bedford Heights, Ohio, assignor to Oglebay Norton Company, Cleveland, Ohio
 Filed Nov. 10, 1969, Ser. No. 875,242
 Int. Cl. B22c 15/22
 U.S. Cl. 164—160 5 Claims

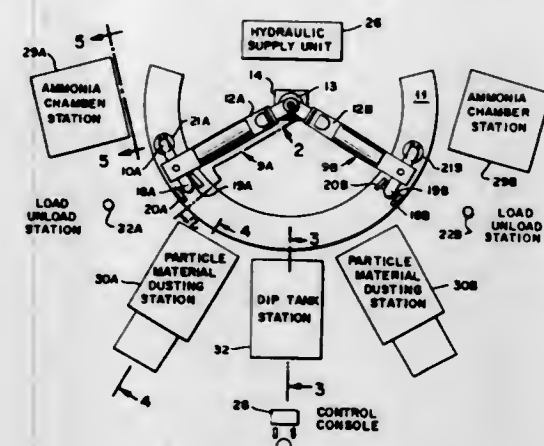


An improved machine or apparatus for forming member from a slurry of refractory material includes a pair of mold sections which cooperate to form a cavity. A flexible diaphragm extends around the mold sections and is movable to an inwardly and downwardly sloping position to form a trough connected in fluid communication with the mold cavity. The mold cavity is flooded by filling the trough with the slurry of refractory material. Water is then drawn from the slurry in the mold cavity to form a wet-cake of refractory material. The water content of this wet-cake of refractory material is at least partially controlled with an adjustable timer which regulates the length of time for which water is drawn from the mold cavity. After sufficient refractory material has been deposited in the mold cavity to form a wet-cake having the shape of the member to be formed, the diaphragm is moved to an outwardly and downwardly sloping position to enable excess slurry to flow away from the mold sections and into a receptacle. While the diaphragm is in this outwardly and downwardly sloping position, a water and air spray or washdown is applied to the area around the upper mold section to remove any refractory material which may settle out of the excess slurry. The excess slurry is pumped from this receptacle to a main mixing or batch tank where it is mixed with a relatively large quantity of the slurry. Therefore, when this excess slurry is subsequently reused, it will have a water content or consistency corresponding to that of the main batch of slurry.

3,602,288
APPARATUS FOR MANUFACTURE OF REFRACTORY SHELL MOLDS
 William H. Trench, Chester, and Stanley C. Tingquist, Sparta, both of N.J., assignors to Howmet Corporation
 Filed June 25, 1968, Ser. No. 739,862
 Int. Cl. B22c 13/08 5 Claims

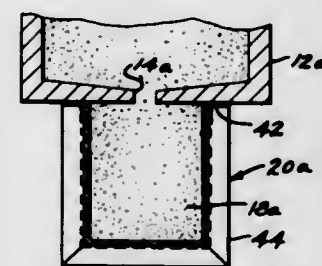
The disclosure relates to apparatus for systematically forming refractory shell molds including a plurality of independently movable shell pattern carrying units capable of movement in selected patterns on a runway for carrying patterns

to selected fluid and particle materials treatment stations. The carrying units are coordinated in their movement to per-



mit a plurality of stations to be served by more than one carrying unit.

3,602,289
VENT CONSTRUCTION FOR CORE BOXES AND THE LIKE AND METHOD OF MAKING SAME
 Charles W. Barrett, 2401 S. Wayne Road, Westland, Mich.
 Filed July 29, 1968, Ser. No. 748,247
 Int. Cl. B22c 7/06 9 Claims



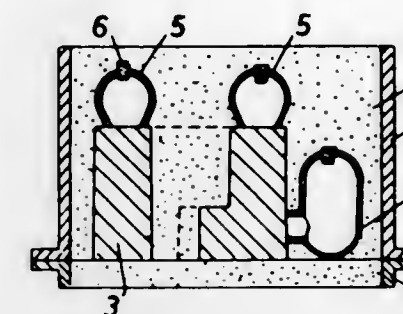
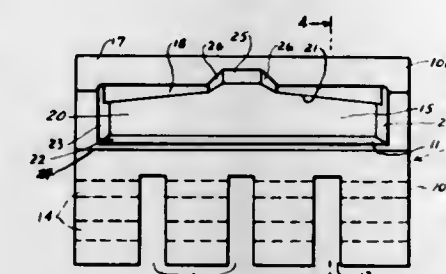
A wall surface for venting air while confining particulate material of predetermined size, as for example sand. The construction has particular advantages as a vent for core boxes and comprises a thin flexible sheet having a plurality of small holes therein spaced more closely than the largest particle size of the particulate material to be retained. In the case of one type of sand for making foundry cores, the average sand particle size is approximately 0.025 inch and the largest particle size is approximately 0.034 inch. Holes spaced more closely than 0.034 inch cannot be plugged by at least the larger sand particles when adjacent to each other. The holes are conically shaped with the small diameter end of the openings facing the sand to be retained. Preferably the sheet is sufficiently thin and flexible that it will be bent by a blast of air from the reverse side to bow the foraminous strip and loosen the particles wedged in the inner small diameter end of the openings.

3,602,290
DUMMY BAR FOR CONTINUOUS CASTING
 George E. Schmidt, Trenton; Lyle J. Johnson, Grasse Ile, Mich.; Willi Simons, Walter Hess, and Josef Bard, Düsseldorf, Germany, assignors to McLouth Steel Corporation, Detroit, Mich. and Schloemann Aktiengesellschaft, Düsseldorf, Germany
 Filed Aug. 23, 1968, Ser. No. 754,808
 Int. Cl. B22d 11/08 7 Claims

In a dummy bar for temporarily plugging an end of an open-ended continuous-casting mold at the start of casting, means for removably connecting the head of the dummy bar to a casting being formed in the mold comprises a notch in one side of the dummy bar head. The notch has a deeply indented portion and a less deeply indented portion between

the deeply indented portion and the end of the head that is within the mold when the head is inserted in the mold to plug it. Thus, with the head plugging the mold, the notch and adjacent wall of the mold form a hooklike cavity in which mol-

ten metal poured into the mold for the casting flows and solidifies for making the connection. Then when the dummy bar and the casting attached thereto are withdrawn from the mold, they are separated by moving the dummy bar sideways in a direction to unhook them.

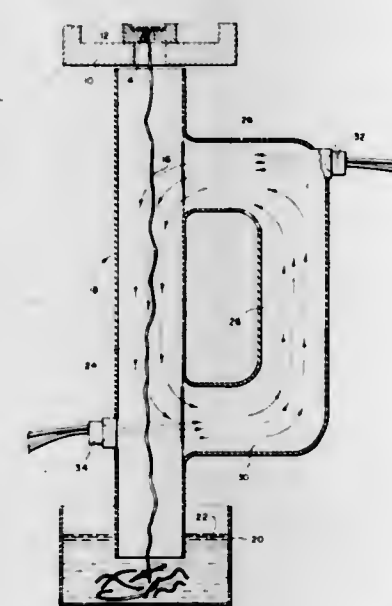


ten metal poured into the mold for the casting flows and solidifies for making the connection. Then when the dummy bar and the casting attached thereto are withdrawn from the mold, they are separated by moving the dummy bar sideways in a direction to unhook them.

shell being of a framed plastic material capable of burning or vaporizing at ordinary casting temperatures.

3,602,291
APPARATUS FOR CASTING METAL FILAMENTS THROUGH AN AEROSOL ATMOSPHERE
 Robert B. Pond, Westminster, Md., assignor to The Battelle Development Corporation, Columbus, Ohio
 Filed Sept. 4, 1968, Ser. No. 757,257
 Int. Cl. B22d 11/12 3 Claims

U.S. Cl. 164—283



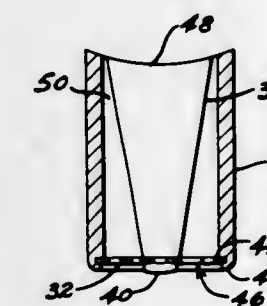
Metallic filaments are produced by quenching a stream of molten metal extruded from a melt with an aerosol such as a suspension of finely divided fluid particles in air. The aerosol is produced by atomizers which provide circulation of the aerosol along and across the stream of molten metal.

3,602,292
CASTING MOLDS HAVING DECOMPOSABLE HOLLOW RISERS
 Eduard Baur, 14/16 Norbertstrasse, Cologne, Germany
 Filed May 21, 1968, Ser. No. 730,729
 Claims priority, application Germany, Nov. 16, 1962, Apr. 3, 1963, July 8, 1963, P 14 58 135.2; P 14 33 938.9; P 14 33 940.3
 Int. Cl. B22c 9/08 5 Claims

A casting mold in which a pattern is removably positioned in a mold box and a hollow shell is operably related to a portion of the periphery of the pattern for a supplementary feeding space (riser). Molding material within the box surrounds the pattern and hollow shell so that upon the removal of the

3,602,293
CONTOURABLE SELF-CLEANING VENT FOR CORE BOXES AND THE LIKE
 Charles W. Barrett, 2401 S. Wayne Road, Westland, Mich.
 Continuation of application Ser. No. 748,248, July 29, 1968, now abandoned. This application June 19, 1970, Ser. No. 48,934
 Int. Cl. B22c 23/00 14 Claims

U.S. Cl. 164—410

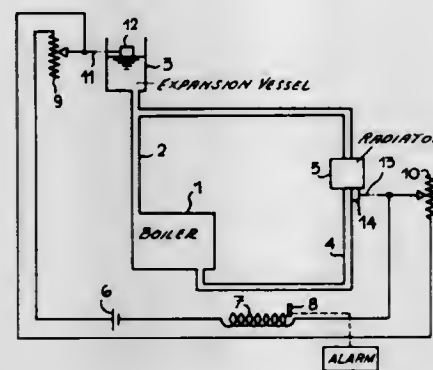


A vent comprising a generally tubular body having a loosely fitting plug in the central opening to form an annular vent passage between the plug and the tubular body. The end surfaces of the plug and tubular body are coterminous and can be contoured as by grinding, machining, etc. to provide any desired contour to its face without appreciably effecting the width of the annular venting passage between the tubular member and the plug. The plug is sufficiently long and is provided with a sufficiently shallow taper that the removal of metal from the ends of the tubular member and plug does not open up the clearance between the tubular member and plug to a degree approaching the size of the particles of sand to be retained. The contouring operation, therefore, does not change the size of the clearance to a degree where sand passes therethrough.

3,602,294
SAFETY SYSTEM TO BE USED IN HEATING OR COOLING PLANTS
 Leon J. Wanson, 118, Avenue Isidore Gheyskens, Auderghem, Belgium
 Filed Apr. 18, 1969, Ser. No. 817,516
 Int. Cl. F24f 3/00 2 Claims

The system comprises a control device operated by a signal that is equal to the difference between a first signal

emitted by a first element responsive to volume variations of the heat transfer fluid contained in the plant, and a second



signal emitted by at least a second element responsive to variations of the fluid temperature.

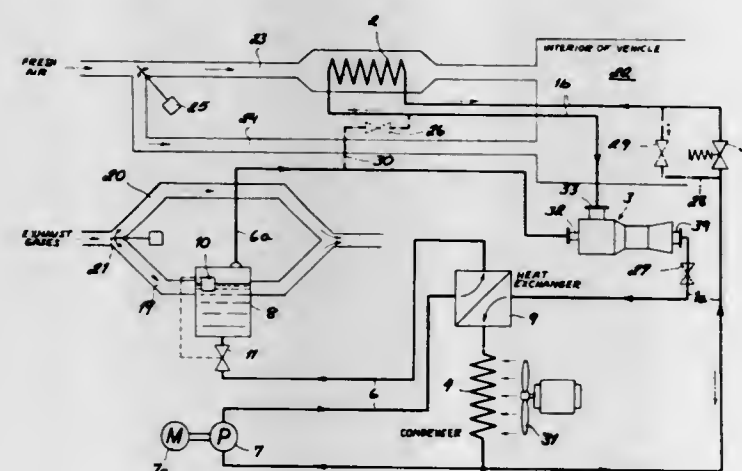
3,602,295

AIR CONDITIONER FOR AUTOMOTIVE VEHICLES
Ernst A. Klaas, Dorn, Germany, assignor to Gebrüder Thielmann

Filed Sept. 16, 1969, Ser. No. 858,278
Claims priority, application Germany, Sept. 17, 1968, P 17 76 079.1

Int. Cl. B60h 3/04
U.S. Cl. 165—23

11 Claims



A vehicular air conditioner has a closed path for the circulation of a cooling fluid via a jet pump acting as a compressor, a condenser, an expansion valve and an evaporator, the driving fluid for the jet pump being branched off the output of the compressor and led through a vaporizer subjected to the exhaust heat of the vehicle. The branched-off fluid path includes another pump which may be of the mechanical type or may be another jet pump driven by the output of the vaporizer. For winter driving, the hot gases from the vaporizer may be circulated through the evaporator coil as a heating fluid.

3,602,296

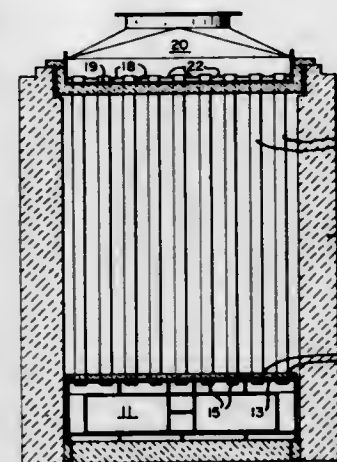
METALLIC FLUE RECUPERATORS
Fred M. Heyn, Export, and Robert C. Schreck, Monroeville, both of, Pa., assignors to Thermal Transfer Corporation
Filed Sept. 30, 1969, Ser. No. 862,175

Int. Cl. F28f 7/00
U.S. Cl. 165—81

6 Claims

An interchangeable top and bottom support tube type recuperator is provided having a bottom manifold with a plurality of vertical tubes fixed thereto in communication therewith, a top manifold having a plurality of openings

slidably receiving the tubes, a retainer ring fixed to a plurality of said tubes within the top manifold and a flexible expansion



3,602,297

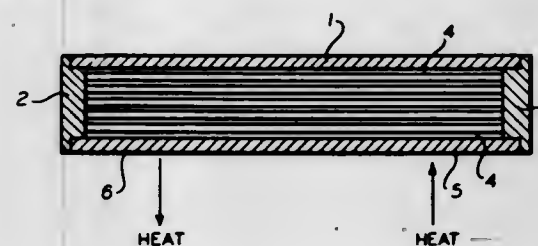
HEAT TRANSFER TUBE ASSEMBLY

Gunther Kraft, Kronberg, Taunus, Germany; Manfred Potzschke, Frankfurt am Main, Germany; Claus Busse, Laveno, Italy, and Franz Geiger, Arolo di Leggluno, Italy, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 22, 1969, Ser. No. 826,956
Claims priority, application Germany, May 25, 1968, P 17 51 411.3

Int. Cl. F28d 15/00; F28f 19/00
U.S. Cl. 165—105

3 Claims



A heat transfer tube assembly (heat pipe) using lithium as its working fluid is provided with 5-500 p.p.m. of an oxygen-stabilizing agent in the refractory alloy of the wall material to prevent oxygen corrosion at operating conditions.

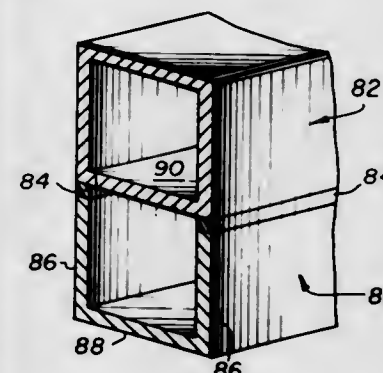
3,602,298

HEAT EXCHANGER

Mecislaus Joseph Ciesielski, 239 Broad St., Keyport, N.J.
Filed Apr. 25, 1969, Ser. No. 819,345

Int. Cl. F28f 13/00
U.S. Cl. 165—164

2 Claims



A heat exchanger is disclosed which includes a first fluid conveying conduit for carrying a fluid which is to give up heat. Positioned beneath the first fluid conveying conduit and in heat transferring relationship therewith is a second fluid conveying conduit which carries a fluid which is to receive heat given up by the fluid carried by the first conduit.

Because the receiving fluid receives heat from above, convection currents, which are normally generated when a fluid is heated from underneath, are eliminated. In this manner, heat transfer is maximized.

coupled to the wellhead. The entire pressure vessel is internally exposed to the pressure of the well at the wellhead thereby eliminating all seals such as the stuffing box normally required for the passage of the wire line cable to the lubricator.

3,602,299

OIL OR GAS POLLUTION CONTROL APPARATUS AND METHOD

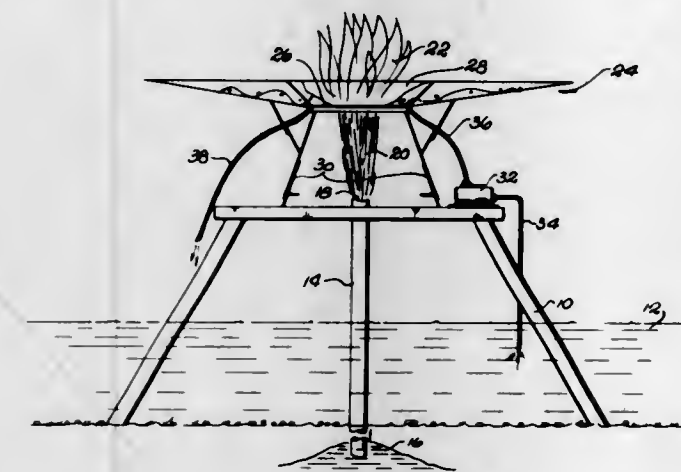
Joseph D. Mozic, 7311 Vista Del Mar, Playa Del Rey, Calif.

Filed May 12, 1970, Ser. No. 36,573

Int. Cl. A62c 3/00; E21b 7/12, 35/00

U.S. Cl. 166—5

20 Claims



A method which is particularly suitable to prevent oil pollution of water in the vicinity of an offshore drilling operation. Apparatus is provided for use on a ruptured oil and/or natural gas pipe where fluid is issuing under pressure from the pipe. A heat dissipating screen is disposed in the path of the fluid and raised to a predetermined position. The fluid is then intentionally ignited (thus preventing pollution), the heat dissipating effect of the screen confining the flame to a region above the screen, spaced from the open end of the well pipe. A thermal radiation shield can be provided as well as water coolant members for the screen and shield.

3,602,300

DOWN-HOLE INSTALLATION, RECOVERY, AND MAINTENANCE TOOL FOR WELLS
Albert P. Jaffe, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 30, 1969, Ser. No. 837,658

Int. Cl. B66d 3/20; E21b 23/00, 33/035

U.S. Cl. 166—5

14 Claims



A down-hole maintenance tool incorporating a wire line and lubricator as well as a complete hydraulic wire line drive motor unit enclosed within a single composite pressure vessel

3,602,301

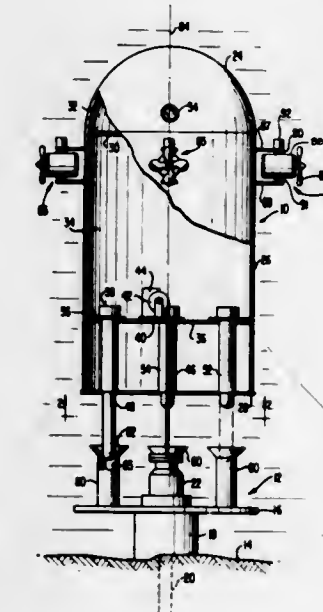
UNDERWATER BOREHOLE SERVICING SYSTEM

Theodore K. James, Norman, Okla., assignor to Transworld Drilling Company, Oklahoma City, Okla.

Filed Aug. 27, 1969, Ser. No. 853,371

Int. Cl. E21b 43/01
U.S. Cl. 166—6

15 Claims



Underwater borehole servicing system in which a submersible chamber is pulled down onto a wellhead platform by a hauldown cable. In one embodiment, accurate alignment of the chamber with the platform is effected by extensible guide projections on the chamber cooperating with receiving recesses on the platform. In another embodiment, an annular, depending portion of the chamber cooperates with an annular guide segment of a generally hemispherical platform to align the chamber on the platform. In a third embodiment, alignment is effected by a combination of extensible guide projections on the chamber and an annular chamber portion respectively cooperating with recesses and an annular guide segment on the platform. Propulsion devices carried by the chamber are provided for registering the aligning equipment on the chamber with the aligning equipment on the platform.

3,602,302

OIL PRODUCTION SYSTEM

Charles S. Kluth, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 10, 1969, Ser. No. 875,350

Int. Cl. E21b 43/01

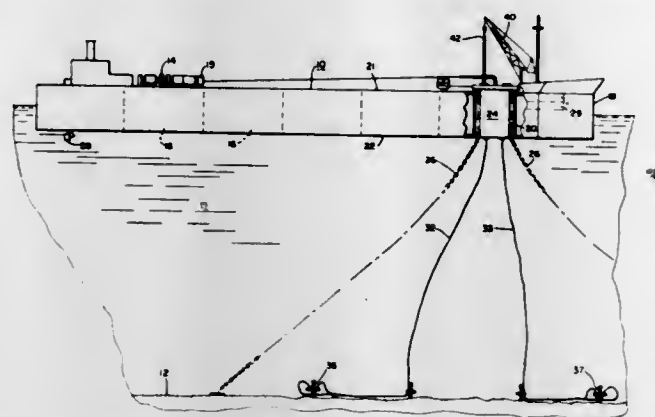
U.S. Cl. 166—5

13 Claims

An elongated floating vessel in the form of a large fluid capacity barge has a swivel near the forward end thereof which passes down through the vessel and is securely moored to the water bottom so that the barge may weathervane about the swivel.

The barge carries oil production equipment for processing well fluid. A plurality of flexible flow lines extend down through the swivel to connect with a plurality of individual wellheads, or with one or more central manifolds on the water bottom.

Servicing of the individual wells is made possible by apparatus on the swivel which allows for selective well testing



and selective well access for a full range of pump down tool techniques.

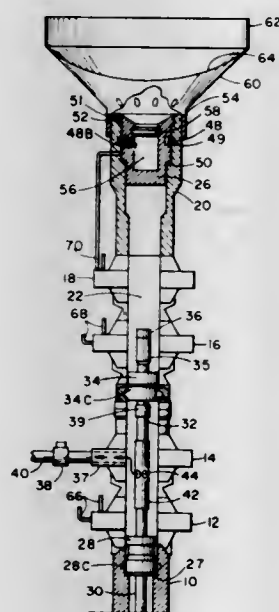
3,602,303

SUBSEA WELLHEAD COMPLETION SYSTEMS
Kenneth A. Blenkarn, and Riley F. Farris, both of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

Filed Dec. 1, 1967, Ser. No. 687,245
Int. Cl. E21b 33/035, 43/01

U.S. Cl. 166—.5

12 Claims



This describes a system for use in performing workover operations on oil and gas wells drilled at marine locations. When wells are drilled in deep water, e.g., 300 or more feet, it is usually desirable to have what is known as a bottom or sea floor well completion. In such completions, the production flow line is connected into the wellhead. In this invention the wellhead is provided with a removable cap. When it is desired to work over the well, the cap is removed and a riser pipe, supported from a vessel or buoy on the surface, is lowered into sealing engagement with the wellhead; the riser pipe being vertically aligned with the well. Operations are then conducted through the riser pipe and the wellhead. Various configurations or modifications of the interior of the wellhead are made, including modifications useful for TFL (through the flow line) tools.

3,602,304

CHECK VALVE FOR USE IN GAS FRACTURING
Morton A. Mallinger, Earl R. Jennings, and Clarence R. Fast, all of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

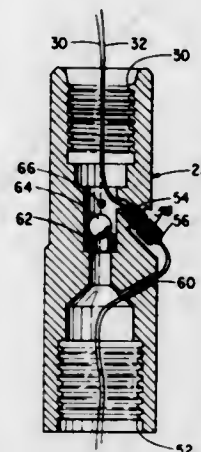
Filed Apr. 2, 1970, Ser. No. 25,125
Int. Cl. F21b 43/00

U.S. Cl. 166—63

4 Claims

In fracturing an underground formation by burning a propellant in a confined space within a well bore, the packer

is set by gas pressure originating from a level above the packer. The pressure generated by burning the main propellant charge below the packer frequently is sufficient to dislodge it from the formation. The present invention overcomes this problem by the use of a suitable check valve carried between the packer and the main propellant charge. The



valve traps the gases in the upper assembly which seats the packer. If pressure develops below the packer exceeding the gas pressure used to hold it against the well wall, the check valve opens, allowing gases to enter the packer from the packed off zone so that the tool will remain set until the fracture treatment has been completed.

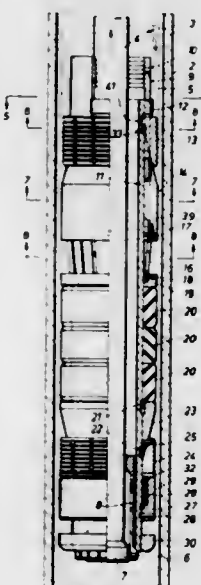
3,602,305

RETRIEVABLE WELL PACKER
James W. Kisling, III, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,658
Int. Cl. E21b 23/06, 33/129

U.S. Cl. 116—134

12 Claims



A well packer, which is provided with upper and lower slips and expanders for permanent anchoring in a casing, is also provided with retrieval means by which the slips may be disengaged without damage to either the packer or the casing. A special slotted retrieval sleeve or the like is provided for supporting the upper ends of a plurality of spacing bars wedged longitudinally between the elastic packing bodies and the upper expander. After the packer has been anchored, the sleeve may be lifted to remove the support provided to the upper ends of the bars, whereupon these ends of the bars will be driven loosely under the upper expander. The upper expander will thereafter not support the upper slip, and the packing bodies can relax to enable retrieval of the packer from the well.

3,602,306

BLOW-UP PREVENTER

Gramison T. Alexander, Jr., Houma, La., assignor to Gem Tool Company, Houma, La.

Filed Apr. 27, 1970, Ser. No. 31,965
Int. Cl. E21b 23/00

U.S. Cl. 166—217

4 Claims



An apparatus for arresting upward motion of a wire line tool blown up a production pipe by sudden excessive downhole pressure or fluid flow. The apparatus of the invention includes a wedging member having an oblique lower face, a connector member having a generally mating oblique upper face, and means for suspending a wire line tool therefrom. It also includes means for supporting the wedging member within the annulus of the well pipe and means for slidably coupling the wedging member and the connector member, whereby relative convergent motion between the two members moves the members into a braking or wedging attitude.

3,602,307

APPARATUS AND METHOD FOR GRAVEL PACKING WELLS

William T. Price; Jack A. McKaig, and Pat Brown, all of Zulia, Venezuela, assignors to Esso Production Research Company

Filed Feb. 24, 1970, Ser. No. 13,553
Int. Cl. E21b 43/04

U.S. Cl. 166—278

11 Claims



A method and apparatus for placing and gravel packing a production liner in a well. The apparatus includes two inter-

connected parts: a plug member adapted to be retrievably connected to the liner and a retrieving member adapted to be connected to a tubing string. With the liner properly positioned in the well the two members are separated, the retrieving member remaining attached to the tubing string and the plug member providing a top closure for the liner. An aggregate suspended in a carrier fluid is pumped through the tubing and retrieving member assembly and pressure packed about the liner. Following the placement of the aggregate, the plug member and retrieving member are again joined permitting the plug member to be retrieved on the tubing string.

3,602,308

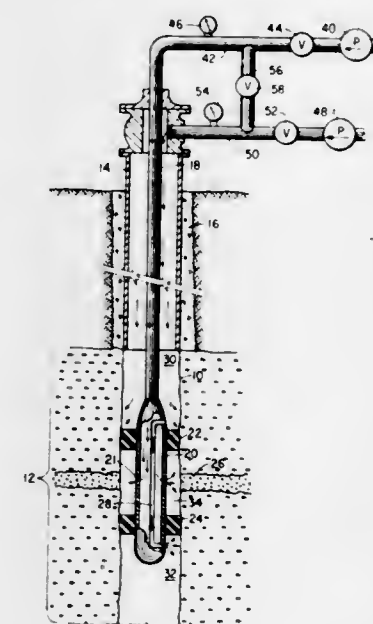
HYDRAULICALLY FRACTURING AN ISOLATED ZONE OF AN UNCONSOLIDATED FORMATION

Renic P. Vincent, deceased, late of Tulsa, Okla. (by Meta Luella Vincent, administratrix), assignor to Amoco Production Company, Tulsa, Okla.

Filed Aug. 26, 1969, Ser. No. 853,221
Int. Cl. E21b 43/26

U.S. Cl. 166—281

5 Claims



This invention concerns selectively locating fractures in an underground formation and especially in "soft sections" like the tar sands in Canada. A zone is isolated in the well bore at the elevation at which it is desired to initiate a fracture. A fracturing fluid is conducted down this channel to the elevation to be fractured. A low penetrating fluid is introduced through a second channel to that portion of the formation not so isolated. The pressure in the pump fracture fluid is raised sufficiently so that a fracture is initiated by the fracture fluid at the selected elevation.

3,602,309

METHOD OF EXPLODING OR IGNITING MATERIALS USING ADIABATIC COMPRESSION OF GAS

William L. Hill, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed Dec. 16, 1968, Ser. No. 784,263
Int. Cl. E21b 43/26; F42d 1/04, 3/04

U.S. Cl. 166—299

6 Claims

A method for exploding or igniting a pumpable material having a threshold explosion or ignition temperature which entails mixing with the material, small, discrete quantities of gas; then transmitting a high energy shock wave from a remote location through a coupling agent to the mixture to substantially adiabatically compress the gas to increase the temperature thereof above the threshold explosion or ignition temperature, thereby initiating thermal detonation or ignition of the material to be exploded or ignited. The method is well adapted for use in the stimulation of the production of fluids from subterranean formations.

3,602,310
METHOD OF INCREASING THE PERMEABILITY OF A SUBTERRANEAN HYDROCARBON BEARING FORMATION

William G. Halbert, Butte, Mont., assignor to Tenneco Oil Company, Houston, Tex.

Filed Jan. 15, 1970, Ser. No. 3,228
 Int. Cl. E21b 43/26

U.S. Cl. 166—303

9 Claims

A method of increasing the permeability of a subterranean hydrocarbon bearing formation penetrated by a wellbore and includes inducing a primary horizontal fracture in the formation which preferably extends from an injection well to a producing well. A system of microfractures is caused to be formed in a direction normal to the major fracture by cooling the formation by the introduction of a cryogenic fluid and by subsequently heating the formation adjacent to the primary fracture.

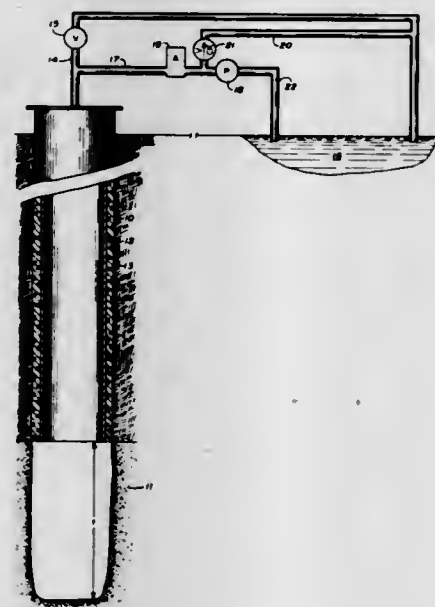
3,602,311
PRESSURE PULSE HYDRAULIC FRACTURING FOR SUBSURFACE FORMATIONS

Norman F. Whitsitt, Plano, Tex., assignor to The Western Company of North America, Fort Worth, Tex.

Filed Jan. 23, 1970, Ser. No. 5,212
 Int. Cl. E21b 43/26

U.S. Cl. 166—308

13 Claims



Subsurface formations are fractured by a process wherein a first path of flow of a fracturing fluid is established from a pump through a flow control-hammer valve, and a second path of flow is established to the formation to be fractured from a point between the pump and the valve, the pressure of the fluid against the formation from the second path of flow being controlled at a predetermined level, preferably slightly less than the formation fracture pressure, by controlling the fluid flow through the valve in the first path of flow. Next, the flow through the valve is instantaneously terminated to cause a pressure pulse to be transmitted through the second path of flow and against the formation and to cause fracturing thereof. In one embodiment, a rarefaction pulse is transmitted down the second path of flow a spaced distance behind the pressure pulse to cause a decay of the pressure pulse after it has reflected from the formation and before it radiates up the well casing and damages the system.

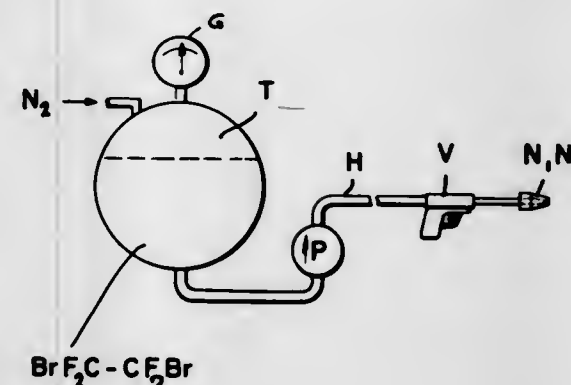
3,602,312
PROCESS FOR QUENCHING FLAMES AND DEVICES THEREFOR

Nicolino Rainaldi, Mestre, and Pierluigi Fatutto, Venezia, both of, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed July 14, 1969, Ser. No. 841,460
 Claims priority, application Italy, July 15, 1968, Apr. 24, 1969, 18982A/68; 16010A/69
 Int. Cl. A62c 1/00

U.S. Cl. 169—1

17 Claims



A process for quenching flames which involves directing thereat symmetrical dibromotetrafluoroethane ($\text{BrF}_3\text{C}-\text{CF}_2\text{Br}$, 1,1,2,2-tetrafluoro-1,2-dibromoethane) through a nozzle having a chamber traversed by this compound prior to emission from the orifice thereof which frustoconically converges in the direction of the orifice with half angle (conicity angle) of the cone ranging from 4° to about 20° , preferably between 5° and 18° . Preferably the outlet orifice at the exit of the chamber is elliptical with a ratio between the major half axis and the minor half axis between 5 and 1, preferably between 2.5 and 1.25, while the inlet orifice is circular and the transition from inlet orifice to outlet orifice is continuous. The dibromotetrafluoroethane is projected as a jet from this chamber at a pressure between 4 and 20 atm.

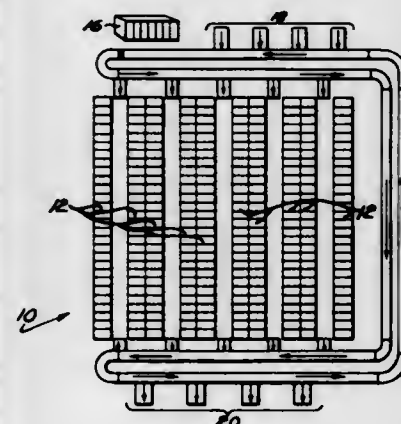
3,602,313
FIRE PROTECTION SYSTEM

Horst J. Achs, Prospect Heights, Ill., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Aug. 22, 1969, Ser. No. 852,427
 Int. Cl. A62c 3/00

U.S. Cl. 169—2

24 Claims



A fire protection system for an automated warehouse includes a roof mounted high-expansion foam generator and a high-expansion foam generator mounted on a stacker crane for movement therewith. Upon a sensing of a fire by a fire sensing means, a signal is sent to a central control means to indicate the presence and location of the fire. The control means then effects movement of the stacker crane to the location of the fire and initiates operation of the foam generator mounted on the stacker crane when it reaches the location of the fire. If the foam generator mounted in the stacker crane fails to extinguish the fire within a predetermined time interval, the central control means will effect actuation of the

roof mounted foam generator to inundate the warehouse with foam to extinguish the fire. The stacker crane also includes a self-contained fire extinguishing system for extinguishing fire that might occur within the stacker crane.

3,602,314
AUTOMATIC SPRINKLER HEAD

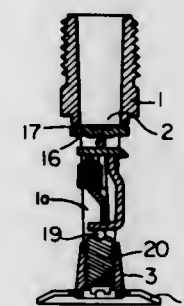
Hiroshi Onuki, Tokyo, Japan, assignor to Senju Metal Industry Co., Ltd., Tokyo, Japan

Filed July 14, 1969, Ser. No. 841,274

Claims priority, application Japan, Jan. 16, 1969, 44/3420

U.S. Cl. 169—39

2 Claims



Fire extinguishing water is distributed uniformly over a predetermined area as the result of limiting the dimensions of the sprinkler head deflector to within a certain range. Further, leakage from the sprinkler head is prevented by a construction in which pressure force is exerted upon the low melting point metal of the heat sensitive portion whereby effective sealing pressure is maintained.

3,602,315
PORTABLE HAND TOOL

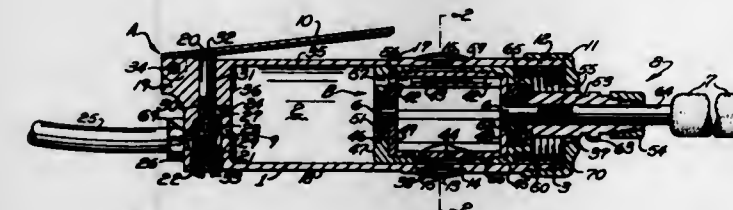
Herman C. Tuttle, 26720 White Way Drive, Richmond Heights, Ohio

Filed July 15, 1969, Ser. No. 841,875

Int. Cl. B24b 17/00; B23b 45/04

U.S. Cl. 173—1

17 Claims



A small portable air tool having a tubular housing, a rotary air motor mounted to reciprocate in the housing and receiving air under pressure from the expansible chamber formed between the motor and the rear wall of the housing, and a spring at the front of the housing for forcing the air motor rearwardly when the air supply is cut off. The novel tool provides a novel method for choking and quickly decelerating the rotor shaft while simultaneously causing exhausting of air from said expansible chamber through said motor, thereby providing maximum protection against tool breakage and preventing dirty air from being sucked into said motor.

3,602,316
POST DRIVER MOUNTING ASSEMBLY

Ralph J. McNicholas, 5807 Gibson Place, Roseville, Calif., and John H. Wicks, P.O. Box 868, Loomis, Calif.

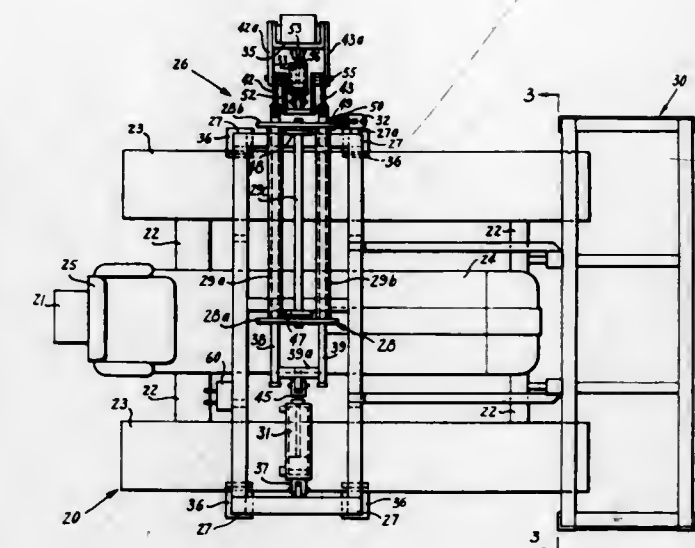
Filed July 24, 1969, Ser. No. 844,550

Int. Cl. E21c 11/02

U.S. Cl. 173—28

1 Claim

A fixed support and pivotally mounted cradle assembly ex-



and two-way rotation of a post driver by means of sliding rods and pivotally mounted linkage.

3,602,317
DRILL BIT PERCUSSOR APPARATUS

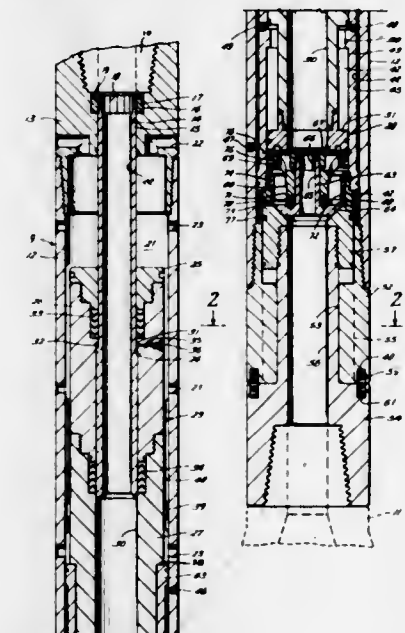
Elva J. Scroggins, Lafayette, La., assignor to Drilling Well Control, Inc., Houston, Tex.

Filed Oct. 30, 1969, Ser. No. 872,551

Int. Cl. E21b 1/06

U.S. Cl. 173—73

14 Claims



A drilling fluid actuated drill bit percussor for insertion in a drill string having a reciprocating hammer which is periodically raised by an increase in drilling fluid pressure therebelow and is accelerated downward by hydrostatic pressure and by the force of a contracting vacuum chamber which chamber was expanded during upward hammer movement.

3,602,318
HAND POWER TOOL

Erich Slany, Esslingen/N.-Zell, Germany, assignor to Robert Bosch GmbH

Filed Aug. 11, 1969, Ser. No. 849,031

Claims priority, application Germany, Aug. 22, 1968, G 67 53 525.5

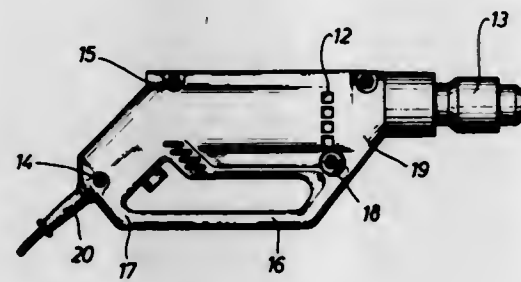
Int. Cl. B23b 45/00

U.S. Cl. 173—170

10 Claims

A hand-operated power tool comprising an elongated housing, a motor arranged therein, a tool at the front end of

the housing and adapted to be driven by the motor, and a handgrip spaced rearwardly from the tool. A hand-protector guard is spaced from and extends parallel with the housing,



with the front end of the guard secured to the housing forwards of the handgrip and with the rear end of the guard secured to the rear end of the handgrip.

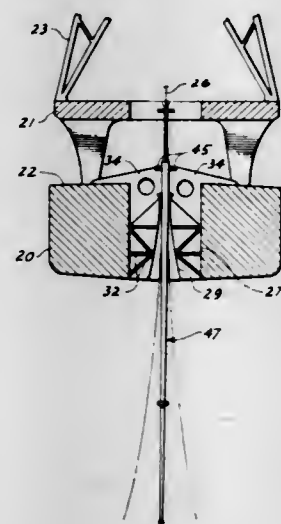
3,602,319 STRUCTURE WITH VARYING CROSS-SECTIONAL MOMENT OF INERTIA

John R. Graham, Newport Beach, and Thad Vreeland, Jr., Arcadia, both of, Calif., assignors to Global Marine Inc., Los Angeles, Calif.

Filed Sept. 26, 1969, Ser. No. 861,237
Int. Cl. E21b 7/12

U.S. Cl. 175-5

12 Claims



A structure is described for mounting on a drilling vessel for drilling of submarine wells and the like. A guide horn beneath the conventional drill rig on the ship is in the form of a portion of the surface of a torus. The drill string passes through the guide horn so that any angular misalignment between the drill string at the sea floor and the drill string at the ship due to the ship's roll or the like, is distributed along the surface of the guide horn as a gradual curve over a sufficient length of the drill string that the maximum fiber stress in the drill string is less than the fatigue limit of the drill string. The guide horn has a small entrance aperture at its upper end adjacent the drill rig and flares in a circular arc to an enlarged exit aperture adjacent the bottom of the ship.

For drilling in deep water, a portion of the guide horn is replaced with an elongated tubular member that surrounds the drill string and is fixed to the ship at its upper end as a downwardly extending cantilevered structure. The elongated tubular member has a gradually diminishing cross-sectional moment of inertia so that the drill string within the tubular member is constrained to bend in a substantially circular arc of large radius. In its more rigid portion, the elongated member has a gradually tapering wall thickness. In its more flexible portion, the elongated tubular member comprises a plurality of axially aligned rings in end-to-end relation, surrounded by and substantially flexibly interconnected by a cage. The cage has longitudinally extending ribs with each rib having a gradually tapering cross section.

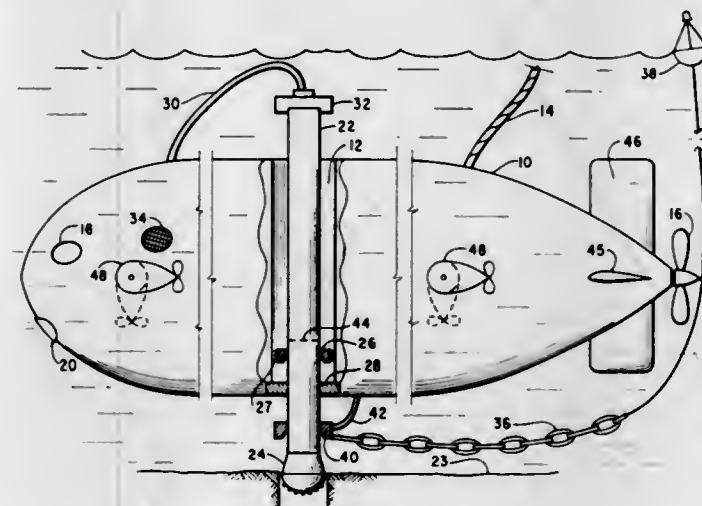
3,602,320 DEEP SEA PILE SETTING AND CORING VESSEL

George C. Howard, Tulsa, Okla., assignor to Amoco Production Company, Tulsa, Okla.

Filed Oct. 16, 1968, Ser. No. 767,954
Int. Cl. E21b 15/02

U.S. Cl. 175-8

11 Claims



This invention relates to an underwater, manned vessel useful for drilling in piles, setting anchors and taking samples of the bottom of a body of water. A conventional submarine vessel is modified to have a vertical passage therethrough. The passage contains a rotary table for rotating an anchor pile which extends through the vertical opening. Means are provided to circulate sea water down through the pile during drilling in operations. Means are also provided to obtain cores from the sea bottom.

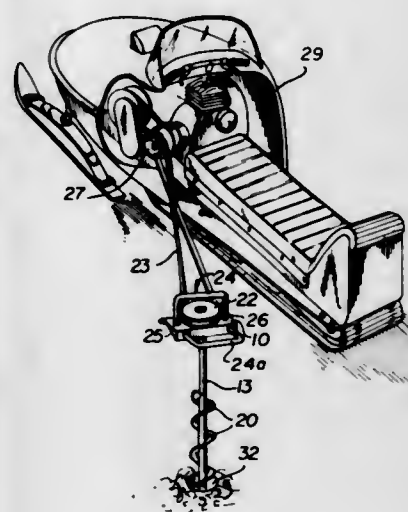
3,602,321 ICE AUGER ATTACHMENT FOR SNOW VEHICLES

George Kortschaga, Sudbury, Ontario, Canada, assignor to Ottawa Brass Limited, Ottawa, Ontario, Canada

Filed Oct. 14, 1969, Ser. No. 866,224
Claims priority, application Canada, Mar. 12, 1969, 045,510
Int. Cl. F25c 5/04

U.S. Cl. 175-18

7 Claims



An ice auger attachment for snow vehicles arranged to be driven from the snow vehicle motor by manually operated belt and clutch pulley means.

3,602,322 FLUID FLOW MONITORING SYSTEM FOR WELL DRILLING OPERATIONS

Dale C. Gorsuch, 7030 Baker Blvd., Fort Worth, Tex.

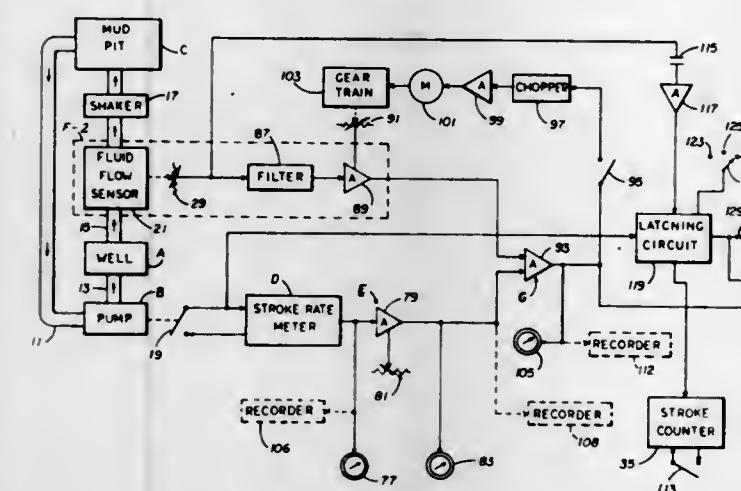
Filed Oct. 24, 1968, Ser. No. 770,148
Int. Cl. E21b 21/04

U.S. Cl. 175-48

12 Claims

For well drilling operations, a fluid flow measuring system

that senses well input and output flows and converts them



into compared electrical analogues for signaling the operator upon the occurrence of imbalance.

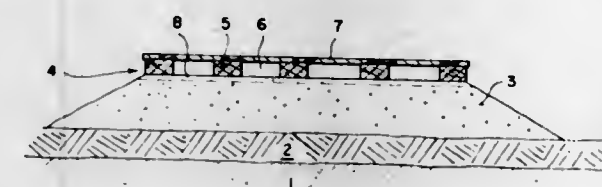
3,602,323 PERMAFROST DRILLING METHOD

Frank J. Schuh, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,207
Int. Cl. E21b 7/00

U.S. Cl. 175-57

4 Claims



A pad for drilling at least one borehole through the earth, the pad being composed of a first layer of particulate material adjacent the earth, a second layer composed of spaced-apart members to form a plurality of channels therein, and a third layer composed of support material. A method for drilling a borehole through tundra and permafrost without substantially thawing same by using the above described pad for carrying out the drilling procedure.

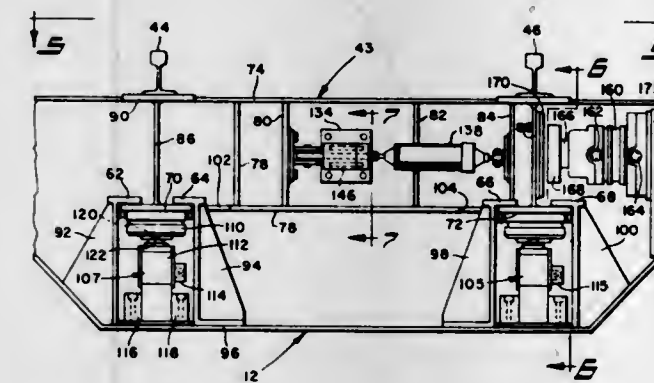
3,602,324 CAR DUMPER SCALE APPARATUS

Edward E. Cheek, Cleveland Heights, Ohio, assignor to McDowell-Wellman Engineering Company, Cleveland, Ohio

Filed Jan. 28, 1970, Ser. No. 6,463
Int. Cl. G01g 19/52

U.S. Cl. 177-132

16 Claims



There is provided a railroad car dumping apparatus including an invertible cradle, a weighable platform assembly invertible therewith, weight-sensing means coacting between the cradle and the platform assembly in compression only,

and stop means operable to support the platform assembly when the cradle is in its inverted position without a railroad car. This structure overcomes weight inaccuracies introduced by submitting the weight-sensing devices to both tensile and compressive forces and simplifies the structure.

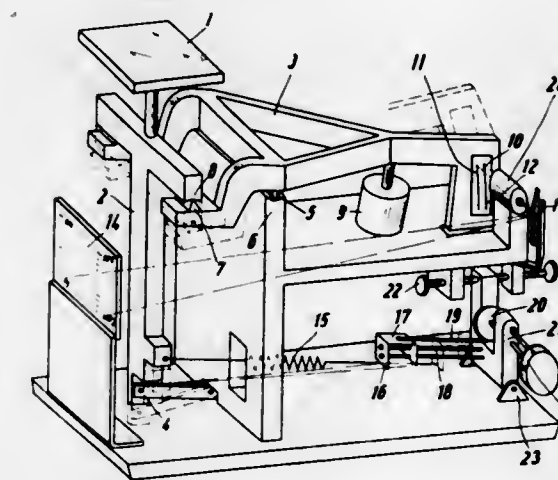
3,602,325 WEIGHING APPARATUS

Adolf Ast, Messtetten, and Roland Frey, Taillfing, both of, Germany, assignors to August Sauter KG, Ebingen, Wurttemberg, Germany

Filed Nov. 14, 1968, Ser. No. 775,652
Claims priority, application Germany, Nov. 24, 1967, P 15 49 279.2

Int. Cl. G01g 1/18, 23/14, 23/32
U.S. Cl. 177-169

7 Claims



A balance of the type using a parallelogram linkage for supporting its load pan is provided with adjustable spring means for providing a downward thrust on the pan as a function of scale displacement. The balance is provided with a scale reading from 0 percent to 100 percent. In operation a sample within a preset weight range is placed on the pan, the spring means adjusted until the scale reads 0 percent and the sample is then dried and replaced so that the moisture percentage can be read off directly.

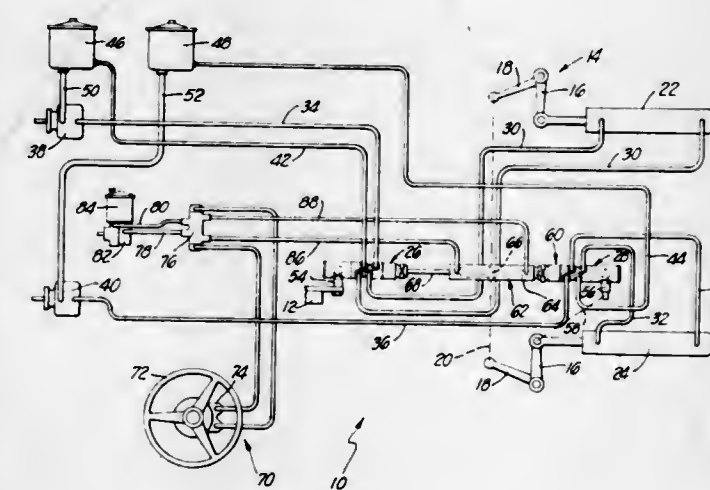
3,602,326 DUAL POWER STEERING SYSTEM

Robert A. Garrison, Newport Beach, Calif., assignor to Garrison Manufacturing Co. Inc., Santa Ana, Calif.

Filed Aug. 22, 1969, Ser. No. 852,417
Int. Cl. B62d 5/08

U.S. Cl. 180-79.2 R

11 Claims



A dual, fluid operated, power steering system having two separate fluid operated steering motors connected to the steerable wheels of the vehicle, two separate steering valves respectively controlling the two steering motors, and two

separate pumps respectively connected to and supplying fluid under pressure to the steering valves. The two steering valves respectively form parts of an elongated link one end of which is connected to the steerable wheels to move therewith. In some instances, the other end of the elongated link is anchored to the frame of the vehicle, and a portion of the elongated link constitutes a control motor comprising a control cylinder and a control piston. A manually operated fluid control system selectively delivers fluid under pressure to the control cylinder on opposite sides of the control piston to actuate the two steering valves simultaneously. In another instance, the other end of the elongated link is connected directly to a manually operated pitman arm which simultaneously operates both steering valves, one directly and the other through an elongated connection between the two steering valves.

3,602,327

INSTRUMENT PANEL FOR MOTOR VEHICLES, ESPECIALLY PASSENGER MOTOR VEHICLES

Bela Barenyi, Stuttgart-Vaihingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

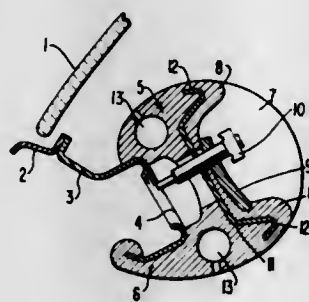
Filed July 31, 1968, Ser. No. 749,010

Claims priority, application Germany, Aug. 2, 1967, P 16 30 328.9

Int. Cl. B60k 37/00

U.S. Cl. 180—90

18 Claims



An instrument panel for motor vehicles, especially passenger motor vehicles which comprises a covering of suitable padding material such as foamed material or the like; the covering itself is arranged on a sheet-metal base member of the framework, includes a substantially cylindrically shaped base body made from such padding material at least within the area of the passenger seated next to the driver and is mounted with its base body on a preferably flat surface of the sheet-metal baseplate.

3,602,328

CALIPER TYPE DISC BRAKE WITH REMARKABLE FRICTION PADS

Chester N. Fannin, Troy, and Carlos P. Afanador, Centerville, both of Ohio, assignors to The Dayton Steel Foundry Company, Dayton, Ohio

Continuation-in-part of application Ser. No. 770,196, Oct. 24, 1968, now abandoned. This application Oct. 21, 1969, Ser. No. 871,476

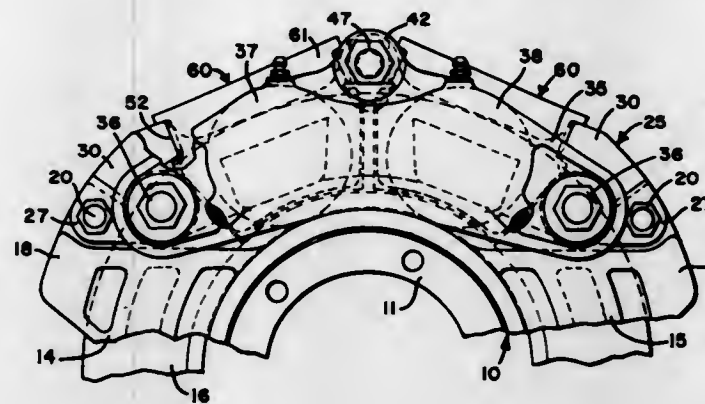
Int. Cl. F16d 55/228

U.S. Cl. 188—72.5

2 Claims

A disk brake of the floating caliper type employs two friction pads and backing plates at each side of the caliper with a central abutment between each axial pair of plates for receiving and/or transmitting the braking torque of such plates.

The split or dual plate construction permits the use of interchangeable brake plates and allows a wider arc of brake



engagement while retaining the advantages of relatively arcuately short individual backing plates.

3,602,329

CONFORMAL EAR ENCLOSURE

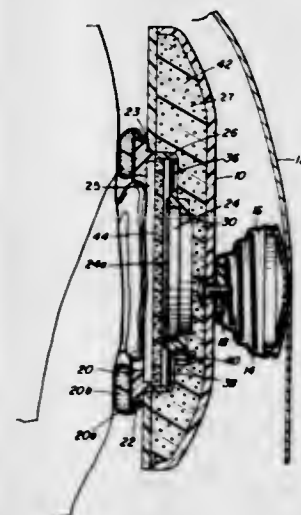
Benjamin B. Bauer, Stamford, and Alfred L. Di Mattia, Fairfield, both of Conn., assignors to Columbia Broadcasting Systems, Inc.

Filed Jan. 7, 1970, Ser. No. 1,212

Int. Cl. G02k 13/00; H04r 25/00

U.S. Cl. 181—23

9 Claims



A circumaural ear enclosure, including a rigid cup of reentrant shape and having a contour so as to be mounted within a protective helmet, for improving communication and safeguarding the hearing of personnel working in noisy environments. An air seal is obtained between the cup and the head of the user by a gel-filled cushion surrounding the ear, and attenuation of noise in a predetermined range of frequencies is maximized by dividing the cup into inner and outer cavities of unequal size with a partition on which the transducer is mounted and which includes means for providing frequency selective coupling between the cavities. This coupling is provided by a predominantly resistive element in parallel with a predominantly inductance element, these elements having values so as to assure maximum transducer response while maintaining high noise attenuation characteristics, with special emphasis to providing high noise attenuation at a particular frequency.

3,602,330

ACOUSTIC EAR MOLD FOR HEARING AID

Rubein V. Johnson, 2432 Court St., Muskogee, Okla.

Filed June 1, 1970, Ser. No. 41,812

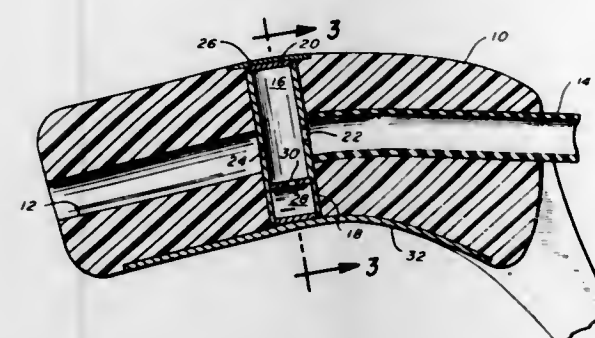
Int. Cl. G02k 13/00; H04r 25/00

U.S. Cl. 181—23

3 Claims

An acoustic ear mold insertable into the ear of an individual with impaired hearing and used in conjunction with

a hearing aid amplifier incorporates therein reflection chambers. Amplified sound wave energy conducted to the ear mold proceeds to the hearing part of the brain over two



separate routes, one route being by way of the tympanic membrane and the second route being by bone conduction through the mastoid process.

3,602,331

SOUND SHIELDING BY MEANS OF SOUND GRATING

Oskar Bschorr, Munich, Germany, assignor to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany

Filed Apr. 10, 1970, Ser. No. 27,429

Claims priority, application Germany, Apr. 12, 1969, P 19 18 741.8

Int. Cl. H04m 1/19; F01n 1/06

U.S. Cl. 181—33 L

20 Claims

An air permeable sound grating for sound shielding. The grating consists of, or includes, volume changing elements which are controlled by properly positioned means, such as a microphone orientated toward the noise source, to effect change in volume of an adjacent noise transmitting medium, such as air, to effect such an anticyclic change in volume as to cause interference, attenuation of the sound at the side of the grating facing away from the noise source. Such volume changing elements are spaced apart a distance less than the wavelength of the highest frequency sound to be shielded and may comprise a variety of means such as spaced heating wires, conductive coating upon a thermal and electrically insulating base, a closed capsule with membrane surfaces having vibration generating means operatively associated with said membrane, radiation generating means for discharging medium heating radiation of energy into the sound transmitting medium together with controls and reflectors for directing the volume changing means or energy to the desired zone to be shielded.

3,602,332

LEAD-LOADED MICROPOROUS ACOUSTIC PANEL

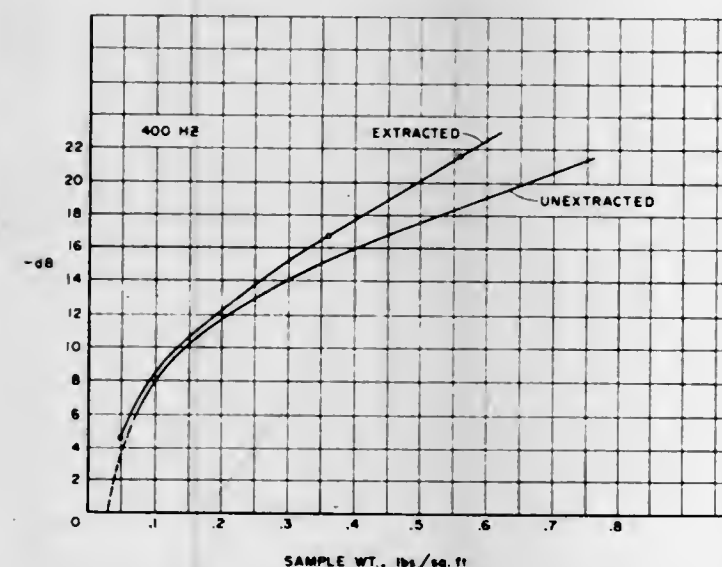
Bonderinko Hollenbeck, Pelham, N.H., assignor to W. R. Grace & Co., Cambridge, Mass.

Filed Jan. 8, 1969, Ser. No. 789,825

Int. Cl. E04b 1/86; B32b 3/26, 5/18

U.S. Cl. 181—33 G

4 Claims



Sound, particularly airborne sound, is attenuated using a microporous sheet of a resilient, normally solid polymeric

material (e.g. polyethylene), which sheet has finely divided lead particles uniformly dispersed therein.

3,602,333

SILENCER FOR SILENCING OR DISCHARGE OF FLUIDS UNDER PRESSURE

Shunji Kobayashi, Yokohama-shi; Koichi Hiramatsu, Tokyo-to; Isao Yoshihara, Tokyo-to, and Sathihiro Kuwabara, Tokyo-to, all of Japan, assignors to Chiyoda Kako Kensei Kabushiki Kaisha, Tokyo-to, Japan

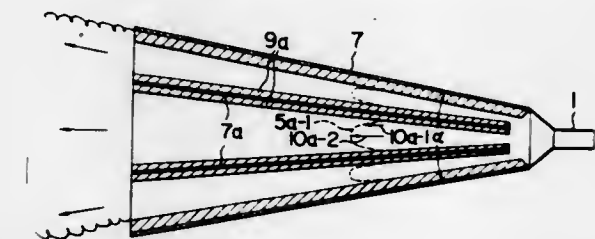
Division of Ser. No. 658,395, Aug. 4, 1967, Pat. No. 3,503,465

Filed Oct. 15, 1969, Ser. No. 871,180

Int. Cl. F04b 39/00; F01n 1/10, 7/20

U.S. Cl. 181—42

7 Claims



On the basis of the observation that a fluid under pressure diffuses in a conical path with a certain divergent angle into a region of lower pressure, a silencer, through which a noise generating flow of a fluid is passed, is made up of a combination of concentric outer, intermediate, and inner shells respectively having shapes of hollow truncated cones with specific divergent angles in the discharge direction and provided on both surfaces or single surfaces thereof with sound absorbing layers of specific thicknesses.

3,602,334

SILENCER PROTECTIVE SHIELD

John Raymond Goodman, 427 Sutton Road, Walsall, England

Filed Apr. 10, 1970, Ser. No. 27,338

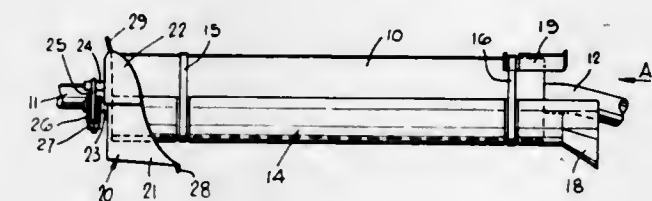
Claims priority, application Great Britain, Apr. 10, 1969,

Apr. 22, 1969, 18407/69; 20495/69

Int. Cl. F01n 7/00

U.S. Cl. 181—72

9 Claims



A shield for fitment to a motor vehicle silencer includes a protector plate which is fitted underneath the casing of the silencer to protect the underside thereof, the protector plate being strapped to the casing.

3,602,335

PLATFORM POSITIONING MECHANISM

Stanley J. Gustetic, Euclid, Ohio, assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio

Filed Sept. 25, 1969, Ser. No. 861,066

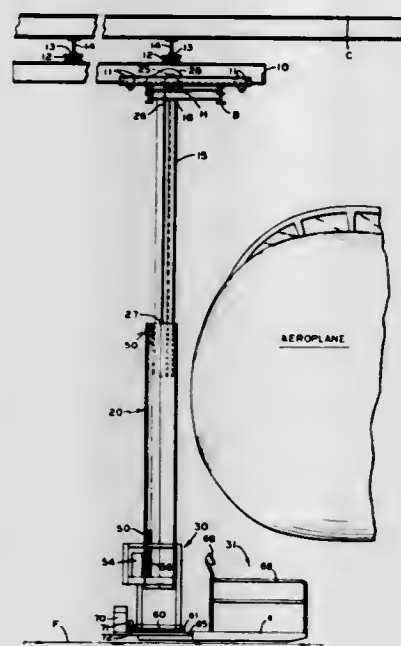
Int. Cl. E04g 3/10

U.S. Cl. 182—37

13 Claims

Through a system of beams and rollers, an upper base is mounted for horizontal movement at or near the ceiling of a room. A vertical mast is fixed at its upper end to the upper base for integral movement therewith. A movable mast is telescoped about the fixed mast and moves vertically thereon. A carriage slides vertically on the movable mast and has an opening for the passage of both masts so that it may be elevated to the upper end of the movable mast when the

movable mast is lifted to its uppermost position on the fixed mast. An operator's platform rotates about the carriage on a output when the stored energy is released. The specification also discloses a two-stage elastic band drive system wherein

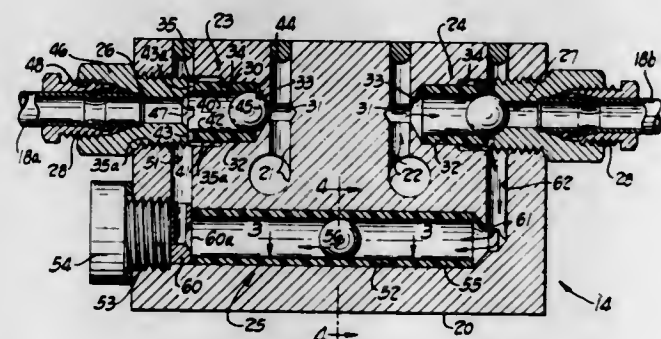


the first stage generates higher power and higher r.p.m. than the second stage.

3,602,338
SAFETY DEVICE FOR VEHICLE LIFTS
Martin J. Sherry, Dayton, Ohio, assignor to The Joyce-Cridland Company, Dayton, Ohio
Filed July 30, 1969, Ser. No. 845,982
Int. Cl. B66f 7/00
U.S. Cl. 187-8.49 10 Claims

circular bearing having an opening through which the two masts extend.

3,602,336
LUBRICANT METERING ASSEMBLY AND VALVES AND PISTON THEREFOR
Ernest W. Downs, 3081 Bechtel Drive, Franklin, Ohio
Filed June 5, 1969, Ser. No. 830,821
Int. Cl. F16n 7/40; F16k 21/04
U.S. Cl. 184-7 D 21 Claims



A lubrication system is disclosed wherein lubricant is pumped to lubricated devices through a lubricant metering assembly. The lubricant metering assembly includes valve structures and a piston-cylinder structure in which a piston member and movable valve members are ball bearings having an interference fit with a surrounding rigidly supported plastic sleeve whereby the piston and movable valve members are moved when exposed to unbalanced fluid pressure and yet are tightly sealed against lubricant flow between the movable members and the surrounding sleeve.

3,602,337
ELASTIC DRIVE DEVICE
Albert D. Cain, H.H.C. 1st Sig. Bde. Telma, APO San Francisco, Calif.
Filed Feb. 3, 1970, Ser. No. 8,244
Int. Cl. F03g 1/00
U.S. Cl. 185-9 9 Claims

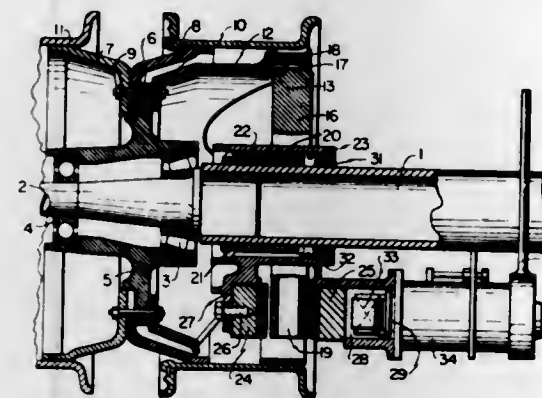
The specification discloses an elastic drive device having a plurality of elastic bands that are coupled together through transmission means to increase the longevity of the power

An elongate lever located inside of a nonrotating tube has a detent pin projecting through an aperture in the tube located just above floor level. Lowering of the nonrotating tube is prevented by the detent pin. The lever can be manually moved to a laterally spaced and lower position within the nonrotating tube to retract the detent pin. When so moved, a release pin supported by the lever projects through another aperture in the tube. The lever is spring returned to the first mentioned position upon lowering of the lift when the release pin engages the floor.

3,602,339
DISC BRAKE, ESPECIALLY FOR MOTOR VEHICLES
Georg Sontheimer, Ulm, Germany, assignor to Firma Georg Fischer A.G., Schaffhausen, Switzerland
Filed May 1, 1969, Ser. No. 820,779
Claims priority, application Germany, May 3, 1968, P 17 50 453.9
Int. Cl. B60t 1/00
U.S. Cl. 188-18 A 7 Claims

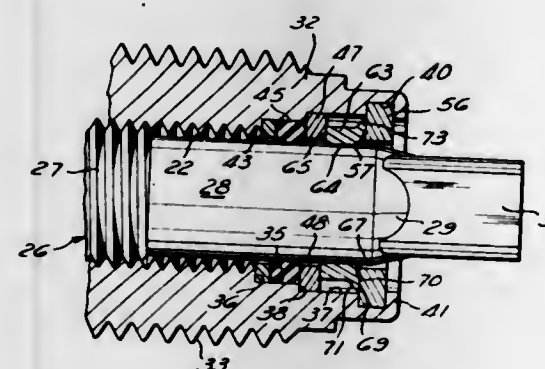
There is disclosed a disc brake system, especially for motor vehicles, in which a housing supporting the brake disc is connected with the wheel hub and the brake shoes are mounted to be axially displaceable relative to the wheel axle. According to an important aspect of the invention, the brake disc is

detachably secured to the marginal edge or portion of the housing, which preferably possesses a substantially bell-shaped configuration, and the support for the brake shoes surrounds the wheel axle in the form of a sliding sleeve.



shaped configuration, and the support for the brake shoes surrounds the wheel axle in the form of a sliding sleeve.

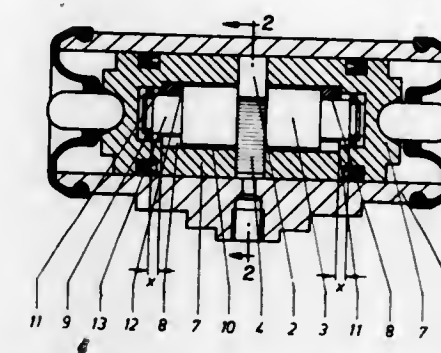
3,602,340
VALVE STEM FRICTION DEVICE
Tadeusz Budzich, Moreland Hills, and Frederick S. Browne, Euclid, both of, Ohio, assignors to The Weatherhead Company, Cleveland, Ohio
Filed Apr. 10, 1969, Ser. No. 814,929
Int. Cl. B65h 59/10
U.S. Cl. 188-67 4 Claims



A braking and locking structure for frictionally supporting a shaft, such as a valve stem, for axial and rotational movement in a housing comprising a cylindrical surface on the periphery of the shaft, a friction sleeve in frictional engagement with the cylindrical surface and axially located between abutment washers in the housing. The friction sleeve is plastically deformed in a radially outward direction for engagement with the cylindrical surface with a frictional force independent of the actual amount of radial deformation from its original nominal size and, additionally, the sleeve is provided with an axially extending lip plastically deformed to allow the sleeve to assume a length equal to the spacing between the abutment washers determined by the dimensions of the various components to eliminate axial lost motion of the friction sleeve.

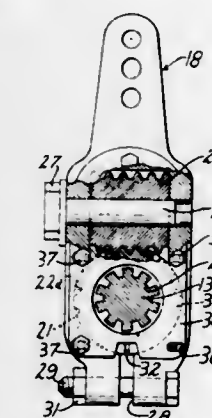
3,602,341
AUTOMATIC SELF-ADJUSTING DEVICE FOR THE BRAKES OF MOTOR VEHICLES
Karl Brand, Ebern, Germany, assignor to Kugelfischer Georg Schafer & Co., Ebern, Germany
Filed Aug. 22, 1969, Ser. No. 852,387
Claims priority, application Germany, Aug. 28, 1968, P 17 80 302.0
Int. Cl. F16d 65/54
U.S. Cl. 188-196 P 1 Claim

An automatic self-adjusting device to control movement of the pistons of a double-acting wheel brake cylinder to compensate for wear of brake linings and comprising a pin fixed



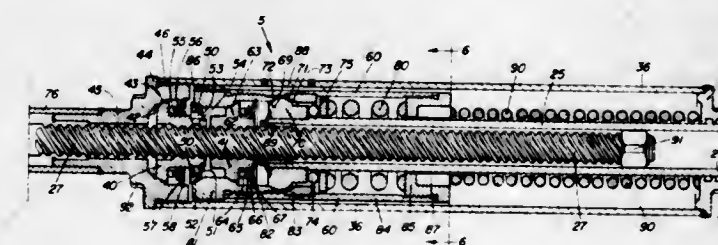
friction devices limit the return of the piston stroke and are displaced with respect to the pistons, against the frictional engagement, as the brake linings become worn.

3,602,342
SLACK ADJUSTER FOR VEHICLE BRAKES
Paul S. Whittle, 620 Mountain Drive, Birmingham, Ala.
Filed Mar. 23, 1970, Ser. No. 21,887
Int. Cl. F16d 65/46
U.S. Cl. 188-196 M 1 Claim



A slack adjuster for vehicle brakes in which an arm has a housing at one end in which is rotatably carried a worm gear, the worm gear being splined to a brake shaft and in engagement with a worm for rotating the brake shaft relative to the arm for brake adjustment purposes. The improvement comprises splitting the worm gear in a quadrant opposite the quadrant in contact with the worm. The housing also is split so that when clamped together by bolts or the like it locks the worm gear to the brake shaft and also locks the worm to the worm gear, thereby eliminating any slack in the parts and also preventing the worm from rotating thus to maintain the brakes in adjustment.

3,602,343
DOUBLE-ACTING SLACK ADJUSTERS
Henry R. Billeter, Deerfield, Ill., assignor to Sloan Valve Company, Chicago, Ill.
Filed Oct. 16, 1969, Ser. No. 866,803
Int. Cl. F16d 65/66
U.S. Cl. 188-202 14 Claims



An automatic double-acting slack adjuster for railway cars has two spin nuts arranged on a threaded rod. The spin nuts

are rotatable to take up or let out slack and have clutch surfaces engageable with clutch surfaces on a traction sleeve tube to stop the rotation. The spin nuts are normally clutched to prevent unintended relative movements under operating conditions of heavy vibration and shock.

3,602,344

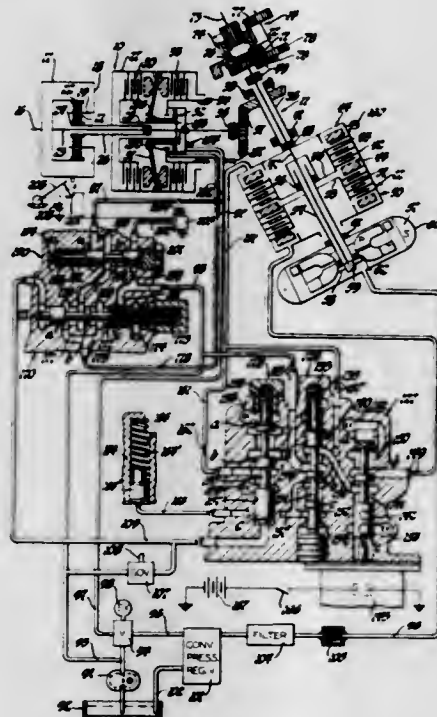
OVERLAP SHIFT CONTROLLED TRANSMISSION
William B. Clark, Acton, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 27, 1969, Ser. No. 869,732

Int. Cl. F16d 25/10

U.S. Cl. 192—3.27

13 Claims



A transmission having a converter drive and a direct drive clutch in which the manual neutral and drive control valve supplies fluid to engage the converter drive clutch and the governor actuated direct drive clutch valve supplies fluid through a restriction to engage the direct drive clutch and also to an accumulator pressure regulator to provide a gradual pressure rise in the direct drive clutch motor, which when it reaches a value so that the direct drive clutch carries the load, then actuates an overlap relay valve to exhaust the converter drive clutch motor to insure overlap independent of time. On a shift from direct drive to converter drive, the downshifting governor actuated direct drive valve connects the accumulator overlap valve and the direct clutch motor through a restriction to exhaust to delay disengagement of the direct clutch and promptly shifts the relay valve to supply fluid to the converter clutch for a quick engagement of the converter clutch to provide overlap. In the controls for a downshift from a higher ratio to a lower ratio, a throttle actuated valve provides an additional restriction in an exhaust line to delay a downshift at zero and low throttle as compared to the full and high throttle downshift to improve the character of the downshifts while providing fast upshifts at all throttle settings.

3,602,345

JAW CLUTCH

Vadim Nikolaevich Rattenberg, ulitsa Sedova, korpus 1, kv. 31, Moscow; Alexei Viktorovich Novikov, Balkhash Karagandinskaya oblast, ulitsa Lenina, 35, kv. 6, Balkhash; Georgy Ivanovich Glushkov, ulitsa Gilyarovskogo, 47, kv. 175, Moscow; Lev Petrovich Fridman, Balkhash, Karagandinskaya oblast, ulitsa Frunze, 13, kv. 16, Balkhash; Igor Ignatievich Kurgansky, Khmel'nitsky, ulitsa te rnopolskaya, 18, kv. 47, Khmel'nitsky, and Khalil Nureevich Tazetdinov, Balkhash, Karagandinskaya oblast, ulitsa Frunze, 13, kv. 26, Balkhash, all of U.S.S.R.

Filed Aug. 5, 1969, Ser. No. 847,599

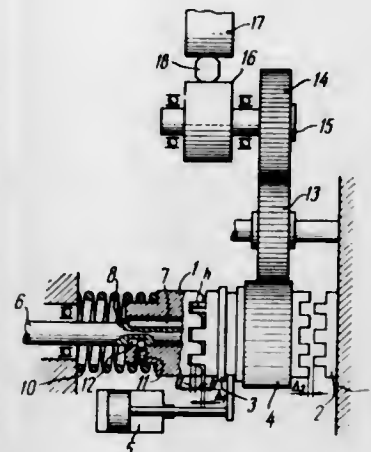
Int. Cl. F16d 13/22, 67/04

U.S. Cl. 192—18 A

2 Claims

A jaw clutch comprising two clutch members and a bushing with jaws at both ends, engaging each of said clutch

members, one of which clutch members is mounted on the shaft with a provision for moving along the shaft axis and is constantly pressed by a resilient element against the jaw bushing so that the total axial clearance between the jaws of the bushing and those of the clutch members is smaller than



the height of each clutch member jaw at the side of the resilient element.

In addition, each jaw of the clutch member at the side of the resilient element has a straight portion and a portion beveled towards the face end.

3,602,346

ADJUSTABLE CLUTCH

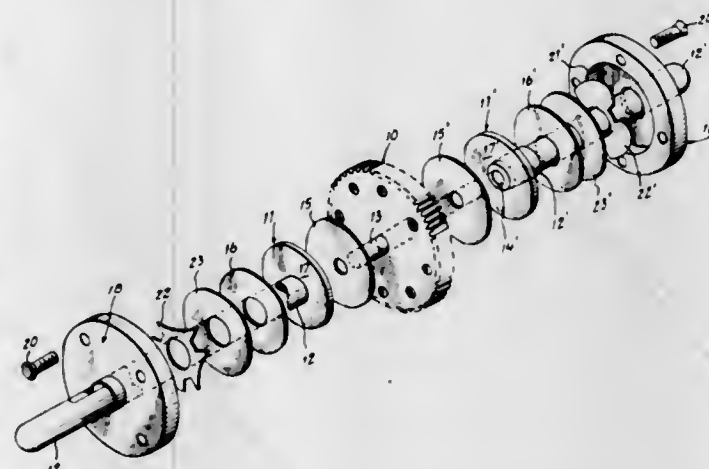
Donald E. Daugherty, Marietta, Ohio, assignor to Sperry Rand Corporation, New York, N.Y.

Filed Jan. 22, 1970, Ser. No. 4,997

Int. Cl. F16d 21/06, 7/02

U.S. Cl. 192—48.8

8 Claims



A mechanism for transmitting motion from a prime mover, such as a motor or the like, to a pair of independent output shafts having different torsional characteristics. A driving member is rotated by the prime mover at a constant speed. This motion is controllably transmitted to a pair of driven assemblies which include the mentioned output shafts. Coupling between the driving member and the driven assemblies provides for shaft slippage under conditions where predetermined torque is exceeded. To this end, independently adjustable coupling devices are associated with respective driven assemblies.

3,602,347

CLUTCH ENGAGING MOTOR WITH AUTOMATIC EXHAUST VALVE

Hirozi Yamaguchi, and Koichiro Hirozawa, both of Kariya-shi, Japan, assignors to Aishin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-Ken, Japan

Filed Oct. 21, 1968, Ser. No. 769,185

Claims priority, application Japan, Oct. 21, 1967, 42/89550

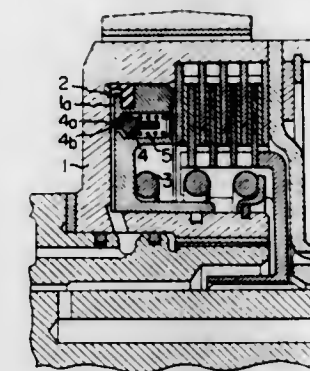
Int. Cl. F16d 25/00

U.S. Cl. 192—106 F

5 Claims

In a hydraulically actuated clutch having a clutch drum and a hydraulic piston slidably operating in the drum and

forming therewith a hydraulic fluid chamber, a check valve which is always actuated by the action of the piston returning to clutch release position to open a fluid passageway and



thereby discharge residual fluid from the fluid chamber. Clutch dragging caused by pressure due to centrifugal force acting on residual fluid is thus prevented.

3,602,348

AUTOMATIC PULSE CONTROL UNIT FOR THE DRIVE OF CUTTING MACHINES FOR PAPER, CARDBOARD OR THE LIKE

Rudolf Mohr, Hattersheimer Strasse, 6239 Hofheim, Taunus, Germany

Filed Oct. 21, 1968, Ser. No. 769,116

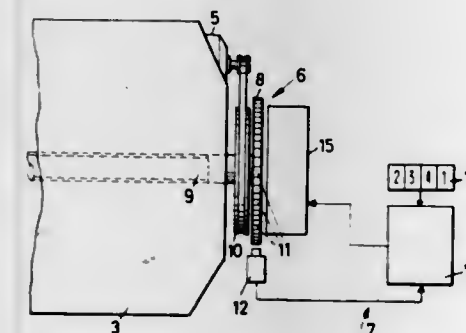
Claims priority, application Germany, Oct. 26, 1967, P 15 36

468.8

Int. Cl. F16d 43/26; B23q 17/18

U.S. Cl. 192—127

3 Claims



An automatic pulse control means for use on machines employed for cutting paper, cardboard or the like, more especially for controlling the advance of the feed chuck of such machines, wherein the coupling disc of the magnetic coupling is constructed as a pulse generator, comprising teeth along the whole of its circumference which influence the field of a magnetic head in such a manner, that when one of said teeth comes within the range of said magnetic head the field of the latter is varied and generates a resulting pulse which operates an arbitrarily preset subtracting counter mechanism with the effect whereby when the zero position of the latter is reached, it transmits said pulse for the control of the magnetic coupling. The system may operate either as a cut-sequencing unit for executing cuts of uniform width when provided with a single counter, or for executing a cutting program featuring cuts of different width by providing a plurality of counters, on which different number of pulses and thereby different cutting widths can be preset by means of the preselector switch associated with the counter mechanism in both cases.

3,602,349

APPARATUS FOR THE CONTROL OF THE ROLLING SPEED OF ARTICLES

Derrik Robert Edwards, St. Anne's on Sea, and Roy Stewart, Blackpool, both of, England, assignors to United Kingdom Atomic Energy Authority, London, England

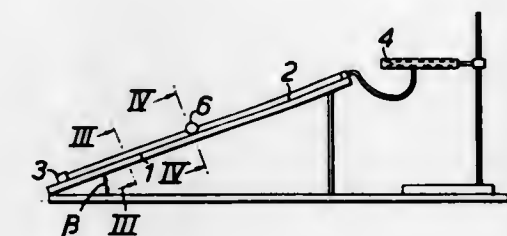
Filed Apr. 1, 1969, Ser. No. 812,052

Claims priority, application Great Britain, Apr. 5, 1968, 16643/68

Int. Cl. B65g 11/20

U.S. Cl. 193—32

10 Claims



Apparatus for controlling the rolling speed, for example, of cylindrical articles down a slope comprises a flexible tube laid down the slope. Liquid is contained in the tube, the arrangement being such that rolling of an article down the tube causes a pressure rise in liquid in the tube forward of the article. Liquid leakage occurs under the article from the part of the tube forward of the article to the part of the tube behind the article, thereby controlling the rolling speed of the article to a constant velocity. A constant leak area is defined in the tube under the article, for example, by placing a longitudinal spacer strip in the tube.

3,602,350

SELECTIVE ROTATIONAL CONTROL FOR SUCH MECHANISMS AS TURNSTILES

Terence John Collins, Crooksbury, Farnham, England, assignor to Tiltman Langley Limited

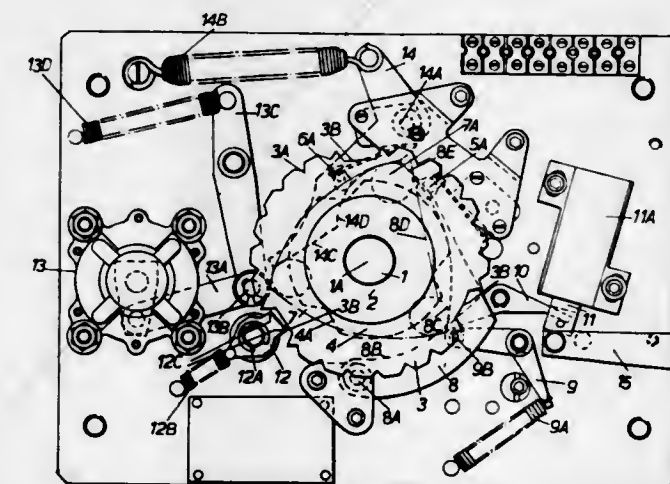
Filed Oct. 21, 1969, Ser. No. 868,109

Claims priority, application Great Britain, Oct. 23, 1968, 50262/68

Int. Cl. G07f 5/10

U.S. Cl. 194—9

14 Claims



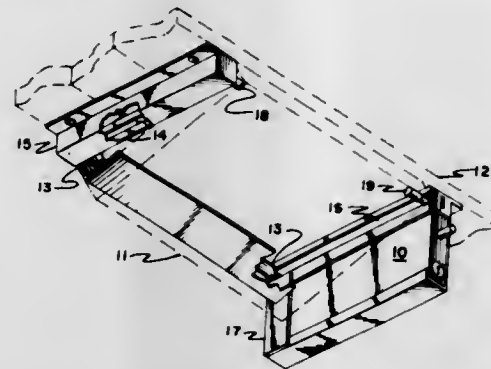
A mechanism for the selective control of the rotation or part-rotation of a shaft such as is used in turnstiles. The shaft has a cam engaged by a first pawl so as to be locked against rotation in one direction whilst being free to rotate in the other direction. The pawl is moved so as to unlock the shaft by manual or solenoid operation, the latter being energized by a coin-freed mechanism. A second pawl cooperates with a series of notches and gaps in a circular member mounted on the shaft so as to allow the shaft to rotate in either direction from a locked position but so as to prevent reversal once rotation has started. The mechanism incorporates a damping device and a torque-restoring device. The latter device stores energy during the first half of a part-rotational movement and returns it during the second half so as to assist rotation. A part-rotational movement counting device is also included

having two microswitches and a relay with two contacts, the seeming complication ensuring that small random movements of the shaft do not result in miscounting.

3,602,351
COIN OPERATED LOCK FOR DRAWERLIKE VENDING APPARATUS

Raymond M. Terry, 1111 Aladdin Ave., San Leandro, Calif.
Filed Feb. 9, 1970, Ser. No. 9,773
Int. Cl. G071 5/02

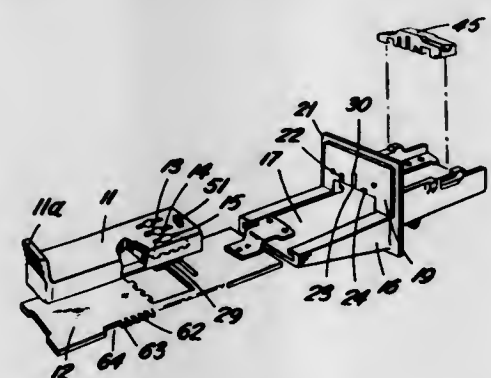
U.S. Cl. 194—55



The coin operated mechanism comprises a horizontally disposed, upstanding, elongated boxlike housing having a slotted guide portion rectilinearly disposed in one of the elongated sides operable to carry a guide rod of a drawer or similar article, and an operating mechanism closure including a coin operating mechanism carried by the housing. The operating mechanism includes a latching member normally lying athwart the guide rod. An operating rod having one of its terminal ends extending through the closure and its other terminal end slidably carried by a support means in the closure is suitably connected to a lever arm pivotally connected at one of its terminal ends to the lowermost terminal end of the latching means. Hence, when the operating rod is moved rearwardly the latching means is caused to be depressed. The housing is provided with a coin entranceway which is contiguous with an upstanding coin chute in the closure. A locking means is pivotally mounted in the closure above the operating rod. A coin exitway is provided in the operating rod below the locking member. When a coin is in the chute the locking member is cammed upwardly over the coin and the operating rod may be manually moved rearwardly to cause the latching means normally athwart the guide rod to be depressed. A stop suitably fastened in the housing in front of the locking means will prevent rearward movement of the operating rod when no coin is in the chute. The closure is normally locked in the housing by a commonly known barrel lock.

3,602,352
COIN OPERATED APPARATUS
William Lovell Robinson, Northolt, England, assignor to Electric Shop Developments Limited, London, England
Filed May 22, 1969, Ser. No. 826,887
Claims priority, application Great Britain, May 27, 1968, 25302/68
Int. Cl. G071 5/00

U.S. Cl. 194—92



Coin freed apparatus having a coin slide with an apparatus operating position, having two abutments which receive an

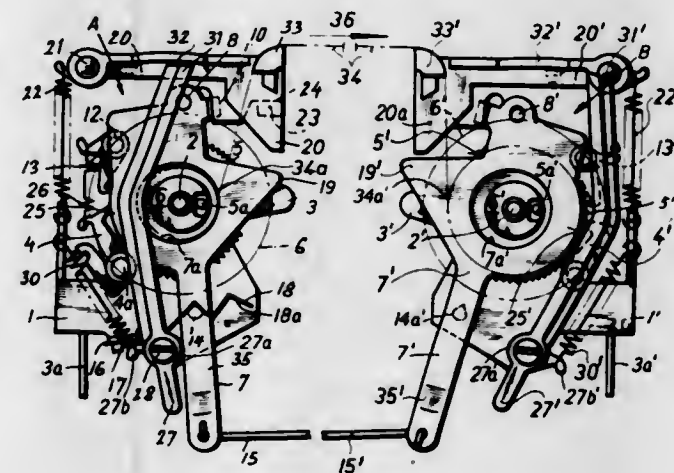
upright coin, the correct predetermined coin in the slide being movable to the apparatus operating position though a third abutment, a coin greater than the predetermined size engaging the edge of the third abutment and wherein a lever engages a member on the slide to prevent movement to the apparatus operating position if no coin is received by the slide.

3,602,353
RIBBON TRANSPORTING AND REVERSING MECHANISM

Kurt Chvatlinsky, and Wilfred Penning, both of Wilhelmshaven, Germany, assignors to Olympic Werke Aktiengesellschaft, Wilhelmshaven, Germany
Filed June 2, 1969, Ser. No. 829,381
Claims priority, application Germany, June 6, 1968, P 17 61 553.1
Int. Cl. B41j 33/44

U.S. Cl. 197—161

10 Claims

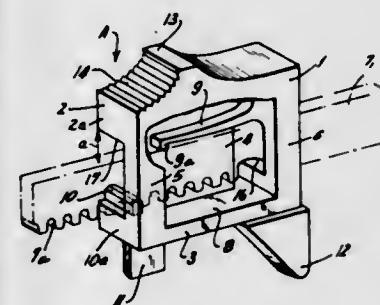


In a typewriter, each of the two units of a ribbon transporting and reversing mechanism, has a spring biased control lever guiding the ribbon. When the ribbon is wound up in one unit and at its end in the other unit, it is tensioned and urges the control levers of both units to an actuated position. A sensing lever blocks the respective control lever when sensing the end of the ribbon in the other unit, so that only the control means of the unit where the ribbon is fully wound up, is displaced by the tensioned ribbon to the actuated position for reversing the direction in which the ribbon is transported.

3,602,354
MARGIN STOP MADE OF A SYNTHETIC MATERIAL
Rolf Theilen, Wilhelmshaven, Germany, assignor to Olympia Werke Aktiengesellschaft, Wilhelmshaven, Germany
Filed July 1, 1969, Ser. No. 838,149
Claims priority, application Germany, July 11, 1968, O 10 096
Int. Cl. B41j 21/04

U.S. Cl. 197—70

6 Claims



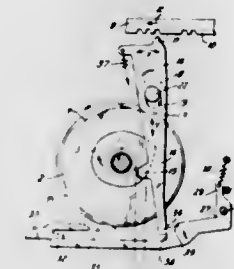
A margin stop for stopping the paper carriage of a typewriter in an end position, is constructed as an integral piece of a synthetic material including a tooth, and a spring tongue engaging a rackbar and biasing the tooth to engage the rackbar.

3,602,355
APPARATUS FOR INTERMITTENT TRANSPORT OF A RECORD CARRIER

Alfred Hesse, Wilhelmshaven; Wolfgang Bindel, Wilhelmshaven, and Heinrich Sicking, Accum uber, Wilhelmshaven, all of Germany, assignors to Olympia Werke Aktiengesellschaft, Wilhelmshaven, Germany
Filed May 27, 1969, Ser. No. 828,245
Claims priority, application Germany, June 1, 1968, P 17 74 373.6
Int. Cl. B41j 19/76

U.S. Cl. 197—114

17 Claims

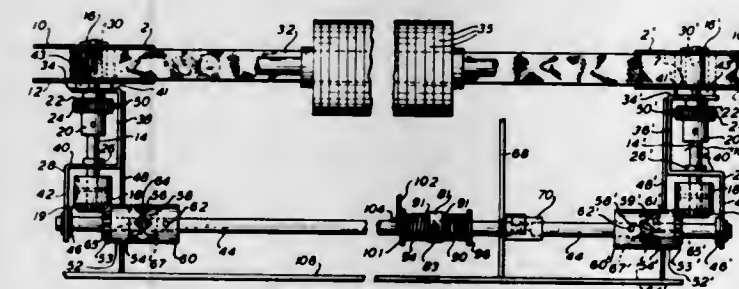


A transporting means for a record carrier is intermittently moved by operating means controlled by two endless cam tracks. Transporting oscillations of the operating means can be blocked by control means so that the operating means performs idle movements during which the record carrier is not transported. In a modified embodiment, the transporting means include a gear and a printing roller mounted on a rocking member operated by an endless cam track, and data imprinted on a record carrier can be read due to the turning of the transporting means.

3,602,356
RIBBON REVERSING MECHANISM
James W. Dodsworth, Mount Tabor, N.J., assignor to Litton Business Systems, Inc., Orange, N.J.
Filed Jan. 15, 1968, Ser. No. 697,701
Int. Cl. B41j 33/46, 33/44

U.S. Cl. 197—162

11 Claims



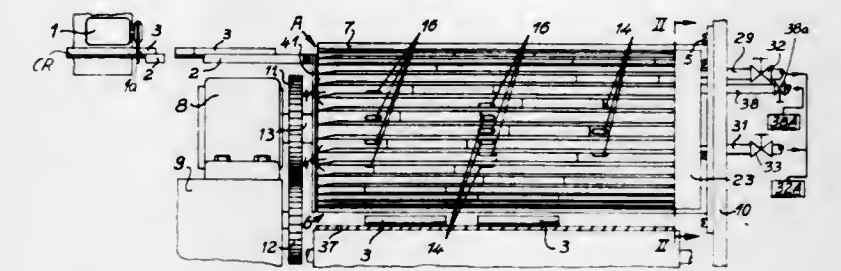
A ribbon reversing mechanism operable by ribbon tension for alternatively winding a ribbon around one spool and then the other spool in a typical two spool ribbon winding mechanism such as employed on typewriters, calculators, etc. The reversing means for operating one spool or the other comprises a shiftable drive member which is shifted by two cam operated clutches, each of which also transmits the drive to one of the spools. The clutches are so arranged that as one starts to become disengaged, the other simultaneously starts to become engaged. Thus there is no intermediate position when neither spool is engaged to the drive.

3,602,357
APPARATUS FOR TRANSPORTING ROD-SHAPED ARTICLES

Bernhard Schubert, Schaferholz, Germany, assignor to Hauni-Werke Korber & Co. K.G., Hamburg-Bergedorf, Germany
Filed Feb. 26, 1969, Ser. No. 802,463
Claims priority, application Great Britain, Mar. 1, 1968, Dec. 3, 1968, 10047/68; 57341/68
Int. Cl. B65g 47/26

U.S. Cl. 198—31 AA

20 Claims

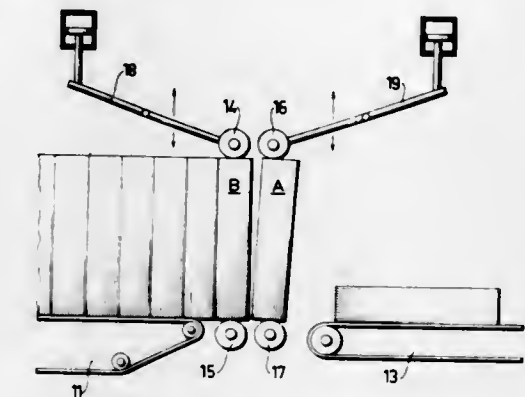


Apparatus for converting a single row of cigarettes, filter rod sections or like rod-shaped articles into one or more files of articles which move sideways comprises a rotary drum having flutes which are sealed from the atmosphere during travel past and beyond the station where the articles of the row enter successive flutes. The articles in the flutes are braked by mechanical or pneumatic means to come to rest in first regions of the respective flutes and are thereupon shifted lengthwise by pneumatic means, in and/or counter to the direction of travel during entry into the flutes, to assume final positions in which they form one or more files of articles moving sideways.

3,602,358
METHOD AND APPARATUS FOR SEPARATING STEAM-CURED AERATED CONCRETE UNITS
Per Ake Henning Jakobsson, Orebro, Sweden, assignor to Intong Aktiebolag, Hallabrottet, Sweden
Filed June 30, 1969, Ser. No. 837,847
Claims priority, application Sweden, July 1, 1968, 9029/68
Int. Cl. B65g 37/00

U.S. Cl. 198—33 AD

10 Claims



A method and an apparatus for separating steam-cured aerated concrete units, already divided before curing, the separating of the units being performed between two pair of rollers arranged one after the other and having different peripheral speeds.

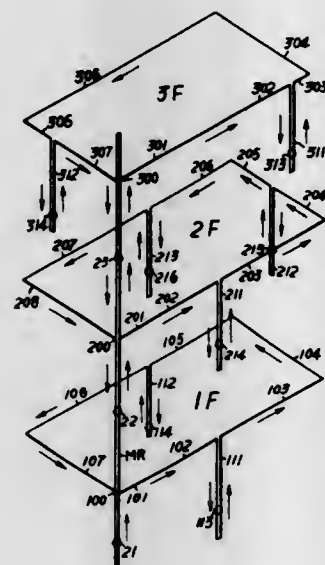
3,602,359
CONVEYOR SYSTEM
Masami Miya, and Koichi Fukuda, both of Tokyo, Japan, assignors to Nepon Kabushiki Kaisha (Nepon Co., Ltd.), Tokyo, Japan
Filed Sept. 22, 1969, Ser. No. 859,895
Claims priority, application Japan, Mar. 29, 1969, Mar. 29, 1969, 44/23,593; 44/27,537
Int. Cl. B65g 17/46, 43/08

U.S. Cl. 198—38

12 Claims

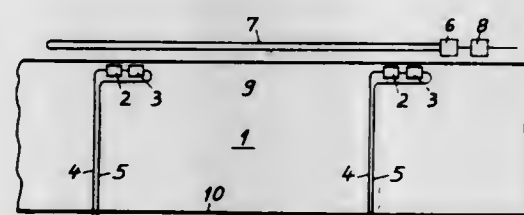
A conveyor system for conveying documents or the like in a building or the like provided with a master vertical route

having a vertically arranged endless master belt, and branched routes as many as floors, comprising many conventional horizontal endless belts and many vertically arranged endless secondary belts similar to the master belt. A conveying box is adapted to be carried from a station in any floor by the vertically arranged endless belt by the action of the magnetism and conventionally horizontally and removed auto-



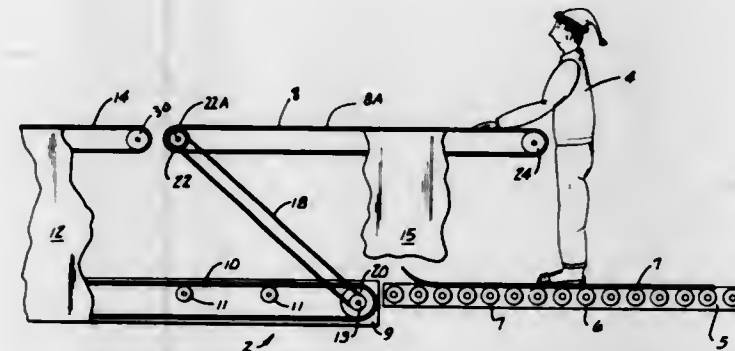
matically from the system at an appointed removing station in an appointed floor by virtue of the action of the magnetism in a different manner from the above action. A destination selecting means is provided in the conveying box and adapted to cooperate with selecting means provided in the vertical routes. A reversing means is provided under the lowermost reversing end of the vertically arranged endless belt.

3,602,360
DAMAGE CONTROL ARRANGEMENT FOR CONVEYOR BELTS
Benjamin Halbach, Cologne, Nippes, and Karl-Hans Heinen, Cologne, Riehl, both of, Germany, assignors to Clouth Gummiwerke Aktiengesellschaft, Cologne, Germany
Filed Dec. 10, 1969, Ser. No. 883,792
Claims priority, application Germany, Dec. 11, 1968, P 18 13 861.9
Int. Cl. B65g 43/02
U.S. Cl. 198—40 15 Claims



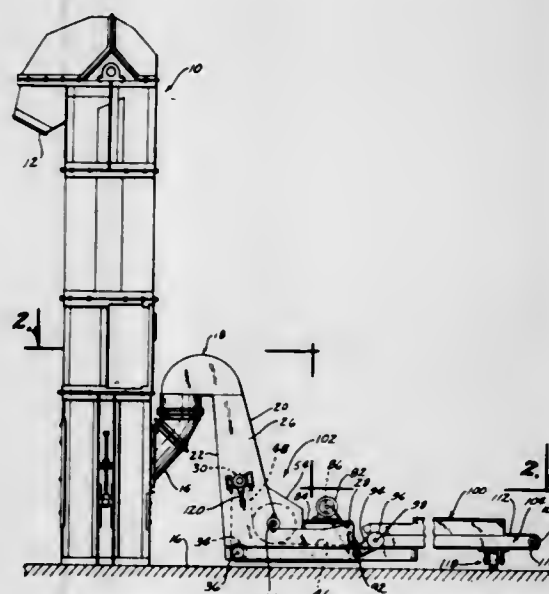
An elongated conveyor belt of electrically nonconductive material has embedded therein electrically conductive inserts including at least one pair of electrical conductors extending over substantially the entire width of the belt and constituting an open circuit or an open induction loop, with the conductors being arranged so closely adjacent one another as to make contact if a breach occurs in the structural integrity of the belt. Impulse generating means, impulse receiving means and a source of electrical energy are provided and are operative for generating a signal indicating a breach in cooperation with the conductors when the latter contact one another.

3,602,361
SKI TOW
Arthur G. Cheronis, 13215 Allisonville Road, Noblesville, Ind.
Filed June 27, 1969, Ser. No. 837,059
Int. Cl. B65g 37/00
U.S. Cl. 198—103 7 Claims



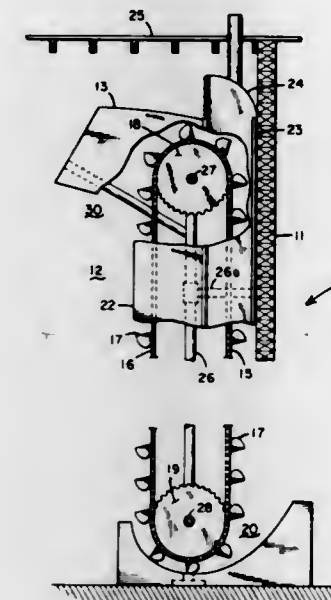
A ski tow arrangement having a start up section wherein a skier is gradually brought up to the speed of the tow. The start up section generally comprises a roller bearing section above which extend a pair of moving handrails. By gripping the moving handrails while standing on the roller bearing section a skier is brought up to the speed of the tow. The roller bearing section is adjacent a conveyor belt type tow. The conveyor belt tow and the moving handrail move at approximately the same speed. A second roller bearing section is positioned adjacent to the opposite end of the conveyor belt tow to aid in the exiting of a skier from the tow. The tow can be covered by a hood to protect the tow and skier from the weather.

3,602,362
CONVEYOR MEANS
Bernard E. Jacobson, Cedar Falls, Iowa, assignor to Universal, Inc., Hudson, Iowa
Filed Dec. 11, 1967, Ser. No. 689,500
Int. Cl. B65g 31/02
U.S. Cl. 198—128 5 Claims



A conveyor of the slinger type for transferring material such as grain or the like from a truck, wagon or the like to a vertical bucket elevator. The slinger conveyor includes a horizontal belt portion and an upward curved belt portion extending therefrom. The material to be conveyed is deposited on the horizontal belt portion and is accelerated therealong. The material attains substantially full belt speed as it reaches the upward curved portion due to the centrifugal force pressing it to the conveyor belt surface. The incline of the upward curved portion and the high conveyor belt speed directs and projects the material upwardly into a hood which in turn directs the material into the bucket elevator intake hopper.

3,602,363
GRAIN ELEVATOR TELESCOPING HEAD
Wallace M. Smith, 6107 Valewood Drive, Minnetonka, Minn.
Filed Dec. 12, 1969, Ser. No. 884,501
Int. Cl. B65g 17/12
U.S. Cl. 198—140 5 Claims

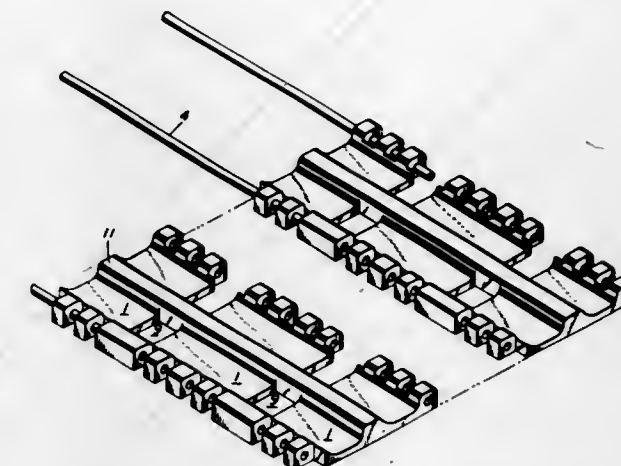


A grain elevator system for an elevator which includes a crib means defining an elongated elevator enclosure with a delivery head disposed at the upper end thereof, an elevator disposed within the crib enclosure including a bucket elevator system having a foot pulley journaled for rotation on a foot shaft, a head pulley journaled for rotation on a head shaft, and a continuous belt means arranged therebetween and supporting a plurality of buckets therealong, the elevator including an integral head enclosure means having a grain discharge end and a throat receiving end along with means for supporting the head shaft. The system further includes throat means secured to the crib enclosure defining an enclosure for the bucket elevator system, the throat means being secured to the elongated sides of the crib enclosure and having a throat opening at the upper end thereof. The throat is slidably coupled to an opening formed in the throat receiving end of the elevator head enclosure means in order to accommodate relative motion between the throat means and the head enclosure means. An extension is formed on the upper end of the throat, the extension having an opening therein extending upwardly from the opening formed in the throat receiving end of the head enclosure means, this throat opening having laterally disposed guide means spanning an opening formed in the throat and arranged to accommodate telescoping motion relative to the head enclosure means. A collapsible baffle means is provided which extends across the opening formed in the extension, the baffle means comprising a plurality of elongated integral plates, each plate being linked to its next lower neighbor to form a closure over the opening in said throat extension, with each of the integral plates being adapted to fall freely from its next lower neighbor when free from the laterally disposed guide means.

3,602,364
SEGMENTED BELT
Ralph A. Maglio, Westhampton, and Donald N. Russell, Easthampton, both of, Mass., assignors to J. P. Stevens & Co., Inc., New York, N.Y.
Filed July 22, 1969, Ser. No. 843,595
Int. Cl. B65g 15/30; B62d 55/08
U.S. Cl. 198—193 16 Claims

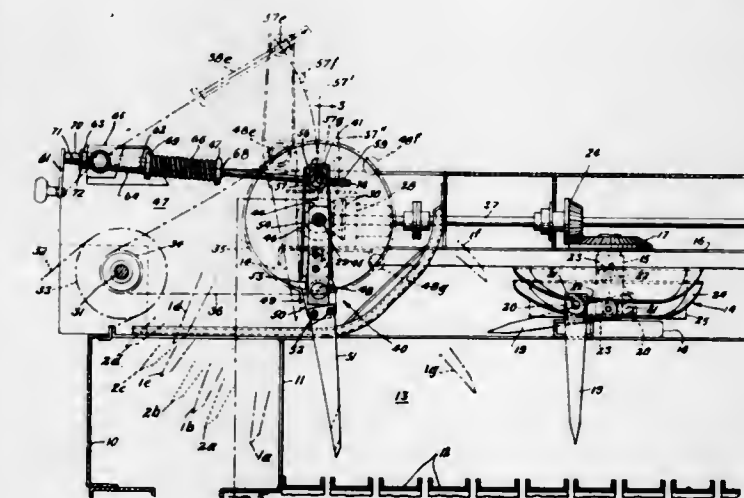
A flexible belt formed of hinged segments with two or more segments and preferably separated by spaces. The belt is formed of a suitable plastic, such as an elastomer of the polyurethane type. On one side of each segment there are short integral hollow cylinders and mating cylinders on the other side. When two units are placed together the hollow cylinder portions meet to form a substantially complete cylinder in the same manner as a series of hollow cylinders in a hinge for a door. A pin, such as a more or less rigid nylon

pin, is passed through the cylinders of the units to form a hinged structure, and this is repeated until endless flexible belts are produced. The units have flat surfaces abutting opposite flat surfaces at the joint, which prevents the hinge opening any substantial amount. The belts are principally



useful as snowmobile treads but are also effective for power transmission or for conveyors. The belts are provided with suitable openings or projections which can engage pulleys or sprockets for drive purposes. Some flexibility in each unit is necessary to give the desired belt contour.

3,602,365
BALE SHAPE ADJUSTING MECHANISM
Raymond E. Fisher, Reedley, Calif., and Harry C. Eberly, Narvon, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Oct. 16, 1969, Ser. No. 866,925
Int. Cl. A01f 15/10
U.S. Cl. 198—223 6 Claims

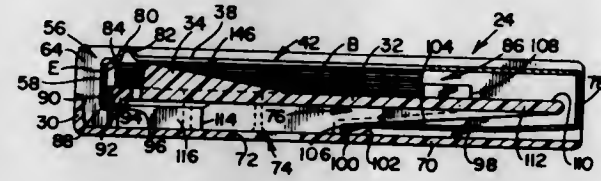


Mechanism for adjusting the packer fingers or forks of a pickup baler having a feed unit for delivering crop material to a set of packer fingers which convey material into the bale chamber. Adjustment of the packer fingers is accomplished by a handle or crank located for convenient access by an operator.

3,602,366
BLADE DISPENSER
Jan Dawidowicz, Fairfield, Conn., assignor to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.
Filed June 2, 1969, Ser. No. 829,646
Int. Cl. A45c 11/00; B65d 83/10, 85/62
U.S. Cl. 206—16 BC 12 Claims

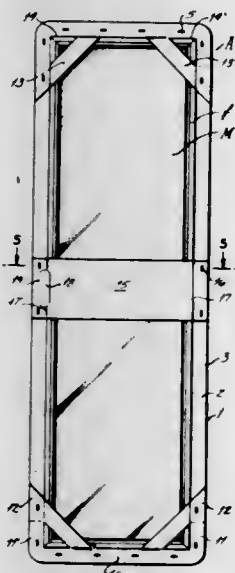
A two-piece dispenser for dispensing double-edge blades of the centrally apertured type, one piece comprising a body having a pair of generally vertically extending sidewalls, a bottom wall portion extending transversely between the

sidewalls and joining them together, a used blade aperture in the bottom wall, an intermediate wall portion extending between the sidewalls and disposed above and spaced apart from the bottom wall portion, and resiliently mounted blade guide means attached to and forming a part of the intermediate wall portion, and the other piece being a cover unit including means for holding a stack of blades between a portion of its inner surface and the top surface of the intermediate wall, an aperture in one end thereof for allowing



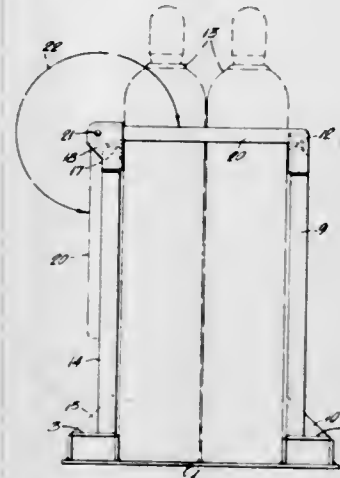
disposing of one blade at a time from a stack of blades supported on the top of the intermediate wall, and means on the other end thereof for forming one end wall portion of a used blade compartment defined by the sidewalls, the bottom wall and the intermediate wall. The improved dispenser of the invention is constructed and arranged so that the parts thereof may be formed with maximum economy and simplicity, so that loading and assembling of the dispenser is simplified, and so that once assembled, the dispenser is not easily disassembled.

3,602,367
MIRROR PACKAGE
Bernard Nathan, and Gary L. Tate, both of Vincennes, Ind., assignors to Hamilton of Indiana, Inc., Vincennes, Ind.
Filed July 9, 1969, Ser. No. 840,344
Int. Cl. B65d 65/10, 85/48
U.S. Cl. 206—62 R 7 Claims



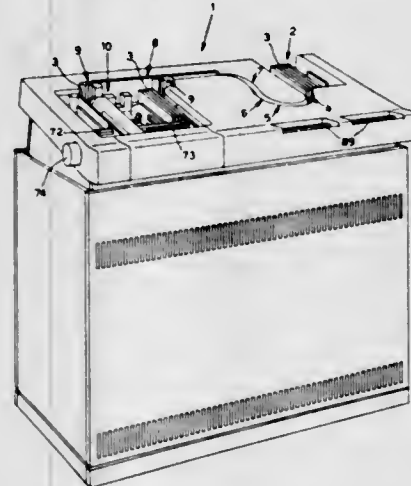
A mirror package comprising a flat body fabricated of corrugated paper or the like having a length and transverse extent greater than the mirror to be centeredly disposed on one face thereof so as to create a border or surround; a spacer and a retaining member being registering mounted at each end of said body for creating a recess to accept the end portion of the mirror and having constraining arms extending diagonally across corner portions of said mirror. A centrally disposed strap-forming band extending across the intermediate zone of the mirror with said band, at its end portions, being secured to confronting zones of said border; the said spacers, retainers, and transverse band being constructed from the same blank as said body.

3,602,368
PALLET FOR GAS CYLINDERS AND THE LIKE
Robert H. Gould, Clifton Heights, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
Filed Sept. 19, 1969, Ser. No. 859,268
Int. Cl. B65d 19/10
U.S. Cl. 206—65 R 12 Claims



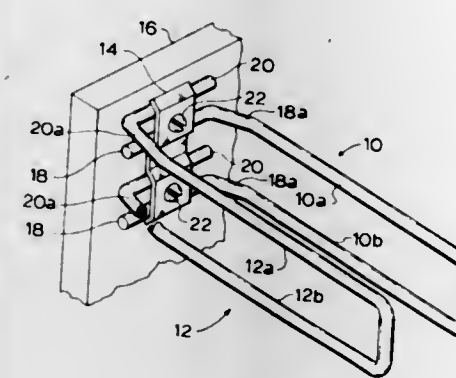
A pallet suitable for supporting and transporting gas cylinders or like articles includes a baseplate (for supporting the articles) and, on top of this baseplate, a pair of tunnels for receiving the tines of a forklift truck plus a pair of upstanding frameworks at respective opposite sides of the plate, for stabilizing the upper ends of the elongated articles.

3,602,369
APPARATUS FOR AUTOMATICALLY READING AND SORTING DOCUMENTS
Francesco Bernardis, Ivrea, Italy, assignor to Ing. C. Olivetti & C. S.p.A., Ivrea (Torino), Italy
Filed July 22, 1969, Ser. No. 843,578
Int. Cl. B07c 3/10
U.S. Cl. 209—73 5 Claims



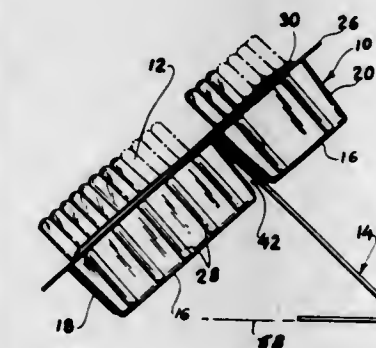
An apparatus for the automatic reading and sorting of documents carrying readable data printed thereon. A feed device consisting of a stripping belt frictionally engages one face of the document which is at the front of a bundle of documents located on an oscillating platform for removing the front document from the bundle, and a rejection band frictionally engages the other face of the separated document to hold back the superposed documents when more than one document is separated from the bundle. The stripped documents are then conveyed along an accelerating and aligning path, where cooperating rollers urge the documents into contact with an aligning surface, the spindles of these rollers having normally an oblique position which can be varied manually by the operator. Subsequently the documents are fed past a reading head, which on the basis of the data picked up from each document controls a sorting means for routing the documents into different collecting pockets.

3,602,370
DISPLAY RACK
Nikolaus A. Jerch, and Rudolf Koppe, Streetsville, Ontario, Canada, assignors to Ru-Ko of Canada Limited, Streetsville, Ontario, Canada
Filed Feb. 5, 1970, Ser. No. 8,946
Int. Cl. A47f 7/00
U.S. Cl. 211—49 10 Claims



An adjustable display rack for gripping knife handles and displaying the knives in single file order comprising two confronting grippers each formed of a single length of resilient wire formed into two parallel elongated interconnected gripping surfaces and 2 feet. The feet of each gripper are releasably secured to a backboard by a clip permitting adjustment of the lateral spacing between the grippers and the feet are offset from the gripping surfaces in each gripper whereby the feet may be mounted in side-by-side relation on the backboard with the grippers level with one another.

3,602,371
EASEL TRAY FOR TEST TUBES
Benjamin F. Weiner, North Bellmore, and Robert A. Munzer, Freeport, both of N.Y., assignors to Chase Instruments Corporation, Lindenhurst, N.Y.
Filed Aug. 19, 1969, Ser. No. 851,237
Int. Cl. B65d 81/36; B011 9/06; A47f 7/03
U.S. Cl. 211—74 5 Claims

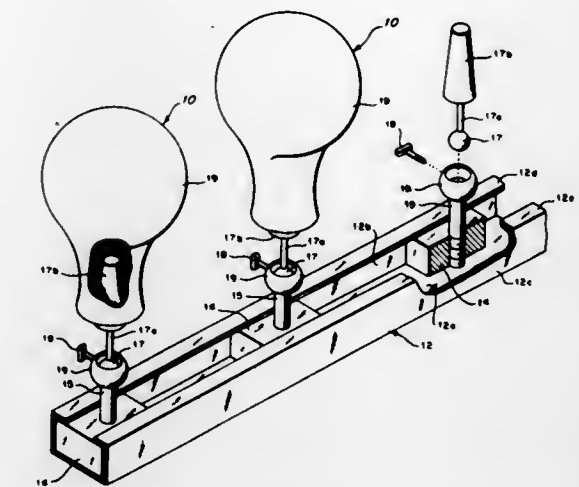


A multicompartmented test tube with separable easel support having a hollow partition between tray compartments. The partition is open at the bottom of the tray to form a socket which receives an easel support.

3,602,372
DISPLAY RACK
John J. Verrecchio, 12016 Salina Place, Philadelphia, Pa.
Filed Oct. 13, 1969, Ser. No. 865,787
Int. Cl. A47f 5/08 8 Claims

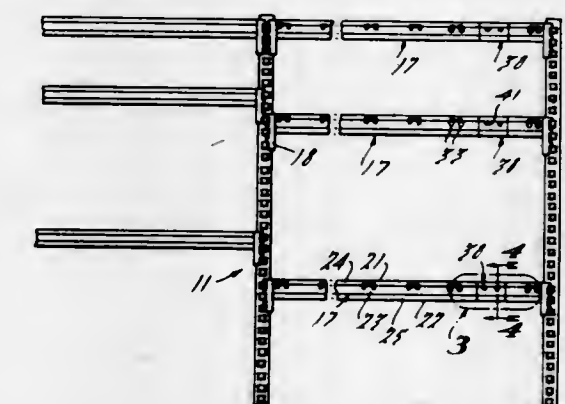
A support rack for either displaying wigs, falls, wiglets, demiwigs, toupees and other wearing apparel including a plu-

rality of adjustable head block support stands movably mounted in a C-shaped channel member. A clamp assembly



at each end of said channel member for securing said channel member between any two walls.

3,602,373
METHOD AND MEANS FOR CONSTRUCTING AND CHANGING LENGTH OF STORAGE RACK BEAMS
Harrison H. Cassel, Royal Oak, Mich., assignor to Palmer-Shile Company, Detroit, Mich.
Filed Aug. 30, 1968, Ser. No. 756,667
Int. Cl. A47f 5/10; F16b 7/00
U.S. Cl. 211—175 2 Claims

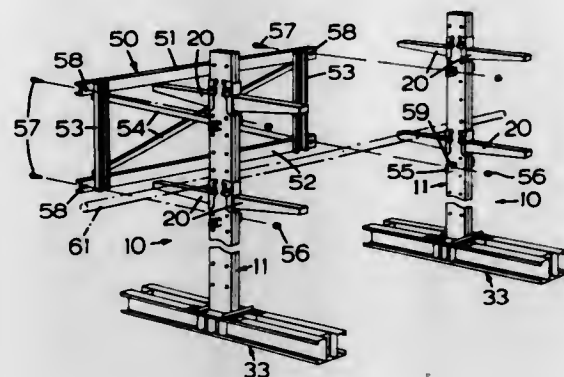


An adjustable storage rack having slotted beam-connected columns forming bays. The length of the beams may be changed by cutting them and inserting an overlapping splice member bolted to both sides, a filler piece also being used if the beams are being lengthened. As a variation, beams may be constructed with two standard size end sections, two splice members, and a center section which varies in length according to the bay width desired.

3,602,374
CANTILEVER RACK
Leonard F. P. Alabaster, Georgetown, Ontario, Canada, assignor to Westeel-Rosco Limited, Toronto, Ontario, Canada
Filed Apr. 4, 1969, Ser. No. 813,630
Int. Cl. A47f 5/10; E04g 3/08 10 Claims

A cantilever rack including a column of rectangular cross section, two opposed, substantially parallel sidewalls of which are each formed with a series of vertically spaced apertures. The apertures formed in one of the sidewalls are each in alignment with one of the apertures formed in the opposed sidewall with a pin slidably inserted through a selected one of the pairs of aligned apertures and through holes formed in bearing washers which are disposed a spaced distance from each of the apertured sidewalls of the column, a channel-shaped connection bracket embracing the column with the flange portions of the bracket disposed between the bearing

washers and the apertured sidewalls of the column and the pins passing, as a clearance fit, through openings formed in these flange portions of the bracket. The flange portions of the bracket present outwardly directed, reflexly bent edge portions which bear against bearing edge faces presented by the washers, these reflexly bent edge portions and bearing edge faces being inclined, in a downward direction, away



from the web portion of the connection bracket so that loading on a load supporting arm, which projects from the web portion of the bracket, urges the web portion against the column by downward movement of the reflexly bent edge portions relative to the bearing edge faces, during which movement the pin continues to pass as a clearance fit through the openings in the flange portions of the bracket.

3,602,375

PIGGYBACK LOAD HANDLING CRANE

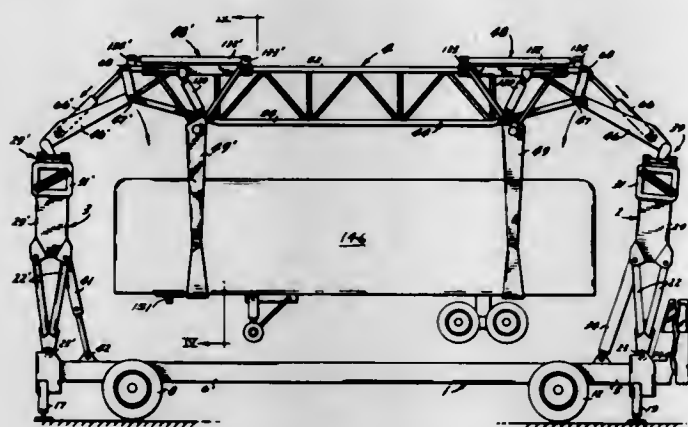
Edwin O. Martinson, Milwaukee, Wis., assignor to Koehring Company, Milwaukee, Wis.

Filed Feb. 10, 1969, Ser. No. 797,757

Int. Cl. B66c 5/02

U.S. Cl. 212-14

2 Claims



A crane for transferring a semitrailer, cargo container, or other piggyback load from the road to a rail car, and vice versa, is equipped with parallel horizontal tracks and a load suspension system which is shiftable bodily back and forth on the tracks between the road side and the rail side of the crane. The load suspension system comprises a pair of back and forth movable carriages on the tracks, a load supporting truss between the carriages, and lift arms pivoted on the opposite ends of the truss and bearing at their free ends upon the carriages.

3,602,376

SELF-UNLOADING SKID

Gene DePiano, 2655 Risa Drive, Glendale, Calif.

Filed Jan. 2, 1970, Ser. No. 205

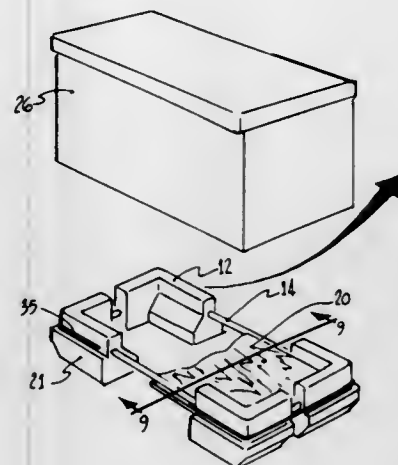
Int. Cl. F16m 13/00

U.S. Cl. 214-1 R

2 Claims

A self-unloading skid for shipment of fragile or sturdy units with casters or legs, the units may be electronic or mechanical or electromechanical, such as computer systems, consoles

for space programs etc. The self-unloading skid includes four shock mitigating corner feet, each foot has an inclined surface that the unit rests on. The corner feet are joined by connecting rods and secured circumferentially with a strap.



Upon receiving a unit packed on the self unloading skid, the strap is loosened, the corner feet slide horizontally due to the weight of the unit on the inclined surface, thus lowering the unit to its casters or legs.

3,602,377

HOOK TYPE PALLET OR TRAY UNSTACKER

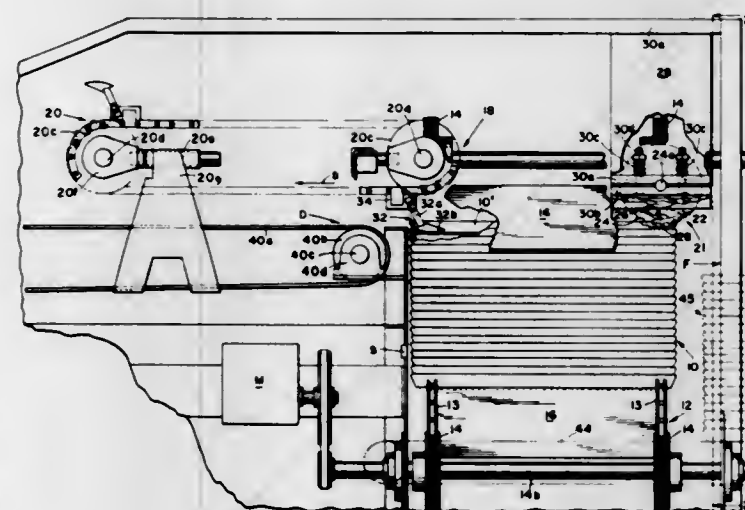
Dewitt Sims, Saginaw, Mich., assignor to Baker Perkins, Inc., Saginaw, Mich.

Filed Feb. 19, 1969, Ser. No. 800,913

Int. Cl. B65g 59/10

U.S. Cl. 214-8.5 A

21 Claims



A hook-type container pallet unstacker and method for sequentially removing pallets individually from a stack of pallets wherein the pallets are removed one by one by initially lifting only one side of the uppermost pallet in the stack to a position clearing the like side of the next uppermost pallet prior to moving the uppermost pallet laterally. A conveyor is provided to laterally move the pallet after it has been lifted and the pallet is unloaded on a second conveyor which is driven at a higher lineal speed than the lineal speed of the first conveyor. The stack of pallets is then indexed upwardly by an elevating mechanism in response to removal of the uppermost tray after which the next tray is similarly removed.

3,602,378

ARTICLE FEEDING APPARATUS

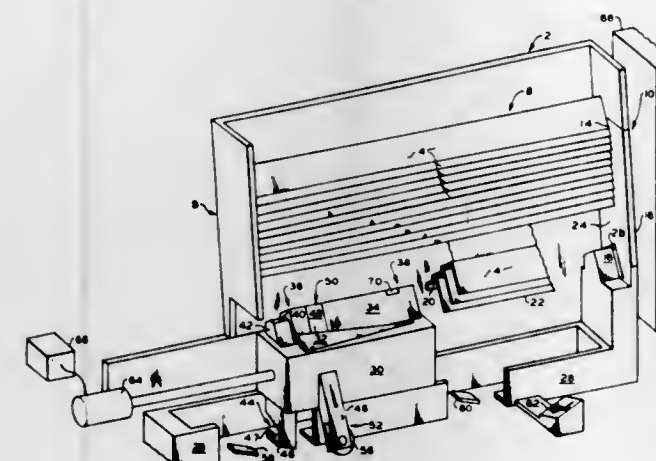
James K. Thompson, Kansas City, Mo., assignor to Phillips Petroleum Company

Filed Nov. 10, 1969, Ser. No. 875,170

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 A

7 Claims



An apparatus having a movable shuttle with a movable slicing block and separating means for separately and individually removing an article from an article stack.

3,602,379

MATERIALS HANDLING DEVICE

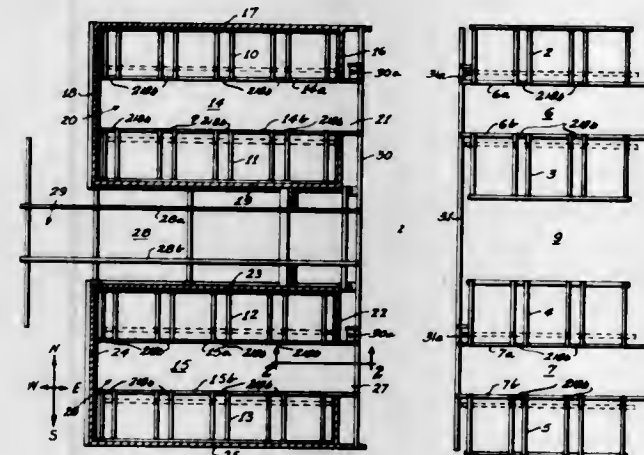
Wilbert A. W. Bosse, Cincinnati, Ohio, assignor to The Crosset Company Inc., Cincinnati, Ohio

Filed June 26, 1969, Ser. No. 836,802

Int. Cl. B65g 1/06

U.S. Cl. 214-16.4 B

8 Claims



A materials handling device for depositing and removing materials from storage means. The storage means comprise a plurality of superposed racks or the like arranged in parallel rows with access aisles therebetween and at least one transfer aisle extending transversely of the access aisles. The device comprises a carriage movably supported on elevated rails extending along the transfer aisle. The carriage carries a stacker assembly capable of leaving the carriage and traveling along elevated rails in the access aisles. The stacker assembly comprises elevator means having an extensible dolly capable of being inserted into any of the racks on either side of any of the access aisles at any vertical level above or below the elevated rails in the access aisles.

3,602,380

MATERIAL DISPENSING APPARATUS HAVING A TAPERED BIN WITH BOTTOM SCREWS AND MATERIAL SUPPORTING AGITATORS

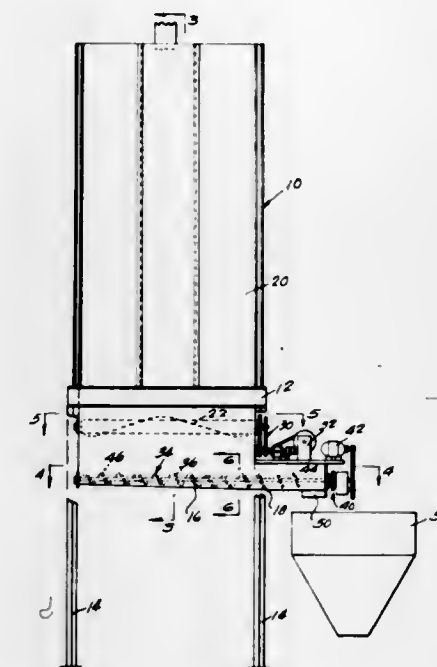
Godfrey M. Spencer, Topeka, Kans., assignor to Ernest-Spencer Engineering Company, Topeka, Kans.

Filed Nov. 29, 1968, Ser. No. 779,798

Int. Cl. A01f 25/00

U.S. Cl. 214-17

6 Claims



A material dispensing machine that is provided with a storage bin to receive moist feed and the like with agitator means in the lower portion of the bin to prevent the moist material from bridging or hanging up, and a plurality of screw feed means disposed below said agitator means for conveying the material from the bottom of the bin to a weight hopper and the like.

3,602,381

LOAD-LIFTING TAILGATE

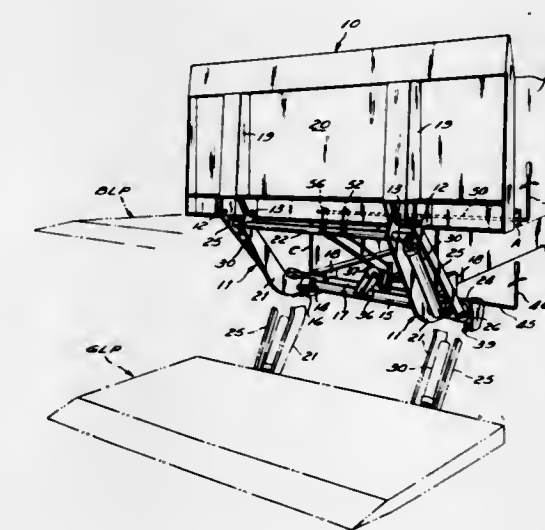
Harrie Arthur Size, Torrance, Calif., and Norman J. Glomski, Bowling Green, Ohio, assignors to Daybrook-Ottawa Corporation

Filed Oct. 27, 1969, Ser. No. 870,656

Int. Cl. B60p 1/48

U.S. Cl. 214-77 P

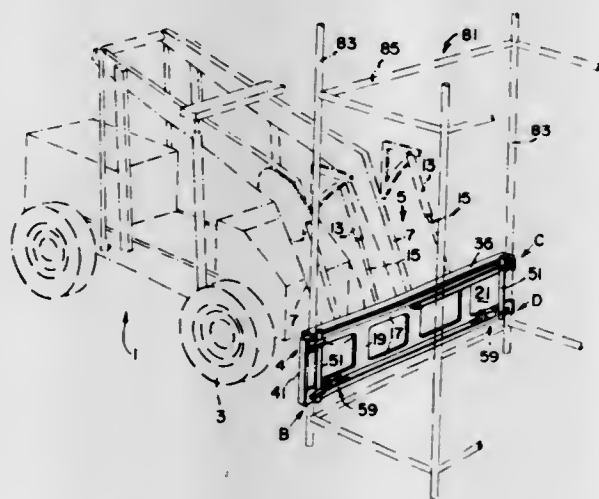
11 Claims



Mechanism permitting a tailgate structure for opening and closing a truck body to also lift and lower loads between the truck bed level and ground. A parallelogrammatic linkage, powered by means for extending or contracting a diagonal of it, provides essentially level movement from ground to truck bed height when the structure is to function as a load lifting

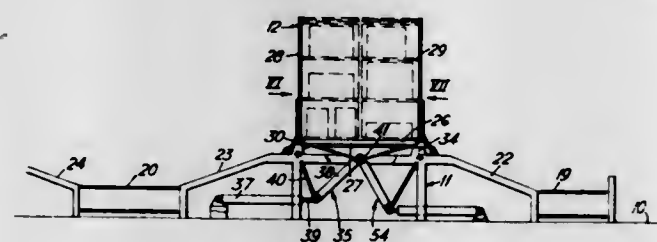
or lowering platform but, upon holding one arm of the linkage, can cause the structure to swing from a relatively horizontal load-platform position at truck bed height to vertical position where the structure functions as a tailgate. An interlock prevents actuation of the mechanism to move the structure to or from its tailgate position unless the said arm is securely held.

3,602,382
SCAFFOLD ERECTOR
Elwin W. Anderson, Seattle, Wash., assignor to Peter Kiewit Sons Co., Omaha, Nebr.
Filed Mar. 10, 1969, Ser. No. 805,678
Int. Cl. B66f 9/14
U.S. Cl. 214—147 G



Apparatus for erecting scaffolding, or tubular falsework, from the bottom up and for stripping same from the bottom down, and for moving tubular falsework, or scaffold, from one site to another, the apparatus comprising an attachment for mounting on the mast, or lifting portion of a forklift truck. The attachment comprises a stationary frame mounted on the lifting portion of the forklift truck, upon which is laterally slidable a gripping jaw support which mounts gripping jaws at each end thereof, the jaws being pivotally mounted for adjustment to grip and removably hold the scaffold being operated upon.

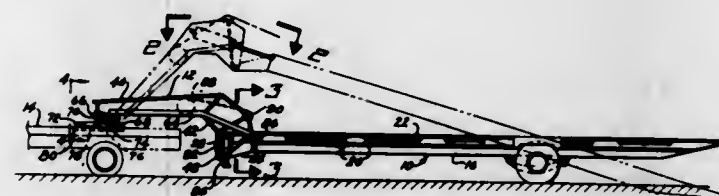
3,602,383
APPARATUS FOR UNLOADING BAGGAGE FROM CONTAINERS
Graham Howat, Flat 3, Longlow House, South Road, Buckinghamshire, Amersham, England
Filed Dec. 8, 1969, Ser. No. 883,057
Claims priority, application Great Britain, Dec. 10, 1968, 58581
Int. Cl. B65g 65/34
U.S. Cl. 214—307



In large aircraft pieces of baggage are carried in containers which must be unloaded on arrival. The invention consists in apparatus for mechanically unloading the containers. This apparatus includes an open-ended channel into which baggage containers are introduced and clamped, and means for rocking the channel as a whole about a horizontal axis to bring a sidewall onto a sloping support, and then rocking back the channel and container but not the sidewall, so that

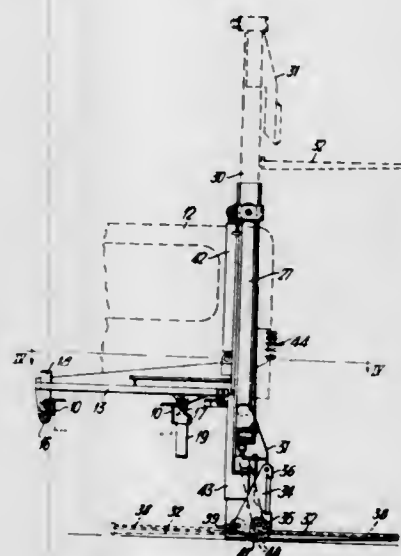
the baggage slides out under gravity over the sloping sidewall.

3,602,384
TRAINED TRUCK-TILTABLE TRAILER VEHICLE
John T. Warren, 116 S. Main St., Bluffton, Ohio
Filed Jan. 2, 1969, Ser. No. 788,539
Int. Cl. B60p 1/28
U.S. Cl. 214—506



A tiltable trailer having a goose neck that is attached to the front end of the bed of a trailer at a point located forwardly and downwardly from the leading edge of the trailer bed. The goose neck abuts the flat bed adjacent its front leading edge, and actuating hydraulic cylinders are housed within the goose neck at generally right angles to the line connecting the hinge and the top portion of the abutment means that is adjacent the leading edge of the bed. Threadways may be provided on opposite sides of the goose neck for supporting the wheels of vehicles on the goose neck portion. The trailer is preferably towed by a flat plate hinged to the front end of the goose neck on a horizontal axis, and the leading edge of which is notched to receive a post projecting vertically from the bed of a flat bed truck. Since only a post projects out of the bed of the truck, the truck can be used for other purposes when the trailer is removed. Landing legs are preferably provided on the goose neck between its hinge, and its abutment with the trailer bed. A winch may also be mounted in the goose neck forwardly of the actuating hydraulic cylinders.

3,602,385
FORK LIFTING APPARATUS
Frederick George Wilson, 49 Hillsborough Old Road Antrim, Lisburn, Northern Ireland
Filed Mar. 3, 1969, Ser. No. 803,695
Claims priority, application Great Britain, Mar. 1, 1968, 9994/68
Int. Cl. B66f 9/20
U.S. Cl. 214—671



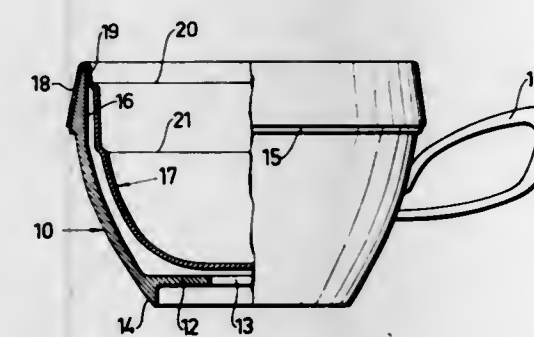
A road vehicle is provided with a forklift assembly located behind the driver's cabin and on the driver's side of the vehicle. The assembly is pivotal about a vehicle pillar between an inboard position and an outboard position. In the outboard position the mast assembly can be extended to raise the forks or fully retracted to lower the forks to ground level. In the in-

board position the mast assembly is partially extended so that the forks overlie the chassis of the vehicle.

The forks are retractable so that the vehicle, with the mast assembly in the outboard position and the forks retracted can be driven alongside a pallet. The forks are extended under the pallet and the assembly extended to raise the pallet and swing it inboard.

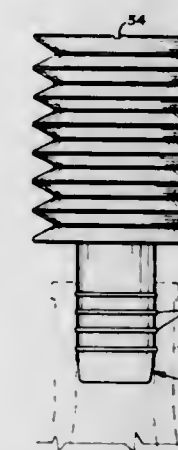
The vehicle is preferably articulated with the forklift assembly mounted in the traction unit, thus allowing the traction unit to more easily load and unload the trailer.

3,602,386
DRINKING VESSEL HAVING EXCHANGEABLE INSERT OR LINING
Gunnar A. Brime, Lund, Sweden, assignor to AB Dixie Cup, Lund, Sweden
Filed Mar. 21, 1969, Ser. No. 809,089
Claims priority, application Sweden, Mar. 22, 1968, 3909/68
Int. Cl. A47j 47/00
U.S. Cl. 215—13



A drinking vessel comprises a rigid cup-shaped body and a lining inserted therein, the lining being formed as a cup with one or more internal shoulders which rigidify the lining, said cup substantially freely depending from the orifice portion adjacent the top edge of said body, which is received in a groove formed by the orifice portion of the lining.

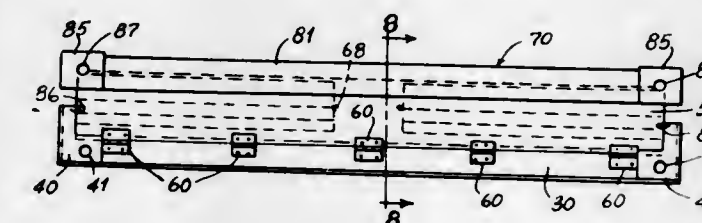
3,602,387
PUMP AND CLOSURE ASSEMBLY
Edmond T. Patnaude, 1 S. 671 Carrol Gate Road, Wheaton, Ill., and Bernard L. Kleinke, 1960 Lincoln Park W., Chicago, Ill.
Filed Jan. 27, 1969, Ser. No. 794,232
Int. Cl. B65d 51/16
U.S. Cl. 215—56



A pump and closure assembly is adapted to be connected to a sealable container over an opening therein to evacuate the container and then automatically seal it, whereby the freshness of the contents of the container can be preserved. In one embodiment, the assembly includes a tubular connector which is adapted to fit snugly into the mouth of the container and which is connected to a bellows pump. The bellows

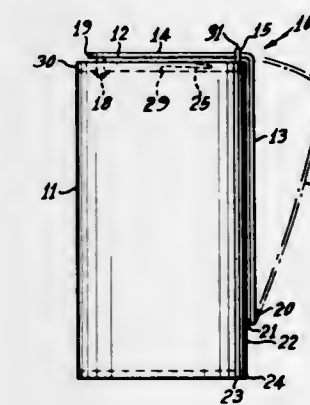
pump can be manually operated to pump air from the container through a one-way valve which permits the air to be withdrawn and then seals the mouth of the container to prevent air from entering the container.

3,602,388
FOLDING ENCLOSURE
Charles H. Hurkamp, 444 Carolwood Lane N. E., Atlanta, Ga.
Filed Mar. 5, 1969, Ser. No. 804,579
Int. Cl. B65d 87/00; B65j 1/02
U.S. Cl. 220—1.5



A folding enclosure has a nonfolding top, a nonfolding base, a left-hand side which has upper and lower panels that can be folded into position between the top and base, has a right-hand side which has upper and lower panels that can be folded into position between the top and base, has a plural-section door at the left-hand side of the front thereof with the upper section thereof hinged to the upper panel of the left-hand side and with the lower section thereof hinged to the lower panel of that left-hand side, has a plural section door at the right-hand side of the front thereof with the upper section thereof hinged to the upper panel of the right-hand side and with the lower section thereof hinged to the lower panel of that right-hand side, and has a multisection closure for the rear end thereof which has the sections thereof hinged to the four panels of the sides. The sections of the plural-section doors and the sections of the multisection closure are pivoted into face-to-face engagements with the inner surfaces of the panels of the sides, and then those sides are folded into position between the top and base to permit the enclosure to fold into a small space.

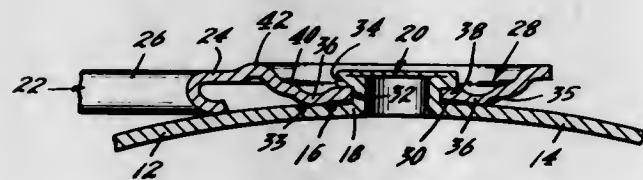
3,602,389
CONTAINER OPENER AND HANDLE ASSEMBLY
David E. Russell, 1606 King St., Jacksonville, Fla., and Tom A. Andresen, M/S "Searward" c/o Norwegian Caribbean Lines, 340 Biscayne Blvd., Miami, Fla.
Filed Jan. 15, 1970, Ser. No. 3,038
Int. Cl. B65d 43/02
U.S. Cl. 220—47



An opener and handle assembly for a container formed by a strap having a vertical portion and horizontal portion, a weld affixing the lower vertical end to the container sidewall remotely and rearwardly of the plug while a rivet connects the forward horizontal end portion to the plug. The vertical portion is graspable by the fingers of the hand and movable away from the container adjacent the top which opens the plug by the force transmitted through the vertical and

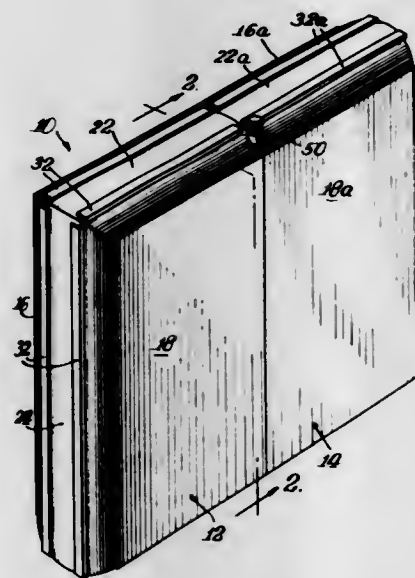
horizontal portions to the rivet and plug. The vertical and horizontal portions form a handle for the container after the plug is opened. A channel member is affixed to the top and guides the horizontal portion during opening movement of the strap. The rivet is releasably connected within an open-ended socket and is slidable therefrom after opening movement of the plug. A spring clip releasably attaches the strap to the channel member upon removal of the rivet from the socket.

3,602,390
OPENING TAB
John Wilson Rouse, Ramsey, N.J., assignor to American Can Company, New York, N.Y.
Filed Dec. 22, 1969, Ser. No. 886,901
Int. Cl. B65d 17/00, 17/20, 17/24
U.S. Cl. 220-54 12 Claims



An opening tab for an easy open container has a depression in one end of the tab with an opening therein for receiving a rivet on a removable panel of the container. The depression has a convex bottom wall comprised of a thinned outer web and a thickened inner washer. The depression further has a sidewall with an annular corrugation. Additionally, there is an annular reinforcement bead around the top outer periphery of the depression.

3,602,391
CRYOGENIC TANK
Vernon N. Tramontini, Indianapolis, Ind., assignor to Stewart-Warner Corporation, Chicago, Ill.
Division of Ser. No. 582,308, Sept. 27, 1966, Pat. No. 3,470,606
Filed Apr. 29, 1969, Ser. No. 832,536
Int. Cl. B65d 7/42
U.S. Cl. 220-71 1 Claim



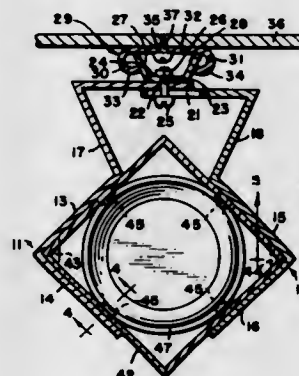
A substantially rectilinear tank for the storage of cryogenic fluids or the like wherein corrugated baffle plates are oriented with respect to each other and to the sideplates of the tank to provide maximum support both for the pressures built up when the container is in use and the pressures exerted on the structure during fabricating processes.

3,602,392
TWIN CELLED CARRIER
Raymond A. Cote, Doraville, Ga., assignor to Riegel Paper Company, New York, N.Y.
Filed Jan. 7, 1969, Ser. No. 789,469
Int. Cl. B65d 75/00
U.S. Cl. 220-111 4 Claims



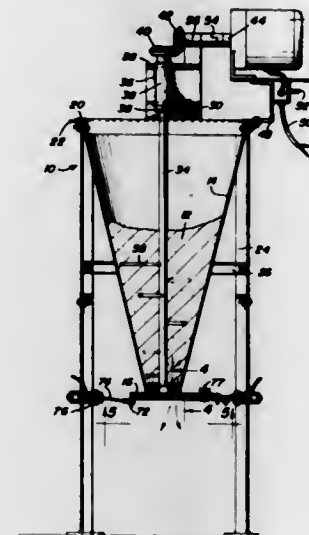
The invention herein relates to a double-celled bottle carrier in which the cells have hexagonal cross sections and are separated by an integral divider spine. The carrier of the invention is erected from a collapsed tube and includes a centrally hinged two-ply longitudinal panel which spans the cells and interlocks with the divider spine to form the carton bottom.

3,602,393
CLAMP MEANS FOR HOLDING RECEPTACLE DISPENSER CARTONS
Leonard F. Hughes, Baltimore, Md., assignor to Maryland Cup Corporation, Owings Mills, Md.
Filed Oct. 3, 1969, Ser. No. 863,444
Int. Cl. B65h 1/00
U.S. Cl. 221-63 4 Claims



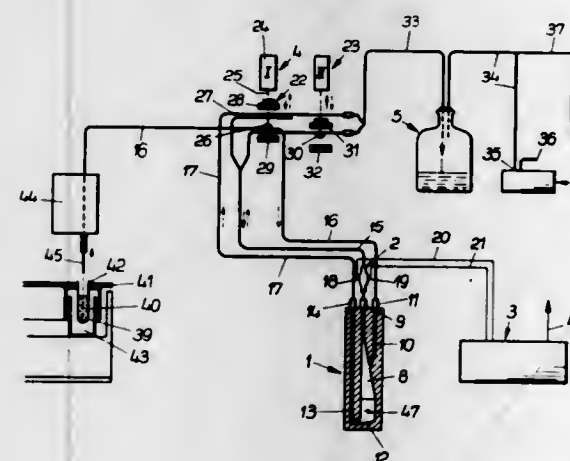
A dispenser for a nested stack of receptacles, such as drinking cups, comprises a pair of adjustable coacting clamp members for holding a carton of the nested stack at diagonally opposite corners of the carton. Means are provided for mounting the clamp members on a wall bracket. The clamp members each comprise angular sections of a vertical plate and tapered embossments on inner surfaces of the sections to act as detents for removing the receptacles one by one. Horizontal abutments are also carried by the plates above their lower edges for engaging the bottom of the carton, whereby the stack drops below the carton onto the detents and the lower portion of the stack becomes visible to indicate when refilling is necessary.

3,602,394
DISPENSER FOR SILAGE ADDITIVE
Thomas F. McCune, Cloverdale, Va.
Filed June 27, 1969, Ser. No. 837,160
Int. Cl. B67d 5/22
U.S. Cl. 222-43 11 Claims



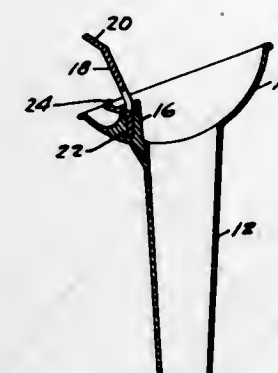
A conical hopper supported with the small lower end in overlying relation to a flow path of conveyed silage with a motor powered shaft oriented vertically therein and a horizontal plate having predetermined size openings therein forming a gate for the lower end of a hopper. The shaft is provided with agitating rods and an axially extending brush arrangement in overlying engagement with the lower end of the hopper in engagement with the bottom surface of the hopper to retain the discharge aperture therein free of material to avoid clogging.

3,602,395
ALTERNATE FILLING AND EMPTYING DEVICE
Hans F. W. Krech, Melsungen, Germany, assignor to Firma B. Braun, Melsungen, Germany
Filed Nov. 7, 1969, Ser. No. 874,795
Claims priority, application Germany, Nov. 7, 1968, P 18 07 557.5
Int. Cl. B67d 5/08
U.S. Cl. 222-64 6 Claims



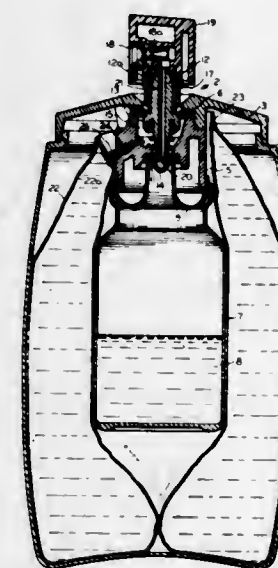
An alternate filling and emptying device of a flow cuvette having filling, suction and discharge openings and a vacuum vessel with a discharge line. Electrode paths scan the state of filling and a control instrument is attached to the electrodes so that the control instrument will be operative in dependence on information from the electrode path dependent on a control program.

3,602,396
COMBINATION FUNNEL AND CAN OPENER
Thomas A. Oates, Santa Rosa, Calif., assignor to Speed-Eez, Inc., Santa Rosa, Calif.
Filed May 2, 1969, Ser. No. 821,332
Int. Cl. B67b 7/26
U.S. Cl. 222-88 2 Claims



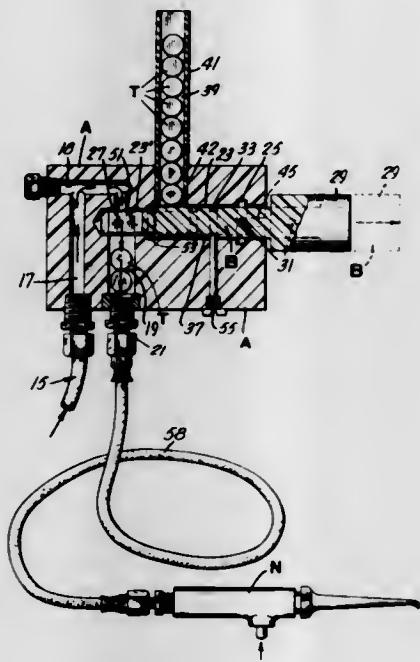
A one-piece funnel having a bowl portion and a hollow spout portion projecting therefrom, an integral boss on the interior of said bowl portion adjacent said spout portion and an opener blade having its base embedded in said boss, said opener having a hook portion formed adjacent said boss for engagement with the rim of a can to be opened.

3,602,397
FILLING AND EMPTYING MEANS FOR A FLEXIBLE SAC FOR HOLDING A PRODUCT TO BE DISPENSED
Jean Marand, St. Benoit, France, assignor to Geigy Chemical Corporation, Greenburgh, N.Y.
Filed Apr. 3, 1969, Ser. No. 813,220
Int. Cl. B65d 35/28
U.S. Cl. 222-95 11 Claims



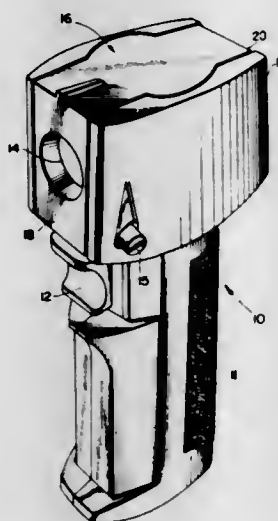
A filling and emptying means for a flexible sac for holding a product to be dispensed. The means comprises a nozzle having a tubular member with a flange on one end. Said tubular member extends through the wall of said flexible sac with said flange in sealing engagement against the inside of the wall of said flexible sac. The tubular member has a bore therethrough and has an outer end portion with a smaller diameter and an inner end portion having a larger diameter and a beveled shoulder between said smaller and larger diameter portions. A body with which the sac is associated has a bore therein having portions for receiving the smaller and larger diameter portions of said tubular member and has a complementary shoulder between said bore portions which is complementary in shape to said tubular member shoulder against which said shoulder is seated for positively positioning said tubular member in said bore. A collar is preferably provided on the end of the tubular member for preventing withdrawal of the tubular member from the bore in the body.

3,602,398
MOUTHWASH DISPENSING APPARATUS
 Geza Pollak, 4060 Cote St. Catherine Road, Montreal,
 Quebec, Canada
 Filed Mar. 4, 1969, Ser. No. 804,178
 Int. Cl. B67d 5/56
 U.S. Cl. 222-133



In a mouthwash apparatus or the like utilizing pressurized tap water and a manually controlled jet nozzle, a combined dispenser for disinfectant tablets or similar charge in which the tablets are dispensed one-by-one through a mixing chamber from the gravity feed of a tubular magazine element and by manipulation of a plunger having one position where the plunger is locked against reciprocation with respect to a mixing chamber intersected by the plunger, and in another position where the plunger can be reciprocated to receive a disinfectant tablet which is subsequently deposited into the mixing chamber.

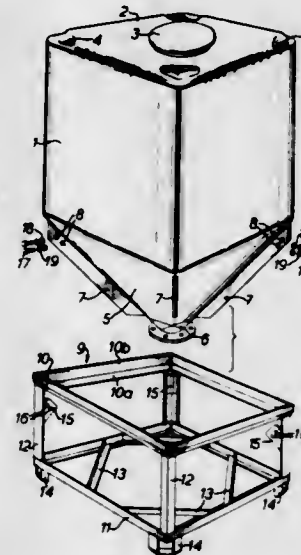
3,602,399
NON-LETHAL WEAPON DISPENSER
 Alan L. Litman, Pittsburgh, Pa.; Dennis K. Hackbarth, Lima, Ohio, and Robert R. Hayes, Cleveland, Ohio, assignors to General Ordnance Equipment Corporation, Pittsburgh, Pa.
 Filed Sept. 16, 1969, Ser. No. 858,355
 Int. Cl. B67d 5/32
 U.S. Cl. 222-153



This invention relates generally to hand operated dispensers for spraying liquids from pressurized containers and is particularly concerned with such dispensers that are adapted to be carried by the user, and that provide means for more accurately directing the spray as well as providing a number

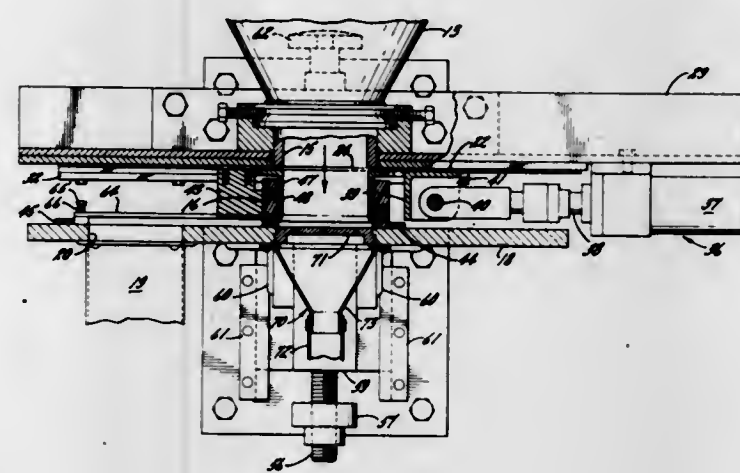
of safety features preventing accidental or other discharge of fluid when not desired.

3,602,400
CONTAINERS FOR MATERIAL IN BULK
 Arthur H. Cooke, Shipston-on-Stour, England, assignor to Pressoturn Limited, Leamington Spa, Warwickshire, England
 Filed Dec. 19, 1968, Ser. No. 785,303
 Claims priority, application Great Britain, Jan. 3, 1968, 481/68
 Int. Cl. B67d 5/06
 U.S. Cl. 222-185



A container for materials in bulk, comprising a vessel formed at its lower end with a hopper tapering to a discharge outlet, and a supporting framework detachably secured thereto and providing a seat which vertically and laterally locates the vessel, the framework having a lower portion engageable with the ground.

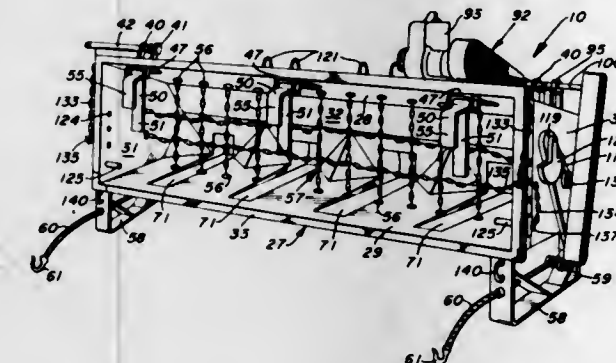
3,602,401
VOLUMETRIC MEASURING AND DISPENSING DEVICE WITH SCRAPER
 Robert F. Lense, Rockford, Ill., assignor to Riegel Paper Corporation, New York, N.Y.
 Filed Sept. 18, 1969, Ser. No. 858,933
 Int. Cl. B67d 5/58
 U.S. Cl. 222-190



A machine for volumetrically measuring and dispensing predetermined quantities of a product such as peas, beans, corn or potatoes. A large quantity of the product is stored in a hopper, and to divide the product into charges of predetermined quantity, the product is discharged into a measuring receptacle of predetermined volume through a spout in the hopper. To dispense the product, the receptacle is moved by a fluid operated actuator from a filling position beneath the

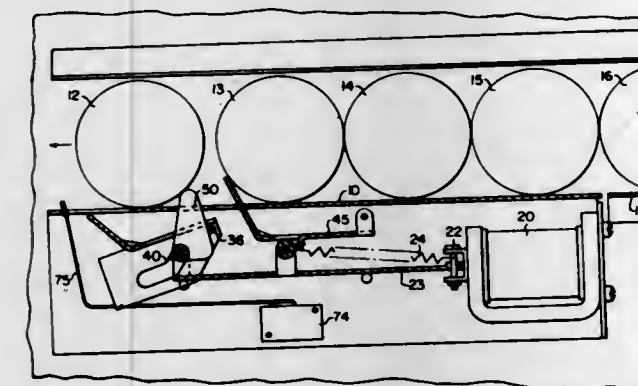
spout to a discharge position spaced horizontally from the spout, the receptacle being slidable on a slideway which is mounted for vertical adjustment on the machine frame. Accurate filling of the receptacle is insured by a blade which is attached to the actuator and which, prior to shifting of the receptacle from the filling position, is moved over a portion of the upper end of the receptacle, the blade then being movable with the receptacle to the discharge position to slice through the product between the spout and the receptacle and to level the top layer of product even with the top of the receptacle. The receptacle is formed by two sleeves which are slidably interfitted, and the volume of the receptacle can be changed by telescoping the sleeves together or extending the sleeves by raising or lowering the slideway. A vacuum drain is positioned in the slideway beneath the hopper spout to drain excess fluid from the product.

3,602,402
INSTANT SAND BAGGER
 Kenneth S. Garden, 130 W. Owens Ave., Las Vegas, Nev.
 Filed Oct. 24, 1968, Ser. No. 770,293
 Int. Cl. B65g 3/12
 U.S. Cl. 222-196



A sandbagging hopper which hooks over the tailgate of a dump truck body and is secured to said body so as to fit over and close the rear open end thereof, said hopper including means controlling the degree of opening of said tailgate and means for vibrating the hopper and the dump truck body and means to screen out bodies too large to be sacked, and plural sacking chutes gate controlled to facilitate several sackers working simultaneously to sack loose material gravitating from the truck body into said hopper.

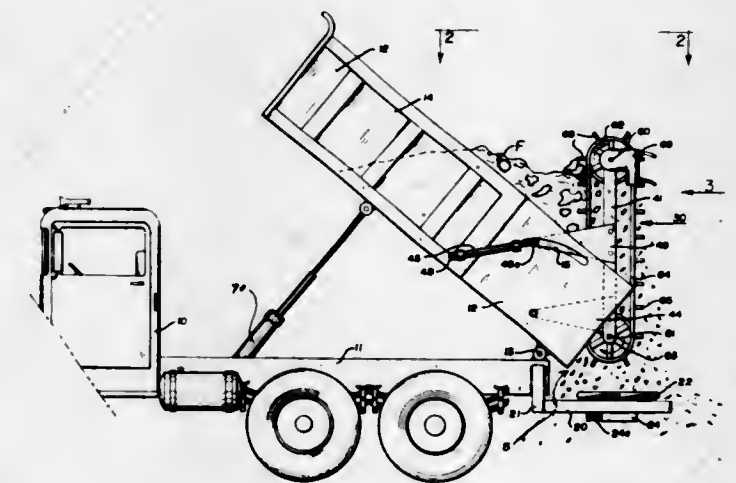
3,602,403
VENDING GATE FOR SLANT SHELF VENDING MACHINES
 Franklin D. Klem, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Nov. 6, 1969, Ser. No. 874,650
 Int. Cl. G07f 1/26
 U.S. Cl. 221-251



A vending gate for gravitationally movable articles on a slant shelf comprising a first movable gate having a normal position in the path of a first article and a second movable gate having a normal position out of the path of the article next behind the first article with a linearly reciprocating drive

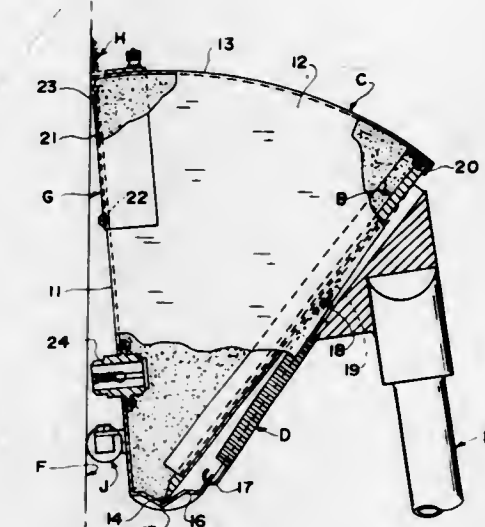
element operated by a solenoid to move the gates from their normal positions in timed relation such that the second article is restrained from movement while the first article is movable for vending.

3,602,404
MANURE SPREADER
 Robert V. Frank, Weld County, Southeast of Kersey, Colo.
 Filed July 23, 1969, Ser. No. 844,745
 Int. Cl. A01c 15/18
 U.S. Cl. 222-252



A feed yard chunk manure spreader attachment for the tail gate end of a large pivoted truck body, comprising a vertically operable chunk breaker at that end and having spaced breaker members for breaking the chunks and permitting passing of the broken particles through the breaker.

3,602,405
FLEXIBLE SEALING STRIP EXTENDIBLE AROUND AN ENCLOSED MOVABLE MEMBER OF PREDETERMINED CONTOUR
 Robert G. Ames, Hillsborough, Calif., assignor to Bliss & Laughlin Industries, Incorporated, Oak Brook, Ill.
 Filed May 5, 1969, Ser. No. 821,570
 Int. Cl. B67d 5/42
 U.S. Cl. 222-386

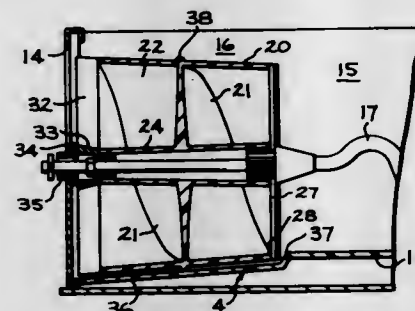


A flexible sealing strip having an inner edge receivable in a groove bordering the perimeter of a movable member, this edge having spaced apart recesses, each one registering with a corner on said perimeter. The portion of the sealing strip projecting beyond the groove is bent so as to have its outer edge yieldingly and slidably contacting with the adjacent wall surface of the enclosure in which the member moves. The recesses in the sealing strip permit the outer strip edge to be continuous in length without any recesses therein and yet

permit the strip to be bent sharply in order to conform to the shape of the perimeter of the movable member.

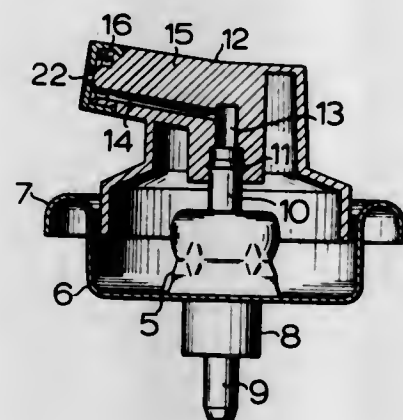
wire garment hanger to provide a smooth surface approximately 1 inch wide and 9 inches long to support the shoulder

3,602,406
ICE DISPENSER FOR A HOUSEHOLD REFRIGERATOR
Dwight W. Jacobus, and Robert J. Alvarez, both of Louisville, Ky., assignors to General Electric Company
Filed Sept. 12, 1969, Ser. No. 857,480
Int. Cl. G01f 11/20
U.S. Cl. 222-413 5 Claims



An ice dispenser comprising a receptacle for storing ice pieces and having a discharge opening in the front wall thereof contains a dispensing means that includes a rotatable feed section having the front end thereof positioned adjacent the discharge opening. The feed section comprises a collar containing a double-blade screw auger which forms with the inner surface of the collar two diametrically opposed helical passages for conveying ice pieces entering the rear end of the feed section to the discharge opening upon rotation of the feed section. The feed section is so designed that the passages are of a gradually increasing cross section from the inlet or rear ends thereof to the discharge or front ends thereof in order to prevent internal wedging of ice pieces which have entered the passages.

3,602,407
DISPENSING HEAD FOR AN AEROSOL CONTAINER
Hans Grothoff, Valbert, Westfalen, Germany, assignor to Carl Gisbert Siebel, Dusseldorf, Germany
Filed Aug. 22, 1969, Ser. No. 852,323
Claims priority, application Germany, Aug. 23, 1968, P 17 75 533.8
Int. Cl. B65d 5/72
U.S. Cl. 222-494 6 Claims

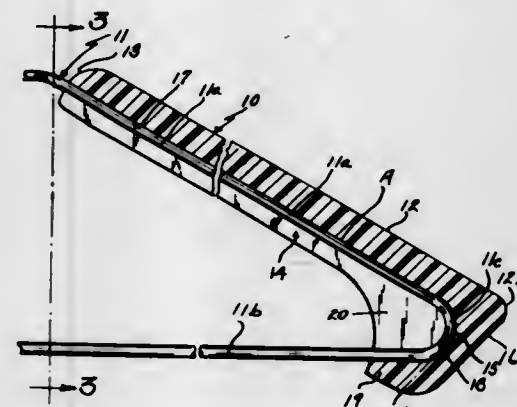


A dispensing head for an aerosol container with a spray opening which can be closed against the atmosphere, the dispensing head being attachable to a tubular stem of a release valve of the associated aerosol container.

3,602,408
WIRE HANGER CLIP
John E. Gaydos, 427 W. Catawba Road, Port Clinton, Ohio
Filed Dec. 4, 1969, Ser. No. 881,950
Int. Cl. A47j 51/086
U.S. Cl. 223-98 6 Claims

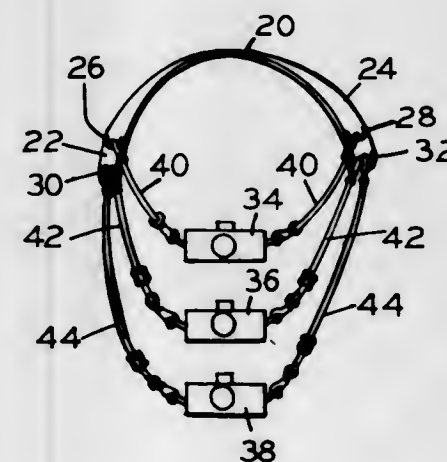
An attachment is provided to be clipped on each end of a

A method of producing steel fibers from steel strip including the steps of advancing a steel strip of a width correspond-



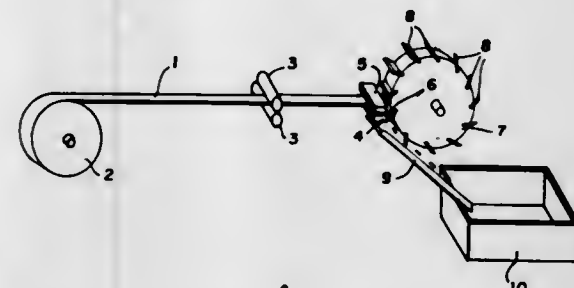
ders of a garment so as to prevent the usual distortion of the cloth when using a bare wire hanger.

3,602,409
MULTI-CAMERA CARRIER
Robert L. Kerns, 221 Wellington Road, Dewitt, N.Y.
Filed Dec. 19, 1968, Ser. No. 785,080
Int. Cl. A45f 5/00
U.S. Cl. 224-5 V 4 Claims



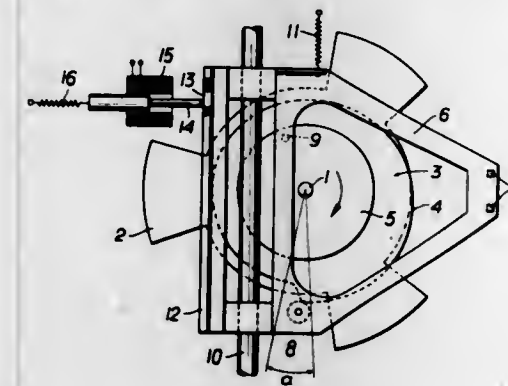
Camera harness including a neck band having spaced "D" rings embedded in each end, and three pairs of straps having swivel spring closed hooks at both ends depending from the rings and each pair being adapted to support a camera at different levels over the wearer's chest.

3,602,410
METHOD OF PRODUCING STEEL FIBERS
William E. Dennis, and Eugene J. Pallwoda, both of Pittsburgh, Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.
Filed Sept. 22, 1967, Ser. No. 669,767
Int. Cl. B26f 3/00
U.S. Cl. 225-4 6 Claims



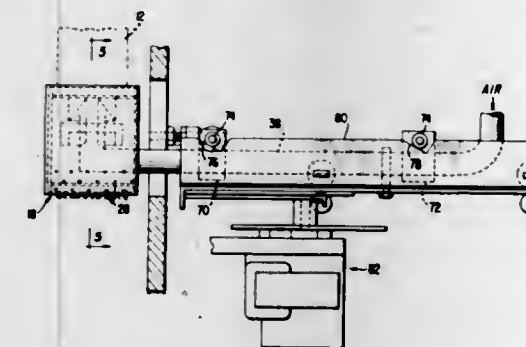
ing to the length of fibers formed therefrom to a support block so that a portion of the strip equal to the width of the fiber formed extends beyond the edge of the block and causing a fracturing means to strike the extending portion of strip so as to sever that portion from the remainder of the strip by means of brittle fracture, whereby to form a steel fiber. By continuously repeating the steps of the process a mass of fibers is produced.

3,602,411
SHUTTLE MECHANISM FOR CINEMATOGRAPHIC APPARATUS
Eduard Keznicki, Vienna, Austria, assignor to Karl Vockenhuber and Raimund Hauser, Vienna, Austria
Filed Jan. 28, 1970, Ser. No. 6,450
Claims priority, application Austria, Jan. 30, 1969, 922/69
Int. Cl. G03 1/22
U.S. Cl. 226-67 16 Claims



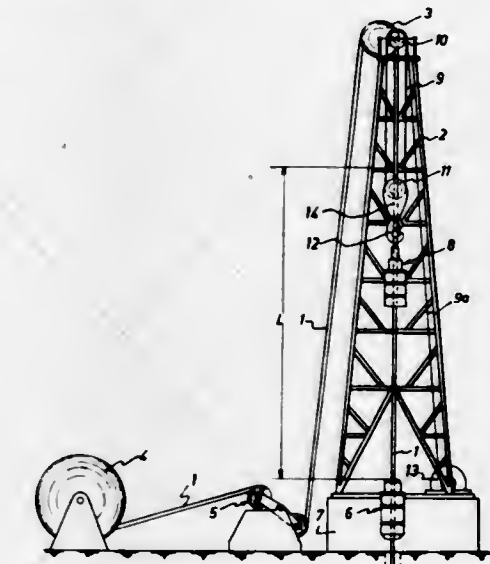
A shuttle cam member is mounted for rotation about an axis. Cam follower means are urged by spring means into engagement with said cam member, which is designed to positively displace said cam follower means to a dead center during a first part of each revolution of said cam member and to permit of a return displacement of said cam follower means by said spring means from said dead center during a second part of each revolution of said cam member. Said cam follower means are adapted to impart to a shuttle member and claw in response to each revolution of said cam member at least one reciprocating movement, at a normal frequency corresponding to a predetermined number of frames per second. Inhibiting means are provided to inhibit said movement of said shuttle member. A detent device comprises a first detent part connected to said shuttle member and a second detent part operatively connected to said inhibiting means. Said first and second detent parts are arranged to be interengaged only during said second part of each revolution of said cam member. Control means are provided for selectively enabling said mechanism to operate at a frequency which is lower than said normal frequency and are movable between operative and inoperative positions and in said operative position are arranged to periodically disengage said first and second detent parts from each other.

3,602,412
AIR BEARING FOR MAGNETIC TAPE
John A. Altonji, Syosset, and Murray D. Lawrence, Bronx, both of N.Y., assignors to Potter Instrument Company, Inc., Plainview, N.Y.
Filed Jan. 2, 1969, Ser. No. 788,463
Int. Cl. B65h 17/32
U.S. Cl. 226-97 4 Claims



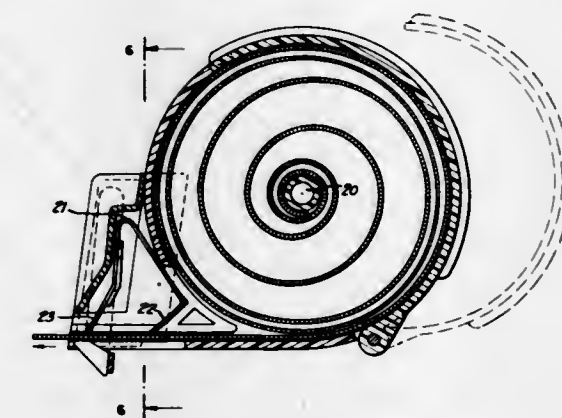
A high speed magnetic tape loop transport system having

3,602,413
SURFACE APPARATUS FOR HANDLING AN ELASTIC COLUMN
Remi Reynard, Montesson; Roger Tindy, Bougival, and Edmond Daniel, Saulx-les-Chartreux, all of France, assignors to Institut Francais du Petrole Des Carburants et Lubrifiants, Rueil-Malmaison, France
Filed Sept. 9, 1969, Ser. No. 856,338
Claims priority, application France, Sept. 10, 1968 166,283
Int. Cl. B65h 17/36
U.S. Cl. 226-115 10 Claims



This apparatus is provided with at least two devices for gripping an elastic column, including a lower and an upper gripping devices, one at least of these devices being displaceable along the axis of the column in a released position. In this apparatus each of said devices is constituted by a plurality of separate gripping elements arranged in series and means are provided for suspending these gripping elements from one and the same support member, permitting relative displacement of said gripping elements with respect to one another along the axis of the elastic column, under the action of the load to which each gripping element is subjected.

3,602,414
DISPENSER FOR BELT-TYPE STAPLES
Jack Garfinkel, Bayside, N.Y., assignor to Swingline Inc., Long Island, N.Y.
Filed Jan. 14, 1969, Ser. No. 790,953
Int. Cl. B65h 17/44
U.S. Cl. 226-151 3 Claims

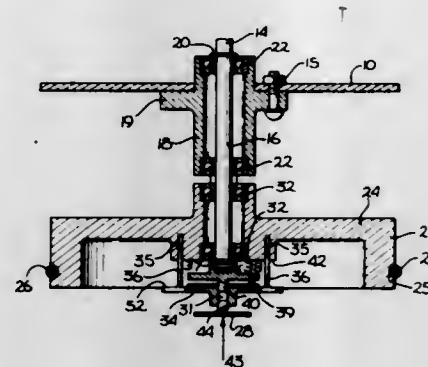


Improvements to a dispenser for belt-type staples having a container and feed mechanism operatively connected therewith are shown. The improvements include a control spring which has a portion at one end thereof adapted to abut the belt and prevent retrograde movement thereof.

3,602,415
INDEXING MECHANISM FOR A MAGNETIC TAPE TRANSPORT
 William J. Gross, Woodland Hills, Calif., assignor to Data Instruments Company, Sepulveda, Calif.
 Filed Nov. 21, 1969, Ser. No. 878,633
 Int. Cl. G11b 15/24

U.S. Cl. 226—188

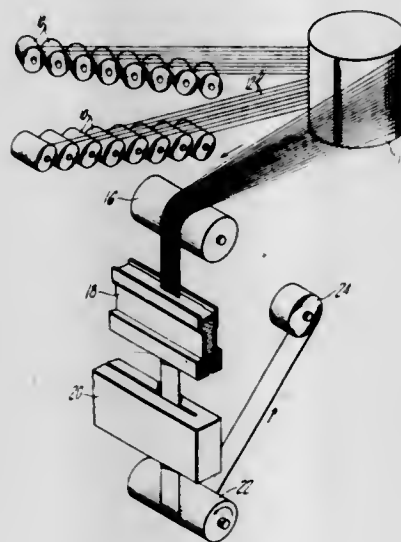
10 Claims



An indexing mechanism for incrementally advancing or indexing a magnetic tape particularly adaptable for use with a standard magnetic tape transport or recorder is disclosed. A flywheel having a relatively large rotating inertia when compared to the inertia required to drive a tape capstan is rotated at a constant speed freely about a shaft coupled to the tape capstan. A clutch mechanism controlled by a solenoid causes the shaft to engage the flywheel, thus causing the tape to quickly accelerate and be driven. The capstan and its associated shaft has a relatively low moment of inertia and rapidly decelerates when disengaged from the flywheel due to the friction of the tape motion and other portions of the tape drive.

3,602,416
METHOD OF COLLIMATING FIBERS
 Malcolm Basche, West Hartford, and Urban E. Kuntz, East Hartford, both of, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
 Filed Jan. 29, 1969, Ser. No. 794,901
 Int. Cl. B65h 23/26; D01h 13/02; B65h 57/14
 U.S. Cl. 226—196

1 Claim

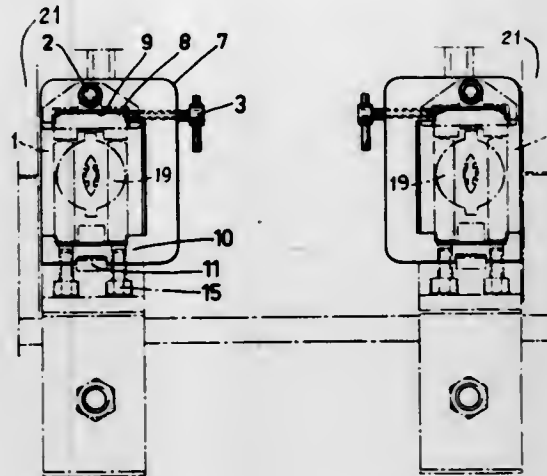


A method for collimating a plurality of filaments into parallel, side-by-side contiguous relation including passing the filaments around first and second rollers, the rollers having their axes perpendicular to, but noncoplanar with, each other whereby all but one filament will be subjected to sidewise forces.

3,602,417
ROLLER GUIDE
 Tom Joachim Bennet, Smedjebacken, Sweden, assignor to Morgardshammar AB, Morgardshammar, Sweden
 Filed Feb. 13, 1970, Ser. No. 11,085
 Claims priority, application Sweden, Feb. 21, 1969, 2423/69
 Int. Cl. B65h 23/26

U.S. Cl. 226—199

1 Claim



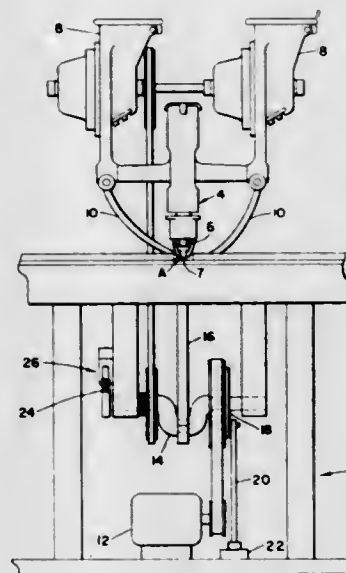
A roller guide comprising a central roller guide body and a C-shaped holder, the roller guide body being slideably mounted in the holder in its axial direction, and the holder being adjustably mounted in the transverse direction on its base, so that the guide body is continuously adjustable to any desired position.

The C-shaped holder may be turned with respect to its base through 180°, so that it can be arranged with its open side facing to the left or to the right side of the roller guide body.

3,602,418
FASTENER-ATTACHING MACHINE HAVING AN AUTOMATIC WORK-TRANSPORTING MECHANISM
 William A. Erhardt, Jr., South Weymouth, Mass., assignor to TRW Inc., Cleveland, Ohio
 Filed Apr. 27, 1970, Ser. No. 31,914
 Int. Cl. A41h 37/04

U.S. Cl. 227—3

6 Claims



An automatic fastener-attaching machine has a garment-transporting mechanism which automatically moves a garment past the fastener-attaching station and automatically stops the movement of the garment for the attachment of each fastener. The movement of the transporting mechanism is automatically controlled so that the distance the garment is moved prior to each fastener attachment coincides precisely with the spacing desired between the leading edge of the garment and the first fastener-attachment, and the spacing

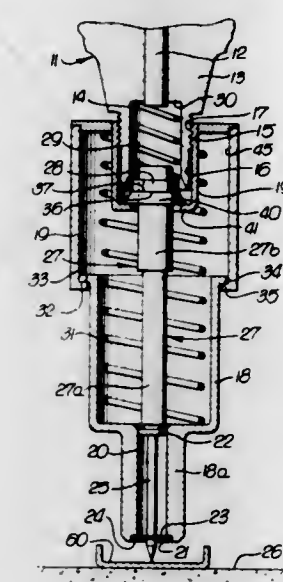
desired between each subsequent fastener and the preceding fastener in a series of attachments.

The bonding tip is fastened to the transducer without intervening driver or horn.

3,602,419
PNEUMATICALLY OPERATED NAIL DRIVER
 Morris Doberne, 5555 Morella Ave., North Hollywood, Calif., and Robert S. Hannah, 730 Chaucer Road, San Marino, Calif.
 Filed Sept. 29, 1969, Ser. No. 861,599
 Int. Cl. B25c 7/00

U.S. Cl. 227—147

1 Claim

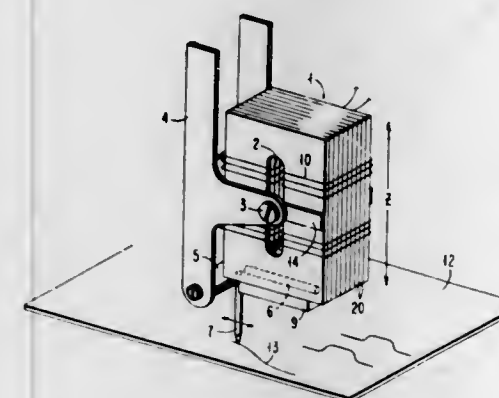


The disclosure concerns an attachment to a power tool, such as a pneumatic driver, which will retain and drive a nail into hard material such as concrete or steel. The device comprises telescopically mounted sleeve members, in which an axially reciprocable striker is received, a spring urging the member apart, and stop shoulders to limit member expansion so that collapse of the members is required to effect delivery of hammer impacts via the striker to the nail head received by one of the members.

3,602,420
ULTRASONIC BONDING DEVICE
 Richard A. Wilkinson, Jr., San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed Feb. 12, 1970, Ser. No. 10,973
 Int. Cl. B23k 1/06, 5/20

U.S. Cl. 228—1

6 Claims

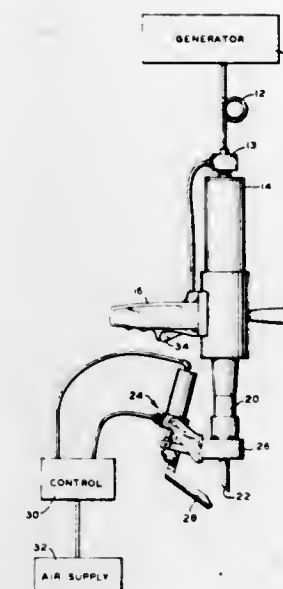


An ultrasonic bonding system is arranged so that the ultrasonic transducer is situated above and parallel to a bonding tip. A bellcrank functions to change the vibratory motion of the transducer, with respect to the surface of a circuit board, from the perpendicular to the parallel while simultaneously amplifying the vibratory movement. The transducer is held by a mounting member and lateral strap which are affixed at a node on the body of the transducer. The bellcrank member can be adjustable so as to provide for any desired angular relationship between bonding tip and trans-

3,602,421
SONIC WELDING TOOL
 Stephen A. Spratt, Jr., Brookfield, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
 Filed July 11, 1969, Ser. No. 841,092
 Int. Cl. B23k 1/06, 5/20

U.S. Cl. 228—1

10 Claims

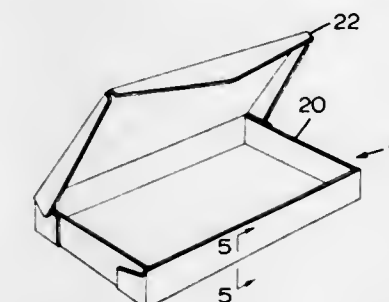


A portable ultrasonic welding tool is fitted with a set of handles and a clamped-on device having a movable member which, responsive to fluid pressure, can be brought toward the frontal end of the tool for engaging a workpiece to which sonic energy is transferred whereby this member acts as anvil.

3,602,422
FROZEN FOOD CARTON
 Ernest James Dewhurst, Toronto, Ontario, Canada, assignor to Somerville Industries Limited, London, Ontario, Canada
 Filed June 2, 1969, Ser. No. 838,365
 Int. Cl. B65d 1/00

U.S. Cl. 229—3.5

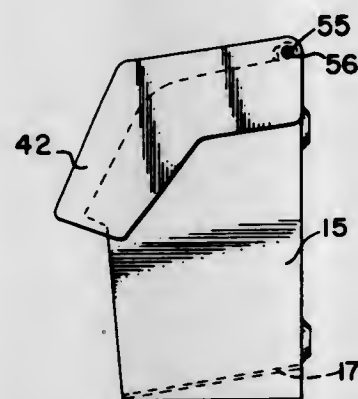
1 Claim



This invention is concerned with a package for frozen food that is compressed as it is packed. The package is designed to permit air driven from the food in the compression to escape from the package and to seal the food of the package against the harmful effects of dehydration in use. The novelty of the invention consists of the type of board from which the package is made. The board has an outer air impervious layer, a center air pervious layer and an inner moisture-resistant layer that is perforated to permit the passage of air. In use the inner layer is against the food product. As the food product is compressed, air passes through the perforations in the inner layer and is driven along the center air pervious layer to and out the edge of the package. The outer air impervious layer prevents air from damaging the food product under conditions of storage.

3,602,423
MAILBOX AND METHOD OF FABRICATING SAME
 Gregory O. Corkery, St. Louis, Mo., assignor to Jackes-Evans Manufacturing Company, St. Louis, Mo.
 Filed Dec. 30, 1968, Ser. No. 787,973
 Int. Cl. A47g 29/12
 U.S. Cl. 232-17

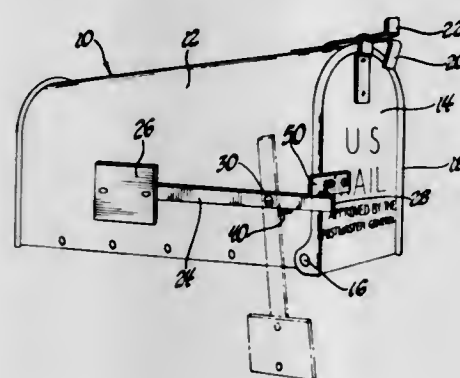
6 Claims



A mailbox formed of composite materials to improve corrosion resistance, structural rigidity, ease of assembly and operability. A novel ribbing design on the lid permits it to be formed by molding with minimum material required and assures good torsional rigidity, assuring good weatherproof qualities. A novel hinge construction improves operability and assembly while improved sealing against the elements is obtained. A drop flag is located where it is not visible unless moved to the signalling position.

3,602,424
SIGNAL FLAG DEVICE
 Thadious Walter Raulston, 2190 Pontiac Trail N., Walled Lake, Mich.
 Filed June 6, 1969, Ser. No. 831,070
 Int. Cl. A47g 29/12
 U.S. Cl. 232-35

4 Claims



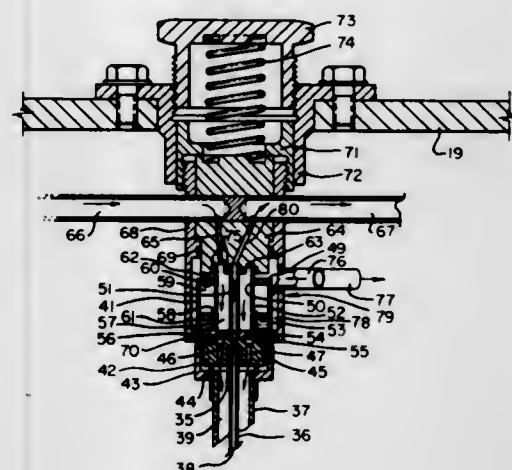
A signal flag device for rural mail boxes and the like, including a signal flag arm pivotally mounted to the side of a mailbox, held in a horizontal position by the cover door, and weighted to drop the flag end of the arm when the cover door is opened.

3,602,425
EVAPORATIVE COOLING DEVICE FOR A CENTRIFUGE ROTARY SEAL
 William L. Schmidt, Menlo Park, Calif., assignor to Beckman Instruments, Inc.
 Filed Apr. 9, 1969, Ser. No. 814,556
 Int. Cl. B01d 21/26; B04b 15/02
 U.S. Cl. 233-1 A

3 Claims

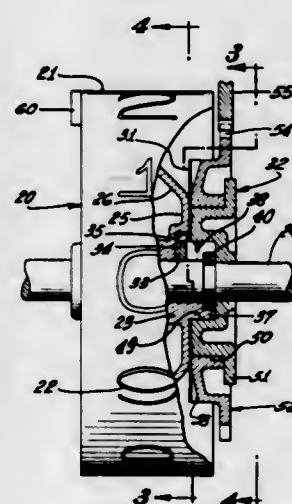
A device for cooling a rubbing seal interface between a stationary and a rotating surface. The device includes a hermetically sealed cooled container having thermally conductive walls partially filled with a volatile liquid with a face por-

tion forming the stationary surface. In operation the heat generated at the interface causes the volatile liquid to



3,602,426
NUMBER WHEEL FOR COUNTER OR THE LIKE
 John J. Affel, Canoga Park, Calif., assignor to International Telephone and Telegraph Corporation
 Division of Ser. No. 669,760, Sept. 22, 1967, Pat. No. 3,507,724
 Filed Feb. 5, 1969, Ser. No. 822,338
 Int. Cl. G06c 23/00
 U.S. Cl. 235-1 C

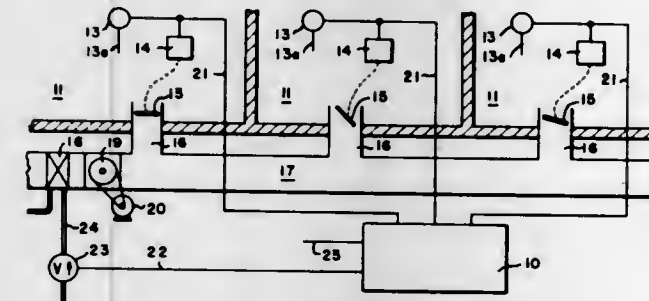
11 Claims



A number wheel for use in a counter or other like device and embodying a novel construction of a number wheel and operatively associated parts, including a unitary sandwich of the wheel integral with a primary wheel hub, a spring detent member, and a secondary hub, the latter rotatably mounting and confining a driver gear element, with a spring and pawl reset mechanism confined in a recess in the sandwich. Also involved is the method of fabricating such a number wheel by a series of mechanical steps including ultrasonic welding for uniting the wheel hubs in forming the sandwich.

3,602,427
PRESSURE DISCRIMINATOR
 Frederick D. Joesting, Park Ridge, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
 Filed May 6, 1970, Ser. No. 35,166
 Int. Cl. G05d 23/185; G05b 11/50
 U.S. Cl. 236-82

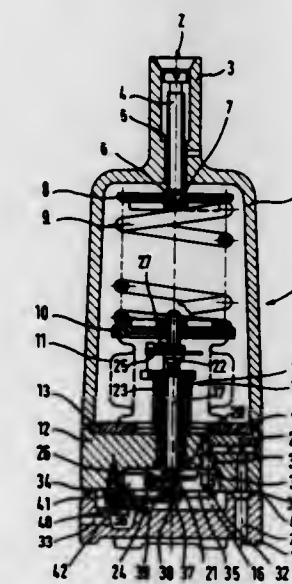
5 Claims



A pneumatic pressure-responsive apparatus utilizing diaphragm logic which selects and transmits the highest of a plurality of input pressures.

3,602,428
HIGH-PRECISION PRESSURE REGULATOR
 Manfred Lochner, Worth, and Walter Leeder, Karlsruhe, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
 Filed Sept. 3, 1969, Ser. No. 854,926
 Claims priority, application Switzerland, Sept. 13, 1968, 13762/68
 Int. Cl. G05d 23/12; F16h 17/38
 U.S. Cl. 236-93

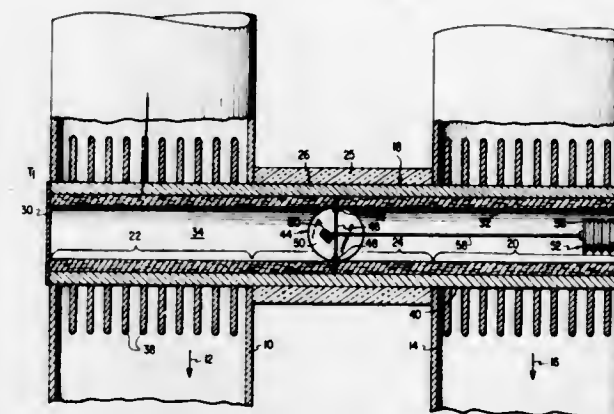
3 Claims



In a high-precision pressure regulator for maintaining the flow rate of a fluid at a strictly constant value, there is provided a fluid inlet and a fluid outlet, a bellows expandable by the pressure of said fluid, a spring acting on said bellows against the force of the fluid pressure and adjustable in accordance with the desired fluid pressure or flow rate, a push rod displaceable in response to said bellows and moving a baffle plate closer to or away from an inlet nozzle to control the pressure of the fluid emerging therefrom.

3,602,429
VALVED HEAT PIPE
 William J. Levedahl, and Sidney Frank, both of Baltimore, Md., assignors to Isotopes, Inc., Westwood, N.J.
 Filed Nov. 4, 1968, Ser. No. 772,954
 Int. Cl. B60h 1/02

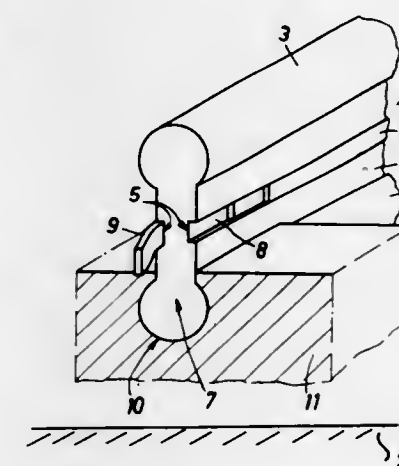
4 Claims



A selectively operated mechanical valve within the vapor phase passage of a heat pipe to control the isothermal transfer of thermal energy.

3,602,430
RAIL CONSTRUCTION FOR TOY RAIL VEHICLES
 Artur Fischer, Altheimer Strasse, Tumligen, Germany
 Filed Dec. 4, 1969, Ser. No. 882,102
 Claims priority, application Germany, Dec. 6, 1968, P 18 13 054.6
 Int. Cl. A63h 19/30, 21/04
 U.S. Cl. 238-10 E

6 Claims



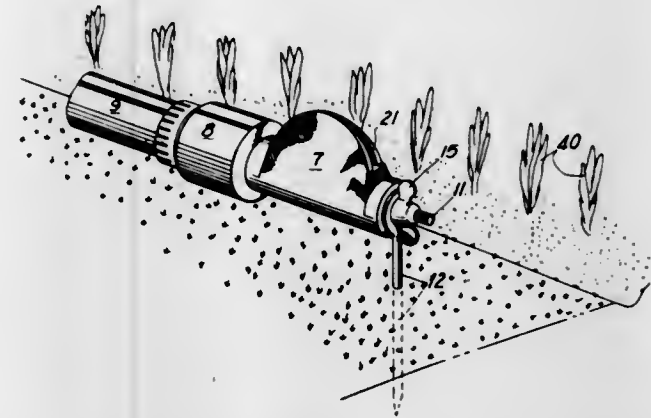
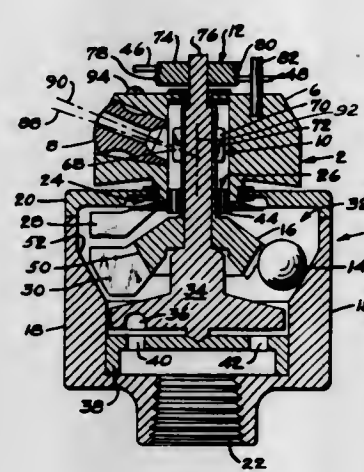
A rail construction for toy vehicles includes an elongated web having opposite major surfaces and two transversely spaced longitudinal edge portions. A pair of beads each extends along one of these edges portions and at least one electrical conductor is provided on one of the major surfaces extending lengthwise of the web and having an exposed face which is adapted to be engaged by a contact of a toy rail vehicle which is to receive electrical energy from the conductor. Support means for supporting the rail on edge is provided, so that one of the beads constitutes a guide for the vehicle in the manner of a monorail construction.

3,602,431
A SPRINKLER DEVICE FOR FLUID DISTRIBUTION
 George H. Lockwood, 2125 N.E. 27th Drive, Wilton Manors, Fla.
 Filed May 23, 1969, Ser. No. 827,291
 Int. Cl. B05b 1/08
 U.S. Cl. 239-101

14 Claims

A sprinkler device for distributing water comprising a body, a sprinkler head rotatably connected to the body, a fluid flow interrupter for providing controlled bursts of fluid

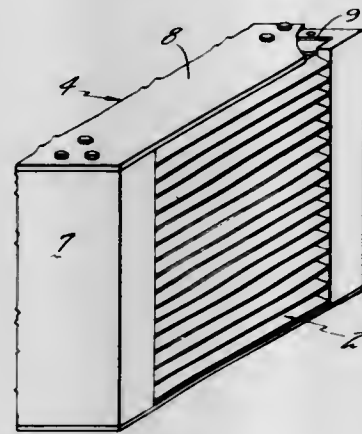
in the stream of fluid exiting from the sprinkler head, an interrupter drive, a drive means including a free rotating ball therethrough to assume a fan-shape. A spike is provided which is selectively positionable with respect to the nozzle



head for selectively maintaining the angle of the slot therein when the spike is embedded in the ground.

for driving the sprinkler head, and reversing means for reversing the direction of movement of the sprinkler head.

3,602,432
WAFER NOZZLE
Richard C. Mulready, Jupiter, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed May 10, 1968, Ser. No. 729,494
Int. Cl. B63h 1/100
U.S. Cl. 239—265.11



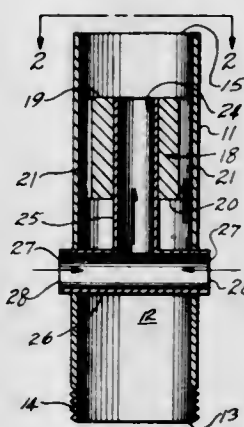
A nozzle for an exhaust duct is built up out of a plurality of wafers. Each wafer has on each side thereof a contour of one side of a two-dimensional nozzle along with one side of an inlet passageway thereto. When the wafers are stacked, adjacent wafers form an inlet passageway along with the converging and diverging portions of a nozzle; it can be seen that the nozzle is a two-dimensional one having a relatively long lateral dimension as compared to the size of the throat. Spacing means for precise spacing appear along the length of each wafer and at the end thereof. Means for positioning and holding the wafers so that a precise nozzle configuration can be obtained and maintained is also included.

3,602,433
SIDE SPRAY NOZZLES
Oden Proctor, 3010 Evans Wood Drive, Atlanta, Ga.
Filed Sept. 26, 1969, Ser. No. 861,337
Int. Cl. B05b 1/04, 15/08
U.S. Cl. 239—276

A side spray nozzle for connection to a water hose for delivering a fan-shaped spray including a nozzle head defining a radially extending discharge passage bordered by a pair of fan-shaped lips defining a thin slot therebetween communicating with the discharge passage to cause the water issuing

7 Claims

3,602,434
LIQUID DISCHARGE NOZZLE
John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.
Division of Ser. No. 784,541, Dec. 9, 1968, Pat. No. 3,558,053, which is a continuation-in-part of Ser. No. 691,111, Dec. 8, 1967, abandoned, which is a continuation-in-part of Ser. No. 492,389, Oct. 4, 1965, abandoned. Filed May 1, 1970, Ser. No. 33,641
Int. Cl. B05b 7/06
U.S. Cl. 239—424



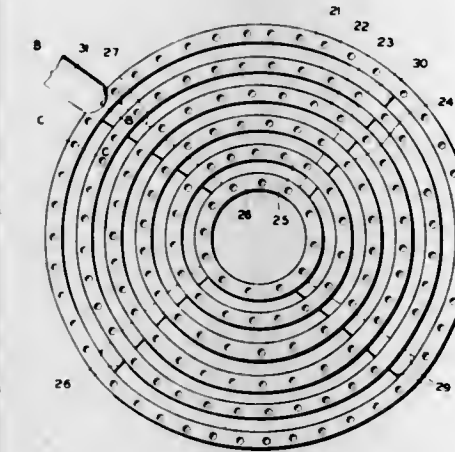
A liquid discharge nozzle having no moving parts, includes a hollow body defining a liquid inlet at one end and an outlet opening at the other end. The body has an internal chamber arranged in communication with both the inlet and outlet ends of the body. A plug, having substantial length between opposite end surfaces, is disposed across the chamber inwardly of the body-outlet end and grooves in the sidewalls of the plug define constricted liquid-outlet means from the body. An air duct extends through the plug from adjacent the body outlet to the exterior of the body between the plug and inlet end of the body.

3,602,435
BLAST DEVICE FOR STEEL CONVERTER
Pierre Leroy, 23, Rue de Tourville, St. Germain en Laye, 78, and Emile Sprunck, rue du Marechal Foch, Moyervive Grande, 57, both of, France
Filed Feb. 5, 1970, Ser. No. 008,989
Claims priority, application France, July 5, 1967, June 17, 1968, 113,156; 155,193
Int. Cl. B05b 1/14
U.S. Cl. 239—551

Device for supplying blast gas to the blowing orifices of the bottom of a steelwork converter, which comprises a plurality of header-forming tubes disposed either as concentric tubes or in any other suitable manner, each header being adapted

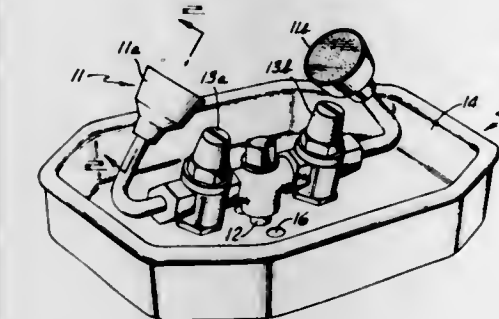
10 Claims

to supply blast gas to a number of bottom orifices, for example a row thereof, with self-stopping means for easily putting



each tuyere out of service in case of abnormally rapid wear thereof.

3,602,436
SPRAY NOZZLE FOR AN EYEWASH FOUNTAIN
Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Faucet Company, Berkeley, Calif.
Filed Mar. 20, 1969, Ser. No. 808,843
Int. Cl. B05b 1/14
U.S. Cl. 239—553.3



1 Claim

A spray nozzle for an eyewash fountain to provide a large volume, soft, featherlike flow of water suitable for flooding a workman's eye to flush injurious matter therefrom. The nozzle has a relatively large chamber interposed between the nozzle inlet and much larger outlet, and the chamber is filled with a cellular body of nonabsorptive, form-retaining material having open cellular interstices interconnected one with another to define myriad random flow paths through the body accommodating the movement of water from the inlet to the outlet.

3,602,437
ATTRITIONING OF CARBON BLACK
Richard E. Driscoll, Monroe, and Charles H. McCallum, Swartz, both of, La., assignors to Cities Service Company, New York, N.Y.
Filed Mar. 2, 1970, Ser. No. 15,851
Int. Cl. B02c 15/00
U.S. Cl. 241—21

Carbon black structure is reduced by grinding the black in a ball mill. The grinding rate is increased and the grinding energy requirement is reduced by moistening the black with water to provide a dense, moist powdery mass of black that is subjected to the attritioning action of the ball mill. The proportion of water to carbon black is generally within the range of about 20 to about 100 parts by weight of water per 100 parts by weight of black.

8 Claims

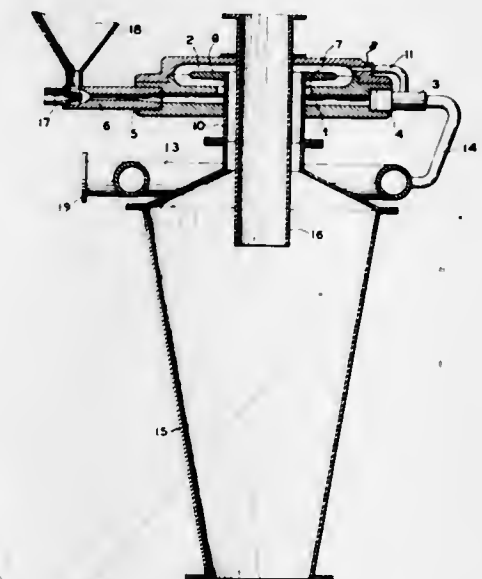
3,602,438
ATTRITIONING OF CARBON BLACK
Richard E. Driscoll, Monroe, and Charles H. McCallum, Swartz, both of, La., assignors to Cities Service Company, New York, N.Y.
Filed Mar. 2, 1970, Ser. No. 15,924
Int. Cl. B02c 15/00
U.S. Cl. 241—21

Carbon black structure is reduced by grinding the black in a ball mill. The grinding rate is increased and the grinding energy requirement is reduced by moistening the black with oil. The proportion of oil to carbon black is generally within the range of about 5 to about 100 parts by weight of oil per 100 parts by weight of black.

6 Claims

3,602,439
PNEUMATIC MILL FOR EXTRA-FINE POWDER
Niro Nakayama, Osaka, Japan, assignor to Nippon Pneumatic Mfg. Co., Ltd., Osaka, Japan
Filed July 25, 1969, Ser. No. 844,986
Int. Cl. B02c 19/06
U.S. Cl. 241—39

8 Claims



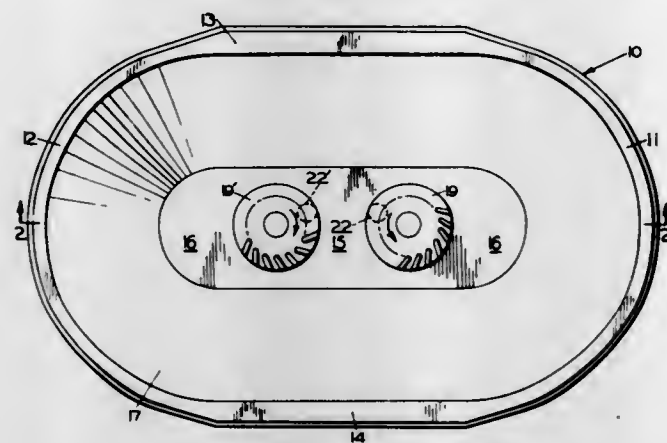
A supersonic jet mill for producing extra fine and uniform powder from pregranulated material continuously, having a chamber to pulverize material by mutual collision and friction of granular material in a swirl of supersonic pneumatic fluid introduced through jet nozzles, another chamber to separate the pulverized fine powder from coarse powder in a swirl of pneumatic fluid, a cylinder to take out the fine powder without including material in process, and conduits to return the coarse powder to the pulverization chamber by way of the jet nozzles with auxiliary pulverizing effects.

3,602,440
PULPING APPARATUS FOR PAPERMAKING STOCK
Robert Burke Morden; Paul B. Strech, and Robert L. Crawford, all of Portland, Oreg., assignors to Morden Machine Company, Portland, Oreg.
Filed Nov. 3, 1969, Ser. No. 873,170
Int. Cl. B02c 18/12, 18/40
U.S. Cl. 241—46.11

An elongated tank particularly adapted for the repulping of broken sheets of damaged paper web or "broke" discharged from breaks in the web during the operation of a papermaking machine; the tank having a substantially flat central bottom portion with a pair of identical, but of opposite hand, oppositely rotating rotors mounted thereon; the positioning of the rotors with respect to the configuration of the tank walls and with respect to each other being such as to

3 Claims

cause even the broad sheets of "broke" to be quickly submerged and drawn downward without first following a vortex pattern, thereby minimizing the time required for effective repulping of material.



tical pattern, thereby minimizing the time required for effective repulping of material.

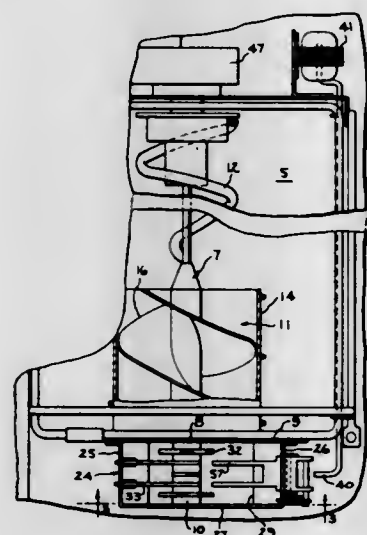
3,602,441 COMBINATION ICE CUBE AND CRUSHED ICE DISPENSER

Robert J. Alvarez, Louisville, Ky., assignor to General Electric Company
Continuation-in-part of application Ser. No. 756,934, Sept. 3, 1968, now abandoned. This application Feb. 20, 1970, Ser. No. 12,928

Int. Cl. B02c 13/06, 18/06

U.S. Cl. 241-101

12 Claims



An ice dispenser particularly for household refrigerators includes an ice cube storage receptacle and an integral dispensing and crushing means for dispensing batches of either cube or crushed ice.

**3,602,442
SAND-MULLING APPARATUS**
Clifford E. Wenninger, Libertyville, Ill., assignor to Pettibone Corporation, Chicago, Ill.
Continuation of application Ser. No. 684,192, Nov. 20, 1967, now abandoned. This application Mar. 13, 1970, Ser. No. 19,445

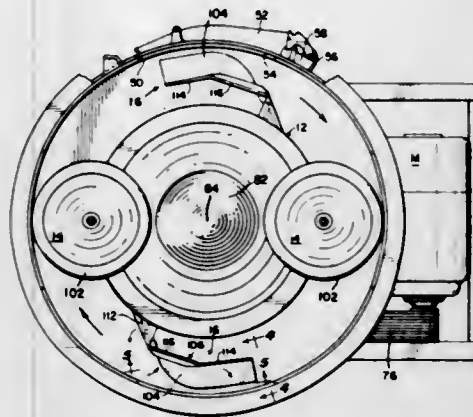
Int. Cl. B02c 15/00, 23/00

U.S. Cl. 241-110

4 Claims

A foundry-sand-mulling apparatus having a cylindrical mulling bowl within which there is provided a novel form of sand-elevating plow construction having three functional components, namely, a main lift plow in the form of a sand scoop pan, a side wing which prevents sand from spilling over

the inner side edge of the main lift plow and also compresses the sand against the sidewall of the bowl during travel of the



plow construction in a circumferential direction in the bowl and a side plow which directs sand onto the main lift plow.

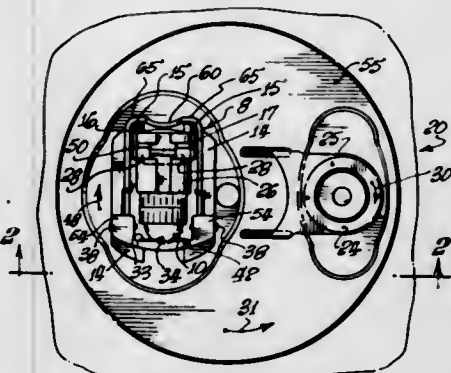
3,602,443 CAPSULE HOLDER FOR DENTAL CAPSULES AND THE LIKE

Robert C. McShirley, 6535 San Fernando Road, Glendale, Calif.

Filed Mar. 13, 1970, Ser. No. 19,351
Int. Cl. B02c 17/08, 17/18, 17/24

U.S. Cl. 241-175

10 Claims



A capsule holder is disclosed which is particularly adaptable for holding capsules utilized in dentistry where capsules are subject to rapid movement, such as rotational or reciprocating movement, required to triturate alloys or produce amalgamations. Two housings, one having a cavity adaptable for engaging one end of a capsule and also adaptable for rotating upward so that a capsule may be manually inserted into the cavity are attached to a base. The other housing which slidably engages the base is movable so that the capsule is held between the housings. A latch is utilized to secure the housings against the capsule during the rapid movement or mixing operation.

**3,602,444
IMPACT COMMINUTOR**
Ludwig Meyer, Munster, Westphalia, Germany, assignor to Hazemaz Hartzerkleinerunz und Zement Maschinenbau Gesellschaft m.b.H., Munster, Germany
Filed Mar. 11, 1969, Ser. No. 806,200

Claims priority, application Germany, Mar. 13, 1968, P 16 57 119.0

Int. Cl. B02c 13/09

U.S. Cl. 241-190

10 Claims

An impact comminutor for bulky refuse comprises a housing for a toothed impeller which rotates about a horizontal axis and propels material against an impact surface provided on a breaker plate which is yieldably mounted in the housing at a level above the impeller axis. The breaker plate has a serrated portion which is adjacent to the impeller and whose teeth define gaps for the teeth of the impeller. The front flanks of teeth on the serrated portion are either flush with

the impact surface or are located downstream of such surface, as considered in the direction of rotation of the im-

3,602,446 APPARATUS FOR PRODUCING BUNDLES OF OPTICAL FIBERS

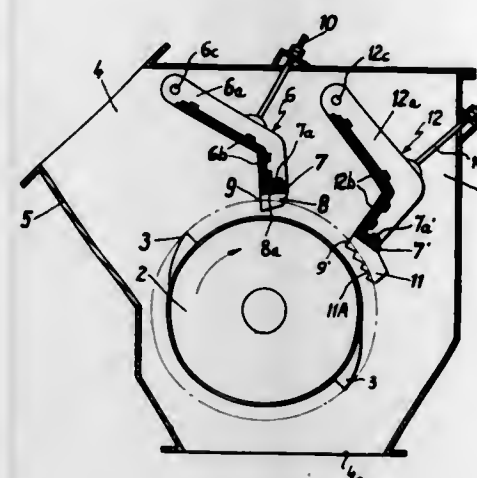
Kin'ichi Kawashima, Yamato-Machi, Japan, assignor to American Optical Corporation, Southbridge, Mass.

Filed Sept. 29, 1969, Ser. No. 861,678

Int. Cl. B65h 54/10

U.S. Cl. 242-18 R

2 Claims



pellor. The front flanks and/or the lands of teeth on the serrated portion can be provided with serrations.

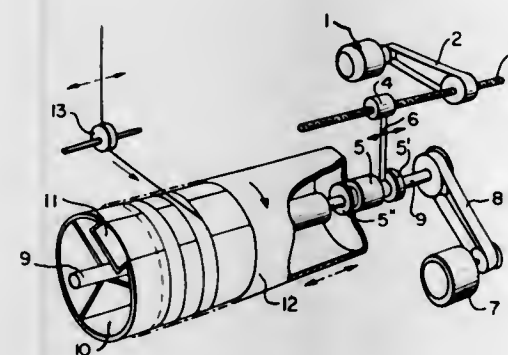
3,602,445 APPARATUS FOR PRODUCING BUNDLES OF OPTICAL FIBER

Kazuyoshi Nagao, and Akhiko Katsura, both of Yokohama, Japan, assignors to American Optical Corporation, Southbridge, Mass.

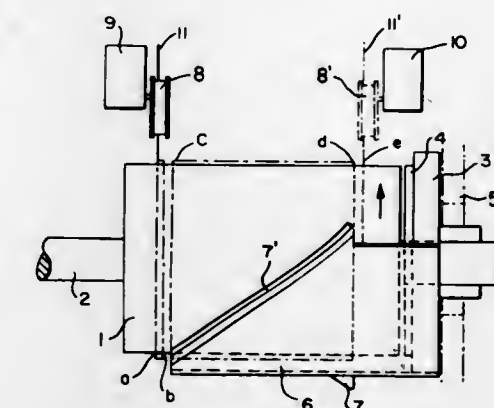
Filed Sept. 29, 1969, Ser. No. 861,597
Int. Cl. B65h 54/10

U.S. Cl. 242-18 R

2 Claims



Producing bundles of optical fiber by winding successive layers of the fiber in the same spiral direction on winding apparatus. The apparatus includes a main winding drum over which a second coaxially aligned hollow drum of larger diameter is moveable along the common axis of the drums. A motor-driven lead screw coupled to the hollow drum is actuable to move the hollow drum back and forth along the winding surface of the main drum from one end to the other thereof while both drums are rotated by a common drive shaft. With the hollow drum positioned at one end of the main drum, the fiber is wound from the opposite end of the main drum along its surface up to and onto the hollow drum. Without interruption of the winding process, the fiber is returned to the beginning of the winding surface of the main drum by moving the hollow drum up to the starting point of the first winding. The hollow drum is then retracted causing the fiber to engage the first fiber winding on the main drum and continue therealong in the same spiral direction. A guide roller moved back and forth parallel to the common axis of the drums controls the pitch of spiral winding.



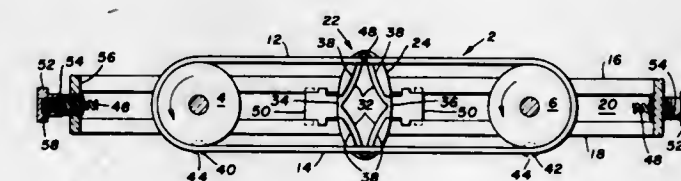
**3,602,447
BELT TRAVERSE DEVICE**
Don E. Fisher, Pensacola, Fla.; Lawrence E. Blackmon, Foley, Ala., and John D. Aumen, Gulf Breeze, Fla., assignors to Monsanto Company, St. Louis, Mo.

Filed Apr. 1, 1969, Ser. No. 811,832

Int. Cl. B65h 54/30

U.S. Cl. 242-43

7 Claims



A belt-type traverse device employing resilient means to reverse a reciprocating traverse guide, and profiled cams interacting cooperatively with cam driver members to control the linear displacement of the traverse guide.

**3,602,448
WEB-WINDING APPARATUS**
Horst Muensterer, Oklahoma City, Okla., assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

Filed Feb. 3, 1970, Ser. No. 8,334

Int. Cl. B65h 75/02

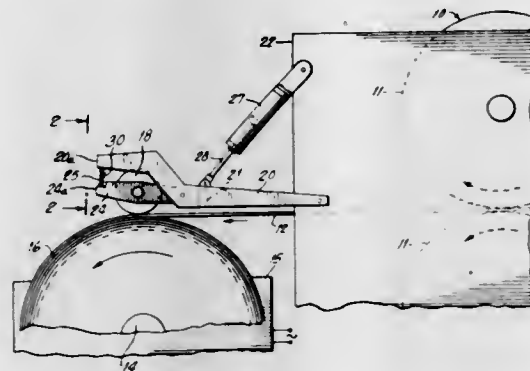
U.S. Cl. 242-55

10 Claims

In apparatus for winding a web (e.g. of metal foil or the like) on a rotating reel, an ironer assembly for smoothing the web as it is added to the reel, including an ironer roll which rides on the reel, a pivotally suspended frame larger in mass

than the ironer roll, and springs under compression between the frame and roll for resiliently supporting the frame on the

been substantially exhausted from about the roll, the roll and trunnions will be shifted axially of the roll with the said trunnion portion being received within the notch, whereupon the



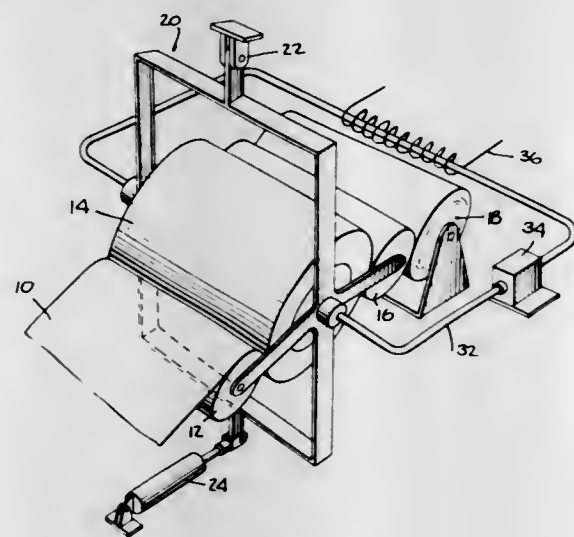
roll, so that the weight of the frame augments the pressure exerted by the roll on the web.

3,602,449
WEB PACKAGING
Edward Sroka, Newton, Mass., assignor to Tenneco Chemicals, Inc.

Filed Apr. 3, 1969, Ser. No. 813,079
Int. Cl. B65h 75/00

U.S. Cl. 242-55

6 Claims



Plastic webs and films are heated to an elastomeric state, pressed while warm between a pair of crush rolls, and wound tightly around one of the crush rolls. Packages of the plastic webs and films prepared in this way are dense and free from air pockets.

3,602,450
DISPENSER FOR ROLLS OF FLEXIBLE SHEET MATERIAL
Paul W. Jespersen, Stamford, Conn., assignor to Georgia-Pacific Corporation, Portland, Oreg.

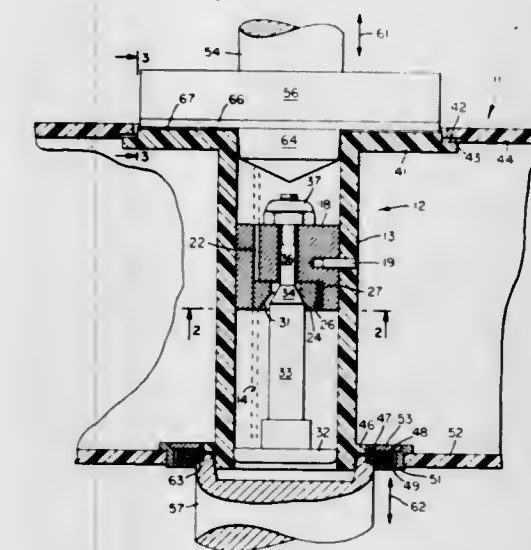
Filed Jan. 12, 1970, Ser. No. 2,178
Int. Cl. B65h 19/08

U.S. Cl. 242-55.53

8 Claims

A device for rotatably supporting, in a dispensing position, a roll of flexible sheet material having a pair of trunnions disposed adjacent the ends thereof. The device includes a pair of supporting members for rotatably engaging the trunnions to thereby rotatably support the roll in a dispensing position. One of the supporting members has a notch therein adjacent an end thereof. The notch is of an appropriate width for receiving a portion of one of the trunnions therein. The device also includes means for urging the roll radially toward the said one member end, and means for biasing the roll axially toward the said one member. Also, the device includes means for preventing axial shifting of the roll and trunnions until the flexible sheet material has been substantially exhausted from about the roll so that when the material has

A tape-winding hub is arranged with an axially directed slot for the insertion of the tape end, and an interior clamp is provided for the tape end substantially at the midpoint of the axial dimension of the hub, so that if the tape end is inserted slightly crookedly the error is overcome when the tape is wound under tension and an uneven tape pack is avoided. The tape clamp is operated by a simple pushbutton at the end of the hub. The hub is adapted for use in a cassette in such a way that it brakingly engages the cassette walls when the cassette is not in use to avoid tape spillage. The hub is also adapted to be engaged by means extending from a transport to release the brake and to center and position the hub independently of the cassette alignment and position.



3,602,451
MAGNETIC TAPE CASSETTE HUB
Dale P. Dolby, Mountain View, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Apr. 1, 1970, Ser. No. 24,579
Int. Cl. B65h 75/28

U.S. Cl. 242-74.2

6 Claims

3,602,452
STRAP DISPENSER
Leo Peter Sauer, Glenview, Ill., assignor to Signode Corporation

Filed Nov. 3, 1969, Ser. No. 873,532
Int. Cl. B65h 25/22, 59/38
U.S. Cl. 242-75.43

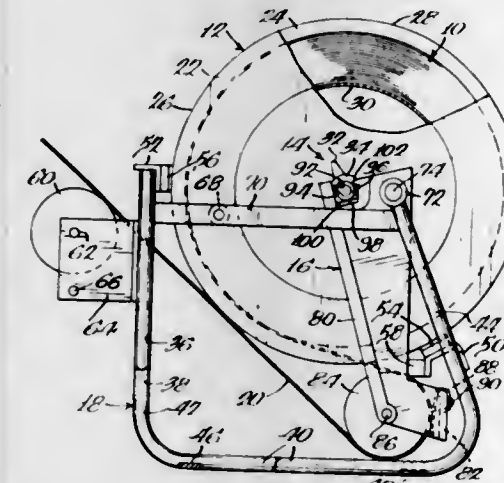
6 Claims

3,602,454
LAUNDRY DRIER
Gunter Lelfheit, and Johannes Liebscher, both of Nassau/Lahn, Germany, assignors to Gunter Lelfheit KG, Nassau/Lahn, Germany

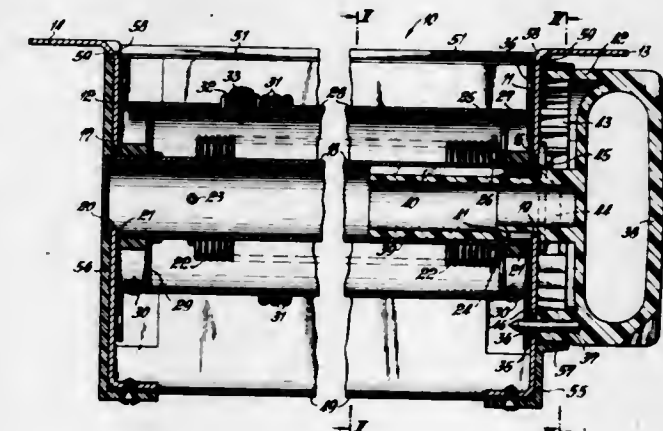
Filed Feb. 13, 1969, Ser. No. 798,874
Claims priority, application Germany, Feb. 15, 1968, Apr. 6, 1968, P 17 10 545.2; P 17 60 125.1
Int. Cl. B65h 75/48

U.S. Cl. 242-107

12 Claims



A dispenser for coiled strapping material having a reel assembly rotatably mounted on a depending arm assembly, which is pivoted to a supporting frame structure. An unwound length of strap is trained about a guide on the arm assembly which causes the arm to pivot as tension is applied to the strap. The frame structure includes two spaced-apart frictional brake pads which react in varying degrees on the rim of the reel assembly and control the rate of rotation of the reel assembly as the reel is moved in relation to the frame in response to the pivot action of the arm assembly.



A laundry drier includes a drum which is mounted for rotation in two opposite directions. A plurality of elongated flexible lines are secured to the drum at axially spaced points and arranged to be wound onto the drum when it rotates in one direction and to be unwound when it rotates in the opposite direction. A biasing spring permanently urges the drum to rotate in the direction in which it winds up the lines. Arresting means is operable for arresting the drum from rotation in the direction unwinding the lines and actuating means is located axially adjacent one end of the drum and has limited freedom of movement axially of the drum between a first position in which it engages the drum for rotating the same, and a second position in which it is disengaged from the drum.

3,602,453
DEPTH CONTROL FOR FISHING REEL
Ray Holmes, 1118 Spring St., Collinsville, Okla.
Filed Nov. 24, 1969, Ser. No. 879,386
Int. Cl. A01k 89/00

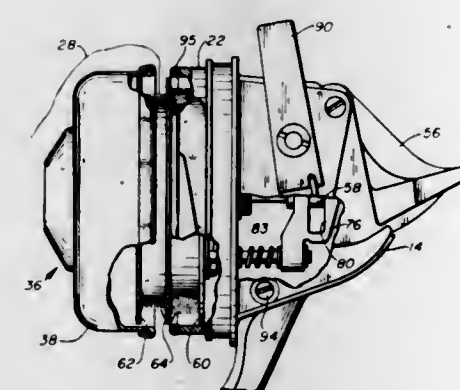
U.S. Cl. 242-84.2 A

5 Claims

3,602,455
WIRE DISPENSER
Charles W. Lewis, 4537 E. 8th, Tucson, Ariz.
Filed Dec. 8, 1969, Ser. No. 883,218
Int. Cl. B65h 49/00

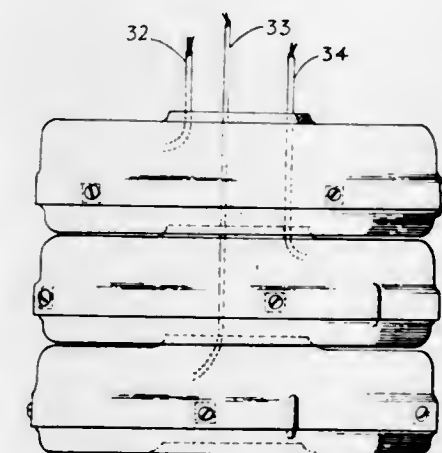
U.S. Cl. 242-129

7 Claims



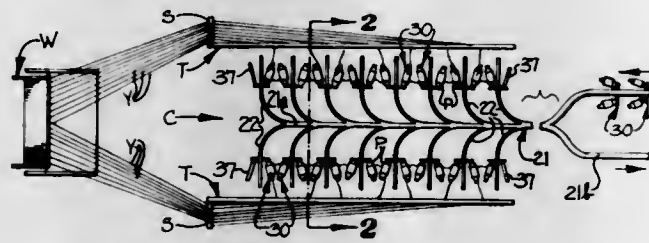
A fishing reel of the spin-cast type includes a line spool having forward and rearward storage areas thereon. Once the desired length of fishing line is established, a lever-actuated travel mechanism moves the spool rearwardly to present the forward storage area for receiving the desired length of line during line takeup and releasing the same length during casting and to concurrently exclude the residual line on the rearward storage area from being utilized during the casting operation.

The dispenser consists of two dishes secured together at their edges to contain a 500-foot roll of insulated wire. The lower dish has a large central hole with a reentrant coaming fitting the center of the wire roll. The upper dish has a similar central hole except that the coaming extends outward to form a smooth edge through which the wire can be drawn. The outward coaming also forms a hub on which another dispenser can be stacked, with both wire ends from the two dispensers drawn through the uppermost hole.



3,602,456
CREEL ASSEMBLY
 William L. Schmidt, Gastonia, N.C., assignor to Colman-Cocker Company, Gastonia, N.C.
 Filed Feb. 18, 1970, Ser. No. 12,319
 Int. Cl. B65h 49/02; D03j 5/08
 U.S. Cl. 242—131.1

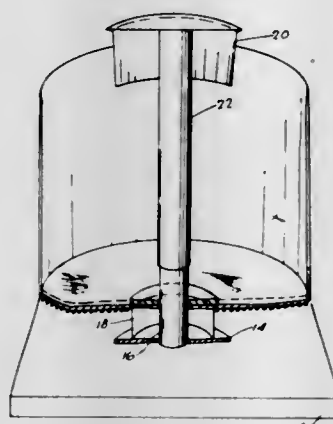
9 Claims



A creel assembly including an elongate main trackway and at least two branch trackways communicating with the main trackway and extending outwardly therefrom in spaced apart relation. At least two carriers, each having means for mounting at least one yarn-supply package thereon, are mounted for independent movement along the trackways between a yarn-supplying position on respective branch trackways and a package replenishing position away from the branch trackways. The two carriers cooperate when in the yarn-supplying positions for alternative supplying of yarn from yarn-supply packages mounted thereon so that yarn may be supplied from one carrier while the other carrier is being replenished with full yarn-supply packages.

3,602,457
CROCHET THREAD HOLDER
 John W. Nichols, and Ila L. Nichols, both of Box 971, Thompson, Mont.
 Filed Nov. 17, 1969, Ser. No. 877,177
 Int. Cl. B65h 49/18
 U.S. Cl. 242—134

4 Claims



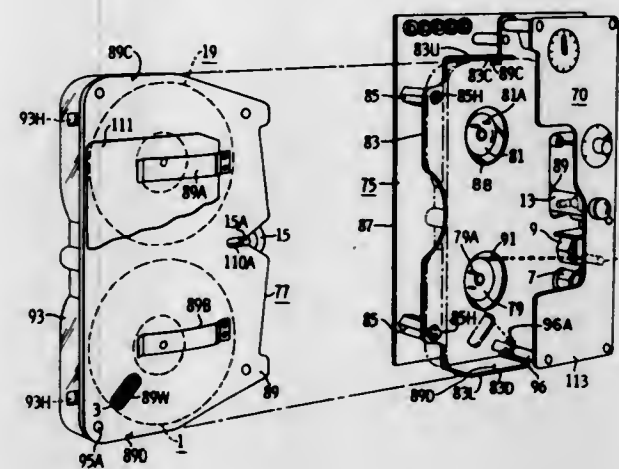
Apparatus for vertically supporting a spool or cylinder wound with thread such as used for crochet work in such manner that the thread can be unwound smoothly and continuously without tangling or snarling of any kind.

3,602,458
TAPE RECORDER HAVING A TAPE CARTRIDGE
 William P. Doby; Julian M. Lynch, and Carl J. Snyder, all of Raleigh, N.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed June 11, 1969, Ser. No. 832,118
 Int. Cl. G03b 1/04; G11b 15/32, 23/04
 U.S. Cl. 242—199

13 Claims

A tape recorder is provided with a tape cartridge unit wherein a payout or supply reel and a takeup reel are mounted side-by-side on parallel-spaced axes. When the cartridge unit is in its operating position, the reels are in a plane adjacent to, and parallel to, the front of the tape recorder. A pressure roller presses the tape against a capstan which is

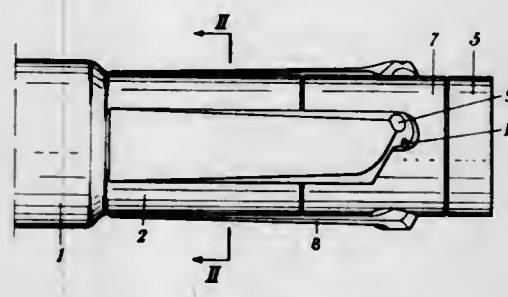
mounted separately from the cartridge unit. A single spring provides this pressure and also holds the cartridge unit releasably in operating position and further operates a brake



to inhibit movement of the reels when the cartridge unit is removed from its operating position. The tape is directed from the pressure roller to the inner sides of the reels.

3,602,459
RETRACTABLE BLADE UNIT FOR PROJECTILES
 Mario Pesarini, Velletri; Piero Galeazzi, Rome, and Carlo Tosti, Colleferro, all of Italy, assignors to Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa SpA., Milano, Italy
 Continuation-in-part of application Ser. No. 690,625, Dec. 14, 1967, now abandoned. This application July 14, 1969, Ser. No. 871,448
 Int. Cl. F42b 13/32
 U.S. Cl. 244—3.27

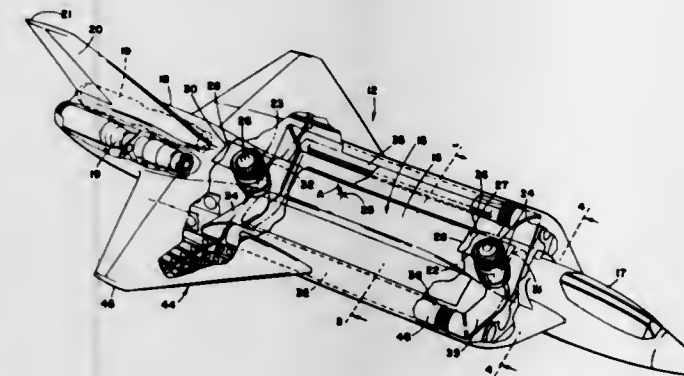
6 Claims



A retractable tail unit for guiding projectiles, which unit includes an idle bushing mounted in the rear part of the cylindrical body of the projectile. The bushing has the same diameter as the outer diameter of convergent and divergent composite body portions of said cylindrical body, all being axially aligned with said body. A plurality of substantially trapezoidal shaped blades are pivot mounted at one end on a pivot pin mounted slantwise on the bushing, with the blades in their "closed" position lying flat tangentially to coextensive portions of the bushing and of the convergent portion of the cylindrical body of the projectile, and parallel to the axis thereof. The blades, when in their "closed" position, are contained within a circular ring area or recess defined by or between a combination of the body of the convergent portion and of the bushing, and by the outer diameter of the cylindrical body of the projectile. The center of gravity of these blades, as a result of the axial acceleration in the initial launching stage, is so displaced as to cause a moment on the blades which effects the opening and the extension of each blade about the slanting or canted pivot pin, the blades thus placing themselves radially with respect to the axis of the cylindrical body of the projectile, at the desired attachment angle.

3,602,460
AIRCRAFT HAVING VERTICAL AND FORWARD MOTION AERODYNAMICS
 Donald Charles Whittley, Port Credit, Ontario, and John Albert Conway, Milton, Ontario, both of Canada, assignors to The De Havilland Aircraft of Canada Limited
 Filed June 11, 1969, Ser. No. 832,326
 Int. Cl. B64c 29/00
 U.S. Cl. 24—12

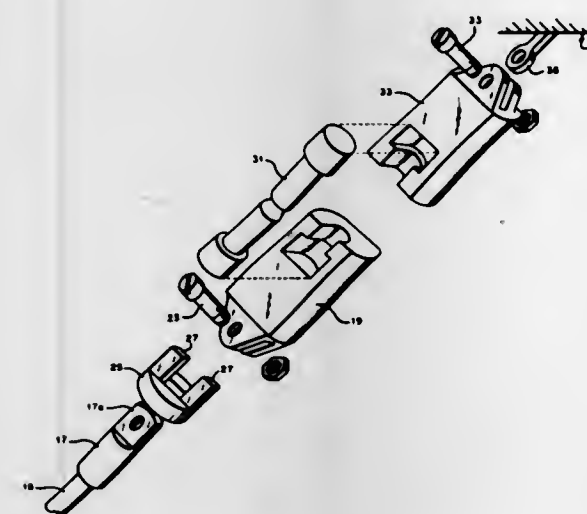
3 Claims



The disclosure sets forth a winged aircraft having both vertical and forward direction aerodynamic capabilities which are both functional in the transition stage during landing and takeoff maneuvers.

3,602,461
POLYURETHANE STABILIZER SLEEVE
 Joseph P. Cody, Cheltenham; Dale A. Walker, Media, and Thomas P. Mulgrave, Glen Mills, all of Pa., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Dec. 16, 1968, Ser. No. 783,929
 Int. Cl. B64f 1/12
 U.S. Cl. 244—63

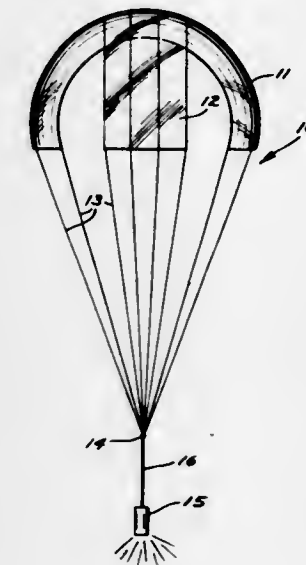
3 Claims



The present invention relates to a novel and improved apparatus for restraining an aircraft from a catapult assisted take off until a predetermined required launch force is developed. The improved aircraft restraining or holdback apparatus includes a cable which is secured at one end to the aircraft take off surface and at its other end to a sheer pin retainer assembly that is, in turn, connected through conventional intermediate holdback apparatus components to the aircraft. Pivotal movement of the retainer assembly on the cable is limited by a polyurethane sleeve which surrounds the cable-retainer assembly interconnection and protects it from damage on impact on the takeoff surface during a launching operation.

3,602,462
PARACHUTE
 Richard J. Slater, and Lelan R. Jamison, Jr., both of Northfield, Minn., assignors to G. T. Schjeldahl Company, Northfield, Minn.
 Filed Apr. 1, 1969, Ser. No. 811,881
 Int. Cl. B64d 17/02
 U.S. Cl. 244—145

4 Claims



Stress-tailored bodies for aerial decelerator devices, such as cross parachutes, comprising at least a pair of flexible segments secured together to form the decelerator structure. The segments forming the decelerator structure are formed of either a nonporous film or a woven nylon fabric of the type normally employed for parachute structures. Reinforcing scrim or lines are secured to the surface of the segments with certain of the scrim axes being generally oblique to the axis of the particular segment, and in addition, load lines or additional reinforcement is applied having an axis generally parallel to the axis of the particular segment at the point where it is applied. Load or shroud lines are also provided which extend along the edges of the individual segments, with the free ends of these load lines being secured to a common load ring or member.

3,602,463
FAIL-SAFE RAFT SYSTEM
 Chris T. Koochembere, Glendora, N.J., assignor to the United States of America, as represented by the Secretary of the Navy
 Filed Mar. 27, 1969, Ser. No. 811,070
 Int. Cl. B64d 17/40
 U.S. Cl. 244—148

3 Claims



The present invention relates to a novel and improved packaging system for an inflatable raft in survival apparatus

used by a pilot after an ejection from his aircraft over water. The improved packaging system involves use of a pair of cup-shaped boot members that fit over opposite ends of the compactly rolled raft and a cover member that overlies the rolled raft and boot members. Studs on the outer peripheral surface of one flap of the cover member engage grommets in the ends of tabs attached to the boot members as well as grommets on the other flap of the cover member and prevent premature inflation of the raft until the cover member and boot members are removed.

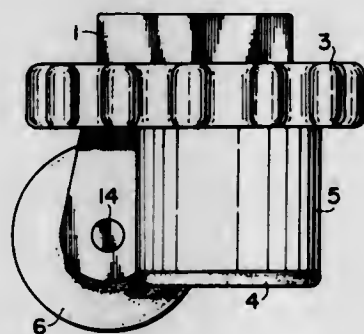
3,602,464
TRANSPORT AND LOCKING DEVICE FOR A MACHINE AND THE LIKE

Sho Orii, 2102-1 Oaza Higashi-Hongo, Saitama-ken, Kawaguchi, Japan

Filed Feb. 26, 1970, Ser. No. 14,541
Claims priority, application Japan, June 21, 1969, 44/58,236
Int. Cl. B60b 33/06

U.S. Cl. 248-24

7 Claims

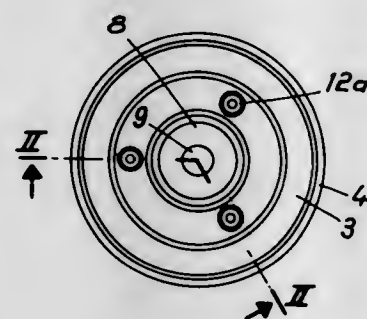


A transport stabilizer device for machines and instruments comprises a mounting nut secured to the leg or bottom of a machine or instrument and a frame rotatably mounted on the nut. A vibration damper is vertically movable in the frame by means of an adjustment bolt and an adjusting nut, and a transport wheel is mounted on the frame. The adjustment bolt in the frame is offset horizontally from the center of the frame and the transport wheel in the frame is offset in the opposite direction from the center of the frame, a part of the wheel being located in a notch in the vibration damper near the center of the frame, whereby the vibration damper can descend and contact the floor to support the machine in a stabilized, rest position in which vibration is damped while level adjustment of the machine can be effected. When the vibration damper ascends to leave the floor the transport wheel, in turn, moves down to contact the floor to permit transport of such machine.

3,602,465
ANTIVIBRATORY SUPPORTS
Michel E. Velut, Lyon, France, assignor to Caoutchouc Industriel De Rochassieux, La Broidre (Savoie), France
Filed Dec. 30, 1969, Ser. No. 889,265
Claims priority, application France, Dec. 31, 1968, 50,876
Int. Cl. F16f 15/00

U.S. Cl. 248-24

13 Claims



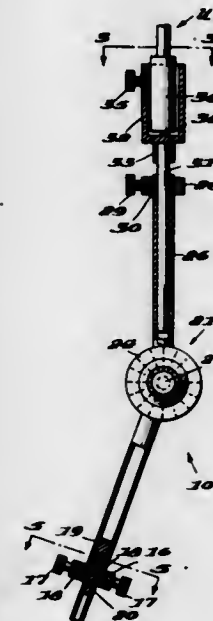
This invention relates to an antivibratory support comprising at least one solid resilient element interposed between a

support bedplate and a support element, wherein it comprises at least one means for applying to at least one of the solid resilient elements a prestress in at least one direction, this means abuts exclusively on at least two of the rigid elements of this support and said means is preferably adjustable and independent of the means for changing the level.

3,602,466
GOLF CART UMBRELLA UNIT
Ronald G. Drowns, 6850 El Calegio Road, Goleta, Calif.
Filed June 27, 1969, Ser. No. 837,277
Int. Cl. A45b 17/00; B62b 1/26

U.S. Cl. 248-41

2 Claims

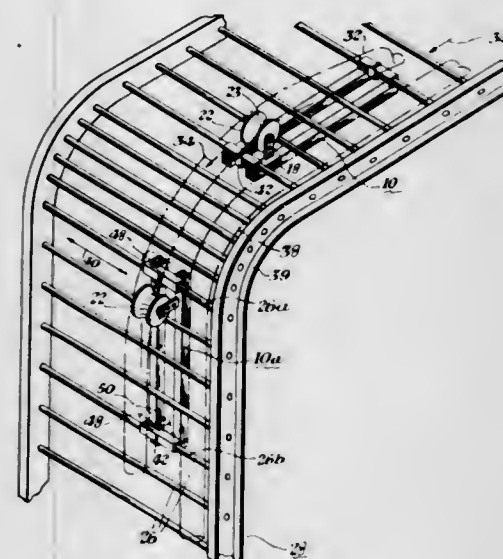


An umbrella attachment for golf carts in which an adjustable arm is detachably secured to a frame member of the golf cart and supports an umbrella with the conventional umbrella handle clamped to the upper end of the arm.

3,602,467
CABLE DRAW MECHANISM FOR CABLE TRAYS
Henry Thomas, 1789 Tilton Drive, Upper St., Pittsburgh, Pa.
Filed Aug. 22, 1969, Ser. No. 852,375
Int. Cl. H02g 3/04

U.S. Cl. 248-55

14 Claims



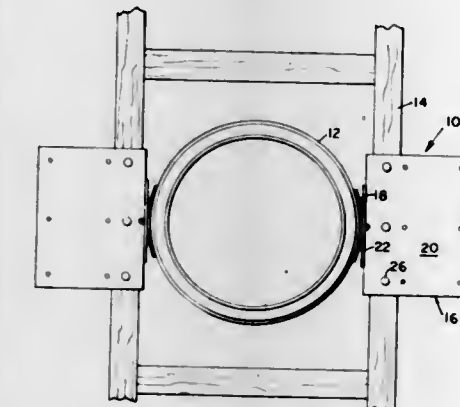
I disclose a cable draw mechanism for a rung cable tray and the like, said mechanism comprising an elongated frame, rung engaging means mounted on said frame adjacent each end thereof, and a cable pulley rotatably mounted on said frame at a position intermediate said rung-engaging means,

said pulley being shaped for insertion between an adjacent pair of rungs forming part of said cable tray.

3,602,468
ROOF SUPPORT ASSEMBLY FOR CHIMNEYS
Richard L. Stone, Los Altos Hills, Calif., assignor to Wallace-Murray Corporation, New York, N.Y.
Filed June 5, 1969, Ser. No. 830,649
Int. Cl. F16l 5/00

U.S. Cl. 248-57

5 Claims

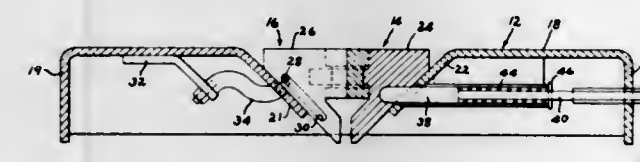


A support assembly for securing a prefabricated metal chimney or the like to a sloped roof and comprising a pair of bracket members adapted to be fixed to rafters on opposite sides of the chimney, each being adjustably connected to a plate member which is fixed to the chimney so that the chimney can be held vertically despite the degree of roof slope.

3,602,469
SELF-ALIGNING, AUTOMATIC-LOCKING TRAILER HITCH HEAD
James C. Hammonds, St. Charles, Mo., assignor to ACF Industries Incorporated, New York, N.Y.
Filed Oct. 27, 1969, Ser. No. 869,549
Int. Cl. B60p 7/00

U.S. Cl. 248-119 S

12 Claims



A trailer hitch head includes a support structure having a centrally located V-shaped well in which a pair of kingpin-engaging jaws are to move downwardly and inwardly to their closed position when a trailer is deposited on the hitch, or lifted by the trailer and then moved upward and away from each other to their open position by shear pads connected between the jaws and the support structure during unloading of the trailer. Spring pressed plungers lock the jaws in their closed position, until manually retracted immediately before unloading the trailer.

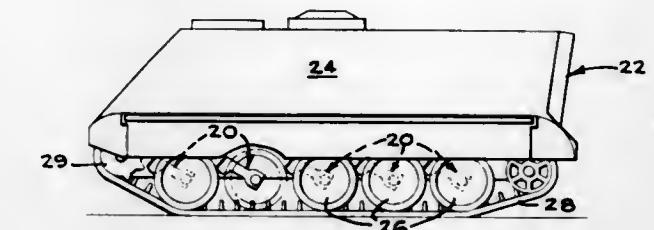
3,602,470
HYDROPNEUMATIC SUSPENSION UNIT
Ralph K. Reynolds, Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif.
Filed May 28, 1969, Ser. No. 828,551
Int. Cl. B60g 11/26

U.S. Cl. 280-124

12 Claims

A hydropneumatic wheel suspension unit including a pivotally mounted combined cylinder and strut wherein the strut encloses a reaction piston and carries the wheel near its free end. The gas cushion is provided by a bladder-type accumulator mounted within the strut adjacent the wheel spindle. The suspension unit, although intended for heavy-duty military vehicles, is light in weight and compact because the dual-purpose arm forms both a cylinder and wheel support. The

accumulator is in a body of liquid which also extends throughout the hollow wheel spindle. Thus, the heat generated during operation of the suspension unit is dissipated into the wheel hub structure. A one-way valve

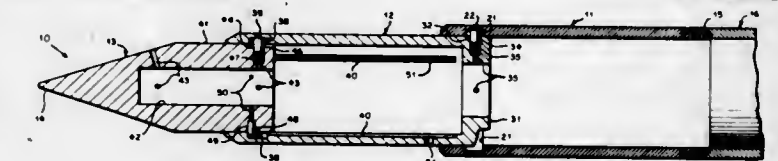


mounted in the piston automatically compensates for normal leakage of hydraulic fluid past the piston by transferring the fluid between an internal reservoir of the strut at its pivot end, to the other side of the piston.

3,602,471
COLLAPSIBLE SPIKE
Edgar A. Reed, Elkins Park, Pa., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 19, 1969, Ser. No. 859,418
Int. Cl. A45l 3/44

U.S. Cl. 248-156

4 Claims

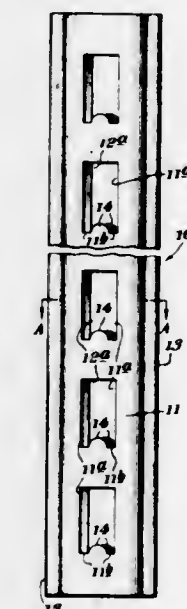


A spike erectable from a collapsed or telescoped condition to a fully extended, locked condition for use with an elongated package which is to be partially implanted in the ground after dropping or launching from an aircraft. The spike includes two tubular stages and a third stage terminating in a conical point, the stages being telescopic one within the other. Spring-loaded plungers are carried by the stages for movement into annular grooves formed in adjacent stages to effect locking engagement therewith, and the stages carry fixed pins to limit the degree of relative extension of the stages.

3,602,472
SHELF SUPPORTS
Anthony J. Smyth-Tyrrell, "Brora" Thorden Approach, Herongate, England
Filed Nov. 26, 1969, Ser. No. 880,321
Claims priority, application Great Britain, Nov. 26, 1968, 56070/68
Int. Cl. A47g 29/02

U.S. Cl. 248-242

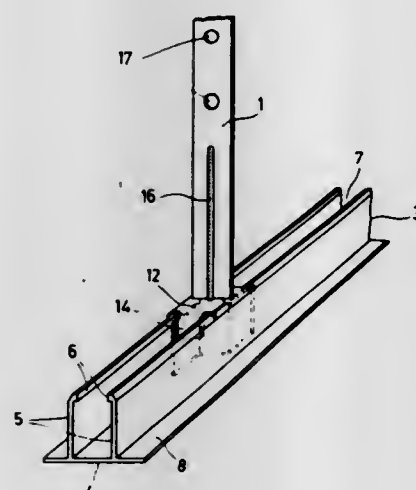
5 Claims



A shelf-supporting assembly consisting of hollow uprights which are slotted to hold shelf-supporting brackets, each

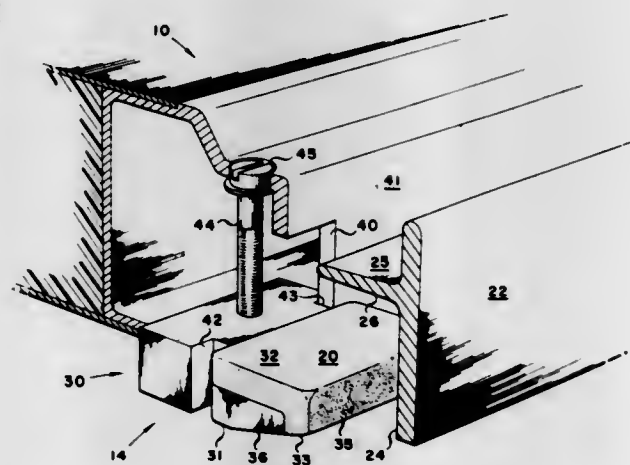
upright having a vertical row of slots through one pair of opposite sides, these being arranged in offset relation so that rear ends of horizontally adjustable brackets in the upright overlap.

3,602,473
SUSPENSION DEVICE
Martin Antoon Van Riet, and Franciscus Antonius Wilhelmus Vlijmen, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 11, 1970, Ser. No. 10,484
Claims priority, application Netherlands, Feb. 13, 1969, 6,902,238
Int. Cl. E04b 5/00
U.S. Cl. 248—317 3 Claims



A suspension device for supporting a profiled rod of U-shaped section having a rotatable arm which is provided with a Z-shaped coupling member at one end. The arm can be directly inserted into the slot of the profiled rod and can be brought into a locked position by rotating the arm.

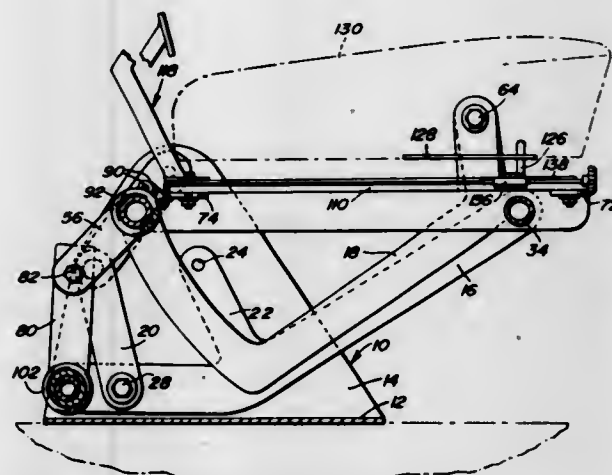
3,602,474
PALLET RESTRAINT APPARATUS
John O. Deering, and Robert H. Green, both of Atlanta, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Aug. 27, 1969, Ser. No. 853,468
Int. Cl. B65d 19/02
U.S. Cl. 248—361 10 Claims



A pallet for use in conjunction with pallet restraint rails which may be mounted in a vehicle such as an aircraft and

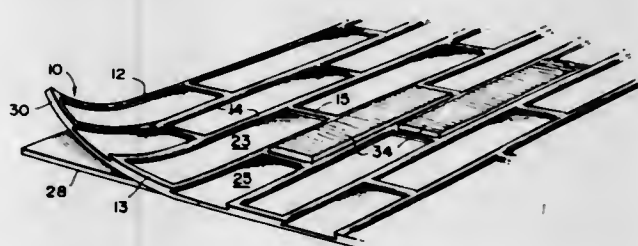
which provide guidance and retaining support for the pallet. The pallet includes one or more restraint devices which are selectively movable into engagement with the restraint rails to secure the pallet in a desired position. The restraint device includes an elastomeric cushion which is deformably pressed against the rail to restrain the pallet from vertical or lateral movement relative to the restraint rails.

3,602,475
SHOCK-ABSORBING SEAT STRUCTURE
Carl P. Sedlock, Box 145 Rte 1, Elwood, Ill.
Filed July 17, 1969, Ser. No. 842,613
Int. Cl. A47c 3/22
U.S. Cl. 248—399 9 Claims



A seat-mounting structure including a stationary base in a generally horizontal seat-support assembly disposed above the base. Spring controlled pivoted levers and connecting links support the assembly above the base for vertical movement relative to the base between upper and lower limit positions while maintaining the seat support generally horizontally disposed. Controlling springs of the structure include a first pair of springs which are progressively tensioned as the seat support assembly is moved from its upper limit position to its lower limit position and a second pair of springs which are pretensioned and whose tensioned state remains substantially the same throughout movement of the seat-support assembly from its upper limit position to a lower intermediate position above the lower limit position and which are progressively further tensioned during movement of the seat-support assembly from the intermediate position to the lower limit position thereof.

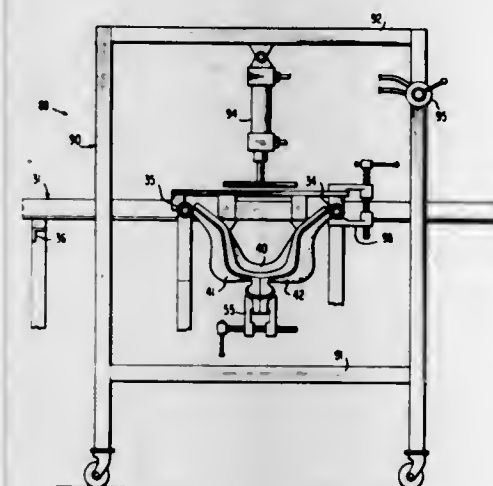
3,602,476
TEMPLATE FOR BRICK-FACED MASONRY PANEL
Jaime Iragorri, Chelmsford, Mass., assignor to San-Vel Concrete Corporation, Littleton, Mass.
Filed Apr. 7, 1969, Ser. No. 813,821
Int. Cl. E04g 11/06
U.S. Cl. 249—96 8 Claims



Masonry panels of concrete or other casting material are to be faced with brick, tile, or other blocks of facing material. An elastomeric template is molded with recesses which are defined and separated by upstanding ridges; these ridges form the pattern of the grouting grooves between the bricks

of a conventional masonry wall. The ridges are undercut so that the opening of each recess is slightly smaller than the nominal dimensions of each brick, but the bottom surfaces of the recesses are the same size or larger than the nominal dimensions of the brick. A series of bricks are seated in these recesses, the template being placed in a mold. A panel of reinforced concrete or other casting material is poured over the template and cured to bond the rear surfaces of the bricks to the panel. The template is subsequently removed. The resulting brick-faced panel is a close replica in appearance to a conventional masonry wall. The configuration and dimensioning of the template ridges prevents flow of the casting material onto the front faces of the bricks, which would ruin the panels, and also accommodates normally wide tolerance variations of the bricks from nominal dimensions.

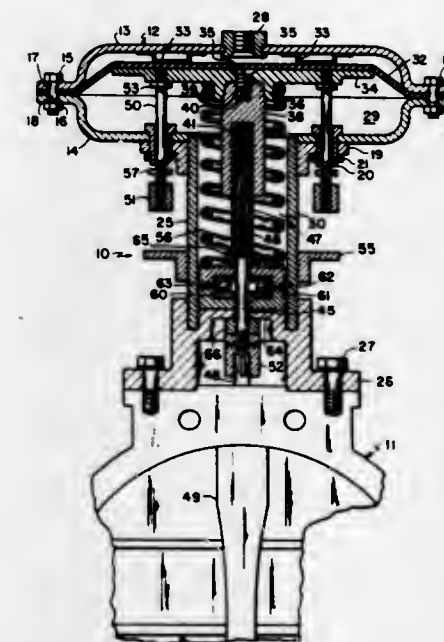
3,602,477
APPARATUS FOR MOLDING SADDLETREES
Carl J. Queen, 5310 Peachtree Dunwoody Road N.E., Atlanta, Ga.
Filed Feb. 19, 1969, Ser. No. 800,470
Int. Cl. B41b 11/52
U.S. Cl. 249—170 5 Claims



A method and apparatus for molding saddletrees wherein saddletrees are fabricated with a fiberglass shell filled with a wood filler. A plurality of sectional molds are passed through a circular path where the molding process steps take place. The molds are coated with a lubricant, the lubricant is dried, and a mixture of fiberglass and polyester resin is applied to the surfaces of the mold cavity. After the fiberglass mixture is cured, a filler comprising polyester resin and wood chips is placed in the mold cavities, and the sections of the mold are connected together. When the mixtures within the mold are cured, an unusually strong, water impervious, and lightweight saddletree is formed.

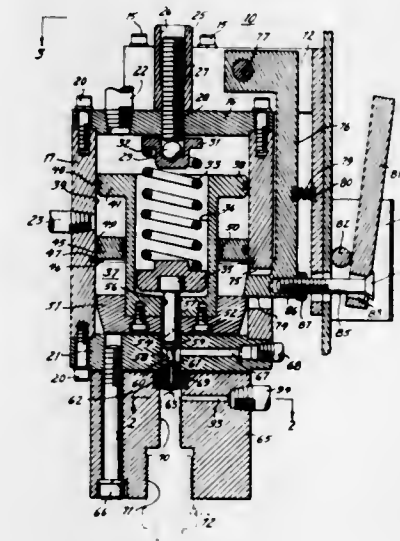
3,602,478
VALVE CONTROL UNIT
Theodore F. Cairns, Coraopolis, Pa., assignor to Oscar L. Minear; Gary M. Stary; Fred L. Potts; Earl Schaffer; Philip M. Kerr; William Zuccaro and Robert Pendel, Part interest to each
Filed May 22, 1969, Ser. No. 826,924
Int. Cl. F16k 31/165
U.S. Cl. 251—58 4 Claims

A valve control unit comprising a housing containing a pneumatically operated diaphragm and a floating diaphragm head connected to a nonrotatable adapter having an opening containing helically spiraled grooves. A shaft, one end of which has a set of perimetrical threads which mate with the helically spiraled grooves of the adapter, is connected at its other end to the valve-actuating member. A downward movement of the diaphragm acting on the diaphragm head rotates the shaft and actuates the valve. The diaphragm head



thereof and, therefore, control the amount of actuation to the valve.

3,602,479
QUICK RELEASE VALVE
John C. Bowen, Huntingdon Valley, Pa., assignor to The Duriron Company, Inc., Dayton, Ohio
Filed Apr. 29, 1970, Ser. No. 32,963
Int. Cl. F16k 31/44; G01m 3/02
U.S. Cl. 251—74 8 Claims

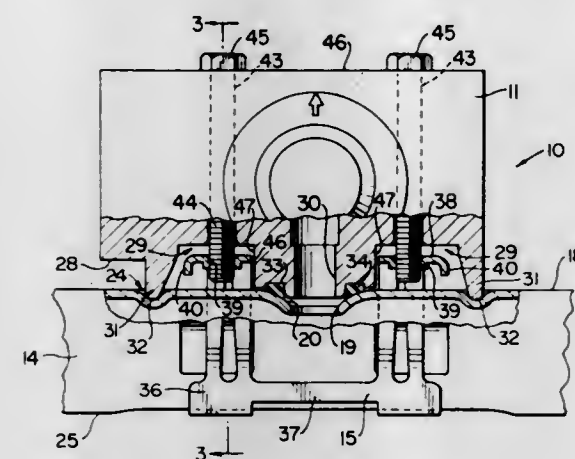


A quick release valve is provided for high pressures of the order of 50,000 p.s.i. which includes a cylinder for pressure setting having a piston head carrying a spring urged valve therein, the piston head being retained from upward movement by a lever actuated pivotal catch. The cylinder head carries the devices such as strain gage, piezo or other transducers to be exposed to the pressure of the released fluid.

3,602,480
METHOD AND MEANS FOR MOUNTING A CONTROL DEVICE TO A FUEL SUPPLY MANIFOLD
Roy C. Deml, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 17, 1969, Ser. No. 817,001
Int. Cl. F16k 51/00; F16l 41/06
U.S. Cl. 251—146 29 Claims

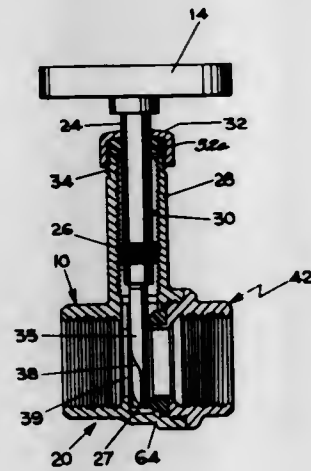
A fuel supply manifold having sidewall means provided with an opening means therethrough and a control device

sealingly disposed against the sidewall means of the manifold around the opening means and having an inlet means disposed in fluid communication with the opening means, the control device being sealingly secured to the manifold solely



by a bracket means that is detachably interconnected to the manifold about the sidewall means thereof and to the control device in such a manner to secure the control device to the manifold in sealed relation solely by the interconnection of the bracket means with the control device and the manifold.

3,602,481
RESILIENT SEAT GATE VALVE
Lee Martin, Elkhart, Ind., and Clarence M. Fore, Nacogdoches, Tex., assignors to Nibco, Inc., Elkhart, Ind.
Filed Aug. 7, 1969, Ser. No. 848,198
Int. Cl. F16k 51/00
U.S. Cl. 251-152 2 Claims

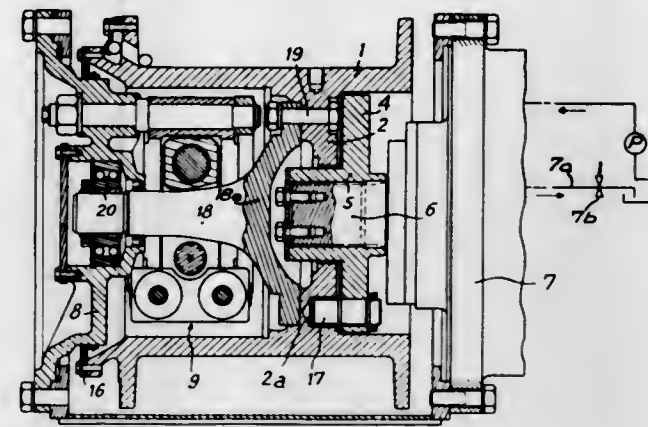


A rising stem gate valve having a removable resilient, polymeric valve seat, preferably polytetrafluoroethylene retained against a removable pipe bushing of the valve, and in one form having an axially protruding annular nose which provides a seat for the valve disc carried by the stem.

3,602,482
MOTORIZED WINCH
Gabriel L. Guinot, Le Plessis-Belleville, Oise, France, assignor to Societe Anonyme Poclalm of Le Plessis, Belleville, Oise, France
Division of Ser. No. 673,472, Oct. 6, 1968, abandoned
Filed Aug. 11, 1969, Ser. No. 849,069
Int. Cl. B66d 1/30
U.S. Cl. 254-150 3 Claims

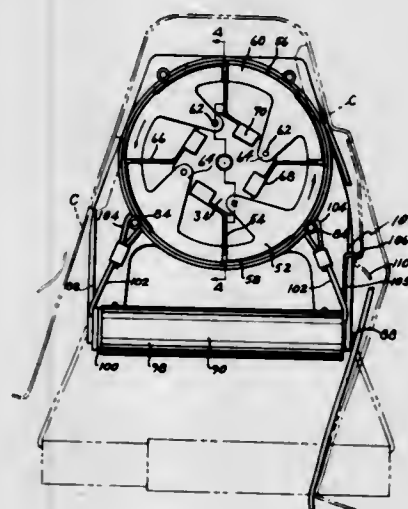
A winch composed of a drum driven by a low speed hydraulic motor and having braking means mounted within the drum. There is a motor shaft and a drum shaft, with the drum shaft having a swivel connection at one end to a fixed plate forming part of the frame and having its opposite end

fixed to the drum, and the motor shaft being drivingly connected to the drum. The drum mounting opposite the swivel



connection allows some radial play to compensate for misalignment of the two shafts.

3,602,483
LOAD-LOWERING DEVICE
George K. Russell, Castle Rock; Ronald L. Criley, Evergreen, and Richard H. Frost, Littleton, all of, Colo., assignors to Frost Engineering Development Corporation, Englewood, Colo.
Filed July 3, 1969, Ser. No. 838,759
Int. Cl. B66d 5/04, 5/18
U.S. Cl. 254-157 2 Claims

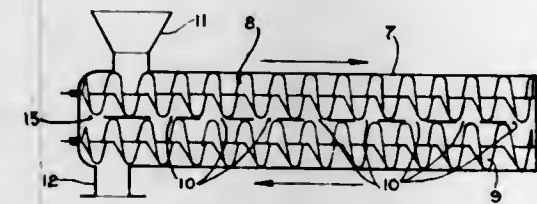


This invention relates to an automatically braked load-lowering device wherein the free end of the load line is secured to an overhead support and payed off the rotating hub of a reel that descends with the load suspended therebeneath. One or more brake shoes are pivotally attached to the outside of the single reel flange for movement against a stationary brake drum under the influence of both centrifugal force and a positive spring bias. A handle for use by human loads is stowed in telescoped position between a pair of spaced abutments forming a part of the reel housing and, when pulled free of the latter, the handle extends due to spring bias between its telescoped elements so as to form a two-hand grip.

3,602,484
MIXERS
Pierre Poncet, 54, Rue du Professeur Florence, Lyon, France
Filed Dec. 18, 1968, Ser. No. 784,781
Claims priority, application France, Dec. 28, 1967, 49,474
Int. Cl. B01f 7/02
U.S. Cl. 259-6 5 Claims

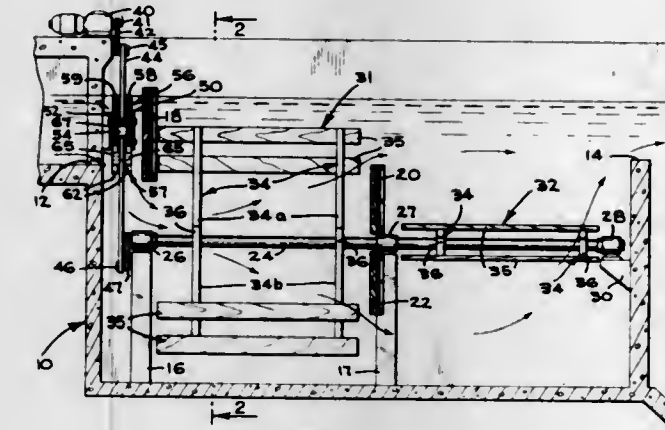
The materials to be mixed are propelled along a first or inlet path which communicates through a plurality of transverse passages with a second or outlet path parallel to the first one and along which they are propelled in the reverse

direction. The propelling means may be in the form of screws rotating in bores or gutters. These screws have preferably a frustoconical core in order that the flow of material which they determine decreases in the first path in the direction of



travel of the materials and on the contrary increases in the second path. In the case of screws rotating in gutters, the latter may be separated by a relatively low position over which the materials flow regularly from the first or inlet gutter into the second or outlet one.

3,602,485
FLOCCULATION APPARATUS
Philip Edgerton, Holicon, Pa., assignor to FMC Corporation, San Jose, Calif.
Filed Dec. 23, 1968, Ser. No. 786,070
Int. Cl. B01f 7/02
U.S. Cl. 259-110 4 Claims

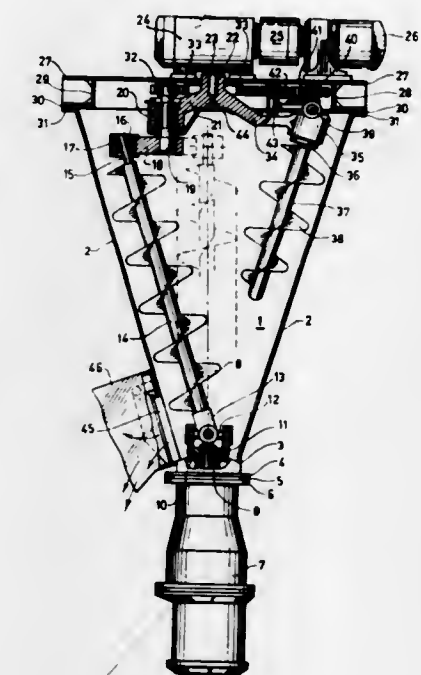


Rotary paddles of a mixing apparatus are driven by a crank mechanism through a pivoting lever that swings about a yieldable fulcrum, the arrangement being such that the paddles are moved with a varying velocity in a circular path through the liquid being mixed.

3,602,486
DEVICE FOR STIRRING MATERIAL OR DRYING SLURRIES OR SLUDGES
Constant Johan Nauta, Overveen, Netherlands, assignor to Nautamix Patent A.G., Zug, Switzerland
Filed July 11, 1969, Ser. No. 841,000
Claims priority, application Netherlands, July 18, 1968, 6810202
Int. Cl. B01f 7/00
U.S. Cl. 259-102 10 Claims

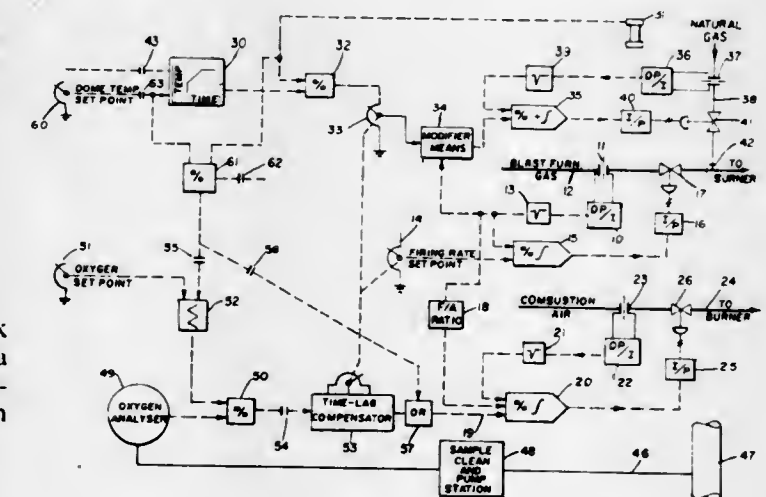
A device for stirring and mixing materials and for drying slurries, sludges and the like comprises a vessel having a vertical axis of symmetry. Two stirring members are mounted in the vessel. One of the stirring members rotates about its own axis while revolving about a circular path about the axis of

symmetry of the vessel while the other stirring member rotates about its own axis while revolving about the axis of



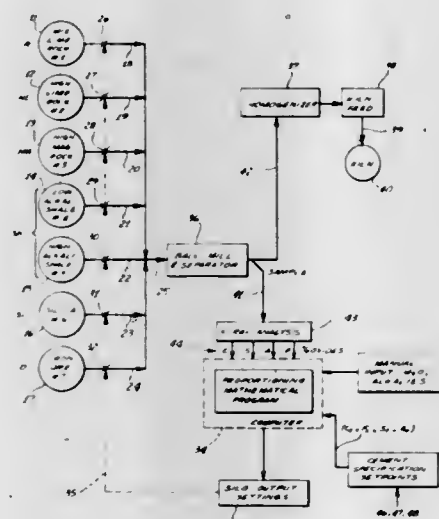
symmetry of the vessel and simultaneously moving alternately towards and away from the sidewalls of the vessel.

3,602,487
BLAST FURNACE STOVE CONTROL
Donald W. Johnson, Pittsburgh, Pa., assignor to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.
Filed Nov. 10, 1969, Ser. No. 875,346
Int. Cl. F231 9/04
U.S. Cl. 263-19 A 15 Claims



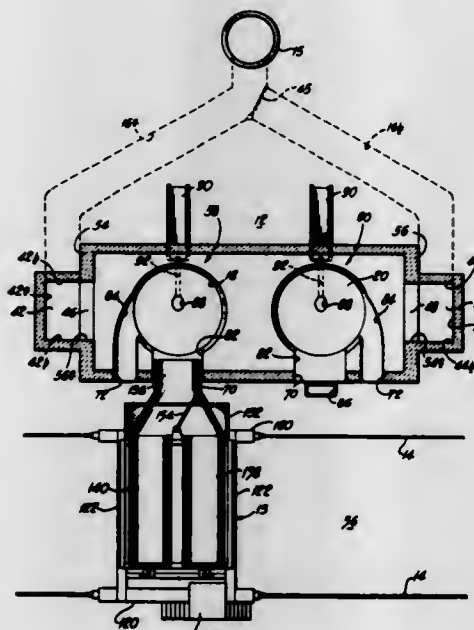
A system for controlling the operation of a blast furnace stove during its on-gas period, including means for controlling the enrichment of the combustion fuel used to heat the stove. Control is effected primarily by comparing a measured stove dome temperature to a stove heating-up or firing schedule, represented by the output of a function generator programmed according to a desired stove temperature-time relationship, and referencing differences in the temperatures to a natural gas flow control loop which controls the richness of the fuel mixture and thereby increases or decreases the heat input to the stove, as required.

3,602,488
CEMENT RAW MIX CONTROL APPARATUS AND PROGRAMMING
 John R. Romig, Rialto, Calif., assignor to California Portland Company, Los Angeles, Calif.
 Filed Mar. 11, 1970, Ser. No. 18,517
 Int. Cl. F27b 7/20
 U.S. Cl. 263—32 20 Claims



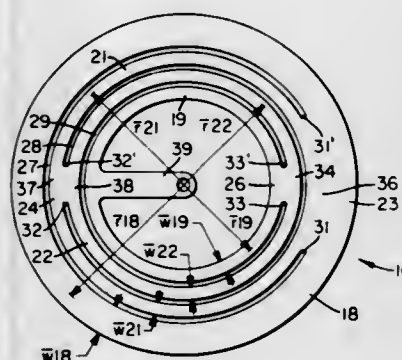
A system including computer apparatus and programming automatically controls the proportioning of raw materials fed to a kiln-producing cement clinker, the automatic control depending upon the analytical values of the various oxides of the raw materials, the result being a raw mix composition of optimum uniformity.

3,602,489
METHOD AND APPARATUS FOR MAKING STEEL
 William A. Morton, and Alfred S. Sobek, both of Pittsburg, Pa., assignors to Sunbeam Corporation
 Division of Ser. No. 632,854, Feb. 17, 1967, Pat. No. 3,495,974
 Filed Mar. 13, 1969, Ser. No. 844,220
 Int. Cl. C21c 7/00
 U.S. Cl. 266—39 4 Claims



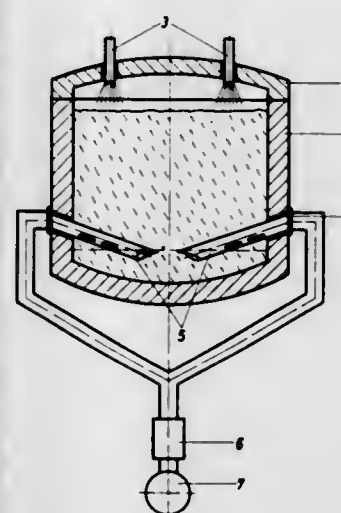
Method of converting a single-basin open-hearth furnace into a dual-basin furnace for preheating the steel in one basin while working molten metal in the other basin.

3,602,490
SEISMOMETER SPRING
 Allen H. Mueller, and Ernest Wilson, both of Houston, Tex., assignors to Mandrel Industries, Inc., Houston, Tex.
 Filed Sept. 24, 1969, Ser. No. 860,648
 Int. Cl. F16f 1/34
 U.S. Cl. 267—161 6 Claims



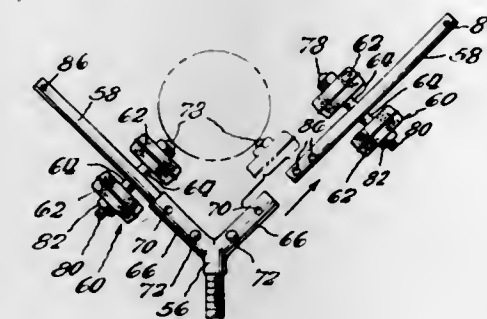
The two medially positioned cantilevered rings of four spaced concentric rings of resilient spring material are joined to adjacent rings at diametrically opposite locations by resilient bridges to form a leaf spring structure having inner and outer support rings bridged to respective anchor sides of adjacent inner and outer medially positioned cantilevered rings whose free ends are joined by a resilient bridge. In one embodiment the inner and outer rings are mounted respectively by a slipping assembly to the fixed reference and the suspended inertial mass to allow relative rotation between each of them and the leaf spring structure when subjected to tortuous forces.

3,602,491
SCRAP-MELTING, STEELMAKING VESSEL
 Heimo Leopold, Dusseldorf, Germany, assignor to Maerz Ofenbau GmbH, Dusseldorf, Germany
 Filed Nov. 21, 1968, Ser. No. 777,576
 Claims priority, application Germany, Nov. 22, 1967, P 15 83 271.0
 Int. Cl. C21b 11/00
 U.S. Cl. 266—33 2 Claims



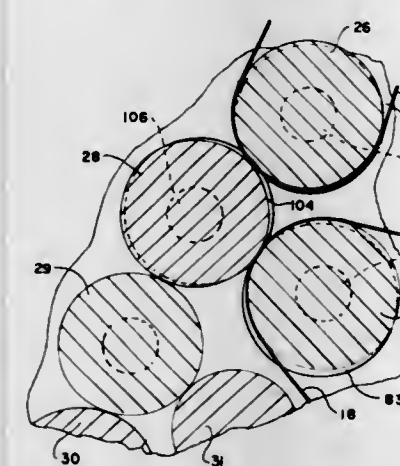
The specification describes a method for producing steel utilizing scrap. A vessel suitable for use as a top-blown converter or an electric furnace is charged with scrap which is preheated in it and the vessel is then used for making steel. After this the vessel is again charged with scrap and the procedure is repeated.

3,602,492
COLLAPSIBLE STAND
 William E. Petrie, 18711 S. Cicero Ave., Finley Park, Ill.
 Division of Ser. No. 690,561, Dec. 14, 1967, abandoned
 Filed Mar. 25, 1969, Ser. No. 829,830
 Int. Cl. B23q 3/00
 U.S. Cl. 269—296 13 Claims



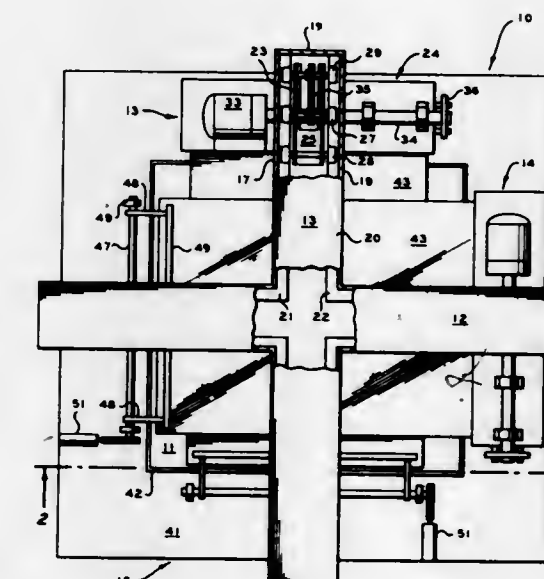
A collapsible stand which includes an upright member and at least three legs secured to the upright member at the lower end thereof with the legs extending outwardly and downwardly therefrom below the lower end of the upright member. A flexible elongated chain connects the legs and the upright member to brace the legs with respect to the upright member. Leg pads are secured to the chain in positions along the chain for telescopically receiving the lower ends of the legs. A chain-fastening member is removably mounted at the lower end of the upright member and has means secured to the elongated brace in positions angularly about the upright member. A work-holding device is mounted on the upper end of the upright member and has a pair of arms diverging upwardly therefrom forming a generally V-shaped saddle for receiving a cylindrical workpiece. Roller assemblies are mounted on each of the support arms with rollers rotatable about parallel axes extending generally perpendicular to the plane of the V to permit the cylindrical workpiece to be rotated about its axis while being supported on the rollers.

3,602,493
OFFSET PRINTING PRESS
 William H. Bedinghaus, Wyoming, Ohio, assignor to The Mosler Safe Company, New York, N.Y.
 Filed Mar. 20, 1969, Ser. No. 808,968
 Int. Cl. B41f 13/64
 U.S. Cl. 270—18 5 Claims



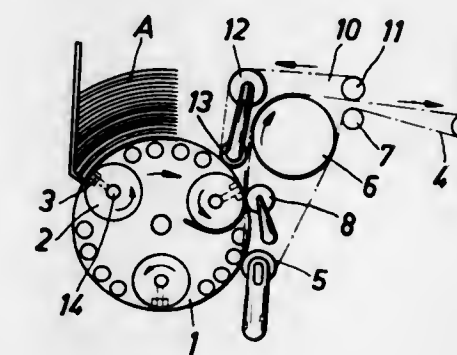
An offset printing mechanism including a blanket roll, a plate roll for inking indicia on the blanket roll, a pair of impression rolls cooperating with the blanket roll, and means for directing a web over each impression roll to engage the blanket roll to print the same indicia on both webs, the webs, after leaving the impression rolls, being advanced along separate paths to an assembly station where the webs are assembled with one web overlying the other web, the lengths of the paths being such that the indicia on the assembled webs are in registry.

3,602,494
CROSS-LAPPING APPARATUS
 Richard R. Holmes, Etowah, Tenn., assignor to Phillips Petroleum Company
 Filed May 5, 1969, Ser. No. 821,635
 Int. Cl. B65h 29/46
 U.S. Cl. 270—31 4 Claims



A film cross-lapping machine comprising first and second film-dispensing means movable in intersecting and angularly disposed paths for depositing first and second film materials in interlaced relation on a film-receiving platform.

3,602,495
DEVICE FOR THE REMOVAL OF SHEETS, INSERTS OR THE LIKE RELEASED FROM A ROLLER FRAME
 Rudolf Hepp, Schmidt-Ott-Strasse 7a, Berlin 41, Germany
 Filed May 1, 1969, Ser. No. 820,796
 Claims priority, application Germany, May 29, 1968, P 17 61 506.4
 Int. Cl. B65h 5/08
 U.S. Cl. 271—12 3 Claims



A device for the removal of sheets from a stack on a roller frame comprising a plurality of rollers mounted on the frame and which rotate in a different sense from the sense of rotation of the roller frame, the said rollers being provided with suction grippers which remove the sheets from the stack and feed them to a conveying means, the speed of which is independent of the rotational speed of the roller frame.

3,602,496

APPARATUS FOR MANIPULATING LABELS OR THE LIKE

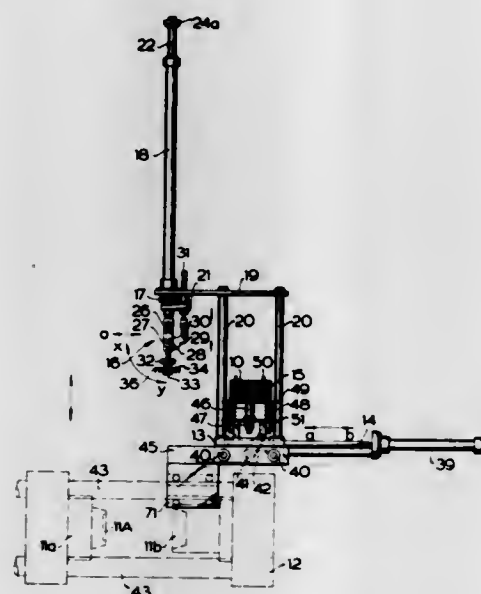
Hans J. Langenohl, Ludenscheid; Manfred Oleschinsky, Werdohl, and Gunther Stockmann, Haselhorn, all of, Germany, assignors to Dr. Ing. Fritz Sommer NACHF., Ludenscheid, Germany

Filed May 29, 1969, Ser. No. 829,164
Claims priority, application Germany, May 29, 1968, P 17 78 732.5

Int. Cl. B65h 5/10

U.S. Cl. 271-14

31 Claims



Apparatus for transferring labels from a magazine containing one or more labels to an injection-molding machine for synthetic plastic material comprises a carriage which can move the magazine in a horizontal plane into registry with a suction head movable up and down by a double-acting cylinder. The suction head removes from the magazine one label at a time and transfers it into the injection-molding machine when the carriage reassumes its starting position. The suction head is tiltable or otherwise movable with reference to the cylinder so that it can orient labels in an optimum position for application to the male or female die of the injection-molding machine.

3,602,497

SHEET REGISTERING AND FEEDING MECHANISMS

Charles Frederick Fawdry, London, England, assignor to H.T.B. Limited, London, England

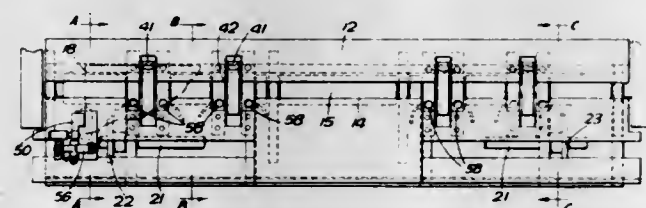
Filed May 23, 1969, Ser. No. 827,365

Claims priority, application Great Britain, May 27, 1968, 25301/68

Int. Cl. B65h 7/08, 9/06

U.S. Cl. 271-53

9 Claims



A mechanism for registering sheets of paper and feeding them individually to a machine which operates on single sheets comprises a hook which contacts the leading edge of a sheet advancing over a table, slows down and stops at a registering position to stop and register the sheet and then advances to clear the sheet in combination with feed rollers which grip the sheet after registration and feed it to the machine.

3,602,498

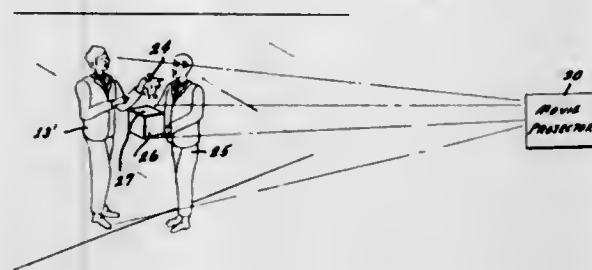
MAGICAL ILLUSION PROCESS USING FILMED AND LIVE ACTION

James Mark Wilson, Encino, and Alan R. Wakeling, Sherman Oaks, both of, Calif., assignors to Magical Productions, Inc., Los Angeles, Calif., by said Alan R. Wakeling

Filed Feb. 12, 1969, Ser. No. 798,755
Int. Cl. A63j 21/00

U.S. Cl. 272-10

5 Claims



Magical illusionary effects combining live and filmed action are produced by the method steps of filming a live action scene including items such as objects or persons while moving one of the items to a predetermined area in the scene where it is blocked from view by an opaque mask. Thereafter, when projecting the filmed action on a screen, a supposedly empty container is held by a live person in front of the screen at the time and place in the projecting sequence when and where the designated item was blocked from view, thereby making it appear that the item in the projected film was transferred to the empty container. Viewers are then surprised when the designated item is withdrawn from the supposedly empty container.

3,602,499

SEA ANIMATION APPARATUS INCLUDING ECCENTRICALLY MOVING SEATS AND SCENE PROJECTIONS

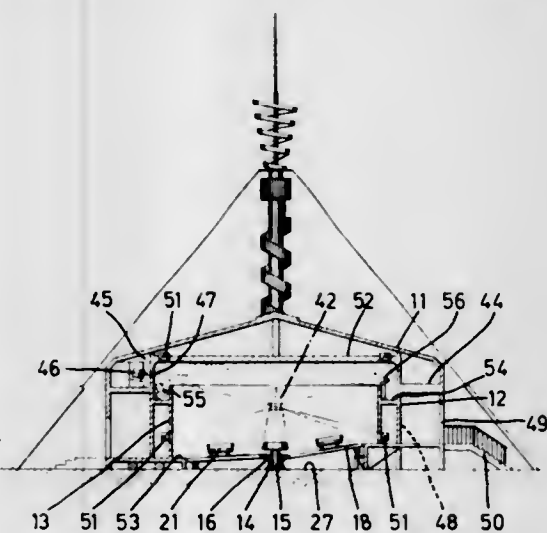
Masayoshi Kojima, Toyonaka-shi, Japan, assignor to Sansei Yusoki Co., Ltd., Osaka Prefecture, Japan

Filed Nov. 13, 1969, Ser. No. 876,433

Claims priority, application Japan, May 31, 1969, 44/51016

U.S. Cl. 273-18

3 Claims



A rocking and rotating amusement device having a plurality of platforms rotatable about a central axis, each of which is in the form of a segment of a disk. The platforms are flexibly linked to each other so that each segment can bend relative to adjacent segments along radial lines. Each of the platforms has a seat thereon, and means is connected to the platforms to drive them about the central axis. An undulating guide rail supports the peripheral edges of the platforms, and a circular screen is arranged around the platforms. A plurality of projectors is provided which projects pictures on the screen, and loudspeakers are provided for producing sounds appropriate to the projected scenes.

3,602,500

SEESAW TOY

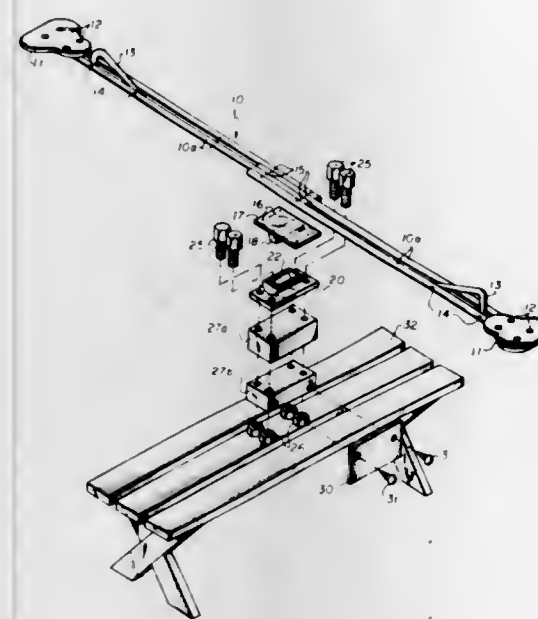
Joseph M. Cackowski, 15 Ledge Terrace, Old Bridge, N.J.

Filed Jan. 27, 1970, Ser. No. 6,260

Int. Cl. A63g 11/00

U.S. Cl. 272-54

5 Claims



A seesaw toy of simplified construction having a central supporting block with an attached downwardly depending vertical sideplate enabling the block to be mounted between slats of a slatted bench, the block supporting a semicircular socket on its upper surface, the device including an elongated rocker with end seats, the rocker having on its underside a semicircular projection which is complementary to and rotatably slidable within the socket as the rocker is reciprocated in use.

3,602,501

EXERCISE MACHINE FOR SUPPORTING THE USER AT AN ANGLE

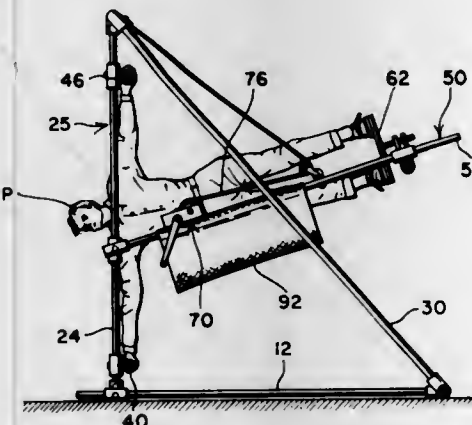
Jimmy D. Garner, Rte 2, Deatsville, Ala.

Filed Apr. 14, 1970, Ser. No. 028,321

Int. Cl. A63b 23/02

U.S. Cl. 272-58

10 Claims



An exercising machine includes a horizontal base frame and vertical frame held by removable side-brace bars. A pivot frame is pivotally secured to the vertical frame and rotates on a horizontal axis. The pivot frame has a hammock for supporting a person's body and pedals rotatable in a plane perpendicular to the plane of the pivot frame. Handlebars are adjustably positionable on the vertical frame. A person can grasp the handlebars while his feet are engaged at the pedals. The pivot frame is angularly adjustable by a winch.

3,602,502

MOVING BELT ERGOMETER WITH BRAKING ARRANGEMENT

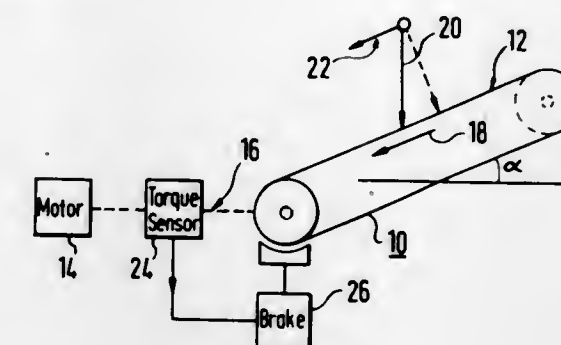
Franz Hampl, Hochberg, Germany, assignor to Erich Jaeger, Wurzburg, Germany

Filed Apr. 20, 1970, Ser. No. 30,050

Int. Cl. A63b 23/06

U.S. Cl. 272-69

8 Claims



A moving belt ergometer for physically stressing a living being having a walking surface in the form of an endless belt which can be inclined with respect to the horizontal and which is driven by a speed-controlled variable-speed electromotor. A braking arrangement is provided for the endless belt which is actuated whenever the force transmitted between the endless belt and the drive motor is such that the motor is being driven by the belt. Preferably, the electromotor is a shunt-connected DC motor provided with a thyristor-controlled dynamic braking arrangement which is responsive to the counter-EMF of the electromotor indicating that the electromotor is being driven as a generator.

3,602,503

PAPER AND PICK GAME DEVICE

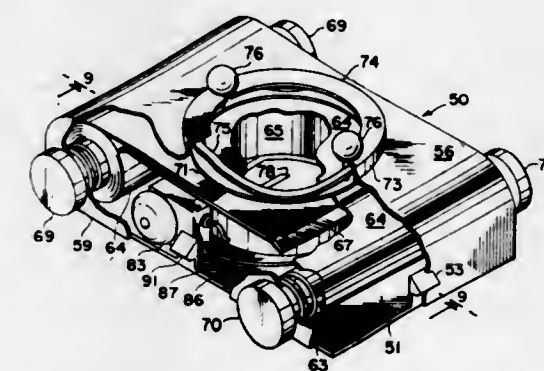
Arnold Schwartz, 222 E. 17th St., Brooklyn, N.Y., and Bernard L. Resnick, 68 E. 19th St., Brooklyn, N.Y.

Filed July 9, 1969, Ser. No. 840,182

Int. Cl. A63f 9/00

U.S. Cl. 273-1 E

5 Claims



A paper and pick game device in which a paper is held stretched over an opening on which is disposed a metal contact or dice cube and about which players will pick and make holes in the paper about the contact or dice cube to allow the same to be dropped onto a contact provided on the bottom to establish a signal circuit operated by battery and a light or buzzer. A retaining plate is used to secure the paper in place over the opening at the top and is removable for replacement of the paper once the paper has been severed. The paper is provided in either flat pieces or on rolls which can be advanced to replace the paper over the opening.

3,602,504

BALL TRAINING AND GAME DEVICE

Lucian L. Chapman, Novi, and Robert E. Robinson, Walled Lake, both of, Mich., assignors to Sports Combo, Inc., Detroit, Mich.

Filed Feb. 20, 1969, Ser. No. 800,849

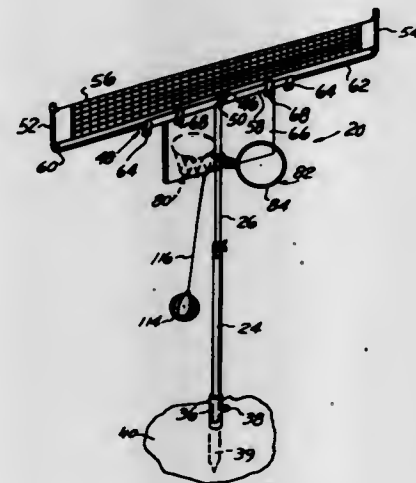
Int. Cl. A63b 63/00, 63/06, 71/02

U.S. Cl. 273-1.5 R

27 Claims

A ball training and game device for outdoor or indoor use comprising a standard adopted to be supported in the ground

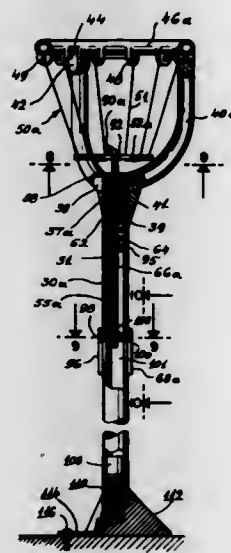
or on the floor for the support of multiple ball training or game devices of exchangeable character and in which the standard is composed of telescoping tube sections adapted to be clamped at adjustable height positions. The interchangeable devices comprise a combination of backboard and basket to one side of the standards and a freely rotatable loop or similar ball target device which may be either rotatable and mounted, or weighted, so as to assume a normal vertical orientation, or resiliently mounted, at the opposite side of the standard. The mounting portion of the loop includes a



bracket having two arms extending around opposite sides of the standard and extending through openings in the backboard to lock them together, and a common bolt fastening both the bracket and backboard to the standard. The top of the standard is provided with an extendable transverse member having outer ends formed into posts for the mounting of a net thereinbetween for volleyball practice or the like, all of these devices being readily removable and interchangeable. Also included are a tethered basketball and a rotatably mounted baseball batter's practice device.

3,602,505
CIRCULAR COURT BASKETBALL GAME WITH BALL EJECTOR
Leroy E. Friend, 1611 S. Oakwood, Peoria, Ill.
Filed Nov. 26, 1969, Ser. No. 880,175
Int. Cl. A63b 63/02
U.S. Cl. 273-1.5 R

10 Claims

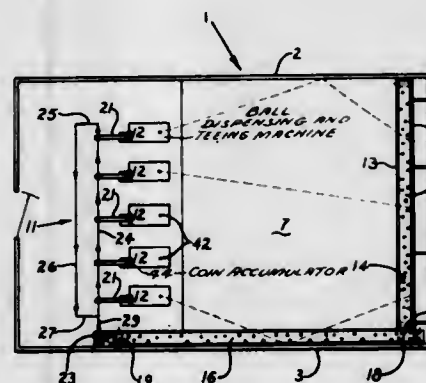


A basketball game is played on a circular court outlined by concentric circles. A pole is removably mounted in an upright position at the center of the court. On top of the pole is a horizontal hoop supported by removable bracket arms carried by the pole. A tapered net basket with a closure ring at the bottom is suspended from the hoop inside the bracket arms. A manually operable ball ejection mechanism including an axially vertical slidable rod is carried by the pole. The

rod is spring loaded and extends through the ring for ejecting the ball after retraction to compress the spring.

3,602,506
GOLF RANGE
Joseph Arthur Gentiluomo, 1456 Belmont Ave., Schenectady, N.Y.
Continuation of application Ser. No. 480,713, Aug. 18, 1965.
This application Dec. 6, 1968, Ser. No. 796,256
Int. Cl. A63b 69/36, 67/02
U.S. Cl. 273-35

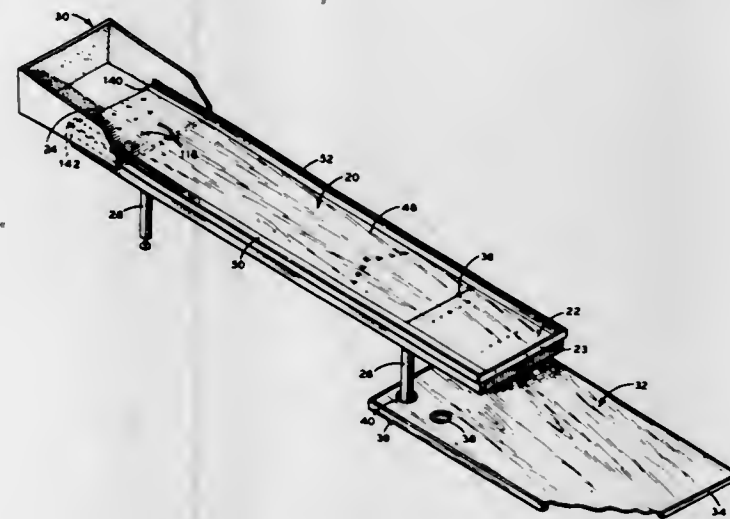
4 Claims



A plurality of ball dispensing and teeing machines located at the range teeing area for dispensing and teeing balls for golfer usage. A belt conveyORIZED ball distributing system located adjacent to the ball dispensing and teeing machines for distributing balls automatically between each of them. Ball-confining means surrounding the range playing area for containing balls driven from the teeing area, and ball-retrieving means disposed within the playing area for returning balls to the belt conveyORIZED ball distributing system, thus providing continuous unattended range operation.

3,602,507
BOWLING GAME DEVICE WITH FOOT STOP
Frederick Kirk Naylor, Mahopac, N.Y., assignor to Naylor Properties, Inc., Mahopac, N.Y.
Filed Dec. 16, 1968, Ser. No. 783,879
Int. Cl. A63d 3/00
U.S. Cl. 273-37

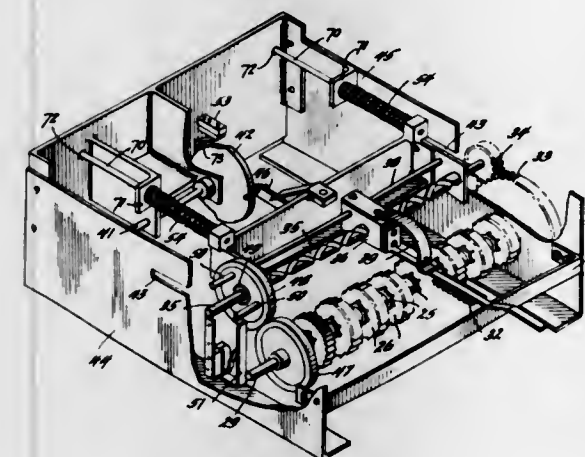
8 Claims



A bowling game device has an alley bed with an approach end and a pin end. Legs are connected to the alley bed so that it is supported a substantial height above the ground. A foot stop on the ground is connected to the legs at the approach end to limit how close a player can get to the alley bed while delivering a ball. The foot stop extends in front of the approach end a distance substantially greater than the width of the alley bed so that the ball is delivered in a conventional approach to a region between the front of the approach end and a foul line near to and parallel with the front of the approach end.

3,602,508
RACING GAME WITH RANDOMLY ACCELERATED DRIVE ELEMENTS
Richard A. Abercrombie, 909 Silver Spring Ave., Silver Spring, Md.
Filed Dec. 22, 1967, Ser. No. 692,964
Int. Cl. A63f 9/14
U.S. Cl. 273-86 F

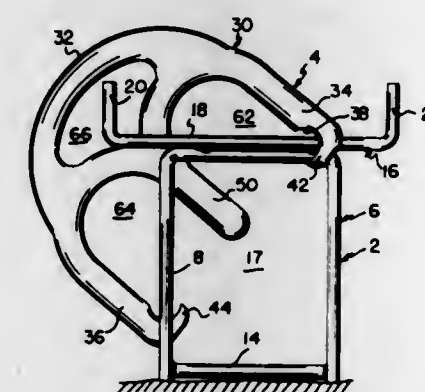
8 Claims



A mechanical horseracing game is disclosed which includes an automatic random selection mechanism for advancing the racers randomly ahead of other racers as all of the other racers are driven forward at a uniform speed. The first racer to reach a switch mechanism at the finish end of the course is indicated the winner automatically. The racers are individually attached to a plurality of parallel extending conveyor bands driven by a like plurality of pulleys arranged in a linear array. The random selection mechanism includes a ratchet which is randomly reciprocated both in a direction parallel to the array to position the ratchet adjacent a pulley and transverse to said array to bring the ratchet into driving engagement with that pulley to thereby accelerate the engaged pulley and the racer associated therewith.

3,602,509
THROWING MEMBER AND PAIR OF MULTIPLE-TARGET-AREA POST MEMBERS
Frank E. Curtiss, 819 E. Erie St., Painesville, Ohio, and Jack E. Curtiss, 5246 Corduroy Road, Mentor, Ohio
Filed Sept. 11, 1969, Ser. No. 857,084
Int. Cl. A63b 65/10
U.S. Cl. 273-100

12 Claims

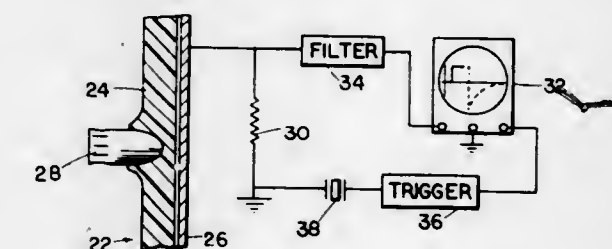


A game system including a pair of post members each of multiple targetlike construction adapted to be mounted in upstanding, spaced-apart relation on a support surface and a plurality of throwing members each of multiple-scoring construction adapted to be thrown by accuracy of the user onto respective of the post members for registering the scoring areas of the throwing members with the target areas of the post members to achieve a predetermined game score. The throwing members are generally horseshoe-shaped and have two parallel side arms and a central arm between the side arms. Each post member has an inverted U-shaped lower sec-

tion whose legs may be inserted in the ground, and a U-shaped upper section.

3,602,510
PROJECTILE HIT SCORER AND DETECTION MEANS
Donald L. Knippel, Huntington Beach, and Y. Daines Lund, Laguna Hills, both of, Calif., assignors to Babcock Electronics Corporation, Costa Mesa, Calif.
Filed July 14, 1969, Ser. No. 841,308
Int. Cl. F41j 5/04
U.S. Cl. 273-102.2 R

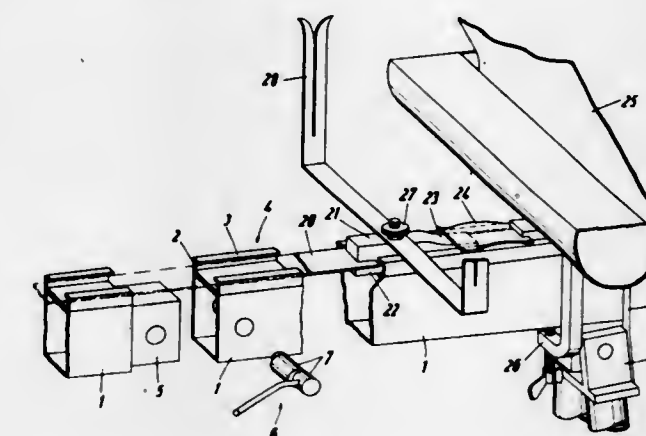
7 Claims



Electrical signal-generating target including a conductive layer and a nonconductive barrier ahead of it in the direction from which projectiles arrive to provide a signal having portions of opposite polarity and a target system employing such a target and signal analyzers to determine signal amplitude and duration and the presence of signals of opposite polarity.

3,602,511
TRANSPORTABLE TARGET CARRIER
Walter Gehmann, Nesslerstrasse 16, 75 Karlsruhe, Germany
Filed Apr. 29, 1969, Ser. No. 820,234
Int. Cl. F41j 7/02
U.S. Cl. 273-105.6

6 Claims



A target-shooting installation wherein the shooter in a shooting station shoots at a target in a target station. A rail extends between the stations and a carriage moveable on the rail supports the target. A drive arrangement at the shooting station end of the rail is connected with the carriage by a flexible element extending along the rail so the shooter can move the target from the target station to the shooting station and vice versa.

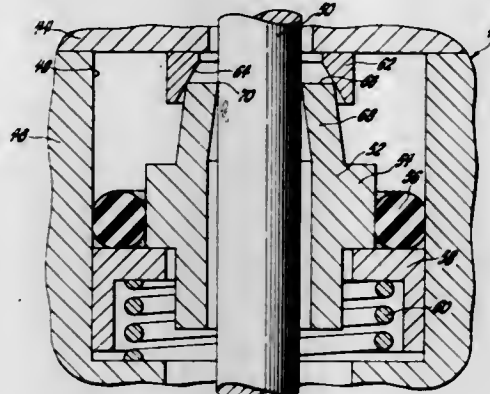
3,602,512
BOARD GAME APPARATUS
Eva Krugier, 122 Chemin de la Montagne, 1224, Chene-Bourgeries/Geneve, Switzerland
Filed Jan. 19, 1968, Ser. No. 699,105
Claims priority, application France, Jan. 20, 1967, 91,974
Int. Cl. A63f 3/00
U.S. Cl. 273-135 AA

7 Claims

A parlor game is disclosed which comprises a game board having thereon a plurality of markings representing individual museums. A series of cards are each marked with a pictorial representation of a famous painting as well as the particular artist, the painting's selling price, and the museum

3,602,520
PRESSURE BALANCED RECIPROCATING SHAFT SEAL
 Rolland B. Wallis, La Grange Park, Ill., assignor to General Motors Corporation, Detroit, Mich.
 Filed Oct. 25, 1968, Ser. No. 770,741
 Int. Cl. F16j 15/16; F16k 41/00
 U.S. Cl. 277-27

3 Claims



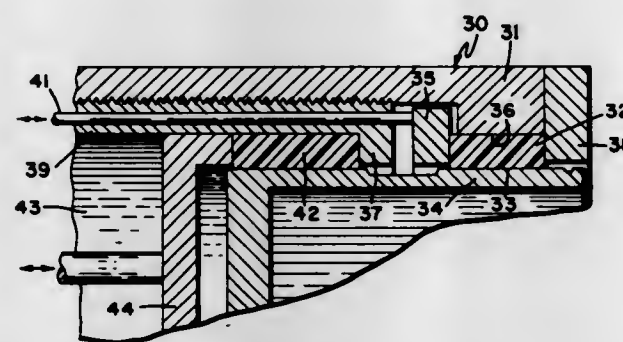
A reciprocating shaft seal having a deformable shaft-engaging portion, which may be acted upon by varying fluid pressures so as to change the shaft-engaging force, is provided with preloading means which are also acted on by the fluid pressures to reduce the preload when the direct pressure load is increased, thereby diminishing, or completely balancing, the effect of fluid pressure changes on the engaging force of the shaft-engaging portion.

3,602,521
CHUCK

Herbert R. Uhtenwoldt, Worcester; Frederick A. Hohler, Holden, and Fred Thomas, Worcester, all of, Mass., assignors to The Heald Machine Company, Worcester, Mass.
 Filed Apr. 23, 1969, Ser. No. 818,593
 Int. Cl. B23b 31/10

U.S. Cl. 279-1 Q

1 Claim

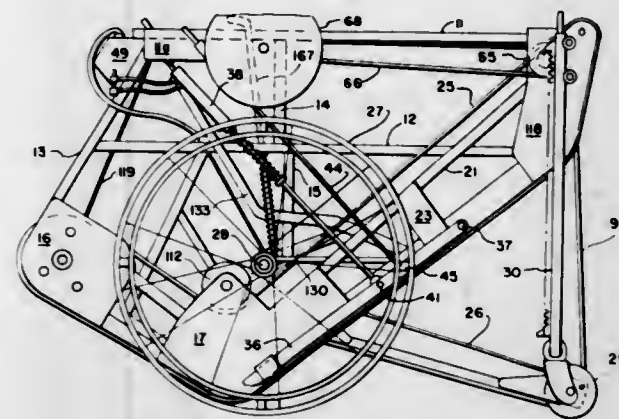


This invention has to do with a chuck and, more particularly, to apparatus for holding long, thin-walled workpieces for internal grinding operations.

3,602,522
WHEEL CHAIR
 Rodvinon I. Zamotin, P.O. Box 721, Miami Springs, Fla.
 Filed Feb. 14, 1969, Ser. No. 799,411
 Int. Cl. A61g 5/00

U.S. Cl. 280-5.22 **11 Claims**
 A self-propelled wheel chair having two sets of endless belts and retractable wheels for ascending and descending irregular inclined surfaces such as stairs. A flip-decelerating shock absorber using standard hydraulic means eases the movement over an edge from a level surface to a downwardly inclined surface. The long primary endless belts are used for ascending and descending stairs, and the shorter, secondary belts mounted rearwardly of the primary belts and drivingly engaged therewith, are used for climbing and descending

curbs and the like. An improved arrangement is provided for retracting the main wheels. An improved drive is provided

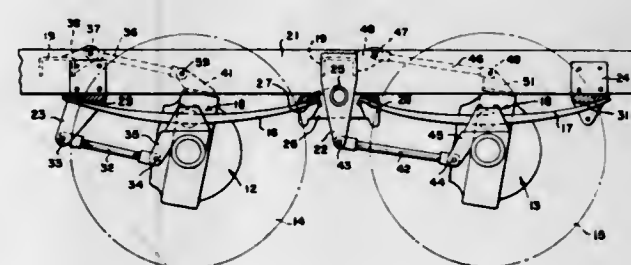


between the main wheels and the primary belts, and an improved clutch permits selective driving engagement and disengagement between the main wheels and the primary belts.

3,602,523
SPRING MOUNTING
 Gus. L. Poulos, Winamac, Ind., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
 Filed May 6, 1969, Ser. No. 822,245
 Int. Cl. B60g 11/02

U.S. Cl. 280-104.5

9 Claims



A tandem axle suspension wherein each leaf spring unit is rockably mounted intermediate its ends on a transverse axle unit, with opposite ends of the spring connected to the vehicle frame. The spring mounting comprises cooperating upper and lower cylindrical surfaces on the intermediate portion of said spring unit and a special bracket on the axle unit extending substantially the width of the spring unit, providing free rocking of the spring unit about a fixed transverse axis.

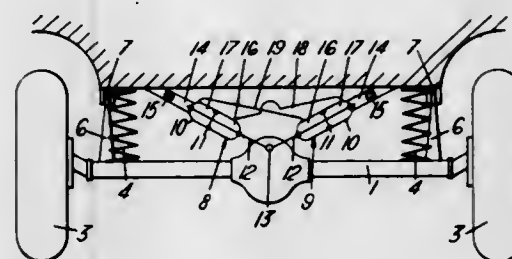
3,602,524
DEVICE FOR HINDERING THE LATERAL MOVEMENT OF THE VEHICLE

Johann Rutzenhofer, Russelsheim am Main, Germany, assignor to General Motors Corporation, Detroit, Mich.
 Filed June 25, 1969, Ser. No. 836,466
 Claims priority, application Germany, July 11, 1968, P 17 55 923.8

Int. Cl. B60g 21/06

U.S. Cl. 280-112 A

5 Claims



For use in a motor vehicle for hindering (that is, reducing or completely preventing) lateral movement of the vehicle

body relative to an axle of the vehicle by means of two members each connected to the vehicle body and to the axle, the members consist of an opposed pair of hydraulic piston and cylinder arrangements each disposed at an angle of less than 90° relative to the respective outboard portion of the axle, and there are respective hydraulic connections between the cylinder space behind the piston in each of the arrangements and the cylinder space in front of the piston in the other of the arrangements, such that in operation mutual pressure buildup in the cylinder spaces of the arrangements is effective to hinder lateral movements of the vehicle body relative to the axle, but the hydraulic piston and cylinder arrangements do not appreciably impede vertical movements of the vehicle body.

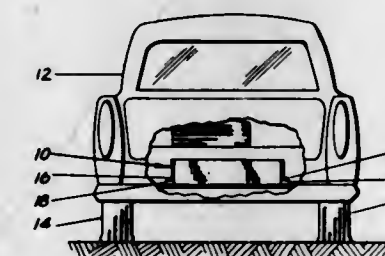
ERRATUM

For Class 280-124 see:
 Patent No. 3,602,470

3,602,525
AUTOMOBILE STABILIZER
 Arthur K. Moulton, 9569 Ash Creek Drive, Dallas, Tex.
 Filed Dec. 3, 1969, Ser. No. 881,756
 Int. Cl. B60r 27/00

U.S. Cl. 280-150 D

8 Claims



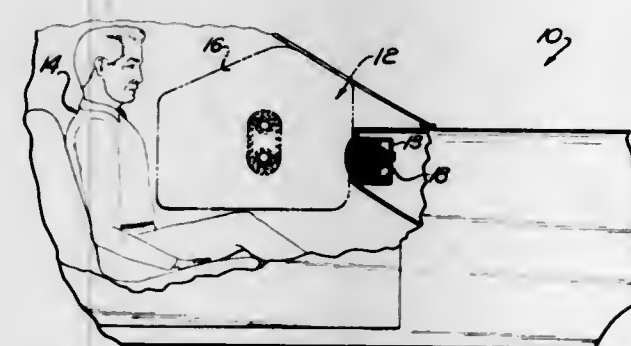
A stabilizing device for automobiles including a plurality of inertial elements pivotally mounted in a case as inverted pendulums and means connected to the inertial elements at points below their pivot point to bias such elements toward their upright inverted pendulum position and to transmit forces to said case in the opposite direction to movement of said inertial elements. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,602,526
VEHICLE SAFETY ASSEMBLY HAVING INFLATABLE CONFINEMENT

Darrell S. Brawn, Livonia, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
 Filed Nov. 12, 1968, Ser. No. 774,611
 Int. Cl. B60r 21/10

U.S. Cl. 280-150

6 Claims



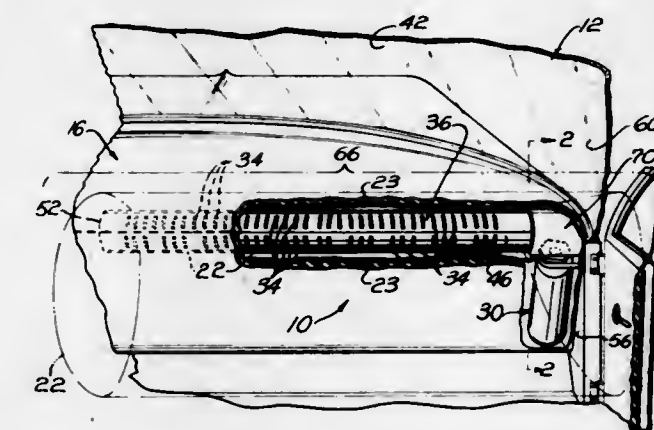
A safety assembly for protecting an occupant of a vehicle comprises an inflatable confinement having a collapsed inoperative condition and an expanded operative condition, a diffuser member, and a fluid reservoir, the confinement being inflated by the flow of fluid from the reservoir through the diffuser member into the confinement. The length of the dif-

fuser member is relatively smaller than the length of the confinement, and the diffuser member is provided with louvered slots for distributing and preferentially directing the flow of fluid therefrom so as to increase the "effective" length of the diffuser member and to reduce the frontal velocity of the confinement as it expands.

3,602,527
VEHICLE SAFETY SYSTEM
 George W. Goetz, Detroit, and Darrell S. Brawn, Livonia, both of, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio
 Filed Jan. 8, 1969, Ser. No. 789,744
 Int. Cl. B60r 21/06

U.S. Cl. 280-150 AB

6 Claims

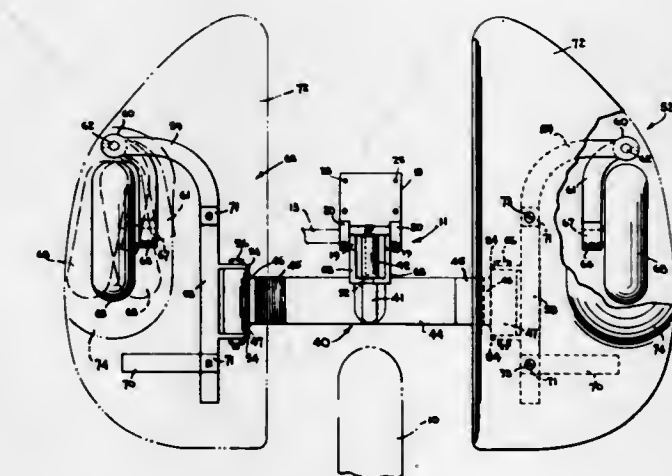


An improved safety apparatus for protecting an occupant of a vehicle during both critical and noncritical accidents includes a confinement which is expanded to restrain movement of the occupant of the vehicle during a critical accident. Upon the occurrence of a critical accident, the confinement is inflated by fluid which flows from a fluid supply through a diffuser. The diffuser directs the fluid flow to inflate the confinement. In addition, the diffuser is adapted to be crushed or deformed due to impact by an occupant of a vehicle thereagainst during a noncritical accident to reduce the possibility of serious injury to the occupant. To further reduce the possibility of injury to the occupant of the vehicle during a noncritical accident, the fluid supply is mounted closely adjacent to a sidewall of the passenger compartment of the vehicle where it is unlikely to be engaged by the occupant.

3,602,528
MOTORCYCLE STABILIZING DEVICE
 John L. Kelly, 65-H Calle Aragon, Laguna Hills, Calif.
 Filed June 23, 1969, Ser. No. 835,415
 Int. Cl. B62h 1/12

U.S. Cl. 280-293

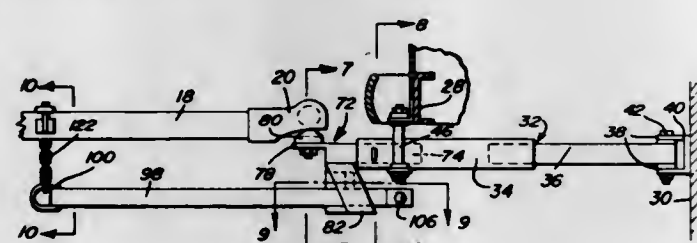
17 Claims



This invention is a stabilizing device which prevents a motorcycle from tipping over. The device is mounted on the

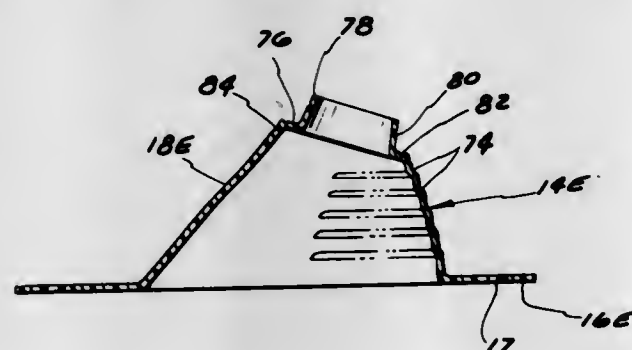
lower portion of a motorcycle and includes a member which pivots about an axis which is parallel to the longitudinal axis of the motorcycle. The lower portion of the pivotal member extends outwardly from beneath the motorcycle away from either side of the motorcycle. Stops in the stabilizing device prevent the pivotal member from rotating more than a certain number of degrees relative to the motorcycle. The stabilizing device includes outrigger wheel assemblies attached to the lower outermost extremities of the pivotal member. Each of the outrigger wheel assemblies includes a platform which receives the motorcyclist's feet and a caster-mounted wheel which will pivot and follow the direction of motion of the motorcycle whenever the wheel contacts the ground surface.

3,602,529
ANTISWAY TRAILER HITCH
Millard A. Derr, Jr., 17-Richard Court, Orinda, Calif.
Continuation-in-part of application Ser. No. 785,536, Dec. 20, 1968, now abandoned. This application Jan. 21, 1970, Ser. No. 4,649
Int. Cl. B62d 53/00
U.S. Cl. 280-406 A 14 Claims



A trailer hitch assembly for connecting a trailer having a trailer bar to a towing vehicle having a rearwardly extending tow bar. The tow bar is mounted to the vehicle for pivotal movement about a vertical axis and through a limited arc. The forward end of the trailer bar and the rear end of the tow bar are pivotally connected and the two bars are yieldingly biased into mutual alignment permitting pivotal movements between the trailer bar and the tow bar only after no further pivotal movements between the tow bar and the vehicle are possible.

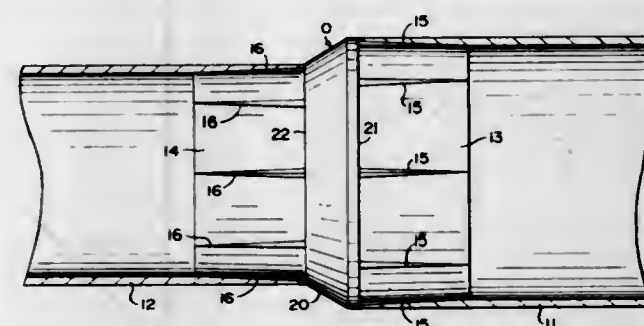
3,602,530
FLASHING FOR ROOF VENT PIPES
Bruce J. Elwart, Ferndale, Mich., assignor to Multi-Flashings, Inc., Ferndale, Mich.
Continuation-in-part of application Ser. No. 733,154, May 29, 1968, now abandoned. This application Feb. 17, 1969, Ser. No. 822,774
Int. Cl. E04d 13/14
U.S. Cl. 285-4 4 Claims



A flashing for roof vent pipes and the like in which a shield member surrounds the vent pipe and has a base flange engaging the rooftop surface and an upper edge provided with a plurality of concentric inner rims selectively diameters to fit varying pipe sizes. The inner rim being readily severed so that the outer rim will fit the larger pipe, the flashing being made of a material which will deform to a degree, to conform with the shape of the pipe including minor imperfections thereof.

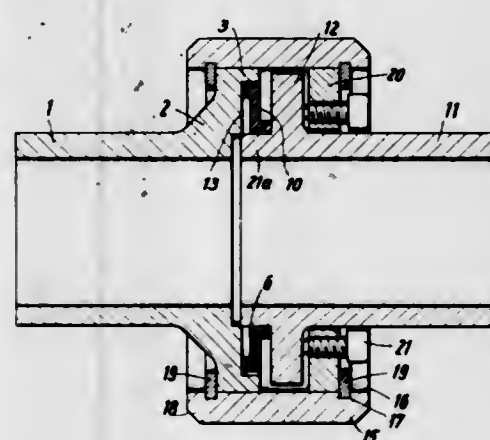
and to retain such conforming shape thereafter. The rims in some embodiments have small corrugations to permit sufficient pipe shape conforming deformation, and at least a portion of the shield member has semicircular or circular corrugations extending substantially normal to the axis of the vent pipe or substantially parallel with the base flange so that the shield will flex to conform with slightly different roof pitches as well as to provide flexing required by expansion and contraction of building structure.

3,602,531
TUBING COUPLER
Leon R. Patry, Medina, Ohio, assignor to Adjuta-Post Manufacturing Company, Akron, Ohio
Filed Oct. 20, 1969, Ser. No. 867,570
Int. Cl. F16l 25/00
U.S. Cl. 285-177 6 Claims



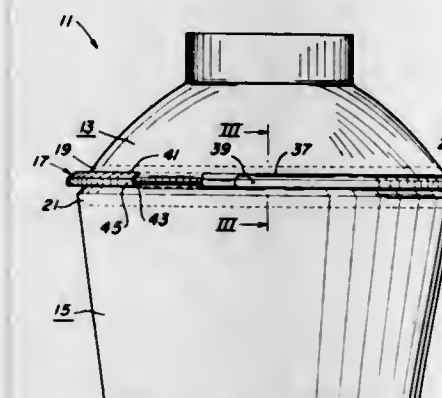
A unitary cast tubing coupler formed of a pair of tubular end sections, one of greater diameter than the other, and a conically shaped connector section extending between and connecting the end sections. Each of the end sections has a plurality of widely circumferentially spaced, axially extending narrow ribs on the outer surface thereof tapering radially inwardly at an angle of about 1° to 3° towards the axially outer ends of the end sections whereby a tube can be forced into engagement with each end section to form a coupler therebetween. The internal diameters of the end sections increase as they approach the exposed end of the section.

3,602,532
PIPE UNION
Hermann Ehrenberg, Langen, Germany, assignor to Fouquet-Werk Frauz & Planck, Rottenburg, Neckar, Germany
Filed June 4, 1969, Ser. No. 830,452
Claims priority, application Germany, June 21, 1968, P 17 50 959.0
Int. Cl. F16l 23/00
U.S. Cl. 285-364 6 Claims



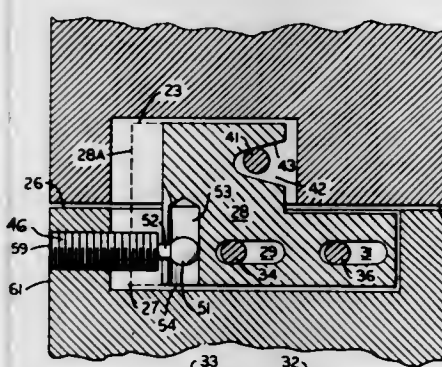
The invention deals with a metal pipe union including a metal-sealing member for withstanding high pressures, vacuum, high temperatures and bending forces and consists primarily of two pipes having axially aligned end portions. Each pipe has at or near its end portion a radially directed flange and the flange of the pipe which is directly arranged at the end of one pipe has a projecting collar. Within this collar is arranged the metal packing ring, which is generally of Z-formation or cross section.

3,602,533
SPIRAL RING COUPLING MEANS
George N. Starr, Memphis, Tenn., assignor to American Electric Manufacturing Corporation, Southaven, Miss.
Division of Ser. No. 629,729, Apr. 10, 1967, Pat. No. 3,483,365
Filed Sept. 12, 1969, Ser. No. 857,432
Int. Cl. F16l 23/00
U.S. Cl. 285-407 6 Claims



A coupling arrangement for a luminaire including a first element or luminaire reflector having an annular external flange; a second element or luminaire refractor having an annular external flange, and a spiral-shaped coupling ring having a continuous groove or recess extending along the inner circumference of the ring. The coupling ring is adapted to be hand installed by spiralling the ring over the coaxially arranged juxtapositioned flanges of the first and second elements and with the ring in an installed disposition assuming the form of a plane curve spiral and with the opposite end portions of the coupling ring being in radially overlapping arrangement.

3,602,534
SPLIT SLEEVE CLAMP
Sherman L. Dragoo, Yorktown, Ind., assignor to Corrugated Finishing Products, Inc., Anderson, Ind.
Filed July 7, 1969, Ser. No. 839,369
Int. Cl. F16d 1/06
U.S. Cl. 287-52.03 9 Claims

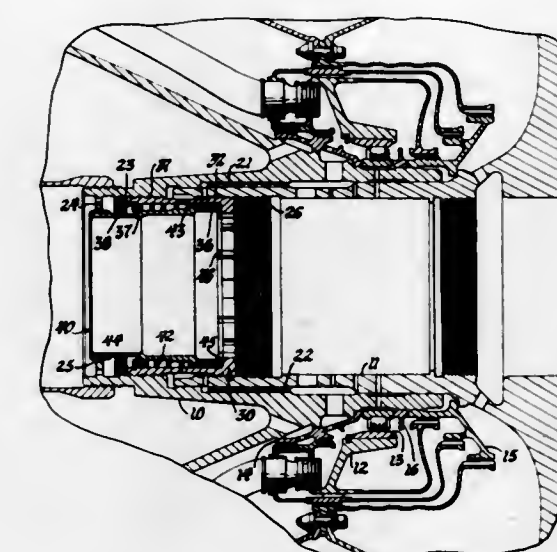


Sleeve halves, each having a pair of cavities facing corresponding cavities of the other, are clamped to a shaft by axially slidably clamps, one mounted in each half and projecting into the other half. Socket setscrews threadedly received in the sleeve halves drive the clamps axially engaging cam surfaces thereof with fixed pins to draw the halves together.

3,602,535
SHAFT COUPLING
William E. Behning, and Cyril M. Hawkins, both of Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed May 14, 1970, Ser. No. 37,091
Int. Cl. F16d 1/06
U.S. Cl. 287-53 6 Claims

An axially adjustable coupling between telescoping, splined together compressor and turbine shafts of a gas turbine engine which includes a coupling threaded to both the compressor shaft and to the turbine shaft and a lock coupling

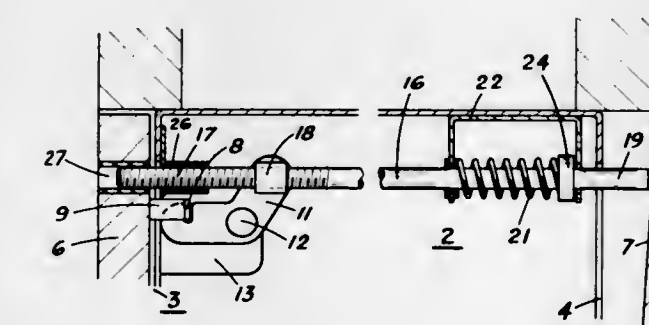
bine engine which includes a coupling threaded to both the compressor shaft and to the turbine shaft and a lock coupling



splined to the coupling and normally biased into splined engagement with the compressor shaft.

ERRATUM
For Class 292-113 see:
Patent No. 3,602,723

3,602,536
AIRLOCK CONSTRUCTION
Edward R. Gamble, Clayton, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky.
Filed July 17, 1970, Ser. No. 55,864
Int. Cl. E05c 19/10
U.S. Cl. 292-127 5 Claims

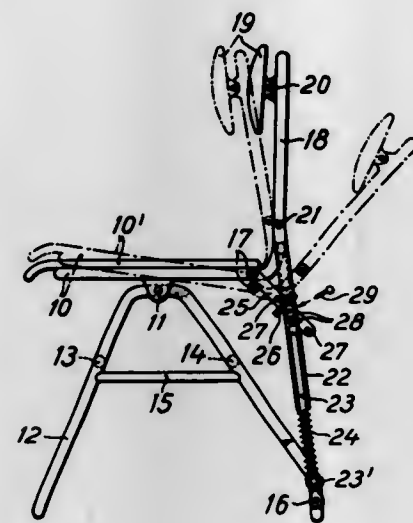


An airlock housing having opposed doors with a normally closed locking device cooperable with one door, the locking device being operable to open position through an actuating arm cooperable with the opposite door when the opposite door is moved to closed position.

3,602,537
SEAT SYSTEM WITH A BACKREST
Gerdi Kerstholt, and Fritz Kerstholt, both of Braunschweig, Germany
Filed Jan. 23, 1969, Ser. No. 793,282
Claims priority, application Germany, Feb. 1, 1968, Aug. 8, 1968, Sept. 13, 1968, K 60 154/34; K 62 006/34; K 62 349/34
Int. Cl. A47c 3/00
U.S. Cl. 297-304 21 Claims

A seat system comprising a backrest; a seat, means adapted to pivot said seat about a horizontal axis positioned in a base, means to attach said backrest to the supporting element for said seat by means of a hinged connection, a base, a spring means, said backrest being connected with said base by at least one said spring means, and means to arrange said seat system so that, when a load acts upon said seat system.

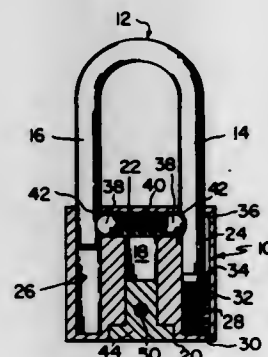
said means simultaneously produces in a stabilizing manner a forwardly directed compressive force on said backrest being handles, the ratchet fixing thereof is freed by pushing the handle towards the door. This enables the other handle,



adapted to the user, and a supporting force against the supporting element of said seat.

3,602,538
PADLOCK SEAL
Gilbert Canter, 30 East 9th Street, New York, N.Y.
Filed June 10, 1970, Ser. No. 045,154
Int. Cl. B65d 55/06; E05c 13/02
U.S. Cl. 292—318

4 Claims

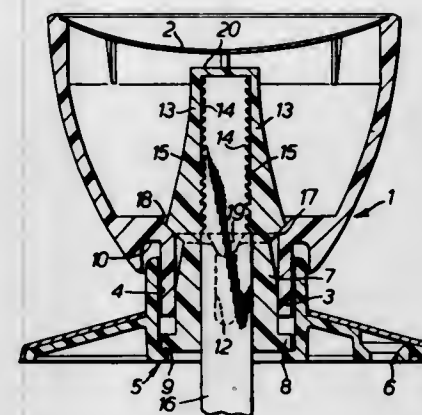


A keyless padlock seal which comprises a lock body having its lock tumbler receiving recess sealed at its lower end by a sealing closure. Pins are driven through the lock body and into the closure to prevent nondestructive removal of the seal.

3,602,539
DOOR FURNITURE
Michael Joseph James, Charlton Kings, Cheltenham, England, assignor to Micro & Precision Moulding (Cheltenham) Limited, Cheltenham, England
Filed May 9, 1969, Ser. No. 823,297
Claims priority, application Great Britain, May 9, 1968, 21,982/68

U.S. Cl. 292—353
A door handle set comprises a spindle and two handles for detachable fixing on the two ends of the spindle. Each handle has ratchet-fixing means whereby it fitted merely by pushing it on to the spindle. When it is desired to remove one of the

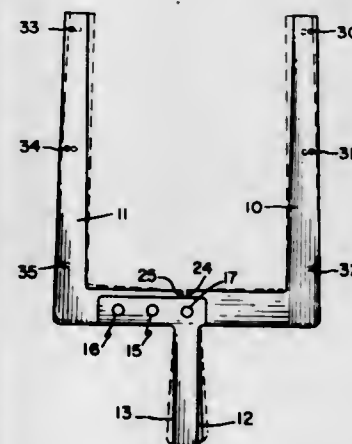
10 Claims



complete with the spindle, to be withdrawn from the opposite side of the door.

3,602,540
PRINTED WIRING BOARD FUSING TOOL
Boyd P. Page, Lakewood, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Oct. 18, 1968, Ser. No. 768,792
Int. Cl. B65g 7/12
U.S. Cl. 294—16

5 Claims



There is described a circuit board processing method and a tool for holding thin circuit boards in tension to permit dipping the board in a fusing bath of hot oil in order to fuse solder to the board. Holding the board in tension in a supported manner permits one to clear the feed holes in the board by impacting it sharply against a hard surface.

3,602,541
TINE CLEANING FORK
Charles R. Sharpe, 1413 Maple Street, Columbia, S.C.
Filed Oct. 4, 1968, Ser. No. 765,201
Int. Cl. A01d 9/06

U.S. Cl. 294—50
This application describes a fork having a tine-cleaner element connected with a spring element mounted from the

9 Claims

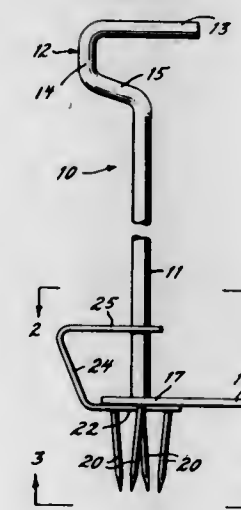
handle to permit the thumb of the user to push the tine cleaner along the tines and upon release of the pressure the they permit suction of those chambers closed by the said end of the cargo and prevent large quantities of air from flowing



spring element retracts the tine-cleaner element to an inoperative position due to the elasticity of the spring element.

3,602,542
WEEDER
Horace C. Disston, Jr., 1091 North 8th Street, Camden, N.J.
Filed Feb. 10, 1969, Ser. No. 797,819
Int. Cl. A01b 1/16; A01d 9/06
U.S. Cl. 294—50.7

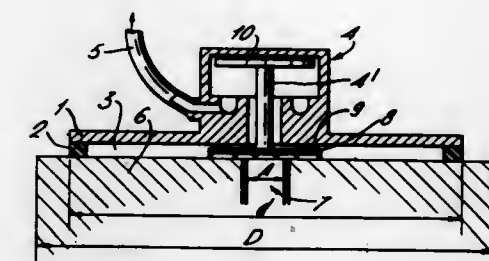
2 Claims



3,602,543
ARRANGEMENT IN SUCTION CUP FOR VACUUM LIFTING
Einar Sjoedin, Norway, assignor to Munck International A/S
Filed Dec. 18, 1968, Ser. No. 784,662
Int. Cl. B66c 1/02

U.S. Cl. 294—64 R
An apparatus for vacuum lifting cargo having a surface with a hole therethrough. Within a suction cup is a plate which overlies the hole, and, when the suction cup is applied to the cargo, the end plate causes a valve stem associated therewith to open a valve to a vacuum source. The plate has a check design of ribs forming a large number of open bottom chambers and a conduit leading from each chamber to the suction cup carrier. The conduits are of such a size that

2 Claims

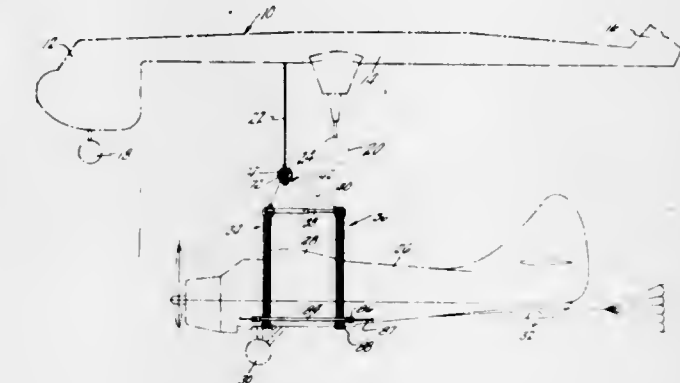


through those conduits in communication with the cargo hole.

3,602,544
UNIVERSAL, HEAVY-DUTY SLING
John Marsh, Trumbull, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Jan. 29, 1969, Ser. No. 794,904
Int. Cl. B66c 1/12

U.S. Cl. 294—74

6 Claims



An aerial recovery system for enabling a helicopter to transport a disabled aircraft has two slings, each having three separate bands, for cradling the disabled aircraft at spaced points along its fuselage. The bands of each sling are separately pivotally connected at each end side by side along the straight side of a D-shaped fitting through which a pin on the end of a spreader bar extends. A single hoisting band having its ends connected to the ends of the spreader bar passes through a self-locking, quick-adjusting assembly including three staggered drums which enables the helicopter hoist cable, which is hooked to this assembly, to be shifted freely fore and aft of the disabled aircraft when the hoist cable is slack to locate the assembly relative to the center of gravity of the aircraft and which locks the hoisting band in this position when the latter is placed under tension.

ERRATUM
For Class 297—304 see:
Patent No. 3,602,537

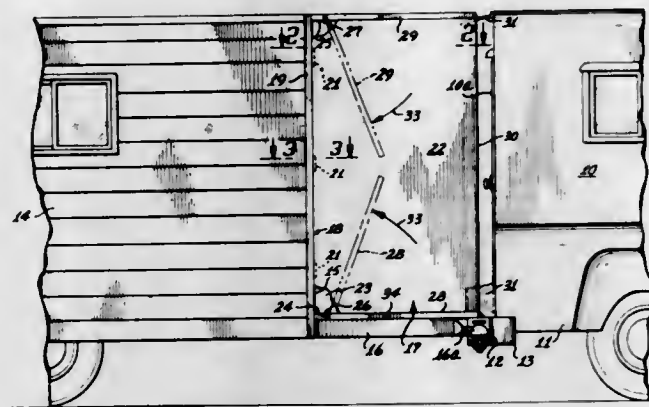
3,602,545
FOLDING CONNECTION ROOM FOR TRAILERS
Leo K. Lindenbauer, 81 North Valentine, Wickenburg, Ariz.
Filed Oct. 13, 1969, Ser. No. 865,859
Int. Cl. B60p 3/32

U.S. Cl. 296—23
A folding connecting room which combines two trailer

2 Claims

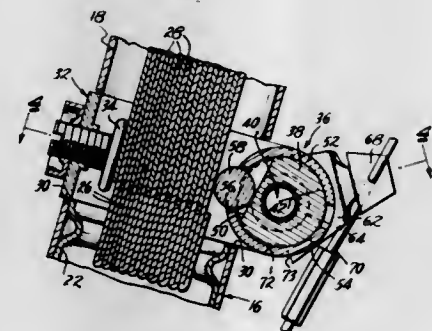
units of inadequate size, to create a multiroom mobile housekeeping suite and which is supported on the hitch of

serving to lock the seat back, in an infinite number of positions, against rearward tilting. Manual means can selectively



one of the trailer units and occupies the hitch space between the trailer units.

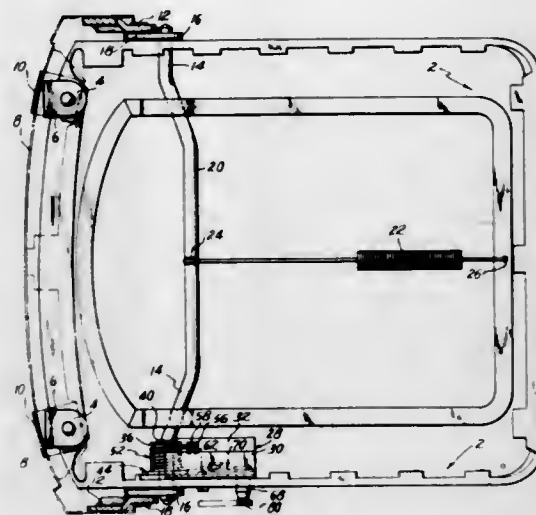
3,602,546
SEAT-ADJUSTING LINK
Paul C. Tabor, Clawson, Mich., assignor to Meteor Research Limited, Roseville, Mich.
Filed Nov. 12, 1969, Ser. No. 875,775
Int. Cl. A47c 3/00; B60n 1/02
U.S. Cl. 297-361 4 Claims



A laminar stack of interleaved friction plates, alternate plates being fixed, respectively, to relatively movable portions of an extensible link for adjusting a seat back. A fixed member has a surface at an acute angle to a face of said stack and a roller is arranged to be wedged between the surface and plates to frictionally bind the plates together. The roller can be moved from the wedged position to release the plates for relative sliding.

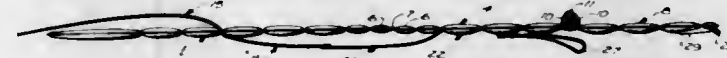
3,602,547
SEAT BACK TILT CONTROL
Paul C. Tabor, Clawson, Mich., assignor to Meteor Research Limited, Roseville, Mich.
Filed Feb. 27, 1970, Ser. No. 14,917
Int. Cl. A47c 3/00 9 Claims

The lower edge of a seat back rests on a fulcrum at the rear edge of a seat frame and has downwardly extending arms pivoted to crankpins journaled on the seat frame and the angular positions of which determine the tilt of the seat back. A cylinder fixed to the crankpins is embraced by a helical torsion spring having one end anchored to the frame and



release the spring from the cylinder to permit tilting the seat back rearwardly.

3,602,548
UPHOLSTERY CONSTRUCTION FOR ADJUSTABLE CHAIRS
Guenter A. Grams, Costa Mesa, Calif., assignor to Surgical Mechanical Research, Inc., Newport Beach, Calif.
Filed Oct. 20, 1969, Ser. No. 867,556
Int. Cl. A47c 7/02; A47g 9/00
U.S. Cl. 297-454 4 Claims

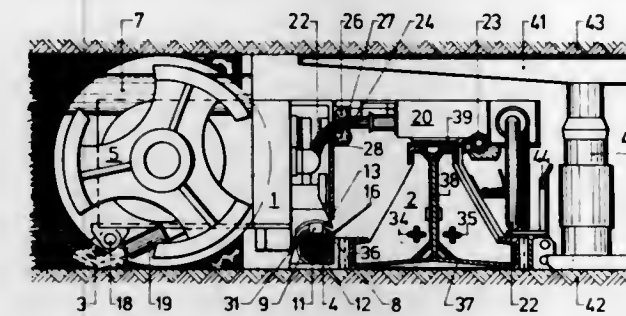


An upholstery construction particularly adapted for chairs used by doctors' patients, such chairs having a head-back support, a seat support and a leg support which are pivotally interconnected for relative angular movement between a position in which the patient is supported in a sitting position and a position in which the patient is supported in a reclined position, the upholstery having corresponding cushions which are interconnected and relatively movable to conform to the chair; the upholstery including a longitudinally extending centrally disposed strap construction connected to the upholstery cushions to permit limited longitudinal movement and is yieldably secured to the head-back, seat and leg supports to permit change in the relative position of the cushions to correspond to change in angular relation of the supports.

3,602,549
COAL-MINING MACHINE
Otto Renzing, and Klaus Oberste-Beulmann, both of Bochum, Germany, assignors to Gebr. Eickhoff, Maschinenfabrik und Eisengießerei mbH, Bochum, Germany
Filed Feb. 18, 1970, Ser. No. 12,229
Claims priority, application Germany, Feb. 19, 1969, P 19 08 238.3
Int. Cl. E21c 27/24, 29/18
U.S. Cl. 299-43 8 Claims

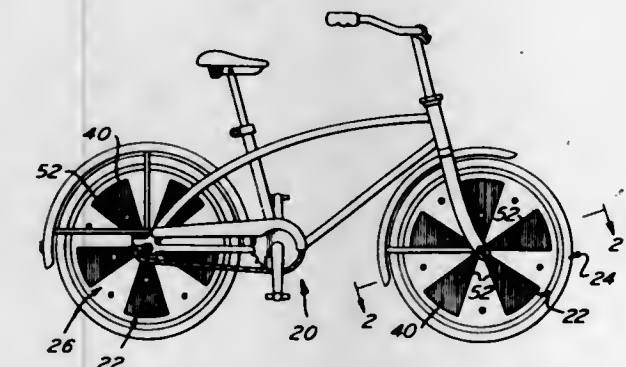
A coal mining machine movable between the coal seam and a conveyor, which by means of mining tools cuts the coal seam in front of the machine and which by means of a driving sprocket wheel engages a chain substantially parallel to the conveyor while a guiding rail is provided adjacent the mining machine which guiding rail has an inner substantially cylindrical surface with a longitudinal slot having a width at

least wide enough to permit insertion of a chain into the guiding rail, said chain being located within the guiding rail



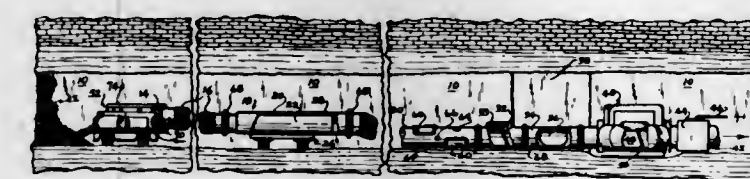
which latter positively guides guiding members embracing said chain and connected to the mining machine.

3,602,550
BICYCLE WHEEL COVER
Fred S. Patane, R.D. 3, Sewell, N.J., and John L. Caselli, Brewster Road, Newfield, N.J.
Filed Apr. 30, 1969, Ser. No. 820,571
Int. Cl. B60b 7/04
U.S. Cl. 301-37 S 4 Claims



A cover for a spoked wheel which includes a pair of side cover plates. Each of the cover plates includes a planar annular band and a plurality of radially tapering projections which are integral with the band and extend inwardly thereof. The band has an outer diameter which is substantially equal to the inner diameter of the rim of the wheel. The plates are secured on opposite sides of the wheels and the projections thereof are adapted to conform to the pitch of the spokes of the wheel.

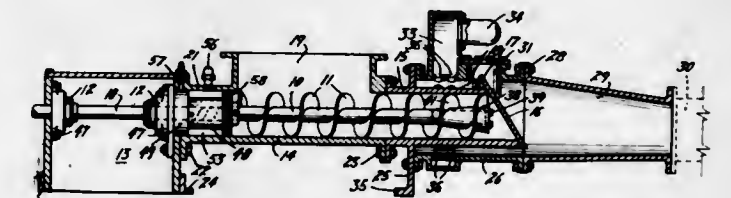
3,602,551
UNDERGROUND FLUID CONVEYOR TRANSPORTATION METHOD AND SYSTEM
John L. Velegol, Route #1, Colliers, W. Va.
Filed July 29, 1968, Ser. No. 748,301
Int. Cl. B65g 53/30
U.S. Cl. 302-14 28 Claims



A method and apparatus to accomplish underground mining and to convey the mined material from locations within the mine such as the mine face to other locations, e.g., in a coal mine to convey the material to a more convenient disposition location, such as a furnace. The machine utilizes fluid movement in a conduit, the fluid being either liquid such as water or gases such as air, both of which are normally being pumped in substantially all underground mines, the

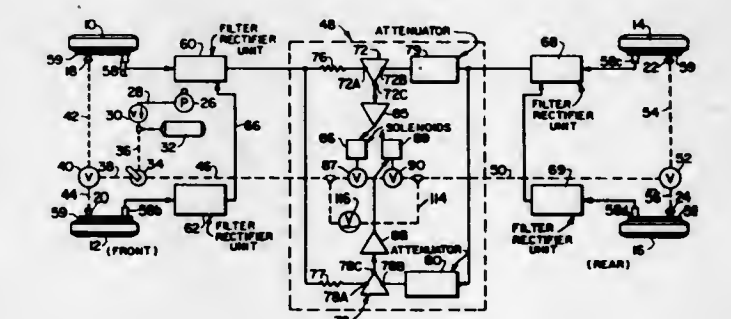
fluid entraining mined materials including particles and fines as well as mine gases at the inlet end of the conduit at or near the face of the mine and carrying the entrained material to the egress of the machine conduit. Wetting or soaking of the fines is provided. The conduit can be sufficiently large to enable emergency escape passages of a person and when serving such purpose, is provided with a personnel bypass around the fluid pump. It is envisaged that the inlet end of the conduit can be incorporated directly into existing mine face mining machinery or devices which digs, loosens, cuts, rips, grinds, augers, pulverizes, crushes or otherwise works on the material being mined. Emergency protective operators enclosures for mining machinery, with access to entries into the conduit are provided.

3,602,552
DRY FLOW PUMPS
Mason Edward Morgan, 5702 East Gunnison Place, Denver, Colo.
Filed Sept. 17, 1969, Ser. No. 866,787
Int. Cl. B65g 53/48
U.S. Cl. 302-50 4 Claims



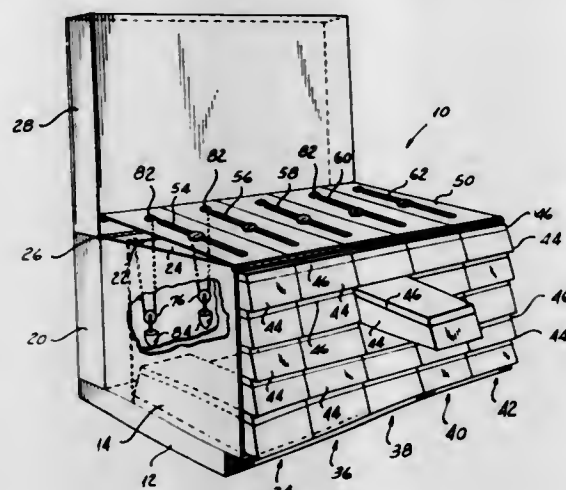
A screw conveyor arranged to deliver material through a pump barrel to a distribution main having means for introducing air under pressure to the material after it leaves the pump barrel to facilitate its passage through the main, there being a check valve plate at the discharge extremity of the barrel preventing blowback of the air through the barrel. The screw conveyor being provided with interchangeable flights to suit different types of commodities and with pneumatic means for preventing material from entering and damaging the screw conveyor bearings.

3,602,553
BRAKE SYSTEM
James C. Cumming, 25 Woodside Park, Pleasant Ridge, Mich., and James C. Neisch, 31312 Fairfield Avenue, Warren, Mich.
Continuation of application Ser. No. 866,152, Oct. 10, 1969, which is a continuation-in-part of application Ser. No. 662,448, Aug. 22, 1967, now abandoned. This application June 4, 1970, Ser. No. 41,765
Int. Cl. B60t 8/08, 8/10
U.S. Cl. 303-21 EB 12 Claims



An automotive braking system in which the rotational velocity of certain wheels, usually the front wheels, provides a reference for comparison with the rotational velocity of the other wheels to provide a signal to limit the braking effort at said other wheels to a value just below that which will cause said other wheels to lock up except when said front wheels are first locked.

the boxes of a column corresponding to the model or style of the article displayed thereabove. A customer having examined the displayed articles and having decided upon a particular style may remove a box from the column therebelow

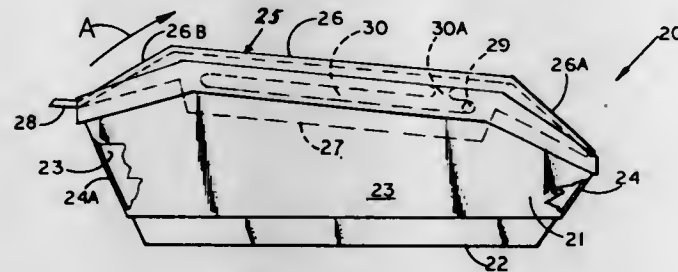


and carry it to the checkout counter. The boxes are sealed to prevent ready removal of articles therefrom and are of such a size as to prevent them from being concealed in a normal pocket or a handbag of usual size.

3,602,563
SWING TOP ROTARY FILE
Albert Karper, 5700 Collins Ave., Miami Beach, Fla.
Filed Sept. 23, 1969, Ser. No. 860,244
Int. Cl. A47b 63/00

U.S. Cl. 312-189

29 Claims



This disclosure is directed to improvements in a semirotary card file having an open top housing and a pivotally connected and readily detachable swing or semirotary closure whereby the closure is arranged to swing or rotate between open and closed positions about movable pivots which enables the closure to be selectively positioned in various selected opened positions or settings. Card holding means are associated with the closure for maintaining the cards, adapted to be filed in position on the closure in either the open or closed position. Means may also be provided for rotatably supporting either the housing or the detachable closure on a pedestal.

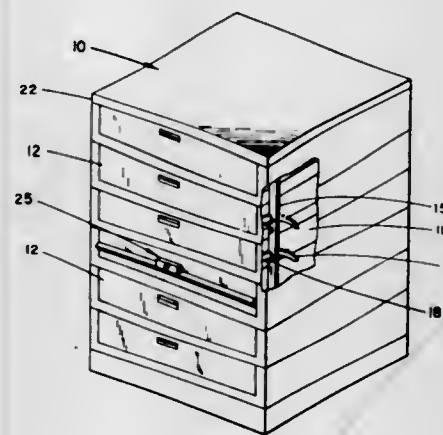
3,602,564
FILING CABINET
Otto D. Lewin, 210 Elmwood Boulevard, York, Pa.
Filed July 21, 1970, Ser. No. 56,796
Int. Cl. A47b 88/16

U.S. Cl. 312-220

10 Claims

A filing cabinet containing a plurality of independently operable sliding compartments, each having its own door, in which all of the unopened doors in the cabinet are locked and prevented from opening in response to the opening of any one of the doors of the cabinet. The cabinet contains a pair of vertically slidable locking bars, which span the various compartments. Each locking bar has a plurality of notches through which move various fall supports supporting each of the doors in its open horizontal position. Each of the fall supports has a first camming surface on it which momentarily cams the locking bars upwardly when a door is moved to its

open position. At the same time that a door is moved into open position, a combined friction catch-interlock moves to a position underlying its respective fall support and within its respective notch, the effect being to prevent the locking bars from being moved upwardly. When any of the remaining doors is to be opened, the cams contact the locking bars and, being unable to move them upwardly, in effect prevent the door from opening; i.e., the cams cannot pass the locking bars. Upon closure of the opened door, each friction catch-interlock is cammed from its underlying position beneath a fall support, thereby again permitting the locking bars to be

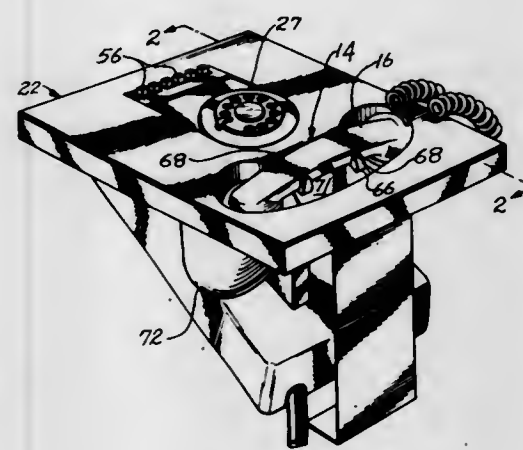


moved in an upward vertical position through the space formerly occupied by the friction catch-interlocks. The invention also encompasses a single locking unit by which all of the doors can be maintained in a locked position. The door containing the locking unit can be at any level to accommodate easy access. The locking unit includes a lock arm, which is received within a notch in each locking bar such that when the lock is closed, the locking arm maintains the locking bars in their downward cam locking position. When the lock is opened, the lock arm is moved to a second position such that the locking bars can be vertically raised.

3,602,565
TELEPHONE ENCLOSURE
Albert O. England, Jr., 5225 Gould Ave., LaCanada, Calif.
Filed Sept. 12, 1969, Ser. No. 857,458
Int. Cl. A47b 83/00, 88/00; H04r 21/02

U.S. Cl. 312-237

8 Claims

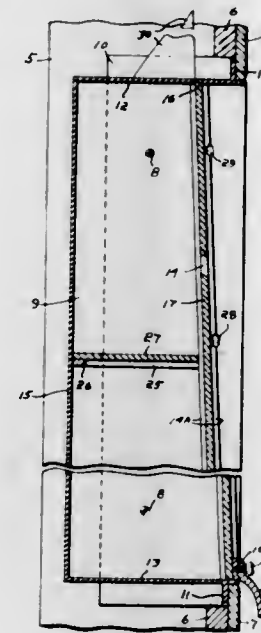


A telephone enclosure includes a cover disposed over a telephone body. The cover has openings through it to expose the control panel of the telephone, and to permit the telephone cradle to project above the cover. Support means are provided for holding the telephone body with respect to the cover so the control panel on the telephone is substantially parallel with a major plane of the cover.

3,602,566
WALL CABINET
Doris C. Wiley, Box 44, Greenbush, Mass., and Robert S. Wiley, 643 Auburn Street, Whitman, Mass.
Filed Dec. 6, 1968, Ser. No. 781,939
Int. Cl. A47b 67/02, 81/00

U.S. Cl. 312-242

4 Claims



Wall cabinets particularly those to be incorporated in bathroom walls bordering shower stalls are disclosed, and having an entrance transversely of its top wall and rearwardly of its outer edge to open rearwardly of the wall layer or layers attached to the studs and flange structure to serve in enabling a tight joint to be established between it and the wall material abutting it. A door is vertically slidable through the entrance and has a closed position in which it is upwardly and rearwardly inclined with its lower end including a transverse portion overlying the outer edge of the bottom wall.

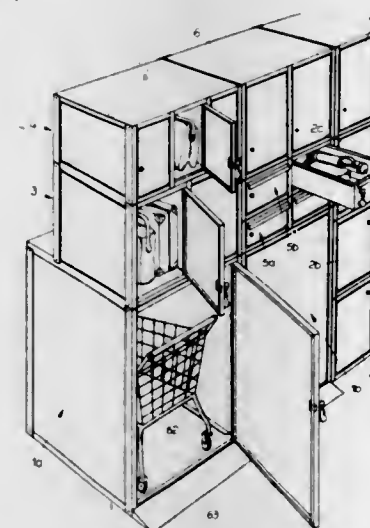
3,602,567
COLLAPSIBLE CABINETS
Manfred Schnell, Baden-Baden; Carl Adolf Weidt, Siegen, and Manfred Schafer, Salchendorf, all of, Germany, assignors to Firma Faltz Schafer GmbH, Bahnhofstrasse, Germany

Filed June 12, 1969, Ser. No. 832,743
Claims priority, application Germany, June 28, 1969, P 17 790 26.0

U.S. Cl. 312-257

Int. Cl. A47b 43/00, 47/00

11 Claims



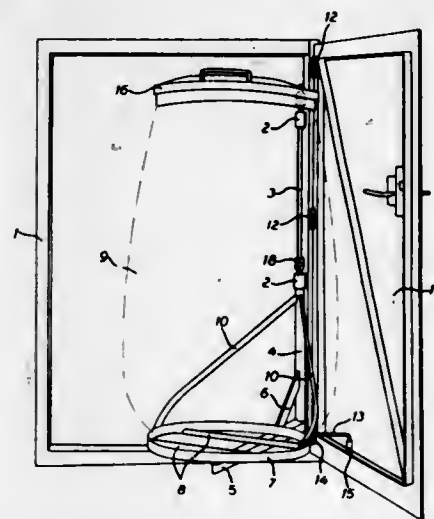
A collapsible cabinet, preferably made of sheet metal, consists of a base, a top, rear wall, sidewalls, and a door frame.

The sidewalls are located relative to the base and top by projecting angle portions which fit around the corners of the base and top, and the rear wall and door frame are secured in position by interlocking hooks which extend lengthwise thereof and of the sidewalls.

3,602,568
DEVICES FOR SUPPORTING GARBAGE CANS OR OTHER CONTAINERS IN CLOSETS, CUPBOARDS, SINK CUPBOARDS ETC.
Tore Helgo Bernhard Bernhardtsson, Ingelstorp 49, 270 21, Glemmingebro, Sweden
Filed Apr. 9, 1969, Ser. No. 814,610
Claims priority, application Sweden, Apr. 11, 1968, 4958/68
Int. Cl. A47b 81/00, 97/00

U.S. Cl. 312-274

4 Claims



A bracket and cover assembly in which the bracket serving to support the garbage can or other container is secured to a vertical axle which is mounted for rotation in bearings adjacent one vertical side edge of a door opening, and a coupling link hingedly connects the bracket to the door so that the bracket with the garbage can thereon is swung out when the door is opened, the bearings for the vertical axle being arranged on one vertical side member of a frame which is intended to be mounted in the door opening of the cupboard, the door thereof being also hung on said frame by means of hinges of its own, said bearings being located immediately inside the plane of the door opening. Further, a link which is universally hinged at its ends provides for a restricted lost motion between its two hinge points in order after initial lost motion to form an anchorage between the frame and the cover of the can for swinging the latter upwardly away from the garbage can into open position when the can is swung out by the door being opened.

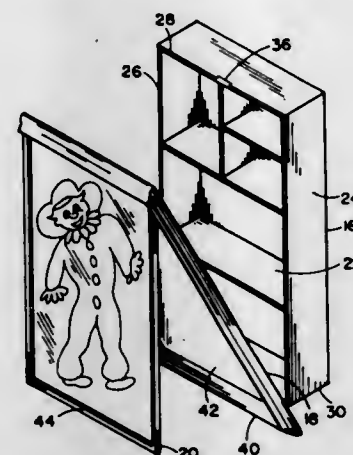
3,602,569
CONCEALED FOLDING TABLE
Bernard Caputo, Boxford, Mass., assignor to Trojan Horse Designers, Inc., Boxford, Mass.
Filed June 4, 1969, Ser. No. 830,477
Int. Cl. A47b 77/10

U.S. Cl. 312-314

2 Claims

A concealed folding table is provided for mounting on a wall or other upright support. A fixed shelf section is mountable on a wall and has hinged along the bottom thereof a table section foldable flush against the front of the shelf section when closed in place. A leg section is hinged to the

upper part of the table section and serves to support the table when open. The leg section nests within a cooperating frame



on the table section when folded to give the appearance of a conventional framed picture or the like.

3,602,570

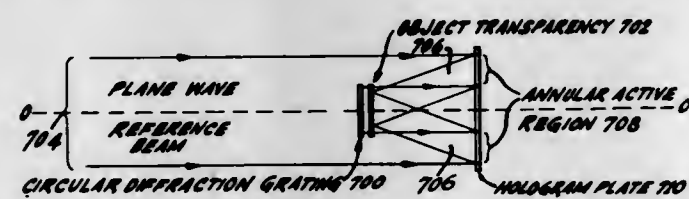
APPARATUS FOR MAKING ANNULAR HOLOGRAMS
David L. Greenaway, Untereichen, Birchwil, Switzerland, assignor to RCA Corporation

Filed Sept. 27, 1968, Ser. No. 763,213

Claims priority, application Great Britain, June 20, 1968, June 20, 1968, Sept. 10, 1968, 29580/68; 29581/68; 43055/68
Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

4 Claims



An "annular" hologram is produced by the interference between at least a portion of a reference beam of coherent light confined to a circular annular region symmetrically disposed about a given axis and an information component obtained from an object symmetrically disposed with respect to the given axis which is illuminated by the coherent light. The object, which is usually a transparency, is confined within an interior region which is surrounded by the reference beam. All the principal elements utilized to make an "annular" hologram have circular symmetry with respect to the given axis. This results in optimized resolution, fidelity, and alignment facility.

3,602,571

OPTICAL BEAM SCANNER PROVIDING ANGULAR DISPLACEMENTS OF LARGE BEAM DIAMETERS OVER WIDE FIELDS OF VIEW

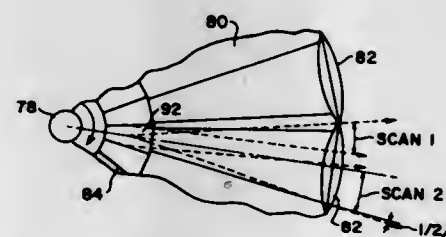
Victor J. Norris, Jr., Towson, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 3, 1968, Ser. No. 780,636

Int. Cl. G02b 17/00

U.S. Cl. 350—7

7 Claims



Described is an optical beam scanner capable of transmitting large beam diameters over wide fields of view at high scan rates. In certain embodiments of the invention, this is

accomplished by focusing an incident beam on a rotating optical assembly in such a manner that the beam is collimated and deflected through an angle that is the sum of the angle subtended by an individual optical element of the assembly and the angle that develops due to the varying off-axis position of the beam with respect to the optical element. In another embodiment, somewhat the same effect is achieved, but without the generation of refractive angles, by varying the position of the optical element such that its axis is always coincident with the axis of an incident beam.

3,602,572

TWO-DIMENSIONAL OPTICAL BEAM SCANNER

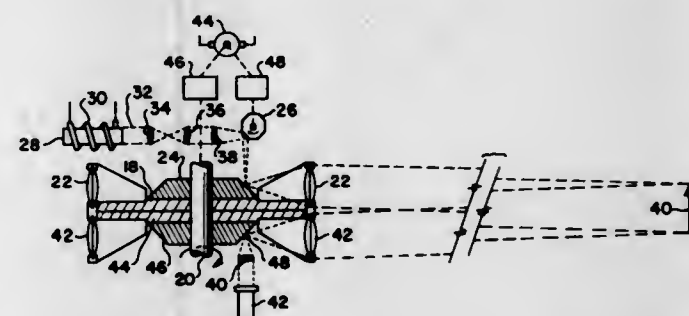
Victor J. Norris, Jr., Towson, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 3, 1968, Ser. No. 780,658

Int. Cl. G02b 17/00

U.S. Cl. 350—7

10 Claims



Described is an optical beam scanner capable of transmitting large beam diameters over wide fields of view in two dimensions (i.e., full-frame scanning) at high scan rates. A wide field of view in one dimension of the scan is achieved by focusing an incident beam on a rotating optical assembly in such a manner that the beam is collimated and deflected through an angle that is the sum of the angle subtended by an individual optical element of the assembly and the angle that develops due to the varying off-axis position of the beam with respect to the optical element.

3,602,573

COLOR ANALYSIS OPTICAL SURVEILLANCE SYSTEM

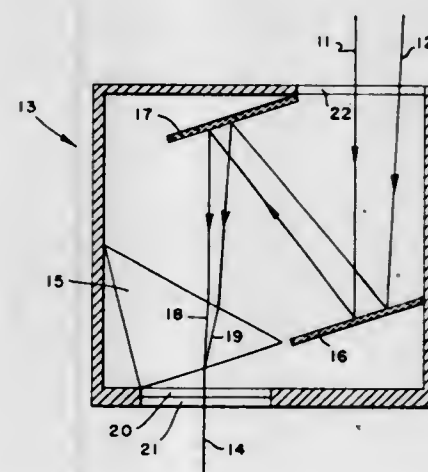
David W. Kermode, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed May 15, 1968, Ser. No. 729,285

Int. Cl. G02b 5/30, 27/28

U.S. Cl. 350—148

3 Claims



An optical system for improving target visibility comprising a prism which separates light reflected from the scene into its various color wavelengths and a set of cross polarized color polarized filters capable of rotation with respect to the prism to provide color contrast enhancement.

3,602,574

LIGHT MODULATION BY RESONANT FARADAY EFFECT

Eric L. Courtens, Adliswil-Zurich, Switzerland, assignor to International Business Machines Corporation, Armonk, N.Y.

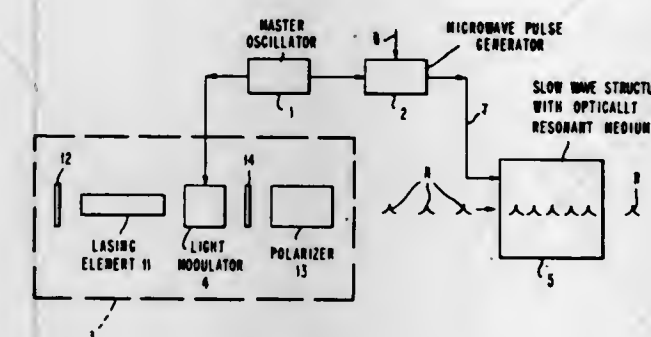
Filed May 14, 1969, Ser. No. 824,434

Claims priority, application Switzerland, May 22, 1968, 07633/68

Int. Cl. G02f 1/22

U.S. Cl. 350—151

19 Claims



Giant Faraday rotations, of linearly polarized light pulses, are obtained in an optically resonant medium when the medium operates under the conditions of self-induced transparency. The giant rotations permit utilization of relatively weak modulating magnetic fields of high frequency. Because of the velocity reduction of the light pulses in the resonant medium in a pulse code modulation arrangement, the medium is placed in a slow wave structure to provide synchronization between the modulating magnetic field signal and the light pulses.

3,602,575

MULTIPLE WAVELENGTH OPTICAL ISOLATOR

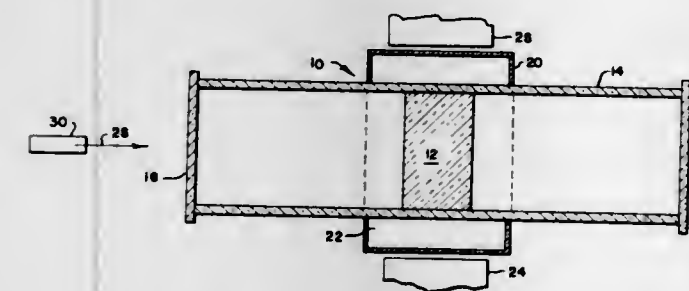
Charles Gilbert Young, Storrs, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed July 2, 1969, Ser. No. 838,678

Int. Cl. G02f 1/22

U.S. Cl. 350—151

2 Claims



A multiple wavelength optical isolator provides isolation for the light characteristic of either a neodymium glass laser, 1.06 μm , or ruby, 0.6943 μm , by immersion in either liquid nitrogen or the combination of dry ice and acetone respectively. The isolator includes a piece of silicate glass doped with 58 weight percent of terbium oxide which is subjected to the field of a permanent magnet of approximately 1100 gauss parallel to the path of light in the glass. The thickness of glass in this dimension is approximately 7.7 cm.

3,602,576

OPTICAL VIEWING SYSTEM

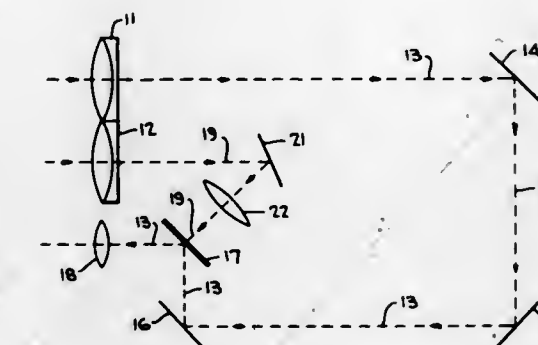
Hans W. Kohler, Washington, D.C.; Billy M. Horton, Kensington, Md.; Charles H. Klute, Washington, D.C., and Donald R. Hartter, Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Army

Filed May 20, 1965, Ser. No. 457,545

Int. Cl. G02b 23/08

U.S. Cl. 350—160 R

8 Claims



An optical viewing system employing a photochemical shutter for protecting an observer against the harmful and binding effects of intense light produced by laser beams. The incoming light is split into two beams, one of which is delayed in reaching the photochemical shutter which acts as a reflector. When an intense light pulse is received the non-delayed beam will cause the photochemical shutter to decompose explosively thus disrupting the transmission of the delayed beam of light.

3,602,577

OPTICAL TUNNELING ACOUSTIC SURFACE WAVE LIGHT MODULATOR

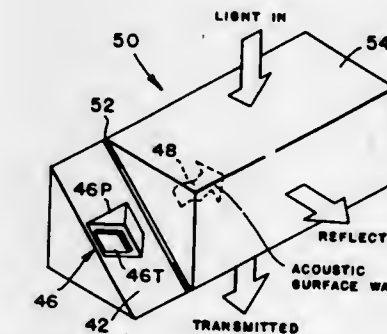
George W. Byram, Oxon Hill, Md.

Filed Mar. 17, 1970, Ser. No. 20,180

Int. Cl. G02f 1/28

U.S. Cl. 350—161

23 Claims

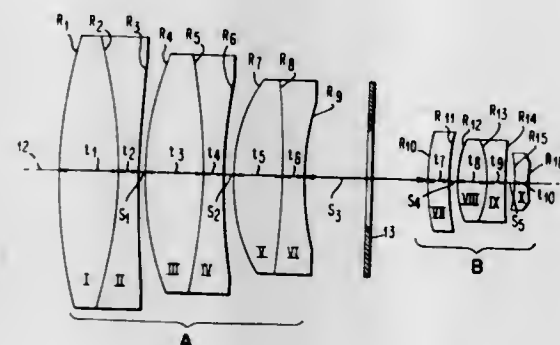


An optoacoustic surface-wave device, using the principle of optical tunneling, which provides for direct amplitude modulation of a light beam by the local amplitude variation of an acoustic surface wave. The optoacoustic device uses an acoustic surface wave to locally perturb the boundary conditions at a reflecting interface, between two elements, at least one of which is a prism, and to locally modulate the light. The basic optical tunneling interaction cell includes two prisms, at least one of which is a triangular prism, separated at the interface by a small distance, for example that provided by thin-film spacers. The acoustic surface wave is propagated along one of the surfaces at the interface of the two prisms, while the light is incident at an angle, generally perpendicularly, to one of the faces of a prism.

3,602,578
MICRO-OBJECTIVE REDUCTION LENS SYSTEM
 Raymond E. Tibbetts, Mahopac, and Janusz S. Wilczynski, Ossining, both of, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Apr. 2, 1970, Ser. No. 25,127
 Int. Cl. G02b 9/62

U.S. Cl. 350—215

2 Claims

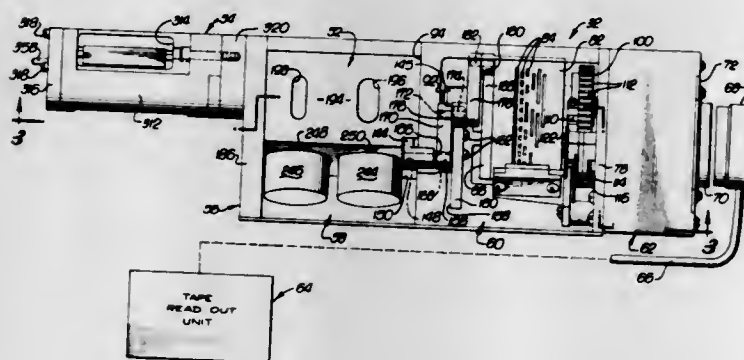


A lens group is described for use as a reduction lens, consisting of 10 lens elements. The first and second elements are cemented together to form a meniscus doublet lens as are the third and fourth, fifth and sixth, eighth and ninth elements. The seventh element is a positive meniscus lens and the 10th element is a biconcave lens. The lens group has very high uniform resolution over the flat image field and has unmeasurable distortion, less than a hundredth part of the wavelength of light. The constructional data of the lens elements have upper and lower limits and nine embodiments of lens groups of the present invention are set forth, all of which provide the high resolution and exceptionally low distortion value.

3,602,579
ELECTROMECHANICAL LIGHT VALVE SYSTEM
 Ernest Wilbur Silvertooth, Pasadena, Calif., assignor to Film Editing Equipment Corp., Hollywood, Calif.
 Filed Nov. 17, 1969, Ser. No. 877,180
 Int. Cl. G021 1/30

U.S. Cl. 350—269

17 Claims

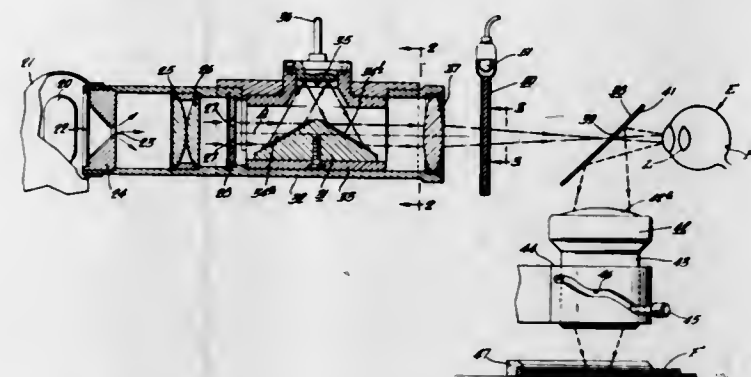


This invention embodies an electromechanical device associated with and coating between an electronic memory storage system containing predetermined light intensity settings in code, and a novel light valve capable of modulating in minute increments the output of light derived from a light source, wherein the electromechanical device controls and actuates the light valve and is controlled, and corrected when required, by the memory storage system, in time increments of far lesser magnitude than previously attainable. The invention has particular utility as a component in a conventional motion picture film additive color printer.

3,602,580
METHOD AND OPTICAL SYSTEM FOR REFRACTING EYES
 Marvin S. Samuels, Philadelphia, Pa., assignor to Joseph S. Zuritsky; Herman Zuritsky and Lee Zuritsky, all of Philadelphia, Pa., part interest to each
 Filed Jan. 5, 1970, Ser. No. 651
 Int. Cl. A61b 3/10

U.S. Cl. 351—6

11 Claims



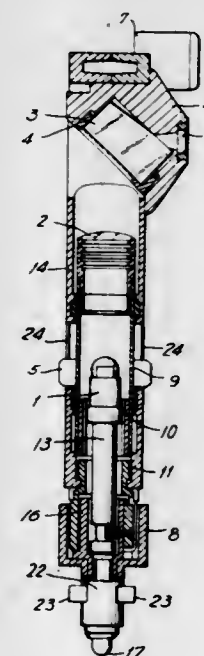
A method and optical system for simultaneously refracting both eyes of a patient by directing a narrow beam or beams of light into each eye at a point spaced from the optical axis of the eye. The beams are translated in a circular path about the optical axes of the eyes and reflected from the retina back through the ocular media. A trace of the reflected beam is obtained, for example, on photographic film and the deviation of the trace from a standard pattern provides an accurate indication of the error in the eye media. The optical system includes a source of light, filter, condensing and directing lenses and apertures to provide the desired narrow beams. It further includes means such as a rotatable prism to provide the desired circular translation of the narrow light beams and a beam splitter through which the beams initially pass and which directs the reflected beams from the eye retina through a second condensing lens system onto film where traces of the reflected beams are recorded.

3,602,581
SKIASCOPE
 Helmut A. Heine, Herrsching, Obb, Germany, assignor to Optotechnik G.m.b.H. and Propper Manufacturing Company, Inc.
 Filed Apr. 21, 1969, Ser. No. 817,949
 Claims priority, application Germany, May 15, 1968, P 17 72 434.4

U.S. Cl. 351—15

Int. Cl. A61b 3/10

17 Claims



A skiascope to be used in examining the eye to determine the refractive behavior thereof when light is directed to the

eye. An illuminating structure is provided for directing light to a reflector of the skiascope. This reflector directs the light to the eye which is to be examined, and it is possible to observe the eye directly through the body of the reflector which is semitransparent. The observation is made by observing a part of the rear surface of the reflector while the light is reflected from the front surface to the eye. Thus, light travels from the eye through the reflector to provide an observation of the eye at the rear surface of the reflector. The thickness of the reflector and its inclination is such that light received in the interior of the reflector from the source of illumination will engage only a portion of the rear surface which is displaced from the part thereof through which the eye is observed, so that at this part of the rear surface which provides an observation of the examined eye there is only light which travels from the eye and not any light from the source of illumination.

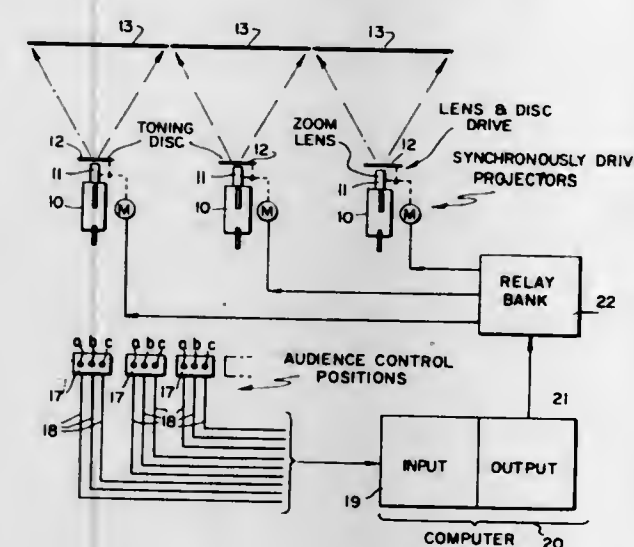
ERRATUM

For Class 352—13 see:
 Patent No. 3,502,606

3,602,582
TRIPTYCH CINEMATOGRAPHIC SYSTEM
 Ngo Torricelli, 239 Central Park West, New York, N.Y.
 Filed Sept. 11, 1968, Ser. No. 759,118
 Int. Cl. G03b 21/32

U.S. Cl. 352—40

4 Claims



A cinematographic system is provided comprising three motion picture projectors and three projection screens for films on which the projections are made, each projector having a motor driven zoom lens and toning disc, means for synchronizing the operation of the three projectors, means for correlating the action of the zoom lens and toning disc at each projector and audience participation selection or control means acting on said zoom lens and toning disc correlating means through appropriate circuitry including a computer having a memory bank, whereby the scenes and sequences projected on the screens can be modified and mutations obtained in various respects by the audience and/or retrieved from the memory bank.

3,602,583
MOTION PICTURE CAMERA
 Alfred Winkler; Kurt Thate; and Anton Theer, all of Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
 Filed Dec. 10, 1969, Ser. No. 883,700
 Claims priority, application Germany, Dec. 14, 1968, G 68 11 543

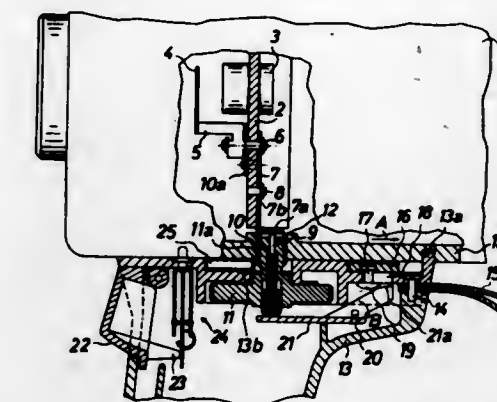
U.S. Cl. 352—136

Int. Cl. G03b 19/18

10 Claims

A motion picture camera wherein the conversion filter is movable with reference to the objective lens by a linkage whose input member is mounted in the pistol grip and a por-

tion of which extends through a hollow fastener serving to separately connect the pistol grip with the housing. The input member is a slide which can be moved by hand and/or by



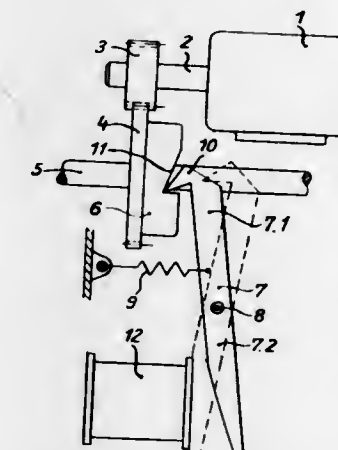
means of a support for a flash unit or another source of artificial light. Various positions of the filter are indicated by symbols which are concealable by the input member.

3,602,584
ELECTROMAGNETIC RELEASE ARRANGEMENT FOR MOTION PICTURE CAMERAS
 Peter Anderl, Munich; Rainer Giesler, Munich; Theodor Steibl, Maisach, and Johann Roth, Schwabhausen Near Dachau, all of, Germany, assignors to Niezoldi & Kramer GmbH, Munich, Germany
 Filed July 14, 1969, Ser. No. 841,282
 Claims priority, application Germany, July 12, 1968, P 17 72 853.9

U.S. Cl. 352—174

Int. Cl. G03b 21/48

12 Claims



A release arrangement for a motion picture camera in which a release member blocks the operation of the camera and disconnects the motor circuit through an electromagnet when the camera is in the inoperative state. By depressing the release button of the camera, the electromagnet becomes energized and the release member permits the camera to operate freely. A timing network is connected to the electromagnet for controlling the current flow through the motor from the instant that the new release button is depressed through the duration of operation of the camera.

3,602,585
ADJUSTABLE SHUTTER FOR MOTION PICTURE CAMERAS
 Theodor Steibl, Maisach; Johann Roth, Schwabhausen, and Alfred Roppel, München, all of, Germany, assignors to Niezoldi & Kramer GmbH, Munich, Germany
 Filed June 26, 1968, Ser. No. 740,306
 Claims priority, application Germany, June 27, 1967, N 30807 IXa/57a

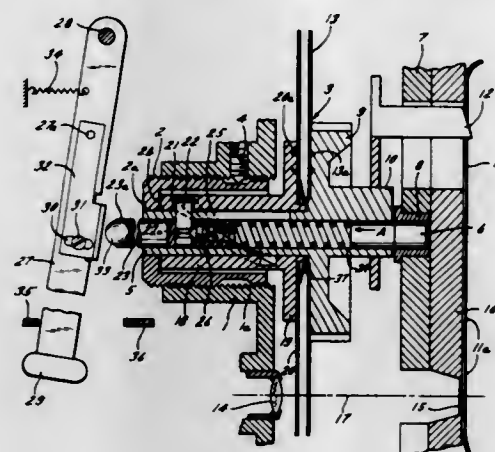
U.S. Cl. 352—216

Int. Cl. G03b 9/10

15 Claims

A motion picture camera with an adjustable rotary shutter wherein the angular position of one (20) of two shutter

blades (13, 20) with reference to the other blade (13) can be changed by a lever (27) which engages a part (23) rotating with the shutter (3) only when the user wishes to change the



exposure time. A spring (24) causes the blades (13, 20) to furnish an optimum exposure time for normal operation of the camera whenever the lever (27) is disengaged from the rotary part (23).

3,602,586

MOTION PICTURE CAMERA

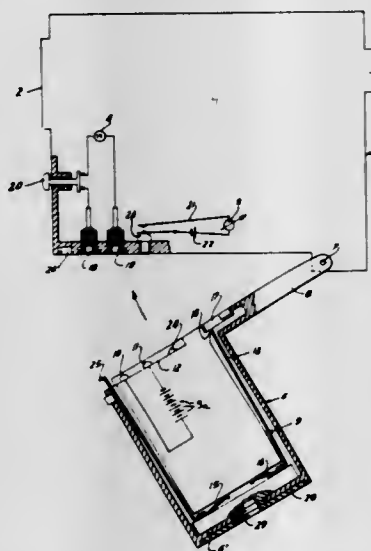
Otmar Bartl, Munich; Alfred Roppel, Munich, and Johann Roth, Schwabhausen, all of, Germany, assignors to Niezoldi & Kramer GmbH, Munich, Germany

Filed July 12, 1968, Ser. No. 744,531

Claims priority, application Germany, July 13, 1967, N 20324/57a Gbm

Int. Cl. G03b 17/00

U.S. Cl. 352-243



A motion picture camera wherein the housing is pivotally connected to a hollow pistol grip handle and accommodates one or more current-consuming units, such as an electric motor for the shutter and pulldown and an exposure meter. The handle accommodates a removable container with a set of batteries which are connected in circuit with the exposure meter and/or motor when the handle is pivoted to operative position in which terminals provided on the top wall of the container engage complementary terminals on the bottom wall of the housing.

3,602,587

PROJECTING APPARATUS

Stephen Blecher, Littleton, and Earle D. Riley, Jr., Wheat Ridge, both of, Colo., assignors to Honeywell, Inc., Minneapolis, Minn.

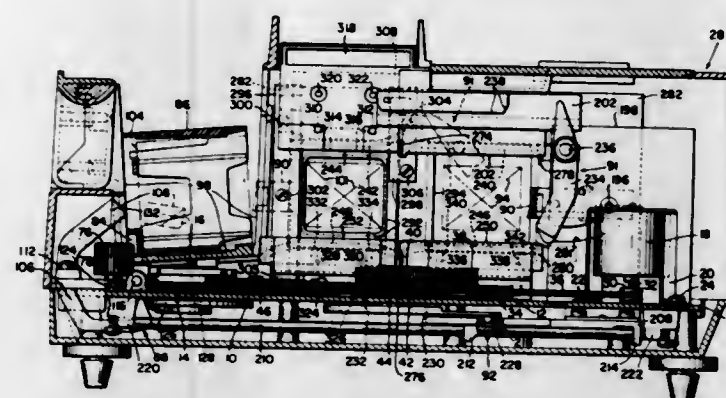
Filed Sept. 13, 1968, Ser. No. 759,608

Int. Cl. G03b 21/00, 23/04

U.S. Cl. 353-21

The present invention relates to improvements in slide projectors and in particular to an apparatus for: 1. Simultane-

ously ejecting any two bound or unbound, cardboard, plastic or glass mounted slides which are of different thickness out of and away from a tray in a straight path into a fixed spaced apart relationship along a track and in a unitary slide pulling jaw member and 2. Providing a construction for the jaw



member that will continue to move the slides in said straight path while one of the slides hits a first stop and is wiped off of the moving jaw member when it reaches a "preview" position and the other of said slides hits a second stop and is wiped off of the jaw member when it reaches a "show" position.

3,602,588

UNITARY REVERSIBLE DUAL SLIDE INDEXING MECHANISM FOR AN AUTO CUE AND PREVIEW SLIDE PROJECTOR

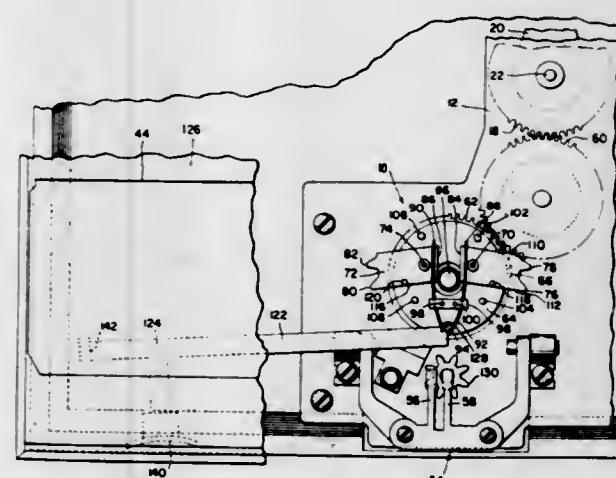
Dean M. Peterson, Littleton, Colo., and Cornelis T. Veenendaal, Milwaukee, Oreg., assignors to Honeywell, Inc., Minneapolis, Minn.

Filed Oct. 27, 1969, Ser. No. 869,667

Int. Cl. G03b 23/04

U.S. Cl. 353-118

10 Claims



A two position control lever adjusted mechanism for either advancing or reversing in a sequential one or two-tooth manner the direction an indexing pinion drives the teeth on a rack of a photographic projector tray in its respective forward and reverse direction. This construction allows each consecutive slide to be previewed and then shown on a screen or, alternatively, every other slide to be shown on the screen while each one of the remaining slides are consecutively moved into a preview position where they will provide descriptive data or cues for a narrator to see and/or read for each slide when it is projected on the screen.

3,602,589

SYNCHRONIZATION SYSTEM FOR A CONTROLLED OPERATION ON A MOVING WEB

Charles Harry Dietz, San Diego, Calif., assignor to Stromberg Datagraphics, Inc., San Diego, Calif.

Filed Dec. 3, 1968, Ser. No. 780,671

Int. Cl. G03b 15/05, 27/46, 27/10

U.S. Cl. 355-14

An operational function, such as the exposure of a photographic image, is performed on a continuously moving web,

such as a photosensitive paper, so that the operations are synchronized to act on predetermined portions of the web. The timing of the operations with respect to the positional orientation of the predetermined web portions may be adjustably varied to achieve precise registration without stopping the web. This may be accomplished by providing an electrical pulse indicating that a predetermined web portion is approximately registered in a station wherein the operation is to be performed, providing a train of electrical pulses hav-

which is reduced from the size of the print that is to be produced, is prepared on relatively high contrast film. An enlarged image is projected from the second negative onto a supporting surface while the first negative is located in such a position relative to the supporting surface as to cover the projection of the transparent area of the second negative. Sensitized paper is exposed on the supporting surface, beneath the so-located first negative, to produce a photographic print by subjecting it to the enlarged projected image from the second negative while transmitting light through the first negative from the transparent area of the second negative.

3,602,591

STEP AND REPEAT CAMERA

Adrianus Gerardus Bouwer; Marinus Reinerus Joannes De Bont, and Frits Theodoor Klostermann, all of Emmasingel, Eindhoven, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

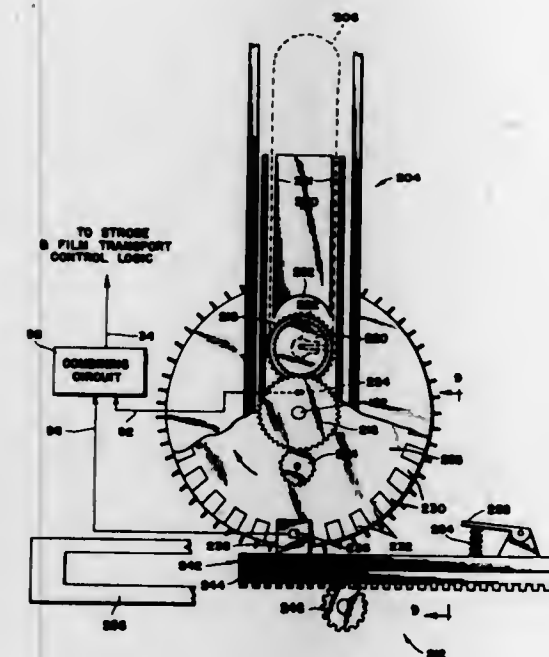
Filed Feb. 4, 1969, Ser. No. 796,513

Claims priority, application Netherlands, Feb. 10, 1968, 6801924

Int. Cl. G03b 27/42

U.S. Cl. 355-53

4 Claims



ing a frequency which is synchronized with the speed of the web through the station, providing an actuating signal for effecting the operation on the occurrence of both a pulse of the pulse train and the first-mentioned pulse in a predetermined relation to each other, and adjustably varying the phase of the pulse train with respect to the passage of the predetermined portion of the web through the station so that the occurrence of the actuating signal may be synchronized with the instant that the predetermined web portion is in precise registration therein.

3,602,590

METHOD OF PRODUCING PHOTOGRAPHIC PRINT COMPRISING HIGH CONTRAST AND LESSER CONTRAST PORTIONS

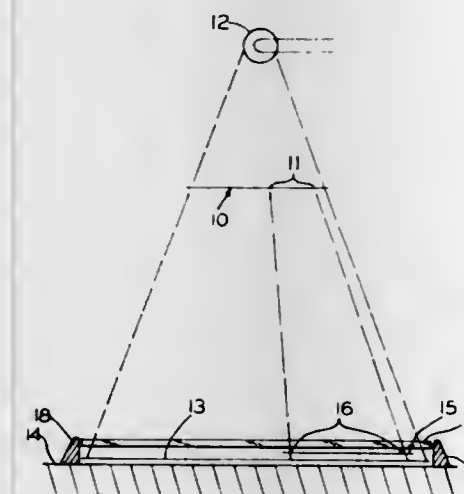
Alfred B. Lukens, 1303 Craigwood Road, Toledo, Ohio

Filed July 31, 1969, Ser. No. 846,519

Int. Cl. G03b 27/32; G03c 5/04

U.S. Cl. 355-40

3 Claims



A step and repeat camera for reducing and reproducing in a repeating manner an object having the pattern to be reproduced on a plurality of photographic plates. The plates are supported on a table slidably mounted on a base and a housing having projection means is slidably mounted above the table. A plurality of apertures is provided in the surface of the housing and a means for accurately orienting and aligning the object over the aperture is movably arranged above the surface of the housing. The object is provided with an aligning mark which is intended to coincide with an aligning mark adjacent each of the apertures. The aligning means comprises a device for moving the object over the surface of the table until the aligning marks are aligned and a microscope is provided for movement with the aligning means for accurate observation to determine when the marks are aligned.

3,602,592

PRODUCTION OF A MODIFIED ORTHOPHOTOGRAPH

Stanley Hoover Collins, Guelph, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ontario, Canada

Filed Sept. 5, 1967, Ser. No. 665,521

Int. Cl. G01c 11/10

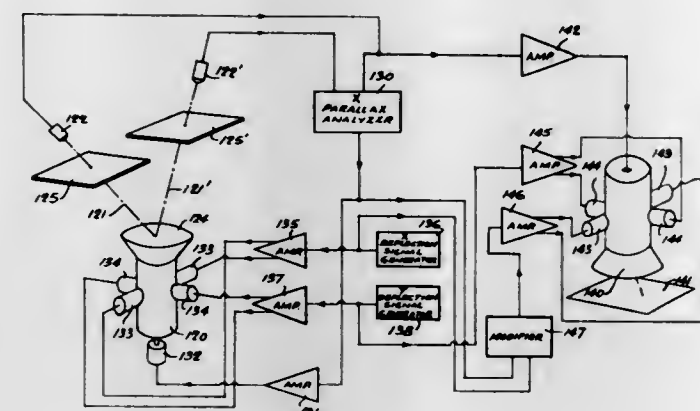
U.S. Cl. 355-77

10 Claims

At least one negative for contact printing of a pictorial portion of the print is prepared on relatively low contrast film. A second negative which is transparent in the area in which said pictorial portion is to appear, and the size of

A three-dimensional optical model is created from a stereo-pair of aerial photographs by projecting the photographs by means of two projectors, and a moving aperture scans the optical model. A photosensitive film is exposed to

one of these beams and is shifted in a direction perpendicular to the plane of the film so that the portion of film that is being exposed intersects the optical model. Superimposed on



the vertical shift motion of the film is a displacement tangential to the plane of the film, the amount of displacement being in a preselected relationship to the extent of the vertical shift.

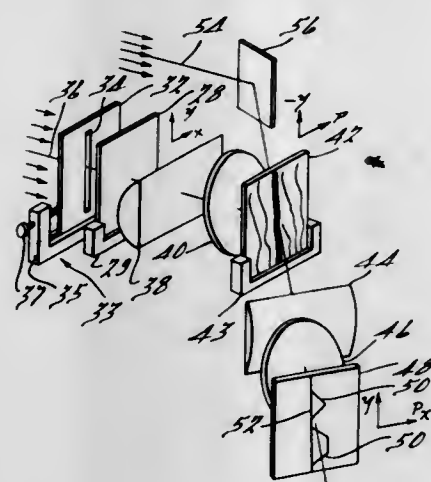
3,602,593

METHOD AND APPARATUS FOR ONE-DIMENSIONAL OPTICAL STEREO PARALLAX PROCESSING
Stanley J. Krulikowski, Jr., Dearborn; Daniel C. Kowalski, Southgate, Mich., and Frank R. Whitehead, Tuscon, Ariz., assignors to The Bendix Corporation
Filed Oct. 3, 1968, Ser. No. 764,679

Int. Cl. G01c 11/12

U.S. Cl. 356-2

16 Claims U.S. Cl. 356-36



A method and apparatus for simultaneously measuring the parallax of the imagery on two stereo photographs along a line perpendicular to the direction of parallax by taking successive one-dimensional Fourier transformations of the imagery.

3,602,594

LASER CALIBRATION OF LARGE RADIO REFLECTOR
Melvin S. Cook, Scarsdale, N.Y., and Ronald L. Kirk, Franklin Lake, N.J., assignors to Holobeam Inc., Paramus, N.J.

Filed Jan. 9, 1969, Ser. No. 790,073

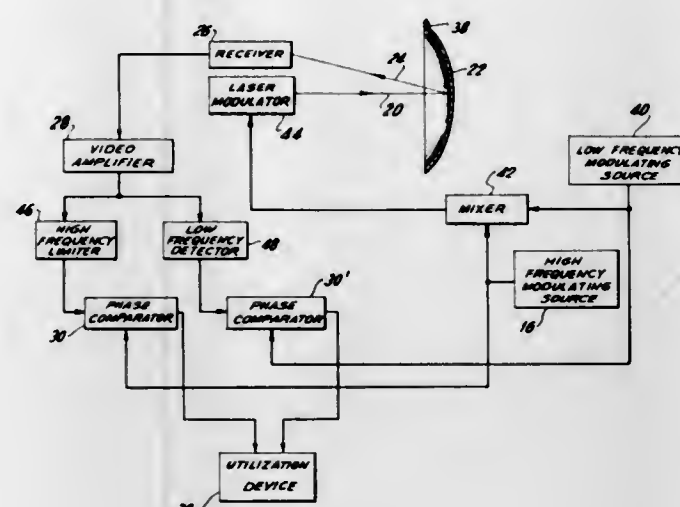
Int. Cl. G01c 3/08

U.S. Cl. 356-5

2 Claims

A device for calibrating a large body surface to determine surface irregularities is described. A laser is modulated with a

sinusoidal high frequency source and its beam directed at the body surface. Reflected optical signals are detected and



phase compared with the sinusoidal source. The phase error measured is representative of antenna surface variations.

3,602,595

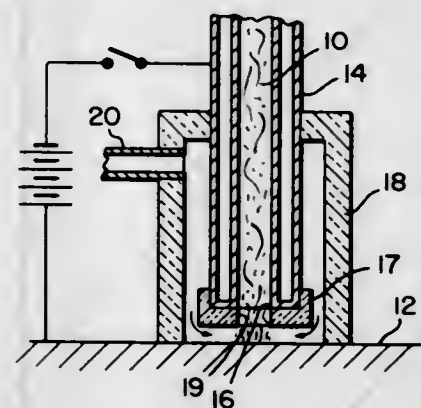
METHOD OF AND APPARATUS FOR GENERATING AEROSOLS BY ELECTRIC ARC

Ralph Leon Dahlquist, Santa Barbara; James Latimer Jones, Santa Barbara, and Kenneth William Paschen, Goleta, all of, Calif., assignors to Applied Research Laboratories, Inc., Sunland, Calif.

Continuation-in-part of application Ser. No. 644,987, June 9, 1967, now abandoned. This application May 20, 1968, Ser. No. 737,252

Int. Cl. G01n 1/00; G01j 3/00

16 Claims



An electric arc struck between a counterelectrode connected to the anode of a source of current, and a material to be sampled connected to the cathode, causes the ejection of very small droplets of the material. The droplets solidify and are carried away as an aerosol by the gas used to sustain the arc. The droplets are representative in their composition of the entire region of the material struck by the arc.

3,602,596

ROUGHNESS TESTING METERS

Robert W. Astheimer, Westport; Morris Weiss, Stamford, Conn., and Philippe Villers, Concord, Mass., assignors to Barnes Engineering Company, Stamford, Conn.

Continuation-in-part of Ser. No. 359,221, Apr. 13, 1964, abandoned

Filed Apr. 5, 1968, Ser. No. 727,120
Int. Cl. G01n 21/34

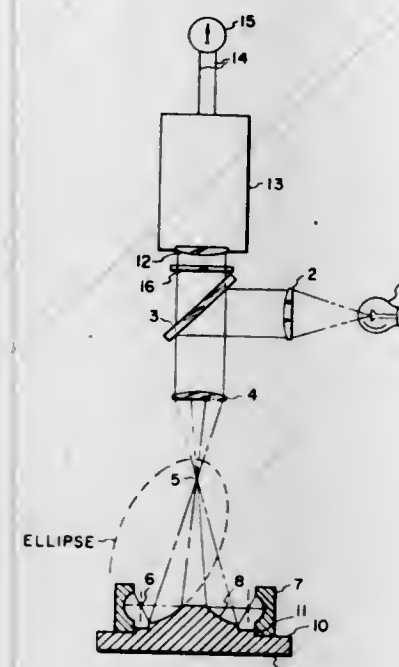
U.S. Cl. 356-51

7 Claims

A roughness meter for measuring r.m.s. roughness, especially in the range from about 1-5 μ m, the meter providing a choice of at least two wavelength bands of illumination, at least one being in the infrared. The wavelength of illumination, or more precisely the reflected radiation, is preferably from 20-50 times the r.m.s. roughness. The radiation is

reflected onto various curved surfaces, such as toroidal surfaces of ball bearing races. In every case a reflecting surface is used which causes the beam of radiation to strike all points of the surface at substantially normal incidence, and there is in the beam path no material which has a significant refractive index which is wavelength dependent. Air is preferred. Reflected light is detected and an electrical output is

and during its movement. The method and the apparatus are characterized by the measurement of the time taken by the front and rear ends of the object to pass opposite two groups of points determined by its travel, one upstream group of close set points and one downstream group of widely spaced points, such points being positioned so that the distance between the end points of the upstream group corresponds to the largest interval separating two consecutive points of the downstream group, and so that, when the front of the object passes in front of one of the points of the downstream group, the rear of the object simultaneously passes in front of one of



produced which is a measure of the r.m.s. reflectance. The reflecting surface may be a portion of an ellipsoid or a paraboloid. In the first case the beam of radiation is focused at one of the conjugate foci of the ellipsoid and the bearing space is accurately positioned so that the center of its curvature is at the other conjugate focus. In the case of a parabola, of course, collimated light is used.

3,602,597

DIFFERENTIAL CIRCULAR DICHROISM MEASURING APPARATUS

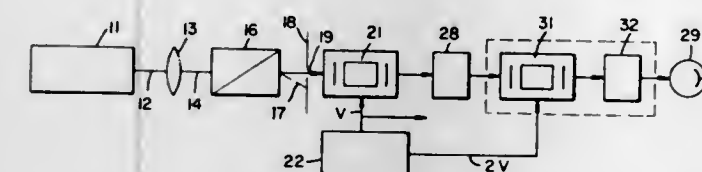
Donald P. Sproul, Boulder Creek, Calif., assignor to Durrum Instrument Corporation, Palo Alto, Calif.

Filed Sept. 17, 1969, Ser. No. 858,750

Int. Cl. G01n 21/40

U.S. Cl. 356-117

2 Claims



A circular dichroism (CD) and/or optical rotatory dispersion (ORD) measuring apparatus having half-wave retardation means and a reference cell inserted in the light beam to convert the apparatus to measure differential CD and/or ORD is disclosed.

3,602,598

METHOD AND APPARATUS FOR ACCURATELY MEASURING THE SIZE OF A MOVING OBJECT IN THE DIRECTION OF, AND DURING ITS MOVEMENT,

assignor to Societe De Constructions Electromecaniques Jeumont-Schneider, Paris, France and Union Siderurgique Lorraine "Sidelor", Moselle, France

Filed Jan. 29, 1969, Ser. No. 795,004

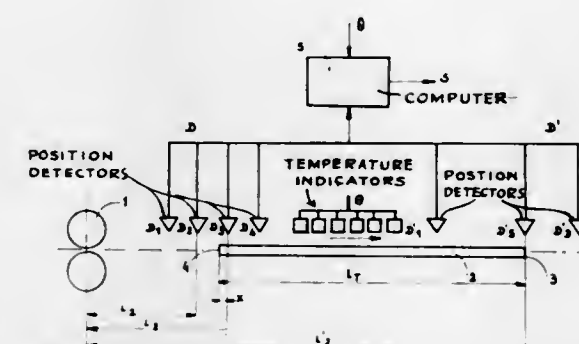
Claims priority, application France, Jan. 30, 1968, Jan. 20, 1969, 137878; 6900934

Int. Cl. G01b 11/04

U.S. Cl. 356-167

3 Claims

A method and an apparatus for accurately measuring the size of a solid or semisolid moving object, in the direction of,



the points of the upstream group. The method and the apparatus are characterized in the second place by the measurement of the speeds at which the object passes in front of the above mentioned points and of the corresponding accelerations. The method and the apparatus are characterized in the third place by the measurement of the temperatures of the object at different points of its travel. Finally, the method and the apparatus are characterized by the introduction of the preceding measured values into a computer device which displays at its output the size of the object for a given temperature.

3,602,599

ARRANGEMENT FOR DETERMINING PHOTOGRAPHIC EXPOSURE FACTORS

Martin Polke, Cologne, Buchheim, and Wolfgang Stossel, Karlsruhe, both of, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

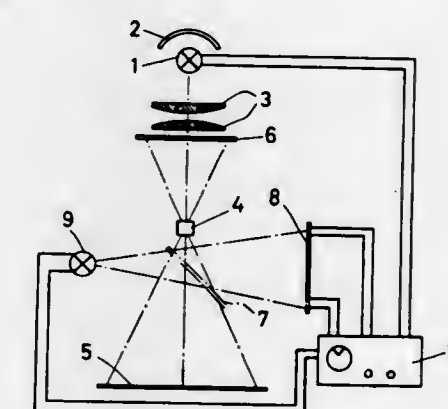
Filed June 11, 1968, Ser. No. 736,044

Claims priority, application Germany, June 16, 1967, P 15 72 238.0

Int. Cl. G01n 21/22; G01s 1/42, 1/10

U.S. Cl. 356-206

8 Claims



Exposure time and gradation of printing paper determined by use of small photoelectric resistance elements distributed over area of image. Half the resistance elements are connected in parallel, half in series. The elements are so distributed that each parallelly connected resistance element has a corresponding series element which receives substantially the same light. Current flow through the series combination influenced more by resistance elements receiving little light, while current flowing in the parallel combination will be influenced more by photoelectric elements receiving

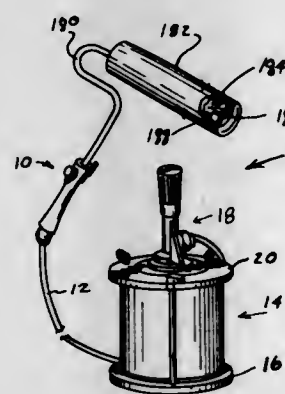
relatively much light. The difference between the currents flowing in the series and the parallel combinations constitutes a measure of the contrast in the negative.

3,602,600
WRITING IMPLEMENT
Lothar Kanski, Gross-Bieberau, Germany, assignor to Firma Merz & Krell, Gross-Bieberau, Germany
Filed Sept. 11, 1969, Ser. No. 856,976
Claims priority, application Germany, Oct. 1, 1968, P 18 00 194.0
Int. Cl. B43k 7/12
U.S. Cl. 401—115



A writing implement comprising an elongated housing in which an elongated writing member is slidably arranged for movement between a writing position and a retracted position. A weight abuts against the rear end of the writing member to displace the same in its respective positions in response to abrupt acceleration of the weight in longitudinal direction.

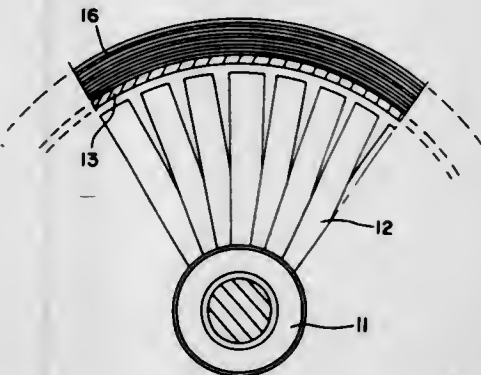
3,602,601
PRODUCT DISPENSER AND APPLICATOR
Richard D. Zenger, and Raymond M. Traczyk, both of 5959 South Cicero Avenue, Chicago, Ill.
Filed Aug. 8, 1969, Ser. No. 859,228
Int. Cl. A46b 5/02
U.S. Cl. 401—190



An apparatus for dispensing paint or the like and applying it to a surface to be coated. The apparatus comprises a frame having top and bottom cover plates receiving a paint can or like container therebetween and held together by locking screws, with a gasket interposed between a radially outer margin of the top cover plate and the cover-receiving ring of the recloseable can. A gas pressure supply assembly is fixedly disposed atop the cover plate, and includes a pressure regulator for controlling the pressure of a supply of propellant gas held within a miniature, throwaway cylinder or the like, such

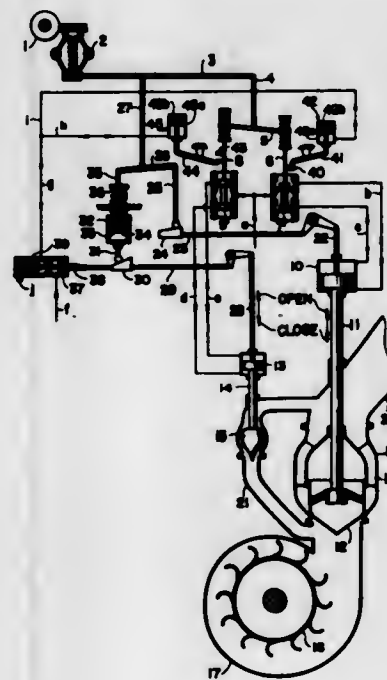
as a carbon dioxide cartridge. Gas pressure applied to the top surface of the paint in the container forces the paint up a dip tube, through a product supply passage in the pressure supply assembly, and through a flexible tube into a perforated sleeve forming the hub of an applicator roller, under the control of a valve in the applicator handle.

3,602,602
BURST CONTAINMENT MEANS
Salvatore Motta, Lowell, Mass., assignor to Avco Corporation, Cincinnati, Ohio
Filed May 19, 1969, Ser. No. 825,724
Int. Cl. F16p 1/02
U.S. Cl. 415—9



The invention relates to a means for containing burst fragments generated when very high speed machinery, particularly gas turbines, rupture. The containment means is a winding of tape over the machinery housing and radially aligned along the expected path of travel of part fragments. The winding is formed from lightweight material having high strength and high elongation properties providing unusual energy absorbing capabilities which tends to contain the impact of burst fragments primarily by deflection rather than high yield stresses.

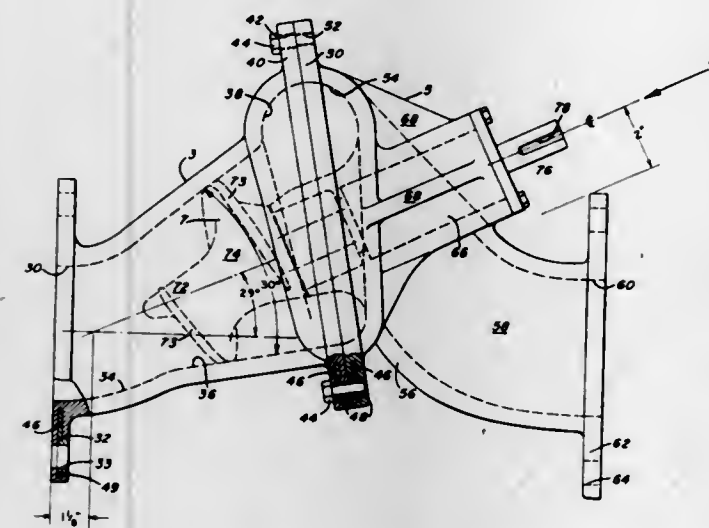
3,602,603
APPARATUS FOR OPERATING A WATER TURBINE
Shunichi Fukasu, and Takashi Hosogai, both of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 20, 1969, Ser. No. 851,706
Claims priority, application Japan, Aug. 30, 1968, 43/61789
Int. Cl. F01b 25/06; F01d 17/06; F03b 15/08
U.S. Cl. 415—38



A regulating means for water flow in a reversible water pump-turbine having an auxiliary needle valve and a main

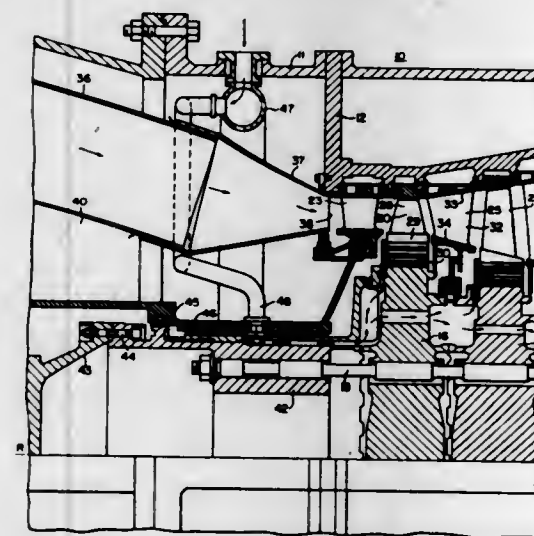
needle valve wherein during starting-up, only the auxiliary needle valve is operated to finely control the rotational speed of the turbine and after the turbine reaches a synchronizing speed, the regulating means is automatically switched to another mode of operation where only the main needle valve is operated to control the output power of the turbine, whereby the generator driven by the turbine may be smoothly switched into parallel with the transmission line.

3,602,604
PUMP CONSTRUCTION
Bernard M. Ronellenfitch, 60 Capri Ave. N.W., Calgary, Alberta, Canada
Filed Oct. 15, 1969, Ser. No. 866,448
Int. Cl. F01d 5/00
U.S. Cl. 415—72



A rotary pump assembly is described comprising a pump housing having a suction side and a discharge side each of a predetermined geometric form, with an impeller rotatably mounted therein for cooperating with the pumping action which is from approximately 35 to 85 percent auger action, and the remainder being centrifugal pumping action. The pump housing and impeller are substantially wholly made of a fully cured urethane elastomer.

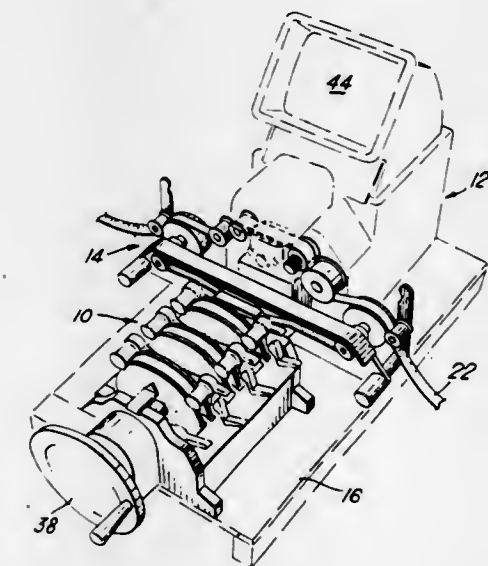
3,602,605
COOLING SYSTEM FOR A GAS TURBINE
Richard M. C. Lee, and Raymond G. H. Waugh, both of Media, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 29, 1969, Ser. No. 861,977
Int. Cl. F01d 5/08; F01h 5/18
U.S. Cl. 415—116



This invention comprises a system for cooling gas turbine rotor blades and discs. A coolant fluid enters a stationary

portion of the turbine through a passage structure and then into an annular cavity. Opposite the stationary portion is a rotatable portion in which there is an annular row of apertures. In fluid communication with the apertures on the rotatable portion, is an axially extending annular passageway. Before the coolant enters the passageway, a tangential velocity is imparted on the coolant which is approximately equal to the tangential velocity of the passageway. The coolant flows through the passageway to a radially extending compartment in which is an annular series of radial vanes. A pressure rise occurs as the coolant is directed into further channels. The coolant flows to the blades and, in heat transfer relation, cools them.

3,602,606
FILM SYNCHRONIZERS
John Joseph Rigby, London, England, assignor to Robert Rigby Limited, London, England
Filed Aug. 25, 1969, Ser. No. 852,680
Claims priority, application Great Britain, Aug. 27, 1968, 40964/68
Int. Cl. G03b 31/04
U.S. Cl. 352—13

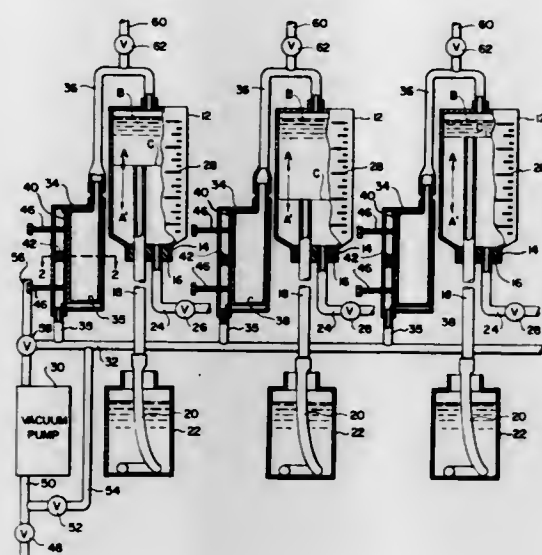


A synchronizer for sound and picture editing of motion pictures, which is provided with additional sprocket wheels which are spaced apart to allow an animated picture viewer to be interposed between the additional sprocket wheels level with the pickup positions or the synchronizer. A positive nonslip drive is provided between the synchronizer and the additional sprocket wheels to move the film past the viewing station of the viewer at the same rate as the sound track is drawn past the pickups on the synchronizer either backwards or forwards without loss of synchronism.

3,602,607
SOLUTION METERING APPARATUS
Howard T. Hodges, deceased, late of Perinton, N.Y. (by Claire F. Hodges, executrix), assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 24, 1969, Ser. No. 860,837
Int. Cl. F04f 3/00; G01f 1/28
U.S. Cl. 417—148

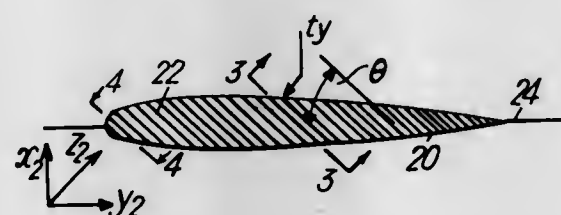
Solution metering apparatus for accurately metering and/or mixing one or more solutions in precise proportions for delivery to a solution-receiving device or process. The ap-

paratus is provided with a source of power for filling a metering container of the apparatus with a predetermined volume mechanical contact at the center plate, and with each side of the center plate being provided with a countersunk ring sur-



of solution, and mechanism for controlling the predetermined volume.

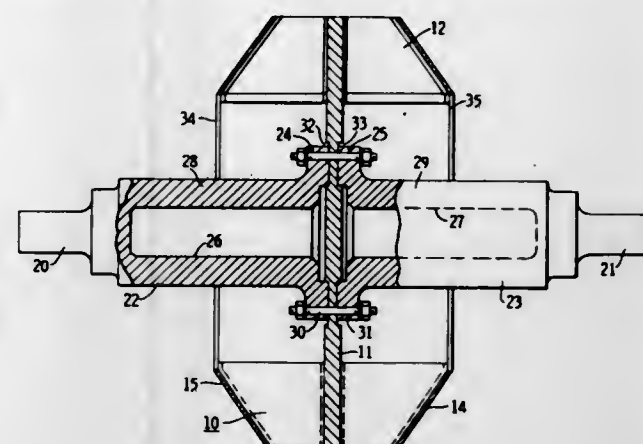
3,602,608
COMPOSITE BLADE
John G. Morley, Little Eaton, England, assignor to Rolls Royce Limited, Derby, England
Filed July 28, 1969, Ser. No. 845,395
Claims priority, application Great Britain, Aug. 1, 1968, 36874/68
Int. Cl. F01d 5/14
U.S. Cl. 416-224 8 Claims



A blade such as a compressor or turbine blade for use in a gas turbine engine consists of a plurality of fiber reinforced layers, such as carbon fiber the planes of the layers being arranged at an acute angle to the chord of the blade. The fibers of adjacent layers can be inclined at an acute angle to each other and adjacent the leading edge of the blade some of the fibers of the adjacent layers can be perpendicular to one another. The blade can have a metal reinforcement in the form of an arch extending around the leading edge, tip and trailing edge of the blade.

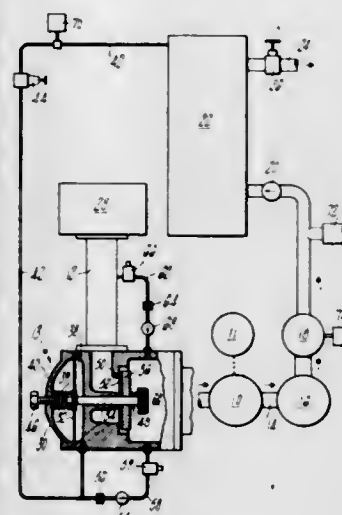
3,602,609
CENTER PLATE FAN WHEEL AND SHAFT CONSTRUCTION
Joseph H. Hoffman, Norwood, Mass., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 8, 1970, Ser. No. 1,389
Int. Cl. F01d 5/04

U.S. Cl. 416-184 3 Claims
A center plate fan wheel and shaft assembly having two stub shafts secured to opposite sides of the center plate, with each stub shaft end adjacent the center plate being enlarged and hollowed to form enlarged diameter ring shaped shaft end mounting flanges thus providing a ring of thermal and



face in which the shaft flanges are seated, and with fastening bolts extending through the flanges and center plate.

3,602,610
CONTROL SYSTEM FOR ROTARY COMPRESSORS
Carl Bloom, Springfield, Mass., assignor to Worthington Compressor and Engine International Division of Worthington Corp., Holyoke, Mass.
Filed Feb. 19, 1970, Ser. No. 12,813
Int. Cl. F04b 21/02
U.S. Cl. 417-12 21 Claims

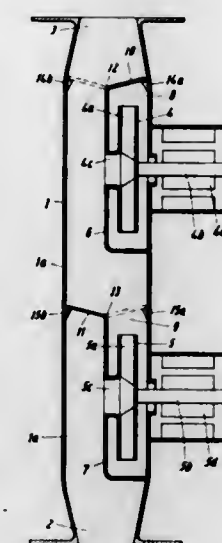


A Control system for a motor-driven, rotary air compressor which includes a suction control throttling valve at the compressor inlet. The control system automatically shuts down the driving motor whenever the compressor operates near its unloaded condition for an extended period of time. The control system also restarts the driving motor upon a subsequent demand for compressed air.

3,602,611
PUMP ASSEMBLY COMPOSED OF TWO PUMP UNITS ARRANGED IN A CASING
Jochen Oplander, 46 Dortmund-Horde, Nortkirchenstrasse, 100, Germany
Filed Nov. 12, 1969, Ser. No. 875,639
Claims priority, application Germany, Nov. 12, 1968, P 18 08 411.2
Int. Cl. F04 23/04, 41/06
U.S. Cl. 417-78 5 Claims

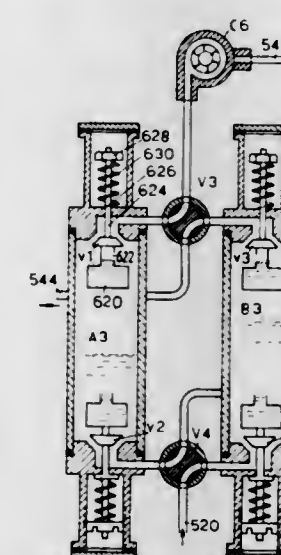
There is disclosed a pump assembly composed of two pump units which are separately capable of being driven and which are arranged in a casing provided with one inlet and one outlet only, said pump assembly being characterized by the intake sockets of the pump units being disposed at locations of which one is downstream of the other at a duct means coextensive from the inlet to the outlet of said casing, the pressure side of each pump unit opening into the same

cut means respectively downstream of the associated intake sockets thereof, and a means being provided at the discharge



of each pump unit preventing a backflow of the fluid pumped by said pump unit in said duct means.

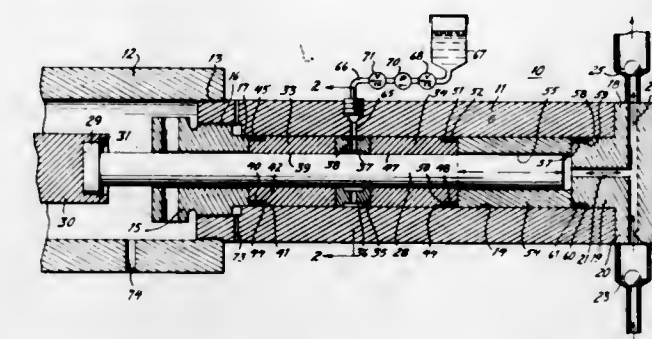
3,602,612
HYDRAULIC PRESSURE-EXCHANGING DEVICES
Asriel Osodor, Tel-Aviv, Israel, assignor to Hydro Chemical & Mineral Corp., New York, N.Y.
Division of Ser. No. 360,813, Apr. 20, 1964, Pat. No. 3,522,152
Filed Oct. 13, 1969, Ser. No. 870,951
Int. Cl. F04f 1/06
U.S. Cl. 417-102 9 Claims



Pressure-exchanging devices comprise a pair of chambers, and valves connecting to one chamber a first fluid inlet conduit and a second fluid outlet conduit whereby the inlet pressure of the first fluid is applied to the second fluid, the valves connecting to the second chamber the second fluid inlet conduit and the first fluid outlet conduit whereby the inlet pressure of the second fluid is applied to the first fluid in the second chamber. The valves reverse the foregoing connections during another time period to provide a double-action pressure-exchange. Further valves are provided in the form of floatable elements disposed in each chamber and effective by the change in level of the fluid in the respective chamber to open and close the chamber.

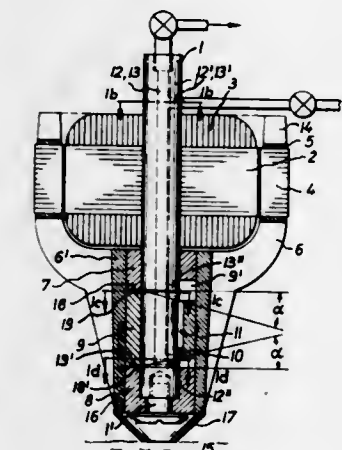
3,602,613
HIGH PRESSURE PUMP
Rush B. Gunther, Abington, and Robert C. Wolf, Hatboro, both of, Pa., assignors to The Duriron Company, Inc., Hatboro, Pa.
Filed Sept. 25, 1969, Ser. No. 861,025
Int. Cl. F04b 6 Claims

U.S. Cl. 417-437 6 Claims
A high-pressure pump is provided operating in a range from 50,000 p.s.i. to 100,000 p.s.i. but which is useful down



to 3,000 p.s.i. in which packings at moving parts are eliminated and seal bushings are used, one toward the process fluid side and the other toward the atmosphere with a lubricating type fluid compatible with the fluid being pumped introduced between the bushings and tending to flow in both directions along the plunger. The pressure of the source of fluid is adjusted to control the clearance at the bushings. Static seals are provided at the outboard ends of each of the bushings to prevent the flow of the fluid except at the clearance locations. The leakage into the system and to the atmosphere is very small.

3,602,614
POSITIVE DISPLACEMENT PUMP
Edgar Zelle, and Gerke Rastede, both of Heino, Oldenburg, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany
Filed Feb. 26, 1970, Ser. No. 14,331
Claims priority, application Germany, Feb. 26, 1969, P 19 09 610.7
Int. Cl. F04b 19/02; F16h 25/12
U.S. Cl. 417-461 17 Claims

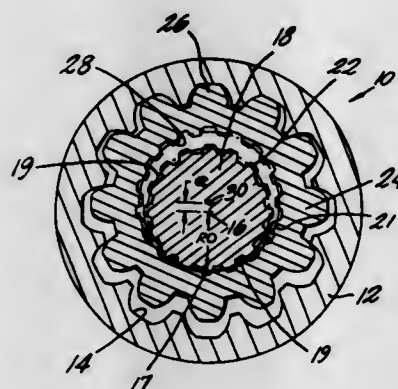


A positive displacement pump having a rotor member and a stator member mounted for rotation with respect to each other and first and second bearing bushings spaced axially from one another and mounted for rotation with one of the members. Each of the bearing bushings defines a cam surface which faces the cam surface of the other bearing bushing, the cam surfaces being parallel to one another and oriented at an angle to a plane perpendicular to the axis of rotation of the members relative to one another. An annular piston arranged between the cam surfaces of the bearing bushings is keyed to one of the members and has opposing faces forming an angle between themselves so that each face can bear against a respective cam surface of the bearing bushings so as to permit the piston to be oscillated between the cam surfaces of the bearing bushings.

3,602,615
ACTUATOR WITH IMPROVED TOOTH PROFILE
Louis R. Erwin, Livonia, Mich., assignor to The Bendix Corporation
Filed Feb. 24, 1970, Ser. No. 13,544
Int. Cl. F01c 1/02 6 Claims

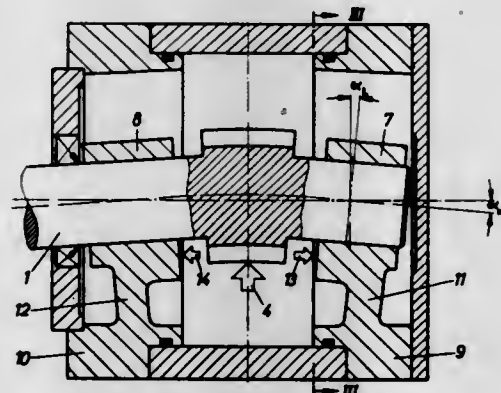
U.S. Cl. 418-61 6 Claims
An actuator of a type which includes a stationary member having a plurality of gear tooth cavities arranged in an ap-

proximately circular formation about an axis, an output gear arranged in a coaxial relation with the stationary member axis, a free floating ring gear having a pitch center of internal teeth which is spaced a predetermined distance from said axis, the ring gear having its internal teeth arranged in an engaged driving relation with the output gear and having a plurality of external teeth corresponding in number to the number of cavities in the stationary member wherein the ring



gear teeth and the gear tooth cavities in the stationary member are of arcuate shape to thereby provide the actuator with rotation constraint of the ring gear such that uniform rotation of the ring gear internal teeth pitch circle center about the output gear center will result in uniform rotation of the output gear. A form of the actuator is also disclosed in which the arcuate teeth are on the stationary member and the gear tooth cavities are in the ring gear.

3,602,616
HIGH-PRESSURE GEAR PUMP
Robert Jung, Malsch, Germany, assignor to Otto Eckerle
Filed Aug. 21, 1969, Ser. No. 862,581
Claims priority, application Germany, Aug. 22, 1968, P 17 28 085.2
Int. Cl. F01c 1/10, 1/18, 21/02
U.S. Cl. 418-170 7 Claims

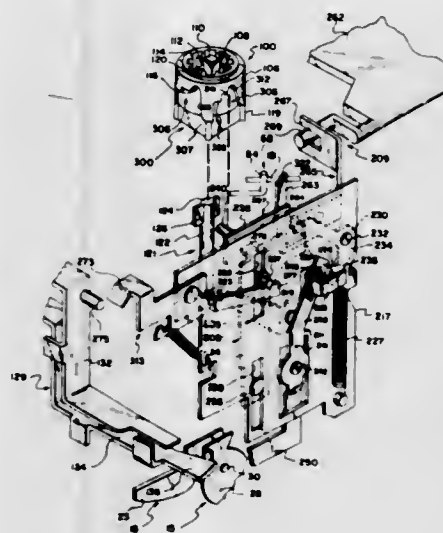


A high-pressure gear pump with axial and radial pressure compensation, where the deflection of the gear shafts is accommodated by arranging the bearing blocks in the pump covers so that they can yieldingly deflect to avoid undesirable edge pressures, without sacrificing operational and other advantages.

3,602,617
FLUID PUMP
Kenryu Takahashi, 3-go, 22-ban, 1-chome, Higashitateishi, Katsushika, Tokyo, Japan
Filed Sept. 9, 1969, Ser. No. 856,288
Claims priority, application Japan, June 16, 1969, 44/46848
Int. Cl. F01c 1/10
U.S. Cl. 418-199 1 Claim
The present invention provides a fluid pump having upper

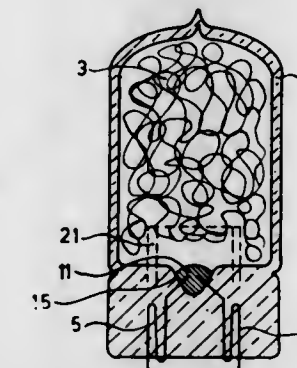
recesses with their phase angles shifted with respect to each other.

3,602,618
MULTILAMP FLASH UNIT INCLUDING DAMPING STRUCTURE
Chester W. Michatek, Rochester, N.Y., assignor to Sylvania Electric Products Inc., Danvers, Mass.
Filed Aug. 14, 1969, Ser. No. 850,128
Int. Cl. F21k 5/02
U.S. Cl. 431-93 4 Claims



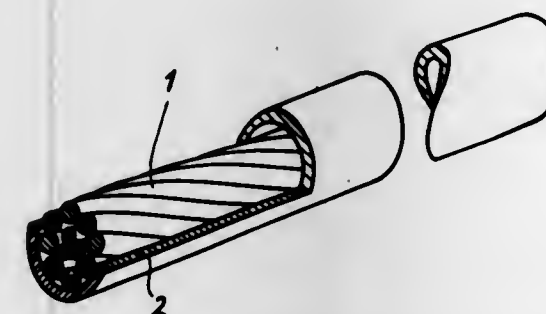
A multilamp flash unit or flashcube supporting a plurality of flashlamps, each having associated striker wires for percussively firing the flashlamps, is provided with an actuator control or dampening ramp for effecting stepwise movement of an actuator into the unit upon indexing of the unit and for preventing accidental firing of the flashlamps upon such indexing. The flashcube is useable on a camera having a mechanical actuating member that sequentially is movable into the unit, upon indexing thereof, to sense the condition of and to fire successive flashlamps in the unit. The flashcube base and damping ramp are configured and adapted to be engaged by the actuating member upon cube indexing to control movement of the member in a stepwise manner into a nonreleasing or sensing position in contact with the flashlamp striker wire.

3,602,619
PHOTOFLASH LAMP
Johannes Cornelis Van der Tas; Charles Cornelis Eduard Meulemans, and Karlo Pedro Martens, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 24, 1969, Ser. No. 860,577
Claims priority, application Netherlands, Sept. 27, 1968, 6813921
Int. Cl. F21k 5/02
U.S. Cl. 431-95 7 Claims



A photoflash lamp of the combustible type, wherein an ignition mass is provided in a cavity of an insulating member, with the ends of the current conductors ending in said cavity that diverges outward toward the end of the bulb remote from the base, the oxidizable metal present in the lamp being kept at a suitable distance from said ends.

3,602,620
THERMAL LANCES
Edwin Eduard Fassler, Webichstrasse 25, Zurich, Switzerland
Filed Jan. 20, 1970, Ser. No. 16,625
Claims priority, application Switzerland, Feb. 21, 1969, Mar. 21, 1969, 2713/69; 4283/69
Int. Cl. F21k 5/00
U.S. Cl. 431-99 29 Claims

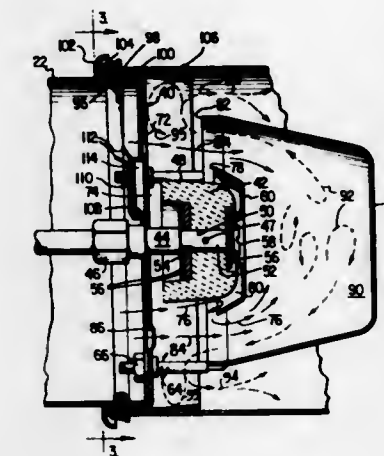


The present invention has reference to a thermal lance or tool with a gas discharge end for working, in particular, boring, cutting and like treating hard base materials, said tool being comprised of a longitudinal core including a cable-shaped bunch of twisted wire elements and a tubular sheath of fusible material encasing said core in tight contact therewith.

Between said elements and said sheath there exist inner spaces or interstices forming passageways for guiding therealong fuel, such as oxygen and like gas, toward said gas discharge end.

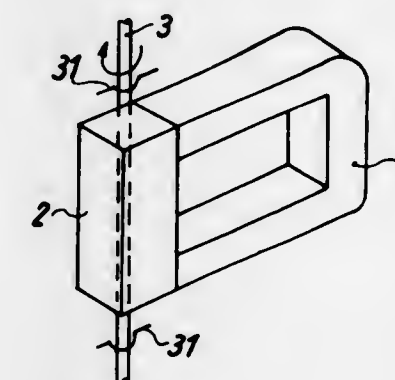
3,602,621
RECIRCULATING FUEL BURNER
Jesse B. Mellett, Zionsville, and Tilford W. Sutterfield, Indianapolis, both of Ind., assignors to Stewart-Warner Corporation, Chicago, Ill.
Continuation-in-part of application Ser. No. 741,738, July 1, 1968, now Patent No. 3,523,004. This application Nov. 5, 1969, Ser. No. 874,130
Int. Cl. F23i 1/00, 7/00
U.S. Cl. 431-116 14 Claims
The use of paired, concentric, axially spaced and nested coaxial cup-shaped members downstream of an apertured

plate carrying a porous conical fuel wick to promote recirculation of the forced combustion air within the combustion



chamber. Additionally, a spiral-type igniter is used in a position recessed from the combustion chamber and to which a short wicking material is extended for initiating combustion.

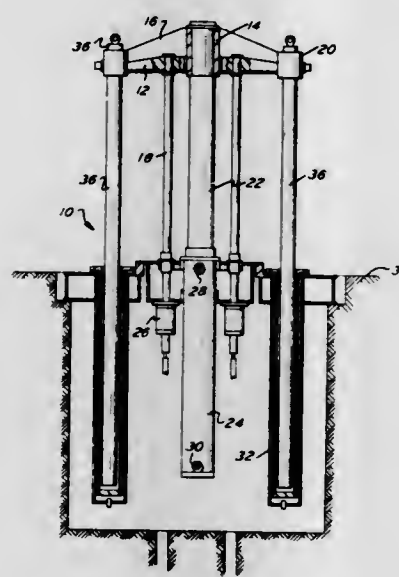
3,602,622
LIGHTER
Claus Christian Cobarg, Steinbach, Germany, assignor to Braun Aktiengesellschaft, Frankfurt/Main, Germany
Filed Oct. 29, 1969, Ser. No. 872,304
Claims priority, application Luxembourg, Nov. 21, 1968, 57,355
Int. Cl. F23q 2/28
U.S. Cl. 431-256 10 Claims



In a lighter apparatus operable with a fuel controlled by a fuel valve actuated by means of an operating mechanism, a magnetic circuit for supplying energizing sparks to the fuel, the magnetic circuit comprising a substantially U-shaped yoke member, an armature member shunting the yoke member and supported in magnetic circuit relationship therewith, a torsion bar fixedly coupled to the armature member and connecting same to the common operating mechanism, the torsion bar being coupled to the armature member at a side portion thereof permitting rotation of the armature member away from the yoke member about an axis passing outside of the armature member, when the common operating mechanism is actuated. In another embodiment of the present invention the torsion bar is not fixed to the armature member but engages same with a leverlike or cam-shaped end portion and moves it against a backing member attached to the yoke member.

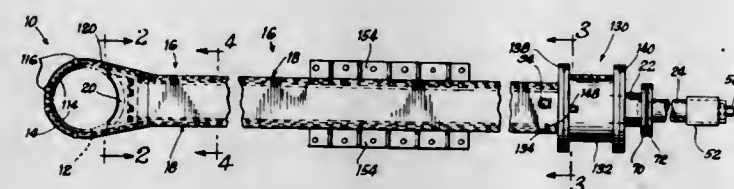
ELECTRICAL

3,602,623
CONSUMABLE ELECTRODE FURNACE
 Patrick J. Wooding, Moorestown, N.J., assignor to Consarc Corporation, Rancocas, N.J.
 Continuation of application Ser. No. 617,228, Feb. 20, 1967, now abandoned. This application Sept. 16, 1968, Ser. No. 761,893
 Int. Cl. H05b 3/60
 U.S. Cl. 13-14



A consumable electrode furnace for simultaneously producing a plurality of ingots, comprising a single hydraulic ram for reciprocably supporting a plurality of electrodes clamped in parallel depending relation. The furnace further includes a plurality of crucibles which are equal to or greater in number than the number of electrode clamps. The furnace also includes only one regulator and set of instrumentation and the melt rate of the electrodes is self-compensating.

3,602,624
UNITIZED ELECTRODE HOLDER FOR ELECTRIC FURNACE ELECTRODES OR THE LIKE
 Alfred H. Turner, Pinson, and Lewis H. Durdin, Birmingham, both of, Ala., assignors to Dixie Bronze Company, Birmingham, Ala.
 Filed Mar. 11, 1970, Ser. No. 18,465
 Int. Cl. H05b 7/10; F27d 1/10
 U.S. Cl. 13-15

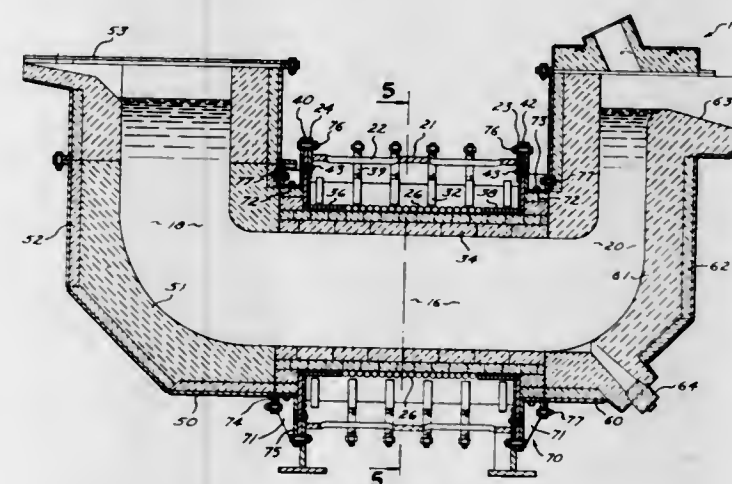


A clamping band to receive an electric furnace electrode is mounted on one end of a tubular supporting arm. A contact shoe is movable into and out of clamping engagement with electrode. An actuating tube and a bus tube are connected to the contact shoe and are mounted for longitudinal movement within the supporting arm. The bus tube is preferably disposed coaxially within the actuating tube. The contact shoe is formed with coolant passages connecting with the inside of the bus tube and the space between the bus tube and the coaxial actuating tube, so that the coolant can be circulated through the tubes and the passages. An annular fluid power cylinder is connected to the supporting arm and is

1568

mounted around the actuating tube. The cylinder includes an annular piston connected to the actuating tube. Spring means are provided to bias the contact shoe into clamping engagement with the electrode. The clamping band is also formed with coolant passageways. The supporting arm comprises an inner cylinder shell and an outer rectangular shell, with spaces therebetween to carry the coolant to and from the passageways in the clamping band.

3,602,625
HORIZONTAL CORELESS INDUCTION FURNACE
 William J. Duca, Warren, and Mario Tama, Courtland, both of, Ohio, assignors to Ajax Magnethermic Corporation, Warren, Ohio
 Filed Apr. 6, 1970, Ser. No. 25,901
 Int. Cl. H05b 5/00, 5/18
 U.S. Cl. 13-27



A coreless sectional induction melting or heating furnace is disclosed, one furnace section being a horizontally disposed heating chamber around which an induction coil is wound, another section being a charging section and a further section being a pour section, said charging section and said pour sections being angled with respect to said horizontally disposed section, spacing means are provided at the output end of the heating section adjacent to an end or ends of the heating coil, wherefore the mating plane between the charging section and the heating section or charging section, pour section and heating section, is disposed outwardly of the coil wrapped portion of the horizontally disposed heating chamber. In the operation of the furnace a head of molten metal is maintained in the charge and pour sections well above the level in the heating chamber.

3,602,626
ELECTRONIC MUSIC KEYING CIRCUIT WITH DIODE AND CAPACITOR FOR REDUCING LEAKAGE CURRENT
 Kazuyuki Aramaki, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha (Representative: Genichi Kowakami), Hamamatsu-shi, Japan
 Filed Sept. 24, 1969, Ser. No. 860,488
 Claims priority, application Japan, Sept. 27, 1968, 43/84108
 Int. Cl. G01h 1/00

An improved transistor keying circuit for use in electronic musical instruments to help minimize leakage of signals therethrough even when the circuit is in an off condition as is often caused by interelectrode transistor capacitances. The improved circuit utilizes a diode connected in series with a load resistor to a transistor collector or emitter electrode in a direction that permits collector-emitter current to flow normally in the forward direction thus permitting normal circuit operation when in an "on" condition. A capacitor is effective

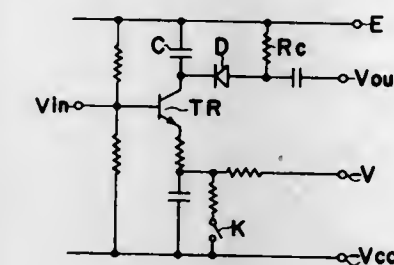
6 Claims

AUGUST 31, 1971

ELECTRICAL

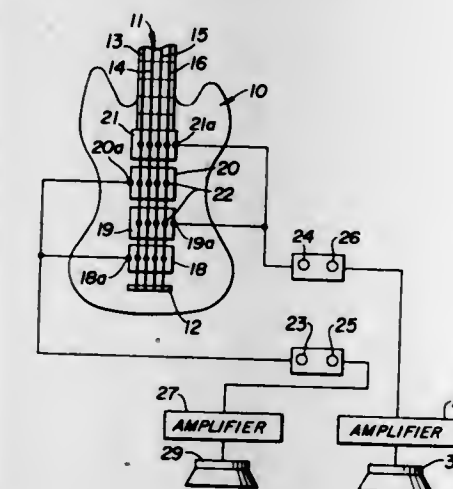
1569

tively shunt connected across the diode and load resistor with the output being taken from the junction of the load resistor and diode. Since the capacitor has a large capacitance as



compared with the base-collector or base-emitter capacitance, leakage signals in the "off" state are effectively shunted to ground to greatly reduce the level of any leakage to the output terminal.

3,602,627
SOUND PICK UP METHOD AND APPARATUS FOR STRINGED INSTRUMENTS
 William G. L. McCammon, 2828 Sunbury Rd., Columbus, Ohio
 Filed Oct. 31, 1969, Ser. No. 872,936
 Int. Cl. G01h 3/00
 U.S. Cl. 84-1.16

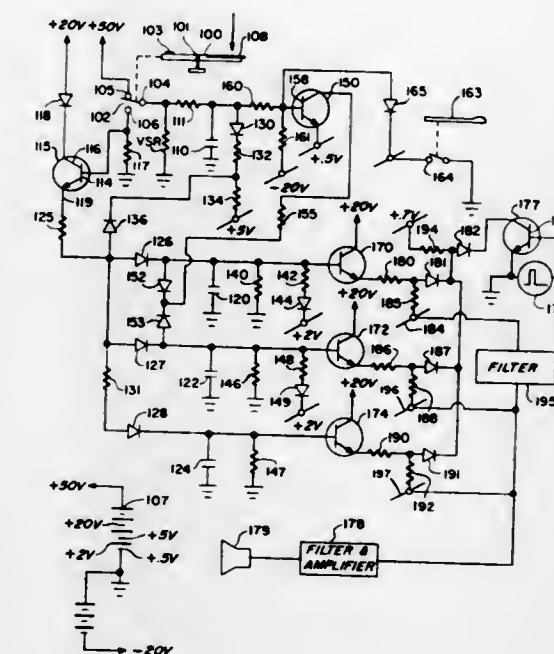


Method and apparatus is provided for electrical amplification of sounds produced by stringed instruments by sensing vibrations of the strings at four longitudinally spaced positions and forming respective signals with the signals from alternate positions combined to provide two output signals that are subsequently converted to acoustical signals. Sensing of the vibrations is effected by conventional pickups each comprising a group of transducers equal in number to the number of strings of the particular instrument to which the technique disclosed herein may be adapted. Alternate ones of the pickups have their transducers electrically connected together and to the same output providing two output signals that are the resultant of the vibration of each string at two different locations.

3,602,628
ELECTRONIC PIANOLIKE MUSICAL INSTRUMENT
 Richard H. Peterson, 11748 Walnut Ridge Drive, Palos Park, Ill.
 Filed Sept. 15, 1969, Ser. No. 857,806
 Int. Cl. G10h 1/02, 5/00
 U.S. Cl. 84-1.26

An electrical musical instrument capable of substantially duplicating the sounds of a conventional pianoforte, uses a continuously oscillating tone generator. Gating circuits deliver signals from the tone generator to an output system with a peak intensity proportional to the velocity with which

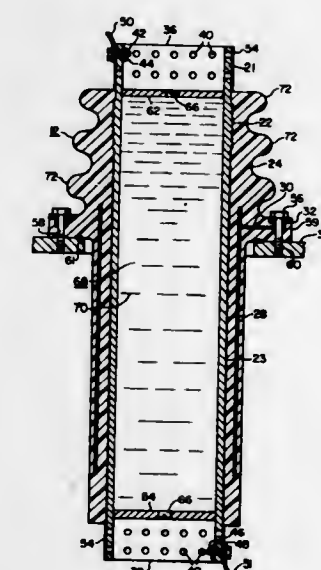
5 Claims



pers in a manner analogous to the action of a sustaining pedal in a conventional piano.

3,602,629
A HIGH VOLTAGE-HIGH CURRENT TRANSFORMER BUSHING HAVING A CAST RESIN INSULATING HOUSING AND A HOLLOW CENTRAL CONDUCTOR CONTAINING FLUID COOLANT
 Kevin F. Friedrich, Sharon, Pa., and Richard D. Buckley, Athens, Ga., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Jan. 23, 1970, Ser. No. 5,179
 Int. Cl. H01b 17/26, 17/54
 U.S. Cl. 174-15 BH

1 Claim



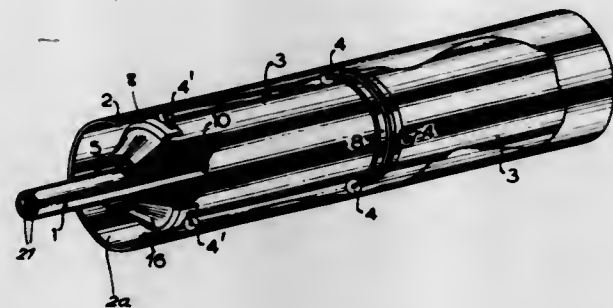
A high voltage-high current bushing for connecting the output from an electrical generator to the primary or low potential winding of a step up transformer. The bushing comprises a hollow high current carrying member surrounded by insulating material having a ground shield embedded therein. The hollow high current carrying member contains liquid coolant material which increases the thermal time constant of the bushing and tends to eliminate hot spots in the current carrying member.

3,602,630
PIPE SYSTEM FOR LOW-TEMPERATURE FLUIDS
 Wolfgang Sassin, Julich, Germany, assignor to Kernforschungsanlage Julich GmbH, Julich, Germany
 Filed Dec. 23, 1969, Ser. No. 887,654
 Claims priority, application Germany, Dec. 27, 1968, P 18 17 085.9

Int. Cl. H01b 7/34

U.S. Cl. 174-15

10 Claims



A conduit system for pipes containing a low-temperature fluid, e.g. for electrical conductors cooled by liquefying gases, in which the pipe is surrounded by a plurality of insulating elements interfitting in tandem along the length of the pipe and spaced from an evacuated casing surrounding the elements by respective sets of rollers. The ends of the elements have similar conicity so that interfitting of the elements provides an overlapping of the radiation shielding and thereby reduces heat transfer to the pipe traversing the elements.

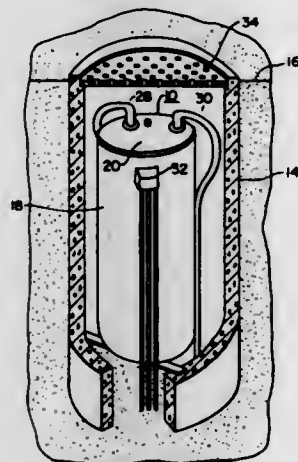
3,602,631
ELECTRICAL APPARATUS IN AN UNDERGROUND CASE

Harry R. Sheppard, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed June 4, 1970, Ser. No. 43,443

Int. Cl. H01f 27/02

U.S. Cl. 174-17 R

9 Claims



Fluid filled electrical apparatus, such as transformers, suitable for underground or vault mounting. The electrical apparatus includes a laminated tank or casing, having at least three metallic layers, with the layer materials and thicknesses being selected to provide a good structural material having long service life in corrosion conducive environments, without undue economic penalty.

3,602,632
SHIELDED ELECTRIC CABLE
 George E. Ollis, Worcester, Mass., assignor to United States Steel Corporation
 Continuation-in-part of application Ser. No. 691,459, Dec. 18, 1967. This application Jan. 5, 1970, Ser. No. 784

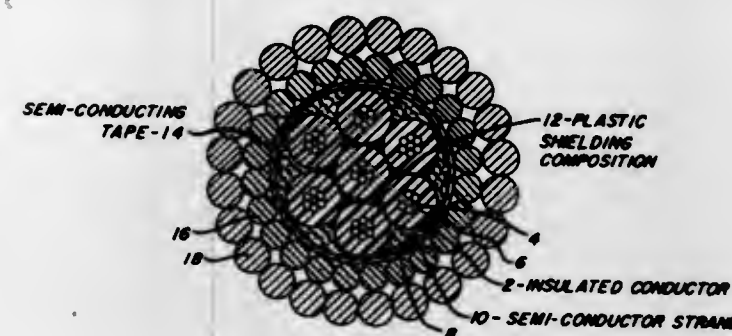
Int. Cl. H01b 9/02

U.S. Cl. 174-36

A shielded electric cable having a plurality of insulated electric conductors stranded together with a deformable

7 Claims

semiconducting strand in each valley between the conductors and a shielding composition around and in intimate contact with the conductors and strands. Depending upon the type of service the shielding composition may be such as to remain



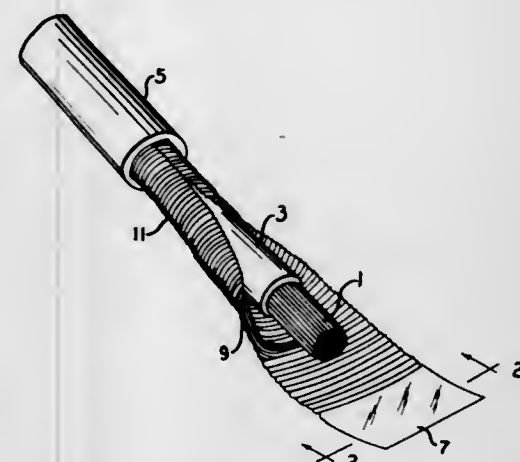
plastic in the finished cable or may be such that it will be vulcanized. The conductors and strands are stranded together into a stranding die and the plastic shielding composition is forced around them while they are in the stranding die.

3,602,633
CABLE-SHIELDING MATERIAL
 Edwin A. Miller, Attleboro, Mass., and Gregory H. Parker, Rumford, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.
 Continuation-in-part of application Ser. No. 591,801, Nov. 3, 1966, now abandoned, Continuation-in-part of application Ser. No. 591,827, Nov. 3, 1966, now abandoned. This application Nov. 19, 1968, Ser. No. 798,525

Int. Cl. H01b 7/18, 9/02, 11/06

U.S. Cl. 174-36

10 Claims



A cable-shielding material is shown to comprise annealed, low carbon steel and aluminum layers of selected thicknesses arranged and metallurgically bonded together in selected positions relative to each other to provide novel and advantageous properties of strength, weight, volume, electrical conductivity, magnetic permeability corrosion resistance, and formability, whereby the cable-shielding material can be economically manufactured and easily formed around a cable to provide the cable with suitable electrical and electromagnetic shielding while further providing the cable with suitable protection against sharp objects, rodents and corrosion. Such a cable-shielding material having a layer of copper thereon for facilitating soldering of the material is also shown.

3,602,634
HERMETIC SEAL
 William P. Meull, Sunnyvale, Calif., assignor to Fairchild Camera and Instrument Corporation, Mountain View, Calif.
 Filed Mar. 23, 1970, Ser. No. 21,632

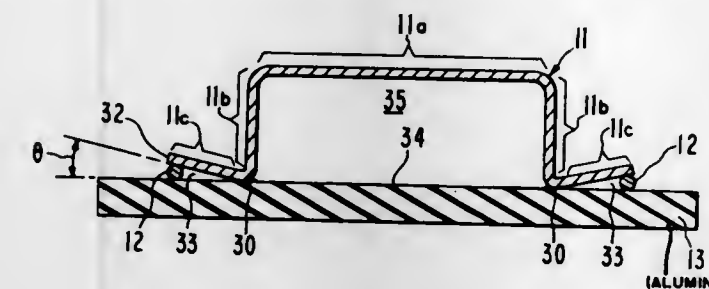
Int. Cl. H01l 1/02

U.S. Cl. 174-52 S

A semiconductor package contains a cover with a flange around that portion of the edge in contact with the bottom of

9 Claims

the package. The flange makes an acute angle with the package bottom. Bonding material placed between the flange and the package bottom, when melted, is drawn by capillary

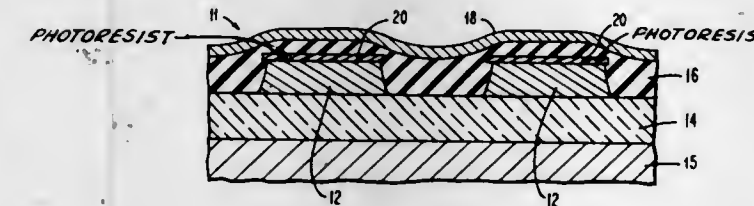


3,602,635
MICRO-CIRCUIT DEVICE
 Lubomyr T. Romankiw, Millwood, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed June 30, 1970, Ser. No. 51,189

Int. Cl. H05k 1/02

U.S. Cl. 174-68.5

5 Claims



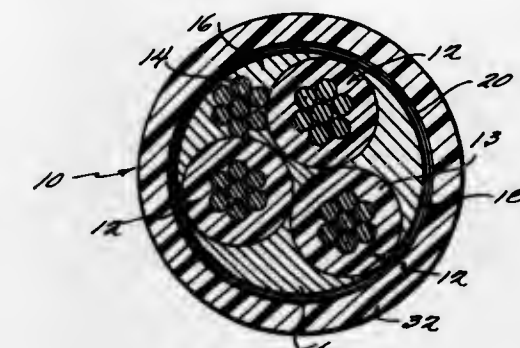
A microcircuit device such as a printed circuit or an integrated circuit is described wherein the thickness of insulation between two crossing conductive bodies can be substantially decreased as compared to the corresponding thickness in known like devices. In the case for example, such as magnetic coupled film memory devices wherein a low temperature insulating material can be employed and wherein such insulating material is subject to surface tension effects, this is achieved by retaining the photoresist layer on the surface of the metal magnetic bodies resting on the substrate and etching the magnetic bodies to the point where the width of the upper surfaces of the conducting bodies are equal to the width of the nonconductive resist used in the etching or where there is a slight undercut under their retained respective photoresist layers, i.e., the layer on each body extends beyond the perimeter of the surface of the bodies. Such photoresist layer protects sharp metal corners or, in the latter case, provides an umbrella effect in that it extends beyond the sharp edges of the magnetic bodies, the latter being potential areas for electrical shorts. In the case where conductive bodies are employed which generate high temperatures or which have to withstand high service temperatures and wherein correspondingly high temperature insulating materials have to be used or in which it is desired to have very thin hard insulations such as are produced in the use of inorganic insulations, glasses and the like, the aforementioned "umbrella" effect is provided by a layer of high temperature insulating materials of organic or inorganic compositions on the conducting body's surface rather than the layer of photoresist material. In this latter case, the insulation thickness can be much thinner than the commonly accepted rule of thumb thickness which is twice that of the conducting bodies for conducting bodies of 3000A. or thicker and even greater such as four or five to one for conducting bodies considerably thinner than 3000A. (for example, 200 to 500A. thick).

3,602,636
WRAPPED SERVICE ENTRANCE CABLE
 Raymond D. Evans, West Chester, Pa., assignor to Reynolds Metals Company, Richmond, Va.
 Filed Nov. 6, 1969, Ser. No. 874,466

Int. Cl. H01b 3/00

U.S. Cl. 174-115

11 Claims



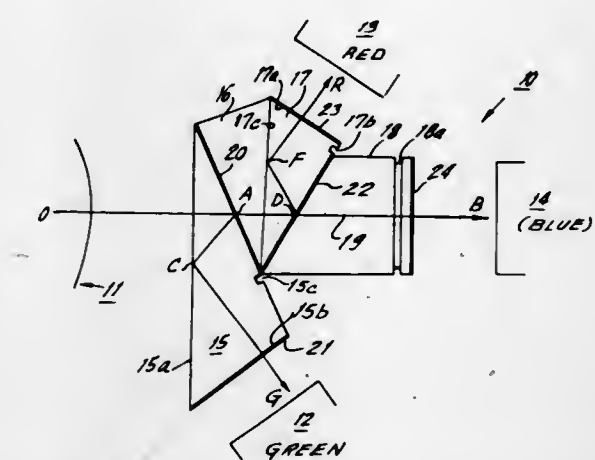
A plurality of conductors are helically wrapped with at least one layer of moisture and thermal barrier tape made of open weave glass cloth partly embedded in a layer of fire retardant synthetic plastic electrical insulation material. An outer sheath of synthetic plastic material is preferably extruded onto the cable and bonds to the synthetic plastic material of the barrier tape.

3,602,637
OPTICAL SYSTEM FOR TRICOLOR SEPARATION
 Takashi Katsuta; Fumio Ando; Masuo Kida, and Mitsuru Kawasaki, all of Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan
 Filed Oct. 11, 1968, Ser. No. 766,684
 Claims priority, application Japan, Oct. 13, 1967, 42/86958

Int. Cl. H04n 9/06; G02b 27/14

U.S. Cl. 178-5.4 ST

14 Claims



A prism type optical system for tricolor separation used in conjunction with and positioned between an objective lens and color television camera devices. The improvement resides in a prism assembly in which the green light component of the light passing through the system is initially separated by a green reflective multilayer film interference filter; and the remaining red and blue light components are then separated from one another by means of a second multilayer film interference filter allowing for a significant reduction in the requirements of the spectral characteristics for producing the desired color components.

3,602,638
GRAPHIC DATA SYSTEM FOR SCANNING AND RECORDING TWO-DIMENSIONAL CONTOURS
 George Pascoe, and James E. Merkle, both of Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.
 Filed Mar. 7, 1967, Ser. No. 621,211

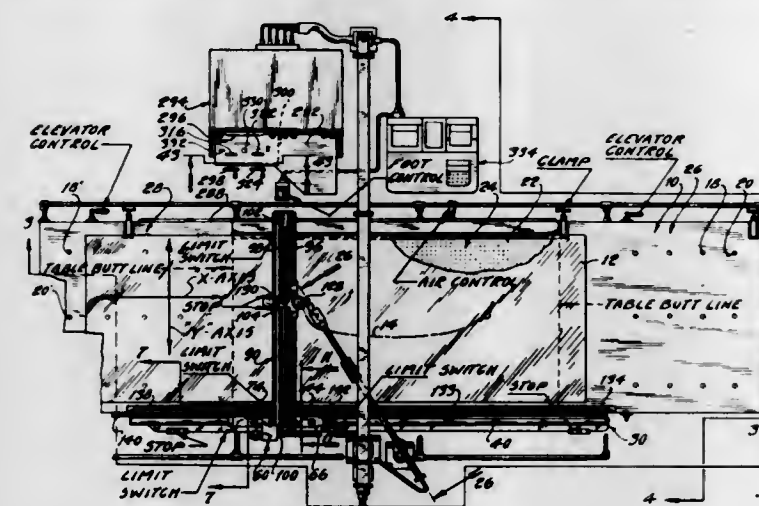
Int. Cl. H04n 7/18; G05b 1/06

U.S. Cl. 178-6.8

This specification describes a coordinatograph system in which point data on a two-dimensional contour drawing may

1 Claim

be located and registered in a data recording medium where the data may be used, with the aid of a specially programmed



computer, to prepare a control tape for a numerically controlled machine tool.

3,602,639

SCANNER WITH COPY-HOLDING ARMS

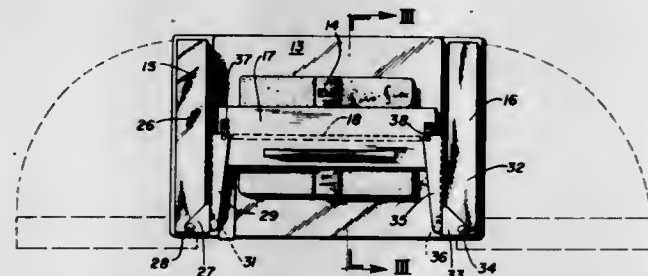
Milton Alden, Needham, Mass., assignor to Alden Research Foundation, Brockton, Mass.

Filed Jan. 22, 1969, Ser. No. 793,128

Int. Cl. H04n 1/12

U.S. Cl. 178-7.1

9 Claims



This invention has to do with a scanner and, more particularly, to scanning apparatus having a floating pressure member supported on articulated arms.

3,602,640

LASER FIBER OPTIC SCANNING DEVICE

Henry Maillet, Sceaux, and Michele Leblanc, La Norville, both of, France, assignors to Compagnie Generale D'Electricite, Paris, France

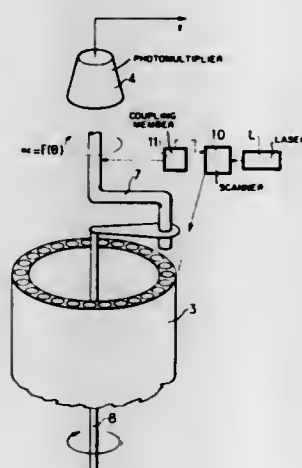
Filed Apr. 17, 1969, Ser. No. 817,136

Claims priority, application France, Apr. 25, 1968, 149535

Int. Cl. H04n 3/08

U.S. Cl. 178-7.1

8 Claims



A line-sequential television camera device is disclosed which has a detector such as a photomultiplier or similar

device linked to an optical reception device by a cluster of optical fibers. The input faces of the optical fibers lie along part of a line limited by the intersection of the focal plane and the scanning plane of a laser beam. The output surfaces of the optical fibers are assembled at the front of the detector.

3,602,641

DARK CURRENT COMPENSATION CIRCUIT

Tom Heise, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

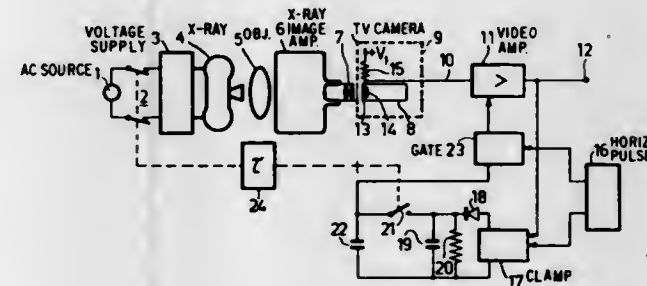
Filed Sept. 24, 1969, Ser. No. 860,721

Claims priority, application Netherlands, Sept. 27, 1968, 6,813,919

Int. Cl. H04n 5/32

U.S. Cl. 178-7.2 R

7 Claims



A dark current compensation circuit for a television camera features a switch for controlling an X-ray tube located in front of the camera, a video amplifier is coupled to the camera and a peak rectifier circuit is in turn coupled to the amplifier output. A switch synchronized with the first switch connects the rectifier to a capacitor to establish a dark current bias voltage which is applied to the amplifier.

3,602,642

BEAM CURRENT STABILIZATION DEVICE FOR A TELEVISION PICTURE DISPLAY DEVICE

Pieter Marinus Van Den Avoort, and Lieuwe Terpstra, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

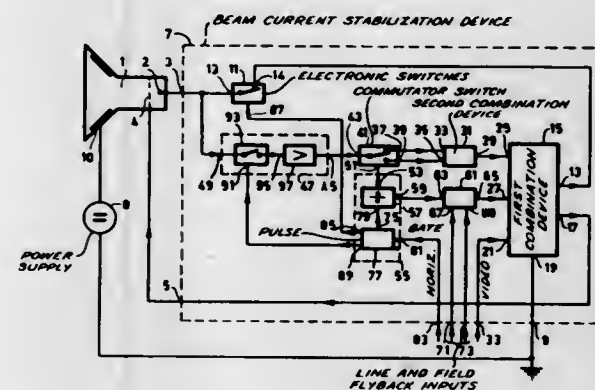
Filed Feb. 26, 1970, Ser. No. 014,382

Claims priority, application Netherlands, Mar. 5, 1969, 6903362

Int. Cl. H04n 5/58

U.S. Cl. 178-7.5 R

19 Claims



A television picture display device including a cathode current stabilization circuit of the picture display tube wherein the difference between the cathode current corresponding to a given reference signal and the cathode current corresponding to a blacker-than-black signal in the video signal to be displayed by the picture display tube is stabilized to obtain a perturbation current compensation.

3,602,643

SCAN CONTROL APPARATUS FOR VALIDATION DEVICE

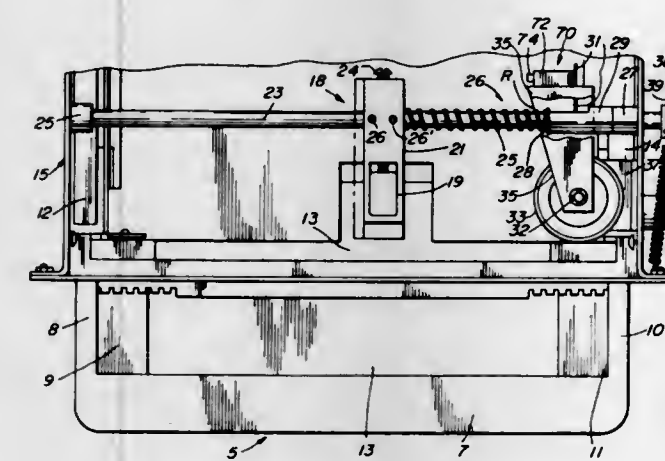
Joseph E. Wright, Jr., Wheaton, Ill., assignor to Walter E. Heller & Company, Chicago, Ill.

Filed Jan. 21, 1969, Ser. No. 792,727

Int. Cl. G01n 21/22; G06k 9/13; G07d 7/00

U.S. Cl. 178-7.6

17 Claims



Document validation apparatus includes apparatus for controlling the rate of scan in a machine designed to perform an authentication test on a text document by moving a scanning means across at least a portion of the document. The control apparatus comprises a spring cable of driving the scanning means across a test area and a dashpot arrangement designed to control the rate at which the scanning means is driven. A switch device prevents interference with the authentication test due to mechanical shock, and an additional switch device prevents interference with the authentication test by spurious electrical signals by rendering the test apparatus inoperative except during the brief time interval when the document is scanned.

3,602,644

CIRCUIT FOR GENERATING VIDEO MARKERS FROM POTENTIALS TO BE MEASURED

Marcel Rognon, Houilles, and Raymond Salvy, Suresnes, both of, France, assignors to U.S. Philips Corporation, New York, N.Y.

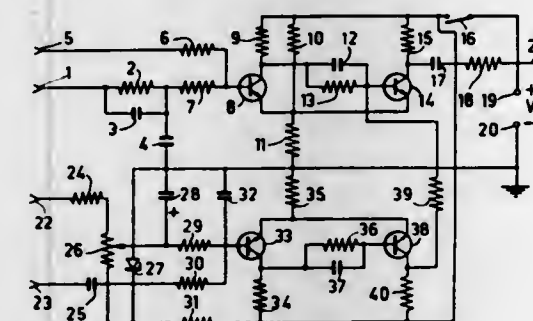
Filed Mar. 5, 1969, Ser. No. 804,509

Claims priority, application France, Mar. 8, 1968, Mar. 29, 1968, 142928; 146346

Int. Cl. H04n 5/44

U.S. Cl. 178-7.5 D

5 Claims



A circuit for generating a marker, such as a stripe, on a television screen to measure a potential, such as a power supply or AGC voltage, features a Schmitt trigger circuit. This circuit has two inputs for the measured voltage and the horizontal flyback pulse. Another embodiment features two trigger circuits, with the second circuit receiving the vertical flyback and another measured voltage. The output of the second circuit blocks the first circuit.

3,602,645

METHOD OF AUTOMATIC ENCRYPTING AND DECRYPTING OF SIGNAL PULSES

Cato Seeberg, Hetlevik, Norway, assignor to A/S Lehmkuhl, Skoyen (Oslo), Norway

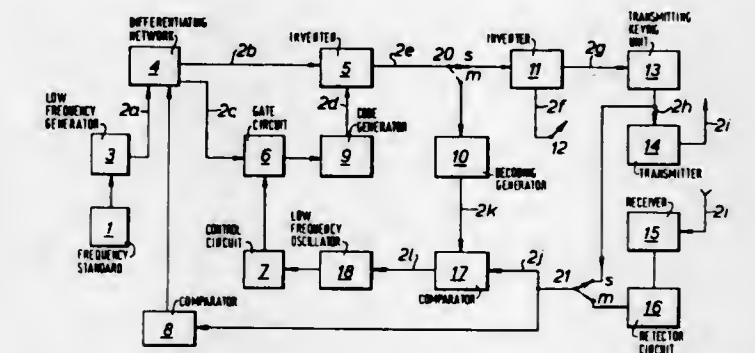
Filed Sept. 23, 1968, Ser. No. 761,409

Claims priority, application Norway, Nov. 9, 1967, 170468

Int. Cl. H04l 9/02

U.S. Cl. 178-22

1 Claim



A method of encrypting signal pulses by means of a series of alternating positive and negative pulses which is inverted into an irregular code-controlled pattern and thereafter inverted in a second inverter which is controlled by the signal pulses and the resulting signal is used to key the transmitter, whereas at the receiver end the received signal is inverted controlled by the said code and thereafter decoded to obtain the deciphered signal.

3,602,646

CHARACTER CONTOUR EDGER

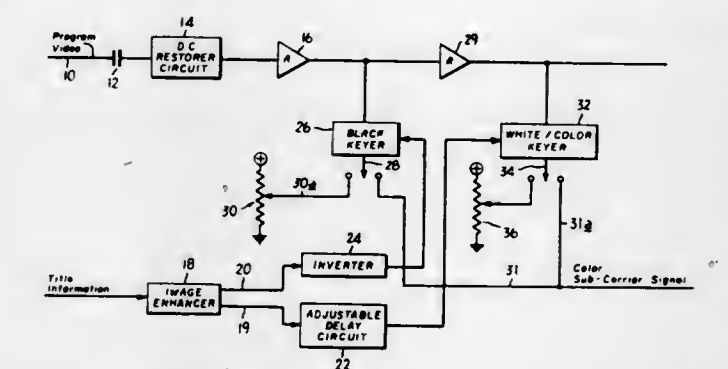
Abraham A. Goldberg, Stamford, Conn., assignor to Columbia Broadcasting Systems, Inc., New York, N.Y.

Filed Feb. 10, 1969, Ser. No. 798,083

Int. Cl. H04n 5/14

U.S. Cl. 178-5.4 R

6 Claims



As described herein, electronically generated alphanumeric character waveforms are supplied to an image enhancer circuit which reproduces the waveforms together with detail signals occurring at the leading and trailing edges of the reproduced waveforms. The reproduced waveforms and the detail signals are aligned in time and thereafter supplied to a pair of keying circuits, respectively, which in response to the reproduced waveforms and the detail signals, supply predetermined potentials to a television channel with the result that the letter waveforms will be reproduced with predetermined color contours.

3,602,647

CONTROL SIGNAL TRANSMISSION IN TIME DIVISION MULTIPLEX SYSTEM COMMUNICATIONS

Masao Kawashima, Yokohama-shi; Shigehiko Hinoshita, Yokohama-shi, and Tsukumo Higeta, Kawasaki-shi, all of, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation-in-part of application Ser. No. 255,429, Feb. 1, 1963, now abandoned. This application Oct. 16, 1968, Ser. No. 767,996

Claims priority, application Japan, Feb. 6, 1962, 37/4594

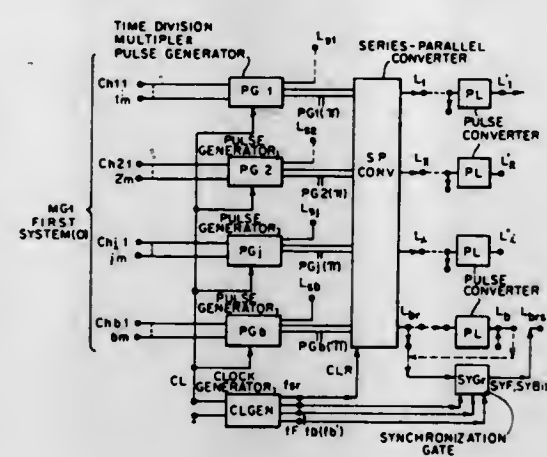
Int. Cl. H04j 3/06

U.S. Cl. 179-15 BS

5 Claims

In a control signal transmission system of a time division multiplex system a plurality of series pulse code modulation

trains including binary data bits and ringing bits or signalling bits are provided in parallel. A single series pulse code modulation train is derived and is comprised exclusively of ringing bits. In the single series pulse code modulation train, the



minimum number of ringing bits required for transmitting ringing information in a unit time is maintained. The remaining bits of the single series pulse code modulation train are replaced with synchronizing signals.

3,602,648

SUBSCRIBER TELEPHONE CIRCUIT

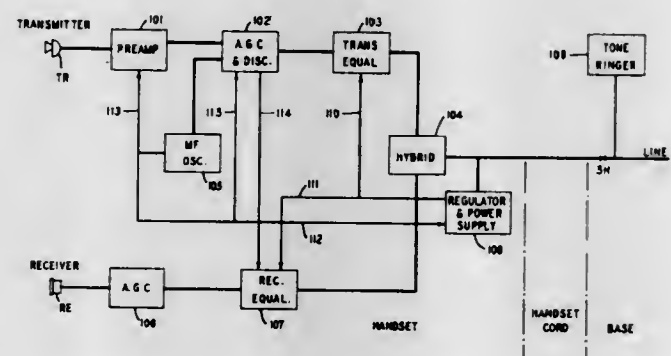
Roger E. Holtz, Indianapolis, Ind., and John A. Markevich, Elizabeth, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 8, 1969, Ser. No. 883,073

Int. Cl. H04b 3/24; H04m 1/58

U.S. Cl. 179—81 A

12 Claims



In a telephone set speech circuit employing a nonreactive hybrid network the transmitter branch and the receiver branch each includes a respective loop equalizer in the form of an operational amplifier with a feedback control path which includes a path to ground by way of a capacitive element. In the receiver branch a switch responsive to a preselected signal level in the transmitter branch disconnects the feedback path of the operational amplifier from the capacitive element which provides protection against singing and which helps to ensure a relatively flat frequency response for sidetone irrespective of loop length.

3,602,649

MAGNETIC RECORDING SHEET COPYING DEVICE

Ensei Rin, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Jan. 21, 1969, Ser. No. 792,320

Claims priority, application Japan, Jan. 23, 1968, 43/4252

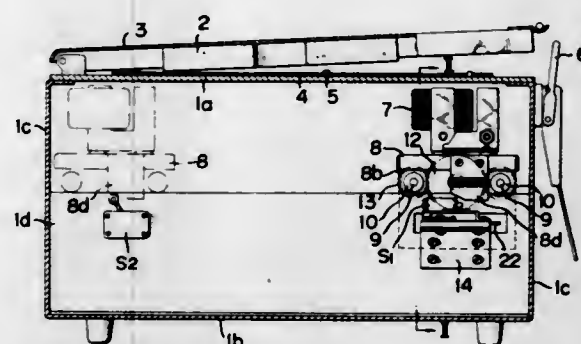
Int. Cl. G11b 5/86

U.S. Cl. 179—100.2 E

2 Claims

A magnetic recording sheet copying device wherein a recorded master sheet and a copying sheet are disposed upon a holding plate of the machine frame in pressure contact superposed relation with each other. An electromagnet for producing a magnetic field for copying is assembled in unison with a reversible motor which is reciprocated within the

frame. In the advance stroke of the assembly the electromagnet is energized while upon the start of its return stroke, the electromagnet is deenergized and the motor is reversed by a



changeover switch so as to make a return stroke, and at the end of the return stroke the motor is deenergized by the actuation of the changeover switch.

3,602,650

APPARATUS FOR SELECTIVELY FEEDING AN ENDLESS TAPE AT NORMAL OR FAST FEED AND FOR AUTOMATICALLY CHANGING FROM FAST FEED TO NORMAL FEED

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo-to, Japan

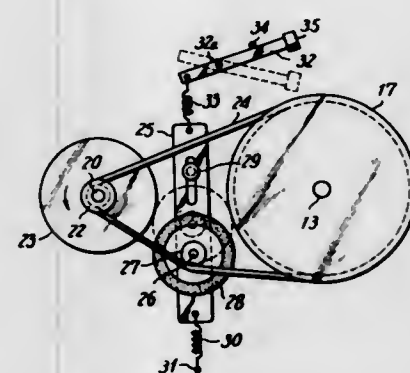
Filed Apr. 8, 1969, Ser. No. 814,244

Claims priority, application Japan, Apr. 9, 1968, Apr. 13, 1968, 43/23073; 43/29483

Int. Cl. G11b 15/44

U.S. Cl. 179—100.2 R

7 Claims



A tape fast feed control apparatus in an endless magnetic tape cartridge player comprising a rotary drive capstan for driving the tape in the cartridge, an electric motor provided for driving the capstan and having an armature shaft, a first and a second speed reducing device having reduction ratios different from each other for imparting rotation of the armature shaft to the capstan, a selecting device for selecting either one of the first and second speed reducing devices to impart rotation of the armature shaft to the capstan, an electromagnetic device for magnetically engaging the selecting device, a control device for controlling the operation of said electromagnetic device whereby the tape is changed over from normal speed to fast speed and automatically changed over from fast feed to normal speed in relation to the operation of said control device.

3,602,651

RECORDING DEVICE FOR TAPE MOUNTED ON A CARD

Ira Molay, Wenham, Mass., assignor to Audiophonic Corporation, Beverly, Mass.

Filed May 12, 1969, Ser. No. 823,850

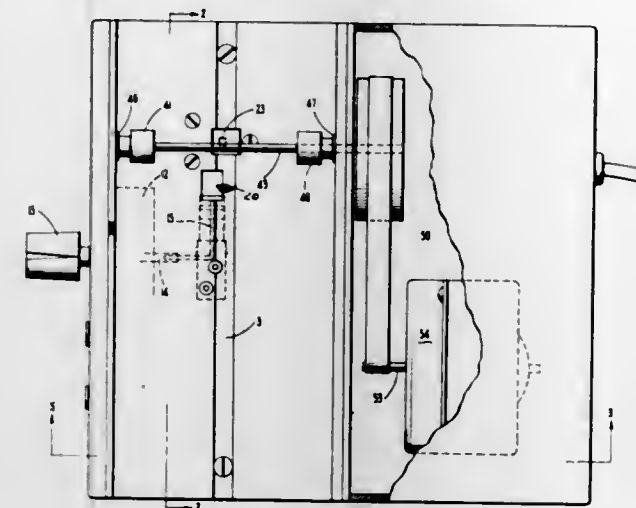
Int. Cl. G11b 19/00, 25/04

U.S. Cl. 179—100.2MD

5 Claims

A magnetic tape recorder for a two-track magnetic tape extending longitudinally across the center of a rectangular card in which the recording and playback head is mounted in a channel closer to one edge of the channel than the other.

By reversing the card in the channel, the same recording resilient element integral with the support members includes transcribing head can pickup both tracks of the tape. The integral resilient bumper means normally spaced out of con-



present invention relates to a means for recording and transcribing on magnetic tapes mounted on rectangular sheets of finite length.

3,602,652

POWER SUPPLY BRIDGE CIRCUIT FOR TELEPHONE COMMUNICATION SYSTEMS

Vladimir Nikolaevich Dyachkov, ulitsa Stendera, 1, kv. 1; Viktor Vasilievich Makarov, ulitsa Avofu, 6, kv. 28, and Genady Ivanovich Karasev, ulitsa Odesskaya, 20, kv. 14, all of Riga, U.S.S.R.

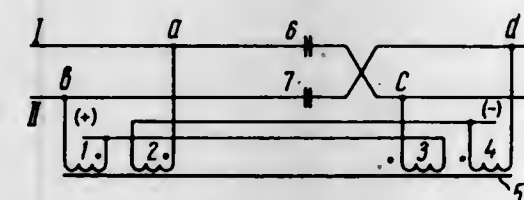
Filed July 22, 1968, Ser. No. 746,388

Claims priority, application U.S.S.R., July 27, 1967, 1175580

Int. Cl. H04m 19/08

U.S. Cl. 179—172

2 Claims



A power supply bridge circuit, intended for supplying power to microphones of telephone sets connected to automatic telephone stations consists of four inductance windings wound on one core with the telephone stations forming a bridge and two capacitors connected between opposite ends of the bridge. Such a connection of the windings provides for the compensation of the magnetic flux created by the microphone DC supply and the addition of the alternating magnetic flux of the speaking current which insures a low attenuation of the speaking currents and the power supply to the microphones while maximizing crosstalk attenuation.

3,602,653

ELECTROACOUSTIC TRANSDUCER MOUNT

Wilmer H. Schaumburg, and Wolfgang W. Jensen, both of Santa Cruz, Calif., assignors to Pacific Plantronics, Inc., Santa Cruz, Calif.

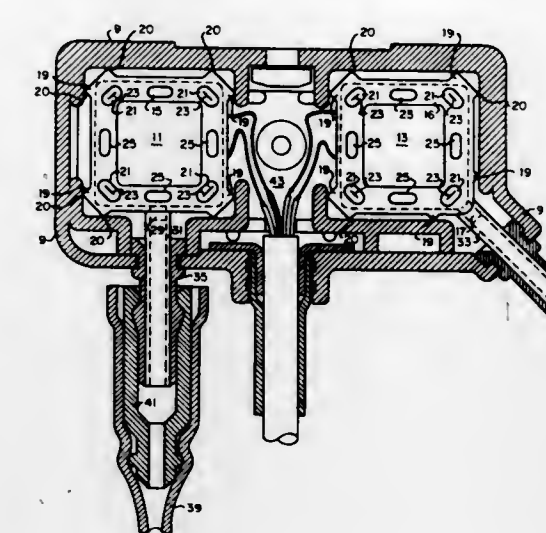
Filed July 22, 1968, Ser. No. 746,661

Int. Cl. H04m 1/04, 1/20

U.S. Cl. 179—179

6 Claims

Acoustical apparatus is disclosed including microphone and receiver transducers mounted together within a supporting enclosure. Support means are disposed intermediate the transducers and enclosure to eliminate vibrational couplings in-between the transducers. The support means includes a plurality of resilient support members between the transducers and enclosure and in substantially line contact with the enclosure, with the support members having a cross section which increases in area from said contact in the direction from the enclosure toward the respective transducer. A



3,602,654

HYDRAULICALLY EXPANDABLE EARPIECE

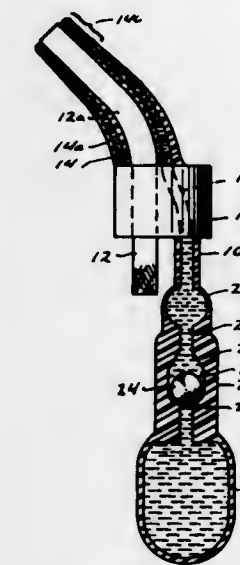
John A. Victoreen, 350 N. Maitland Ave., Maitland, Fla.

Filed Oct. 4, 1968, Ser. No. 765,231

Int. Cl. H04r 1/10

U.S. Cl. 179—182

6 Claims



An earpiece is provided for insertion in the ear canal and comprises a tube for conducting sound pressures to the ear canal. The sound pressure tube has a fluid expandable means surrounding the tube and means is provided for forcing fluid into the expandable means to cause it to expand into close fitting contact with the wall of the canal.

3,602,655

COMPOSITE CONDUCTOR BAR AND METHOD OF MANUFACTURING

Donald H. Scofield, and James A. Corl, both of San Carlos, Calif., assignors to Insul-8 Corp., San Carlos, Calif.

Filed Oct. 30, 1968, Ser. No. 771,931

Int. Cl. B60m 1/30

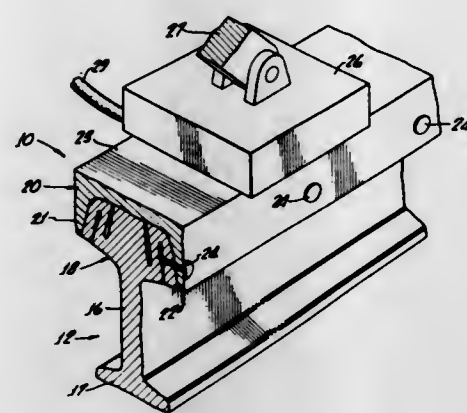
U.S. Cl. 191—29 DM

17 Claims

An elongated structural steel cap which is slightly smaller than an extruded aluminum conductor bar is forced onto the bar and held in this position by nails explosively driven through the side legs of the cap and into the sidewalls of the

conductor bar. Slots formed in the aluminum conductor bar permit the bar to be laterally distorted as the cap is forced

onto the bar so that wide variations in the cap dimensions can be accommodated.



onto the bar so that wide variations in the cap dimensions can be accommodated.

3,602,656

ELECTRICAL SWITCH

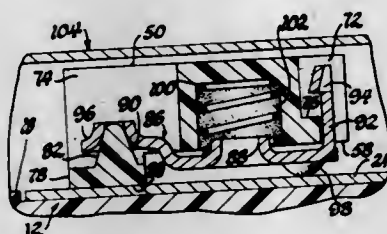
Willard E. Graddy, Anderson, and Daniel W. Hyden, New Castle, both of, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 2, 1970, Ser. No. 15,593

Int. Cl. H01h 19/58, 21/78, 15/00

U.S. Cl. 200—11 C

4 Claims



An electrical switch assembly includes an insulating base carrying a plurality of electrical terminals having contacting surfaces thereon in coplanar relationship with raised surfaces of the base and further includes a shuttle member movable relative to the base which shuttle member carries a contacting element resiliently biased against raised surfaces of the base. The shuttle member has a tapered projection extending perpendicularly therefrom which projection is tightly captured in an aperture in the contacting element to prevent bodily shiftable movement of the contacting element relative to the shuttle member thereby preventing backlash in the switch assembly.

3,602,657

CONTROL OF ELECTRICAL CURRENT FOR DOUBLE-COMBINATION IGNITION SYSTEM FOR GASOLINE ENGINES

Adolfo Coyt Espinosa, 71 Danubio St., Col 5, D.F., Cuauhtemoc, Mexico

Continuation of application Ser. No. 716,962, Mar. 28, 1969, now abandoned. This application May 15, 1970, Ser. No. 37,446

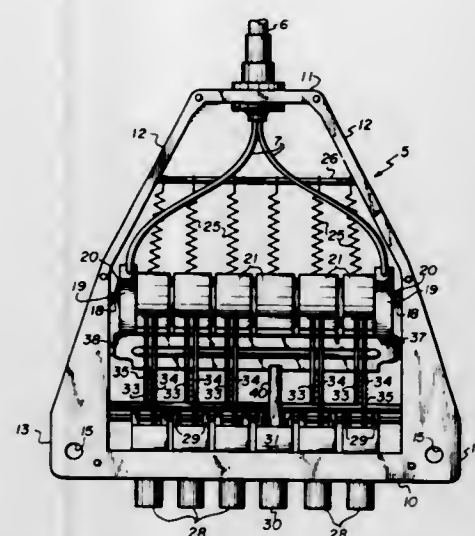
Int. Cl. H01h 27/10

U.S. Cl. 200—43

1 Claim

This invention is directed to a combination-controlled switch for the ignition system of a gasoline engine in which a plurality of nonconducting aligned ratchet wheels containing normally non-aligned electrically conductive contacts, are individually advanced step-by-step by pushbuttons in accordance with a predetermined sequence to bring the con-

tacts into alignment and close the circuit. A separate push button is provided to permit the return of the ratchet wheels



to their normal open circuit positions. A tamper proof cable connects the switch to the ignition coil.

3,602,658

DISCONNECT SWITCH HAVING REDUCED SUSCEPTIBILITY TO ELECTRICAL BREAKDOWN

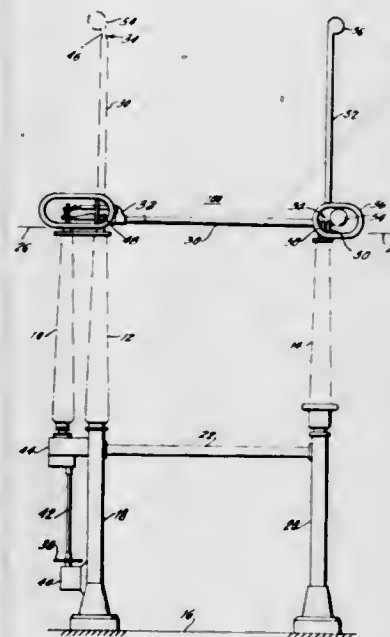
Joseph A. Turgeon, Toronto, Ontario, Canada, assignor to I-T-E Circuit Breaker (Canada) Limited, Port Credit, Ontario, Canada

Filed June 15, 1970, Ser. No. 46,002

Int. Cl. H01h 31/00

U.S. Cl. 200—48

5 Claims



A grading post is provided at the jaw of a disconnect switch, and both it and the cooperating contact blade of the switch are constructed with substantially spherical projections in offset alignment at their respective ends to reduce the effect of corona and radio interference.

3,602,659

ELECTRIC PLUG CONNECTOR FOR THE HANDICAPPED

Walter Warren Egee, Wallingford, and William J. Feehery, Jr., Haverstown, both of, Pa., assignors to Campbell Soup Company, Camden, N.J.

Filed Nov. 25, 1969, Ser. No. 879,881

Int. Cl. H01h 33/48

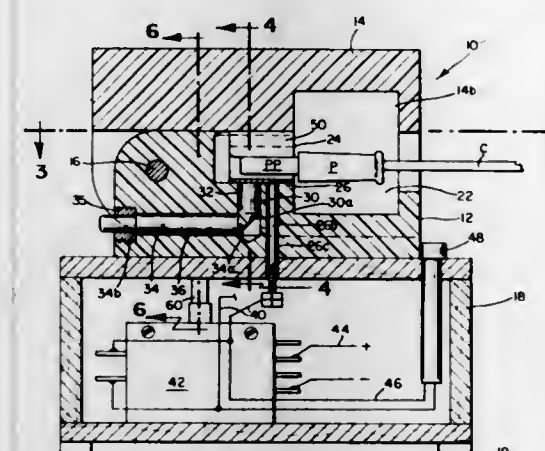
U.S. Cl. 200—50 A

5 Claims

An electric plug connector for the handicapped to promote easier and safer manual connection and separation of a standard, two-prong plug of a household appliance to

and from a source of electrical power. The connector includes a nonconducting receptacle open at the top and shaped to promote the easy insertion and removal of the plug prongs in generally a horizontal position into and from a pair of shaped slots containing electrical contacts connected to a source of current through a switch. A cover, pivotally mounted on the receptacle, prevents access to the contacts or plug when the cover is closed. The cover is provided with

bular electrodes, the outer one having water access apertures at zones spaced axially from the ends of the inner one. The outer one comprises part of a housing that encloses a battery.



a pair of downwardly directed studs which press the prongs into locking engagement with the contacts when the cover is closed. A switch is actuated by the cover to allow a flow of current to the contacts when the cover is in the closed position and deactivated when the cover is raised to the open position. When the cover is opened, the plug prongs are freed from the electrical contacts to promote easy removal of the plug from the connector.

3,602,660

COLLISION RESPONSIVE SWITCH

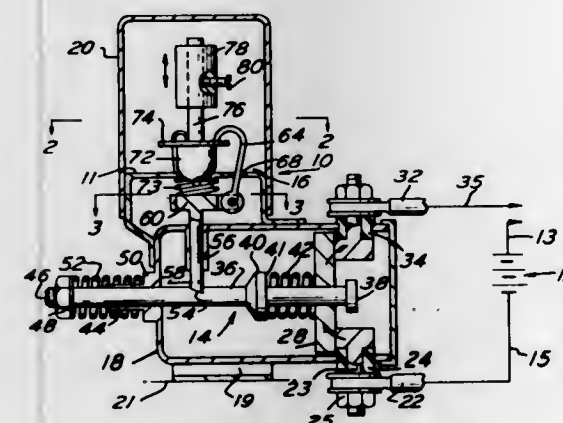
Russell L. Eslinger, Philadelphia, Pa., assignor to Triwees Products, Inc., Philadelphia, Pa.

Filed Apr. 10, 1970, Ser. No. 27,280

Int. Cl. H01h 35/14

U.S. Cl. 200—61.5

8 Claims



A safety switch for use in a motor vehicle to control the vehicle electrical system. In the event of collision, the vehicle battery will be automatically disconnected from the vehicle electrical system. A trigger mechanism includes a pivotable weight which will move due to the forces of inertia to cause release of a trigger from a plunger mechanism. The plunger mechanism is spring biased to cause disengagement of the vehicle battery with the vehicle electrical system. Upon release of the trigger, the plunger will cause the vehicle electrical system to become inoperative.

3,602,661

IMMERSION RESPONSIVE SENSOR

Karl-gosta Liedberg, Linköping, Sweden, assignor to Saab-Scania Aktiebolag, Linköping, Sweden

Filed Dec. 5, 1969, Ser. No. 882,645

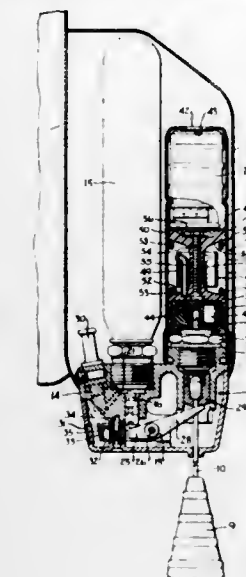
Claims priority, application Sweden, Dec. 9, 1968, 16776/68

Int. Cl. H01h 29/00

U.S. Cl. 200—61.05

4 Claims

The immersion responsive sensor of an automatically inflatable life jacket comprises concentric inner and outer tu-



3,602,662

SAFETY MECHANISM FOR LAUNDRY APPARATUS

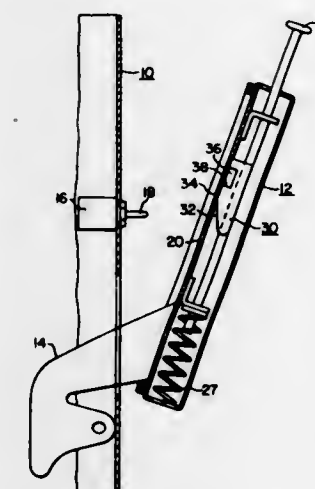
Clayton L. Haller, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 30, 1970, Ser. No. 33,303

Int. Cl. H01h 31/16

U.S. Cl. 200—61.62

13 Claims



A safety mechanism which requires manual actuation after the door of a cabinet housing laundry apparatus has been closed to complete the electrical circuit to the drive motor of the apparatus. In its most simple form, the invention is characterized by a door switch mounted on the cabinet such that the switch plunger is aligned with an aperture in the door. A spring biased cam mechanism carried by the door adjacent the aperture can be manually depressed to traverse the aperture and cam the plunger of the door switch to an operative position, when the door is closed.

3,602,663

COMBINED SNAP AND WIPE ACTING SWITCH

Edward A. Jones, Sylmar, Calif., assignor to Control Industries, Inc., Sylmar, Calif.

Filed Nov. 20, 1969, Ser. No. 878,444

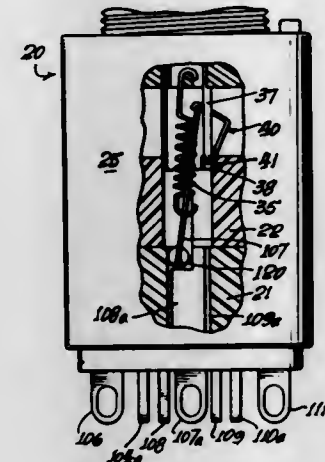
Int. Cl. H01h 13/28

U.S. Cl. 200—67 B

2 Claims

Pushbutton switch having an elongate stationary contact and a switching contact pivotally mounted with an over-center spring to the pushbutton for rotational movement toward and away from the stationary contact. A biasing

member intercouple the switching member and the pushbutton for tensioning the overcenter spring and causing linear movement of the switching contact longitudinally of the stationary contact when the pushbutton is depressed. The biasing member also biases the switching contact away from the



stationary contact before switch actuation and cooperates with the overcenter spring to snap the switching contact into engagement with the stationary contact during longitudinal movement of the switching contact, the switch then making wiping contact.

3,602,664

PRESSURE SWITCH ARRANGEMENT

Rainer Bartholomäus, and Hans Wolfes, both of Lohr, Germany, assignors to G. L. Rexroth Lohr Eisenwerk GmbH, Lohr Main, Germany

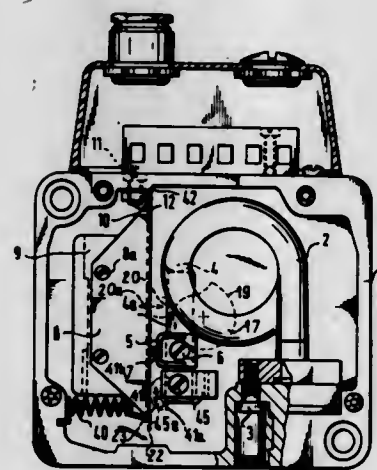
Filed Dec. 15, 1969, Ser. No. 884,795

Claims priority, application Germany, Dec. 14, 1968, P 18 14 754.1

Int. Cl. H01h 35/36

U.S. Cl. 200—81.8

9 Claims



An arrangement in which a microswitch becomes actuated when a predetermined fluid pressure has been attained. The fluid under pressure is introduced within the tubular spring member having one end which deflects in accordance with the magnitude of the pressure. The deflecting end of this tubular spring member has an abutment member which actuates the switch supported in a bracket pivotably arranged on the housing. A rotatable knob positions angularly the switch bracket, through a cam follower linkage, for varying the pressure at which the switch becomes actuated. The rotatable knob is provided with a scale from which the angular positions of the knob may be read. A lever is also positioned by the knob and a second abutment member on the lever cooperates with the switch bracket so that the distance between this second abutment member and the pivoting axis of the lever may be varied.

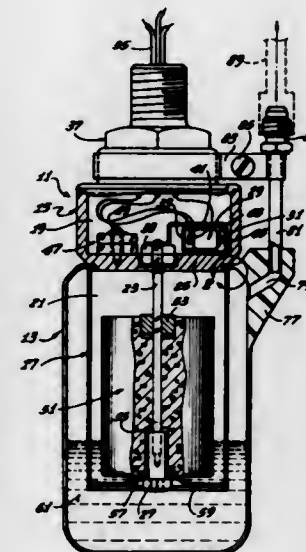
3,602,665
CONTROL DEVICE AND BARRIER BAG THEREFOR
Samuel M. Jarvis, Honolulu, Hawaii, and Julius P. Striegler, Fountain Valley, Calif., assignors to Acme-Divac Industries Inc., Hawthorne, Calif.

Filed Feb. 7, 1969, Ser. No. 797,542

Int. Cl. H01h 35/18

U.S. Cl. 200—84 C

6 Claims



This disclosure describes a control device such as a float actuated switch including a housing having first and second compartments therein with a float in the first compartment and a switch operated by the float in the second compartment. A flexible barrier bag at least partially surrounds the second compartment and contains a liquid for operating the float. A seal is formed integrally with the barrier bag and the bag is attached to the housing by clamping a peripheral segment of the bag against the housing. A vent passage vents the interior of the bag to a predetermined pressure.

3,602,666

FOOT-OPERATED ELECTRIC SWITCH

Knut Arenhold, 5 Birkenweg, D-Kehl am Rhine, Germany

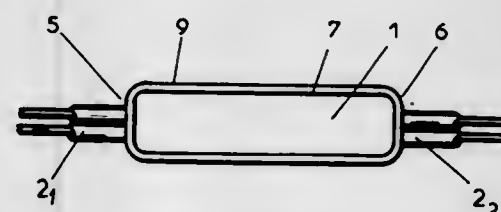
Filed Aug. 19, 1969, Ser. No. 851,275

Claims priority, application France, Aug. 23, 1968, 163996

Int. Cl. H01h 3/14

U.S. Cl. 200—86.5

5 Claims



A foot-operated switch for electric lamps and the like, is described.

The switch consists of an electric contactor contained in a two-piece casing formed of two juxtaposed half-shells. The half-shells are kept apart by spring means and are maintained in position by a frame.

The contactor closes an electric circuit and lights a lamp, when the foot of the operator exerts a pressure on one of the half-shells bringing it close to the other half-shell.

3,602,667

ELECTRICAL CIRCUIT INTERRUPTING DEVICE

Erwin Reichl, Tegernheim; Gunter Slekiera, Regensburg, and Helmut Kinder, Regensburg, all of Germany, assignors to Sachsenwerk Licht, und Kraft Aktiengesellschaft, Munich, Germany

Filed Aug. 28, 1969, Ser. No. 853,697

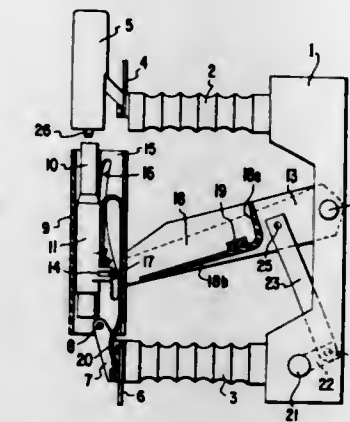
Int. Cl. H01h 33/00

U.S. Cl. 200—144 R

12 Claims

An electrical switch including a first switch contact mounted at a point spaced in front of a support, and a second

switch contact mounted on the support for movement from an on-position in which it engages the first contact to an off-position in which it is spaced to the rear of the second contact. One of the switch contacts has a quenching chamber connected to it which surrounds the space between the first



and second contacts until they are separated by a sufficient distance so that arcing no longer occurs. The mounting means for the second switch contact moves the second contact first in a linear direction away from the first contact and then in a pivotal direction back toward the support.

3,602,668

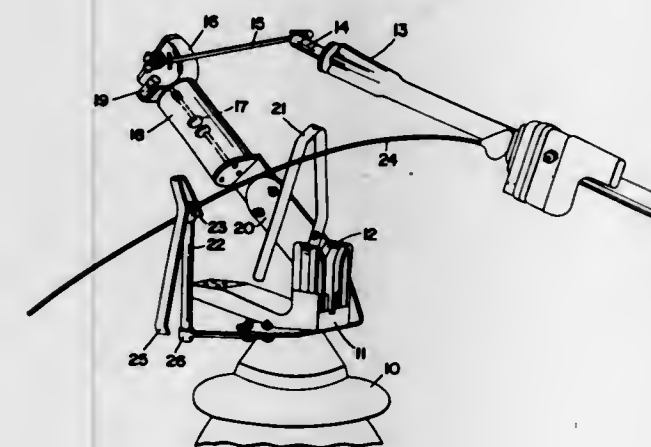
INTERRUPTER SWITCH USABLE AS A SECTIONALIZER IN HIGH VOLTAGE SYSTEMS
Edward R. Krajewski, Shaker Heights, and Elmer L. Luehring, Cleveland Heights, both of Ohio, assignors to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed Mar. 18, 1970, Ser. No. 20,563

Int. Cl. H01h 33/59

U.S. Cl. 200—146

6 Claims



A high voltage switch has a set of main contacts and two auxiliary interrupter devices. One of the interrupters is used for interrupting loop currents, while the other is used for interrupting charging currents in a power system. The choice of which interrupter is used is made automatically dependent upon the magnitude of recovery voltage across the switch.

3,602,669

PURGING AND DRYING SYSTEM FOR GAS BLAST CIRCUIT INTERRUPTERS

Henry G. Meier, Glendale, and James R. McCloud, Burbank, both of, Calif., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Mar. 18, 1970, Ser. No. 20,607

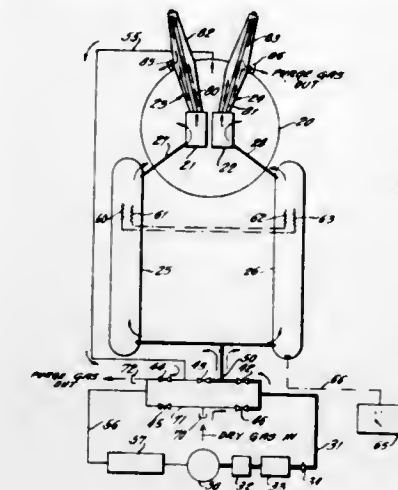
Int. Cl. H01h 33/54

U.S. Cl. 200—148 E

9 Claims

A dry nitrogen gas is forced through the high and low-pressure system and the gas filled bushings of a high voltage SF₆

blast circuit interrupter to purge the system of moisture before filling the system with SF₆. Heat is applied to the various components during the purging operation.



3,602,670

BREAKING CHAMBER FOR SELF-BLASTING COMPRESSED GAS ELECTRIC CIRCUIT BREAKERS
Benito Jose Calvino Y Teljeiro, Bergamo, Italy, assignor to Magnano M.S.M.-S.p.A., Milan, Italy

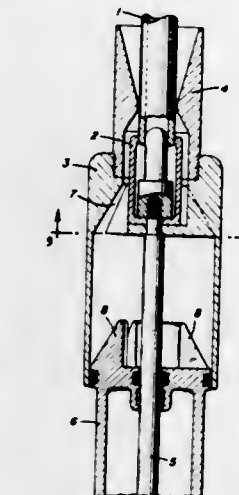
Filed Apr. 2, 1970, Ser. No. 25,144

Claims priority, application Italy, Apr. 4, 1969, 15036A/69

Int. Cl. H01h 33/86

U.S. Cl. 200—148 G

4 Claims



An improved self-blasting compressed gas electric circuit breaker having a cylindrical member axially slidable on a fixed piston and forming a breaking chamber therebetween. The chamber contains the breaking gas and further comprises a plurality of recesses formed in one end of the cylindrical member with a like number of projections formed on the fixed piston complementary to the recesses. The recesses and projections preferably have a substantially truncated cone shape with a wide base. When a projection enters into a recess, the residual volume of the latter is reduced to a minimum upon the opening of the contacts. The recesses directly communicate with the cylindrical cavity defined between the known orifice structure and the fingers of the tulip-shaped movable contact and serve to break up the undesirable whirling motion of the gas heretofore formed in the known circuit breakers of this type.

3,602,671

OIL CIRCUIT INTERRUPTER HAVING IMPROVED STACK INSULATING WASHER STRUCTURE

Herbert M. Pflanz, Roslindale, and Joseph M. Ramrath, Mattapan, both of, Mass., assignors to Allis Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Nov. 28, 1969, Ser. No. 880,667

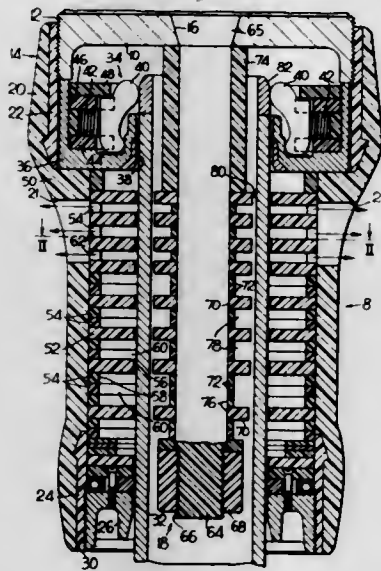
Int. Cl. H01h 33/68

U.S. Cl. 200—150 B

5 Claims

An arc interrupting device for use in an oil-type circuit interrupter comprises a hollow tubular insulated external struc-

ture with annular oil pockets on the interior surface thereof and oil flow nozzles through the wall thereof. The external structure houses an electrically conductive stationary contact assembly. A cylindrical insulated internal structure with annular oil pockets on the exterior surface thereof is concentrically disposed inside the external structure. An electrically conductive hollow cylindrical bayonet contact is movable in

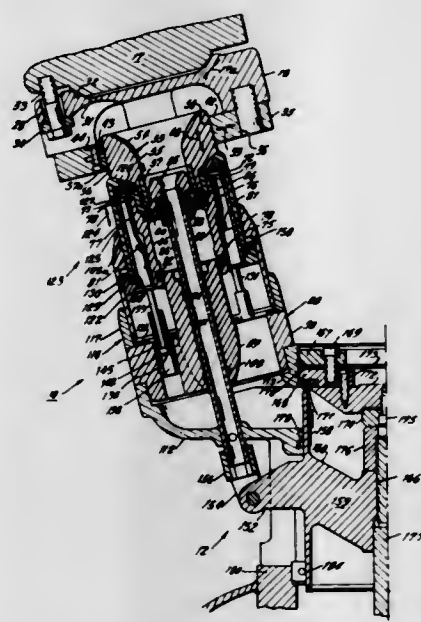


the annular space between the external and internal structures. During withdrawal of the bayonet, the arc formed between it and the stationary contact is constricted in the narrow annular space and is thereby more readily cooled and extinguished.

In another embodiment, the bayonet contact and the space which accommodates it both have a C-shaped cross-sectional configuration.

3,602,672
PRESSURE OPERATED BAFFLE FOR HIGH VOLTAGE GAS OPERATED CIRCUIT BREAKER
Henry G. Meier, Glendale, and James R. McCloud, Burbank, both of, Calif., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed July 28, 1969, Ser. No. 845,375
Int. Cl. H01h 33/80
U.S. Cl. 200—148

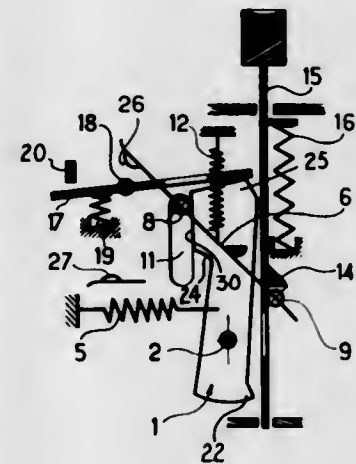


A movable baffle for the interrupter of an SF₆ circuit breaker in which the baffle is movable to a position surrounding the stationary contact by gas pressure when a blast valve is opened and the circuit breaker is to be opened. The baffle, when engaging the stationary contact, defines a gas channel to conduct gas through the arc interruption region. A spring bias moves the baffle away from the stationary con-

tact and to a favorable dielectric position when the interrupter contacts are open.

3,602,673
LOCKING MECHANISM ESPECIALLY FOR THE CONTROL OF ELECTRICAL DISCONNECTION APPARATUS
Jean Morin, and Gerard Desperrier, both of Saint-Marcellin, France, assignors to Societe D'Appareillage Electrique Saparel, Saint-Marcellin, France

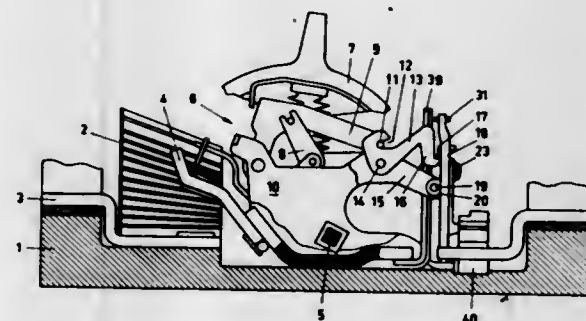
Filed Apr. 17, 1970, Ser. No. 29,582
Int. Cl. H01h 3/20, 9/26
U.S. Cl. 200—153 R 3 Claims



A mobile unit carries a movable switch at one end and longitudinally spaced, transverse shafts to one side thereof. One shaft is spring biased to the upper end of a vertical guide slot while the other shaft rides on a push button, spring biased, sliding control piece. A spring biased locking plate carrying a window, cooperates with a spring biased, oscillating lever to receive a stop during switch closing position while a projection on the same oscillating lever locks up the sliding control piece. Tilting of the spring biased locking plate releases the switch contacts and the sliding control piece.

3,602,674
CIRCUIT BREAKER WITH LOCKING AND RELEASING TRAIN INCLUDING ADJUSTABLE ROTATABLY MOUNTED PLATE BARS
Wolfgang Walter Koennecke, Bad Homburg vor der Hohe, and Gerhard Schleifenbaum, Huttental-Weidenau, both of, Germany, assignors to Hundt & Weber G.m.b.H., Huttental-Geisweid, Germany

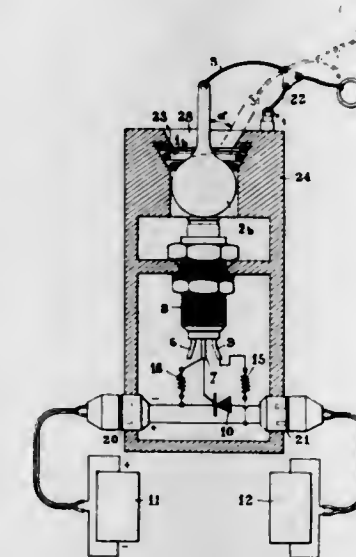
Filed Mar. 4, 1969, Ser. No. 804,157
Claims priority, application Germany, Mar. 8, 1968, P 16 38 043.1
Int. Cl. H01h 3/46, 71/40
U.S. Cl. 200—153 H 12 Claims



This invention relates to a circuit breaker and, more particularly, to a circuit breaker with a locking and releasing train containing a series of levers so organized that the operation of the circuit breaker can be accurately controlled at the final lever in the series, which final lever is remote from the circuit breaking function.

3,602,675
PULL TYPE RELEASE CONTROL OF ELECTRIC APPARATUS
Henry Piazza, Toulouse, and Pierre Bach, Ferney Voltaire, both of, France, assignors to French State, represented by the Minister of Armed Forces Ministerial Delegation for Weapons, Technical Direction of Land Weapons, Manufacturing Workshop of Toulouse, Paris, France

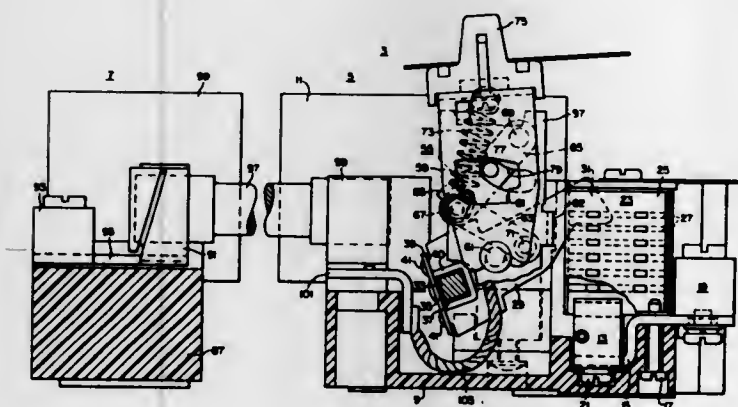
Filed Mar. 10, 1969, Ser. No. 805,702
Claims priority, application France, Mar. 15, 1968, 143,898
Int. Cl. H01h 17/16
U.S. Cl. 200—161 1 Claim



A device for setting an electric apparatus in permanent operation by exerting a momentary mechanical pull on a release rope characterized in that it comprises a pressure-type contact, mechanical means holding the push member of this pressure contact in its depressed or operative position when no traction is exerted on the release rope, and a bistable electronic switch connected between a source of electric power and the electric apparatus to be energized, said switch being so connected to said pressure contact that said switch is open as long as said push member is held in its depressed or operative position, and moved to its closed position when a tractive effort in excess of a predetermined threshold is exerted on said rope to enable said push member to resume its inoperative position.

3,602,676
KNIFE BLADE SWITCH WITH TOGGLE OPERATING MEANS AND MEANS FOR FASTENING THE KNIFE BLADE TO A TIE BAR
Stephen A. Mrenna, and Glenn R. Thomas, both of Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

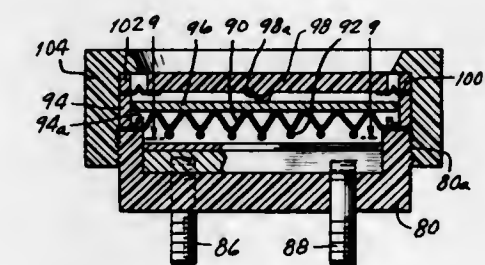
Filed Apr. 14, 1969, Ser. No. 815,595
Int. Cl. H01h 21/56, 3/46, 1/42
U.S. Cl. 200—162 10 Claims



An efficient low-cost compact knife-blade switch with improved operating characteristics, good current carrying ability and improved short-circuit withstandability.

3,602,677
SWITCH WITH PARTICULAR TRANSVERSE DEFLECTION CHARACTERISTICS AND MOVABLE CONTACT PLATE WITH CONTACT MAKING WIRES ATTACHED
Alexander M. Adelson, Elmsford, and Jerome Swartz, Stony Brook, both of, N.Y., assignors to Wild Rover Corp., Closter, N.J.

Filed Dec. 30, 1968, Ser. No. 787,853
Int. Cl. H01h 1/06, 1/26, 13/52
U.S. Cl. 200—166 J 42 Claims



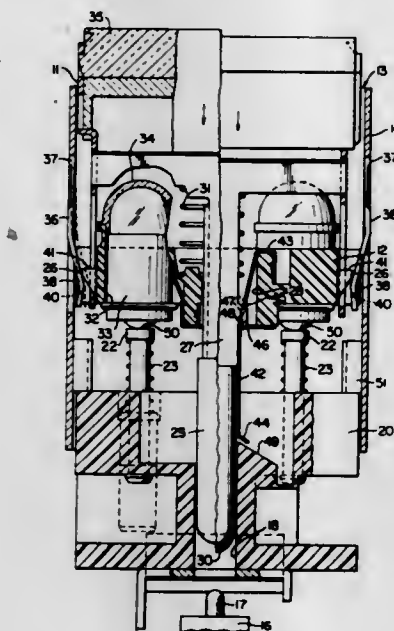
A low force, low throw, touch operated switch comprising at least one flexible-contact element having a flexible portion and an electrical contact-making portion that is to be deflected into contact with at least one base element. The flexible portion has an effective dimension L and an equivalent spring constant in an axial direction. The contact-making portion is separated by a distance d from an associated base element which is chosen to be less than about 0.008 inch to provide low throw in the switch and to ensure substantially simultaneous and broad area electrical contacting and arc distribution between contact-making portion and base element. The length L is also selected so that the ratio d/L is less than about 0.02, so as to enhance the transverse deflection. The switch is rendered a low force device by selection of the equivalent axial spring constant so that with the d to L relationship just-mentioned the transverse force necessary to touch actuate the switch to produce electrical contact between the contact-making portion and the associated base contact is less than about 100 grams. Parallel contact operation for suitable current division is achieved through the use of a plurality of parallel and extended contact segments that constitute the contact-making portion of the element. Series gaps are utilized to aid in arc suppression and making and breaking of the electrical circuit by including the flexible-contact element as an intermediate element making contact with a plurality of base elements. A corrugated flexible-contact element structure is included to provide good spring action and to achieve a wiping effect to break welds that may be formed during contact closure. The flexible-contact element structure may be provided by a bowed plate with wires affixed thereto.

3,602,678
ILLUMINATED PUSHBUTTON SWITCH CONSTRUCTION MEANS HAVING A SAFETY SET AND RESET MECHANISM
Edward J. Laete, Logansport, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Mar. 23, 1970, Ser. No. 21,657
Int. Cl. H01h 9/18
U.S. Cl. 200—167 A 12 Claims

A casing having an aperture for receiving a pushbutton construction means that comprises relatively movable lamp holder means and a pushing member means with the pushbutton construction means carrying a leaf spring which prevents the pushbutton construction means from actuating the electrical switch structure of the casing when the push-

button construction means is initially inserted in the aperture means until after a releasing action on the pushbutton con-



struction means causes the pushbutton construction means to be locked in position in the casing.

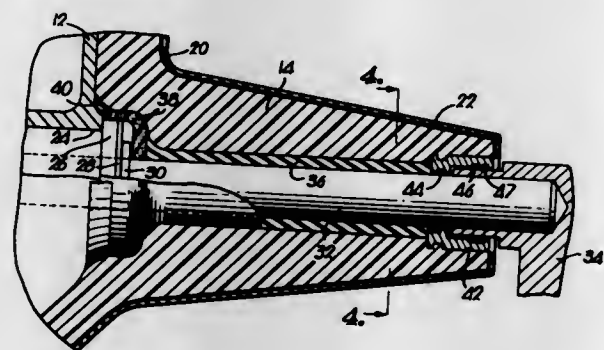
3,602,679
METHOD AND APPARATUS FOR OPERATING AN ELECTRICAL SWITCH IN A MOISTURE-LADEN ENVIRONMENT

James T. Odom, Centalla, Mo., assignor to A. B. Chance Company, Centalla, Mo.

Filed Aug. 27, 1969, Ser. No. 853,438
Int. Cl. H01h 9/04

U.S. Cl. 200-168 G

12 Claims



An electrical switch for operation in a moisture-laden environment has an operating shaft extending outwardly from a housing therefor through an elastic sleeve of insulating material. The elastic sleeve has an initial diameter less than the diameter of the shaft and is telescoped over the latter in dilated condition so as to form an interference fit with the shaft to accommodate any surface defects and eccentricity in the latter and provide a moisture seal. An insulating jacket is cast around the sleeve as well as the switch housing, thus assuring the formation of a fluidtight seal while providing support for the operating shaft and sleeve.

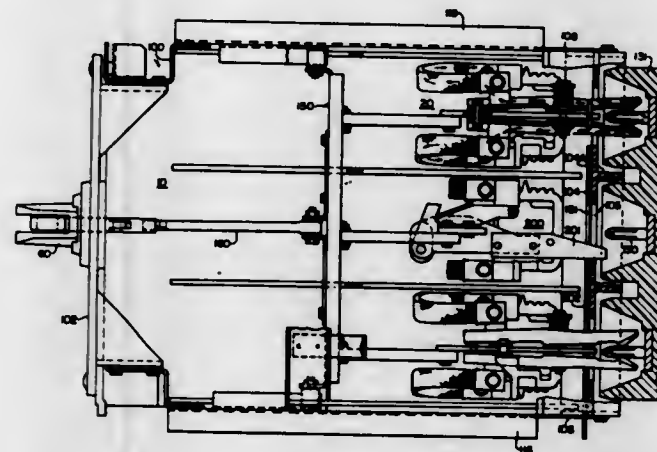
3,602,680
SWITCH CONTACT STRUCTURE
Alfred W. Hodgson, Orchard Park, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 21, 1970, Ser. No. 030,514
Int. Cl. H01h 1/54

U.S. Cl. 200-170 R

7 Claims

A switch contact structure including a pair of pivotally mounted, horizontally disposed contact fingers slidably positioned to laterally engage a blade or stab-type electrical contact therebetween, and a pair of vertically disposed flexible, resilient U-shaped shunts each having an upper arm and a lower arm; the lower arm being rigidly secured. The upper

arms of the U-shaped shunts are fixed to electrically conductive lever arms protruding outwardly and laterally from the respective contact fingers. A magnetic field developed by a reverse current flow pattern through the arms of the U-shaped shunts causes a vertical displacement of the upper arm of the U-shaped shunts which imparts a rocking motion

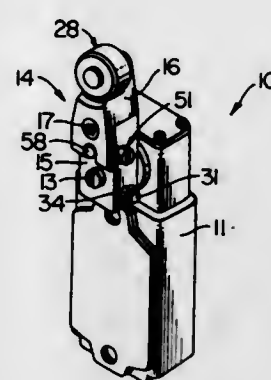


to the contact fingers which increases the contact pressure between the contact fingers and the stab-type electrical contact. The magnitude of the contact pressure is controlled by adjusting the active length of the lever arms by varying the lateral distance between the U-shaped shunts and the contact fingers.

3,602,681
ADJUSTABLE ACTUATOR ARM CONSTRUCTION
Ralph W. Finke, Columbus, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.
Filed Mar. 2, 1970, Ser. No. 15,689
Int. Cl. H01h 3/06

U.S. Cl. 200-172 A

20 Claims



A first arm member is secured to a control shaft of a device that is to be controlled by the arm construction. A second arm member is pivotally mounted to the first arm member. The first arm member rotatably carries a threaded adjusting screw that has an adjusting member threaded thereon and is operatively associated with opposed surface means of the second arm member to pivot the second arm member relative to the first arm member in relation to the axial position of the adjusting member on the adjusting screw. The adjusting member has resilient means wedged between the opposed surface means of the second arm member in all adjusted positions thereof to eliminate play therebetween.

3,602,682
METHOD AND MEANS OF JOINING COPPER PARTS BY RESISTANCE WELDING
Albert Hoeffleur, Alte Landstrasse 29, Kusnacht, Zurich, Switzerland

Filed May 21, 1968, Ser. No. 730,919

Claims priority, application Switzerland, May 23, 1967, 7271/67

Int. Cl. B23k 11/18

U.S. Cl. 219-92

2 Claims

A method and means for joining copper parts by resistance welding by coating such parts to be joined at the points prior to welding with a paste containing a mixture of powdered silver solder or powdered silver and a soldering flux.

3,602,683
AUTOMATIC CONTROL MECHANISM FOR PLASMA WELDER

Hisashi Hishida, and Masakazu Maruyama, both of Hiratsuka, Japan, assignors to Sumitomo Jukikai Kogyo Kabushiki Kaisha, Tokyo, Japan

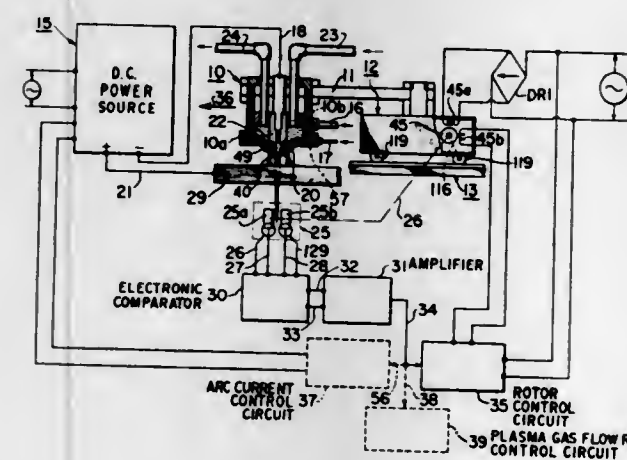
Filed Feb. 2, 1970, Ser. No. 7,651

Claims priority, application Japan, Feb. 3, 1969, 44/7305

Int. Cl. B23k 9/06

U.S. Cl. 219-121 P

3 Claims



An automatic control device for plasma arc welding by use of a plasma torch fitted with a cathodic electrode and a gas blow nozzle, said torch being movable relative to a welding stock which is arranged as an anodic electrode, said device being characterized by the provision of a photoelectric sensor arranged to measure the inclination angle of the tail flame part of the plasma arc emerging from the backside of the welding stock while the welding operation is going on, the electric output signal from said sensor being fed to an electronic control circuit adapted for control of any one or more of the welding parameters such as the relative travel speed between the torch and the welding stock, the rate of plasma gas supply and the rate of the welding current.

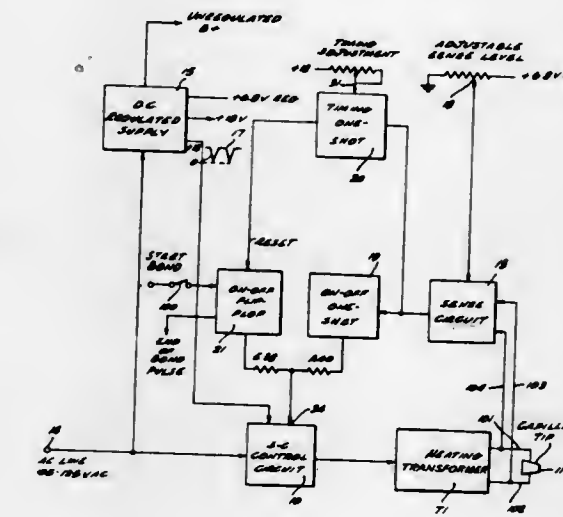
3,602,684
CONSTANT-TEMPERATURE-PULSED THERMOCOMPRESSION BALL BONDER SYSTEM
Richard G. Friess, San Marcos, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Oct. 27, 1969, Ser. No. 869,529
Int. Cl. B23k 11/24

U.S. Cl. 219-110

13 Claims

A pulsed thermocompression bonder is provided comprising a bonding or capillary tip and an electronics system to regulate the bonding or capillary tip temperature. A switch automatically provides a start bond signal when the operator lowers the bonder tip to bonding position to commence a bonding operation. The start bond signal activates an AC control circuit which causes current flow in a heating transformer until the tip is at predetermined bonding or operating temperature. The AC control circuit then stops current flow from being supplied to the heating transformer for a predetermined cooling time. In subsequent sequential periods iteratively the current is allowed to flow to the heating trans-

former until a predetermined temperature is reached and is cut off for the predetermined period of cooling. Adjustment means are provided to regulate off-and-on current time so that once the predetermined desired temperature is reached an approximately constant desired temperature or flat heat curve is obtained until the end of the bonding operation. A sensing circuit connected to the bonder tip senses a rise in voltage due to an increase in tip resistance when the tip is being heated to the predetermined bonding temperature. After rising to desired predetermined temperature the sensing circuit (1) triggers a timing one shot multivibrator

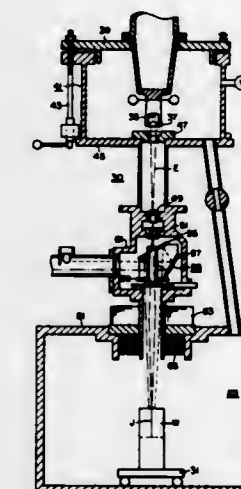


which sets and resets an on-off flip-flop circuit to regulate the heating cycle duration for a given bonding operation and (2) triggers an on-off one-shot multivibrator each time the predetermined temperature is reached in the heating cycle. The voltage outputs of the on-off flip-flop and one-shot multivibrator circuits are mixed and applied to the AC control circuit. The on-off one-shot multivibrator stops current flow to the heating transformer for the predetermined period upon each sensing of reaching the predetermined operating temperature during the bonding cycle. The on-off flip-flop as determined by the timing one shot multivibrator changes state and terminates the bonding cycle.

3,602,685
METHOD OF ELECTRON-BEAM WELDING
Fujio R. Itoh, Wilkinsburg, Pittsburgh, Pa., assignor to United States Atomic Energy Commission
Filed June 28, 1966, Ser. No. 561,252
Int. Cl. B23k 9/00

U.S. Cl. 219-121

5 Claims

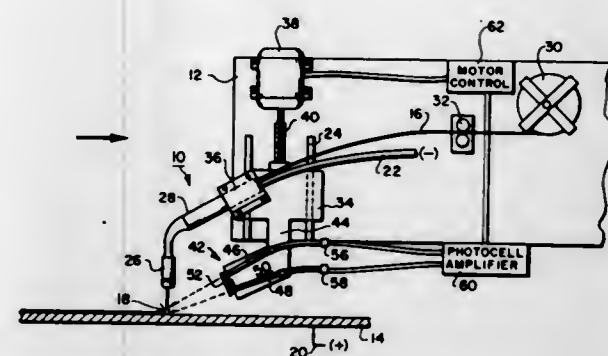
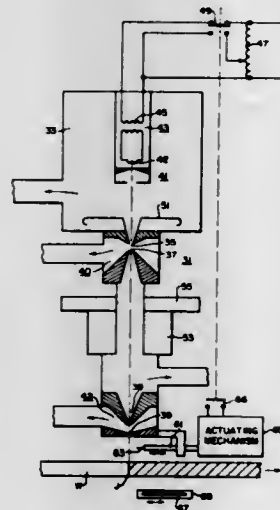


A method of electron-beam welding is disclosed, particularly for welding alloys such as ZIRCALOY-2 or -4. Narrow, deep welds of minimal porosity are produced by defocusing the beam at its point of impingement on the joint. A short, narrow dike is provided on the surface of the joint within which pressure of the molten metal is built up. This pressure

suppresses appreciable loss of alloying components from the weld metal.

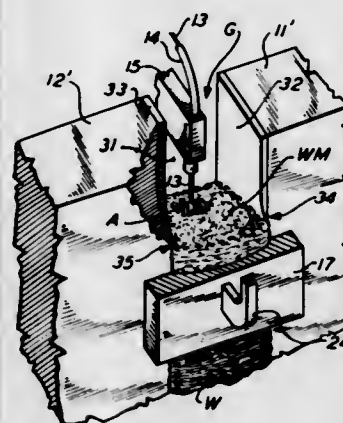
along the arc path preferably near its extremities and means responsive to one of the sensing means failure to sense the

3,602,686
ELECTRON-BEAM APPARATUS AND METHOD OF WELDING WITH THIS APPARATUS
Joseph Lempert, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 11, 1967, Ser. No. 630,135
Int. Cl. B23k 9/00
U.S. Cl. 219-121
13 Claims



presence of the arc appropriately alters one or more of the arc parameters to restore it to the view of the sensor.

3,602,688
VERTICAL ELECTRIC WELDING WITH HEAT ABSORBING WORK LINING
Craig R. Sibley, Murray Hill, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.
Filed Apr. 2, 1969, Ser. No. 812,716
Int. Cl. B23k 9/00
U.S. Cl. 219-137
5 Claims



Electron-beam welding apparatus, particularly for welding work in the atmosphere outside of the vacuum chamber 33 (FIG. 1 in which the electron-beam is generated, which includes facilities for producing X-rays for monitoring of the welds. Such X-rays are produced by projecting the electron beam which serves for welding on an X-ray target 61 at intervals (FIGS. 2, 2A) during the welding operation or during an interval following the welding (FIG. 1); the X-rays may also be produced by deflecting the welding electron beam at intervals on the target (FIG. 5) or by an auxiliary beam generated within the same container as the welding beam (FIG. 4). Where there is an auxiliary beam, the X-ray monitoring of the weld may take place continuously as the welding progresses.

A method of welding with an electron beam in which the welds are monitored by radiographic analysis while the welding is progressing.

An X-ray generator 171 (FIG. 6) in which an electron beam E, which is projected outside of the vacuum chamber in which the electron-beam is generated, produces X-rays by impinging on a consumable target 191 preferably of relatively small dimensions.

3,602,687
ARC LENGTH CONTROL
Robert E. Pollock, Hilliard, Ohio, assignor to The Battelle Development Corporation, Columbus, Ohio
Filed June 23, 1969, Ser. No. 835,327
Int. Cl. B23k 9/00
U.S. Cl. 219-130
16 Claims

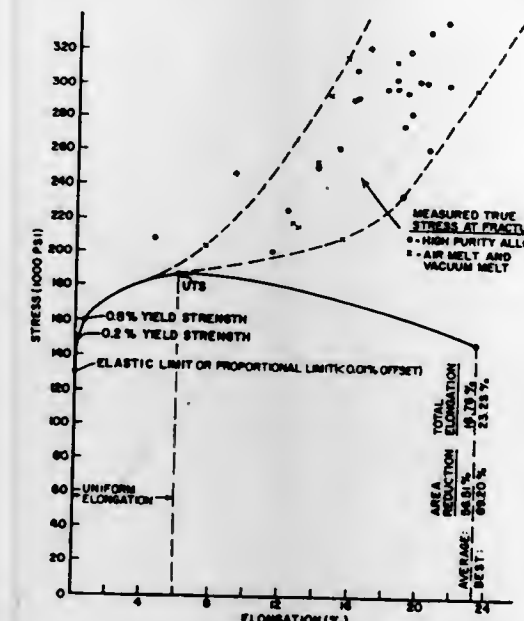
In automatic arc welding systems where a consumable electrode wire is continuously fed to a weld zone through a holder, the holder serving to provide an electric current path to the weld electrode, the arc length and position is maintained by sensing means that sense preselected spaced areas

3,602,689
ARC WELDING
Julius Heuschkel, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation-in-part of application Ser. No. 541,899, Mar. 18, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 223,143, Sept., 1962, now abandoned.
This application Nov. 13, 1967, Ser. No. 682,352
Int. Cl. B23k 9/24
U.S. Cl. 219-137
5 Claims

A method of arc welding with a filler material to produce welds of high toughness over a temperature range from -200° F. to +200° F. and of tensile strength exceeding

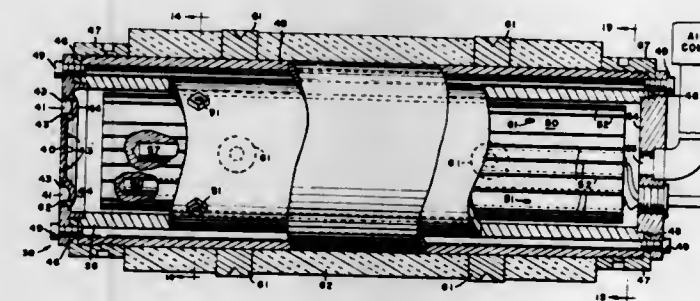
100,000 pounds per square inch. The welding is carried out in an atmosphere such that the nitrogen and oxygen of the

means of small brackets with spring hangers that are mounted and insulated so as to be usable with plastic lunch boxes. By means of a special support arrangement the hot plate assembly fits most any standard lunch box and will adjust so as to be flush. Handles are provided so that the hot



weld metal is minimized and the filler material is very low in phosphorus, sulfur, silicon, nitrogen and oxygen.

3,602,690
A QUICK ACTING AIR HEATER
William Rosenberg; Charles J. Crafton; F. Douglas Johnson, and Ross W. Hohman, all of Baltimore, Md., assignors to Maryland Cup Corporation, Owings Mills, Md.
Division of Ser. No. 418,434, Dec. 15, 1964, Pat. No. 3,439,590
Filed Oct. 3, 1968, Ser. No. 795,752
Int. Cl. H05b 3/02; F24h 3/06; C09j 5/10
U.S. Cl. 219-373
4 Claims



A quick acting air heater comprises a cylindrical shell and a perforated plate secured to one end of the shell. A solid cylindrical core member is coaxially disposed within the shell, adjustable means being provided for holding it in position relative to the shell. The core member is provided with air passages extending longitudinally and radially inward from its periphery. One or more electrical heaters are embedded in the core displaced from the slots. Means are provided for directing air from a source outside the shell longitudinally through the slots. This provides a highly sensitive heater which is quickly responsive to high temperature requirements. An important feature resides in the fact that no air space exists between the heater and the slots to insulate or retard the flow of heat to the slots.

3,602,691
ELECTRICAL HOT PLATE ASSEMBLY FOR LUNCH BOXES
Richard R. Frazier, P.O. Box 20261, Station N., Atlanta, Ga.
Filed Oct. 13, 1969, Ser. No. 865,673
Int. Cl. F27d 1/02; A21b 1/52
U.S. Cl. 219-387
5 Claims

An attachable and detachable hot plate assembly for a conventional lunchbox to which it is removably attached by

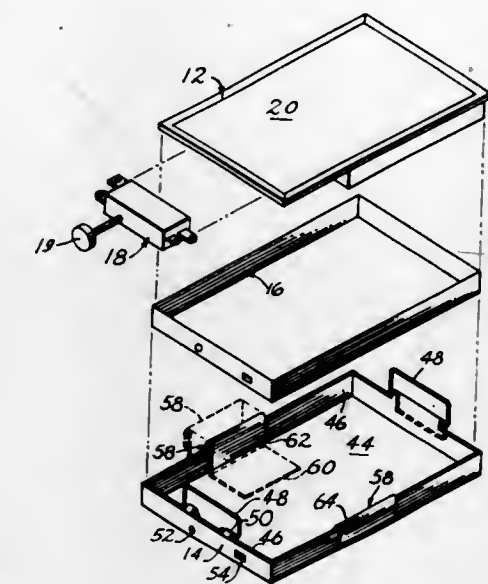
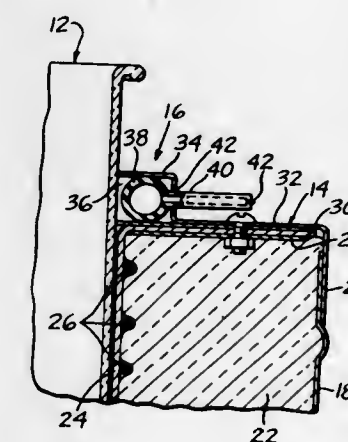


plate assembly is removable for use elsewhere and the electrical system includes a thermostat switch. The entire unit is assembled and disassembled readily into three basic parts, one of which is the electrical heating unit that also is readily disassembled.

3,602,692
ELECTRICALLY HEATED MANTLE WITH A SEAL ARRANGEMENT
Glen H. Morey, Terre Haute, Ind., assignor to Templeton Coal Company, Terre Haute, Ind.
Filed Sept. 25, 1969, Ser. No. 861,055
Int. Cl. H05b 3/58
U.S. Cl. 219-535
4 Claims

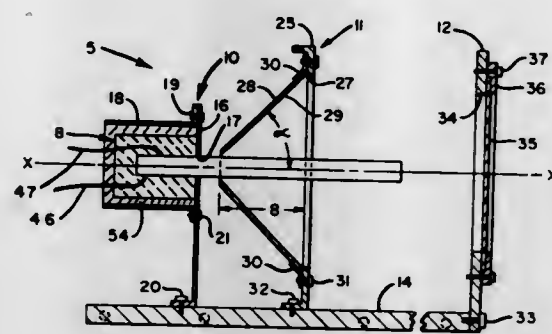


An electrically heated mantle having a frame and an inflatable annular seal element, especially adapted to be mounted on said heating mantle in encircling relation to a vessel therein. The seal element, when inflated, sealingly engages the frame of the heating mantle and the vessel and seals the heating mantle against the ingress of fluids.

3,602,693
INFRARED RADIATION SOURCE
Marc Grounner, Sunnyvale, Calif., assignor to Sylvania Electric Products Inc.
Filed Nov. 20, 1969, Ser. No. 878,291
Int. Cl. H05b 3/10
U.S. Cl. 219-553
1 Claim

An infrared radiation source having a plurality of turns of ceramic-coated platinum wire wound on a cylindrical dielectric-ceramic rod. The circumference of this structure is

coated with a high emissivity paint which increases its infrared emissivity at high temperatures. The coated rod is coaxially supported in and is insulated from a truncated conical reflector. The ends of the wire are connected through an AC line voltage stabilizer comprising a resonant transformer to an AC voltage source.



cal reflector. The ends of the wire are connected through an AC line voltage stabilizer comprising a resonant transformer to an AC voltage source.

3,602,694

MEMORY DEVICES FOR USE IN BUSINESS MACHINES

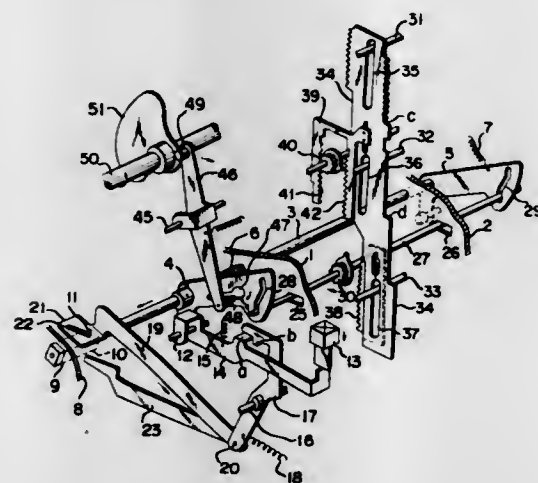
Rii Watanabe, Tagata-gun, Shizuoka-ken; Kiyokazu Kobayashi, Tagata-gun, Shizuoka-ken, and Takashi Murakami, Mishima-shi, all of Japan, assignors to Tokyo Denki Kabushiki Kaisha (aka Tokyo Electric Co., Ltd.), Tokyo-to, Japan

Filed June 12, 1968, Ser. No. 736,475

Int. Cl. G06c 23/00

U.S. Cl. 235—60

6 Claims



Memory gears are caused to mesh with racks of rack plates by the operator of a readout key and disengaged from the racks by an operating lever driven by a driving mechanism. To read out information stored in the memory gears, a readout key is operated to cause the memory gears to mesh with the racks, and a printing means is operated by the upward movement of the racks. Other racks are provided to limit the upward movement of the rack plates when the summing or memory readout operation is nearly completed.

3,602,695

DOCUMENT-CODING METHOD AND APPARATUS

Bruce Boss, Dallas, Tex., assignor to Docutel, Inc., Dallas, Tex.

Filed June 19, 1967, Ser. No. 646,999

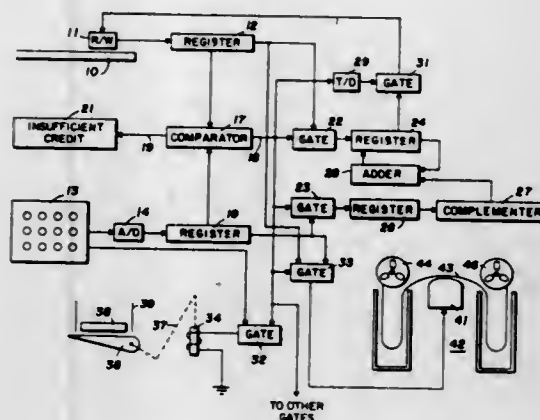
Int. Cl. G07f 7/02; G06k 17/00; H04q 3/58

U.S. Cl. 235—61.7

12 Claims

A system employing document coding includes a first means for storing data read from an encoded document and a second means for storing a code generated independently of the document data. The codes stored in the first and

second means are compared and a comparison signal is generated when a relation of one sense exists between the document data and the independently generated code. A new



code is generated in response to the comparison signal and transferred to a document while simultaneously, in response to said comparison signal, performing a second desired function.

3,602,696

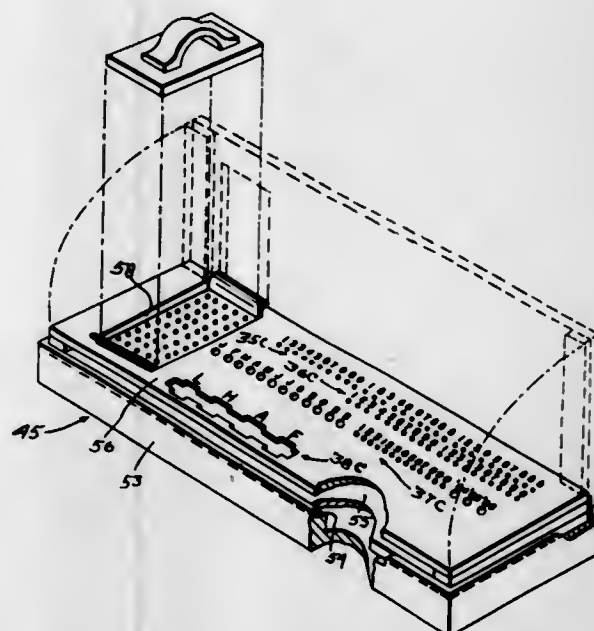
PLURAL SHEET ACCOUNTING FORM WITH MEANS TO EXECUTE AND VERIFY THE SAME

John Joyce, 62 Bay View Drive, East Brewster, Mass. Continuation-in-part of application Ser. No. 437,400, Mar. 5, 1965, now abandoned. This application Mar. 13, 1970, Ser. No. 19,451

Int. Cl. G06r 5/02

U.S. Cl. 235—61.11 R

9 Claims



An accounting system is disclosed utilizing sets of superimposed opaque receipt cards separably joined together, each card having zones for locating punch holes in a predetermined manner indicative of receipt data. The punch holes are made by the agent utilizing a debtor card retained by the debtor and provided with a series of dies for punching simultaneously a series of holes in a selected portion of said cards, the dies being arranged in an individual pattern. The system also utilizes a reader in the form of a base for orienting any one of said cards with reference to a particular position relative thereto, the reader having indicia visible through the holes in said cards made by the debtor card enabling the receipt data and the die-established data to be observed therethrough on such orientation.

3,602,697

CARD-READING SYSTEM

Toshio Tanaka, and Yukio Mizuta, both of Kyoto, Japan, assignors to Omron Lateisl Electronics Co., Kyoto, Japan

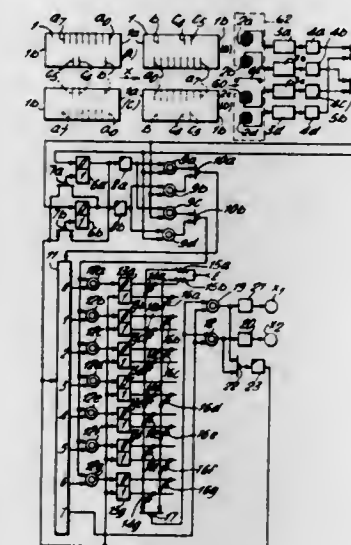
Filed Oct. 2, 1967, Ser. No. 672,324

Claims priority, application Japan, Oct. 4, 1966, 41/65541

Int. Cl. G06k 7/08

U.S. Cl. 235—61.11 D

9 Claims



A system for reading information recorded on a card in first and second rows of different code markings, wherein the recorded information can be successfully compared with stored reference code information regardless of the direction in which the card is inserted into the system. The code information on the card is arranged along a primary dimension thereof and the card is received in the system to be moved in a direction along the primary dimension, but it can be read properly whether it is inserted face up or down or whether inserted in a forward or reverse direction. The disclosed system includes means for detecting the difference between the code markings in the first and second rows, providing a signal indicating the orientation of the card, and means responsive to the difference-detecting means for providing in first and second outputs signals corresponding to the code markings in the first and second rows, regardless of the orientation of the card upon insertion. Other features include reading means for detecting markings spaced in rows located either along the centerline of the card or spaced symmetrically on opposite sides thereof; means for storing, in either forward or reverse sequence, the information code recorded on the card and means for storing the reference code in forward and reverse sequence for comparison simultaneously with the stored information code to provide the required comparison signal; means for gating to information code storage means the information code signals corresponding to the markings on the card in such a way that the information code is always stored in a forward sequence for comparison with the reference code, whether received in forward or reverse sequence as determined by the direction of insertion of the card; and a reversible counter for controlling gating means applying the information code signals to the information storage means in a sequence determined by the direction of insertion of the card.

3,602,698

PULSE COUNT CONVERSION DEVICE USING DECIMAL ADDER-SUBTRACTOR

Hervey E. Vigour, Waynesboro, Va., assignor to General Electric Company

Filed June 17, 1968, Ser. No. 737,461

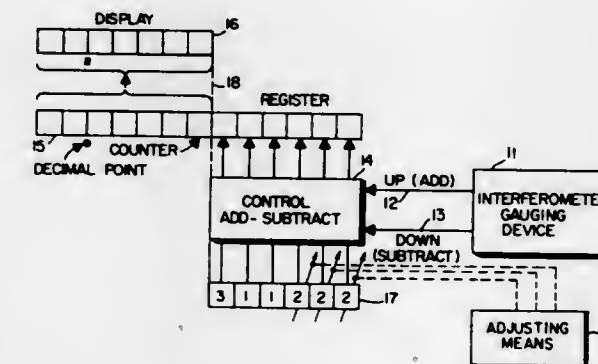
Int. Cl. G06m 1/272, 3/14

U.S. Cl. 235—92 EV

6 Claims

A conversion device for converting a train of electric signal pulses indicative of a given quantity, such as position,

into a count of standard units of measure. The conversion device comprises a digitally operable, reversible counter and register having digitally operable adder-subtractor circuit means for adding positive or negative increments of count to the register for each input electric signal pulse as determined by the sign of the input electric signal pulses. The overflow from the register is applied to a reversible counter. Each increment of count is proportional to a standard conversion factor for converting the input train of pulses into a count of standard measurement units such as inches or centimeters. The reversible counter preferably comprises a digital decimal



counter. The stages of the register are preferably comprised by binary arithmetic stages and the most significant binary stage supplied its overflow count to the least significant decimal stage of the counter as a standard decimal incremental input. The train of input pulses indicative of a quantity to be measured may comprise the output signal pulses of an interferometer position measuring device, and the standard conversion factor added to or subtracted from the reversible counter for each incremental input pulse may be a value representative of the spacing in microinches or micrometers between the fringe count pulses produced by the interferometer position measuring device.

3,602,699

DEVICE FOR GENERATING AN INSTRUCTION SIGNAL FOR USE IN AN AUTOMATIC DIGITAL READOUT APPARATUS

Shin-ichi Kamachi, and Yuzi Ikuno, both of Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

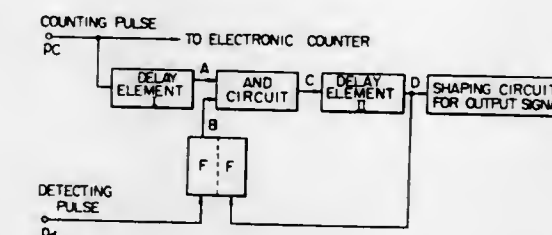
Filed Feb. 20, 1969, Ser. No. 800,934

Claims priority, application Japan, Mar. 1, 1968, 43-12869

Int. Cl. H03k 2/108

U.S. Cl. 235—92 EA

2 Claims



Device for generating an instruction signal for demanding the digitally measured value of displacement to be transferred from the measuring station to the memory of an automatic digital readout apparatus. The measuring station generates a counting pulse successively each time the displacement reaches a measuring unit so as to be applied to the electronic counter of the automatic digital readout apparatus so that the digitally indicated measured value corresponding to the displacement is generated therein. A detecting pulse is generated when the displacement reaches the desired measuring point, thereof and this detecting pulse is applied to the electronic counter through a readout instruction signal-generating circuit so as to permit the digitally indicated measured value provided therein at the measuring point of the

displacement to be transferred to the memory after the interference period of the electronic counter elapses, in which interference period the electronic counter cannot provide the current digitally indicated measured value due to the counting operation therein. The readout instruction signal-generating circuit comprises at least one delay circuit, the total delay time of the above at least one delay circuit is selected to be greater than the interference period of the electronic counter.

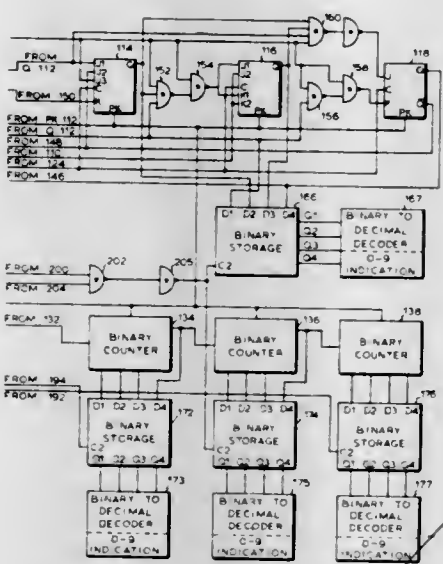
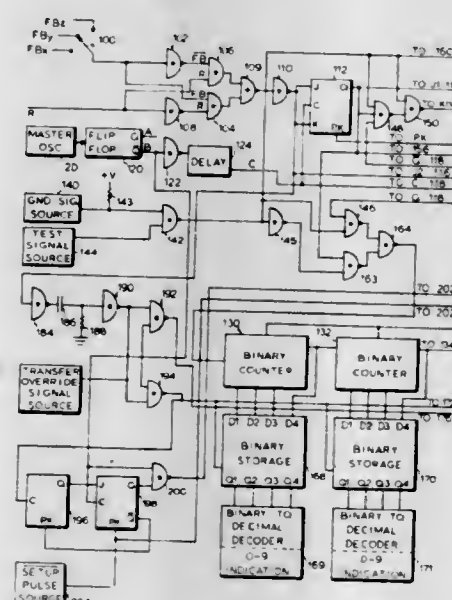
3,602,700

NUMERICALLY CONTROLLED MACHINE TOOLSLIDE-POSITION-INDICATING SYSTEM

Ronald E. Jerva, and Marion Kosem, both of Wickliffe, Ohio, assignors to Allen-Bradley Company, Milwaukee, Wis.
Filed Mar. 5, 1969, Ser. No. 804,558
Int. Cl. G05b 19/24

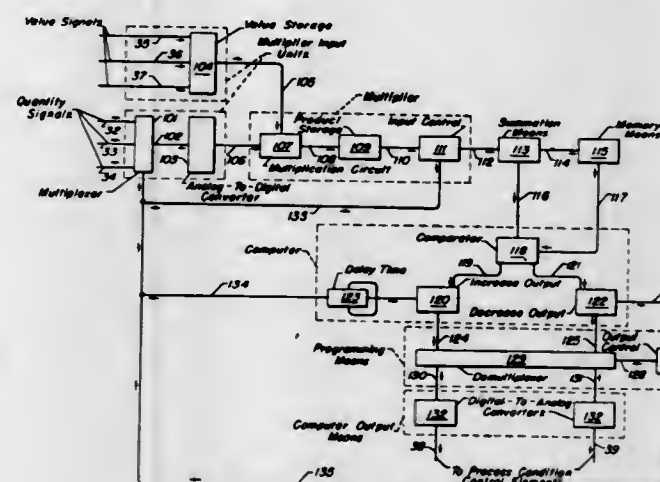
U.S. Cl. 235—92 MP

10 Claims



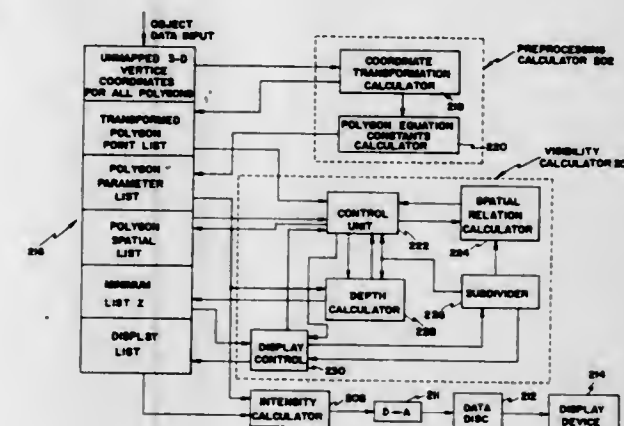
In a numerically controlled machine tool system of a type wherein the motion of a machine tool is controlled by comparing, for each axis the present location of the machine toolslide with a desired location, and generating command signals responsive to any difference between the two, there is provided display means for indicating the present slide location, the commanded end location, the present distance of the slide from its commanded end location, and the present velocity of the slide.

3,602,701
PROCESS CONTROL METHOD
David M. Boyd, Jr., Clarendon Hills, Ill., assignor to Universal Oil Products Company
Division of Ser. No. 783,365, Dec. 29, 1958, Pat. No. 3,458,691, which is a continuation-in-part of application Ser. No. 608,531, Sept. 7, 1956, now abandoned
Filed Sept. 23, 1968, Ser. No. 761,537
Int. Cl. G06f 15/18
U.S. Cl. 235—150.1 3 Claims



A method for optimizing the operation of a process having an output of a plurality of components of different unit economic values, where there is a setting of a variable parameter to a first setting, a registering of the performance of such setting, a changing of the parameter by a predetermined increment and a time interval sufficient to stabilize prior to registering a new performance of the process, then evaluating the last registering with the prior performance, and repeating the sequence of steps until performance is substantially maximized.

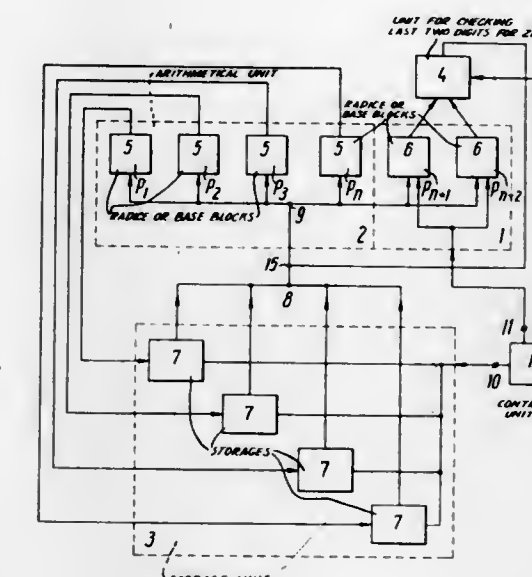
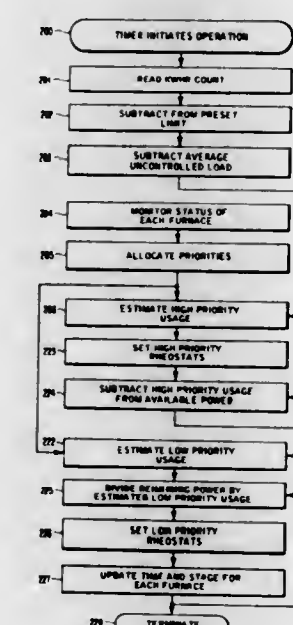
3,602,702
ELECTRONICALLY GENERATED PERSPECTIVE IMAGES
John E. Warnock, Salt Lake City, Utah, assignor to The University of Utah, Salt Lake City, Utah
Filed May 19, 1969, Ser. No. 825,904
Int. Cl. G06f 15/20; G06g 7/48
U.S. Cl. 235—151 51 Claims



A method and system for electronically generating and displaying shaded two-dimensional perspective images of three-dimensional objects in which sharp resolutions of intersections of the objects is maintained, by providing electrical signals representative of surfaces of the objects and determining the spatial relationship between these surfaces and progressively smaller portions of a two-dimensional view

plane or the viewing screen of the display. These spatial relationships are then utilized to determine the surfaces to be displayed within each of the ultimate portions of the view plane or viewing screen.

3,602,703
POWER DEMAND PREDICTING CONTROL SYSTEM
Thomas R. Polenz, Greendale, Wis., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 20, 1969, Ser. No. 867,541
Int. Cl. G05b 13/02, 15/02; G06f 15/46
U.S. Cl. 235—151.21 11 Claims



A power consumption control system and method for controlling total power consumption during a demand billing period of a plurality of variable rate consuming devices which operate in a known pattern. The devices are monitored to determine the stage of operation of the known pattern for each device. The devices are allocated priorities according to predetermined classifications. The total power consumption of the highest priority devices is estimated, based upon the power consumption of the present and immediately following stages of operation thereof and the expected time to be spent in each, for the remainder of the demand billing period, and that amount of power is allocated thereto. The maximum power consumption of the remaining devices over the same period is likewise estimated and the remaining available power is allocated thereto in accordance with the ratio of the available power to the maximum power consumption thereof.

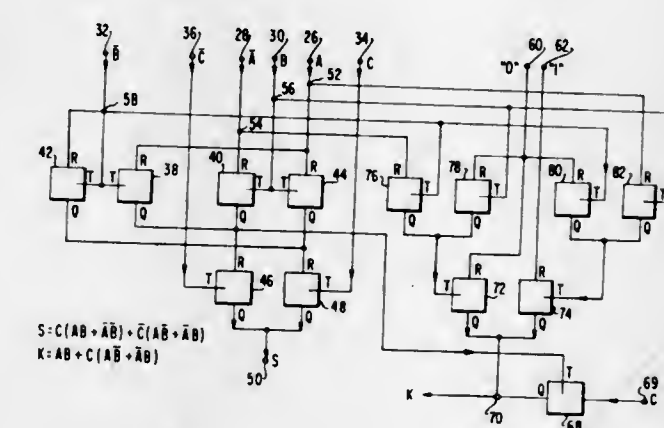
3,602,704
APPARATUS FOR CORRECTING ERRORS IN A RESIDUE CODE SYSTEM
Izrail Yakovlevich Akushsky, ulitsa Gerasima Kurina, 34, kv.26, and Davlet Islam Gireevich Juditsky, ulitsa 1 Yaroslavskaya, 21-9, kv.19, both of Moscow, U.S.S.R.
Filed Aug. 22, 1967, Ser. No. 662,434
Int. Cl. G06f 11/10, 7/36
U.S. Cl. 235—153 1 Claim

A device is provided for correcting errors in the course of the transmission and arithmetical processing of information in digital computers employing a system of residual classes. The device comprises a first arithmetical unit of the computer in which signals corresponding to residues $\alpha_1, \alpha_2, \dots, \alpha_n$ by the radices P_1, P_2, \dots, P_n representing the number to be analyzed are fed to selected inputs of the computer, and a second arithmetical unit to whose inputs signals are fed corresponding to the residues $\alpha_{n+1}, \alpha_{n+2}$ by the excess radices P_{n+1} and P_{n+2} . The inputs of a constant storage unit are connected to the outputs of the first arithmetical unit whereas the outputs of the storage unit are connected to other common inputs of both arithmetical units for successive conver-

sion of the number to be analyzed to another number of the n th order, the latter being in the same numerical range with the number to be analyzed. An analyzing unit of the two last numbers for zero is connected at its inputs to the second

arithmetical unit and at its outputs to the common inputs of both said arithmetical units for detecting an error and a correction number. Finally, a control unit is connected to the inputs of the constant storage unit, the second arithmetical unit and the analyzing unit.

3,602,705
BINARY FULL ADDER CIRCUIT
James R. Cricchi, and Gustav Cavar, both of Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 25, 1970, Ser. No. 22,521
Int. Cl. G06f 7/385, 7/50, 7/48
U.S. Cl. 235—175 19 Claims



A combinatorial circuit utilizing transmission switch logic wherein the entire arithmetic function including the generation of a sum and output carry signal occurs simultaneously in a two-level logic configuration of interconnected switches which are preferably metal oxide semiconductor field effect transistors. The two-level logic configuration permits shorter propagation time thereby enabling a high speed of operation. Additionally, the propagation of the output carry signal is increased by controlling the gating of the carry signal independently of the carry input. MOSFETS are preferably utilized because little or no quiescent current flow occurs therein realizing minimum power dissipation.

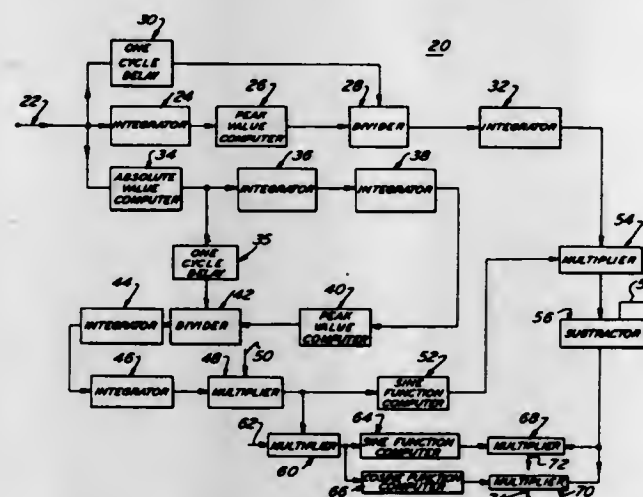
3,602,706

DATA-PROCESSING METHOD AND MEANS FOR CLASSIFYING SIGNALS IN A FIRST OR SECOND STATE
Joseph R. Levitt, Moorestown, N.J., assignor to Data Display Systems, Inc., New York, N.Y.

Filed Dec. 27, 1968, Ser. No. 787,335
Int. Cl. G06g 7/22; A61b 5/04

U.S. Cl. 235—193

12 Claims



A data-processing method and means in which sets of time-varying signals characterizing systems under consideration in a known first condition or state and systems in a known second condition or state which are not obviously distinguishable from the signals characterizing the first condition of state, are subjected to a plurality of nonlinear coordinate transformations which transform the signals into a transformed polar coordinate plane distinguishing the signals characterizing the system of the first condition or state from the signals characterizing the system in the second condition or state. In addition, using the selected transformations, first and second regions of the transformed plane are defined for characterizing transformed signals derived from systems in respectively unknown first and second conditions or states as being from systems respectively in said first and second conditions or states when contained respectively in said first and second regions.

3,602,707

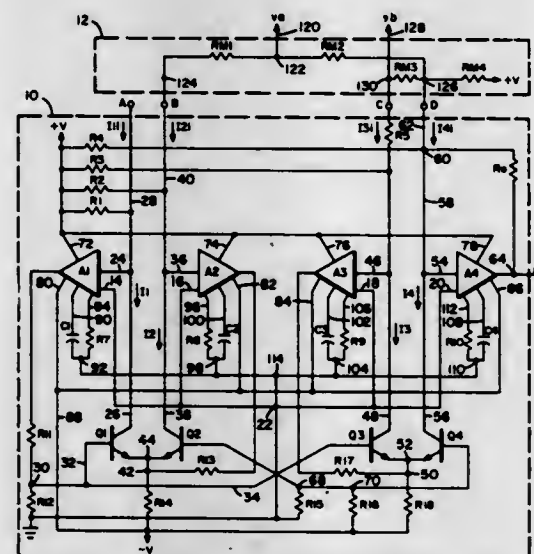
ANALOGUE MULTIPLIER-DIVIDER CIRCUIT INCLUDING A PAIR OF CROSS-COUPLED TRANSISTOR CIRCUITS

Howard E. Jones, 677-17th Ave. N.W., New Brighton, Minn.
Filed May 23, 1969, Ser. No. 827,218

Int. Cl. G06g 7/16

U.S. Cl. 235—195

5 Claims



A circuit capable of performing analogue multiplication or division is shown. The analogue multiplier/divider circuit has

balancing amplifiers respectively connected with transistor circuits, where the transistor circuits provide the nonlinear function necessary for analogue multiplier or divider functions.

3,602,708

LAMP SOCKET ASSEMBLY INCLUDING AN ILLUMINATED PANEL AND ELECTRICALLY CONDUCTING MOUNTING PANEL

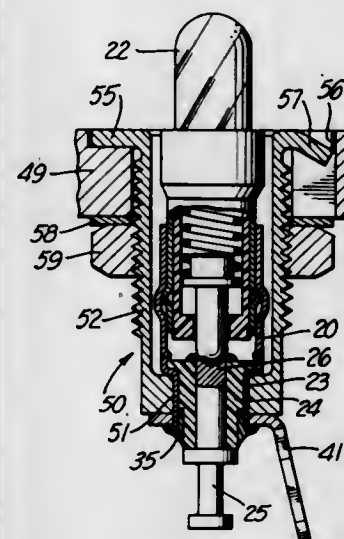
James N. Dupree, South El Monte, Calif., assignor to Dupree Manufacturing Company, South El Monte, Calif.

Division of Ser. No. 699,505, Jan. 22, 1968, Pat. No. 3,506,943
Filed Jan. 12, 1970, Ser. No. 2,266

Int. Cl. B60q 3/04

U.S. Cl. 240—8.16

3 Claims



A lamp socket having a center conductor pin fixed in the insulator and socket sleeve. An additional terminal in the socket assembly adjacent the center pin for tying the wire going to the pin. A socket assembly including an illuminated panel, color filter and heat sink. A method of forming a socket sleeve for bayonet base lamps.

3,602,709

MASS ANALYZER INCLUDING MAGNETIC FIELD CONTROL MEANS

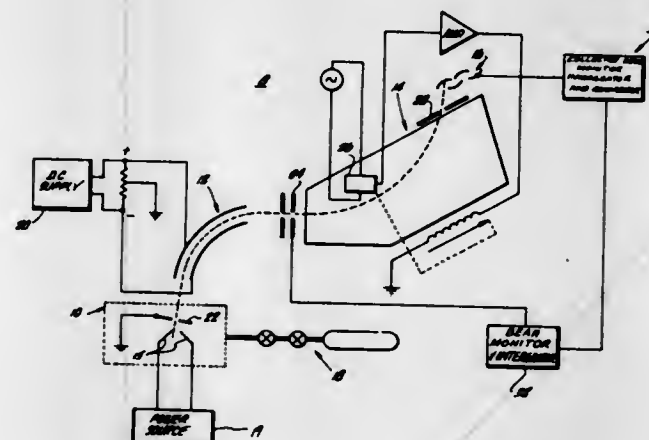
Charles W. Hull, Sierra Madre, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Mar. 14, 1968, Ser. No. 713,232

Int. Cl. H01j 39/34

U.S. Cl. 250—41.9 ME

17 Claims



An electronic mass analyzer. The analyzer comprises an electrical discharge source of charged particles, a peak selector system that controls the analyzer magnetic field and an electronic collecting system. Charged particle beams from the source are brought into register at an electronic collector

ATOM PROBE FIELD ION MICROSCOPE HAVING MEANS FOR SEPARATING THE IONS ACCORDING TO MASS

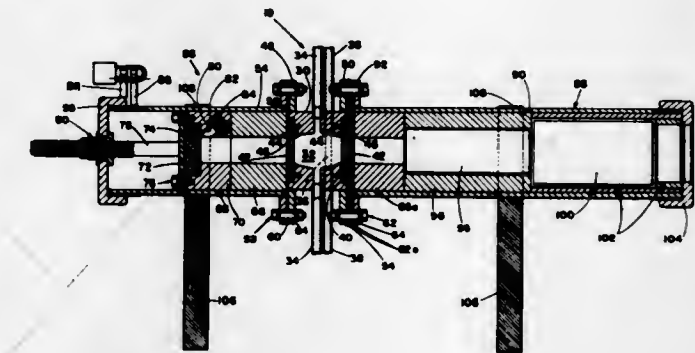
Erwin W. Mueller, University Park, assignor to Research Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 647,493, June 20, 1967, now abandoned. This application May 7, 1969, Ser. No. 822,362

Int. Cl. H01j 39/34

U.S. Cl. 250—41.9

8 Claims



determine the percent by weight content of sulfur in the hydrocarbon stream.

3,602,712

FLUID IRRADIATING APPARATUS USING GAMMA RAYS AND HELICAL PASSAGEWAYS

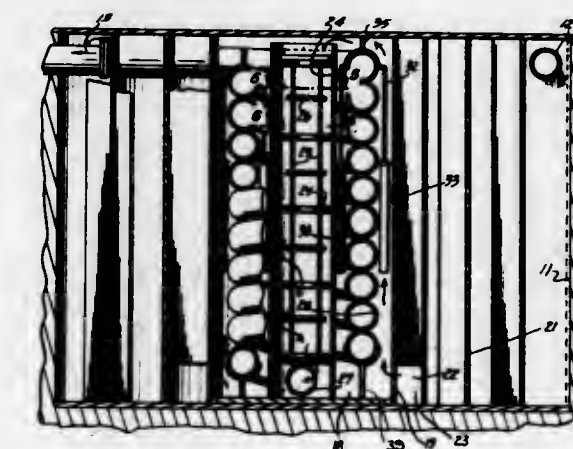
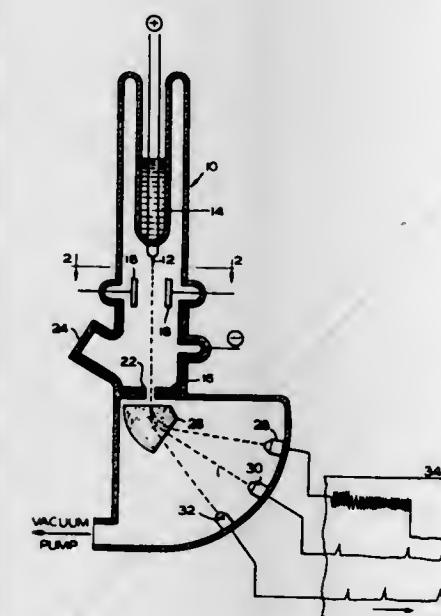
Leland A. Mann, and David D. Woodbridge, both of Brevard, Fla., assignors to Energy Systems, Inc., Melbourne, Fla.

Filed Feb. 17, 1969, Ser. No. 799,578

Int. Cl. G21h 5/00

U.S. Cl. 250—44

13 Claims



A field ion microscope capable of isolating and analyzing one or a few atoms of a specimen comprises a field ion microscope section including an emitter tip mounting the specimen to be examined, an apertured screen in the path of the beam of ions emitted by the specimen and means for adjusting the path traversed by the ion beam with respect to the aperture in the screen to cause a selected area of the beam to pass through the aperture and an ion detector positioned in the path of ions passing through the aperture. The path of the ion beam emitted by the specimen by the application of a high voltage may be altered by beam-deflecting means adjacent the beam path or by varying the angular disposition of the emitter tip with respect to the image screen, or the beam may be allowed to drift through a long tube and measured in its time-of-flight in each case using a detector of single particle sensitivity.

3,602,711

METHOD AND APPARATUS FOR DETERMINING SULFUR CONTENT IN HYDROCARBON STREAMS

Sudesh Kumar Arora, and Donald F. Rhodes, both of Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed June 19, 1968, Ser. No. 738,288

Int. Cl. G01n 23/12

U.S. Cl. 250—43.5

12 Claims

Method and apparatus to accurately determine the percent sulfur content in hydrocarbon process streams comprising the use of radioactive americium-241 and a molybdenum target in reflection mode to produce a narrow X-ray density

3,602,713

PASSIVE MOISTURE METER

Jacob Kastner, Downers Grove, Ill.; Billie G. Oltman, Worth, Ill., and Yehuda Feige, Rehovot, Israel

Filed July 8, 1970, Ser. No. 53,057

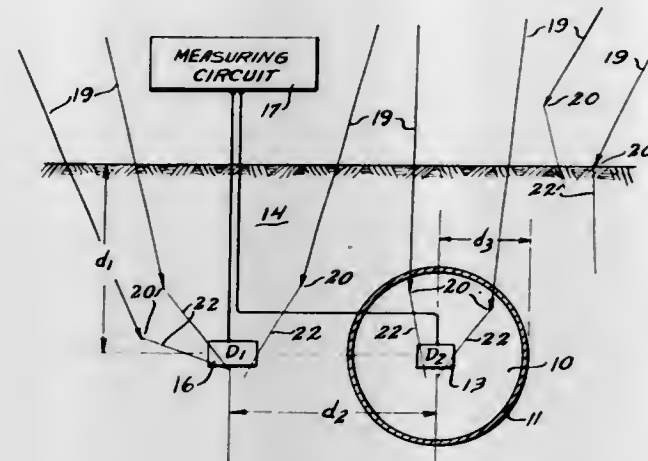
Int. Cl. G01t 3/00; G01n 23/00

U.S. Cl. 250—83.1

6 Claims

A passive moisture meter measures the number of thermal neutrons present in a material as a result of natural radiation, such as cosmic rays, to determine the moisture content of the

material. The thermal neutron flux in a control region of known moisture content is also measured to determine the



magnitude of the high-energy neutron flux developed by the natural radiation.

3,602,714 COOLING APPARATUS FOR AN INFRA-RED DETECTOR

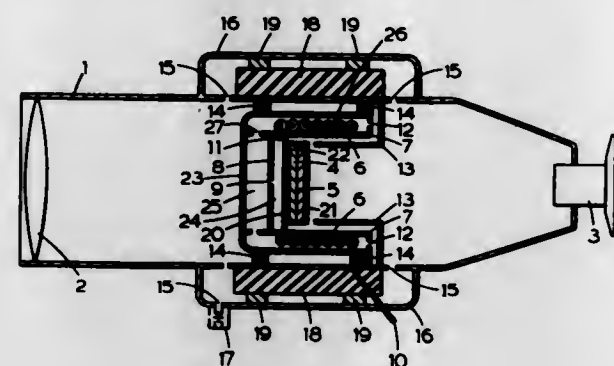
Victor Michael Farmer, Crowthorne; John Alfred Gurdler, Lightwater; John Francis Knight, Teddington, and Robert Nicholson Oswald, Hayes, all of England, assignors to Electric & Musical Industries Limited, Middlesex, England
Filed Oct. 4, 1967, Ser. No. 674,055

Claims priority, application Great Britain, Oct. 12, 1966, 45605/66

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3 H

11 Claims



The invention relates to infrared sensitive devices, such as infrared telescopes embodying a target, including photoelectrically sensitive material, for receiving infrared energy. The target is mounted on the outer surface of one of three spaced walls which form two cavities extending over the area of the target surface, the walls being transparent to infrared radiation so that such radiation can pass through them to the target. An inlet tube is provided having an orifice opening into an outer region of one of the cavities for emitting compressed gas into that cavity. The intermediate wall between the two cavities has a central aperture and the other cavity has an annular exhaust aperture, so that the gas emitted into the first cavity can pass through the aperture in the central area of the intermediate wall into the second cavity and disperses radially outward through the exhaust aperture, the ensuing expansion of the gas being effective to cool the target. Ducting is provided to lead the exhausted gas over the inlet tube to precool the gas before it is emitted from the orifice and also to guide the exhausted gas on to the target and the outer surface of a cavity wall to prevent misting thereof.

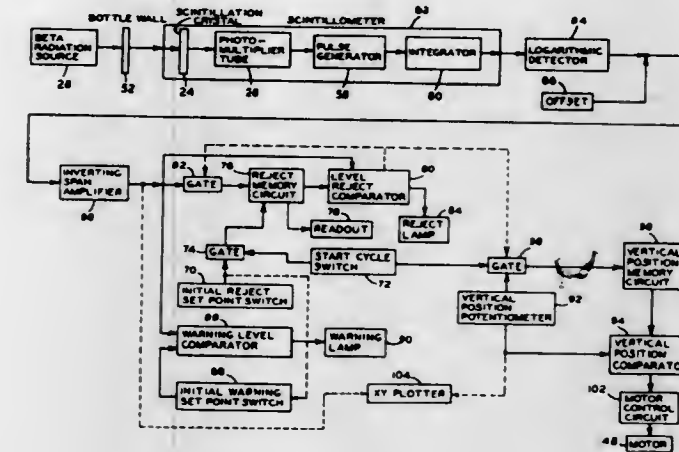
3,602,715 APPARATUS FOR MEASURING WALL THICKNESS OF HOLLOW ARTICLES UTILIZING RADIOACTIVE RADIATION ABSORPTION

David T. McDivitt, Lancaster, Pa., assignor to Kerr Glass Manufacturing Corporation, Los Angeles, Calif.
Filed Apr. 1, 1969, Ser. No. 811,969

Int. Cl. G01t 1/20

U.S. Cl. 250-83.3

4 Claims



An apparatus for measuring the wall thickness of hollow articles wherein a scintillometer, comprising a scintillation crystal, a photomultiplier tube, a pulse generator, and an integrator, detects the radiation transmitted through a hollow article wall and produces an analog voltage which in turn is used to give a direct readout of the measurement of an article wall thickness when the voltage reaches a predetermined value. The apparatus, utilizing the output voltage from the scintillometer, can also trigger a warning indicator at a predetermined level prior to the aforesaid predetermined level at which the wall thickness is measured, indicate the vertical position of the point at which the smallest wall thickness is measured, and plot the wall thickness of a hollow article being checked.

3,602,716 DEVICE FOR HIGH-SPEED CHROMATOGRAPHIC ANALYSIS OF GASES

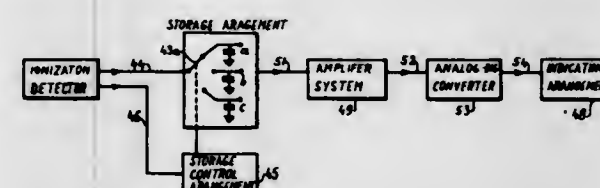
Stanislav Matousek, Prague; Zdenek Typl, Prague, and Josef Kovar, Klecany, all of Czechoslovakia, assignors to Chemoprojekt, Projektova, Inzenyrska A Konzultacni Organizace, Praha, Czechoslovakia

Continuation-in-part of application Ser. No. 501,842, Oct. 22, 1965. This application Nov. 14, 1968, Ser. No. 795,372

Int. Cl. H01j 39/34; G01t 1/15

U.S. Cl. 250-83.6

10 Claims



A high-speed chromatographic gas analysis apparatus with an evaluating system and an ionization detector. The substance to be analyzed becomes ionized within the detector, and the resulting ions are attracted to electrodes of the detector. The ions generate an ionic current in the electrodes, and this current is used to indicate the weight of the substance being analyzed. The electrode arrangement is such that two separate and independent ionic current circuits are formed. One current circuit is connected to a capacitor which becomes charged by the current flow. The other ionic current circuit is transmitted to a controlling arrangement which establishes the interval during which the capacitor is charged. Although the two current circuits are independent and separate from each other, the current flow through both circuits is substantially identical.

3,602,717 AUTOMATIC PHOTOELECTRIC SHUTTER CONTROL CIRCUIT FOR SINGLE LENS MIRROR REFLEX CAMERAS

Karl-Heinz Konig, Bonlanden, Germany, assignor to Zeiss Ikon Aktiengesellschaft, Stuttgart, Germany

Filed Feb. 26, 1969, Ser. No. 802,496

Claims priority, application Germany, Mar. 8, 1968, P 16 22 913.3

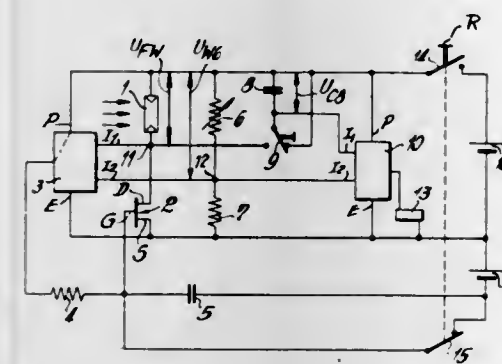
Int. Cl. E01c 7/10; H01j 39/12

U.S. Cl. 250-210

12 Claims U.S. Cl. 250-231

Int. Cl. G01d 5/34

5 Claims



The invention comprises an automatic photoelectric shutter control circuit for determining automatically the correct exposure for the film in a single lens mirror reflex camera. A self-balancing bridge circuit arranged in the camera has arranged in one branch a photoconductive cell and a semiconductor stage controlled according to its transmission characteristic, while the diagonal of the bridge contains an electronic switching device applying a voltage to a light value dependent RC member until the bridge is balanced. In this balanced condition a condenser is connected with the condenser of said RC member and the charging current of said first-named condenser corresponds to the exposure determining current flowing through said photoconductive cell and said semiconductor stage.

3,602,718 MEANS FOR MEASURING THE DURATION OF VERY SHORT LIGHT PULSES, SUCH AS LASER PULSES

Maurice B. Michon, Draveil, France, assignor to Compagnie Generale D'Electricite, Paris, France

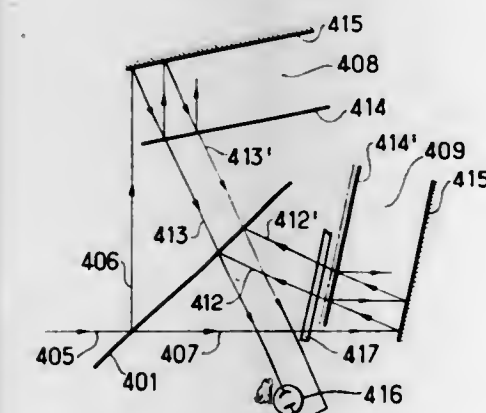
Filed June 2, 1969, Ser. No. 829,625

Claims priority, application France, May 31, 1968, 153634

Int. Cl. H01j 3/14

U.S. Cl. 250-216

13 Claims



Automatic device for measuring the duration of a very short light pulse, such as a laser pulse, by a correlation procedure from two "half pulses" including two lines; each provoking a different optical delay.

3,602,719 APPARATUS FOR MEASURING ANGULAR POSITION OF AN OBJECT RELATIVE TO A RADIATION BEAM

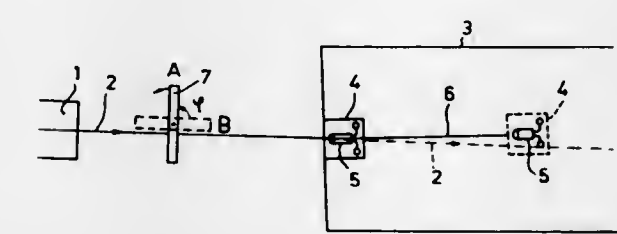
Bernardus Antonius Johannes Jacobs, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 26, 1969, Ser. No. 802,512

Claims priority, application Netherlands, Mar. 2, 1968, 6803013

Int. Cl. G01d 5/34

5 Claims



An arrangement for positioning an object relatively to a collimated beam of radiation is described. This positioning is effected by a rotating plane-parallel radiation-transmitting plate in the path of the radiation beam in a manner such that the axis of rotation is transverse to the radiation beam, the distance from the axis of rotation to the edge of the radiation beam exceeding one half of the thickness of the plate. The radiation detector may be rigidly secured to the object. Alternatively, a retrodirective mirror system may be rigidly secured to the object.

3,602,720 RADIO FREQUENCY INTERFERENCE FILTER FOR OPTICAL INSTRUMENTATION

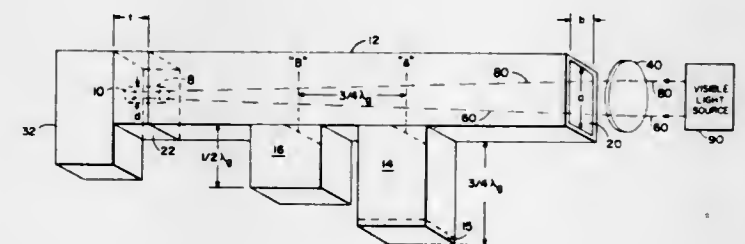
Jerry W. Hagood, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army

Filed Dec. 3, 1969, Ser. No. 881,804

Int. Cl. H01j 3/14

U.S. Cl. 250-237

1 Claim



A rectangular waveguide that filters out radio frequency interference but passes the visible spectrum therethrough to an electromagnetic detector is disclosed. The waveguide is chosen to cut off radio frequencies below a desired frequency lower than the visible spectrum. Radio frequencies above the desired frequency and below the visible spectrum are filtered out in the waveguide. Electromagnetic energy enters the waveguide. The other end has a detector behind a cylindrical opening. A conductive shield surrounds the cylindrical opening and the detector. The shield makes electrical contact with the sides of the waveguide. The length of the cylindrical opening is chosen dependent on whether any additional radio frequency attenuation is needed, and such that focused radiation of the visible spectrum will pass unimpeded through the opening to the detector. Radio frequency interference is trapped in branch arms of the waveguide by an arrangement of shorted and open waveguide sections that show a high impedance to chosen radio frequencies.

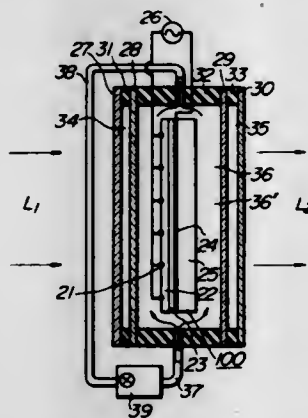
3,602,721
PHOTOELECTRIC DEVICE WITH ENHANCED
PHOTOCONDUCTIVE SENSITIVITY AND STORAGE
EFFECT OF INPUT RADIATION

Tadao Nakamura, Kawasaki-shi; Shigeaki Nakamura, Kawasaki-shi, and Tadao Kohashi, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 14, 1968, Ser. No. 775,658
 Claims priority, application Japan, Nov. 20, 1967, 42/75022,
 Int. Cl. H01j 7/26

U.S. Cl. 250-238

5 Claims



A photoelectric device having a photoconductor element consisting of cadmium selenide, cadmium sulfide or a solid solution of cadmium sulfide and cadmium selenide. In the device, the photoconductor element is submerged in silicone oil and cooled down to a low temperature so that it can respond to a radiation input with an improved photoconductive sensitivity.

3,602,722
DEVICE FOR AUTOMATIC CONTROL OF THE FIELD
CONTACTORS OF DIESEL-ELECTRIC AND GAS
TURBINE LOCOMOTIVES

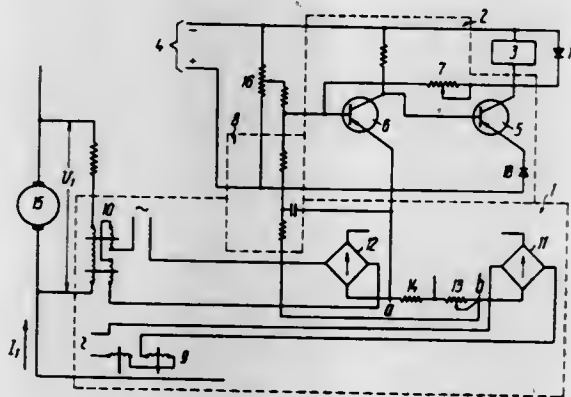
Boris Grigorievich Kamensetsky, Kolonikov pereulok, 24, kv. 38, and Andre Viktorovich Novikov, Bolshaya Chervozp-slaya ulitsa, 8, Korpus 2, kv. 73, both of Moscow, U.S.S.R.

Filed Aug. 9, 1968, Ser. No. 751,590

Int. Cl. B60l 11/06

U.S. Cl. 290-14

5 Claims

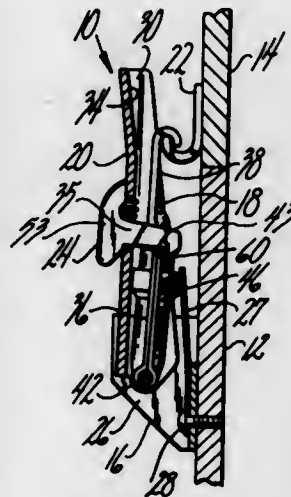


A device for the automatic control of the field contactors of diesel-electric and gas turbine locomotive traction motors comprises a signal-forming unit including a network of resistors, a direct current transformer and a direct voltage transformer, first rectifier means coupling said direct current transformer to one part of the network, second rectifier means coupling another part of the network to said direct voltage transformer, the output of the signal-forming unit being connected to a changeover noncontact relay that opens and closes the circuit of the field contact coil.

3,602,723
CATCH WITH ANTIRELEASE LATCH
 Gunnar E. Swanson, 409 Ridge Road, Middletown, Conn.
 Filed July 7, 1969, Ser. No. 839,329
 Int. Cl. E05c 5/00, 19/14

U.S. Cl. 292-113

24 Claims



A catch for releasably securing together two separable parts and having a connecting member, an operating member for moving the connecting member into and out of engagement with an associated strike, and a latch element carried by and extending through the operating member and latchingly engageable with another part of the catch. The latch element releasably retains the catch in a closed or active condition and is longitudinally and pivotally movable relative to the operating member to permit the catch to be moved to an open or inactive condition out of engagement with the strike.

3,602,724
OPTICAL NONLINEAR DEVICES
 Archibald W. Smith, Briarcliff Manor, N.Y., assignor to International Business Machines Corporation, New York, N.Y.

Filed Mar. 27, 1964, Ser. No. 355,194

Int. Cl. H02m 5/00

U.S. Cl. 307-88.3

5 Claims



A group of devices are set forth that individually employ a transparent nonlinear dielectric element, such as a piezoelectric crystal, in the cavity of a laser. The crystal serves to generate harmonics of the frequency generated by the laser. The light energy whose frequency is to be converted is retained in the laser cavity and the electric field within the cavity builds up to high values. The conversion efficiency is high because the harmonic electric field is proportional to the square of the fundamental electric field.

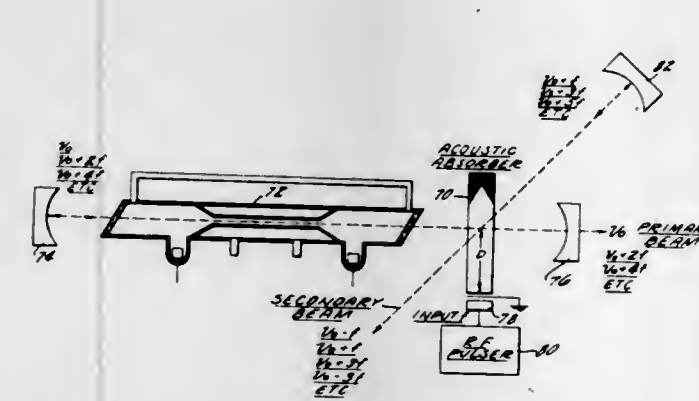
3,602,725
VARIABLE ACOUSTIC LASER DELAY LINE
 Anthony J. DeMaria, West Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
 Filed Nov. 12, 1969, Ser. No. 871,554
 Int. Cl. H03f 7/00

U.S. Cl. 307-88.3

6 Claims

1. A delay apparatus comprising means for generating a laser beam including a laser medium having a pair of end reflectors to form a feedback cavity, at least one of said reflectors being spaced from said laser medium, an acoustic transmitting medium positioned between said laser medium and said spaced reflector,

means responsive to an alternating input signal for generating an acoustic wave within said acoustic medium, said acoustic wave propagating within said acoustic medium and intersecting said laser feedback radiation whereby said laser radiation is diffracted and produces at least one frequency shifted component together with an undiffracted component, a reflecting mirror positioned in the path of one of said frequency shifted components for reflecting said frequency shifted component back through said acoustic medium to

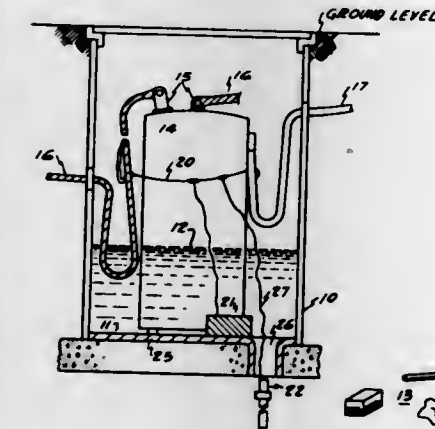


reintersect said acoustic wave where said frequency shifted component is further diffracted producing a further frequency shifted component which is inserted into said feedback cavity, and means for producing from at least one of said frequency-shifted components an output signal having a frequency which contains any desired odd or even integral multiple of said alternating input signal frequency.

3,602,726
ANODIC OR CATHODIC PROTECTION OF BELOW
GRADE ELECTRICAL HOUSINGS
 John A. Toedtman, St. Louis, Mo., assignor to International Telephone & Telegraph Corporation, New York, N.Y.
 Filed Apr. 1, 1969, Ser. No. 812,217
 Int. Cl. H01b 7/28

U.S. Cl. 307-95

8 Claims



The life of a sacrificial anode is extended by providing an insulating barrier in the bottom of an open-bottom housing. Since the barrier is an electrical insulator, it increases the resistance to any stray current path to the outside of the housing. Thus, the barrier significantly prolongs the life of the sacrificial anode by reducing wasteful or stray currents, to the outside of the housing, which tend to erode the anode.

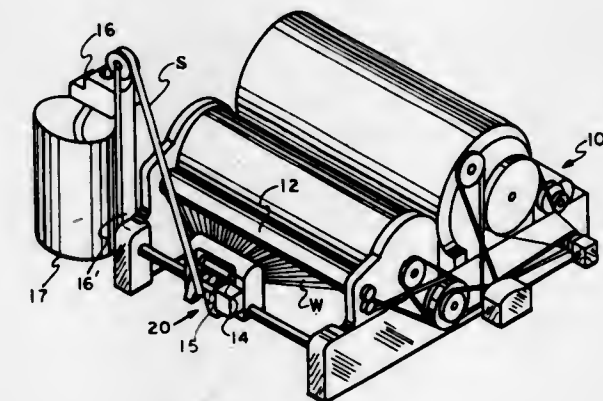
3,602,727
STOP MOTION SYSTEM FOR STRAND-HANDLING
MACHINE
 Clair W. Schwalm, Greenville, and Edwin A. Snape, III, Easley, both of S.C., assignors to Benjamin Booth Company, Philadelphia, Pa.

Filed Dec. 2, 1969, Ser. No. 881,563

Int. Cl. D01g 31/00; D04b 35/10

U.S. Cl. 307-116

24 Claims

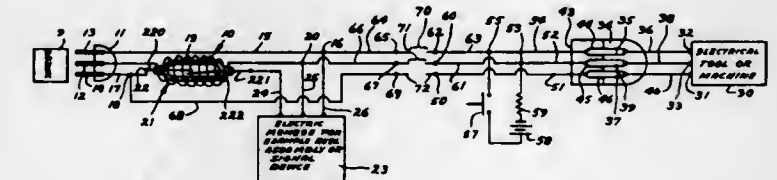


A stop motion for a strand-handling machine that includes a yoke which both guides the strand emerging from the machine and houses the stop motion system. Presence of a certain amount of strand in the yoke prevents excitation of the stop motion system. The yoke assumes the appearance of an inverted "U" and houses the stop motion system in one or both of the legs that depend downwardly from the top of the yoke. When too little or no strand passes through the yoke, the particular stop motion system being employed becomes excited and actuates the stop motion circuitry to shut down the machine or signal for corrective action. A strand monitor wheel is also provided in combination with the yoke to continuously monitor the strand being produced or handled by the machine and simultaneously to serve a stop motion function.

3,602,728
REMOTE CONTROL SWITCHING APPARATUS
 Virgil R. Carpenter, Roseville, Minn., assignor to Frank X. Dubay, Mound, Minn.
 Filed Sept. 29, 1969, Ser. No. 861,764
 Int. Cl. H01h 3/00

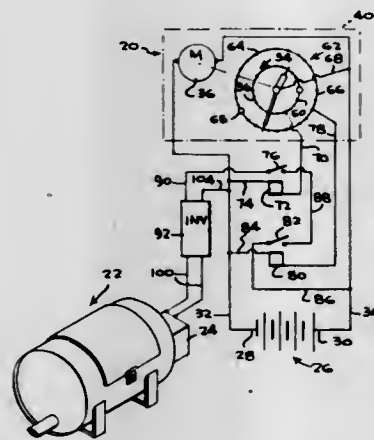
U.S. Cl. 307-140

14 Claims



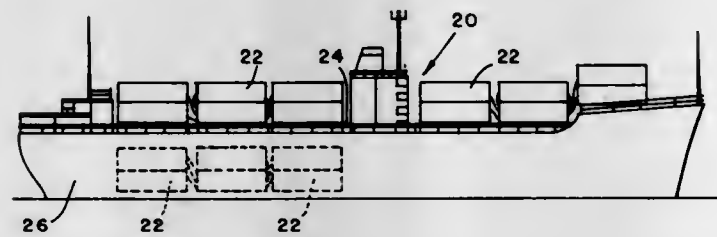
An electrically operated tool or machine that is connected by a pair of powerlines one of which is grounded, and a ground line to a first source of power, a switch and a second source of power connected to the grounded powerline and the ground line adjacent the tool or machine, a coil in the ground line adjacent the first source of power, a switch operated to a closed position by the energization of the coil to complete a circuit to energize through said powerlines, an electrically operated device which is adjacent the first power source. The coil is energized by completing a circuit from the second power source to the ground line. The device may be, for example, a signal light or power-operated reel. In a second embodiment there is provided a second coil and switch operated by energization of the coil to a closed position and the device has two electrical operated components or is for example a reversible motor.

3,602,729
AUTOMATIC CONTROL MEANS FOR FEEDER
 Leslie E. Gallup, Box 57, Morrisville, N.C.
 Filed Jan. 26, 1970, Ser. No. 5,689
 Int. Cl. H01h 7/00
 U.S. Cl. 307-141



An electrical circuit is provided for powering an alternating current motor of a conventional feed dispensing device or other devices with the circuit being operable for a selected short period of time under the control of an automotive type electrically wound clock having a first circular array of pin contacts engageable by a ribbon contact on the hour hand and a second circular array of pin contacts engageable by ribbon contacts on the minute hand with power to the alternating current motor being provided by an inverter operated at only those times when the hour hand and the minute hand pin contacts are simultaneously engaged so as to close the circuit to the inverter.

3,602,730
POWER SUPPLY BOX
 Charles R. Cushing, New York, N.Y., assignor to Sea-Land Service, Inc., Elizabeth, N.J.
 Continuation of application Ser. No. 757,024, Sept. 3, 1968, now abandoned. This application July 30, 1970, Ser. No. 64,118
 Int. Cl. H02j 7/00
 U.S. Cl. 307-150

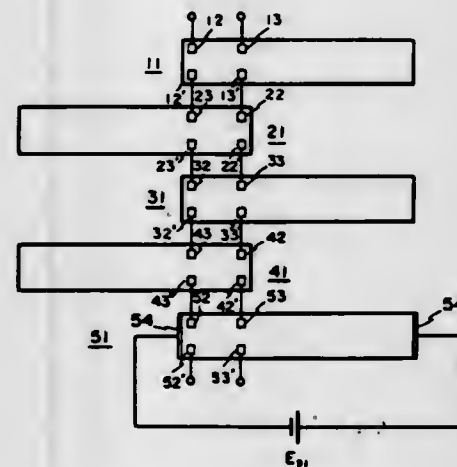


A containerized portable power supply for providing electrical service to a plurality of consistently sized and shaped cargo storage containers stowed in vertical tiers and horizontal rows within retaining structures on the ship deck and within the ship hold, the power supply including a housing conforming substantially to the shape and size of the cargo storage containers so that the power supply may be interchangeably positioned within the stowed containers, a motor-generator combination for generating electricity to serve the needs of the cargo storage containers stowed aboard ship, and a distribution system connecting the generating facilities with the cargo containers located at any number of locations remote from the power supply.

8 Claims

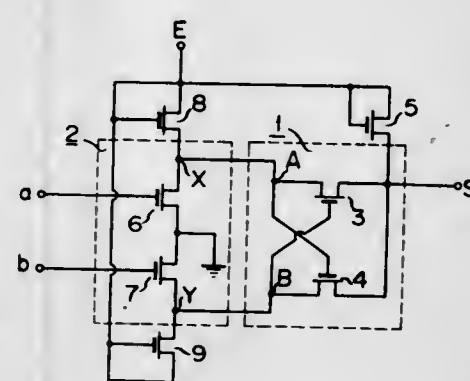
U.S. Cl. 307-201

3,602,731
ACTIVE TRANSMISSION LINE
 Hisayoshi Yanai, Tokyo; Fumio Hasegawa, Tokyo; Sugeta Takayuki, Tokyo, and Nobuo Suzuki, Urawa, all of, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan
 Filed Sept. 19, 1969, Ser. No. 859,357
 Claims priority, application Japan, Sept. 20, 1968, 43/68494
 Int. Cl. H01p 3/00
 U.S. Cl. 307-201



An active transmission line simulating the operation of a nerve cell comprising a plurality of semiconductor elements each having the bulk negative resistance effect. Each element has a pair of mutually independent input and output terminals, one input terminal of one element being connected to one output terminal of the subsequent element. A signal applied to the center of the line is propagated in both directions and a signal applied at either end of the line is propagated toward the other end of the line.

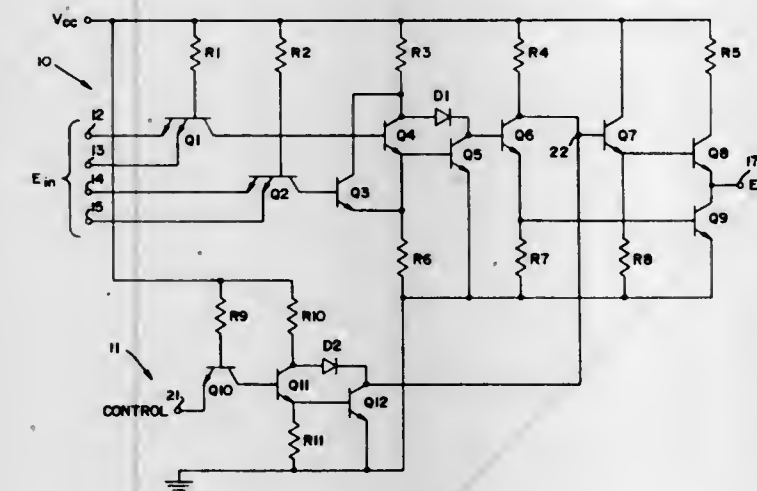
3,602,732
EXCLUSIVE AND/OR CIRCUIT DEVICE
 Yasoji Suzuki, Kawasaki-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
 Filed Aug. 18, 1969, Ser. No. 850,946
 Claims priority, application Japan, Aug. 20, 1968, 43/59052
 Int. Cl. H03k 19/08
 U.S. Cl. 307-205



An exclusive AND/OR circuit device comprising an exclusive AND/OR circuit element which is formed of a pair of first and second field-effect transistors having substantially the same properties; the source of one of said transistors being connected to the gate of the other; another pair of third and fourth field-effect transistors whose sources are grounded; the drains of the latter transistors being connected to the input terminal of said exclusive AND/OR circuit element and also to a power source through load elements respectively.

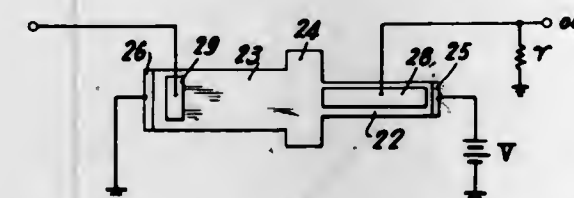
1 Claim

3,602,733
THREE OUTPUT LEVEL LOGIC CIRCUIT
 Edward M. Aoki, Cupertino, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.
 Filed Apr. 16, 1969, Ser. No. 816,662
 Int. Cl. H03k 19/08
 U.S. Cl. 307-209



A three-output level logic circuit in which in addition to zero and one binary logic levels a third off-logic level is provided in which the output impedance is relatively high to in effect isolate the switching circuit from a common line to which it is connected thereby allowing several switching circuits to be used in common without deleteriously affecting switching speed in an overall computer or calculator unit.

3,602,734
SEMICONDUCTOR DEVICE EMPLOYING GUNN EFFECT ELEMENTS
 Yasuo Matsukura, Kunichi Ohta, and Toshio Wada, all of Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan
 Filed Oct. 29, 1968, Ser. No. 771,427
 Claims priority, application Japan, Oct. 31, 1967, 42/70122
 Int. Cl. H03k 11/40, 19/34, 19/36
 U.S. Cl. 307-214

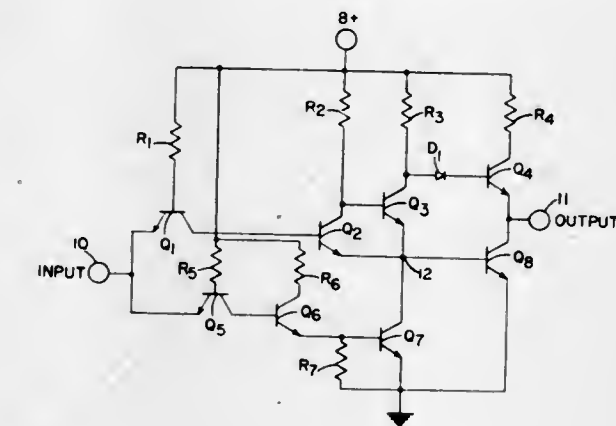


A inhibited NOT circuit is described utilizing the Gunn effect. The NOT circuit is formed by connecting several semiconductor regions of the bulk negative resistance effect type in series relationship with interconnecting regions having sufficient conductivity to naturally suppress the formation of high field domains therein. The sizes and shapes of the semiconductor regions are so selected that in response to a bias voltage applied to electric field biasing electrodes one of the regions supports continuous high field domain oscillations unless inhibited by the formation of a high field domain in another semiconductor region. Several NOT logic devices are shown and described such as the NOR, the NAND and the R junction.

3,602,735
PULSE SHAPING CIRCUIT FOR USE IN INTEGRATED CIRCUIT NETWORKS
 Robert J. Lodi, Tewksbury, Mass., assignor to Sylvania Electric Products Inc.
 Filed Oct. 1, 1969, Ser. No. 862,664
 Int. Cl. H03k 19/40, 19/34, 5/12
 U.S. Cl. 307-214

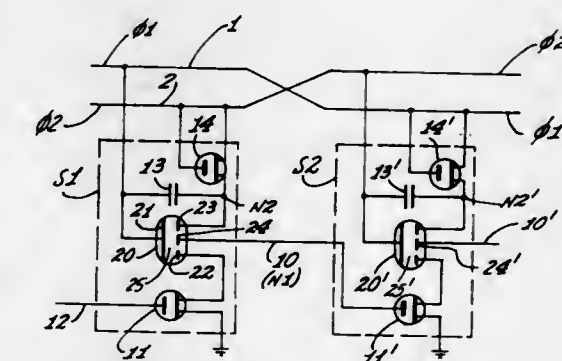
Pulse shaping circuit having fast rise and fall times. Two transistors are arranged with their emitters connected

together and the base of the second transistor connected to the collector of the first so that the second transistor is OFF when the first is ON and ON when the first is OFF. A third transistor has its collector connected to the juncture of the emitters of the first and second transistors and its emitter connected to ground. The base of an output transistor is connected to the juncture. When a positive-going input signal is



applied to an input terminal which is coupled to the bases of the first and third transistors through first and second input circuits, respectively, the first and third transistors are switched ON, thus rapidly turning the output transistor OFF. A negative-going input signal switches the first and third transistors OFF causing the second transistor to turn ON and switch the output transistor ON.

3,602,736
MOS RATIOLESS REGISTER STAGE
 Terry R. Walther, Sunnyvale, and Michael R. McCoy, San Jose, both of, Calif., assignors to Electronics Arrays, Inc., Mountain View, Calif.
 Filed Feb. 2, 1970, Ser. No. 7,769
 Int. Cl. G11c 19/00
 U.S. Cl. 307-221



An inverter for a two-inverter-register stage is disclosed using MOS field effect transistors of minimum size. The inverter has two regular transistors and a three main electrode field effect device, two electrodes thereof are respectively connected in series with the two transistors, and the entire arrangement is serially connected between one clock line of a two phase clocking system and ground. The gate of the three main electrode device is connected directly to the other clock line and capacitively to the three electrode device for feedback. The grounded regular transistor receives data signals, the third electrode of the three electrode device serves as inverter output and as input for the output-inverter of the same register stage or an input for the input inverter of the next stage for a shift register or of the same stage for a flip-flop.

5 Claims

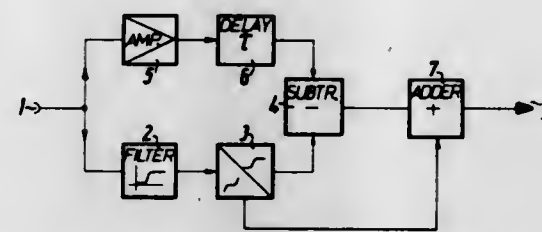
3,602,737
CIRCUIT ARRANGEMENT FOR REDUCTION OF HIGH-FREQUENCY NOISE DISTURBANCES IN WIDE BANDSIGNALS SUCH AS VIDEO SIGNALS

Helmut Radecke, Darmstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany
 Filed Feb. 18, 1970, Ser. No. 12,281
 Claims priority, application Germany, Feb. 19, 1969, P 19 08 147.4

U.S. Cl. 307—231

Int. Cl. H03k 5/20

4 Claims



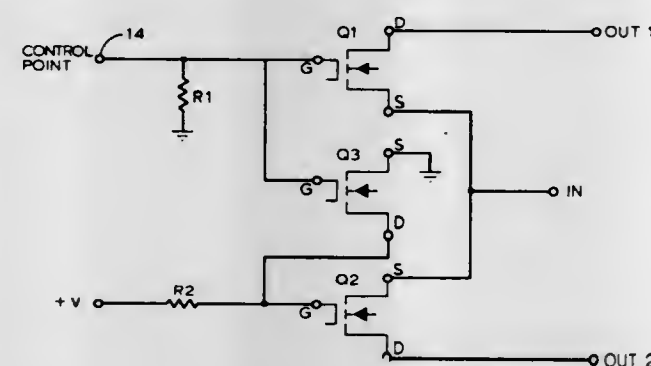
System for reducing noise in video signals by subtracting coherent noise modulation from useful signal. The high frequency component of the video signal is separated into parts above and below a given amplitude. The low-amplitude part corresponds to the noise level and is subtracted from the wide-band signal. The high-amplitude part is restored for compensation.

3,602,738
ELECTRONIC SWITCH
 John Bohm, Montreal, Quebec, Canada, assignor to Northern Electric Company, Limited, Montreal, Quebec, Canada
 Filed Apr. 24, 1969, Ser. No. 818,944

U.S. Cl. 307—251

Int. Cl. H03k 17/00

7 Claims



An electronic switch having three identical metal oxide semiconductor field effect transistors (MOS-FET's), to replace a mechanical relay. The sources of the first and second MOS-FET's are connected together as a common input, and their drains constitute first and second outputs. The gates of the first and third MOS-FET's are connected to a common control point. Normally the second MOS-FET is biased on and the first and third are off, connecting the input to the second output. Application of a voltage to the control point turns the first and third MOS-FET's on, and a circuit through the third MOS-FET shunts the bias voltage applied to the second MOS-FET, shutting the latter off. This disconnects the input from the second output and connects it instead to the first output. For additional outputs, the first and second MOS-FET's are each replaced by several MOS-FET's in parallel.

3,602,739
DIGITAL MAGNETIC RECORDING CIRCUIT
BIDIRECTIONAL LOAD SWITCHING HAVING HIGHER LOAD VOLTAGE AT TIME OF REVERSAL

Tamas I. Pattantyus, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Apr. 16, 1969, Ser. No. 816,501

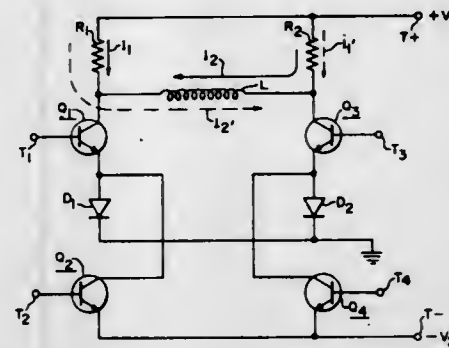
U.S. Cl. 307—254

Int. Cl. H03k 17/64, 17/66

4 Claims

A circuit is disclosed for reversing the current through an inductive element, such as a coil of a magnetic recording

head used for digital recording, wherein two pairs of translating devices, such as transistors, are utilized with the inductive element being connected between a first device of each pair so that current flows from a first operating voltage source in opposite directions through the inductive element depending



upon which device is conductive. The second device of the respective pairs is turned on when the current through the inductive element is to be reversed so as to connect a second operating voltage source to the inductive element and cause the rapid reversal of current therethrough.

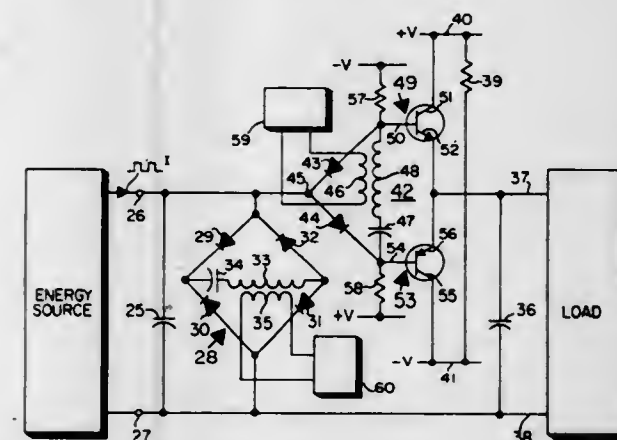
3,602,740
INFORMATION TRANSMISSION CIRCUIT
 Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company

Filed Feb. 10, 1969, Ser. No. 797,926

Int. Cl. H03k 17/00, 5/00

U.S. Cl. 307—257

17 Claims



A information transmission circuit for transforming periodic input signals having a duration indicative of the information to be transmitted into a relatively continuous output signal, the amplitude of which is cumulatively changed in accordance with the duration of the periodic signal. The input signals are applied to a first energy storage means or capacitor, and a first gate comprising a diode clamping circuit is connected across the capacitor. A second energy storage means or capacitor is included for developing the output signal, and a second gate comprising a diode clamping circuit is connected from this capacitor to the first gate and first capacitor. In accordance with an additional aspect of the invention, the second gate includes semiconductor switching means comprising first and second transistors for connecting an auxiliary voltage source to the second capacitor which transistors are controlled by the voltage on the first capacitor.

3,602,741
INTERFACE COUPLING CIRCUIT
 Elliott L. Ressler, Elkins Park, and Thomas F. Long, Warminster, both of Pa., assignors to The United States of America as represented by the Secretary of the Navy

Filed June 25, 1970, Ser. No. 49,796

Int. Cl. H03k 1/14

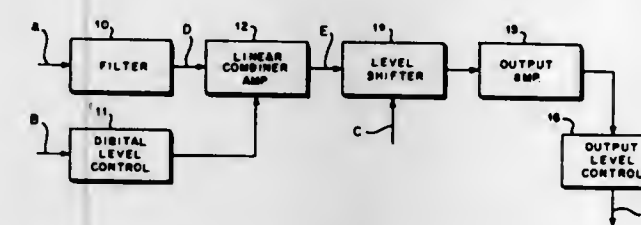
U.S. Cl. 307—264

8 Claims

A system for modifying a plurality of input signals and generating a single output is utilized in order to couple the

information received to an output system. The plurality of input signals are modified and applied to a pair of transistor amplifiers that have their collectors connected together and

delay interval and the other of which controls the width of the output pulse.



3,602,742
CIRCUIT FOR GENERATING A PULSE IN RESPONSE TO A RADIATION BURST

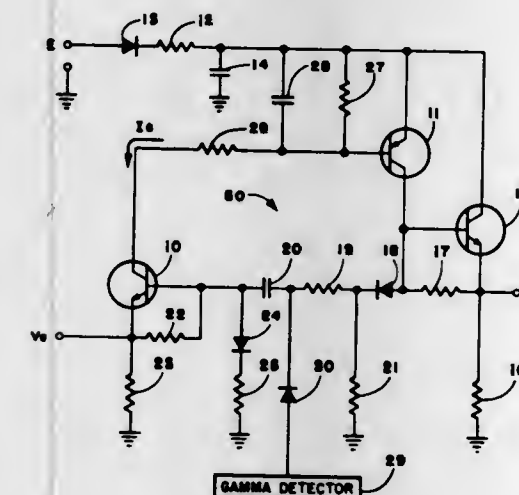
Ronald G. Husa, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed July 3, 1969, Ser. No. 838,948

Int. Cl. H03k 3/00

U.S. Cl. 307—278

8 Claims



A solid state circuit which generates an electrical output pulse upon application of an electrical impulse from a radiation burst detector or of the radiation burst itself and which utilizes a resistance-capacitance regeneration timing loop to activate a saturation holding circuit which causes a trigger circuit to continue conduction to sustain the output pulse from an output circuit for a predetermined time proportional to the resistance-capacitance time constant of the regeneration loop.

3,602,743
CIRCUIT FOR PRODUCING AN OUTPUT PULSE OF PREDETERMINED WIDTH AFTER A PREDETERMINED DELAY

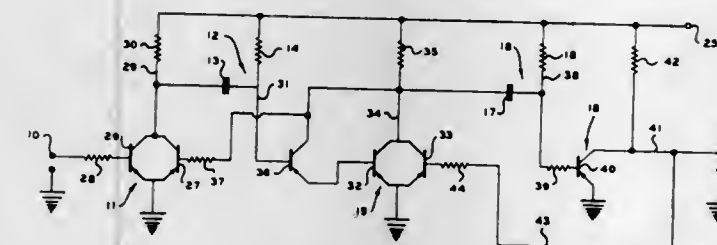
Earl L. De Shazo, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Apr. 9, 1969, Ser. No. 814,554

Int. Cl. H03k 17/28, 1/18

U.S. Cl. 307—293

3 Claims



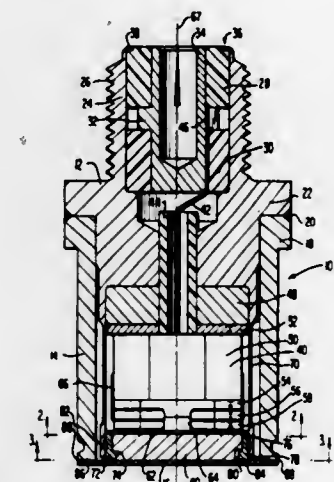
A pulse delay circuit has two gate circuits cooperating with two resistance-capacitance units, one of which controls the

3,602,744
WELDED PRESSURE TRANSDUCER
 Hans W. Hugli, Williamsville, N.Y., assignor to Kistler Instrument Corporation, Clarence, N.Y.
 Filed June 11, 1969, Ser. No. 832,086

U.S. Cl. 310—8.7

Int. Cl. H01v 7/00

18 Claims



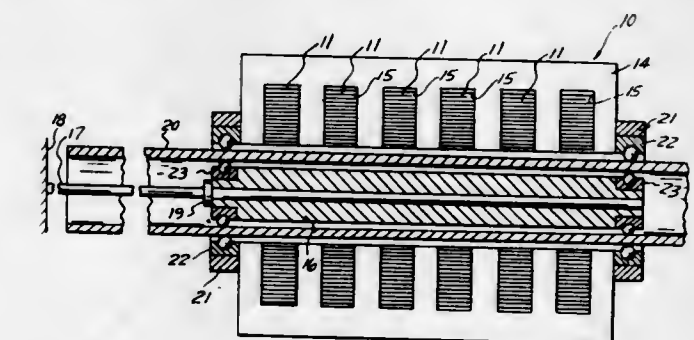
Disclosed is an improved quartz crystal pressure transducer of simplified and less expensive construction. A plurality of quartz wafers are retained in a preloading sleeve formed integral with the transducer base. An end piece formed of a ceramic or beryllium is surrounded by a stainless steel ring and welded to a stainless steel pressure diaphragm. The ring is also welded to the end of the preloading sleeve remote from the transducer base.

3,602,745
CONCENTRIC LINEAR INDUCTION MOTOR
 Murray W. Davis, 20501 Woodmont, Harper Woods, Mich.
 Filed Mar. 27, 1970, Ser. No. 23, 317

U.S. Cl. 310—13

Int. Cl. H02k 41/02

2 Claims



A linear induction motor formed of an elongated, stationary rotor core surrounded by stationary, concentric stator coils, with an elongated tubular rotor arranged between the coils and rotor core and surrounding the rotor core, for endwise axial movement upon energization of the coils. The coils may be formed of spaced-apart rolls of conductive tape arranged end to end in axial alignment and secured to a stator core.

3,602,746
MOTOR-GENERATOR WITH HOLLOW PLASTIC ROTOR ROTATING IN HIGH PRESSURE CHAMBER
 John C. St. Clair, Box 216 Rural Route 5, London, Ohio
 Filed Mar. 23, 1970, Ser. No. 21,990

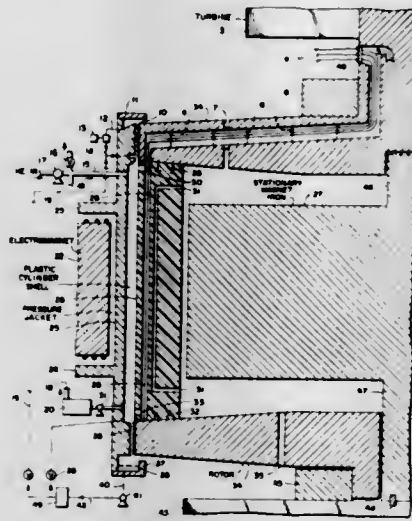
U.S. Cl. 310—55

Int. Cl. H02k 9/00, 1/04

1 Claim

In a turbine driven generator of three phase alternating current the field is stationary and the conductors are

mounted on a rotating cylindrical shell of hollow plastic. Outside the shell is kept helium maintained at 3000 pounds per square inch pressure and inside the plastic cylindrical shell is maintained at atmospheric pressure, the difference in pressures resisting the high centrifugal stresses on the plastic and permitting the conductors to have a velocity relative to the magnetic field of 50 percent to 100 percent greater than conventional design. The gas at 300 p.s.i. is picked up by scoops



on the rotor and is forced through tubes in the plastic where the conductors lie producing an unusually good cooling effect and permitting much higher current flow rates in the conductors than usual. Streamlining of the parts contacting gas at high velocities is very good where desired and the efficiency of the generator is very high. The above generator can be easily adapted to make a very efficient direct current motor or generator.

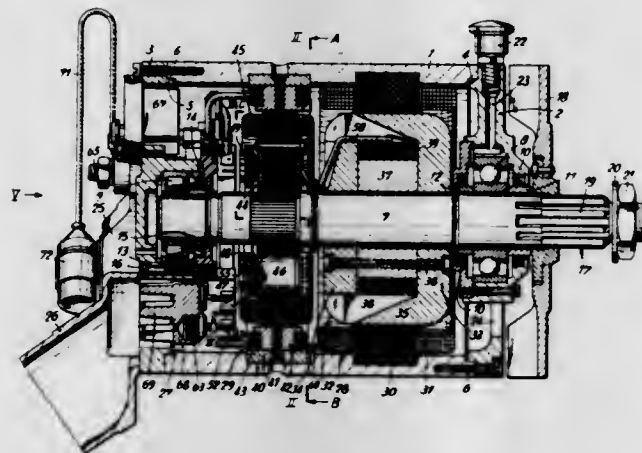
3,602,747 CURRENT GENERATOR WITH FRACTIONAL SLOT WINDING

Viktor Stroppa, Gerlingen, and Kurt Zimmerman, Boblingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Dec. 12, 1969, Ser. No. 884,637
Claims priority, application Germany, Dec. 13, 1968, P 18 14 387.8

Int. Cl. H02k 3/28
U.S. Cl. 310—68 D

6 Claims



A current generator in which rectifying diodes are provided in the stator for rectifying the output current of the generator. The rotor carries an excitation winding and further rectifying diodes which energize the excitation winding from an auxiliary machine rotating with the rotor. An alternating current winding constructed in the form of fractional slot winding is carried by the auxiliary machine and is influenced by a direct current stator winding. A voltage regulator connected to the output of the generator supplied current to the stator winding.

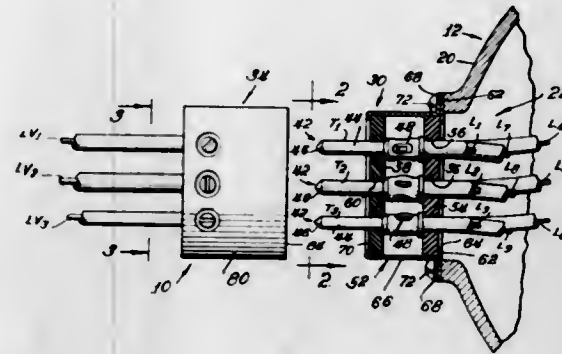
3,602,748 DOUBLE-VOLTAGE MOTOR CONNECTING DEVICE

Gilbert I. Locke, 1425 Elgin Avenue, Forest Park, Ill.

Filed Mar. 18, 1969, Ser. No. 808,255
Int. Cl. H02k 1/100

U.S. Cl. 310—71

6 Claims



Each terminal of a receptacle is adapted to be electrically connected to a specified one of the external leads of a three-phase double-voltage motor. The receptacle is adapted to be mounted to the housing of the motor. Respective low voltage and high-voltage jumper caps are adapted to be removably and interchangeably mounted to the receptacle. The low voltage jumper cap is used to make the necessary electrical connection in the external circuitry of the motor for operation of the motor under power supplied by a three-phase low voltage power supply. The high-voltage jumper cap is used to make the necessary electrical connections in the external circuitry of the motor for operation of the motor under power supplied by a three-phase high-voltage power supply.

3,602,749 DYNAMOELECTRIC MACHINE

Ernie B. Esters, 1456 Burlingame, Detroit, Mich.

Filed Feb. 20, 1970, Ser. No. 12,963
Int. Cl. H02k 21/28

U.S. Cl. 310—154

10 Claims



A dynamoelectric machine capable of operating in a motor mode or in a generator mode and having coaxial inner and outer stators and a pair of end stators with each stator being provided preferably with magnetic flux producing permanent magnets. The rotor is disposed in the magnetic gap between the inner and outer stators and the end stators and comprises a plurality of radially disposed coils, wound magnetic cores and intermediary coilless magnetic cores disposed between consecutive coil wound cores.

3,602,750 MONITORING WHEEL OF GEAR-LIKE CONSTRUCTION

George Wesley Boyer, Covina, Calif., assignor to Leach Corporation, South Pasadena, Calif.

Filed Aug. 1, 1969, Ser. No. 846,744

Int. Cl. H02k 19/24

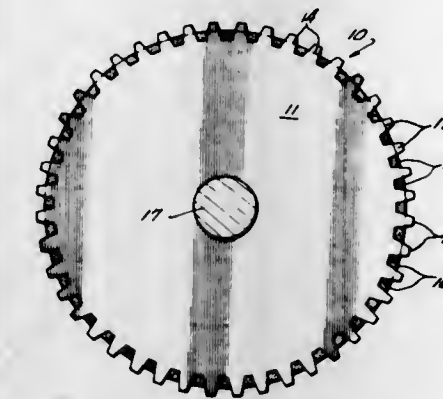
U.S. Cl. 310—168

6 Claims

A monitoring wheel is disclosed for monitoring the movement of a rotary device. The monitoring wheel utilizes a

commercially available nonmagnetic precision gear having a mixture of metallic material and a bonding agent compacted within the space between the gear teeth. The mixture within

of the electrons emitted from the filament. The diameter of the conductor is sufficiently larger than the diameter of the



the gear is then machined to approximately the pitch line to enable a plurality of evenly spaced pulse indicators to be formed about the periphery of the gear.

3,602,751 TRANSPPOSED CONDUCTOR FOR DYNAMOELECTRIC MACHINES

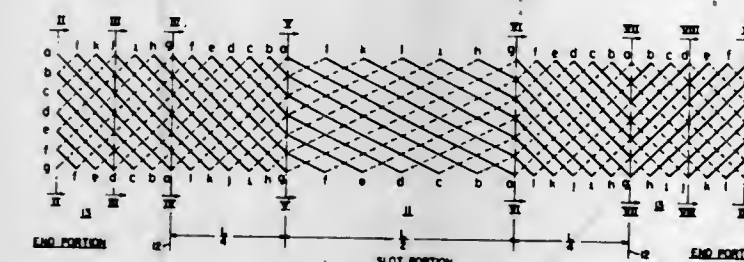
William C. Brenner, 81 Chapel Ridge, Pittsburgh, Pa., and John A. Tegopoulos, 8 Iliados St., Athens, 608, Greece, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 16, 1970, Ser. No. 19,655

Int. Cl. H02k 3/14

U.S. Cl. 310—102

7 Claims



A transposed stranded conductor bar for dynamoelectric machines in which the conductor is completely transposed in a theoretically perfect manner to cancel out all induced strand voltages and to eliminate any circulating currents between strands. This is done by transposing the strands through 540° in the slot portion of the conductor and through 180° in both end portions of the conductor but with the transposition in opposite senses in the two end portions so that at any axial position in one end portion the strands are completely inverted in relative position with respect to the strands in the corresponding axial position in the other end portion.

3,602,752 CATHODE STRUCTURE WITH MAGNETIC FIELD PRODUCING MEANS

William H. Shriner, Blanchester, Ohio, assignor to The Bendix Corporation

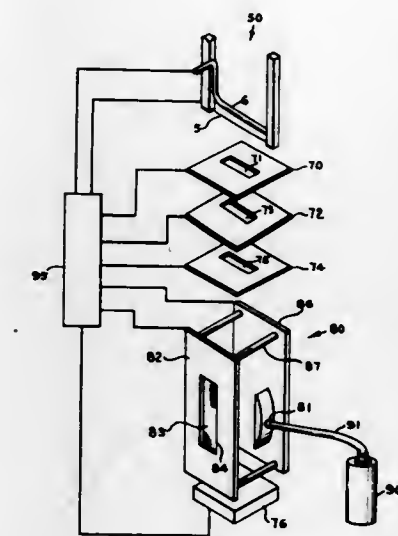
Filed Sept. 8, 1969, Ser. No. 855,888

Int. Cl. H01j 3/32

U.S. Cl. 313—63

7 Claims

A cathode assembly and an electrical circuit that includes a conductor physically parallel to and electrically in series with a filament so that when the circuit is energized the magnetic fields produced by the current flowing in the filament and the conductor oppose each other, thereby decreasing the dispersing effect of the filament magnetic field on a portion



filament so that only the filament emits electrons when the circuit is energized.

3,602,753 CATHODE RAY TUBE SCREEN COMPRISING A SINGLE PHOSPHOR SYSTEM

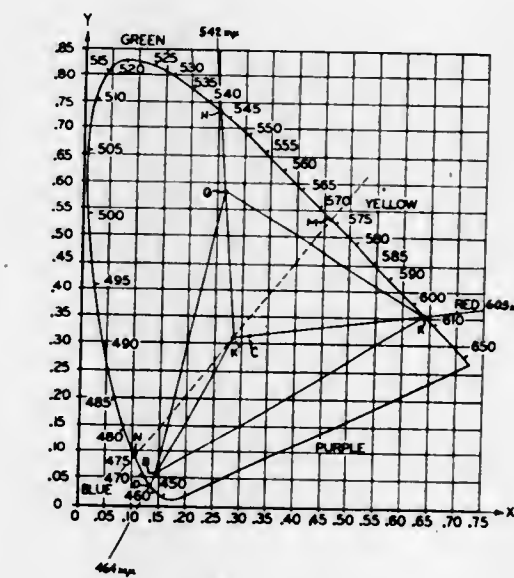
Lyle W. Evans, Seneca Falls, N.Y.; Sixdeniel Faria, Townada, Pa.; Walter W. Slobbe, Seneca Falls, N.Y., and Lyle K. Williams, Wysox, Pa., assignors to Sylvania Electric Products, Inc.

Filed Feb. 2, 1970, Ser. No. 7,622

Int. Cl. C09k 1/12; H01j 1/63, 29/20

U.S. Cl. 313—92 PH

9 Claims



A cathode-ray tube screen is formed of a single phosphor system capable of being formulated to exhibit an electron excited luminescence of desired hue falling within the visible spectrum. The single phosphor system embodies a four component composition wherein the host matrix comprises a two component mixture of zinc sulfide and cadmium sulfide activated with a two component mixture in the form of silver and aluminum. This four component system exhibits improved brightness and minimum color shift with increased current density.

3,602,754 CAPILLARY TUBE GAS DISCHARGE DISPLAY PANELS AND DEVICES

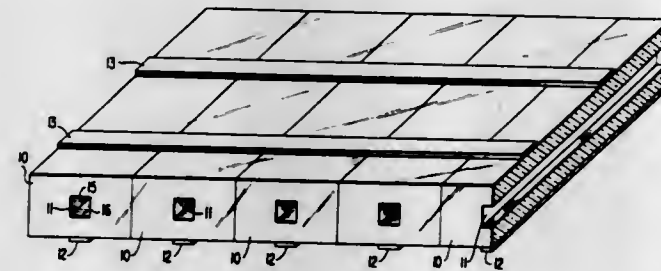
Lawrence V. Pfaender, Toledo; Wolfgang W. Bode, Sylvania; Glenn H. Dunlap, Maumee; Anthony M. Kobylak, Rossford, and Raymond S. Richards, Toledo, all of, Ohio, assignors to Owens-Illinois, Inc.

Filed Apr. 28, 1969, Ser. No. 819,641

Int. Cl. H01j 1/102, 65/04

U.S. Cl. 313-108 B

11 Claims



There is disclosed a multiple discharge gas display/memory panel of the type in which filamentary or capillary size gas tubes or gas continuums are assembled and formed as a monolayer to form the gas discharge panel.

3,602,755 U-SHAPED FLUORESCENT LAMP WITH IMPROVED ENVELOPE-BRACING MEANS

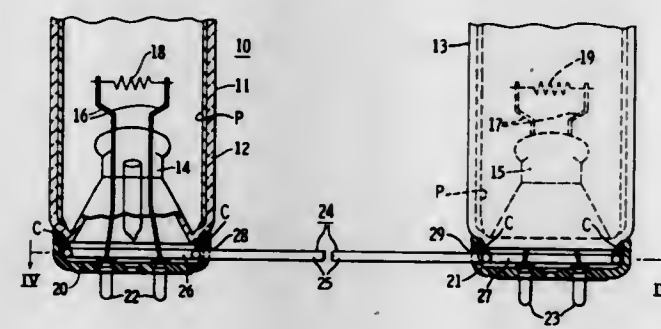
Frederick W. Hoeh, Livingston, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 21, 1970, Ser. No. 4,482

Int. Cl. H05b 33/02

U.S. Cl. 313-109

6 Claims



The leg portions of a U-shaped fluorescent lamp are joined together and reinforced by a rigid wire harness that extends into and is interlocked with the base members secured to the ends of the envelope. The harness passes through openings in the base collars and has arcuate end segments that are seated within the base cavities and are held in such position by the base collars and the basing cement. Flexing of the envelope legs and the potential risk of lamp breakage during handling and installation of the lamp in its fixture are thus eliminated.

3,602,756 GAS IONIZATION DISPLAY DEVICE

Robert E. Bonnet, Murray Hill, N.J., assignor to Engelhard Minerals & Chemicals Company

Filed Dec. 22, 1969, Ser. No. 886,966

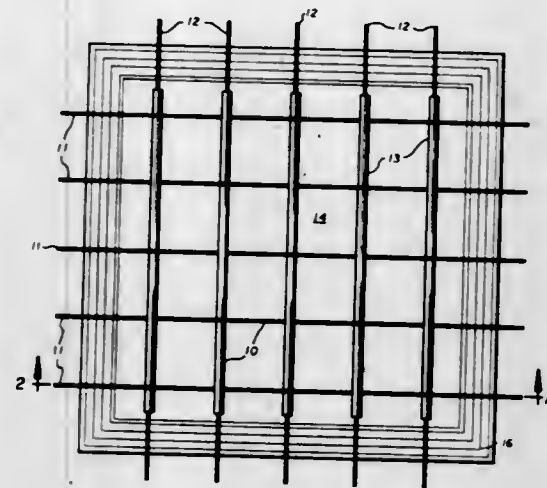
Int. Cl. H01j 61/64

U.S. Cl. 313-109.5

6 Claims

A gas ionization display device is provided which comprises a woven wire mesh having noncontacting intersecting wires in hermetically sealed dielectric panels. An inert ionizable gas is encapsulated between the hermetically sealed

panels. The device is made by sandwiching the woven wire mesh between two glass panels, with the wires extending



beyond the edges of the panels, and sealing the panels, in an atmosphere of an ionizing gas, e.g. neon or argon.

3,602,757 MULTIPLE-LUMINESCENT LAYER IMPROVED LUMEN MAINTENANCE COMBINATION

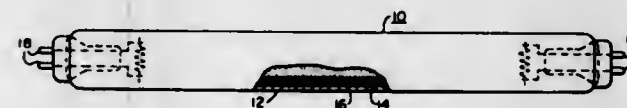
Anselm Wachtel, Parlin, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 20, 1969, Ser. No. 835,006

Int. Cl. H01j 61/44

U.S. Cl. 313-109

6 Claims



A luminescent discharge lamp combination in which a plurality of distinct layers of different luminescent materials is provided. A layer of very high lumen maintenance material is disposed to be first impinged by the exciting ultraviolet radiations. This high maintenance layer is uniformly coated onto a layer of predetermined luminescent material which has a less favorable maintenance characteristic. The high maintenance layer serves to screen out the more damaging shorter wavelength radiation from the proper maintenance material.

3,602,758 PHOSPHOR BLEND LAMPS WHICH REDUCE THE PROPORTIONS OF THE COSTLIER PHOSPHORS

William A. Thornton, Cranford, and Joseph W. Sausville, Glen Rock, both of, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 20, 1969, Ser. No. 835,076

Int. Cl. H01j 61/44

U.S. Cl. 313-109

7 Claims



An improved luminescent combination wherein the emissions of distinct luminescent materials are blended to provide a predetermined spectral energy distribution for the combination. When one of the blend constituents is particularly expensive, the requisite amount of this material can be substantially reduced by providing a plurality of luminescent layers with the expensive material being disposed as the layer nearest the source of ultraviolet radiations. This increases the absorption of ultraviolet radiations by this expensive material and its corresponding emission. The desired spectral energy

distribution for the combination can be provided with substantially less of the most expensive luminescent material.

3,602,759 ELECTRIC LAMP WITH PROTECTIVE ENCLOSURE HAVING SHRUNK PLASTIC RETAINING MEANS

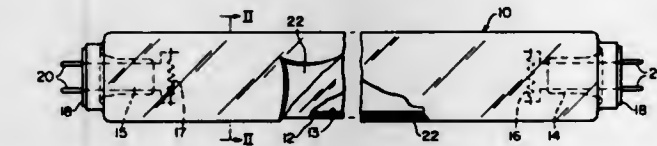
George S. Evans, Caldwell, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 12, 1966, Ser. No. 586,115

Int. Cl. G02b 5/20; H01j 5/16, 61/40; H01k 1/26

U.S. Cl. 313-112

16 Claims



The fragile glass envelope of a fluorescent lamp or similar device is enclosed in a tight-fitting sleeve of shrunk light-transmitting plastic to provide a shatter-proof and explosion-proof lamp. Various fluorescent lamp embodiments wherein the shrunk plastic sleeve is also utilized as a filter, a light-polarizing component, a radiation-converting medium, and as a means for encasing an exterior starting aid or reflector are also disclosed. In another embodiment the enclosure comprises a loose-fitting plastic jacket having shrunk ends, or a separate light-transmitting plastic jacket that is held in place on the lamp by a pair of overlapping shrunk plastic sleeves, so that the jacket serves both as a protective member and as a thermal insulating enclosure that permits the lamp to be used in outdoor lighting applications.

3,602,760 SINTERED COAXIAL PLASMA GUN

Gerard Verschoore, Cretell, France, assignor to U.S. Phillips Corporation, New York, N.Y.

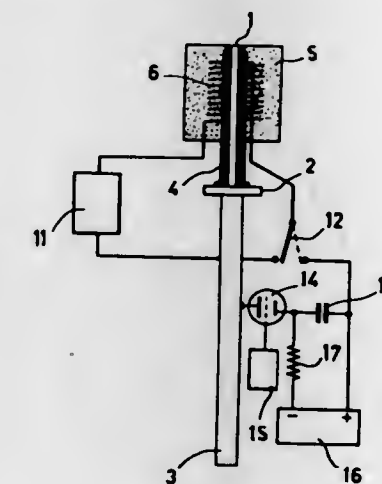
Filed Aug. 20, 1968, Ser. No. 753,990

Claims priority, application France, Aug. 22, 1967, 118566

Int. Cl. H01j 17/26

U.S. Cl. 313-179

8 Claims



A plasma gun comprising a rod-shaped inner electrode and a tubular insulator coaxially surrounding it. A second electrode block encloses a portion of the insulator tube. The second electrode comprises a sintered metal having a gas absorbed therein which is releasable to form a plasma. The two electrodes and the tube are arranged to form a flat surface across which an arc can be established between the electrodes in the plasma.

3,602,761 EXPLOSION PROOF QUARTZ-HALOGEN LAMP

Stephen F. Kimball, Beverly, and Robert P. Bonazoli, Hamilton, both of, Mass., assignors to Sylvania Electric Products Inc.

Filed June 30, 1969, Ser. No. 837,495

Int. Cl. H01k 1/38

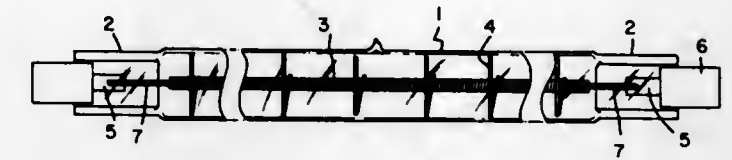
U.S. Cl. 313-222

2 Claims

A quartz-halogen lamp has a coiled filament connected to a ribbon connector by a tungsten conductor, the ribbon con-

ductor being embedded within a press seal of the lamp envelope.

The diameter of the conductor is at least about three times



the diameter of the filament wire in order to prevent lamp explosions resulting from high amperage arcs that may occur at the time of filament failure.

3,602,762 LIGHTNING ARRESTER

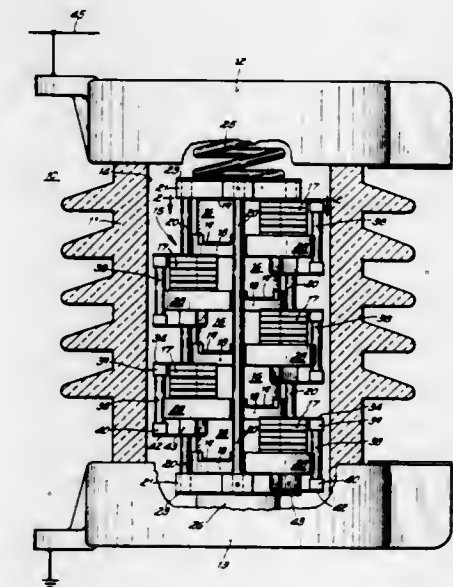
Stanley S. Kershaw, Jr., Milwaukee, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis.

Continuation of application Ser. No. 660,658, Aug. 15, 1967, now abandoned. This application Apr. 27, 1970, Ser. No. 31,817

Int. Cl. H01j 1/88, 1/92

U.S. Cl. 313-238

10 Claims



A high voltage lightning arrester including a hollow insulating housing, a plurality of nonlinear resistance elements and insulating means alternately arranged in a main column for carrying a compressive load thereon, and a plurality of spark gap assemblies mounted on the insulating means adjacent the main column, alternate ones of the insulating means extended in general parallelism and at an angle relative to the remainder thereof so that the spark gap assemblies are non-loaded and arranged in two auxiliary columns adjacent the main column with successive assemblies disposed in different ones of the auxiliary columns.

3,602,763 CATHODE FOR DUOPLASMATRON-TYPE ION SOURCE

Robert R. Hall, Concord, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 28, 1969, Ser. No. 871,889

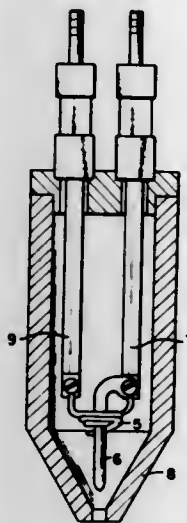
Int. Cl. H01j 1/52

U.S. Cl. 313-309

3 Claims

A central spike cathode is added to and is axially positioned through the conventional spiral filament-type cathode of a duo-plasmatron-type ion source such that the current output and cathode lifetime thereof are substantially increased. The added spike cathode is so positioned that it is the closest item to the intermediate electrode of the ion

source. Further increase in operating performance can be obtained when a cylindrical shield is utilized to surround the



cathode assembly. The spiral filament may be turned off after initiating the arc of the ion source.

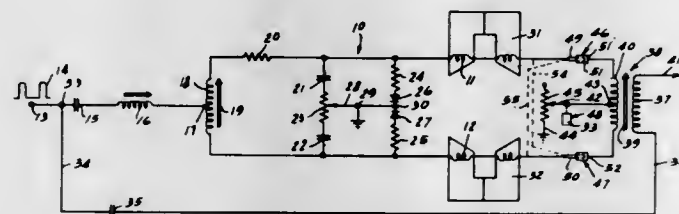
3,602,764

HORIZONTAL CONVERGENCE CIRCUIT
Lawrence R. Poel, Elmhurst, Ill., assignor to Admiral Corporation, Chicago, Ill.

Filed Aug. 5, 1969, Ser. No. 847,688
Int. Cl. H01j 29/50

U.S. Cl. 315-13 C

7 Claims



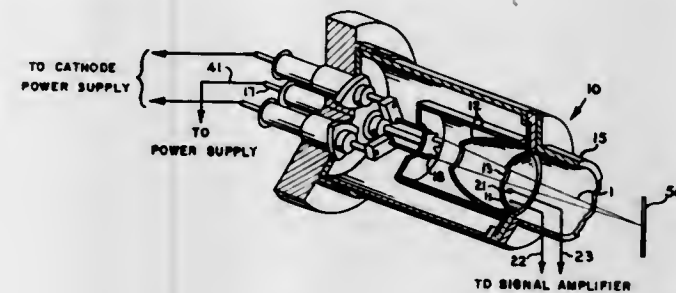
A horizontal convergence circuit having a pair of convergence coils coupled in series with the secondary of a transformer. Means are provided to apply a voltage pulse waveform at the horizontal repetition rate to the transformer and thereby develop a sawtooth current in the respective convergence coils. Means are also provided to apply a sawtooth voltage across the coil which when integrated in the coil develops parabolic currents. The combination of the parabolic currents and sawtooth currents provides the necessary magnetic field to converge the associated electron beams in a cathode ray tube. The secondary winding of the transformer which is used to supply the pulse voltage to the convergence coils has readily releasable connectors for coupling opposite leads of the secondary winding to the respective convergence coils. Pins are provided on the leads of the coils and these pins are received within the connectors. By reversing the points of coupling of the pins in the respective connectors, the direction of sawtooth current in the two convergence coils can be reversed. In this way, convergence is made possible in circumstances where the normal sawtooth amplitude adjustment devices could not accomplish convergence. The secondary winding of the transformer has a center tap which is coupled through a potentiometer to circuit ground. The center tap also has a connector which may receive either one of the pins associated with the leads of the respective convergence coils. In this way, the sawtooth level in either one of the coils may be substantially reduced to zero without affecting the level of sawtooth current in the other coil. As in the case of reversing the direction of current, this greatly extends the range of adjustment for the sawtooth current.

3,602,765
DEVICE FOR PROTECTION OF THE ANODE OF POWER ELECTRON BEAM GUN

Robert C. Rath, and Frieder H. Ensslin, both of Rochester, N.Y., assignors to The Bendix Corporation
Filed Sept. 2, 1969, Ser. No. 854,548
Int. Cl. H01j 29/56

U.S. Cl. 315-31

9 Claims



A method and apparatus for minimizing electron impingement of an anode in an electron beam gun by measuring the operating temperature of the anode and automatically adjusting the focusing electrode potential as a function of the anode temperature to reduce electron impingement of the anode.

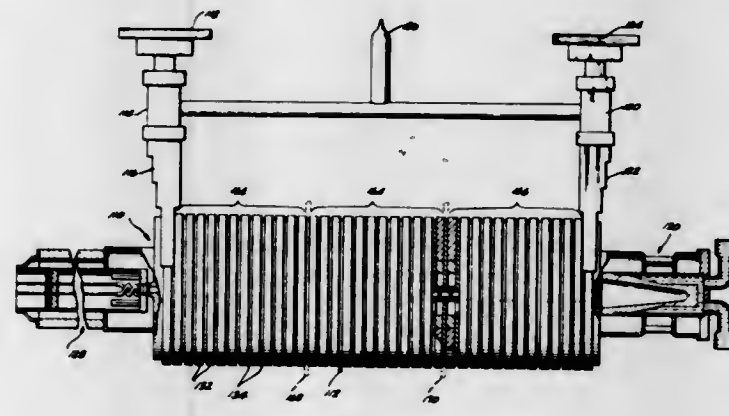
3,602,766

TRAVELING-WAVE TUBE HAVING AUXILIARY RESONANT CAVITIES CONTAINING LOSSY BODIES WHICH PROTRUDE INTO THE SLOW-WAVE STRUCTURE INTERACTION CELLS TO PROVIDE COMBINED FREQUENCY SENSITIVE AND DIRECTIONALLY SENSITIVE ATTENUATION
Jeffrey E. Grant, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 12, 1969, Ser. No. 798,646
Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

16 Claims



In the disclosed traveling-wave tube, auxiliary cavities which are resonant at a frequency in the vicinity of a cutoff frequency of the slow-wave structure communicate with respective slow-wave structure interaction cells. Lossy ceramic bodies disposed in respective auxiliary cavities protrude into the adjacent slow-wave structure interaction cells to simultaneously provide both frequency sensitive and directionally sensitive attenuation. In a single section tube the distance of protrusion is essentially uniform for the respective lossy bodies. In a severed tube the distance of protrusion of successive lossy bodies in an amplifying section is progressively decreased as a function of longitudinal distance from the sever in order to additionally function to terminate the amplifying section.

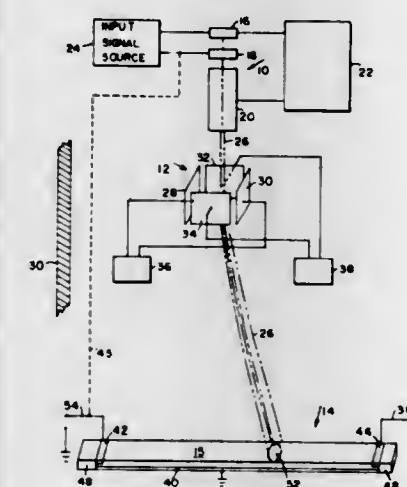
3,602,767
CONTINUOUSLY VARIABLE ELECTROACOUSTIC DELAY DEVICE

William J. Soule, Nashua, and David J. Whitney, Amherst, both of, N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Oct. 14, 1968, Ser. No. 767,429
Int. Cl. H01j 29/70

U.S. Cl. 315-18

47 Claims



There is herein described a continuously variable electrical delay device wherein a beam of electrically charged particles impinge upon an electroacoustic delay element. By imposing a charge or electrical impulse on the surface of the delay element, an acoustic wave can be created therein. This acoustic wave and an associated electrical charge travel through the delay element to a pickoff terminal where a detectable output voltage is removed. The amount of time by which an input signal is delayed is continuously and accurately variable over a wide range of values by electronically varying the position at which the charged particle beam impinges upon the delay element with respect to the pickoff terminal.

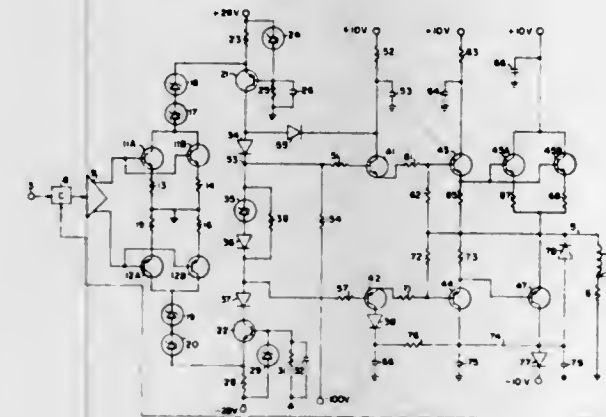
3,602,768

DUAL MODE DEFLECTION AMPLIFIER
Roy M. Williams, Jr., Nashua, and Crawford M. Kus, Hudson, both of, N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Mar. 27, 1969, Ser. No. 811,155
Int. Cl. H01j 29/76

U.S. Cl. 315-27 TD

14 Claims



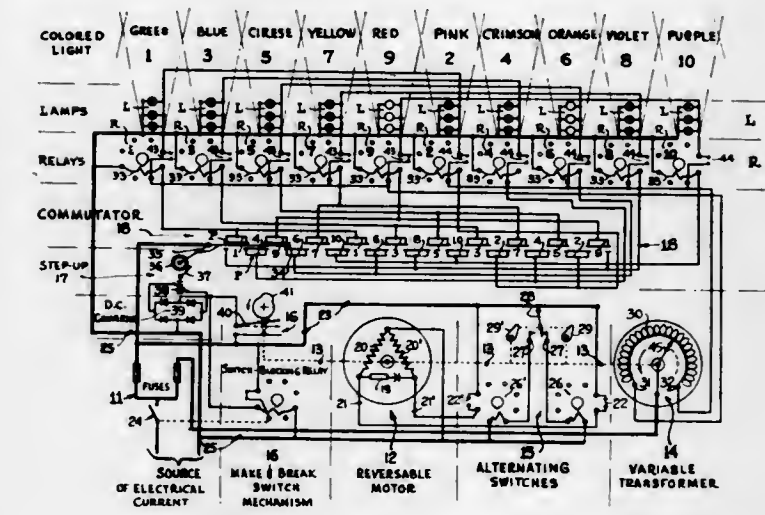
There is disclosed a deflection amplifier for a cathode-ray ray tube which normally acts as a linear amplifier to enable operation in a random access mode. However, an input signal commanding the beam to move linearly across the screen followed by an input signal commanding a fast return, or fly back, automatically shifts operation to an energy recovery mode in which energy is transferred from the deflection coil to a capacitor and back again. During this operation, the power supply and the input stages are automatically disconnected, but are automatically reconnected as the fly back is completed.

3,602,769
COLORLED LIGHT BLENDING AND DISPLAYING APPARATUS AND CIRCUIT THEREFOR

Charles Tuzar, 444 Paula Court, Santa Clara, Calif.
Filed May 15, 1970, Ser. No. 37,739
Int. Cl. H05b 39/02

U.S. Cl. 315-211

5 Claims



Apparatus for illuminating pairs of lamps in a bank thereof in sequence and the gradual illumination of one such lamp as the other decreases in intensity through the medium of a common variable transformer under the control of a reversible motor as various sets of such lamps are brought into the circuit through a commutator type selector.

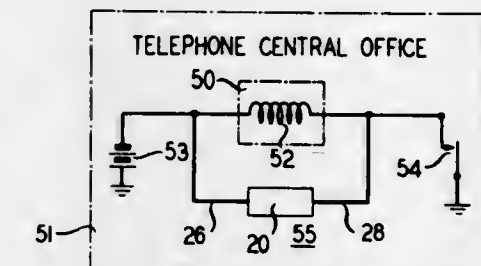
3,602,770

DISTRIBUTED R-C NETWORKS USING METALLIZED PLASTIC FILM
William McMahon, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Continuation of application Ser. No. 502,165, Oct. 22, 1965, now abandoned. This application Mar. 3, 1970, Ser. No. 18,786

Int. Cl. H01h 9/42

U.S. Cl. 317-11

3 Claims



This disclosure describes several distributed R-C components structures characterized principally by a floating electrode to which an electrical connection is directly made. These structures typically comprise alternate layers of plastic and metal or metallized plastic strips. The structures are shown to be advantageous in telephone relay contact protection application.

3,602,771

SOLID STATE DE-ENERGIZER HAVING CURRENT SENSING LOOPS
Dennis C. Winfield Walstad; Dale F. Aurora Willcox, and Walter Robert Knopf, all of Geneva, Ill., assignors to Furnas Electric Company, Batavia, Ill.

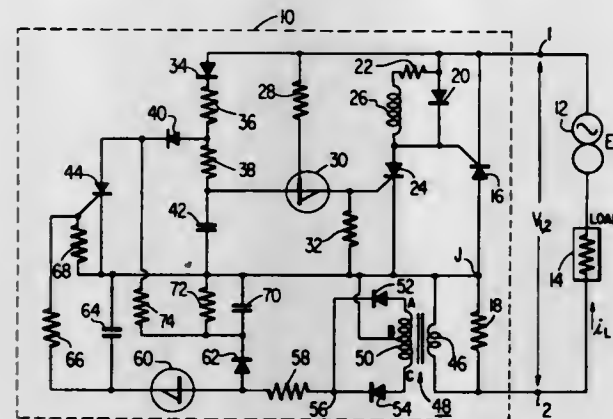
Filed Oct. 13, 1969, Ser. No. 865,776
Int. Cl. H02h 3/08; H01h 47/18

U.S. Cl. 317-13 R

5 Claims

Overload and other excessive current conditions as regards an electric motor are sensed by current sensing loops which

form the primary winding of respective transformers. The voltage developed across the secondary windings are rectified and supplied to a deenergizing circuit which additionally includes a holding circuit and a timing circuit. In the



event of an overload condition, the current supply to the electric motor is interrupted and also a time delay is effected before reset occurs assuming that electric power is again available.

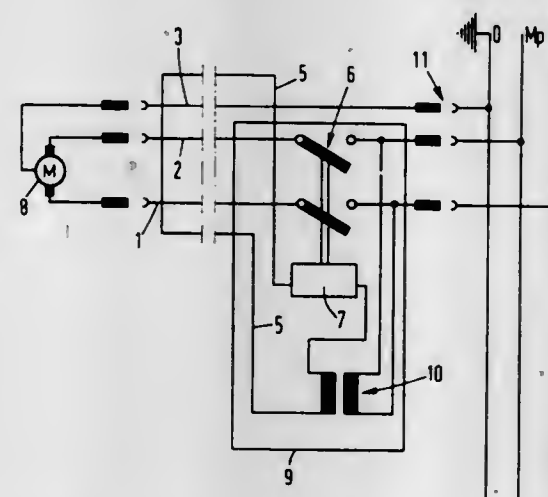
3,602,772

PROTECTIVE CIRCUIT FOR ELECTRICALLY DRIVEN LAWN MOWERS AND THE LIKE
Eckhardt Hundhausen, and Walter Kolb, both of Betzdorf/Sieg, Germany, assignors to Wolf-Gerate GmbH, Betzdorf/Sieg, Germany

Filed Sept. 22, 1969, Ser. No. 859,850
Claims priority, application Germany, Dec. 4, 1968, Dec. 13, 1968, P 18 12 737.2; P 18 14 653.7
Int. Cl. H02h 5/10

U.S. Cl. 317-18 R

14 Claims



A protective circuit for lawn mowers etc. comprises a cable with two auxiliary conductors, forming a circuit which when interrupted brings about interruption of the supply of power through the cable.

3,602,773

AC OVERCURRENT PROTECTION CIRCUIT
Albert Berstein, Sepulveda, Calif., assignor to RCA Corporation

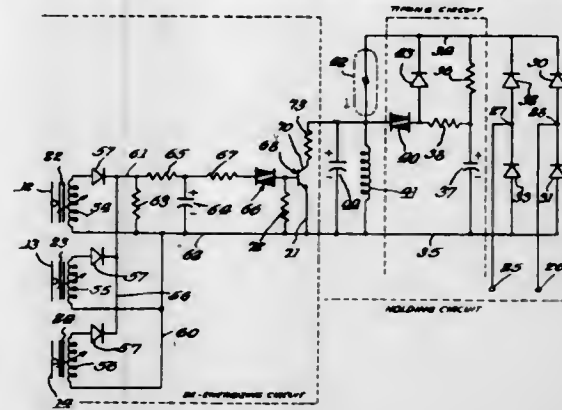
Filed Aug. 11, 1969, Ser. No. 856,246
Int. Cl. H02h 1/04, 3/08

U.S. Cl. 317-33 SC

5 Claims

An AC current limiter is disclosed which detects an overcurrent and within one cycle open-circuits the connection between a source of power and a load. An optional self-resetting feature of the circuit permits Automatic Load-To-

Power Source Reconnection on a Self-Recycling Try-Again Basis. There is also disclosed means for detecting an inrush



current and for preventing the open-circuit condition from occurring if the overcurrent is an inrush current.

3,602,774

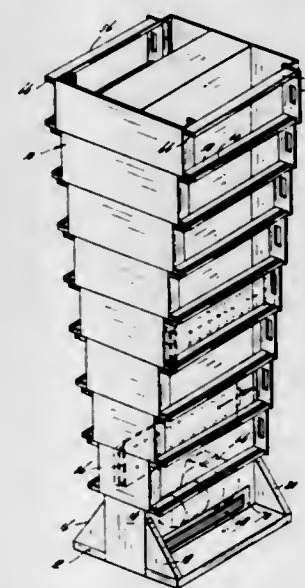
METHOD AND APPARATUS FOR SUPPORTING A PLURALITY OF PRINTED CIRCUIT BOARDS FOR LIFE TEST AND BURN-IN

John Grant, Contoocook, and Miner R. Longley, Pembroke, both of, N.H., assignors to Aerotronic Associates, Inc., Contoocook, N.H.

Filed May 5, 1970, Ser. No. 34,747
Int. Cl. H05k 7/20, 5/02

U.S. Cl. 317-100

9 Claims



Method for supporting a plurality of printed circuit boards in superposed relationship for life test and burn-in, such that the power dissipating load resistors of the trays are eliminated from thermal interaction with the devices under test. The trays are vertically staggered with the semiconductors under test being exposed outwardly in ambient air and the power dissipating load resistors being exposed inwardly. The heat from the power dissipating load resistors rises vertically with entrained air within the load. Since the boards are vertically staggered, fresh ambient air is entrained at each level with the result that each board is thermally isolated from the other.

3,602,775

SEMICONDUCTOR DEVICE INCLUDING A CIRCUIT ARRANGEMENT OF DIODES

Willem Baas, Stadskanaal; Meindert Johan Tegel, Stadskanaal, and Hendrik Bertus Kerkmeester, Emmasingel, Eindhoven, all of, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 27, 1969, Ser. No. 810,994

Claims priority, application Netherlands, Apr. 2, 1968, 6804572

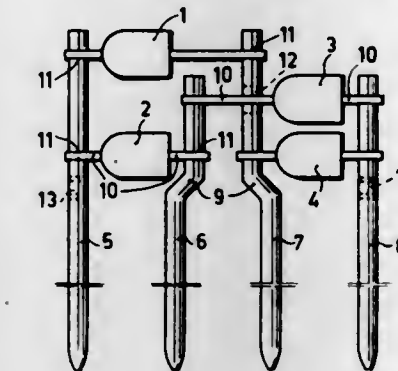
Int. Cl. H05k 1/04

U.S. Cl. 317-101 CW

2 Claims

A package for plural diodes forming a rectifier circuit is described. The package includes terminals formed by plural

rigid leads some of whose ends inside the encapsulation have bends to provide adequate spacing to accommodate the diodes. Some leads may have curved parts providing un-



derpasses for diode supply leads. The leads without bends have protuberances. The package lends itself to automatic assembly.

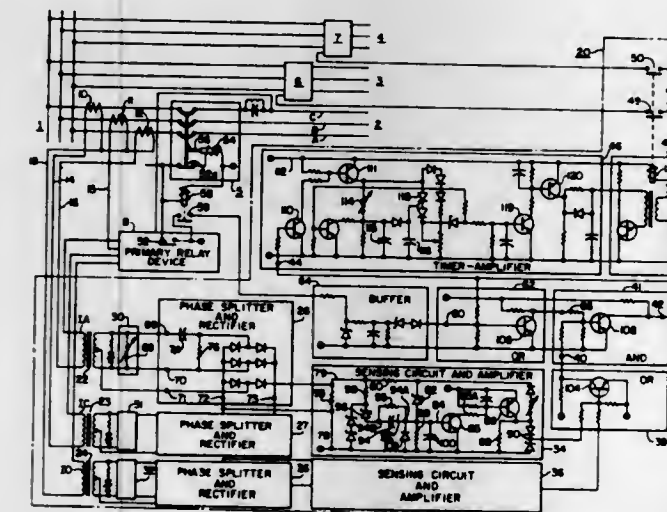
3,602,776

QUICK RESETTING APPARATUS
Russell W. Gonnar, Morris Plains, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 29, 1970, Ser. No. 32,960
Int. Cl. H01h 47/18; H02h 3/08

U.S. Cl. 317-33 SC

16 Claims



A fault current magnitude actuated resettable sensing apparatus particularly for resetting the timer of a timer actuated backup fault responsive device which sensing apparatus response to the steep slope of a decaying actuating signal resulting from the decay of the current responsive signal upon opening of the breaker to terminate the fault current whereby the time interval for the resetting of the timer by the sensing apparatus remains substantially constant irrespective of the time of the decay of the actuating signal resulting from the interruption of fault current of any expected magnitude.

3,602,777

SILICON CARBIDE SEMICONDUCTOR DEVICE WITH HEAVILY DOPED SILICON CARBIDE OHMIC CONTACTS

Herbert S. Berman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

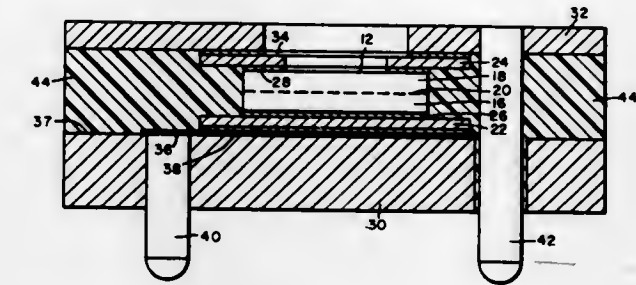
Filed Apr. 21, 1970, Ser. No. 30,481

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

4 Claims

This disclosure relates to a semiconductor device comprised of a body of silicon carbide. The body of silicon car-



semiconductivity. An electrical contact consisting of silicon carbide is affixed to each region.

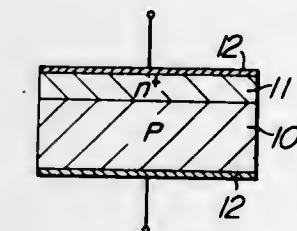
3,602,778

ZENER DIODE AND METHOD OF MAKING THE SAME
Mitsuru Ura, and Takuzo Ogawa, both of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo-To, Japan

Filed Sept. 24, 1968, Ser. No. 762,018
Claims priority, application Japan, Sept. 25, 1967, Sept. 27, 1967, Sept. 27, 1967, 42/61252; 42/61728; 42/61730
Int. Cl. H01l 9/00

U.S. Cl. 317-234 R

19 Claims



A Zener diode having a low dynamic impedance and a low leakage current which comprises a first layer of a single crystalline semiconductor of silicon doped with a P-type or N-type impurity and a second layer formed by gas-phase epitaxial growth of silicon and doped with an impurity of the opposite type. In the Zener diode, the impurity concentrations of the first and second layers are 1×10^{17} to 4×10^{18} atoms/cm.³ and 1×10^{18} to 1×10^{21} atoms/cm.³, respectively, and there is an impurity concentration gradient of from 2×10^{21} to 7×10^{23} atoms/cm.⁴ across the PN junction.

3,602,779

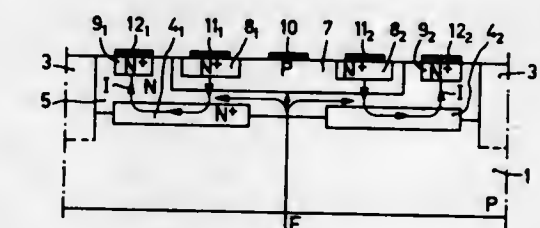
EPITAXIAL TRANSISTOR WITH LIMITED AREA BURIED LAYER AND LIFETIMEKILLERS
Claude Chapron, Caen Calvados, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed June 26, 1969, Ser. No. 836,715
Claims priority, application France, June 27, 1968, 156891

Int. Cl. H01l 11/06

U.S. Cl. 317-235 R

3 Claims



A transistor of the planar type with epitaxial layer and lifetime killers is described. A buried layer for reducing collector resistance is located directly under a collector contact and only that part of the base region which directly surrounds the emitter region, leaving an adjacent part of the base region free of the buried layer. This allows lifetime killers when diffused in from the back to spread throughout the collector and base region without sacrificing the collector resistance.

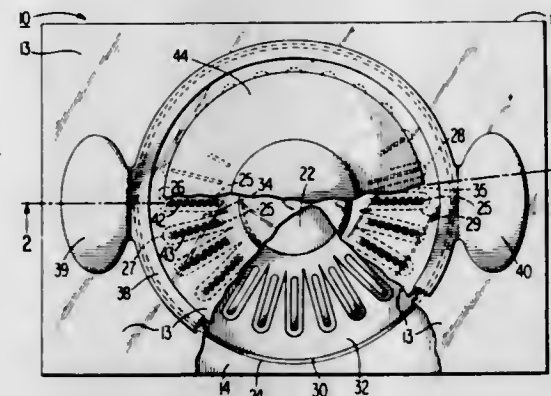
3,602,780

RADIAL HIGH FREQUENCY POWER TRANSISTOR EMPLOYING PERIPHERAL EMITTER CONTACT RING AND HIGH CURRENT BASE CONTACT LAYER
David Stanley Jacobson, Plainfield, N.J., assignor to RCA Corporation

Filed Feb. 20, 1970, Ser. No. 13,120
Int. Cl. H011 5/00

U.S. Cl. 317-235 R

1 Claim



A transistor which includes a collector region having a hub extending to the surface, and an annular base region disposed adjacent to the collector and about the hub, with portions of the base extending to the surface and forming a plurality of radial lobes around the hub. An emitter region is disposed in the base, and comprises a ring about the ends of the base lobes, and wedge-shaped portions between adjacent base lobes.

In an alternate embodiment, the annular emitter ring is omitted.

3,602,781

INTEGRATED SEMICONDUCTOR CIRCUIT COMPRISING ONLY LOW TEMPERATURE PROCESSED ELEMENTS

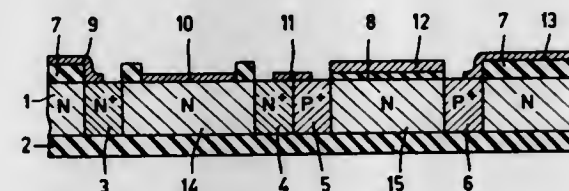
Paul Anton Herman Hart, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 26, 1969, Ser. No. 861,252

Claims priority, application Netherlands, Sept. 27, 1968, 6813833

Int. Cl. H011 19/00

U.S. Cl. 317-235 R

5 Claims



An integrated semiconductor is described in which all the interconnected circuit elements, including barrier layers and contacts, comprise only metal-semiconductor junctions, ion implanted junctions, or insulating layers, produced by low temperature processes only, to avoid detrimental effects on a supporting substrate.

3,602,782

CONDUCTOR-INSULATOR-SEMICONDUCTOR FIELD-EFFECT TRANSISTOR WITH SEMICONDUCTOR LAYER EMBEDDED IN DIELECTRIC UNDERNEATH INTERCONNECTION LAYER

Thomas Klein, 3776 Redwood Circle, Palo Alto, Calif.
Continuation-in-part of application Ser. No. 696,908, Jan. 10, 1968. This application Dec. 5, 1969, Ser. No. 882,753

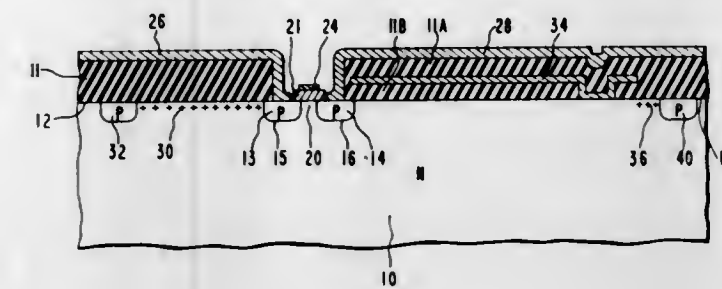
Int. Cl. H011 1/14

U.S. Cl. 317-235 R

2 Claims

A conductor-insulator-semiconductor field-effect transistor has semiconductor layers embedded in the dielectric un-

derneath the interconnection layers in order to prevent unwanted parasitic inversion layers, due to voltages and cur-



rents in the interconnection layers, from causing deterioration in device operation.

3,602,783

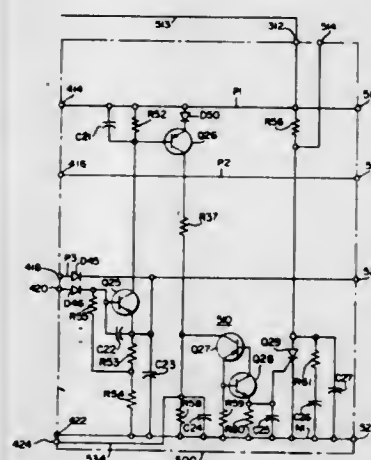
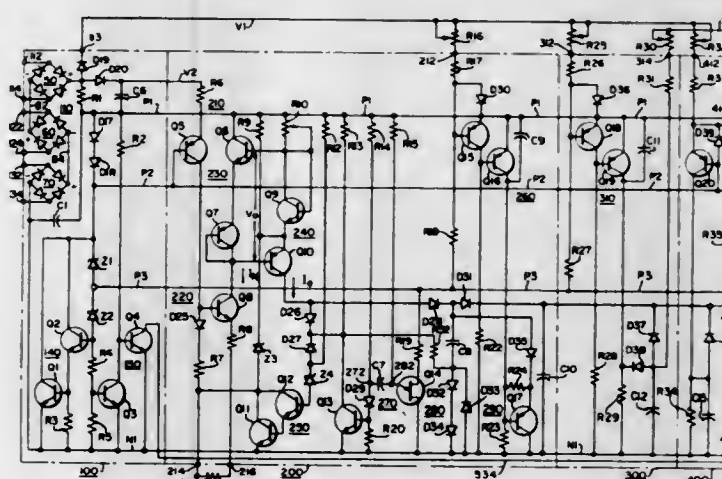
CIRCUIT BREAKER DEVICE INCLUDING IMPROVED OVERCURRENT PROTECTIVE DEVICE

Joseph C. Engle, and Robert T. Elms, both of Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 7, 1970, Ser. No. 35,531
Int. Cl. H01h 47/18; H02h 3/08

U.S. Cl. 317-33 SC

24 Claims



A circuit breaker including an overcurrent protective device of the time delay type which is responsive to the current in an electrical circuit which is being protected by said associated circuit breaker. The protective device includes means for producing periodic pulses of current of substantially a predetermined width and of substantially a predetermined frequency, the magnitude of said pulses varying with substantially the square of the current in the protected circuit. When the current in the protected circuit increases to a predetermined level or value, the pulses are applied to a timing or integrating capacitor to provide a predetermined output after a time delay which varies inversely with substantially the square of the current in the protected circuit.

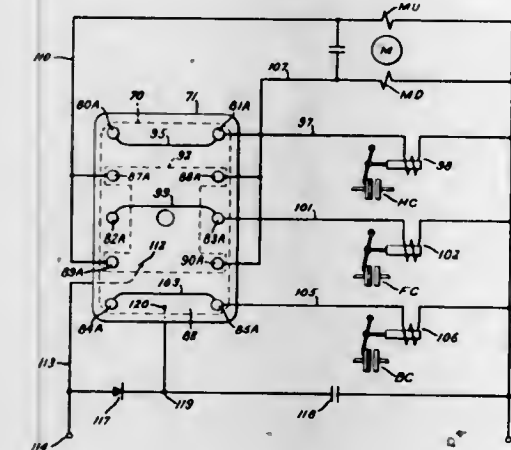
3,602,784

MANUALLY OPERABLE CONTROL DEVICE
George M. Euler, Normal, Ill., assignor to General Electric Company

Division of Ser. No. 372,311, June 3, 1964, Pat. No. 3,399,287.
Filed Mar. 29, 1968, Ser. No. 737,268
Int. Cl. H02p 7/74

U.S. Cl. 318-65

9 Claims



A reversible plural motor control system includes a plurality of alternating current responsive circuits and a plurality of direct current responsive circuits with each circuit containing a separate pair of fixed and movable contacts mounted respectively on fixed and movable supports. The contacts on the moveable support comprise a first plurality of moveable contacts and a second plurality of moveable contacts insulated from the first moveable contacts, and the contacts on the fixed support comprise a first plurality of fixed contacts and a second plurality of fixed contacts insulated from the first plurality of fixed contacts. The moveable support is mounted for movement relative to the fixed support from a neutral position wherein the moveable contacts are spaced from the fixed contacts to a selected one of a plurality of different operating positions in each of which a separate pair of contacts of said first and second pluralities of fixed and moveable contacts engage and a separate pair of contacts of said second plurality of fixed and moveable contacts engage.

3,602,785

APPARATUS FOR CONTROLLING THE SPEED AND TORQUE OF TWO MECHANICALLY LINKED DC ELECTRIC MOTORS

Richard Gadeyne, Boulogne-Billancourt, France, assignor to L'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, Paris, France

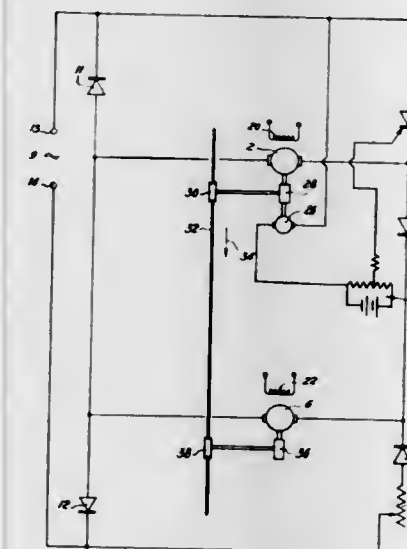
Filed Mar. 28, 1969, Ser. No. 811,386

Claims priority, application France, Apr. 18, 1968, 148,442

Int. Cl. H02p 5/50

U.S. Cl. 318-72

3 Claims



An alternating current source energizes in parallel two motors through a full wave rectifier bridge. The rectifier in one

of the branches of the bridge is a controlled rectifier which controls the speed of one of the motors. The other motor is energized through the same rectifiers, as the first one and through an isolation diode. The energization of the said other motor is supplemented by a current flowing through another rectifier, serially connected with a resistor.

3,602,786

INDUCTION LINEAR ELECTRIC MOTOR

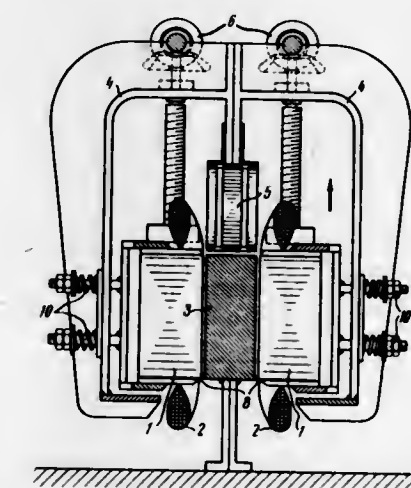
Georgy Ignatievich Izhelya, ulitsa Malo-Podvalnaya, 14 Kv. 13; Konstantin Alexeevich Bykov, ulitsa Streletskaia, 14, Kv. 12; Alexandr Ivanovich Vishnikov, ulitsa Dvornar-Zapolskogo, 4, Kv. 39; Vladimir Andreevich Mishakin, ulitsa Selskokhozyaistvennaya, 7/9, Kv. 19; Sergei Alexeevich Rebrov, ulitsa Nikolsko-Botaničeskaya, 14, Kv. 20; Itskhok Avrumovich Spektor, ulitsa Muromskaya, 3, Kv. 15, and Alexandr Grigorievich Shapovalenko, ulitsa Zatonskogo, 15/41, Kv. 25, all of Kiev, U.S.S.R.

Filed June 22, 1970, Ser. No. 48,105

Int. Cl. H02k 41/02

U.S. Cl. 318-135

3 Claims



An induction linear electric motor comprising a pair of linear stators with their respective windings, movably mounted at the opposite sides of a stationary rotor member. Control of the travelling speed of the linear stators relative to the rotor in the direction of the motion of the traveling magnetic field, produced by the stators and their windings, is effected by displacing the stators and their windings relative to the rotor in a direction perpendicular to the direction of the motion of the magnetic field. When the travelling speed is controlled in the above-described member, with the stators displaced relative to the rotor, a portion of the magnetic flux produced by the stators is taken up by an auxiliary magnetic core of the disclosed; linear electric motor, this auxiliary magnetic core being disposed intermediate of the linear stators.

3,602,787

SPEED-CONTROL SYSTEM FOR INDUCTION MOTOR
Ernst Tuchen, Jerxen-Orbke, Germany, assignor to Elektronik-Regelautomatik GmbH & Co. KG, Bielefeld, Hanfstrasse, Germany

Filed Apr. 20, 1970, Ser. No. 30,127

Claims priority, application Germany, Apr. 18, 1969, P 19 19

716.1

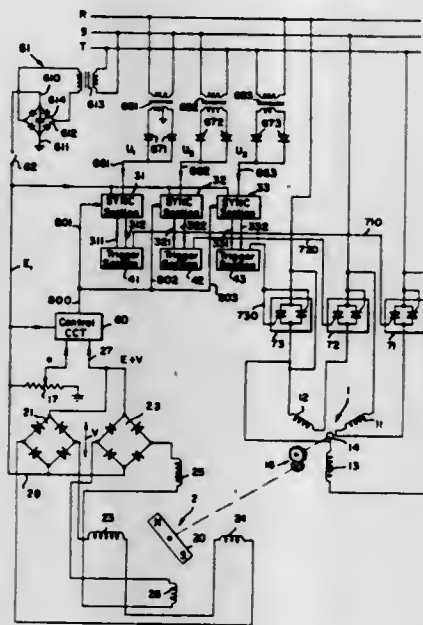
Int. Cl. H02p 5/40

U.S. Cl. 318-227

11 Claims

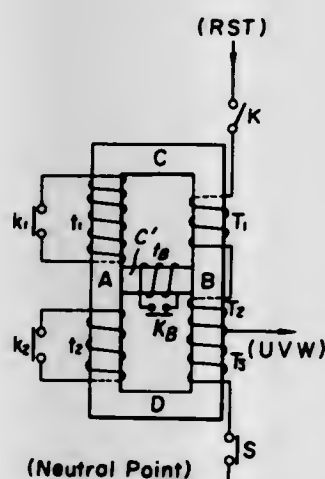
A tachogenerator driven by the shaft of a squirrel cage motor generates an oscillation, of a magnitude and frequency proportional to the shaft velocity, from which a unipolar ripple voltage is derived for charging a storage condenser at a rate decreasing with slip speed. A synchronizing stage for each phase winding of the motor is unblocked in the rhythm of the supply voltage to produce, during each half-cycle, a trigger pulse for a respective thyristor of a pair of oppositely poled thyristors connected in series with the corresponding phase winding of the motor's stator; the timing of this trigger pulse, and therefore the interval of conductivity of the

thyristor, is controlled by the charge of the storage condenser. The charging circuit of this condenser includes a transistor amplifier with a differentiating feedback connection intermittently blocking this amplifier "during an "on"



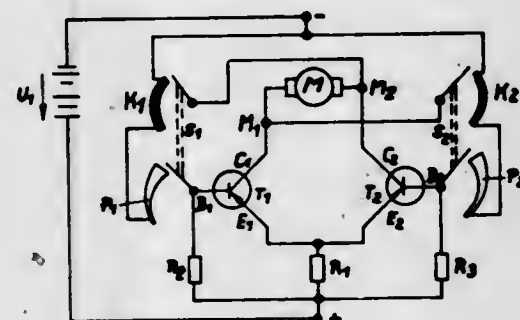
period, determined by the difference between the ripple voltage and an adjustable reference voltage, whereby the amplifier oscillates at a frequency many times higher than the supply frequency and the condenser is progressively charged to an extent depending upon the duration of that period.

3,602,788
MULTISTAGE VOLTAGE REGULATING APPARATUS FOR ALTERNATING CURRENT MACHINES
Takao Kawabe, and Yoshiyuki Kawabe, both of 41-5, Higashiogu 2 chome, Arakawa-ku, Tokyo, 116, Japan
Filed Nov. 13, 1969, Ser. No. 876,506
Int. Cl. H02p 1/10
U.S. Cl. 318-229 19 Claims



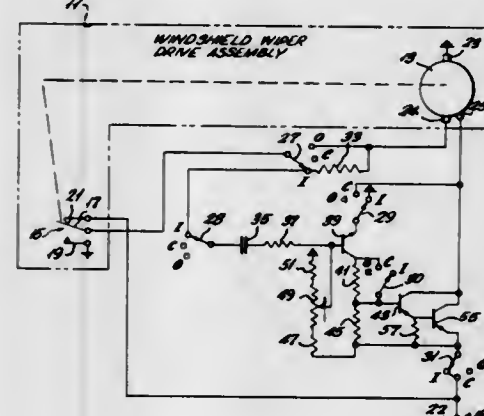
Endless multistage voltage regulating apparatus for AC machines, which includes a bypass magnetic path with a flux leakage preventing winding thereon provided locally in an endless magnetic path for dividing the endless magnetic path into two or more magnetic path sections. Each of the magnetic path sections are provided with a main circuit winding and a secondary winding having ampere turns inverse to but equivalent to those of the corresponding main circuit winding, whereby the on-load voltage is regulated in multiple stages by opening and closing the circuit of said secondary winding. By closing the circuit of the flux leakage preventing winding when the bypass path is not needed (when associated secondary windings are open circuited), unwanted leakage flux can be substantially prevented to maintain the desired regulated voltage under all conditions.

3,602,789
CIRCUIT ARRANGEMENT FOR CONTROLLING THE NUMBER AND DIRECTION OF REVOLUTION OF A FRACTIONAL DC MOTOR IN MOVIE CAMERAS
Rudolf Leistner, Munich, Germany, assignor to Niezoldi & Kramer GmbH, Munich, Germany
Filed Oct. 29, 1969, Ser. No. 872,252
Claims priority, application Germany, Dec. 4, 1968, P 18 12 598.9
Int. Cl. H02p 5/00
U.S. Cl. 318-257 10 Claims



The present invention relates to a control circuit for controlling the number and the direction of the revolution of a movie camera motor and in order to drive the motor in one direction a semiconductor device is employed the base electrode of which is connected to a split potentiometer and another electrode of which is connected to one energizing terminal of the motor. By varying the base voltage with the help of the potentiometer the motor is running at different speeds and by connecting one of the energizing terminals of the motor to one side of a voltage source the motor will run in one direction. In order to have the motor running in the opposite direction, another semiconductor device when selected to be turned on connects the energizing terminal of the motor to another terminal of the voltage source and similarly the base electrode of the last-mentioned semiconductor device provides a selectively variable potential of the base electrode whereby the motor can run in this direction also at varying speeds.

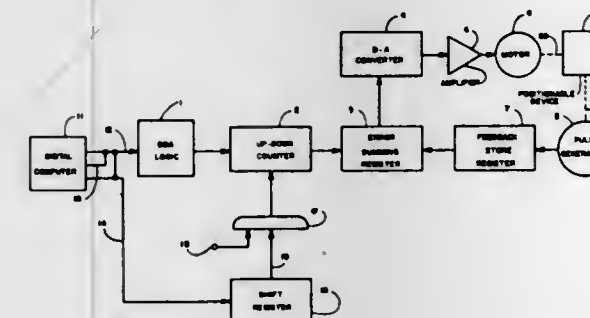
3,602,790
INTERMITTENT WINDSHIELD WIPER SYSTEM
Robert W. Kearns, 20524 Rutherford Ave., Detroit, Mich.
Filed Oct. 18, 1967, Ser. No. 676,206
Int. Cl. B60s 1/08
U.S. Cl. 318-443 19 Claims



This specification discloses windshield wiper systems employing three brush DC motors to drive the windshield wipers. When a three brush motor is energized between one pair of its three brushes it operates at a high speed but will produce relatively low torque and when it is energized between another pair of its three brushes it operates at relatively low speed but will produce a relatively high output torque. The windshield wiper systems herein disclosed energize the motor intermittently between the high speed pair of

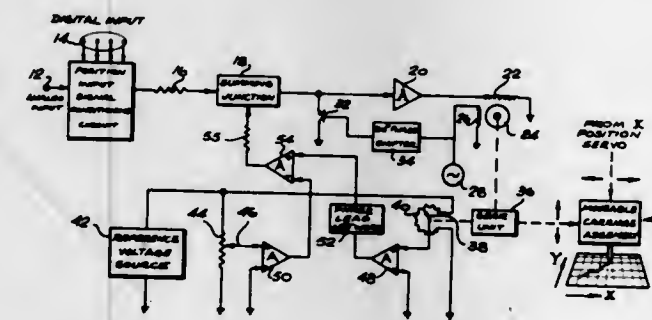
brushes to operate the wiper blades at high speed intermittently. The systems use the low speed pair of brushes to move the wiper blades to the park position when the system is turned off and brake the motor to a stop by shunting the low speed pair of brushes. Some of the systems have the continuous mode of operation in which the motor is energized continuously between the high speed pair of brushes with speed regulation to maintain the a constant speed of operation.

3,602,791
ELIMINATION OF ERRORS IN HYBRID SERVO LOOP
Alan P. Stevenson, Old Bridge, and James A. McMurray, Metedeconk, both of, N.J., assignors to Electronic Associates, Inc., Long Branch, N.J.
Filed Sept. 25, 1968, Ser. No. 762,401
Int. Cl. G05d 23/275
U.S. Cl. 318-632 1 Claim



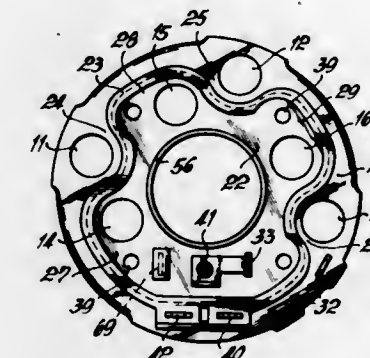
Position errors are reduced in a servo-driven device where a plurality of desired position points are known, and the path between points is computed by digital differential analyzer techniques, by periodically driving the device to one of the known points after the path is computed ensuring accurate positioning for the start of the new path.

3,602,792
SERVO SYSTEM FOR ANALOGUE PLOTTERS
Charles E. Engle, Tustin, Calif., assignor to Community Bank, Downey, Calif.
Filed Aug. 7, 1969, Ser. No. 848,199
Int. Cl. G05b 1/06
U.S. Cl. 318-668 3 Claims



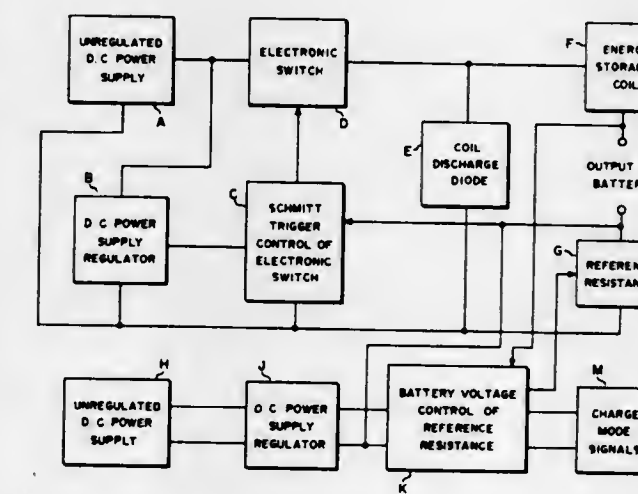
Position input signals are conditioned to be applied at a level of at least several volts to a summing junction for comparison with a similarly scaled feedback signal to generate an error signal for driving a servomotor to position the marking means. The servomotor at the same time positions a movable tap on a follow up potentiometer that provides an output voltage representative of the instantaneous position of the marking means. This output voltage is applied to the input of a buffering operational amplifier that supplies its output through a phase lead network to develop a feedback signal that prevents the marking means from overshooting the desired position. Thus the DC component of the feedback signal is maintained at a relatively high level for comparison at the summing junction to minimize the effect of high frequency transients and reduce system instability, while the high input impedance of the operational amplifier buffer prevents potentiometer loading errors.

3,602,793
RECTIFIER HOUSING UNIT HAVING ADJACENT PARALLEL OPPOSITELY-BIASED COOLING PLATES
Alfred Grozinger, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Mar. 23, 1970, Ser. No. 21,679
Int. Cl. H02m 7/00
U.S. Cl. 320-8 C 20 Claims



A rectifier unit has inner and outer conductive annular cooling plates with matching outer and inner annular edges and held by an insulator in parallel planes in a centered position in which the inner and outer annular edges register. Positive and negative rectifier diodes are mounted on the inner and outer plates in conductive connection with the same, respectively. Other connectors and circuit elements are supported by the insulator.

3,602,794
SOLID STATE CHARGING CIRCUITRY USING A LOADING COIL
Lawrence A. Westhaver, 13001 Old Stagecoach Road, Laurel, Md.
Filed June 25, 1970, Ser. No. 49,807
Int. Cl. H02j 7/04
U.S. Cl. 320-39 5 Claims



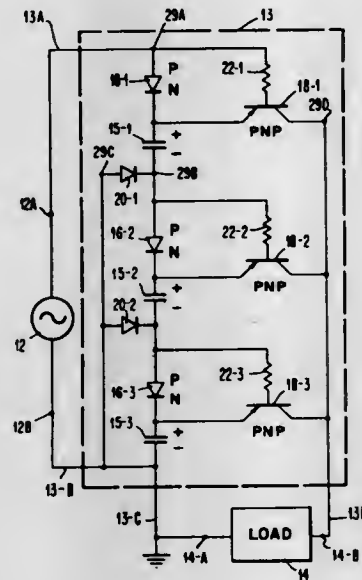
Self-regulating solid state battery charging circuitry which automatically provides a rippled constant mean fast charge current irrespective of the condition of the battery and automatically changes to a rippled constant mean trickle charge current in response to a near-full-charge battery voltage. On-off triggering of the supply occurs in response to error signals from a current sensing resistance which is in series with the battery and with a low-loss loading coil, the battery receiving current from the energized loading coil through a diode and through the current sensing resistance during off intervals of the supply to thereby achieve high efficiency. Only the frequency and shape of the current ripples change as the battery becomes charged. In response to a near-full-charge battery voltage the current sensing resistance is increased about 10-fold, resulting in a 10-fold reduction in charging current and a 10-fold increase in frequency of the current ripples.

3,602,795

TRANSFORMERLESS POWER SUPPLY
John B. Gunn, Mount Kisco, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 16, 1969, Ser. No. 866,929
Int. Cl. H02m 7/00

U.S. Cl. 321-15

14 Claims



The power supply circuit receives as an input an AC line voltage, rectifies the line voltage to DC and transforms the voltage downwardly to a much lower level. No transformer is employed but rather the power supply circuit includes a plurality of capacitors which are charged in series by the line voltage and discharged in parallel across the load. The charging and discharging is controlled by a diode and transistor connected to each capacitor and to each other so that the diode conducts during the charging and then maintains the transistor nonconductive and the transistor conducts during the discharge when the diode is nonconductive.

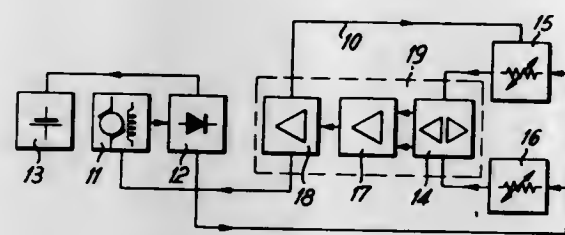
3,602,796

TRANSISTORIZED VOLTAGE REGULATOR, PARTICULARLY FOR AUTOMOTIVE USE
Johannes Hartmut Bleher, Fishkill, N.Y., assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed May 1, 1969, Ser. No. 820,738
Claims priority, application Germany, May 10, 1968, P 17 63 349.7

U.S. Cl. 322-28

Int. Cl. H02p 9/30

15 Claims



The output voltage of an automotive generator is rectified and applied to a bridge network, the cross connection from the bridge being connected to an amplifier with a differential input stage. The output of the amplifier controls current through the field winding of the alternator. Each of the branches of the bridge contains temperature-sensitive and voltage-sensitive nonlinear elements connected in opposition, so that upon deviation from the exact output voltage desired, the potential across the cross connection will change rapidly and exact voltage control can be obtained.

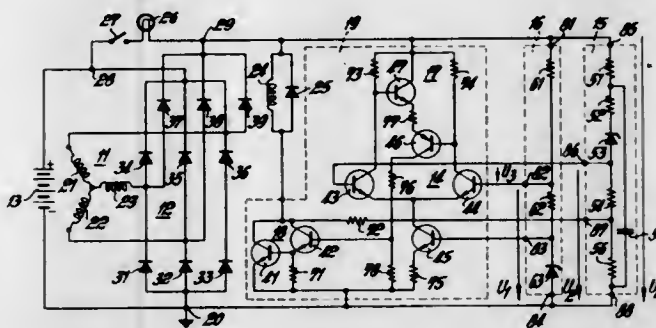
3,602,797

VOLTAGE REGULATOR, PARTICULARLY FOR CONSTRUCTION AS AN INTEGRATED CIRCUIT
Johannes Hartmut Bleher, Fishkill, N.Y., assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed May 1, 1969, Ser. No. 820,745
Claims priority, application Germany, May 10, 1968, 17 63 350.0

U.S. Cl. 322-28

Int. Cl. H02p 9/30

6 Claims



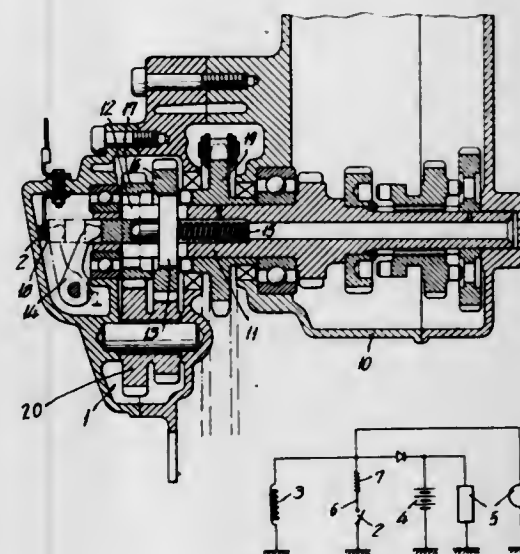
An automotive type voltage regulator includes a differential amplifier having push-pull inputs applied thereto; the voltage divider is formed as a bridge circuit which includes voltage-sensitive elements, unbalance at the bridge triggering the differential amplifier to supply an output potential to a preamplifier with low frequency amplification characteristics to control a switching transistor in series with the field of an automotive generator. The low frequency transistor, formed of a pair of complementary transistor sub-units, suppresses high frequency spurious oscillations and itself forms a PNP transistor complementary to an NPN transistor; both transistors form the input stage connected to the differential amplifier, to supply a symmetrical load to the differential amplifier.

3,602,798

APPARATUS FOR PREVENTING APPLICATION OF OVERVOLTAGE TO A LOAD WHEN A SELECTIVELY OPERABLE REDUCTION GEAR MECHANISM IN A VEHICLE GEAR TRANSMISSION IS ACTIVATED
Yasuo Shibata, and Ryo Nashimoto, both of Tokyo, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 7, 1969, Ser. No. 875,215
Claims priority, application Japan, Nov. 16, 1968, 43/99758

U.S. Cl. 322-93
Int. Cl. H02p 9/00

10 Claims



When a selectively operable reduction gear mechanism in a power transmission in a vehicle is activated, a battery and a load connected to a generator driven by the engine is normally subjected to overvoltage. To compensate for this over-

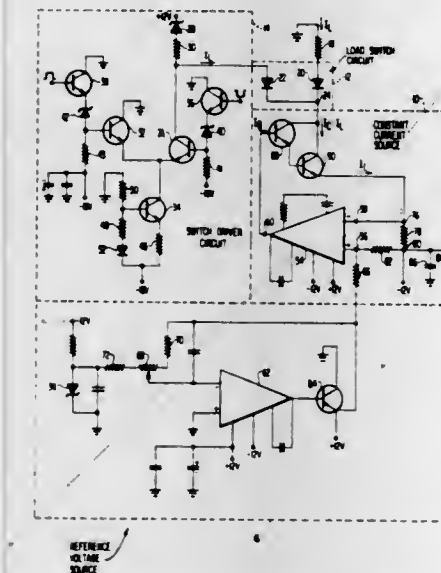
voltage, a resistance is switched in the circuit between the generator and the battery and load to reduce the voltage, or alternatively the voltage to the load and battery is divided at the generator. This switching or division is effected by a switch which is operated by an actuator member of the reduction gear mechanism.

3,602,799

TEMPERATURE STABLE CONSTANT CURRENT SOURCE
Francisco J. Guillen, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 24, 1970, Ser. No. 49,131
Int. Cl. G05f 3/14; H02j 1/04

U.S. Cl. 323-4

11 Claims



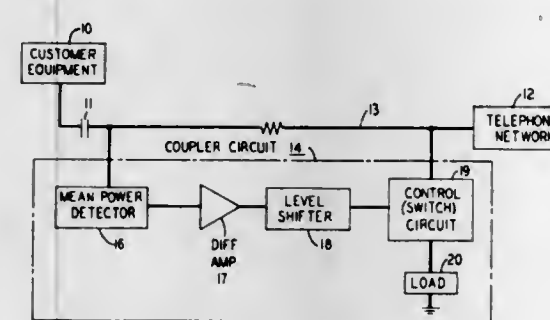
An ultrastable high-speed-constant DC current source for generating a precise reference voltage in other apparatus such as a high-speed analogue to digital converter. A continuous constant load current is selectively switched between two current paths, one of which comprises an output load across which said reference voltage is developed. A high-speed digitally controlled driver circuit including a differential amplifier configuration controls the flow of the constant current selectively through one of two hot carrier diodes. The diodes serve as electronic switches from the constant current source which comprises an operational amplifier connected in a feedback loop including a Darlington transistor configuration and controlled by an externally applied input reference voltage and an error signal developed by the flow of said load current across a temperature compensated resistor.

3,602,800

COUPLER FOR INTERCONNECTING CUSTOMER EQUIPMENT WITH TELEPHONE NETWORK
David Feldman, Springfield; John J. Golembeski, New Providence; Tadikonda N. Rao, Plainfield, and Ralph W. Wyndrum, Jr., New Providence, all of N.J., assignors to Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Filed May 21, 1969, Ser. No. 826,407
Int. Cl. G05f 1/00, 1/60

U.S. Cl. 323-8

14 Claims



A coupler for attaching customer-owned equipment to the telephone network permits any customer signal below a

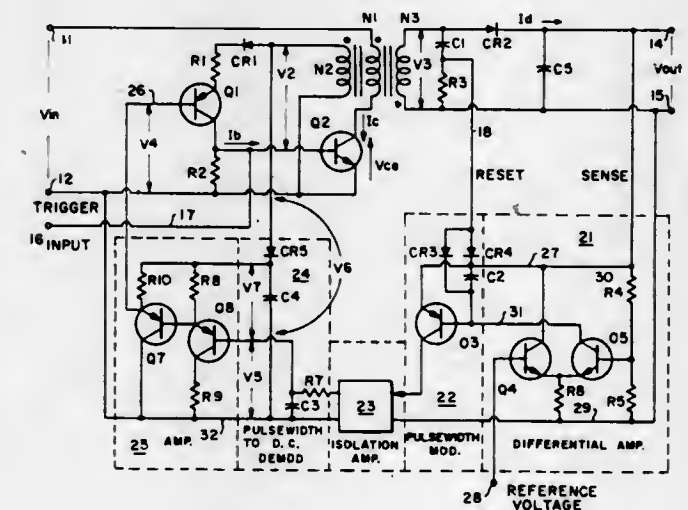
prescribed signal level to pass without distortion or attenuation but linearly attenuates signals exceeding the prescribed level. The coupler measures the mean power of the customer's signal and utilizes the results to switch the proper attenuating load across the line. The switch circuit of the coupler has a hysteresis characteristic to prevent distortion of the customer's signal by repeated switching between different alternating modes when the customer's signal has slight variations about the prescribed threshold level.

3,602,801

SWITCHING VOLTAGE AND CURRENT REGULATOR CONTROLLER
James A. Williamson, Santa Ana, Calif., assignor to The United States of America as represented by the Secretary of the Navy
Filed Apr. 27, 1970, Ser. No. 32,236
Int. Cl. G05f 1/20

U.S. Cl. 323-17

7 Claims



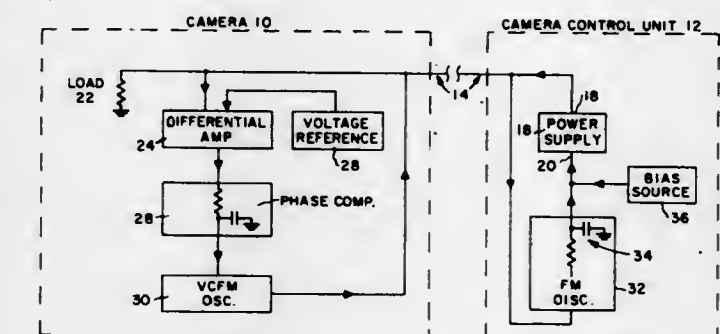
A switching voltage and current regulator controller having an isolation transformer coupling a supply voltage to a load with an isolation amplifier in a feedback loop to deliver error information from the secondary back to the primary while maintaining the required primary-secondary isolation, the error information being proportional to the pulse width in the pulse train transferred through the coupling transformer.

3,602,802

REMOTE VOLTAGE REGULATED POWER SUPPLY
Albert Y. Chan, Montvale, and Haig Soojian, Upper Saddle River, both of N.J., assignors to Philips Broadcast Equipment Corporation, Montvale, N.J.
Filed July 29, 1970, Ser. No. 59,195
Int. Cl. G05f 1/46

U.S. Cl. 323-19

9 Claims



A regulated power supply for a remote load features a differential amplifier located at the load which compares the load voltage to a reference voltage. The difference voltage thus generated is used to control the frequency of a VCO whose output signal is sent along a power cable to the power supply. There an FM discriminator detects the signal and

controls the output voltage of the power supply so as to keep the load voltage constant.

3,602,803

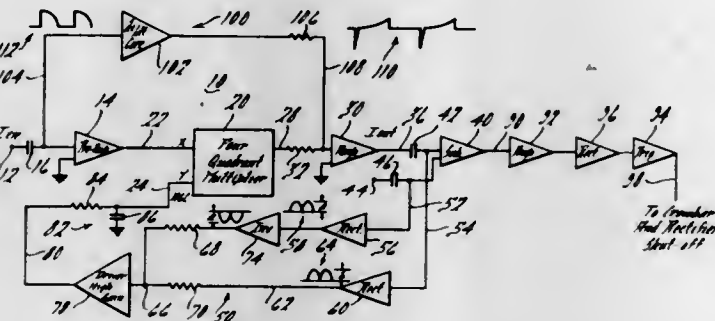
VOLTAGE VERSUS CURRENT SENSING SYSTEM
Rudolf E. Six, Roseville, Mich., assignor to Udyllite Corporation, Warren, Mich.

Filed Nov. 28, 1969, Ser. No. 880,701

Int. Cl. G05f 1/40

U.S. Cl. 323-20

25 Claims



A voltage versus current function sensing system for use in conjunction with power supplies for electrochemical processes, and particularly for sensing arcing and sparking in the load circuit or for determining the value of resistance of the load, the load being substantially a resistive load. The system includes a shunt for sensing the load current in the output buss and a load voltage sensing circuit, the current being fed to a preamplifier and a four quadrature multiplier, the output of the multiplier being fed to the input circuit of a subtracter circuit, and the voltage signal also being fed to the input of the subtracter. The output of the subtracter is amplified and rectified and fed to a trigger circuit to control load current being fed to the output terminals of the power supply.

The system also includes an automatic gain control feedback loop for the four quadrature multiplier, the feedback loop including a rectifier and inverter circuit for the voltage input to the subtracter and a rectifier circuit connected for the current input to the subtracter, the output of the voltage inverter and the output of the current rectifier being fed to a summing point. The summing point provides the input signal for a high gain driver circuit and the driver circuit provides the gain control signal for the four quadrature multiplier to cause the multiplier to provide an output current signal which is of equal magnitude to the voltage signal.

The system also includes an automatic inductance or capacitance correction circuit which is responsive to the change in current with respect to time of the sensed current signal at the buss to correct for any inductance or capacitance which may be present in the output circuit of the power supply due to the natural impedance of the leads connected to the load.

3,602,804

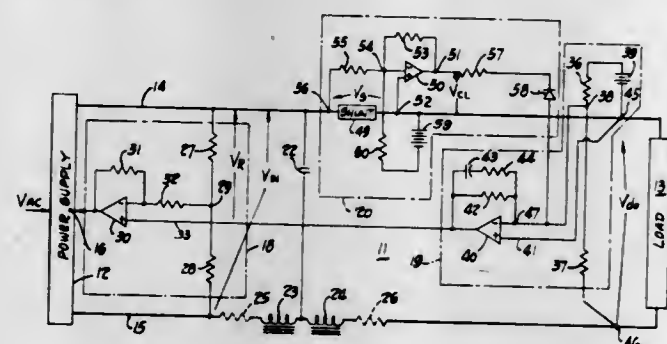
REGULATOR CIRCUIT RESPONSIVE TO INPUT VOLTAGE, OUTPUT VOLTAGE AND CURRENT
Ronald H. Randall, Cuba, N.Y., assignor to Acme Electric Corporation, Cuba, N.Y.

Filed Dec. 8, 1969, Ser. No. 883,139

Int. Cl. G05f 1/64, 5/00

U.S. Cl. 323-20

16 Claims



Operational amplifiers are used in a regulator circuit for a DC output voltage. A rectifier supplies a voltage to output

leads and three loops are provided, an input voltage loop, an output voltage loop, and a current limit loop. Each loop compares a reference voltage with a feedback voltage to develop an error signal and these are all combined and multiplied in operational amplifiers to maintain constant load voltage despite input voltage fluctuations and output or load voltage fluctuations and also to limit the current upon reaching a present value.

3,602,805

CIRCUIT ARRANGEMENT FOR AUTOMATIC CONTROL OF THE VOLTAGE OF AN ELECTRICAL FILTER

Lovro Vukasovic, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Mar. 6, 1970, Ser. No. 17,107

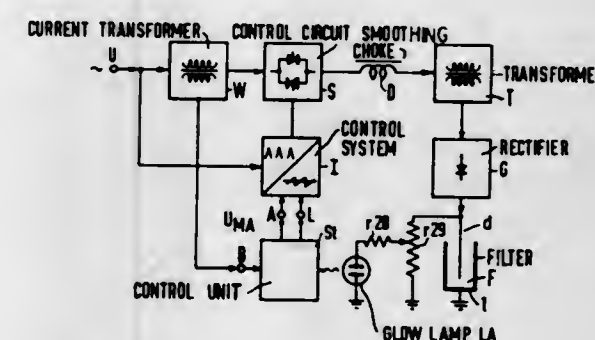
Claims priority, application Germany, Mar. 8, 1969, P 19 11

923.4

Int. Cl. G05f 1/44

U.S. Cl. 323-22 SC

3 Claims



A current transformer is connected between a source of voltage and a control circuit and supplies a signal when the current flowing through the filter exceeds a predetermined critical value. A control unit, which is coupled to the control circuit via a control system and which is connected to the current transformer, includes an auxiliary circuit connected in parallel with a charging circuit of a guide capacitor. The auxiliary circuit comprises a switching component having characteristics and a control circuit which are such that the guide capacitor charges more rapidly when the switching component is in its nonconductive condition than via the charging circuit. The switching condition of the switching component depends upon the switching position of a reversing switch and the signal from the current transformer. The switching component is in its nonconductive condition only during the time between the energization of the circuit arrangement via the reversing switch and the time during which the current transformer provides a signal for the first time after the energization of the circuit arrangement.

3,602,806

SELECTIVE ACTIVITY METER FOR LABORATORY ANIMALS

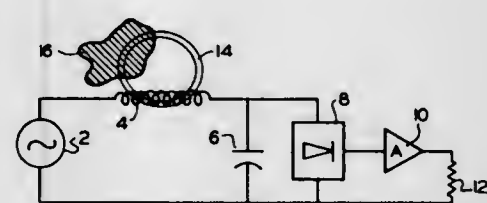
Jan A. Czekajewski, 1793 Northwest Boulevard, Columbus, Ohio

Filed Feb. 12, 1969, Ser. No. 798,689

Int. Cl. G01r 33/14; G08b 21/00

U.S. Cl. 324-40

9 Claims



A system for obtaining information concerning the activity of animate specimens and a quantitative measurement of many varieties of motions. Specifically, the invention com-

prises a plurality of inductive coils in a resonant circuit configuration utilizing variations in the "Q" of the circuit to provide an output.

3,602,807

LOAD TAP CHANGER APPARATUS WITH MAGNETIC TRANSDUCER PROTECTIVE CIRCUITRY

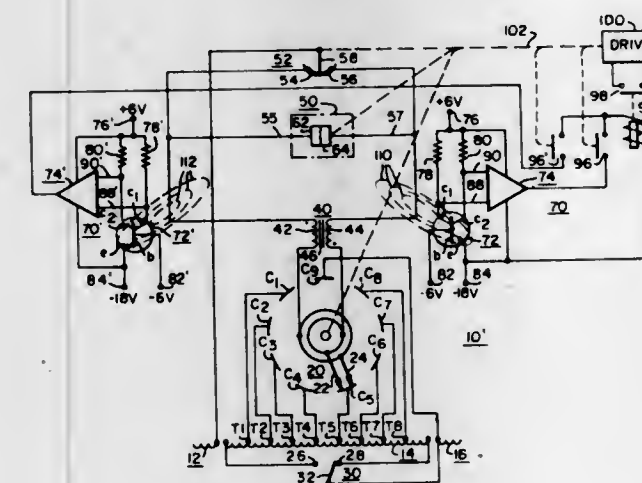
Herbert L. Prescott, Brookfield, Ohio, assignor to Westinghouse Electric Corporation, Gateway Center, Pa.

Filed Apr. 16, 1970, Ser. No. 29,157

Int. Cl. H02p 13/06, 13/04; H02h 7/00

U.S. Cl. 323-43.5 R

8 Claims



Load tap changer apparatus, including a tap selector switch, a load transfer switch, and a protective circuit having a magnetic transducer which magnetically checks for current flow through a predetermined conductor of the apparatus, while being spaced from the predetermined conductor beyond the voltage jump distance to ground. The protective circuit utilizes an electrical signal from the magnetic transducer to prevent the operation of the tap selector switch when current is flowing through the predetermined conductor.

3,602,808

PULSE MAGNETOMETER USING A COIL EXPANDED BY AN EXPLOSIVE

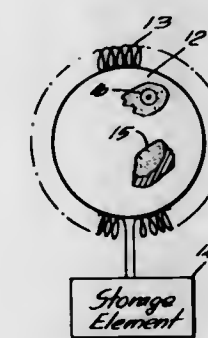
James L. Kirkland, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 26, 1969, Ser. No. 853,003

Int. Cl. G01r 33/02

U.S. Cl. 324-47

11 Claims



A collapsed coil of conductive wire is expanded within an ambient magnetic field with explosive suddenness. The change of area enclosed by the coil within the ambient field causes an electric current to be generated therein. Through appropriate telemetry techniques the electric current is transmitted to a remote station as indicative of the strength of the magnetic field at the position of the coil. Other utilization

3,602,809

HIGH SPEED FUNCTION TESTER FOR INTEGRATED CIRCUITS

Yasuo Tarui, and Yutaka Hayashi, both of Tokyo-to, Japan, assignors to Kogyo Gijutsuin (also known as Agency of Industrial Science and Industry, Japanese Government), Tokyo-to, Japan

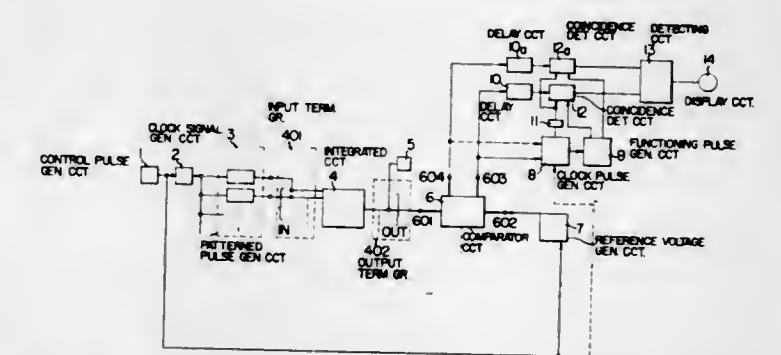
Filed June 9, 1969, Ser. No. 831,312

Claims priority, application Japan, June 12, 1968, 43/39,956

Int. Cl. G01r 27/00

U.S. Cl. 324-57 R

7 Claims



The test apparatus is composed of a clock signal generating circuit, a patterned pulse generating circuit operated in synchronism with the clock signal generating circuit, with the output of the patterned pulse generating circuit being furnished to an integrated circuit to be tested, a reference voltage generating circuit, a comparator circuit to compare the output pulses from the integrated circuit to be tested with the output from the reference voltage generating circuit, a function pulse generating circuit synchronized with an output from the comparator circuit, a circuit for detecting coincidence between the output from the comparator circuit and the output from the function pulse generating circuit, and a displaying circuit to display the output of the coincidence detecting circuit, whereby the validity of the integrated circuit is determined from the coincidence of the output pulses from the integrated circuit with the expected pulse patterns obtained from the function pulse generating circuit.

3,602,810

TESTING SYSTEM FOR CIRCUIT POINTS THAT ARE NORMALLY OPERATED IN A PREDETERMINED SEQUENCE

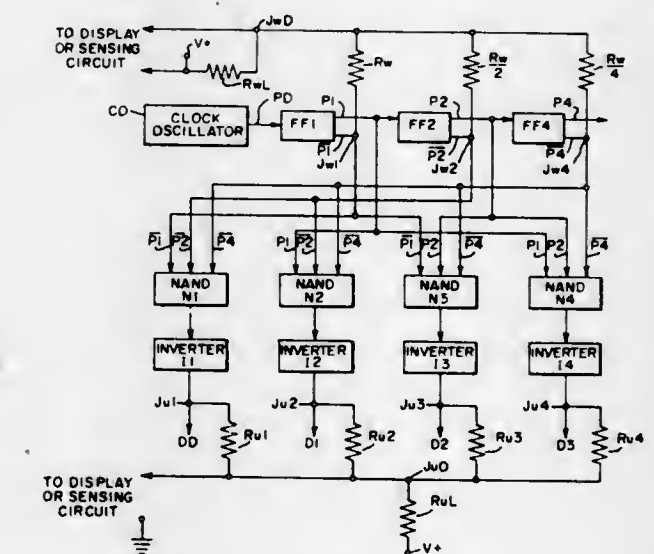
Frank Di Nicolantonio, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 7, 1969, Ser. No. 797,639

Int. Cl. G01r 15/12, 7/00

U.S. Cl. 324-73

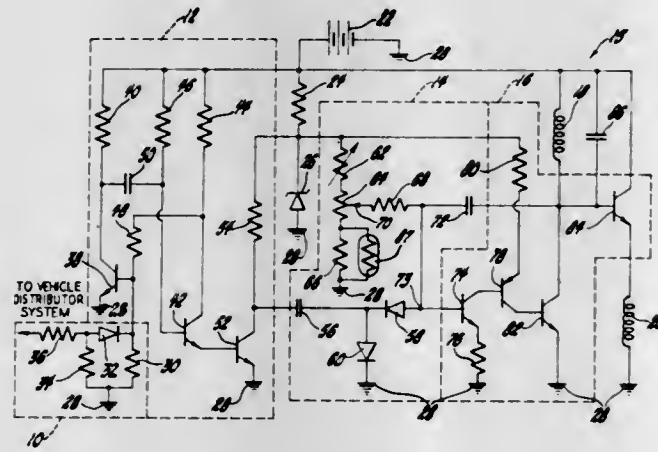
12 Claims



A system for monitoring the operation of a circuit configuration including test circuit points therein is disclosed

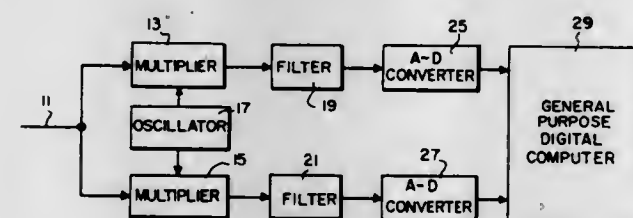
wherein a test network is utilized including a plurality of impedance elements, such as resistors, coupled between the test circuit points and a load impedance element, such as a resistor, with the output from the load impedance element being sensed by, for example, an oscilloscope. The plurality of impedance elements are selected to have a predetermined relationship with respect to each other, such as being weighted for monitoring a counting operation or having substantially equal values for a sequential operation.

3,602,811
ELECTRICAL MEASURING DEVICE
Douglas I. Fales, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 17, 1969, Ser. No. 842,471
Int. Cl. G01p 3/48
U.S. Cl. 324-781



An electrical measuring device for measuring the rate of occurrence of an event or the magnitude of some quantity at a remote point having two coil windings, the currents through which are controlled in a manner such that the current through the first coil winding decreases with an increase in the magnitude of the condition being measured, and the current through the second coil winding increases with a decrease in the current through the first coil winding, and a compensation network to provide for maximum accuracy in a relatively inexpensive mechanism.

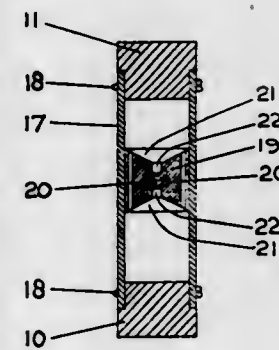
3,602,812
MEASURING THE RELATIVE PHASES OF SEQUENTIAL SIGNAL BURSTS
Ronald Y. Paradise, Hillsdale, N.J., assignor to Singer General Precision, Inc., Little Falls, N.J.
Filed Jan. 6, 1969, Ser. No. 789,201
Int. Cl. G01r 25/00
U.S. Cl. 324-85



This specification discloses a phase measuring system, which measures the relative phases of received sequential RF signal bursts by multiplying them with waveforms at the same frequency as the RF signal bursts 90° displaced in phase from one another. The impulses resulting from the multiplication are integrated to provide analogue signals representing the sine and cosine of the relative phase angles of the received signal bursts. These analogue signals are converted to digital signals which are applied to a digital computer adapted to

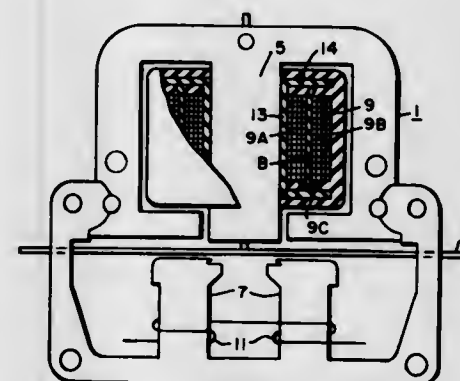
utilize the received phase information for navigational purposes.

3,602,813
DEVICE INCLUDING AN ELECTROLYTIC BATH FOR ASCERTAINING THE AVERAGE TEMPERATURE OF A BODY OR SPACE AND PARTICULARLY FOODSTUFFS OVER A PERIOD OF TIME
Roy Fergus Benseman, 19 Scapa Terrace Karori, Wellington, New Zealand
Filed Feb. 26, 1968, Ser. No. 708,363
Claims priority, application New Zealand, Mar. 2, 1967, 148,019
Int. Cl. G01n 27/42; G01r 27/22
U.S. Cl. 324-94



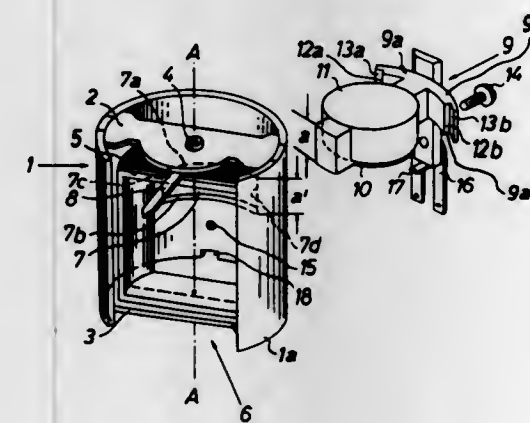
The finding of the average temperature of a body or space over a period of time in which a device having two electrodes immersed in an electrolytic bath is placed in the body or space and a current is passed from one electrode to the other for the time period for which it is desired to know the average temperature. The amount of metal transferred between the electrodes during such time period is determined and the average temperature during the time from the known relationship between the amount of metal transferred, the electrolytic bath, the length of time over which the current passes from one electrode to the other and the impressed e.m.f. is calculated.

3,602,814
ENCAPSULATED ELECTRIC COIL HAVING BARRIER LAYER
James F. Quirk, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 7, 1969, Ser. No. 805,234
Int. Cl. G01r 1/108
U.S. Cl. 324-137



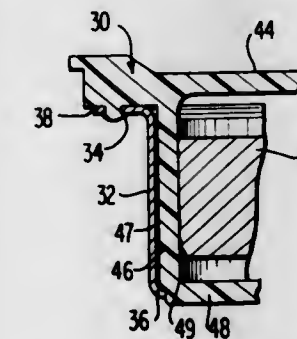
A random-wound electric coil has one or more barrier layers dividing the random-wound coil into two or more parts for the purpose of improving the resistance of the coil to electric surges.

3,602,815
MOVING-COIL INSTRUMENT HAVING A HOUSING WITH OPENINGS FOR INSERTION OR WITHDRAWAL OF THE CORE AND COIL
Fritz Rumpel, Munich; Paul Kopf, Munich-Unterhaching, and Franz Landbrecht, Munich-Unterhaching, all of, Germany, assignors to Agfa-Gevaest Aktiengesellschaft, Leverkusen, Germany
Filed May 8, 1969, Ser. No. 822,877
Claims priority, application Germany, May 31, 1968, P 17 66 384.2
Int. Cl. G01r 1/16, 1/04
U.S. Cl. 324-151 A



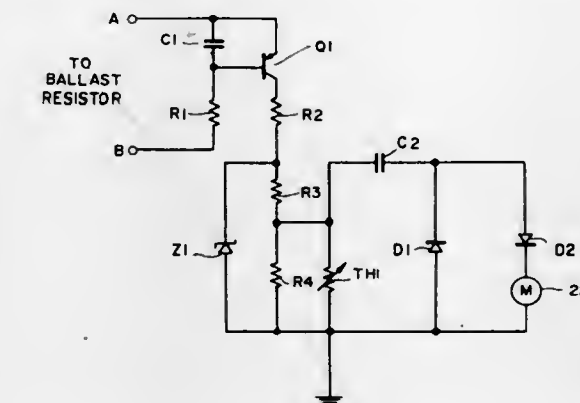
The housing of a electrical measuring instrument has two openings located opposite each other in a cylindrical wall of the housing and respectively permitting insertion or withdrawal of a moving-coil assembly and a core magnet in such a way that the magnet can be inserted or withdrawn through one opening and an open side of the moving coil assembly and that the moving coil assembly can be inserted or withdrawn through the other opening independently of the core magnet. The magnet is mounted on the arm of an insulating holder which is separably secured to the housing by a screw and carries an electric terminal as well as a retainer for the return spring which biases the moving coil assembly to zero position.

3,602,816
TAUT BAND INSTRUMENT FRAME ASSEMBLY
Carl Frederick Van Bennekom, Lynnfield, Mass., assignor to General Electric Company
Filed May 13, 1969, Ser. No. 824,245
Int. Cl. G01r 1/04
U.S. Cl. 324-151



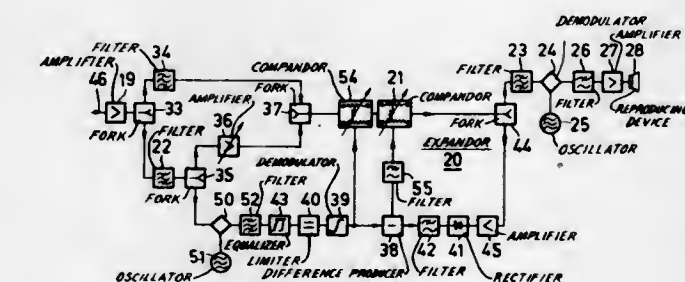
A stable frame assembly for supporting and locating the suspension system, armature, magnet and flux cup in a taut band electrical indicating instrument. A rigid, glass reinforced thermoplastic frame member fits within, engages, and is restrained by an integral metallic flux cup and shield to provide the stable frame assembly.

3,602,817
ELECTRICAL TACHOMETER
John Robert Nilson, Bedford, N.H., assignor to Beede Electrical Instrument Co., Inc., Penacook, N.H.
Filed May 23, 1969, Ser. No. 827,390
Int. Cl. G01p 3/48
U.S. Cl. 324-169



An electrical tachometer operative with an ignition system of an internal combustion engine to measure engine speed accurately in the presence of spurious input conditions. A transistor switch operates in response to the voltage drop across the ignition system ballast resistor to provide an output signal substantially immune to varying input conditions and effective to drive a current meter calibrated to indicate engine speed.

3,602,818
DELAY LINE AMPLITUDE COMPRESSION TRANSMISSION SYSTEM
Germain Francois Louis Carrette, Anderlecht, and Michel Jules Philemon Christiaens, Molenbeek-St. Jean, both of, Belgium, assignors to U.S. Philips Corporation, New York, N.Y.
Filed May 19, 1969, Ser. No. 825,876
Claims priority, application Netherlands, May 17, 1968, 6806968
Int. Cl. H04b 1/10
U.S. Cl. 325-65

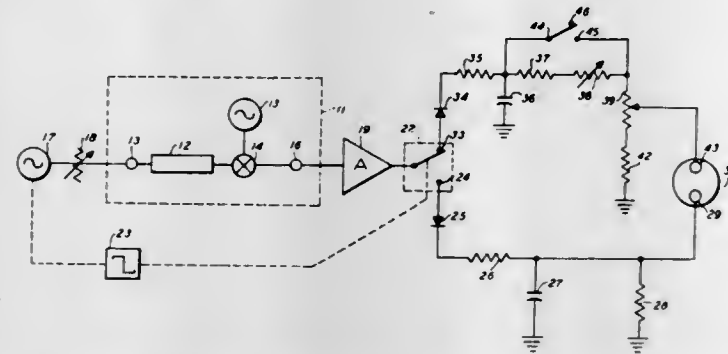


An amplitude compression-expansion circuit features a cotransmitted control signal that indicates the degree of compression at the transmitter for use at the receiver to control the degree of expansion. The compression control signal is applied to the compressor through a delay line, while the receiver features two expanders.

3,602,819
SENSITIVITY OR NOISE LEVEL MEASUREMENT CIRCUIT AND METHOD
Richard W. Abbott, Kernersville, and Samuel S. Montgomery, Greensboro, both of, N.C., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed May 7, 1969, Ser. No. 822,414
Int. Cl. H04b 1/00
U.S. Cl. 325-363

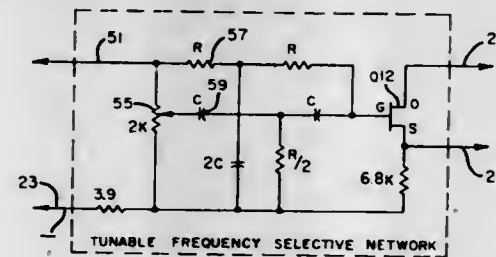
A device, such as a receiver, amplifier, active filter, etc. is tested for sensitivity or noise level by modulating an input signal source and switching the output of the device between two terminals in synchronism. Following signal detection and

integration, the output of one of the terminals is connected to one side of a null detector while the output of the other terminal is connected through a resistance network and then to the other side of a null detector. The resistor network is



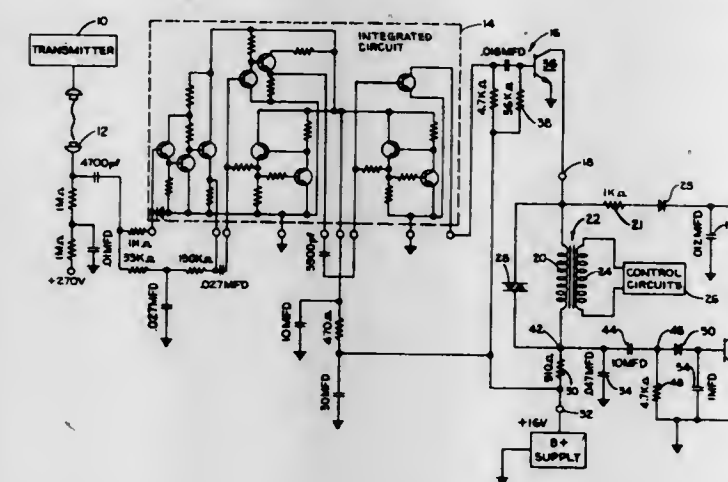
adjusted so that when the input signal source is reduced to a level such that the output signal of the device is equal to the noise level within the device, the null detector indicates a null. The input signal level in dbm at this point is equal to the sensitivity of the device.

3,602,820
TUNABLE TONE SQUELCH ENCODER-DECODER INCORPORATING AN ACTIVE FILTER FEEDBACK TUNING NETWORK
Barry M. Kaufman, Santa Clara, Calif., assignor to Computer Equipment Corporation
Filed Oct. 2, 1968, Ser. No. 764,394
Int. Cl. H04b 5/10
U.S. Cl. 325-348 4 Claims



A solid state tunable controlled squelch device is provided for a radio system having an encoder-decoder with a tunable band pass frequency filter including a null frequency selective network. The network may be either continuously tunable or may be switched to a number of adjusted frequencies.

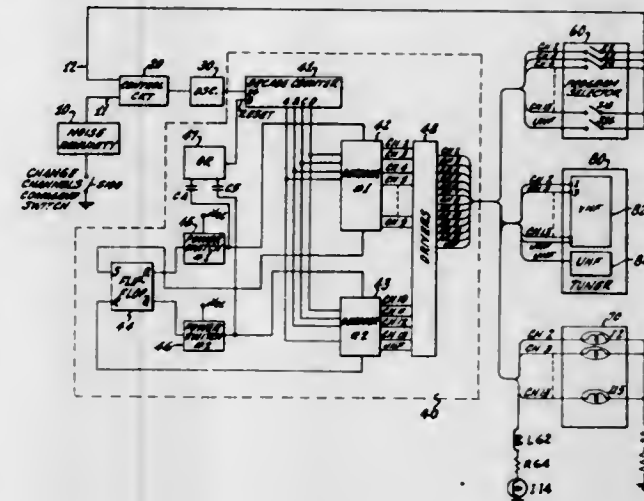
3,602,821
NOISE IMMUNE PURE CARRIER DETECTOR CIRCUIT
Lyle Bruce Juroff, Indianapolis, Ind., assignor to RCA Corporation
Continuation-in-part of application Ser. No. 824,547, May 14, 1969, now abandoned. This application Apr. 23, 1970, Ser. No. 31,101
Int. Cl. H04b 1/10
U.S. Cl. 325-364 19 Claims



In a remote control system transmitted acoustic control signal waves are received by remotely located apparatus, am-

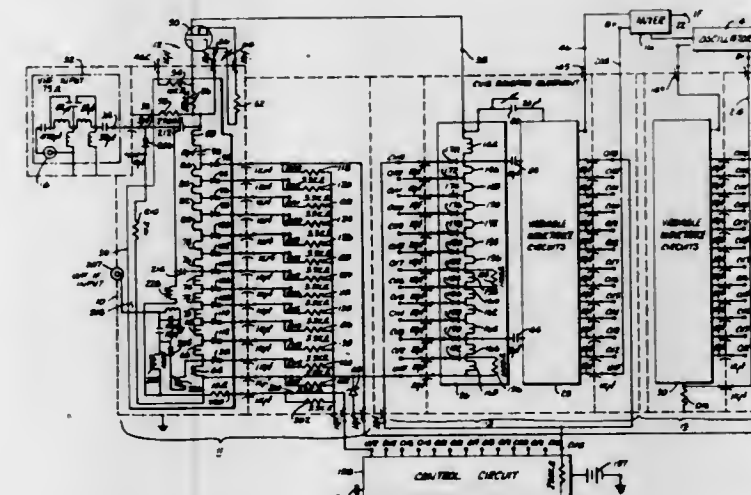
plified and detected for control of circuits in the apparatus. A noise detector circuit is provided to determine the presence of amplitude variations in the amplified signals. When amplitude variations are detected, disabling means are actuated to attenuate the energy applied to the desired control signal detector circuits.

3,602,822
TELEVISION ELECTRONIC CONTROL CIRCUIT FOR CHANNEL SELECTIONS
Wayne Wheeler Evans, and Jerome Benjamin Bean, both of Indianapolis, Ind., assignors to RCA Corporation
Filed May 29, 1969, Ser. No. 829,057
Int. Cl. H04b 1/16
U.S. Cl. 325-464 14 Claims



An electronically controlled tuner for a television receiver is automatically tuned from one to another of preselected channels. A control circuit for channel selection is adapted to energize a plurality of tuner control terminals and channel identification terminals each corresponding to a particular channel. The control circuit is actuable to automatically change the tuning of the receiver to a selected channel and includes a counter which is energized by an oscillator. Means are responsive to successive counts produced by the counter to apply a control signal to a different one of said tuner control and channel identification terminals for causing said receiver to be tuned from channel to channel in succession with each channel being identified. The means are responsive to counts corresponding to channels within the preselected group for disabling the oscillator each time the counter reaches one of the counts.

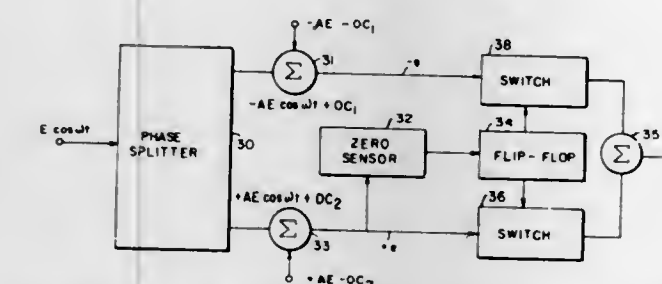
3,602,823
ELECTRONIC SWITCHING OF TUNED CIRCUITS
George William Carter, Indianapolis, Ind., assignor to RCA Corporation
Filed June 2, 1969, Ser. No. 829,335
Int. Cl. H03j 5/14
U.S. Cl. 325-465 21 Claims



A television tuner includes tunable resonant circuits having a plurality of inductors and a plurality of diode switches for

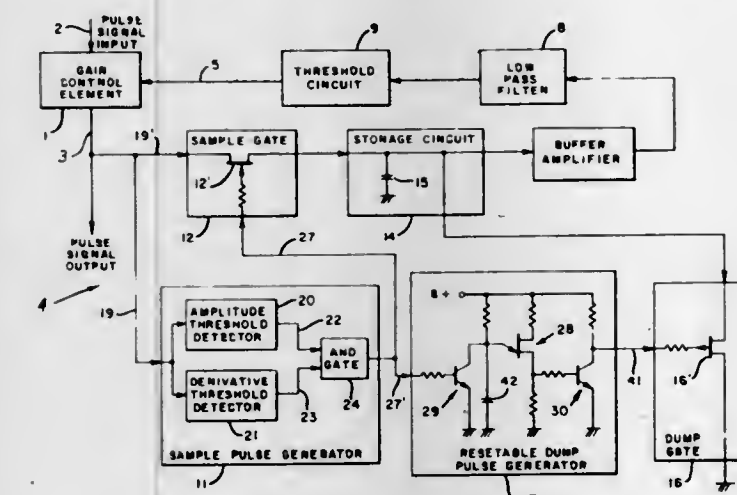
selectively connecting different ones of the inductors in the resonant circuit. A forward biasing voltage is applied to a selected one of the diodes to switch that diode to a low resistance condition and cause the tuner to select a desired television channel. A source of voltage provides a reverse bias supply for the diodes and, additionally, may be utilized as a source of operating potential for the active devices of the tuner.

3,602,824
FREQUENCY CHANGING APPARATUS AND METHODS
William T. Rusch, Hollis, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.
Filed Aug. 19, 1968, Ser. No. 753,394
Int. Cl. H03b 19/14
U.S. Cl. 328-25 37 Claims



Apparatus and methods are provided for changing the frequency of signals and in particular signals from musical instruments. In one embodiment the input signal is split into two oppositely phased signals DC restored above and below ground. The two signals are alternately passed to yield a half frequency output signal. The invention is also disclosed as it relates to frequency counting applications. Also disclosed herein are various pickups for stringed instruments which may be employed with the frequency changing apparatus herein disclosed.

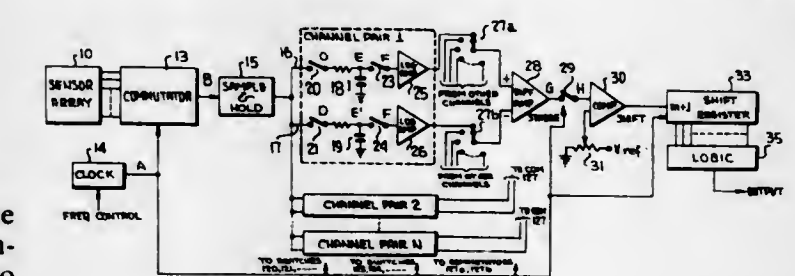
3,602,825
PULSE SIGNAL AUTOMATIC GAIN CONTROL SYSTEM INCLUDING A RESETTABLE DUMP CIRCUIT
Edwin W. Senior, Sunnyvale, Calif., assignor to Sylvania Electric Products Inc.
Filed May 16, 1968, Ser. No. 729,707
Int. Cl. H03k 5/04, 5/20
U.S. Cl. 328-58 12 Claims



The feedback circuit associated with the gain control element of this AGC system comprises a boxcar pulse stretcher including an automatic dump circuit. The pulse stretcher comprises a sample gate which controls application of input pulses to a storage capacitor. The dump circuit comprises a resettable dump pulse generator which produces control pulses that open a dump gate and discharge the capacitor. A sample pulse generator is responsive to input pulses for controlling operation of the dump generator and the sample gate. If the amplitude of an input pulse is greater than a first preset threshold level, the sample generator resets the dump generator to prevent discharge of the capacitor and opens

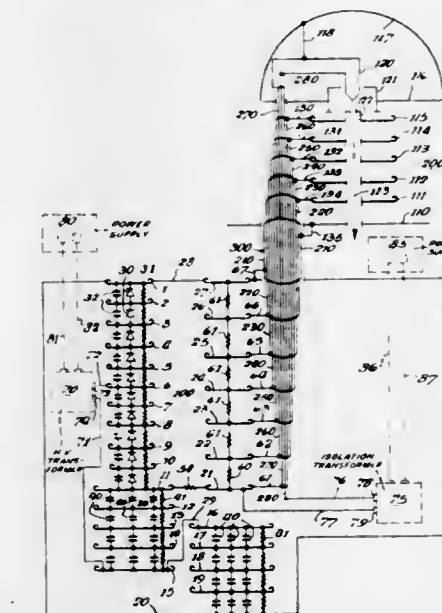
the sample gate to enable the capacitor to charge to the amplitude of and to store the input pulse. If the amplitude of the next input pulse is greater than the first threshold, the sample generator again inactivates the dump generator and opens the sample gate to enable the capacitor to charge to the amplitude of and to store the new pulse. If the amplitude of the input pulse is less than the first threshold, the sample gate remains closed and the dump generator automatically opens the dump gate and discharges the capacitor after a prescribed time interval. If the voltage stored by the capacitor exceeds a second threshold level it is coupled to the gain control element to control the gain of the system.

3,602,826
ADAPTIVE SIGNAL DETECTION SYSTEM
William F. List, Lithicum, and Roland A. Anders, Baltimore, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 24, 1969, Ser. No. 887,860
Int. Cl. H03k 5/20
U.S. Cl. 328-117 14 Claims



Apparatus for detecting information signal level variations in the presence of noise or other background level variation phenomena, includes an array of sensors or transducers to convert energy to be detected to a form suitable for processing, such as representative electrical signals. The signals are sequentially sampled according to a predetermined scanning sequence of the sensor array, and are processed in parallel channels on a synchronized element-by-element basis to derive therefrom amplitude representations of level variations occurring over maximum and minimum time intervals related to intervals over which information signal level variations can be expected to occur. These amplitude representations are then compared as an indication of whether they represent actual information signal or simply noise.

3,602,827
GRADED PLANE, HIGH-VOLTAGE ACCELERATOR
Joseph T. Peoples, and George A. Luce, both of Austin, Tex., assignors to Nuclear-Chicago Corporation, Des Plaines, Ill.
Filed Apr. 5, 1968, Ser. No. 719,165
Int. Cl. H05h 5/06
U.S. Cl. 328-233 4 Claims



A high-voltage electron accelerator system employing a graded plane power supply, a graded plane accelerator, and a

single, graded-conductor cable interconnecting the power supply and the accelerator.

3,602,828

SELF-CLOCKING DETECTION SYSTEM

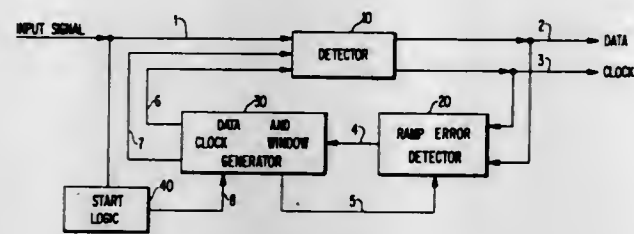
Fred Kurzweil, Jr., Saratoga, and Marco Padalino, San Jose, both of, Calif., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Oct. 27, 1969, Ser. No. 869,574

Int. Cl. H03k 9/06

U.S. Cl. 329-104

7 Claims



The invention relates to both a method and an apparatus for separating data and clock signals from a self-clocking encoded input signal by means of a self-clocking detector system which employs clock circuitry operating at the same frequency as the data rate embodied in the self-clocking encoded input signal.

3,602,829

HIGH GAIN AMPLIFIER AND FEEDBACK ARRANGEMENT FOR CURRENT DRIVING A SINGLE COIL

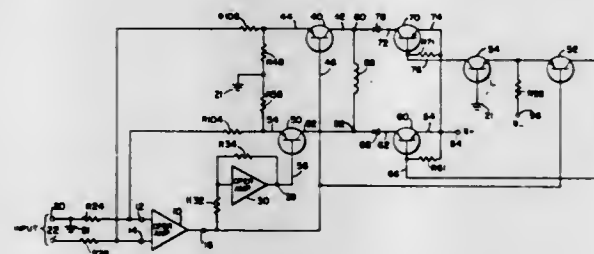
Gerald R. Mansfield, Raleigh, N.C., assignor to The United States of America as represented by the Secretary of the Army

Filed Jan. 16, 1970, Ser. No. 3,402

Int. Cl. H03f 5/00; H05f 21/00

U.S. Cl. 330-3

7 Claims



A high gain amplifier and feedback arrangement utilizing a class B power stage for current driving a single coil wherein the precession coil of a spinning magnet gyroscope is controlled by sending a precise current through the coil. A first operational amplifier with differential input terminals generates either a positive or negative output. A positive output drives one side of the class B output stage to control current flow in one direction through the load. A negative output drives the other side of the class B output stage by way of a second operational amplifier connected as an inverter to control current in the inverse direction through the load. The load current is arranged to provide feedback to the first operational amplifier so that the load current is a replica of the input for both directions of current flow in the load. An output stage switching transistor is conducting or cut off when the corresponding class B stage side conducts or is cut off. The two output stage switching transistors are controlled from a switching differential pair of transistors which in turn is controlled by the output of the first operational amplifier. Switching of all switching transistors and circuits occurs when the input signal passes through zero at which time the load current is zero.

3,602,830

A CONSTANT CURRENT CONTROL CIRCUIT

Edward T. E. Hurd, III, Cinnaminson, N.J., assignor to Honeywell Inc., Minneapolis, Minn.

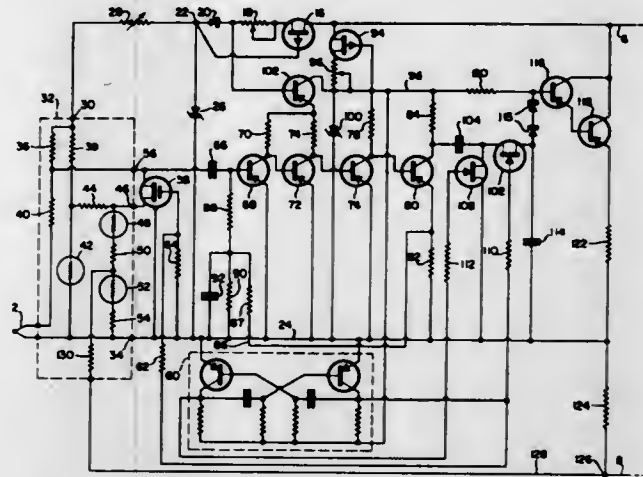
Division of Ser. No. 670,822, Sept. 8, 1967, Pat. No. 3,562,729

Filed Oct. 21, 1969, Ser. No. 868,043

Int. Cl. H03f 3/16

U.S. Cl. 330-22

2 Claims



There is disclosed a voltage (millivolts)-to-current transducer which transmits a current signal to a remote central station, which includes a power supply for a utilization device at the remote location, over a two-wire transmission line. The transmission line carries both the signal current from the transmitter to the remote station and the total power supply for the transmitter. A highly stable constant current source uses a field effect transistor as an element thereof. A variable resistor and temperature compensating diode are connected in series with the drain-source path of the field effect transistor and the gate of the field effect transistor is connected to the junction of a load and the diode. Further, a plural-stage amplifier has the DC power supply of the first amplifier stage of the plural stages isolated from the constant DC power supply of the following stages. The isolation is accomplished by means of a transistor having a constant voltage applied to the base thereof and having the constant DC power supply of the following stages applied to the collector thereof. The emitter is connected to the first amplifier stage to thereby supply the DC power supply thereto.

3,602,831

EQUALIZER USING LIGHT DEPENDENT RESISTORS WITH FAIL-SAFE CIRCUITS

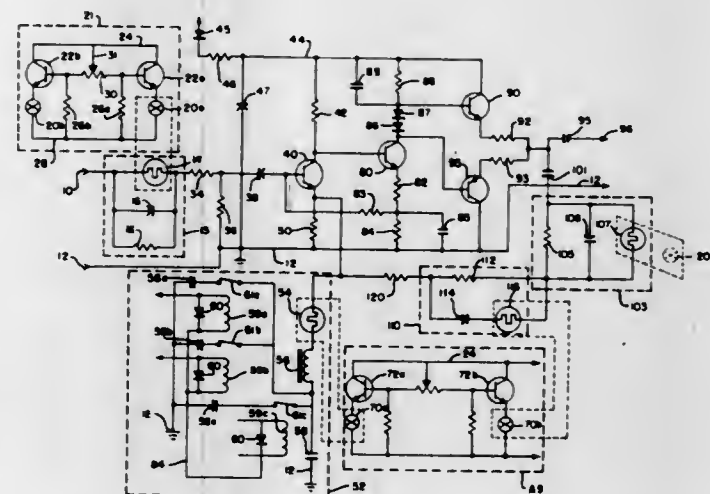
George Alexandrovich, Commack, N.Y., assignor to Fairchild Sound Equipment

Filed Oct. 21, 1968, Ser. No. 769,156

Int. Cl. H03f 17/00

U.S. Cl. 330-59

10 Claims



An equalizer circuit for audio frequency signals in which a plurality of frequency responsive compensation networks

each including a light-dependent resistor is provided for respectively producing low frequency boost, low frequency droop, high frequency boost and high frequency cut compensation. The light-dependent resistors are arranged in the compensating networks so that if the light source for any such resistor fails, the particular compensation network will have little or no effect so that the response curve of the equalizer will tend to go flat.

3,602,832

LOW ZERO-OFFSET TRANSDUCER APPARATUS

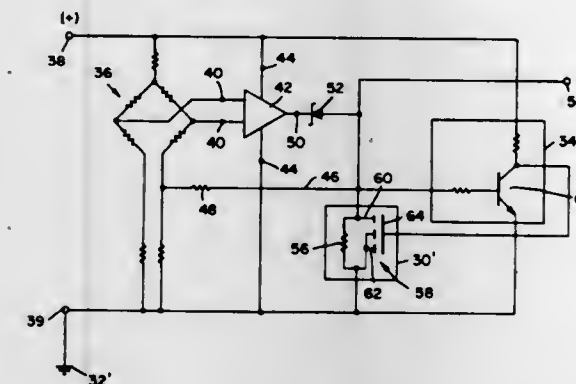
William R. Raymond, Pomona, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed June 12, 1969, Ser. No. 832,801

Int. Cl. 15/00

U.S. Cl. 330-86

10 Claims



Three-wire transducer apparatus for producing a low zero-offset output voltage while permitting high full scale operation. In a preferred circuit embodiment, a Zener diode is connected to the transducer's amplifier output terminal, within an included feedback loop. The resistance of a variable resistor referred to a common reference potential is varied in accordance with the magnitude of the transducer output signal, while biasing the Zener diode to maintain breakdown.

3,602,833

ACTIVE TWIN T FILTER WITH A POSITIVE FEEDBACK Q CONTROL

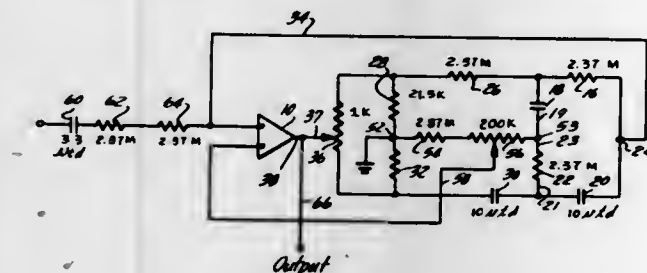
William E. Barnette, Levittown, Pa., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 23, 1969, Ser. No. 860,353

Int. Cl. H03f 1/36

U.S. Cl. 330-104

1 Claim



An active twin T filter in which current is drawn from an amplifier or from the legs of a twin T network and passed as feedback to the positive input side of the amplifier to provide Q control and the combination thereof with the passage of feedback current from the network to the negative input of the amplifier to provide frequency control, both controls being obtained without need to vary the passive resistor and capacitor elements of the circuit.

3,602,834

TIMING RECOVERY CIRCUITS

Gerald K. McAuliffe, Mahopac, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 18, 1970, Ser. No. 47,464

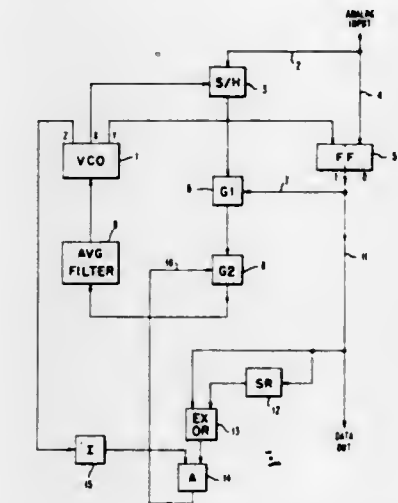
Int. Cl. H03b 3/04

U.S. Cl. 331-1 A

14 Claims

A timing recovery circuit based on the departure from the zero crossing of an analog signal is disclosed. The departure

from the zero crossing is proportional to the amplitude of a sample taken at a time when an analog signal is expected to experience a zero crossing. The amplitude and polarity of the resulting signal are stored in a hold circuit which applies the signal to a means for determining the direction of a possible transition. In the meantime, the input signal is applied to a data decision circuit which may be a clocked flip-flop, for example, which samples the polarity of the analog signal half a bit time later than the first sampling of the analog signal. The resulting output (a "1" or a "0") is simultaneously applied to the means for determining the direction of a possible transition and to a means for determining if a transition has in fact occurred. The former is an inverting gate which, in response to the polarity of the output of the clocked flip-flop, provides at its output either the output of the sample and hold circuit or an inverted version thereof. The latter means consists of a



delay device such as a one bit shift register to provide an output delayed by one bit and an exclusive OR gate, the terminals of which are connected to the input and output of the delay device. The OR gate provides an output only when the polarities of the samples at the input and output of the delay device are different. This circuit, in effect, makes a comparison between the polarity of a present bit and a previous bit to determine whether or not a transition has occurred. The output of the exclusive OR circuit and the inverting gate are applied to another gate. This gate is operative only if the exclusive OR provides an output indicating that a transition has occurred and the output of the inverting gate is applied to an averaging filter which provides a control signal for adjusting the frequency of a variable frequency oscillator; the zero crossing of which is to be synchronized with the zero crossings of the analog signal.

3,602,835

CONTINUOUS WAVE, FLUORESCENT SOLID LASERS

Otto Deutschbein, 8 rue Gueudin, Montrouge, France

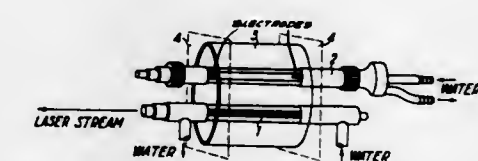
Continuation-in-part of application Ser. No. 652,050, July 10,

1967. This application Feb. 9, 1970, Ser. No. 9,479

Int. Cl. H01s 3/09

U.S. Cl. 331-94.5

1 Claim



A long lasting continuous-wave, solid laser of relatively low pumping power, on the order of 1 kilowatt, comprising a rod of laser active material having at least one absorption band in the near infrared range from 0.75 to 0.97 microns and an elongated arc quartz lamp filled up with krypton under a pressure between 1.5 and 6 atmospheres and having a length l and a diameter d whose product ld is larger than $W/300\pi$, W being the input power of the lamp. The rod and the lamp

are disposed along the focal lines of an elliptical cylinder reflector.

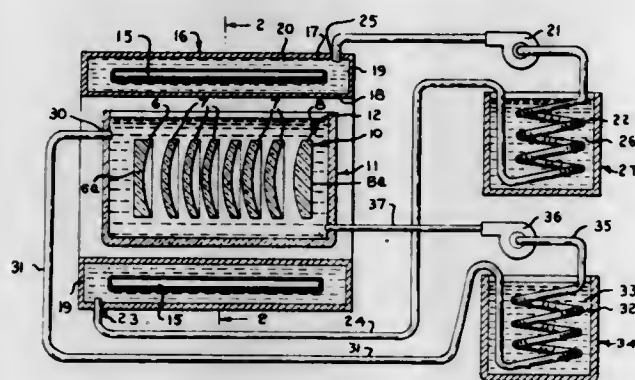
3,602,836

LASER STRUCTURE WITH A SEGMENTED LASER ROD
Charles Gilbert Young, Storrs, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed Apr. 1, 1969, Ser. No. 812,119
Int. Cl. H01s 3/06

U.S. Cl. 331—94.5

6 Claims



An optical maser or laser structure is provided with a segmented laser rod and is immersed in a coolant fluid for maintaining the operating temperature of the laser rod segments at a substantially uniform temperature. The segmented structure is formed of menisci-shaped segments of zero lens power, spaced apart a sufficient distance to permit free passage of sufficient coolant for temperature maintenance but close enough to prevent pump light from passing through the spaces between the segments.

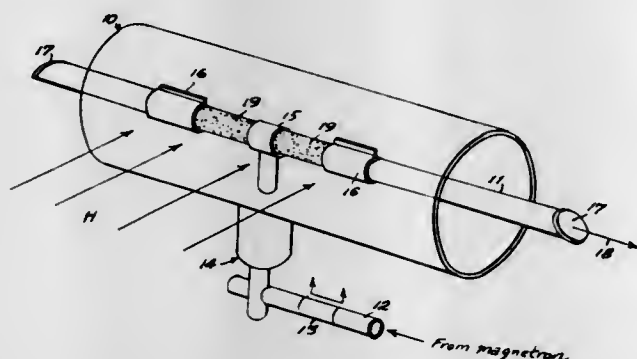
3,602,837

METHOD AND APPARATUS FOR EXCITING AN ION LASER AT MICROWAVE FREQUENCIES
John Goldsborough, San Jose, Calif., assignor to The United States of America as represented by the Secretary of the Army

Filed Mar. 31, 1970, Ser. No. 24,294
Int. Cl. H01s 3/09

U.S. Cl. 331—94.5

12 Claims

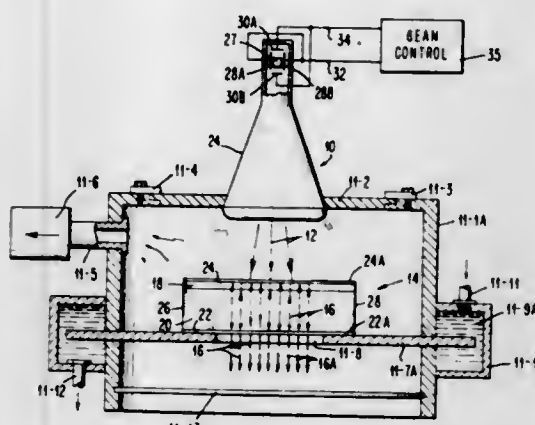


This invention relates to a method and apparatus for exciting a continuous wave, high energy density ion laser with microwave frequency power. The method involves the coupling of microwave excitation energy into a plasma which, due to its high conductivity, replaces what would normally be a metallic conductor. Power is transmitted from a magnetron via a waveguide, a directional coupler, and a tunable waveguide-to-coaxial transition unit or other equivalent transmission elements to a resonant structure enclosing the plasma tube. Sliding copper sleeves on the discharge tube are used to control standing wave patterns within the discharge conductor and to confine the discharge power, thereby eliminating the discharge in regions of the plasma tube, such as near the Brewster windows, where its presence limits the power output and/or lifetime of the laser.

3,602,838
EXTERNALLY EXCITED LUMINESCENT DEVICES
Frank Stern, Pleasantville, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed July 18, 1968, Ser. No. 745,827
Int. Cl. H01s 3/18

U.S. Cl. 331—94.5

25 Claims



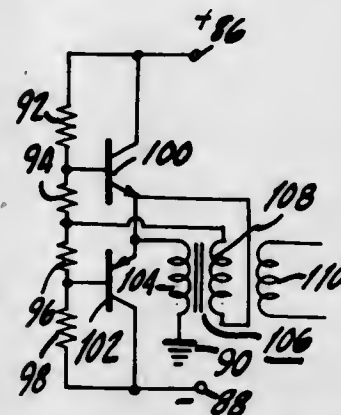
The disclosure provides a semiconductor luminescent device which is excited by either an electron beam or a photon beam. Particularly, a solid-state semiconductor laser element is formed of two layers, the first of which is a thin layer at the bombardment surface and the second of which is a thicker layer supporting the active layer. The first layer has a smaller energy gap than the second layer. The active layer must have a smaller energy gap than the inactive layer at the lasing wavelength. Because the active layer emits recombination radiation at a longer wavelength than the region of strong absorption in the inactive layer, there is a reduction in the energy loss in the inactive layer. Coherent emission or lasing perpendicular to the front surface is produced by introducing feedback via reflecting front and back surfaces, one or both of which may contain coatings to enhance their reflectivity.

3,602,839
INVERTER INCLUDING COMPLEMENTARY TRANSISTORS

Wallace D. Williams, Somerville; Douglas A. Moe, Plainfield, and Carl R. Turner, Hopatcong, all of, N.J., assignors to RCA Corporation
Continuation of Ser. No. 718,156, April 2, 1968, abandoned
Filed Mar. 30, 1970, Ser. No. 22,112
Int. Cl. H02m 7/24

U.S. Cl. 331—113 A

4 Claims



Inverters including complementary transistors and single ended or center tapped sources of current supply.

3,602,840
TRANSIT TIME DIODE OSCILLATOR USING TUNNEL INJECTION

Jun-ichi Nishizawa; Takeaki Okabe, and Kotaro Okamoto, all of Sendai-shi, Japan, assignors to Semiconductor Research Foundation, Sendai-shi, Japan

Filed July 31, 1969, Ser. No. 846,401

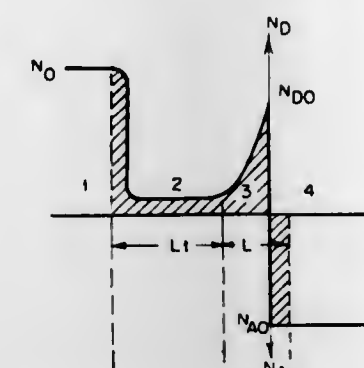
Claims priority, application Japan, Aug. 1, 1968, 43-54536
Int. Cl. H03b 7/14

U.S. Cl. 331—96

13 Claims

An operating voltage is applied to a pair of electrodes in electrical contact with a semiconductor substrate having two

zones of opposite conductivity type forming a PN junction in a reverse direction across such junction in a manner whereby a space charge region is formed by the operating voltage and a carrier is injected into the space charge region due to tunnel effect.



The carrier transits the space charge region and decreases the internal electric field to such an extent that the succeeding carrier injection may be controlled and avalanche breakdown substantially does not occur.

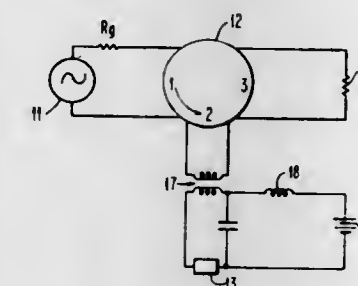
3,602,841

HIGH FREQUENCY BULK SEMICONDUCTOR AMPLIFIERS AND OSCILLATORS

James C. McGroddy, Putnam Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 18, 1970, Ser. No. 47,486
Int. Cl. H03b 5/12

U.S. Cl. 331—107 G

12 Claims



Stable high frequency oscillating and amplifying devices are prepared from bulk semiconductor materials which have a positive differential conductivity at relatively low frequencies and a negative differential conductivity in some ranges of relatively high frequencies. The materials used are further characterized in that there is charge carrier transfer or population redistribution from a lower mobility band or low mobility impurity level to a higher mobility band, an effect opposite to that of Gunn effect devices. Materials suitable for the devices of this invention may be selected from a representative group of suitably doped III-V compounds, for example, N-type InSb, N-type alloys of the form $\text{In}_x\text{Ga}_{1-x}\text{As}$, where $0.53 < x < 1.0$, $\text{InAs}_x\text{P}_{1-x}$, where $0.30 < x < 1.0$, $\text{In}_x\text{Al}_{1-x}\text{Sb}$ where $0.9 < x < 1.0$, stressed N-type germanium, or stressed P-type germanium and silicon.

3,602,842

ELECTROMECHANICAL OSCILLATOR INCLUDING A DUAL VIBRATOR FOR PRODUCING A BENT FREQUENCY

Scudder Smith, 672 Orchard Court, Roselle, Ill.

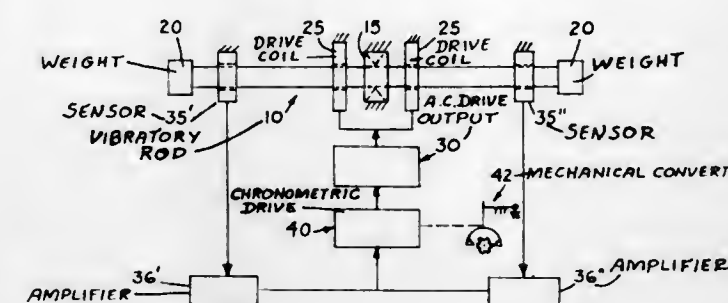
Filed Aug. 8, 1969, Ser. No. 848,553
Int. Cl. G04c 3/00; H03b 5/30; H02k 33/00

U.S. Cl. 331—116 M

28 Claims

A member whose expansion and elastic properties are minimally affected by temperature, such as invar, is caused to longitudinally vibrate at its fundamental frequency, at a harmonic frequency, or at two frequency modes simultaneously. The vibrations induce corresponding pulses of the two frequencies in tuned circuits to effect a low frequency beat note usable to drive a mechanical output such as a ratchet

and pawl for chronometric purposes. A beat frequency of optimum utility is achieved by altering the natural frequencies so that the various harmonics are not exact multiples of the fundamental said alteration being achieved by making the



vibratory member nonuniform in section, unit mass, or composition of matter per unit length. A single vibratory member in which two frequencies are generated maintains a constant relationship therebetween despite temperature changes.

3,602,843
ELECTRONIC MULTIPLICATION DEVICE AND ELECTRICAL ENERGY MEASURING SYSTEM USING SAME

Jakob De Vries, Allenwinden, Zug, Switzerland, assignor to Landis & Gyr AG, Zug, Switzerland

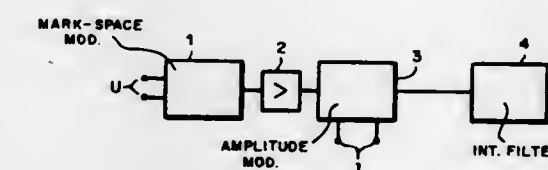
Filed Sept. 13, 1968, Ser. No. 759,631

Claims priority, application Switzerland, Sept. 14, 1967, 12973/67

Int. Cl. H03k 7/02

U.S. Cl. 332—9

19 Claims

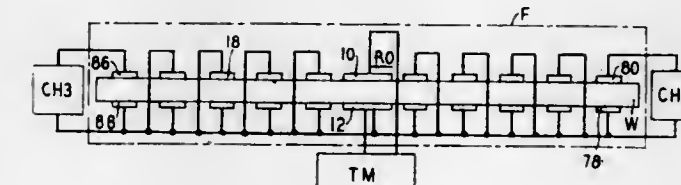


A mark-space amplitude-modulation-type electronic multiplier wherein an astable multivibrator with two separate current sources controlled according to a first input signal provide a mark-space modulated signal, and a pair of field effect transistor switches for a circuit for amplitude modulating the mark-space-modulated signal according to a second input signal.

3,602,844
CHANNEL SEPARATING ELECTRICAL WAVE FILTER
Roger A. Sykes, Bethlehem, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 6, 1969, Ser. No. 863,895
Int. Cl. H01v 7/00; H03h 9/04, 9/32

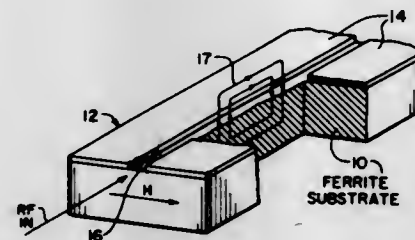
U.S. Cl. 333—6

14 Claims



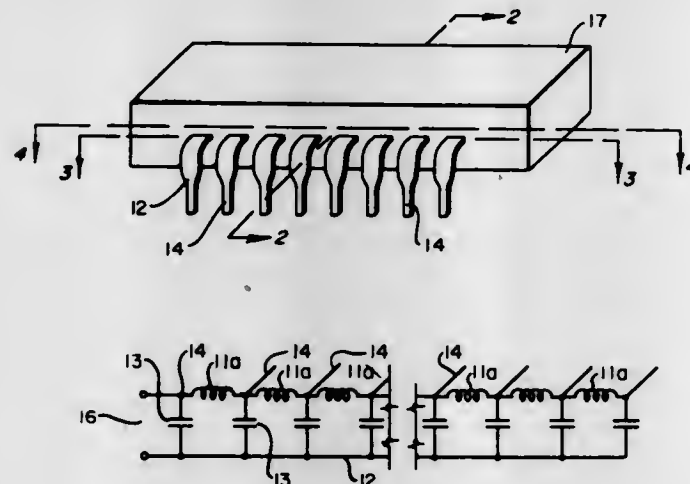
Multichannel signals on a single transmission path are separated into component channels by applying them to a pair of resonator-forming input electrodes mounted on a crystal wafer. Two or more groups of resonators, formed by other electrodes on the wafer, are each acoustically coupled to the input resonator but not to each other. The respective groups are tuned, by controlling the masses of the electrodes and the spacing between them, to form mutually exclusive passbands.

3,602,845
SLOT LINE NONRECIPROCAL PHASE SHIFTER
 John P. Agrios, Long Branch, and Nathan Lipetz, Oakhurst, both of, N.J., assignors to The United States of America as represented by the Secretary of the Army
 Filed Jan. 27, 1970, Ser. No. 6,085
 Int. Cl. H01p 1/32
 U.S. Cl. 333-24.1 16 Claims



A nonreciprocal microwave energy phase shifter utilizing a slot line for propagating microwave energy and a ferrite member which is magnetically biased to produce a magnetic field therein which is orthogonal to and interacts with the RF magnetic field cyclically generated along the slot line. The ferrite may be in the form of a toroid to provide a closed-loop magnetic field and which is produced by a latching current.

3,602,846
DELAY LINE
 Gerhard G. Hauser, Princeton, N.J., assignor to Pulse Engineering, Inc., San Diego, Calif.
 Filed July 14, 1969, Ser. No. 841,269
 Int. Cl. H03h 7/32; H05k 5/06
 U.S. Cl. 333-29 3 Claims

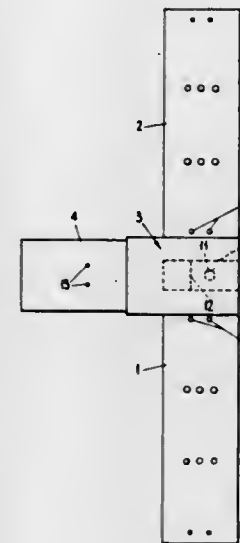


A delay line including a plurality of capacitors and a tapped inductor having mutually coupled sections disposed on opposite sides of and connected to a lead assembly, all encapsulated to form a delay line having a plurality of leads to provide selective delay.

3,602,847
RADIO-FREQUENCY BAND-PASS FILTER WHEREIN MAGIC-TEE ARMS ARE COUPLED TO CAVITIES AND RESONATORS
 Larry Joseph Stagg, Harrow Weald, England, assignor to The General Electric and English Electric Companies Limited, London, England
 Filed June 19, 1969, Ser. No. 834,687
 Claims priority, application Great Britain, June 20, 1968, 29577/68
 Int. Cl. H01p 1/20 3 Claims

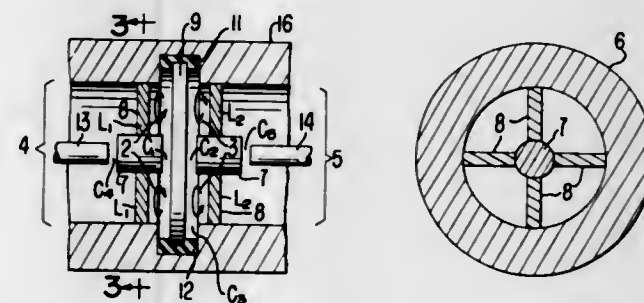
A radiofrequency band-pass filter having a flat amplitude response and a substantially constant group delay characteristic in the passband, these being obtained by the integrated combination of a magic-tee terminated with reflect-

ing cavities, and input and output transmission resonators, the integration of the components being essential to achievement of the above characteristics. For the same complexity



this filter has a higher stop-band attenuation and smaller mid-band insertion loss than a conventional nonintegrated filter/phase-equalizer combination.

3,602,848
HIGH FREQUENCY COAXIAL FILTER
 Thomas C. Leonard, Topsfield, Mass., assignor to Varian Associates, Palo Alto, Calif.
 Filed Aug. 13, 1969, Ser. No. 849,764
 Int. Cl. H03h 7/02, 7/08; H01d 1/20
 U.S. Cl. 333-73 C 4 Claims

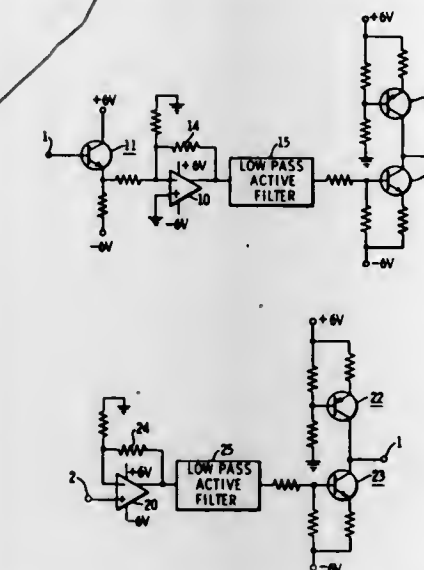


A high frequency coaxial line filter is disclosed. The filter includes a section of coaxial line containing an input resonator and an output resonator decoupled by a decoupling capacitive structure disposed therebetween. The resonators each include an inductor having a central hub with radially directed inductive spokes extending from the hub to the outer conductor of the coaxial line. Capacitors for the circuit are formed by capacitive gaps formed between the ends of the hub portions of the inductors and adjacent conductive structure.

3,602,849
BROADBAND GYRATOR CIRCUIT
 Philip R. Geffe, Laurel, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed May 27, 1969, Ser. No. 828,327
 Int. Cl. H01p 1/24 4 Claims

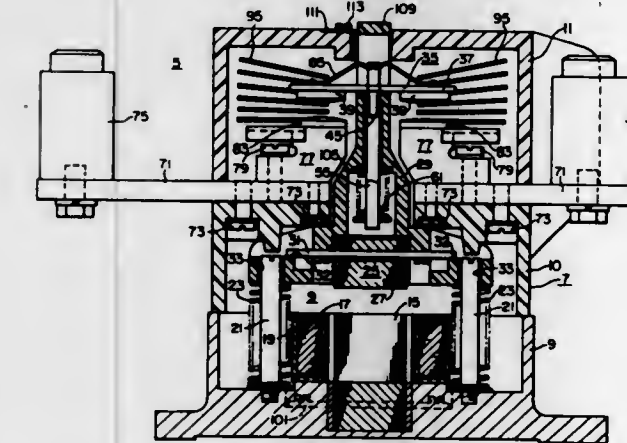
Circuitry for greatly extending the high-performance bandwidth of a gyrator by controlling the negative resistance of

the effective impedance. The high performance bandwidth is



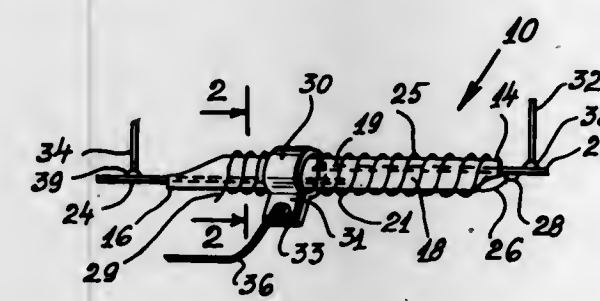
extended by realizing the gyrator transconductances with a pair of complex poles, instead of real poles.

3,602,850
CONTACTOR WITH IMPROVED CONTACT SUPPORT MEANS AND GUIDE MEANS
 Kurt A. Grunert, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Aug. 27, 1969, Ser. No. 853,271
 Int. Cl. H01h 63/00 8 Claims



A contactor comprises improved contact means. Spring support means, comprising a contact-pressure spring and a damping spring, supports a bridging contact structure on an insulating contact carrier. Externally adjustable guide means is provided to enable external adjustment of the alignment between the armature and stationary magnetic member.

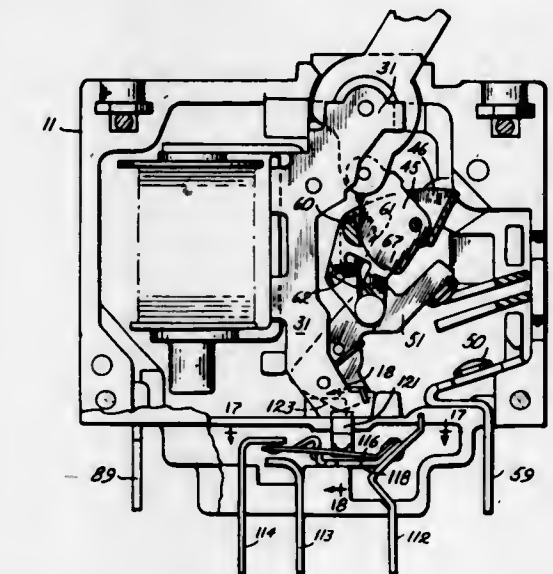
3,602,851
MAGNETIC TIME DELAY SWITCH
 John R. Wiegand, 882 Balfour St., Valley Stream, N.Y.
 Filed Apr. 2, 1970, Ser. No. 25,195
 Int. Cl. H01h 61/04 10 Claims



A magnetic reed switch comprises an insulative housing in which are laterally spaced magnetic reeds. A coil of magnetic

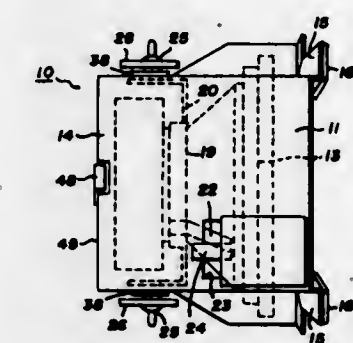
wire is wound around the housing. An adjustable clamp encircles the coil. The reeds, coil and clamp can be connected in a circuit to perform a time delay switching function which is variable over a wide range by adjustably positioning the clamp.

3,602,852
CASE ASSEMBLY FOR CIRCUIT BREAKERS
 Lawrence W. Brackett, Sr., and Lawrence W. Brackett, Jr., both of Georgetown, Mass., assignors to Wood Electric Corporation, Danvers, Mass.
 Filed June 5, 1970, Ser. No. 43,826
 Int. Cl. H01h 45/04 9 Claims



Two half shells forming a complete circuit breaker case are constructed with a view to simplicity of configuration and assembly therein, of essential components of a trip free circuit breaker. The shells carry magnetic arc deflectors which clear the closed contacts. Venting apertures lead directly through the shells above and below the arc deflectors and have protective guards, one of them between the deflectors and a shelf for the fixed contact. The shells have bosses which secure the metallic frame of the breaker movement and limit axial displacement of smooth pins of the breaker mechanism, pivoted in the frame. The shells can be extended to accommodate an auxiliary switch structure operated from the circuit breaker by an actuator guided by wings in grooves of the shells. Ferrules threaded throughout their length are held in correspondingly opposite recesses of the respective shells, with rivets for holding the shells together being placed in the recesses to prevent injury to the shells by screws that might be accidentally dimensioned to reach beyond the ferrules.

3,602,853
CATHODE-RAY TUBE DEFLECTION YOKE MOUNTING MEANS
 James D. Cummings, Phoenix, and John W. Root, Syracuse, both of, N.Y., assignors to General Electric Company
 Filed Apr. 30, 1969, Ser. No. 820,473
 Int. Cl. H01f 1/00 10 Claims



Improved means for mounting a cathode-ray tube deflection yoke, wherein means are provided for achieving three-

dimensional adjustment of the yoke relative to the long axes of both the tube neck portion and the yoke housing. A clamp is provided which engages the yoke and has a pair of diametrically opposing arms that are respectively received in a pair of diametrically opposing axially extending slots provided in the yoke housing to thus support the yoke therein. Fastener means are provided which can be inserted through each of the yoke housing slots and also through additional slots provided in the clamp arms and extending substantially orthogonally to the yoke long axis, whereby the yoke may be secured in a wide range of positions relative to the long axes of its housing and the tube neck portion.

3,602,854

FLUX PUMP

Ushio Kawabe, and Toshio Doi, both of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

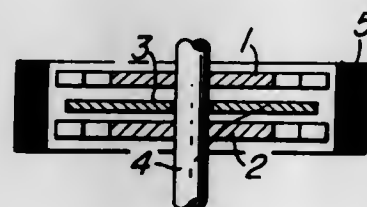
Filed Nov. 3, 1969, Ser. No. 873,327

Claims priority, application Japan, Nov. 4, 1968, Nov. 11, 1968, May 2, 1969, 43/79968; 43/81854; 44/33619

Int. Cl. H01f 7/22

U.S. Cl. 335-216

9 Claims



A plurality of discs each made of a superconducting material and having keyhole-shaped slots formed peripherally therein are mounted on a rotary shaft in such a manner that the surfaces of the discs are parallel to each other. A fixed loop member having a pair of superconductive loops connected with each other by two lead wires is interposed between adjacent ones of the discs for the linkage of an external magnetic flux with the loops which is imposed vertically on the discs and passing through the slots, and a large capacity superconductive magnet is connected to the lead wires for pumping the flux thereinto. In the above construction, when the discs are rotated, the superconductive state of the superconductive loops is broken alternately by the flux passing through the slots and thereby the flux is cumulatively transferred into the magnet.

3,602,855

LIFTING MAGNET

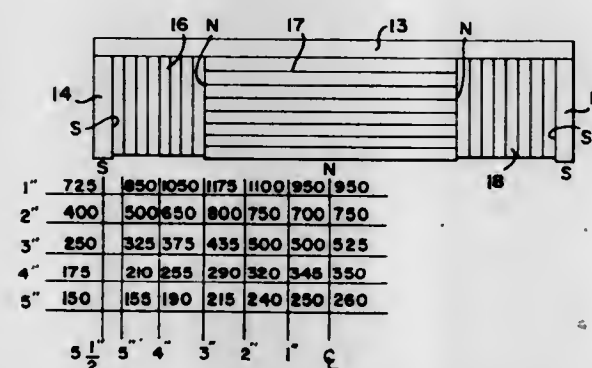
Bernhard A. Palm, Los Angeles, Calif., assignor to Buck Manufacturing Company, Garden Grove, Calif.

Filed Mar. 9, 1970, Ser. No. 17,468

Int. Cl. H01f 7/20

U.S. Cl. 335-285

4 Claims



A permanent magnet arrangement employing a plurality of individual permanent magnet blocks, the blocks are arranged to provide a suspension or other type lifting magnet with an improved flux distribution pattern.

3,602,856

ELECTRICAL INDUCTIVE APPARATUS

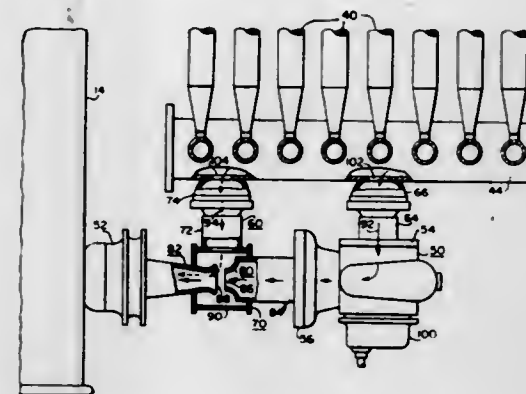
Dale White, Sharpsville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 4, 1970, Ser. No. 43,529

Int. Cl. H01f 27/10

U.S. Cl. 336-57

7 Claims



Fluid cooled electrical inductive apparatus having a heat exchanger and a pump. The apparatus has forced and self-cooled ratings, with a fluid flow bypass about the pump being provided for reducing the fluid flow resistance of the pump when the pump is not operating. The bypass is effectively closed without moving parts when the pump is operating, by a constriction on the output side of the pump which provides like pressure heads at both ends of the bypass.

3,602,857

SHIELDED WINDING WITH COOLING DUCTS

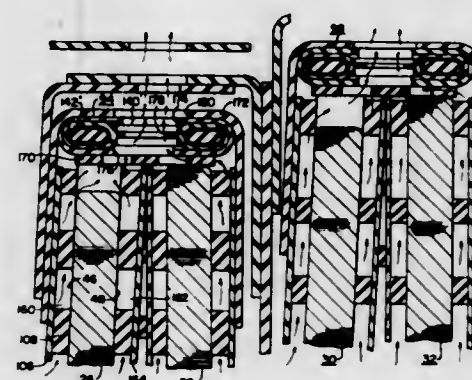
Harral T. Robin, Muncie, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 10, 1970, Ser. No. 53,800

Int. Cl. H01f 27/08, 15/04

U.S. Cl. 336-60

7 Claims



Electrical inductive apparatus of the shell-form type, having a plurality of axially spaced, start-start, finish-finish connected, pancake-type coils disposed in a fluid filled tank. A plurality of edge shielding members are disposed to shield the start-start, and finish-finish connections, and the adjacent edges of the pancake coils interconnected thereby. The edge shielding members are spaced from the edges of the pancake coils they are shielding, to enable the fluid to contact the edges of the pancake coils.

3,602,858

WINDING WITH COOLING DUCTS

Harold R. Moore, and Harral T. Robin, both of Muncie, Ind., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed July 10, 1970, Ser. No. 53,968

Int. Cl. H01f 27/08

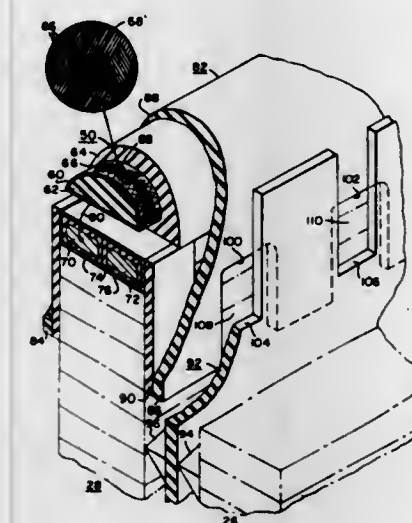
U.S. Cl. 336-60

10 Claims

Electrical inductive apparatus including a winding having a plurality of pancake-type coils disposed in a fluid-filled tank. Large radii edge shields formed of woven conductive strands disposed on an insulating core are placed about the inner and outer edges of the pancake coils, and secured in position by

insulating channel members. Insulating washer members and spacer blocks provide cooling ducts adjacent the major surfaces of the pancake coils. In one embodiment of the inven-

layer of each section to a layer position in the other section which is in 180° rotational symmetry with its previous layer position. The strands of the conductor assembly are trans-



tion, the cooling ducts have entrance and exit openings formed by spaced inward steps in the edges of the leg portion of the insulating channel members and in the edges of the adjacent insulating washer members.

3,602,859

INDUCTIVE REACTOR

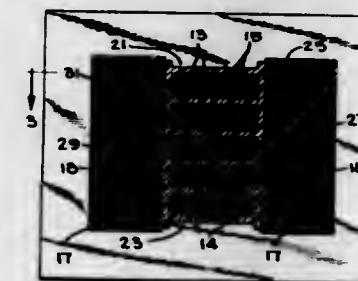
James Dao, Alameda, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Filed May 18, 1970, Ser. No. 38,141

Int. Cl. H01f 17/06

U.S. Cl. 336-83

4 Claims



An inductive reactor is described comprising an outer core body having a plurality of planar laminations of low magnetic reluctance material and a center leg spanning the hollow interior of the core body. A winding surrounds the center leg. The center leg is comprised of a plurality of parallel elongated sections extending along the length of the outer body and spaced from each other to form parallel nonmagnetic planar gaps. Each section is comprised of a plurality of elongated parallel planar strips of low magnetic reluctance material perpendicular to the planes of the laminations and the planes of the gaps.

3,602,860

ELECTRICAL INDUCTIVE APPARATUS

Harold R. Moore, Muncie; Virgil L. Boaz, Daleville, and William B. Wallace, Muncie, all of, Ind., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

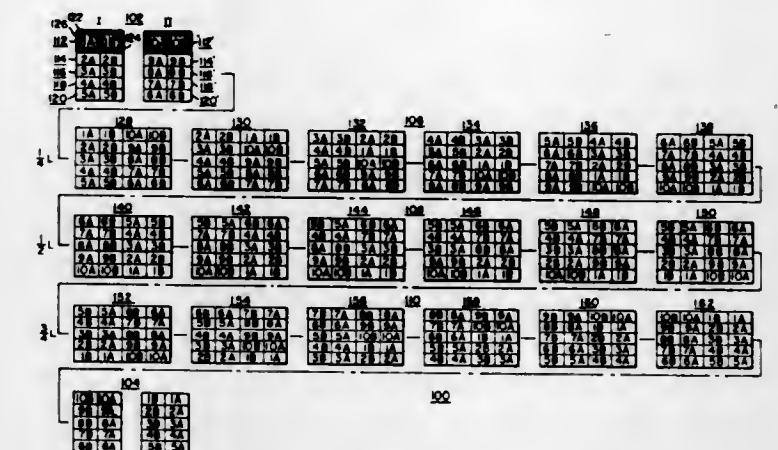
Filed Nov. 14, 1969, Ser. No. 876,769

Int. Cl. H01f 27/28

U.S. Cl. 336-187

12 Claims

An electrical coil of the flat disc or pancake type for electrical inductive apparatus, such as power transformers. The coil has a plurality of conductor turns formed of a stranded conductor assembly having a length dimension L. The conductive strands of the conductor assembly are arranged into two adjacent sections, each having a plurality of adjacent layers of one or more strands. The strands of the conductor assembly are transposed with a complete transposition at substantially 1/4 L and at substantially 3/4 L, directing each



posed at substantially 1/2 L with a standard transposition of the layers, directing each layer of each section to the same layer position of the other section.

3,602,861

HYBRID ELEMENT VARIABLE RESISTOR

Donald G. Tweed, Riverside, and Richard L. Bomar, Pomona, both of, Calif., assignors to Bourns, Inc.

Filed Mar. 5, 1969, Ser. No. 804,591

Int. Cl. H01c 7/00, 9/00

U.S. Cl. 338-9

1 Claim



A resistance element comprising an insulative base bearing first and second spaced-apart conductive terminals between which terminals extends a cermet component adherent to the base and a superposed conductive plastic component adherent to the cermet component and intimately in electrical contact therewith, both components having electrical connection at their first and second ends to respective ones of the terminals.

3,602,862

HERMETIC MOTOR PROTECTOR

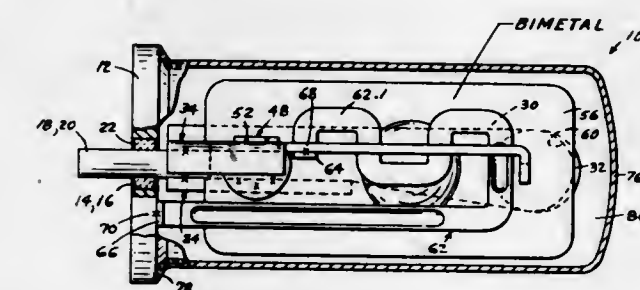
John R. D'Entremont, Foxboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 24, 1969, Ser. No. 887,875

Int. Cl. H01h 37/54, 61/04

U.S. Cl. 337-104

5 Claims



A hermetically sealed device for protecting the start and main windings of a motor has a pair of posts extending through a header plate in insulated relation to each other and to the plate. A first heater extends from one post to support a thermostatic member which carries a movable contact to engage a fixed contact carried by the other post, the first heater

extending in heat transfer relation to the thermostatic member. A second heater embodying a relatively wide and thin strip of electrical resistance heater material has a U-shaped configuration and is embossed along the legs of said configuration to make the heater more rigid, the heater being connected between the first heater and said plate to dispose the second heater with its wide surfaces in generally parallel, heat transfer relation to the thermostatic member.

3,602,863

ADJUSTABLE THERMOSTAT

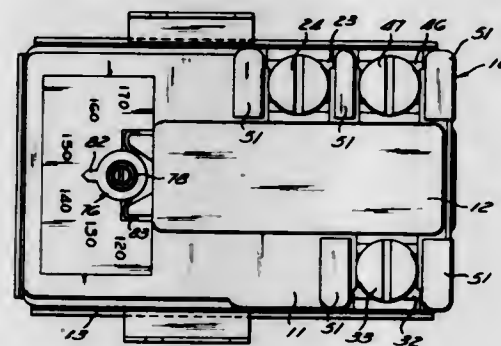
Donald E. Place, Mansfield, Ohio, assignor to Therm-O-Disc Inc., Mansfield, Ohio

Filed June 1, 1970, Ser. No. 41,910

Int. Cl. H01h 37/52

U.S. Cl. 337-349

18 Claims



An adjustable snap disc thermostat is disclosed which utilizes a bimetallic snap disc both for thermal response and snap action. The disc operates a single pole double throw switch only while the disc is in full snap movement. Therefore, full contact pressure is maintained until the instant the switch opens. Temperature adjustment is provided by a leaf spring pivotally supported at one end on the body and having an operating portion at the other end which urges the disc toward one position of stability. An adjusting screw engages the leaf spring at a location relatively close to the pivot end thereof so that excessive adjustment movement is not required for substantial force adjustment. Also, such spring provides a relatively low spring rate through the range of snap travel.

3,602,864

THERMAL SWITCH

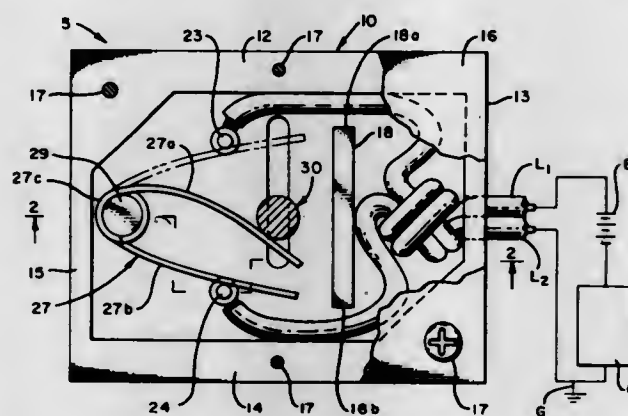
Charles F. Burney, Milpitas, Calif., assignor to Sylvania Electric Products Inc.

Filed Mar. 2, 1970, Ser. No. 15,358

Int. Cl. H01h 37/76

U.S. Cl. 337-407

4 Claims



A two-piece plastic case having laterally spaced stationary contact pins extending transversely of the case interior and a movable contact comprising single strand of a spring conductor positioned within the case and tensioned transversely of its length to engage both pins. A detent having a relatively low melting temperature extends into the case through an opening in its wall and holds the moving contact out of engagement with one of the contact pins. Insulated external switch leads extend into the casing for electrical connection

to the contact pins, respectively. A slot in the casing wall provides access to the movable contact from outside the casing for retracting or cocking it prior to insertion of the detent.

3,602,865

PROTECTIVE SYSTEM AND DEVICE

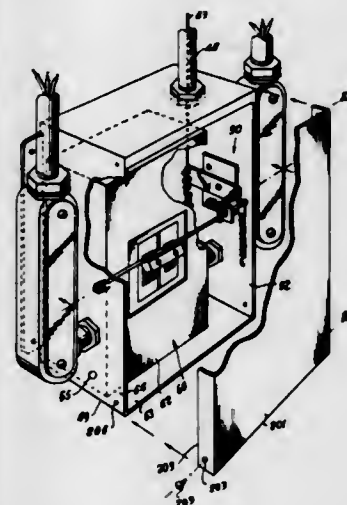
J. T. Milligan, 2700 Mark Drive, Mesquite, Tex.

Filed Feb. 17, 1969, Ser. No. 799,610

Int. Cl. H01h 37/76, 73/02

U.S. Cl. 337-411

7 Claims



A shutoff device for actuating an electric switch means to open an electric circuit used in a protective system which includes a heat sensory device which causes the shutoff device to operate the switch means upon the occurrence of a fire in a predetermined area.

3,602,866

FORCE TRANSDUCER

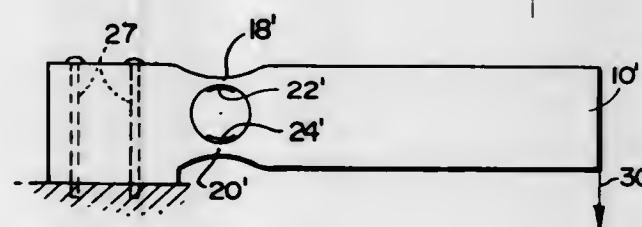
Erwin J. Saxl, c/o Tensitron, Inc., Harvard, Mass.

Filed Dec. 18, 1968, Ser. No. 784,816

Int. Cl. G011 1/22

U.S. Cl. 338-5

21 Claims



A force transducer having an elongate strain element with a narrowed waist portion formed symmetrically about its longitudinal axis and intermediate its ends to concentrate the applied stress at the waist portion. A hole is formed centrally through the waist portion, the axis of the hole being normal to and intersecting the longitudinal axis of the strain element and strain gages located adjacent the internal perimetric surface of the hole that are responsive to the concentrated stress. The hole may be sealed and isolated from the ambient environment by a readily yieldable plug and electrical outlet which covers the hole.

3,602,867

LAYER RESISTANCE UNIT FOR VOLTAGE DIVIDERS

Josef Kohler, Bad Neustadt, Saale, Germany, assignor to PREH Elektro-Feldmechanische Werke, Jakob preh Nachf., Bad Neustadt, Saale, Germany

Filed Nov. 26, 1968, Ser. No. 779,010

Claims priority, application Germany, Dec. 1, 1967, Feb. 20, 1968, Apr. 18, 1968, P 16 65 397.7; P 16 65 413.0; P 17 65 152.4

Int. Cl. H01c 5/00

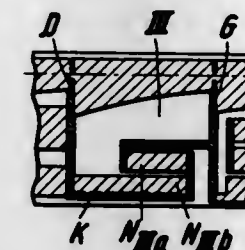
U.S. Cl. 338-120

8 Claims

A layer resistance unit for voltage dividers adapted particularly for tuning or adjusting high frequency circuits

capacitance diodes, said unit comprising series-connected main resistance elements at least some of which are connected in parallel with a side resistor and the latter being adapted to be varied so as to adjust the resistivity of the resistance unit to a desired characteristic, said main resistance elements and said side resistors being interconnected by conducting transverse or cross strips of conducting material. Said

mounted on one of the members guide them into facing relation so that the coupling elements are connected. The members are held in coupled relation by toggle links at opposite ends of the members. Thus, one of the members may be stationarily secured, and a plurality of hydraulic and/or electrical couplings connected or disconnected by joining or separating the panel members.



3,602,870

CONNECTOR APPARATUS FOR EFFECTING ELECTRICAL CONNECTIONS

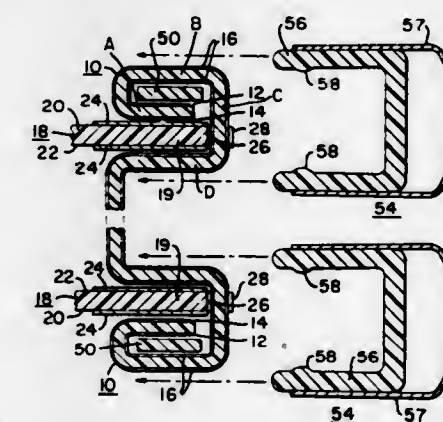
Frank G. Willard, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 30, 1969, Ser. No. 820,467

Int. Cl. H05k 1/04

U.S. Cl. 339-17

6 Claims



side resistors are adapted to have their resistance varied by progressively reducing the width of their current conductive layer surface. At least one main resistor having in addition to its side resistor connected to it in parallel a further layer resistance, all resistance layers of the unit i.e. main resistors, side resistors and parallel resistors having the same specific surface resistivity.

3,602,868

COMBINATION RESISTOR AND SWITCHING CONTROLS

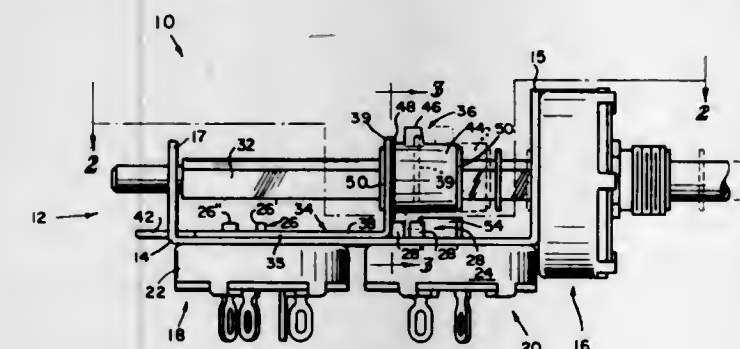
Malcolm T. Lybrook, Frankfort, Ind., assignor to P. R. Malloory & Co. Inc., Indianapolis, Ind.

Filed May 11, 1970, Ser. No. 36,297

Int. Cl. H01c 9/08

U.S. Cl. 338-198

5 Claims



A control means includes a variable resistor and two rotary switches, the resistor being responsive to the rotational displacement of a control shaft with the two switches being turned on and off through axial and rotational displacement of the shaft. A ramp means is provided in an interference path with an actuator means coupled to the shaft such that when the shaft is axially displaced the actuator means rides down the ramp to engage switch actuator means of one of the switches.

3,602,869

MULTIPLE COUPLING PANEL

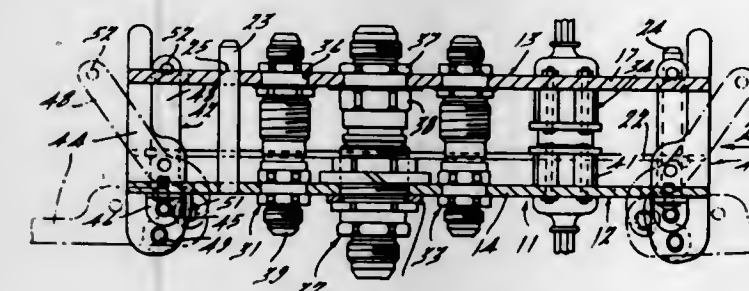
Francis L. Metz, Somerset Center, and Bryce B. Evans, Jackson, both of Mich., assignors to Aeroquip Corporation, Jackson, Mich.

Filed Feb. 19, 1969, Ser. No. 800,676

Int. Cl. H01r 13/54

U.S. Cl. 339-15

3 Claims



A pair of plate members have aligned apertures in which are mounted interfitting coupling elements. Pilot pins

A connector for circuit boards is disclosed, comprising a flat conductor cable of flexible, nonconductive backing material having opposite major sides on which are disposed patterns of exposed electrical conductors. Means, preferably notches, are provided on the cable for providing registry between desired conductors on the cable and a circuit board or a plurality of circuit boards when the cable is assembled therewith. The described conductor cable provides a simplified means for electrically joining a plurality of similar circuit boards. There is also disclosed a method of joining a cable according to the invention with a printed circuit board.

3,602,871

ELECTRICAL POWER DISTRIBUTOR

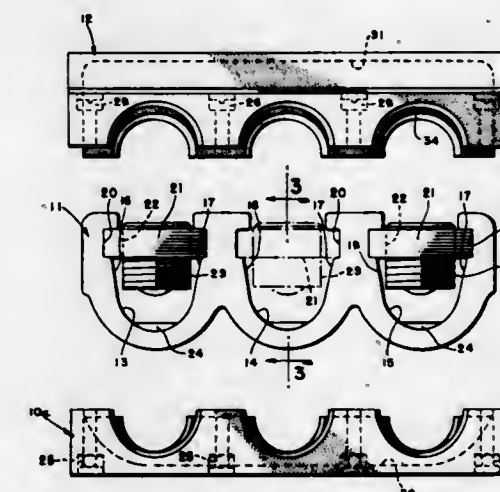
Albert P. Newman, Springfield Township, Hamilton County, Ohio, assignor to KDI Sealtron Corporation

Filed Sept. 18, 1969, Ser. No. 859,034

Int. Cl. H01r 13/60, 7/12

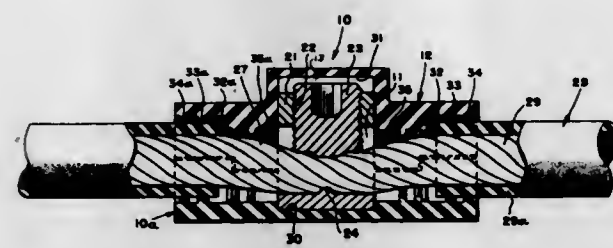
U.S. Cl. 339-22 B

6 Claims



An electrical power distributor for use with plural cables is

provided consisting of a bus bar within a split housing. Electrical cables of different sizes may be accommodated in the



distributor, and yet the unique construction of the housing permits close sealing of the distributor about the cables.

3,602,872

ELECTRICAL CONNECTOR FOR TAPPING SHIELDED HIGH VOLTAGE CABLE

Harry R. Braunstein, Sharpsville, Pa., assignor to

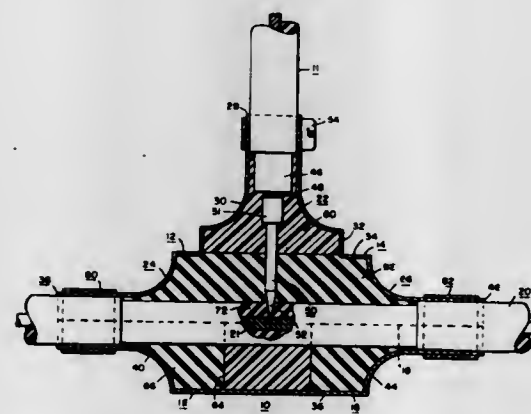
Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 11, 1969, Ser. No. 798,294

Int. Cl. H01h 85/54; H01r 11/20; H02q 9/06

U.S. Cl. 339-97 R

4 Claims



An electrical connector having first and second sections which are urged into assembled relation about a shielded cable to be tapped. A sharp metallic spike in one of the sections pierces the cable insulation and contacts the cable conductor at a point where the cable has been prepared by removing a longitudinal section of its ground shield. The first and second sections each have a metallic shell which cooperates to terminate the cable shield with stress cone-type terminations, and each have a resilient solid insulation which cooperates to surround the cable and provide an air and moisture seal. The metallic spike is adapted for connection to an external electrical circuit, which may include protective fuse apparatus disposed on one of the sections of the connector.

3,602,873

UNDERWATER ELECTRICAL CONNECTION STATION

Thomas W. Childers, Woodland Hills, Calif., assignor to Esso

Production Research Company

Filed Feb. 13, 1969, Ser. No. 798,937

Int. Cl. H01r 13/60, 19/16

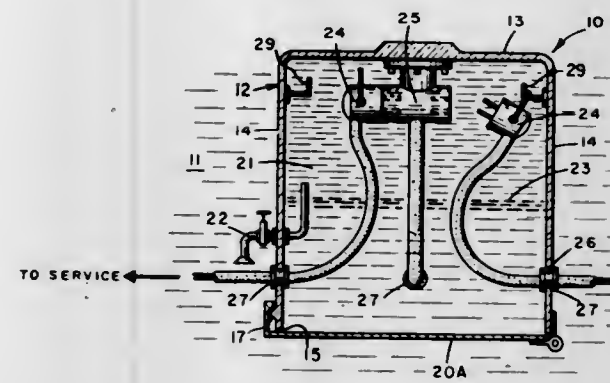
U.S. Cl. 339-117

12 Claims

Apparatus and method for protectively making, breaking and housing "live" electrical connections underwater. An underwater container in communication with environmental water encloses a hydrophobic dielectric fluid of lower specific gravity than environmental water above an opening permitting access to the dielectric fluid for manipulating electrical connectors admitted into said container. Holders may be provided within the container to retain the electrical

connectors in the fluid. The opening may be closed by a non-sealing cap.

A method of making an underwater connection includes securing a first electrical connector in an underwater container above an opening in a lower portion of the container before or after establishing a body of hydrophobic dielectric fluid of lower specific gravity than water in said container



sufficient for immersion of the first electrical connector. A second electrical connector connectable with the first electrical connector is then introduced into the container and elevated into the dielectric fluid. The connectable electrical connectors are then connected while immersed in the dielectric. To break the connection, the container is entered by the opening and the connected electrical connectors are disconnected while immersed in the dielectric fluid.

3,602,874

CONNECTOR FOR USE BETWEEN INTEGRATED CIRCUIT UNITS AND CIRCUIT BOARDS

John C. Sarazen, Mansfield, Mass., assignor to Texas Instru-

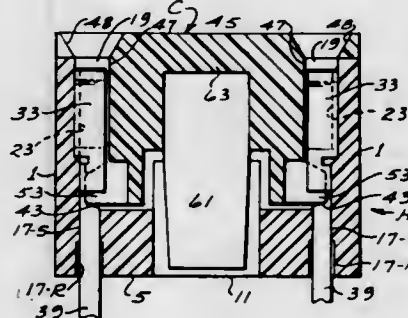
ments Incorporated, Dallas, Tex.

Filed July 18, 1969, Ser. No. 842,984

Int. Cl. H01r 23/02, 13/12

U.S. Cl. 339-192 R

9 Claims



An insulating receptacle has an open top and a closed bottom for attachment to one side of a circuit board. Rows of holes in said bottom register with rows of openings through the board. Extending from said holes are rows of square terminal posts forming parts of conductors which within the body are formed as contact clips having spring blades. The clips are located in rows of pockets within the receptacle. The extending posts are for insertion from one side of the board through the openings therein to connect with circuitry on its other side. The posts have appropriate fits in said bottom holes of the receptacle for ease in pushing them into and out of place from the top of the receptacle. The receptacle includes means for partially spreading and pretensioning the blades of the clips when the conductors are inserted. It also has a central catch in its bottom for use with a central releasable latch on a cover. The cover has rows of guiding ports for the reception of rows of pins of integrated circuit units to direct these between the pretensioned blades. The cover has rows of internal lugs movable between the spread blades and into positions as the cover is closed, to engage end parts of the posts thereby positively holding the conductors in the receptacle when the cover is finally latched shut. The ends of the receptacle and cover are constructed to be free of any latching parts.

cover has rows of internal lugs movable between the spread blades and into positions as the cover is closed, to engage end parts of the posts thereby positively holding the conductors in the receptacle when the cover is finally latched shut. The ends of the receptacle and cover are constructed to be free of any latching parts.

3,602,875

CONNECTOR FOR USE BETWEEN INTEGRATED CIRCUIT UNITS AND CIRCUIT BOARDS

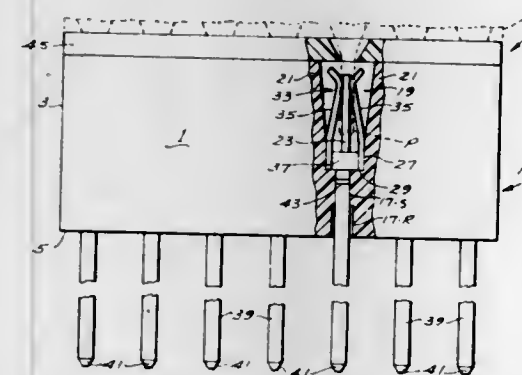
John M. Pierini, Ridgecrest, Calif., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 18, 1969, Ser. No. 843,150

Int. Cl. H01r 33/76, 9/16

U.S. Cl. 339-192 R

5 Claims



An insulating receptacle has an open top and a closed bottom for attachment to one side of a circuit board. Rows of holes in said bottom register with rows of openings through the board. Extending from said holes are rows of square terminal posts forming parts of conductors which within the body are formed as contact clips having spring blades. The clips are located in rows of pockets within the receptacle. The extending posts are for insertion from one side of the board through the openings therein to connect with circuitry on its other side. The posts have appropriate fits in said bottom holes of the receptacle for ease in pushing them into and out of place from the top of the receptacle. The receptacle includes means for partially spreading and pretensioning the blades of the clips when the conductors are inserted. It also has a central catch in its bottom for use with a central releasable latch on a cover. The cover has rows of guiding ports for the reception of rows of pins of integrated circuit units to direct these between the pretensioned blades. The cover has rows of internal lugs movable between the spread blades and into positions as the cover is closed, to engage end parts of the posts thereby positively holding the conductors in the receptacle when the cover is finally latched shut. The ends of the receptacle and cover are constructed to be free of any latching parts.

3,602,876

METHOD OF DETERMINING TERMINAL VELOCITY OF A FREE-FALLING BODY

Robert D. Gerard, Palisades, N.Y., assignor to The United States of America as represented by the Secretary of the Navy

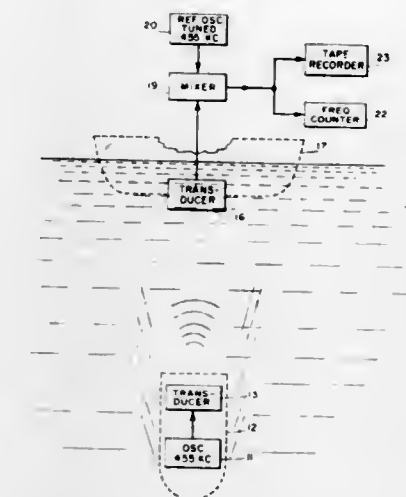
Filed May 6, 1969, Ser. No. 822,321

Int. Cl. H04b 1/1100

U.S. Cl. 340-5 R

1 Claim

The disclosure concerns a method for determining the terminal velocity in water of bodies having various hull shapes through the use of doppler techniques wherein a coherent oscillator on the body is matched with a reference oscillator



cessation of doppler frequency indicates that the body has impacted on the bottom or the run is ended.

3,602,877

UNDERWATER POSITION DETERMINING SYSTEM

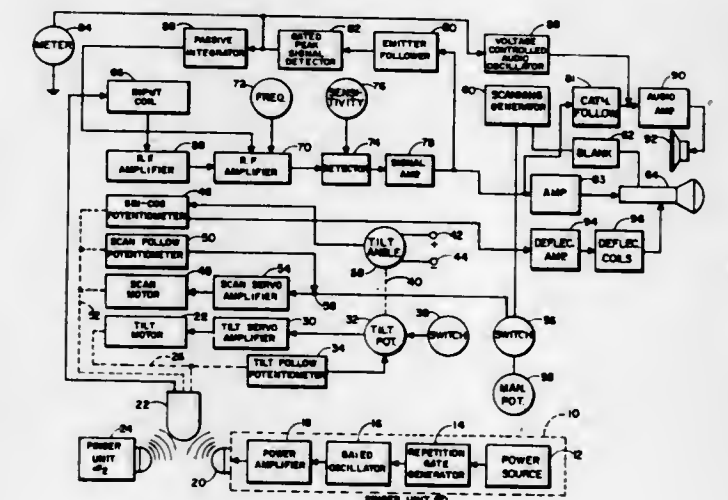
William E. Currie, and Ilmar G. Raudsep, both of Seattle, Wash., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 3, 1969, Ser. No. 788,905

Int. Cl. G01s 3/100

U.S. Cl. 340-6 R

3 Claims



Apparatus for determining and displaying the angular position of a water craft relative to a fixed underwater location, and a method for determining distances therebetween if the depth of the fixed location is known. The apparatus comprises a directional receiver and circuitry on the water craft for determining the azimuth and depression angle of a sonar source at the fixed location relative to the water craft, and means for displaying these angles independently on a polar coordinate system.

3,602,878

METHOD AND APPARATUS FOR GENERATING ENHANCED ACOUSTIC WAVES

Lawrence B. Sullivan, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 14, 1969, Ser. No. 815,930

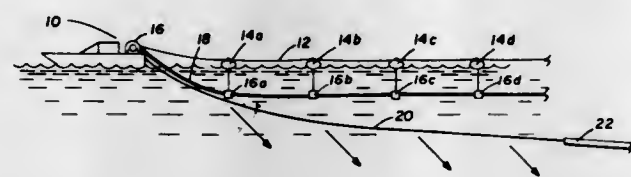
Int. Cl. G01v 1/00

U.S. Cl. 340-7 R

6 Claims

A plurality of air guns are streamed along a marine traverse, certain of the air guns having different volume capacities to generate acoustic waves having different frequency contents and pressure wave characteristics. Cir-

cuity is provided to sequentially fire the air guns such that the first high energy oscillations of all the acoustic waves



occur at the same time, thereby providing a resultant acoustic signal having an enhanced high energy oscillation.

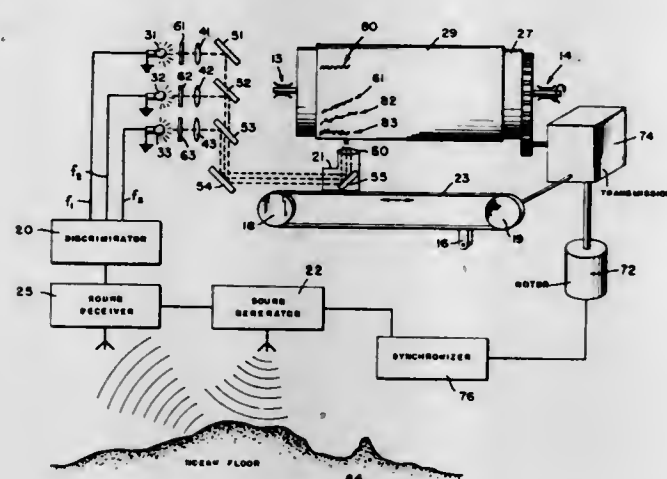
3,602,879
PHOTOGRAPHIC METHOD AND APPARATUS FOR PRODUCING POLYCHROMATIC ECHOGRAMS
William B. McLean, San Diego, and Lawrence W. Nichols, China Lake, both of, Calif.

Filed May 21, 1969, Ser. No. 826,540

Int. Cl. G01v 1/00

U.S. Cl. 340—15.5 DS

1 Claim



The disclosure relates to a system for providing a three-color graphic representation of the subaqueous terrain. As in previous systems, a sound generator is used to transmit an acoustic signal to the ocean floor, which signal is then transmitted by reflection and appropriately received. Received signals are separated into pulses of a plurality of selected frequencies, which pulses are used to selectively activate a plurality of glow lamps in accordance with the detected frequencies. A dichroic mirror system is then used to convert the light from the glow lamps into primary color radiation which is then combined and used to make a photographic record of the signal pattern in color.

3,602,880
TRAFFIC SIGNAL CONTROL SYSTEM
Hiroshi Ueda, and Hisao Nakatani, both of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

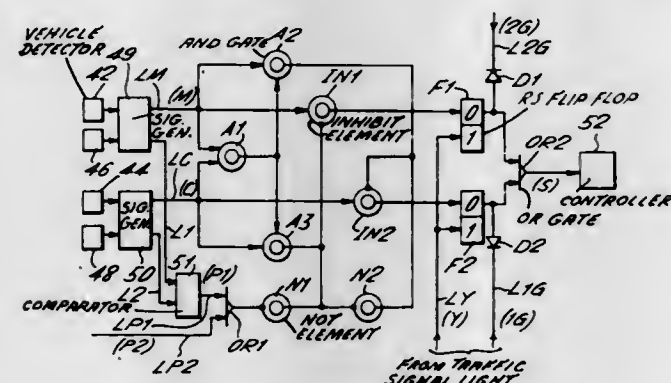
Filed Feb. 8, 1968, Ser. No. 704,033

Claims priority, application Japan, Feb. 14, 1967, 42/9472

Int. Cl. G08g 1/08

U.S. Cl. 340—31

11 Claims



A system for providing smooth traffic control at an intersection of two or more streets includes a detecting means for

each street which comprises a combination of detectors and a signal generator which produce a first signal when a platoon has been detected on the street and a second signal which denotes the traffic volume on the street. The first and second signals from the detecting means are coupled to a logic means which also has inputs from the traffic signal green indicators for each street and a priority command signal. The logic means include a component circuit for each street. If a platoon is detected on one of the streets and the signal indication to that street is red, the corresponding component circuit applies a control signal to a controller to change the state of the traffic signal. If platoons coincide on at least two streets, a third circuit including a comparing means having the second signals coupled thereto inhibits the production of a control signal by the corresponding component circuit of the street having the lesser traffic volume. However, a fourth circuit always gives priority to one of the streets when a priority command signal is present, by inhibiting the production of the control signal by the corresponding component circuit of the street which does not have priority.

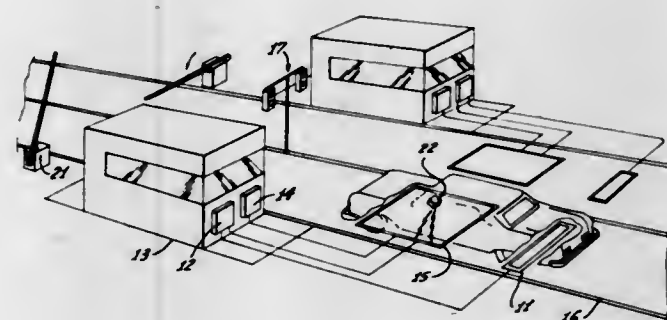
3,602,881
AUTOMATIC TOLL CHARGING SYSTEM
Robert T. Bayne, and G. Douglas Haville, both of Santa Barbara, Calif.

Filed Sept. 3, 1968, Ser. No. 864,251

Int. Cl. G08g 1/07

U.S. Cl. 340—31

6 Claims



An automatic toll charging system including a vehicle-borne transponder with a toll charge counter and a ground installation including a transmitter triggered by the vehicle, a receiver, and signaling device allowing the vehicle to proceed if a toll has been charged. The vehicle-triggered signal from the ground transmitter is received by the vehicle transponder, whereby the toll charge counter is stepped to indicate charging of a toll, and a signal is transmitted from the transponder. The transponder signal is received by the ground receiver, and the vehicle is allowed to proceed. The transponder counter may be set to store a number of prepaid tolls, subtracting one for each passage, or may count the tolls used for later payment.

3,602,882
METHOD AND APPARATUS FOR CONTROLLING TRAFFIC FLOW IN ACCORDANCE WITH TRAFFIC PRESENCE
Frank W. Hill, Moline, Ill., assignor to E. W. Bliss Company, Canton, Ohio

Continuation of application Ser. No. 563,143, July 6, 1966, now abandoned. This application Oct. 23, 1969, Ser. No. 870,449

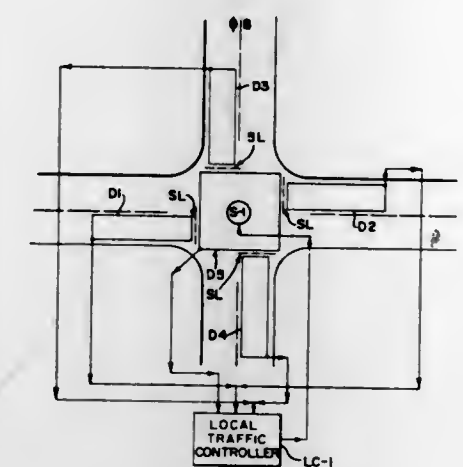
Int. Cl. G08g 1/08

U.S. Cl. 340—37

2 Claims

Both apparatus and method are disclosed herein for controlling traffic flow in accordance with traffic presence. Traf-

fic command signals are displayed to traffic phases in ac-



3,602,883
TELLTALE DEVICE FOR DIFFERENTIAL PRESSURE
Juan Belart, Walldorf, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

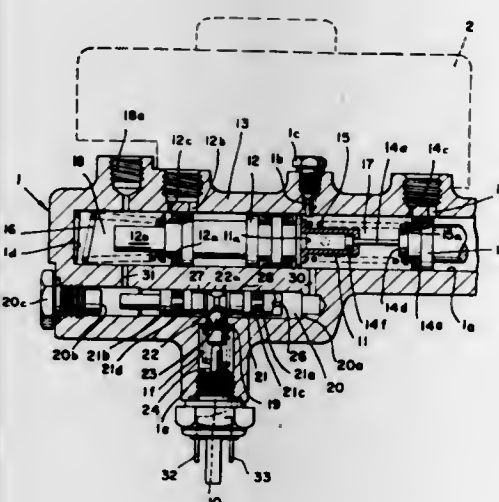
Filed Mar. 19, 1969, Ser. No. 808,588

Claims priority, application Germany, Mar. 28, 1968, P 17 73 074.4

Int. Cl. B60q 1/44

U.S. Cl. 340—52

9 Claims U.S. Cl. 340—58



A pressure-differential-indicating system which includes a cylinder connected between two compartments across which a pressure differential may develop, e.g. the chambers of a tandem master cylinder. A piston in the cylinder bore is displaceable from its intermediate position under the pressure differential to actuate a switch. The switch actuation occurs via an index ball spring-biased into a V-section recess of the piston in its intermediate position but adapted to rest in a further recess on either side of this intermediate recess when the piston is located in its off-normal position, the limiting recesses maintaining the switch in its actuated state even after the pressure differential has been redressed.

3,602,884
TIRE CONDITION MONITORING SYSTEM
Joseph S. Brumelow, 35 Winn St., Burlington, Mass.

Continuation-in-part of application Ser. No. 699,646, Jan. 26, 1968, now abandoned. This application Feb. 11, 1970, Ser. No. 10,414

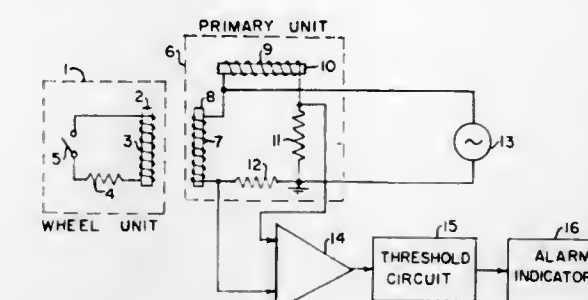
Int. Cl. B60c 23/00

U.S. Cl. 340—58

4 Claims

A tire monitoring system for a motor vehicle employs a wheel mounted unit which is physically unattached to the remainder of the system. A primary unit of the system is situated to be inductively coupled to the wheel unit. The induc-

tive coupling is intermittent inasmuch as the wheel unit is adjacent to the primary unit during only a part of the wheel's rotation. The wheel unit uses a sensor to monitor the tire pressure or temperature and the sensor, in response to an unsafe condition of the tire, causes an alteration in the amount of energy coupled by induction to the wheel unit. The change



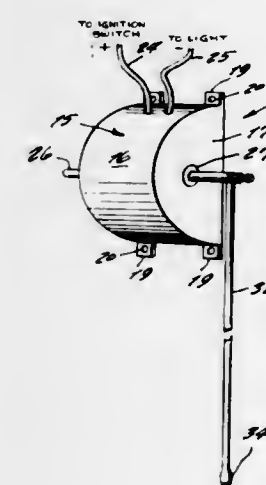
3,602,885
TRAILER FLAT TIRE WARNING DEVICE
Ruben Grajeda, 535 S. Joyce St., Rialto, Calif.

Filed Aug. 27, 1969, Ser. No. 853,383

Int. Cl. B60c 23/00

9 Claims U.S. Cl. 340—58

2 Claims



3,602,886
SELF-CHECKING ERROR CHECKER FOR PARITY CODED DATA
William C. Carter, Ridgefield, Conn., and Peter R. Schneider, Peekskill, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 25, 1968, Ser. No. 747,522

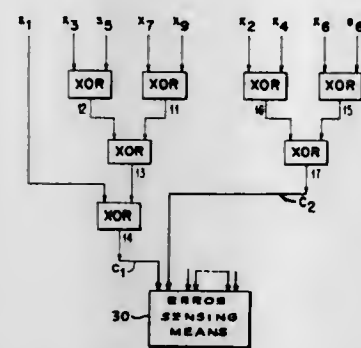
Int. Cl. H03k 13/34, 5/18; H04l 1/10

U.S. Cl. 340—146.1

5 Claims

A series of self-checking error checking circuits are disclosed for checking conventional parity coded data lines. The data signal set includes any logical combination of binary "1's" and "0's" and at least one parity bit. The circuit com-

prises at least 2 exclusive OR tree circuits wherein each tree obtains its inputs from different input lines whereby complementing outputs are produced by the two tree circuits for any correct signal set and wherein the checker is error free. Any



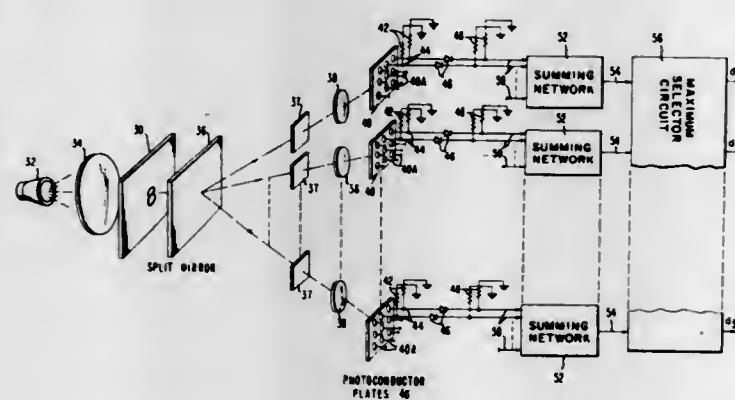
error in the data will cause the two outputs to be the same. Malfunctions or failures in the checking circuit are checked by certain legitimate code signals which similarly cause an error representation in the output of the checker.

3,602,887 PATTERN CLASSIFICATION METHOD AND APPARATUS

Chao K. Chow, Chappaqua, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of application Ser. No. 682,351, Nov. 13, 1967, now abandoned. This application Feb. 9, 1968, Ser. No. 704,317
Int. Cl. G06k 9/12

U.S. Cl. 340-146.3 P

7 Claims



The apparatus for practicing the method of classifying patterns is a character recognition system. An optical representation of a function of an unknown character is obtained by applying noncoherent light to a document on which the character is recorded. This optical representation is then applied to a number of masks, one for each possible character, which contain optical representation of the characters, and an optical correlation function for each mask is produced. Each of these optical correlation functions is applied to a separate group of photocells, which produce signals that are linearly proportional to the intensity of different portions of the correlation function. The output of each photocell is applied to a nonlinear diode which produces an output proportional to a constant raised to the value represented by the input signal applied to the diode. The outputs from these diodes for each correlation function are summed to provide a signal representative of a nonlinear function of each correlation function. Since the outputs from all photocells in a given group are summed, it makes no difference which photocell emits the peak representing output and thus the positional registrations is immaterial. This makes the system translation invariant. The representative signals are compared in a maximum selection circuit to determine which signal is largest and thus identifies the unknown character. The invention is also embodied in a system in which coherent light supplied by a laser is applied to the unknown character to obtain a coherent light representation of that character. In this

system, the masks storing the optical functions of the unknown characters are in the form of a hologram. Further, field effect transistors are connected to the outputs of the photocells. These transistors translate the outputs of the photocells, which are representative of the intensity of the applied light, to outputs which are proportional to the square root of the intensity of applied light, and these outputs are applied as inputs to the nonlinear or exponential diodes.

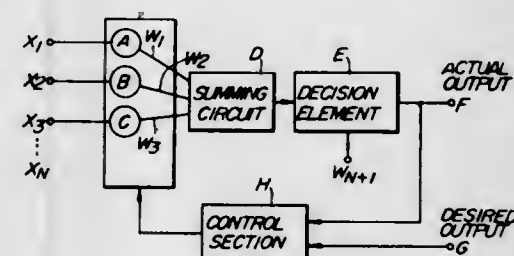
3,602,888 LEARNING DEVICE

Akira Nishiyama, Osaka; Hirokazu Yoshino, Kitakawachi-gun; Tomio Yoshida, Kitakawachi-gun, and Tetsuo Yamaguchi, Kadoma-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 9, 1968, Ser. No. 782,318

Claims priority, application Japan, Dec. 14, 1967, Nov. 20, 1968, 42/81665; 43/85748
Int. Cl. G06f 15/18

U.S. Cl. 340-172.5

4 Claims



A learning device having a plurality of magnetic cores which serve as multistage level weight memory elements. In the device, the product of an input and a corresponding weight is delivered from the magnetic core in the form of a digital output, and the sum of digital outputs is compared with a threshold value in a decision circuit to derive an error signal so that the weight carried by each magnetic core can fully automatically be corrected until the actual output coincides with an expected output.

3,602,889 EXTENDED ADDRESSING FOR PROGRAMMED DATA PROCESSOR HAVING IMPROVED REGISTER LOADING MEANS

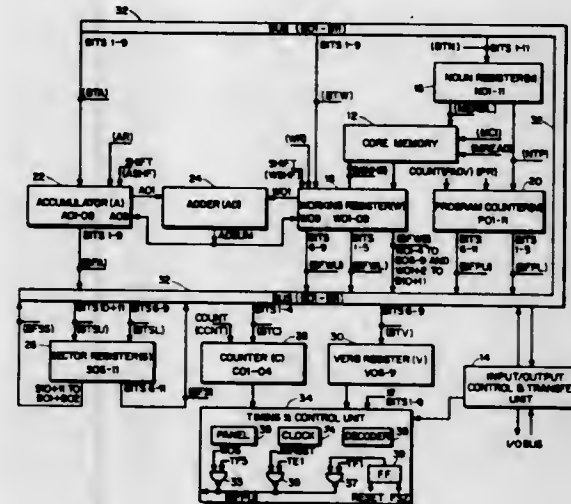
Byron G. Gayman, Framingham, and Ronald D. Malcolm, Marlborough, both of Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 5, 1969, Ser. No. 796,721

Int. Cl. G06f 9/20

U.S. Cl. 340-172.5

16 Claims



A digital data processor of low cost construction has a common transfer bus arranged to transfer information between processor registers and to circulate information between the input and output terminals of the same register.

and has control switches connected directly with the transfer bus for direct manual operation of processor registers. Further, an inhibiting flip-flop in the processor control unit directs memory cycles to a fixed memory sector without regard to the sector address stored in the registers that normally furnish the memory sector address.

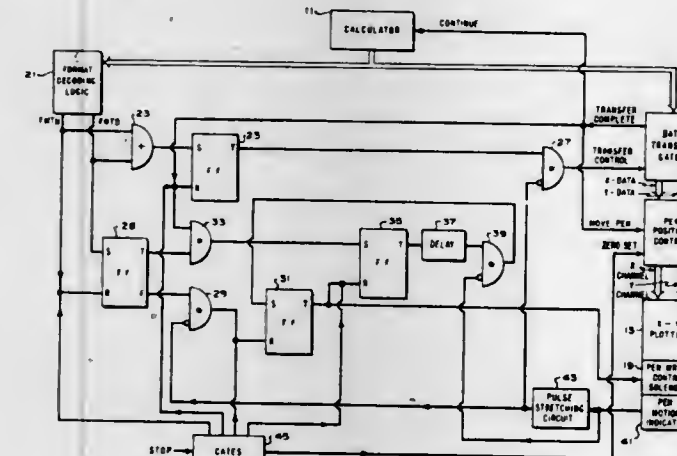
3,602,890 PEN CONTROL SYSTEM FOR AN AUTOMATIC X-Y PLOTTER

Robert W. Colpitts, East Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Feb. 24, 1969, Ser. No. 801,574

Int. Cl. G05b 15/00

U.S. Cl. 340-172.5

9 Claims



Digital data from a calculator is translated into signals for display by an X-Y graphic plotter. The plotter includes a pen that is selectively enabled by a control system which responds to first and second control signals from the calculator. Additionally, either control signal causes a block of data to be transferred from the calculator to the X-Y plotter. Three memory elements in combination with signal transmitting and inhibiting gates respond to the first and second control signals to condition the pen in a writing or a nonwriting mode, respectively. The plotter is operable to draw selected line segments having nonzero origin points, and to permit plotting of one block of data while the next block of data is being processed by the calculator. Additional circuitry is provided for manually stopping the X-Y plotter in the event that an X-Y graphical plot exceeds allowable dimensional limits. A stop signal causes the recording pen to immediately disable and return to the origin of the X-Y graph.

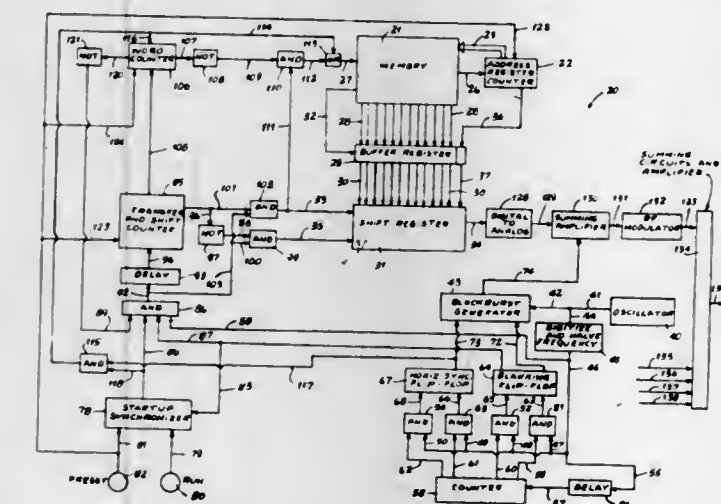
3,602,891 CONTINUOUS TRANSMISSION COMPUTER AND MULTIPLE RECEIVER SYSTEM

Wesley A. Clark, and Charles E. Molnar, both of St. Louis, Mo., assignors to Washington University, St. Louis, Mo.
Filed Mar. 10, 1969, Ser. No. 805,548

Int. Cl. H04n 7/08

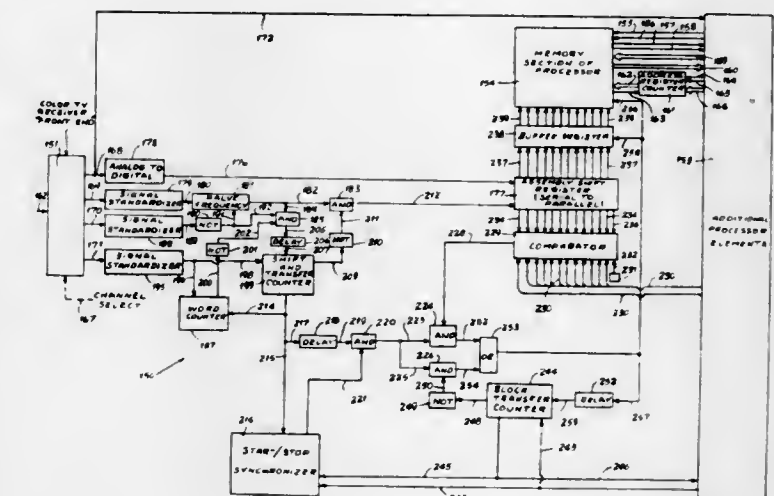
U.S. Cl. 340-172.5

13 Claims



Continuous broadcast of computer programs and instructions for selector utilization by remote data processors. An

information transmission and multiple receiver system wherein the transmitter continuously repeats transmissions of data primarily consisting of instructions such as programs, routines and subroutines from its relatively large central memory. Each receiver can be directed to any selected portion of the continuous stream of transmitted data for storage of the selected data in a relatively small memory for ultimate use by any suitable processor. Transmitted data is automatically coded in plural bit words and groups of words are auto-



matically coded in word blocks. The receiver automatically detects receipt of a selected word block and automatically processes the words within the selected word block into its memory in a directed program. As a result of this system and process, individual, low-power data processors at each receiver are empowered with a much greater processing capability from the program data broadcast from the transmitter's large central memory and selectively stored in the receiver's smaller memory.

3,602,892 MULTITRACK HIGH BIT DENSITY RECORD AND REPRODUCE SYSTEM

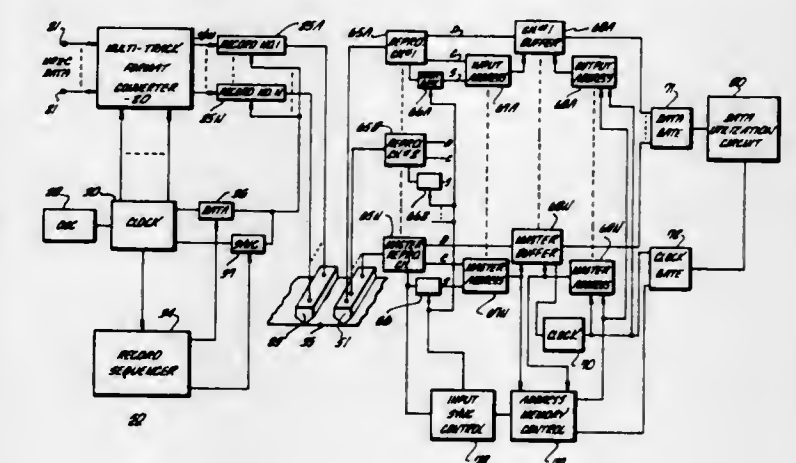
Kermit A. Norris, Azusa, and William R. Goodale, Claremont, both of Calif., assignors to Leach Corporation, San Marino, Calif.

Filed Apr. 7, 1969, Ser. No. 813,826

Int. Cl. G11b 5/00

U.S. Cl. 340-172.5

33 Claims



A system for recording bit densities of 6,000 to 16,000 bits per linear inch per track and higher, is described wherein parallel track recording is employed. At such high densities, extreme data alignment problems are presented due to static and dynamic skew from one track to another. In the disclosed invention, each track of serial data includes its own synchronizing signal that is recorded coherently with useable data signals. The synchronizing signal has a bit cell duration different from the bit cell duration allotted to useable data. This bit cell duration difference is decoded at the reproduce

location and indicates that useable data is immediately following. Each track also has associated therewith at the reproduce location, a multibit buffer which receives data for that track asynchronously with respect to the other tracks. Each track's input addressing and input bit shifting within each track's multibit buffer is controlled by a clock signal derived from the recovered data for that track after that track's own synchronizing signal has been decoded. Each track's buffer has sufficient capacity to store several multibit data words in one portion of the buffer, while another portion of that buffer is available for output data addressing and output data shifting. Data readout from all of the buffers is provided under control of one arbitrarily selected track at the reproduce station which is designated as a "master track." That track's synchronizing signal, and that track's derived clock signal, are employed to synchronously output data in parallel from all of the buffers.

3,602,893

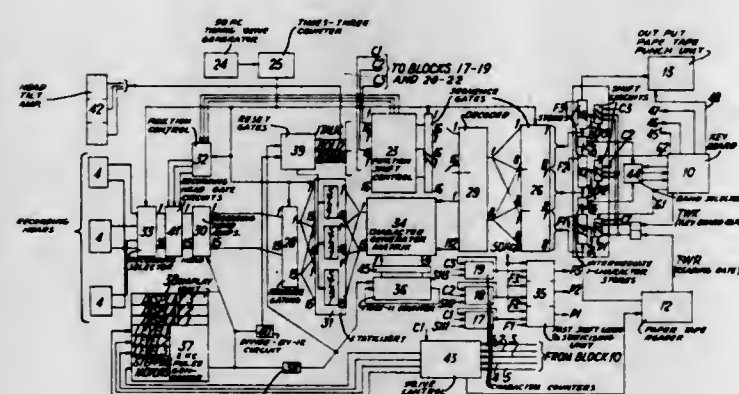
ELECTROGRAPHIC DISPLAY APPARATUS

Robert James Hodges, Cheshunt, England, assignor to International Standard Electric Corporation, New York, N.Y.
Filed May 14, 1969, Ser. No. 824,641
Claims priority, application Great Britain, June 12, 1968, 27,907/68

Int. Cl. G06f 3/14

U.S. Cl. 340—172.5

11 Claims



Display apparatus particularly applicable to editing coded information stored in punched or magnetic tapes. Tape information is divided into character codes and function codes by an input unit, said function codes including italic and bold font functions. The character codes are applied to a code translation system which permits same to be sequentially displayed in a manner determined by the function codes. This display may be corrected and redisplayed and the process repeated for a third display, with the final corrected resulting display if coded information being provided as an output in tape or other form.

3,602,894

PROGRAM CHANGE CONTROL SYSTEM

John J. Igel, Rochester, and Myron D. Schettl, Oronoco, both of, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 23, 1969, Ser. No. 835,548

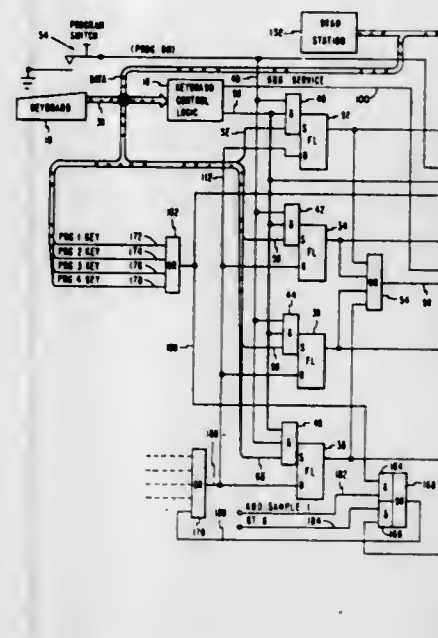
Int. Cl. G06f 9/00, 9/06

U.S. Cl. 340—172.5

10 Claims

A key-entry system having a plurality of programs selectable by different program keys provided with over-control mechanism operative to allow a change in program only in

the first column of a field or prior to the first column and allowing a program change request by depression of a program



key to be stored until the last column of a field presently being keyed has been entered.

3,602,895

ONE KEY BYTE PER KEY INDEXING METHOD AND MEANS

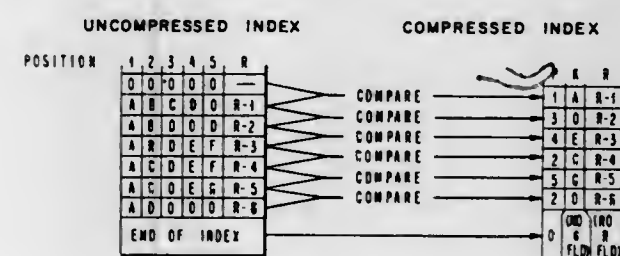
Edward Loizides, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,526

Int. Cl. G06f 7/00, 15/40

U.S. Cl. 340—172.5

66 Claims



Electronically controlled method and means for a compressed index in which each key has only a single key byte and a position control field. Each compressed key represents a corresponding uncompressed key of any byte length by means of a pointer associated with the corresponding uncompressed key in the source uncompressed index from which the compressed index is derived. The search reads out the pointer with any specially-selected compressed key having an equal condition between its key byte and a current search-argument byte. After ending conditions are established, the last readout pointer is correct if the search argument is in the source uncompressed index.

3,602,896

RANDOM ACCESS MEMORY WITH FLEXIBLE DATA BOUNDARIES

David Zeheb, Hillsdale, N.J., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,835

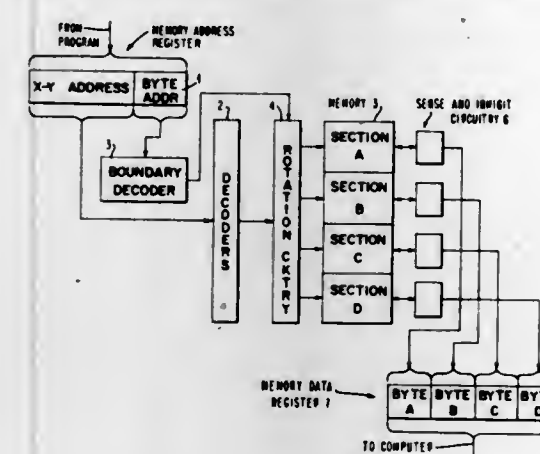
Int. Cl. G11c 7/00

U.S. Cl. 340—172.5

8 Claims

A multiword random access memory wherein each memory word comprises a plurality of distinct addressable sections or bytes. Controls are provided to allow the addressing of a given data word stored in memory having up to M addressable bytes wherein said data word may be addressed beginning on any byte of a memory word. Thus, an

accessed data word may overlap one memory word boundary into an adjacent memory word. Appropriate word drive line



rotation circuitry is provided in order that the proper drive lines be addressed in a single access cycle.

3,602,897

KEY-ENTRY SYSTEM

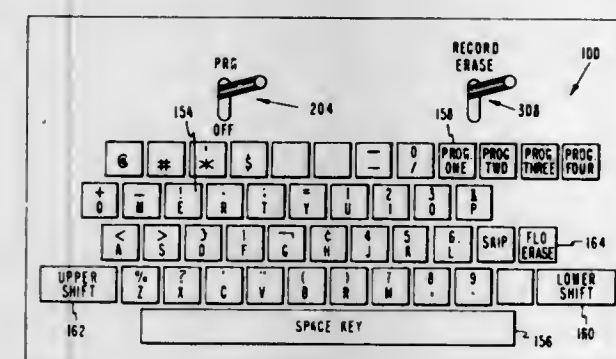
John J. Igel, Rochester, and Myron D. Schettl, Oronoco, both of, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 3, 1969, Ser. No. 838,969

Int. Cl. G06f 11/00, 11/10

U.S. Cl. 340—172.5

21 Claims



A system of the type capable of entering data in successive positions in a circulating data storage unit by successive actuation of data keys and including overcontrol mechanism operative to effectively erase the data provided in the circulating storage unit by the last actuated data key or selectively to erase back to the beginning of a field determined by program control or selectively to erase back to a space between separate words in the circulating data.

3,602,898

MASK IDENTIFICATION SYSTEMS

Roger A. Pain, Valres; Serge Delaigue, Viroflay, and Pierre H. Cogne, Saint-Maur, all of, France, assignors to International Standard Electric Corporation, New York, N.Y.

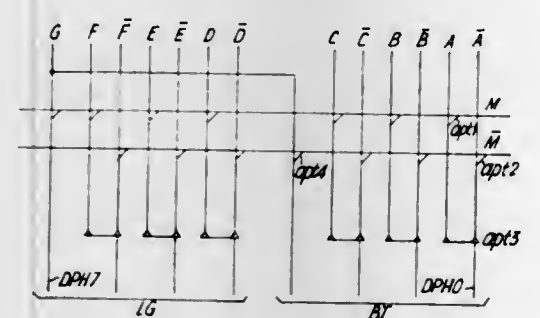
Filed July 15, 1969, Ser. No. 841,763

Claims priority, application France, Aug. 2, 1968, 161600

Int. Cl. G06f 5/00

U.S. Cl. 340—172.5

5 Claims



A mask identification system according to which a mask indication is originated having three parts: one first part

specifically meant to indicate the length of a slice; a second part specifically meant to indicate the origin of this slice; a third part which will either complete the first part, in order to characterize the lengths of larger slices (the value which characterizes the origin of the slice being then necessarily small), or it will complete the second part, in order to characterize the origins of upper ranks (the value characterizing the length of the slice being then necessarily small), so that most of the values that the mask indication take up in its entirety are effectively utilized and the number of digits making up this indication are limited to a minimum.

3,602,899

ASSOCIATIVE MEMORY SYSTEM WITH MATCH, NO MATCH AND MULTIPLE MATCH RESOLUTION

Arwin B. Lindquist; Wilbur D. Pricer, and Robert R. Seiber, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

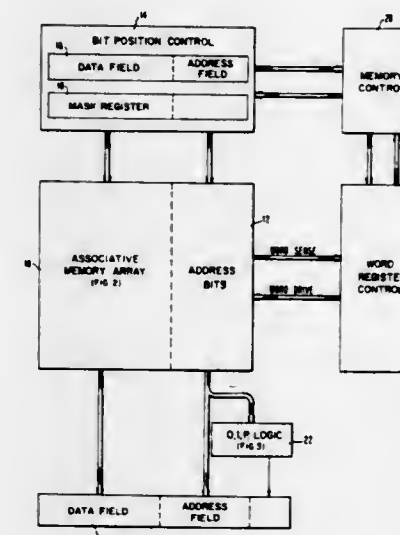
Division of Ser. No. 609,073, Jan. 13, 1967, Pat. No. 3,518,631

Filed June 20, 1969, Ser. No. 844,713

Int. Cl. G11c 15/00

U.S. Cl. 340—172.5

2 Claims



An associative memory matrix having a writable portion made up of bistable memory cells and a read-only portion made up of monostable memory cells. The memory may be used as a conventional memory by placing an address in the address field of an entry register, masking out all other bits and performing a match interrogation with the unmasked bits. Since the contents of the address portion (read-only memory) of each stored word are unique, the interrogation results in a single match at the location containing the address sought.

Included is a circuit for determining whether no match, one match, or a multiple match has occurred.

3,602,900

SYNCHRONIZING SYSTEM FOR DATA PROCESSING EQUIPMENT CLOCKS

Serge Delaigue, Viroflay (Yvelines); Roger A. Pain, Valres (Seine et Marne); Pierre H. Cogne, Saint Maur (Val de Marne), and Louis H. Rieux, Paris, all of, France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 3, 1969, Ser. No. 863,604

Claims priority, application France, Oct. 25, 1968, 171330

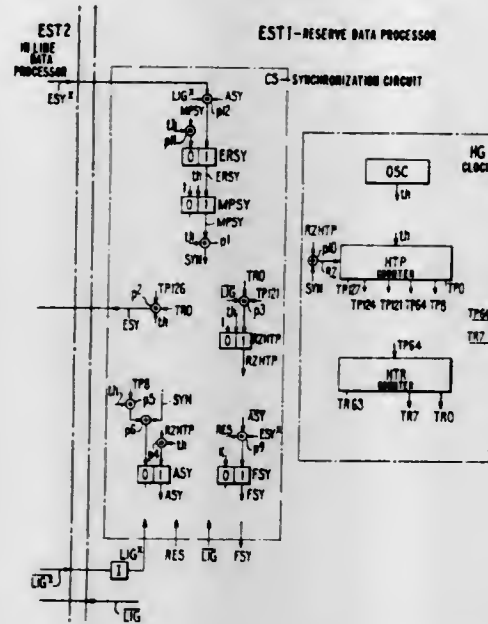
Int. Cl. G06f 15/16, 11/06

U.S. Cl. 340—172.5

10 Claims

In the duplicated data-processing systems, the clock of the "reserve" unit must normally be synchronized with the one of the "inline" unit, as long as this latter operates normally. According to the present invention, the clock of the "inline" unit originates a synchronizing signal periodically, and the clock of the "reserve" unit delimits a synchronization "window." If the synchronizing signal falls into the synchronization window, the setting into synchronism of the "reserve"

unit is made. If not, an alarm signal is given. In this arrangement, if the clock of the "inline" unit operates at an abnormal



mal rhythm because of a failure, the clock of the reserve unit will not be synchronized to this abnormal rhythm.

3,602,901
CIRCUIT FOR CONTROLLING THE LOADING AND EDITING OF INFORMATION IN A RECIRCULATING MEMORY

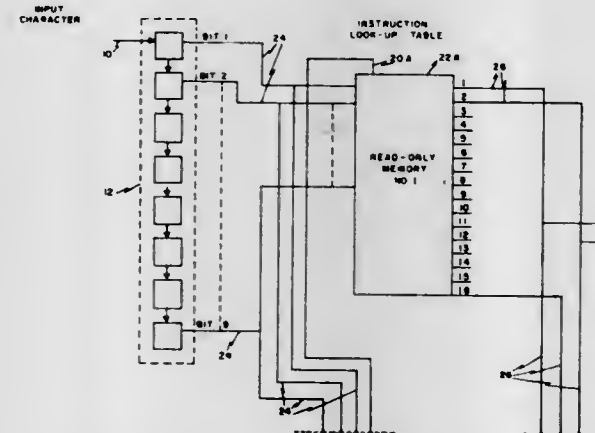
Dixon Teh-Chao Jen, Monroe, Conn., assignor to The Bunko-Ramo Corporation, Canoga Park, Calif.

Filed Oct. 31, 1969, Ser. No. 872,925

Int. Cl. G06f 1/00, 13/00

U.S. Cl. 340—172.5

8 Claims



A circuit for controlling the loading and editing of information in a recirculating memory. A coded input character is converted, in a suitable encoding circuit, into a multibit coded instruction. A first group of bits in the instruction are utilized to control the location in the memory at which the execution of the instruction begins, a second group of bits in the instruction are utilized to control the location in the memory at which the execution of the instruction ends, and a third group of bits in the instruction are utilized to control the action performed on information during the execution of the instruction. A fourth group of bits in the instruction may be utilized to control the character position in the memory at which an entry marker is stored when the execution of the instruction is completed.

3,602,902
DATA HANDLING SYSTEM

Joseph J. Madden, Deerfield, Ill., assignor to Kelso-Burnett Electric Co., Chicago, Ill.

Filed Nov. 12, 1969, Ser. No. 875,823

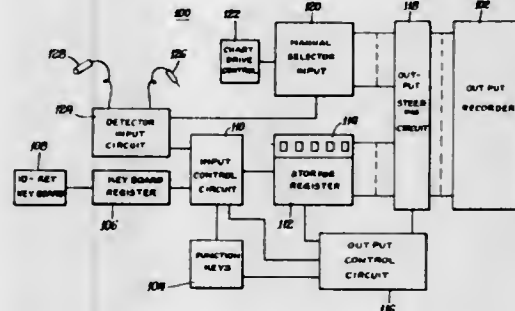
Int. Cl. G06k 1/10

U.S. Cl. 340—172.5

21 Claims

A system for collecting data from engineering or architectural drawings to prepare estimates includes an output tape

punch which records material descriptions and quantities in conjunction with job identifications. The material descriptions are supplied by manually actuated selecting keys which provide code marking to an output steering circuit coupled to the tape punch. Certain of the selectors control a chart drive which selectively positions a group of legend bearing loops to supply proper descriptive legends adjacent others of the selectors to assist the operator. Material quantities are supplied by detectors which are movable relative to the



drawings and which are selectively enabled by the material selections. The system includes a scale selector to provide a proper detector input for drawings of different scale. A manual keyboard can also enter quantities and other information. The quantity information is accumulated in a storage register and transferred to the recorder through the output steering circuit. The value in the storage register can be increased or decreased by either the keyboard or the detectors and transferred to the recorder as positive or negative values.

3,602,903
OPTICAL SENSING SYSTEM FOR DETECTING AND STORING THE POSITION OF A POINT SOURCE TARGET

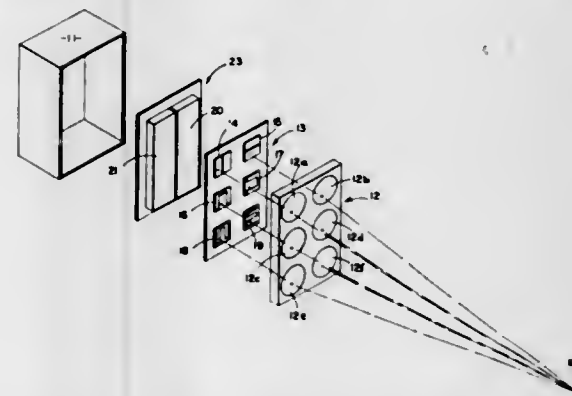
Stanley C. Requa, Northridge, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.

Filed Jan. 6, 1969, Ser. No. 789,285

Int. Cl. G11c 11/42

U.S. Cl. 340—173

9 Claims



The position of a point source target in a field of view is simultaneously focused onto a plurality of sensing units by means of a multifaceted lens. Each of the sensing units has a photosensitive area which is divided into a pair of equal area sensing elements which are arranged in either horizontal or vertical finger patterns. The finger patterns are arranged in a binary coded fashion and at any particular time one or the other of the elements of each unit generates an output in response to the optical target, the combination of such outputs being indicative of the position of the target. The output of the optical sensing units are fed to digital registers which develop a binary coded signal indicative of the target position for utilization in a readout device.

3,602,904
FERROELECTRIC GADOLINIUM MOLYBDATE BISTABLE LIGHT GATE-MEMORY CELL

Stewart E. Cummins, 11810 Stafford Road, New Carlisle, Ohio

Filed Mar. 6, 1969, Ser. No. 804,872

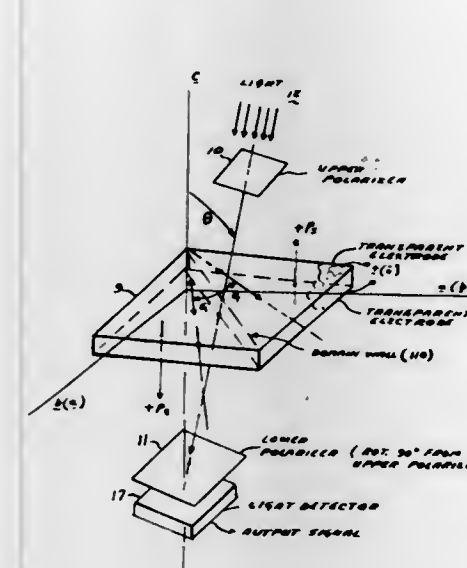
Int. Cl. G02f 1/26; G11c 11/22, 11/42

U.S. Cl. 340—173.2

6 Claims

A ferroelectric gadolinium molybdate crystal $[Gd_2(MoO_4)_3]$, having transparent electrodes, positioned between

crossed polarizers, is electrically switched between two stable states with extinction positions 45° apart providing a light pulses are generated in the coil. The magnetic field can be created by passing an electric current of varying magnitude



3,602,905
SHIELD-TYPE CAPACITIVE MEMORY

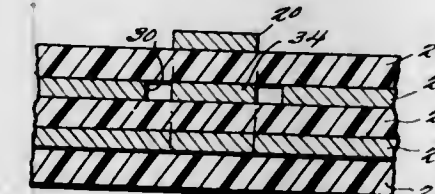
Lester Sipkema, New Brighton, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed June 3, 1969, Ser. No. 829,994

Int. Cl. G11c 17/00, 11/24, 5/02

U.S. Cl. 340—173 SP

8 Claims



An improved shield-type capacitive memory wherein a matrix is formed by first and second pluralities of conductors arranged in substantially orthogonal relationship so as to define a plurality of bit or information areas with capacitive coupling at first predetermined conductor crossover regions and with little or no capacitive coupling at second predetermined conductor crossover regions and wherein the pluralities of conductors are spaced apart by insulating layers, airgaps at said first predetermined regions and by a shield located between the insulating layers over predetermined regions thereof including said second predetermined regions wherein the improvement provides for the use of conducting members or insulating members placed within the airgaps to markedly increase the capacitive coupling between conductors.

3,602,906
MULTIPLE PULSE MAGNETIC MEMORY UNITS

John R. Wiegand, 882 Balfour St., Valley Stream, N.Y.

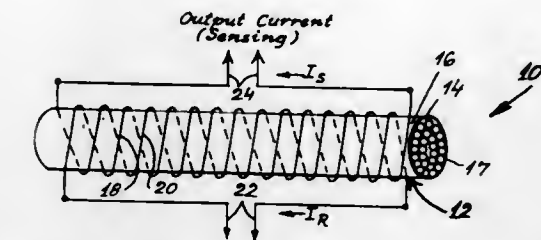
Filed Jan. 26, 1970, Ser. No. 5,631

Int. Cl. G11c 11/12; H01f 27/26

U.S. Cl. 340—174 TW

10 Claims

A multiple pulse generator comprises a plurality of axially straight, prestretched wire segments uniformly twisted helically and enclosed in a dielectric body to form a cylindrical core. A wire coil is wound around the core. When a magnetic field of variably intensity impinges on the wires a series of



3,602,907
CIRCUIT ARRANGEMENT FOR THE SUPERVISION OF A DOUBLE-CURRENT SCANNING CIRCUIT WITH REGARD TO CURRENT FLOW

Gottfried Tschannen, Zurich, Switzerland, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

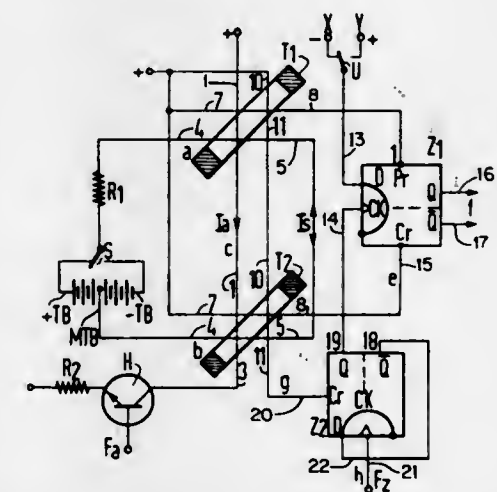
Filed Feb. 7, 1969, Ser. No. 797,541

Claims priority, application Switzerland, Feb. 8, 1968, 1881/68

Int. Cl. G11c 7/00, 11/06

U.S. Cl. 340—174 HB

3 Claims



A circuit arrangement for the supervision of a double-current scanning circuit with regard to current flow having an inquiry pulse circuit. First and second magnetic ring cores with substantially rectangular hysteresis loops, each core having associated windings connected to the scanning and inquiry pulse circuits to effect oppositely directed magnetization of the scanning circuit current, in response to the scanning and inquiry pulse circuit currents to produce reading pulses are provided. A source for applying the reading pulses to a bistable switching stage and a pulse supervision circuit control to the bistable switching stage to a first stable condition in response to reading pulses, and a connection between the bistable switching device and the pulse supervision circuit to control the bistable switching device to a predetermined second stable condition in the absence of reading pulses are also provided.

3,602,908
WIRE MEMORY MATRIX

Shintaro Oshima, Musashino-shi, and Tetsusaburo Kamibayashi, Kitaadachi-gun, Saitama-ken, both of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, aka, Kokusai Denshin Denwa Co., Ltd., Tokyo-to, Japan

Continuation of application Ser. No. 309,469, Sept. 17, 1963, now abandoned. This application July 22, 1969, Ser. No. 847,790

Claims priority, application Japan, June 23, 1963, May 13, 1963, May 13, 1963, Sept. 4, 1963, Jan. 28, 1963, Feb. 9, 1963, Feb. 9, 1963, Aug. 22, 1963, May 6, 1963, Aug. 23, 1963, 38/31234, 38/34811, 38/23925, 38/46509, 38/3079, 38/9650, 38/9648, 38/44164, 38/23314, 38/64927

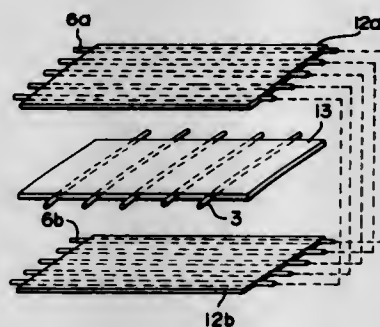
Int. Cl. G11c 11/14, 5/04

U.S. Cl. 340—174

7 Claims

Magnetic matrix memory apparatus comprises a set of juxtaposed row conductive wires and a set of juxtaposed column

conductive wires arranged orthogonally and adjacent to but insulated from the row conductive wires. Each of the row conductive wires is composed of a conductive spring wire having directly and uniformly deposited thereon a ferromagnetic thin film having substantially rectangular hysteresis characteristics and an inherent anisotropy. At least one of the sets of conductive wires is bonded to a sheet of insulation substratum. The ferromagnetic thin film of each row conductive wire forms closed magnetic circuits with respect to flux caused by current passed through the wire. Means is provided for applying an information signal to at least one wire of one of the sets of wires and for applying an exciting signal to at least one of the other set of wires. The inherent anisotropy of the thin film is established in a plane substantially orthogonal to the axis of the conductor to be employed for applying the information signal whereby a bit of information is stored in the ferromagnetic thin film deposited around at least one selected intersection between the two sets of



wires in the state of direction of the residual magnetism of the magnetic thin film when selection is made by energizing with the information signal and the exciting signal at least one selected row conductive wire and at least one selected row conductive wire and at least one selected column conductive wire. A bit of information thus stored is read out from at least one wire employed for applying the information signal as an output signal having substantially the same amplitude and either of opposite polarities determined by the direction of the residual magnetism of the residual magnetism of the magnetic thin film when selection is made by energizing with the information signal and the exciting signal at least one selected row conductive wire and at least one selected column conductive wire. A bit of information thus stored is read out from at least one wire employed for applying the information signal as an output signal having substantially the same amplitude and either of opposite polarities determined by the direction of the residual magnetism.

3,602,909

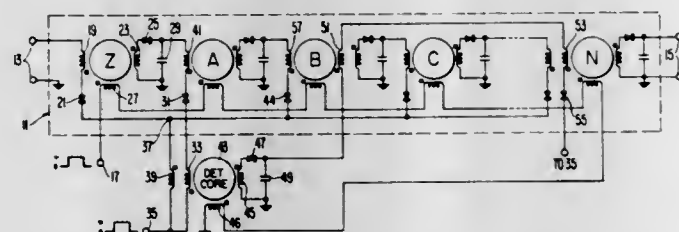
AVAILABLE SHIFT-REGISTER COUNT MODIFIER
Ronald L. Swanson, Exton, Pa., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 14, 1969, Ser. No. 876,965

Int. Cl. G11c 19/00

U.S. Cl. 340-174 SR

6 Claims



An available count modifier for a multistage, magnetic-core shift register. A gating circuit is provided to determine the presence of a binary ONE in the first stage of the register and a binary ZERO in all stages intervening between the first stage and a selected subsequent stage of the register. A magnetic detect core responds to the gating condition to prevent the binary ONE in the first stage from propagating through the register and to insert a binary ONE in the selected subsequent stage of the register, thereby effectively decreasing the number of stages in the register. In a modified embodiment

ment a gating circuit is provided to detect the presence of a binary ONE in the first stage and a binary ZERO in the stages intervening between the second stage and the selected subsequent stage.

3,602,910

CORE MEMORY CIRCUIT

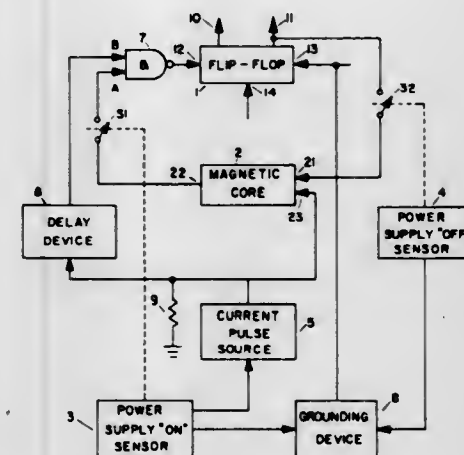
Harvey Kofsky, Montreal, Quebec, Canada, assignor to Canadian Marconi Company, Montreal, Quebec, Canada
Filed Nov. 25, 1969, Ser. No. 879,815

Claims priority, application Canada, Oct. 14, 1969, 064863

Int. Cl. G11c 7/00, 11/06

U.S. Cl. 340-174 R

7 Claims



The disclosure teaches a power sensing and control unit for a dynamic, nondestructive memory device which consists of a saturable magnetic core and a flip-flop in parallel connection, and so interconnected that the core is switched only when the power supply for the memory falls to a predetermined level. The information contained in the core is transmitted to the flip-flop on power turn on. Thus, the memory device is dynamic in that the flip-flop may be interrogated, and is nondestructive in that the information is stored in the core on power turn off or loss. The power sensing and control unit consists of several Zener diodes in association with transistors and logic gates, and initiates the information transmission procedures when predetermined power levels are sensed. The invention takes cognizance of the fact that power supplies do not turn on or off instantaneously, but rise or fall to or from zero in a finite time.

3,602,911

SINGLE WALL MAGNETIC DOMAIN PROPAGATION ARRANGEMENT

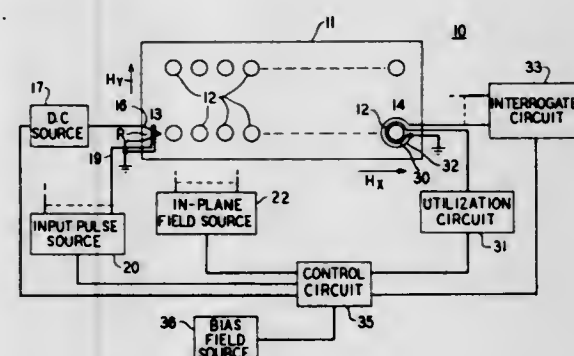
Arjeh J. Kurtzig, Short Hills, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 23, 1969, Ser. No. 887,562

Int. Cl. G11c 11/14, 19/00

U.S. Cl. 340-174 TF

5 Claims



Apparatus for moving a single wall domain utilizing the finite mobility of the domain in a sheet of magnetic material is described. The domain is moved by changing pole patterns in a magnetically soft overlay in response to alternate slow and fast reversals of the in-plane field component aligned with the direction of domain movement.

3,602,912

MAGNETIC HEAD WITH CONNECTOR BLOCKS

William L. Bowers; Stephen N. Kochis, and Stephen J. Ramus, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

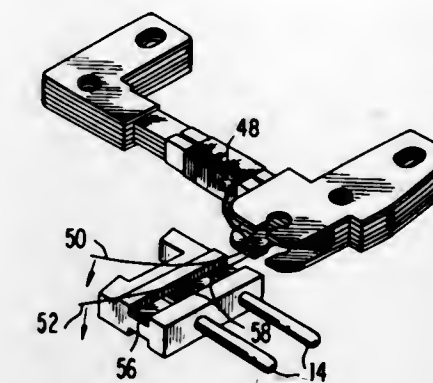
Filed Jan. 12, 1968, Ser. No. 697,494

Int. Cl. G11b 5/16, 5/20

U.S. Cl. 340-174.1 F

2 Claims

A tape head module is formed from two elements: (1) a prewound magnetic core and coil assembly and (2) a connector block in which are embedded projecting connector pins. A flattened portion of each connector pin is exposed in a channel formed in the block. The core and block are placed in a mold cavity shaped to receive them. The extremely fine leads of the coil are pulled through the channel and welded to the exposed pin portions. The corner of the channel is used as a snubbing point so that the leads are taut when they are welded. A liquid encapsulating compound is then forced under relatively low pressure through the channel and into the spaces of the mold cavity not filled by the assembly and connector block. The compound flows in a direction generally along the length of the leads to prevent breakage of the leads. The compound fills the channel and

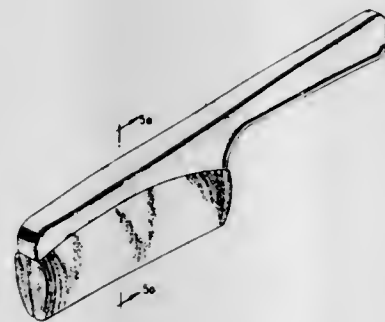


tor block are firmly bonded together to form a rigid tape head module.

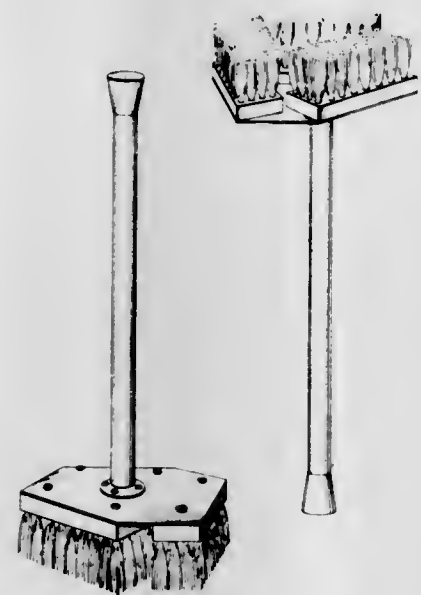
DESIGNS

AUGUST 31, 1971

221,609
RESILIENT COMB-TYPE CLEANING BRUSH WITH
STIFF SHORT SURFACE PILES AT AN ANGLE
TO THE BRUSH SURFACE
 Raymond Kieves, 1507 Inkster Blvd.,
 Winnipeg, Ontario, Canada
 Filed Mar. 11, 1970, Ser. No. 22,912
 Term of patent 14 years
 Int. Cl. D4—01
 U.S. Cl. D4—12



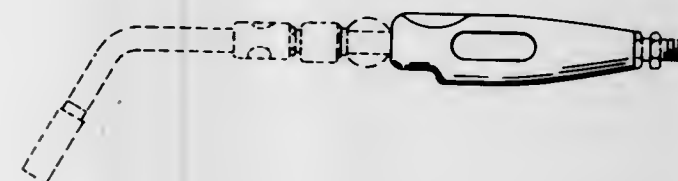
221,610
STIPPLE PAINT BRUSH
 Jeston P. McManners, Houston, Tex.
 (P.O. Box 988, Trinity, Tex. 75862)
 Filed Feb. 10, 1969, Ser. No. 15,701
 Term of patent 7 years
 Int. Cl. D4—04
 U.S. Cl. D4—38



221,611
METAL PICK-UP DEVICE
 Lillian D. Westermann, 255 E. 2nd St.,
 Redwood Falls, Minn. 56283
 Filed June 25, 1970, Ser. No. 23,669
 Term of patent 14 years
 Int. Cl. D8—05
 U.S. Cl. D8—14



221,612
HANDLE FOR A HEATING TORCH
 John W. Meese, Avon, Ohio, assignor to Emerson
 Electric Co., St. Louis, Mo.
 Filed July 20, 1970, Ser. No. 24,025
 Term of patent 14 years
 Int. Cl. D8—05
 U.S. Cl. D8—30

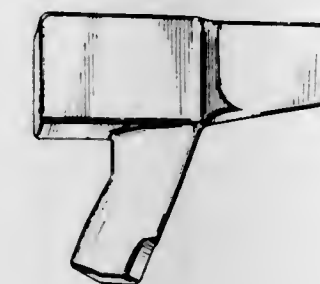


AUGUST 31, 1971

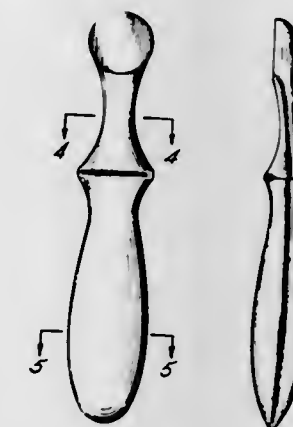
U. S. PATENT OFFICE

1643

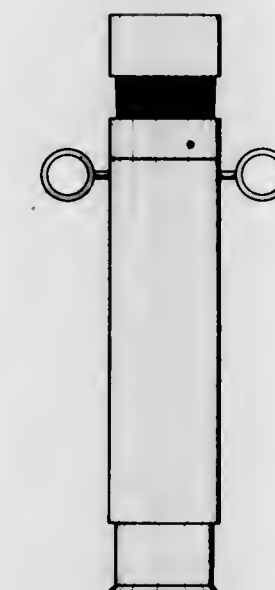
221,613
HOUSING FOR A POWER HAND DRILL
 Piero Puddu, Milan, Italy, assignor to
 Berettafiocchi S.p.A., Milan, Italy
 Filed Apr. 8, 1969, Ser. No. 16,627
 Claims priority, application Italy Oct. 11, 1968
 Term of patent 14 years
 Int. Cl. D8—02
 U.S. Cl. D8—68



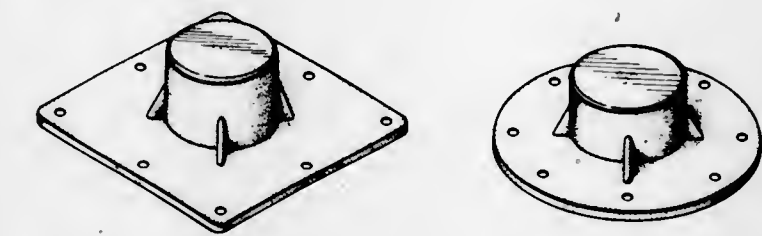
221,614
HANDLE FOR ABRASIVE TOOLS AND THE LIKE
 William McMahon, 603 Victor Ave., Anaheim, Calif.
 92801, and William F. Hamman, 9601 Imperial Ave.,
 Garden Grove, Calif. 92641
 Filed Feb. 9, 1970, Ser. No. 21,368
 Term of patent 14 years
 Int. Cl. D8—02
 U.S. Cl. D8—94



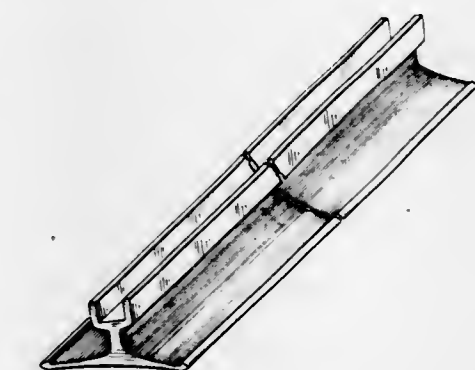
221,615
COMBINED BOLLARD AND LAMP
 John O. Simonds, 17 Penhurst Road 15202; Philip D.
 Simonds, Bright Wood Trail 15237; and Geoff Rausch,
 101 Thompson Drive 15229, all of Pittsburgh, Pa.
 Filed Sept. 15, 1969, Ser. No. 19,153
 Term of patent 14 years
 Int. Cl. D8—03; D26—03
 U.S. Cl. D8—232



221,616
BASE FOR TABLE LEG OR LIKE
SUPPORT STRUCTURE
 Irvin Hollander, Dayton, Ohio, assignor to
 TiiDee Products Co., Dayton, Ohio
 Filed Dec. 5, 1969, Ser. No. 20,373
 Term of patent 14 years
 Int. Cl. D8—09
 U.S. Cl. D8—235



221,617
SIGN HOLDER
 Anthony N. D'Elia, 3555 Netherlands Ave., New York,
 N.Y. 10471, and Edward M. Stolarz, R.F.D. 2, Horton
 Drive, Yorktown Heights, N.Y. 10598
 Filed Sept. 3, 1969, Ser. No. 18,980
 Term of patent 14 years
 Int. Cl. D8—03; D20—03
 U.S. Cl. D8—243



221,618
COMBINED DISPENSING BOTTLE
AND CLOSURE THEREFOR
 Howard J. Levin, Norristown, and Stephen W. Goodsir,
 King of Prussia, Pa., assignors to American Home
 Products Corporation, New York, N.Y.
 Filed Mar. 4, 1970, Ser. No. 21,730
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—2



**221,619
BOTTLE**

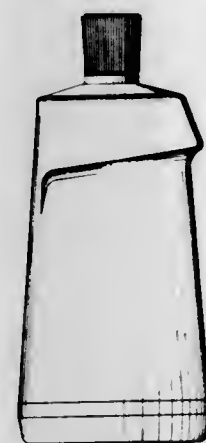
Willard R. Horne, Northvale, and Robert P. Vuilleminot, Oradell, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 15, 1970, Ser. No. 23,774

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—67

**221,620
BOTTLE**

Kevin McKibben O'Brien, Fairfield County, Conn., assignor to Lever Brothers Company, New York, N.Y.

Filed Oct. 31, 1969, Ser. No. 19,876

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—116

**221,621
BOTTLE**

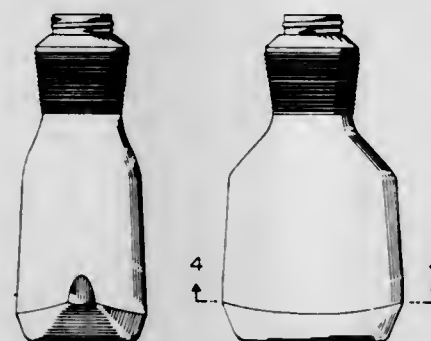
Harold J. Vanderhyde, North Merrick, N.Y., assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 29, 1970, Ser. No. 22,698

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—129

**221,622
BOTTLE**

Harold J. Vanderhyde, North Merrick, N.Y., assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 30, 1970, Ser. No. 22,739

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—129

**221,623
CIGARETTE PACK SPACER FOR CARTONS**

Carl C. Grant, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Aug. 24, 1970, Ser. No. 24,674

Term of patent 14 years

Int. Cl. D9—99

U.S. Cl. D9—184

**221,624
FROZEN LOBSTER TAIL PACKAGE**

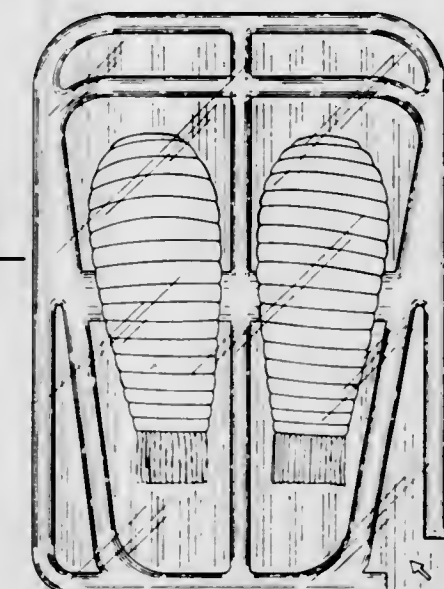
William P. Kremkau, Greenville, and Paul Joonase, Taylors, S.C., assignors to W. R. Grace & Co., Duncan, S.C.

Filed July 13, 1970, Ser. No. 23,918

Term of patent 14 years

Int. Cl. D9—99

U.S. Cl. D9—192

**221,625
PACKAGING CUP**

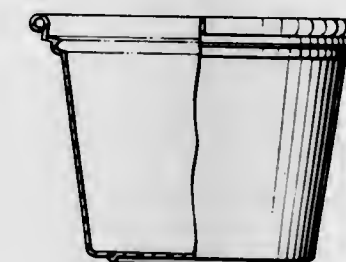
Alfred W. Kinney, Kansas City, Mo., and Frederick P. Marshall, Park Forest, Ill., assignors to Phillips Petroleum Company

Filed Feb. 5, 1970, Ser. No. 21,292

Term of patent 14 years

Int. Cl. D9—99

U.S. Cl. D9—220

**221,626
SHIPPING AND DISPLAY CONTAINER**

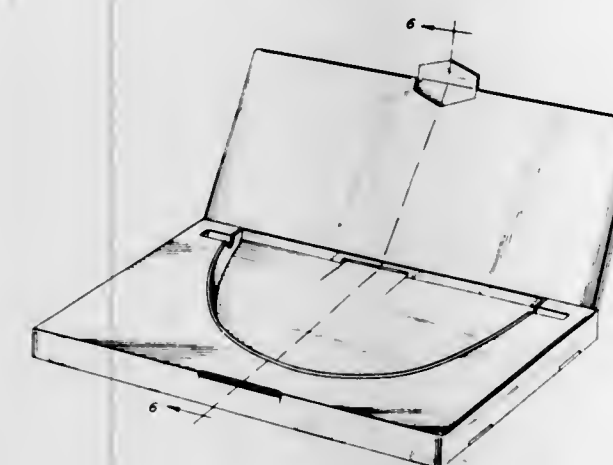
Reuben Leon Fine, 2780 Ridge Road, Highland Park, Ill. 60035

Filed July 13, 1970, Ser. No. 23,926

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—224

**221,627
BOTTLE STOPPER**

Harold Shapfro, 18160 Parthenia St., Northridge, Calif. 91324

Filed Nov. 3, 1969, Ser. No. 19,881

Term of patent 14 years

Int. Cl. D9—02

U.S. Cl. D9—254

**221,628
SHROUD FOR A BOTTLE OR THE LIKE**

Richard J. Boulanger, Colchester, Vt., assignor to Aluminum Cap Seal Company, Inc.

Filed July 27, 1970, Ser. No. 24,139

Term of patent 14 years

Int. Cl. D9—05

U.S. Cl. D9—259

**221,629
TELEPHONE BOOTH**

Donald G. King, 3150 Wharton Way, Cooksville, Ontario, Canada

Filed Sept. 12, 1968, Ser. No. 13,517

Claims priority, application Canada Aug. 20, 1968

Term of patent 14 years

Int. Cl. D25—03

U.S. Cl. D13—1

**221,630
FLOOR STRUCTURE OF CONCRETE SLATS**

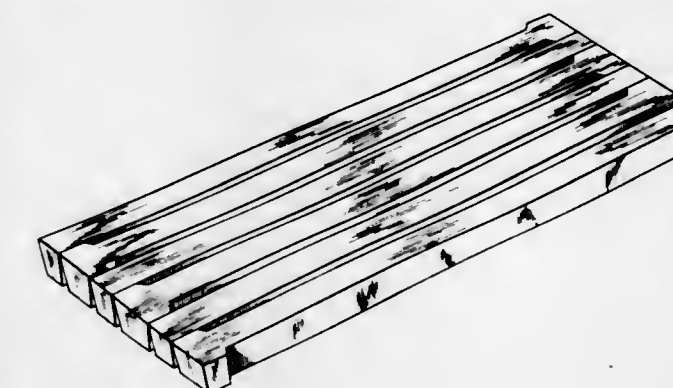
Edward J. Hatten, Stacyville, Iowa 50476

Filed May 7, 1970, Ser. No. 22,876

Term of patent 14 years

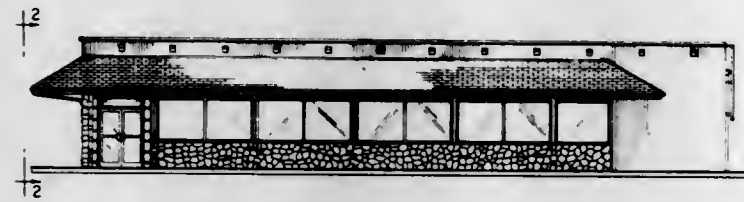
Int. Cl. D25—01

U.S. Cl. D13—1



221,631
BUILDING
Charles F. McAlpine, Fort Lauderdale, Fla., assignor to
Ranch House of America Inc., Fort Lauderdale, Fla.
Filed May 8, 1970, Ser. No. 22,886
Term of patent 14 years
Int. Cl. D25—04

U.S. Cl. D13—1



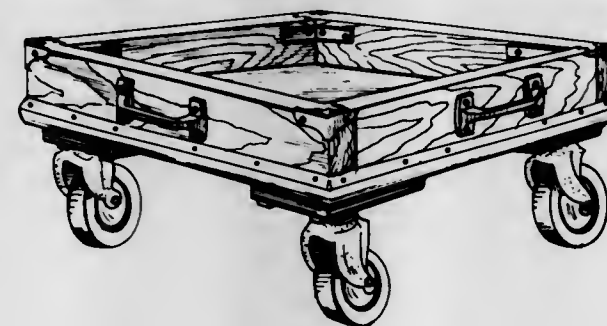
221,632
HANDRAIL UNIT
William J. Horgan, Jr., Pittsburgh, Pa., assignor to
Blumcraft of Pittsburgh, Pittsburgh, Pa.
Filed Apr. 2, 1970, Ser. No. 22,200
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—7



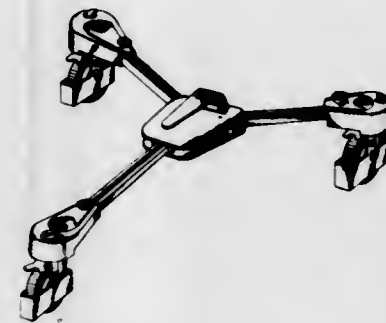
221,633
**TEST CONTAINER DOLLY FOR MOVABLY
SUPPORTING TEST CONTAINERS, ETC.**
Joseph C. Kotkowski, 6720 Duluth Ave.,
Baltimore, Md. 21222
Filed Jan. 21, 1970, Ser. No. 21,012
Term of patent 14 years
Int. Cl. D12—02

U.S. Cl. D14—3



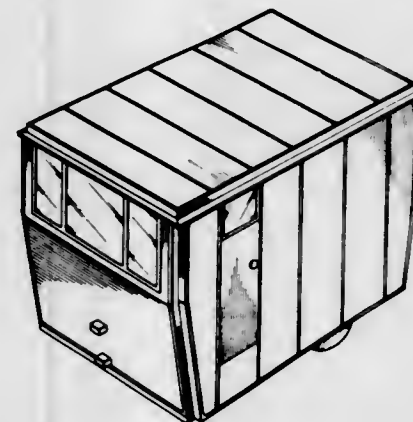
221,634
CAMERA TRIPOD DOLLY
Robert W. Bradspies, Pasadena, and Edwin V. Stephens,
Los Alamitos, Calif., assignors to CinTel Corporation,
Los Angeles, Calif.
Filed June 16, 1970, Ser. No. 23,513
Term of patent 14 years
Int. Cl. D12—02

U.S. Cl. D14—3



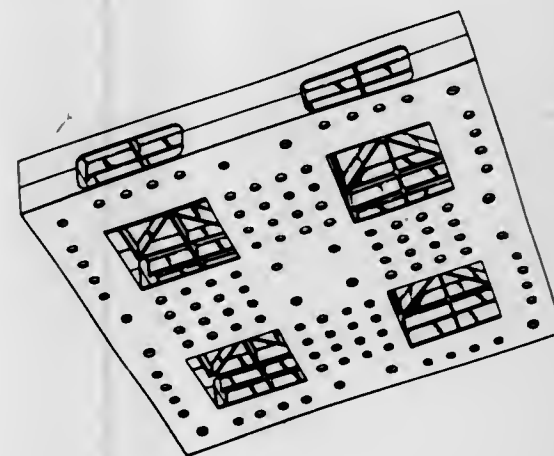
221,635
TRAILER CAMPER OR SIMILAR ARTICLE
Richard J. Makela, 332 N. Valeria,
Santa Maria, Calif. 93454
Filed July 17, 1970, Ser. No. 24,007
Term of patent 14 years
Int. Cl. D12—10

U.S. Cl. D14—3



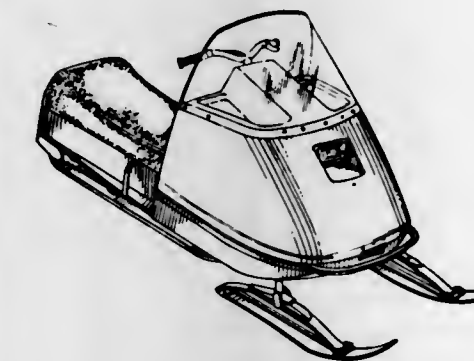
221,636
PALLET
John Edward Moses, Bricket Wood, England, assignor
to John Dale Limited, London, England
Filed Aug. 11, 1970, Ser. No. 24,415
Claims priority, application Great Britain Feb. 16, 1970
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D14—3



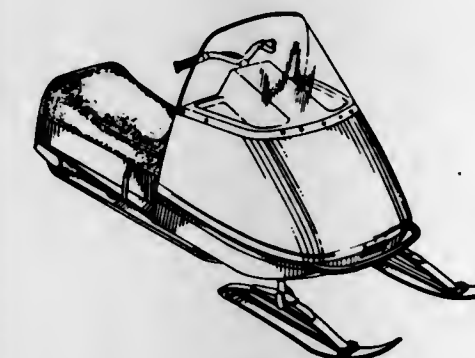
221,637
SNOWMOBILE
Anthony D. MacKeen, Valcourt, Quebec, Canada, as-
signor to Bombardier Limited, Valcourt, Quebec,
Canada
Filed Oct. 6, 1969, Ser. No. 19,430
Term of patent 14 years
Int. Cl. D12—13

U.S. Cl. D14—24



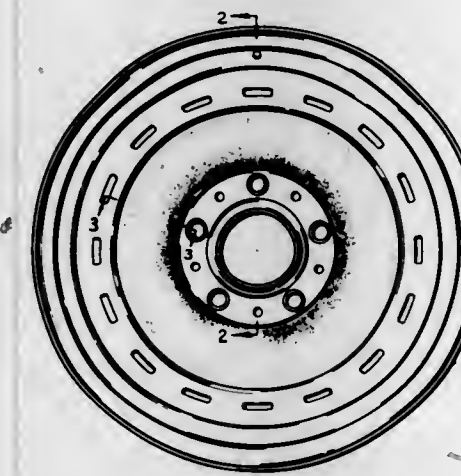
221,638
SNOWMOBILE
Anthony D. MacKeen, Valcourt, Quebec, Canada, as-
signor to Bombardier Limited, Valcourt, Quebec,
Canada
Filed Oct. 6, 1969, Ser. No. 19,431
Term of patent 14 years
Int. Cl. D12—13

U.S. Cl. D14—24



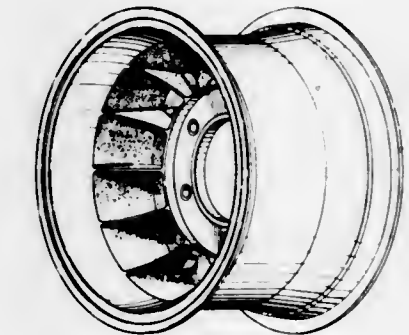
221,639
WHEEL
John A. Main, East Lansing, Mich., assignor to Motor
Wheel Corporation, Lansing, Mich.
Filed May 7, 1970, Ser. No. 22,869
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D14—30



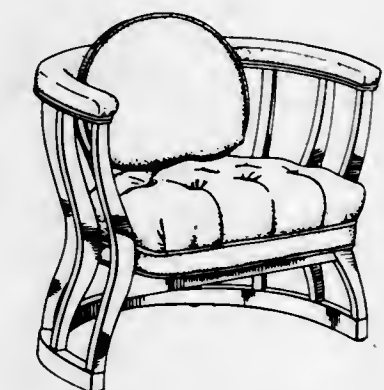
221,640
WHEEL
Paul W. Burchard, 415 Rialto Ave.,
Rialto, Calif. 92376
Filed June 30, 1970, Ser. No. 23,768
Term of patent 3½ years
Int. Cl. D12—14

U.S. Cl. D14—30



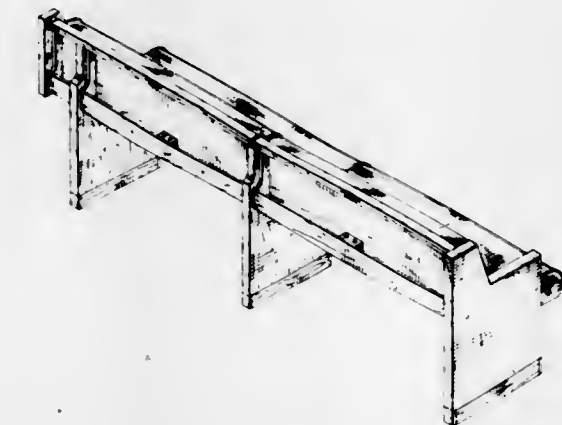
221,641
CHAIR
Morris F. Fisher, 9820 Deerfield Circle,
Carmel, Ind. 46032
Filed Apr. 23, 1970, Ser. No. 22,606
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—1



221,642
PEW
Theodore L. Bayes, Tacoma, Wash.
(1705 Belmont Ave., Seattle, Wash. 98122)
Filed Dec. 24, 1969, Ser. No. 19,993
Term of patent 14 years
Int. Cl. D6—01

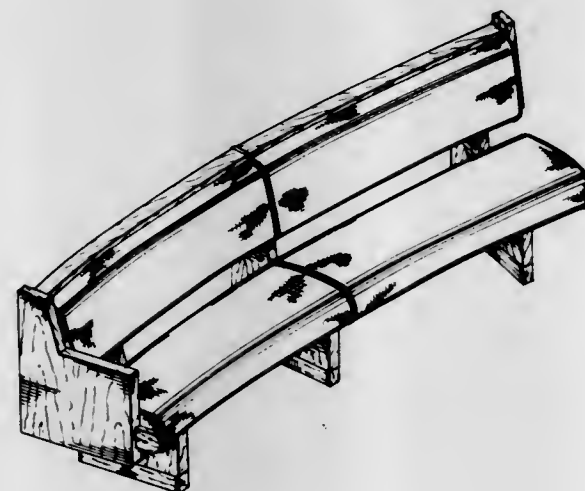
U.S. Cl. D15—11



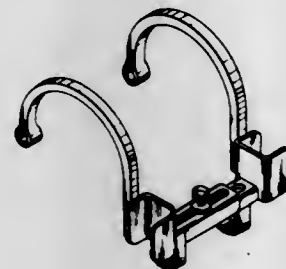
221,643
INFLATABLE BOUNCE PAD
 Mark C. I. Stewart, Ada County, Idaho
 (2125 Jackson Bluff Road, Tallahassee, Fla. 32304)
 Filed Sept. 25, 1969, Ser. No. 19,299
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D15—8



221,644
PEW
 Theodore L. Bayes, Tacoma, Wash.
 (1705 Belmont Ave., Seattle, Wash. 98122)
 Filed Dec. 24, 1969, Ser. No. 19,992
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D15—11



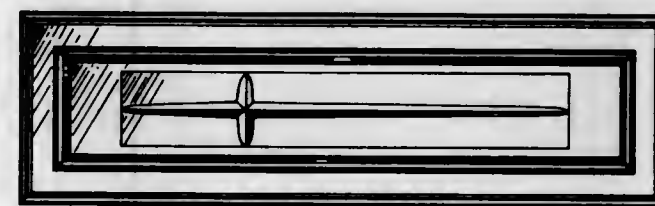
221,645
LADDER HOOK
 Percy E. Lear, 1711 Bell St., Yakima, Wash. 98902
 Filed Feb. 9, 1970, Ser. No. 21,347
 Term of patent 14 years
 Int. Cl. D6—99
 U.S. Cl. D15—8



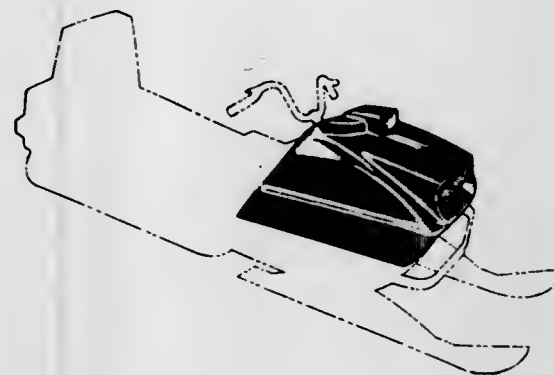
221,646
COFFIN
 Claudette Boulanger, 265 Vachon Blvd.,
 St. Marie de Beauce, Quebec, Canada
 Filed May 28, 1970, Ser. No. 23,204
 Claims priority, application Canada May 27, 1970
 Term of patent 14 years
 Int. Cl. D31
 U.S. Cl. D19—1



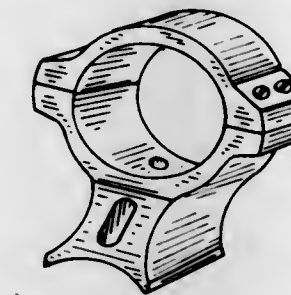
221,647
BURIAL COUCH COVER
 Kenneth S. Conley, Nashville, Tenn., assignor to Cross
 Mausoleum and Funeral Home, Inc., Nashville, Tenn.
 Filed July 29, 1970, Ser. No. 24,207
 Term of patent 14 years
 Int. Cl. D31
 U.S. Cl. D19—1



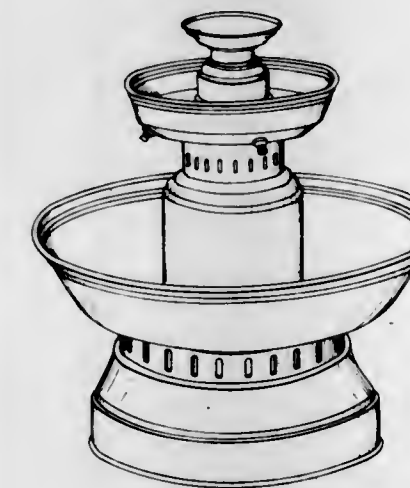
221,648
HOOD FOR SNOWMOBILE
 William G. Ness, Thief River Falls, Minn., assignor to
 Arctic Enterprises, Inc., Thief River Falls, Minn.
 Filed Feb. 13, 1970, Ser. No. 21,528
 Term of patent 14 years
 Int. Cl. D12—13
 U.S. Cl. D14—24



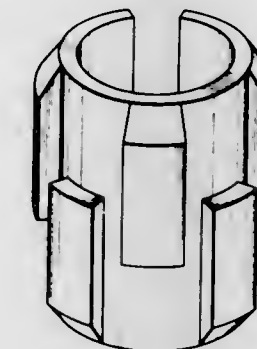
221,649
MOUNTING FOR A RIFLE TELESCOPIC SIGHT
 Irving Rubin, Oak Park, and Ivan Jimenez, Ypsilanti,
 Mich. (both of 27367 Michigan Ave., Inkster, Mich.
 48141)
 Filed Apr. 29, 1970, Ser. No. 22,697
 Term of patent 14 years
 Int. Cl. D22—01
 U.S. Cl. D22—7



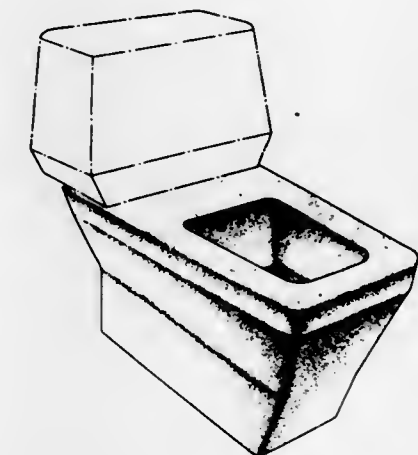
221,650
BEVERAGE FOUNTAIN
 Alvin Gruber, 2215 Disston St., Philadelphia, Pa. 19149
 Filed May 28, 1970, Ser. No. 23,190
 Term of patent 14 years
 Int. Cl. D23—01
 U.S. Cl. D23—13



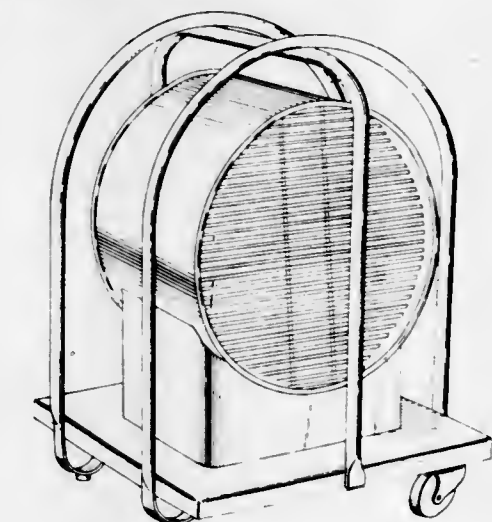
221,651
DRILL PIPE PROTECTOR
 Mason W. Napper, Morgan City, La., assignor to Galaxie
 Manufacturing and Sales, Inc., Morgan City, La.
 Filed Nov. 17, 1969, Ser. No. 20,115
 Term of patent 14 years
 Int. Cl. D23—01
 U.S. Cl. D23—47



221,652
WATER CLOSET BOWL
 Burton Harvey, Mansfield, Ohio, assignor to Borg-Warner
 Corporation, Chicago, Ill.
 Filed May 15, 1970, Ser. No. 23,023
 Term of patent 14 years
 Int. Cl. D23—02
 U.S. Cl. D23—67

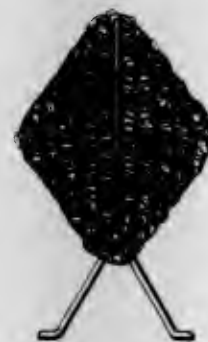
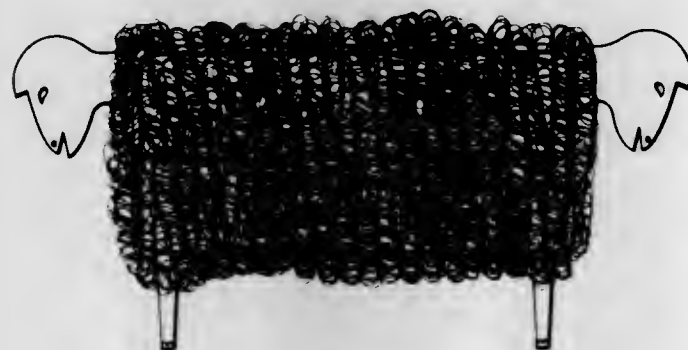


221,653
PORTABLE ELECTRIC HEATER
 Eberhard W. Meng, Monroeville, and Lester D. Drug-
 mand, Pittsburgh, Pa., assignors to Emerson Electric
 Co., St. Louis, Mo.
 Filed Mar. 12, 1970, Ser. No. 21,876
 Term of patent 14 years
 Int. Cl. D23—03
 U.S. Cl. D23—91



221,654
FIRE SCREEN
Poul Otto, Langballe, Adelgade 15,
DK 1304 Copenhagen K., Denmark
Filed May 5, 1970, Ser. No. 22,824
Claims priority, application Denmark Nov. 6, 1969
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—99



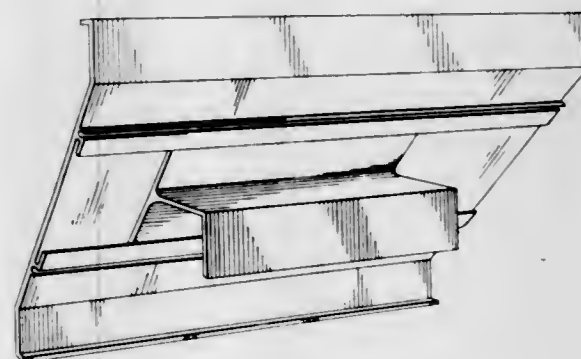
221,655
AIR DAMPER
Francis J. McCabe, P.O. Box 131,
Penns Park, Pa. 18943
Filed Sept. 29, 1969, Ser. No. 19,336
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—112



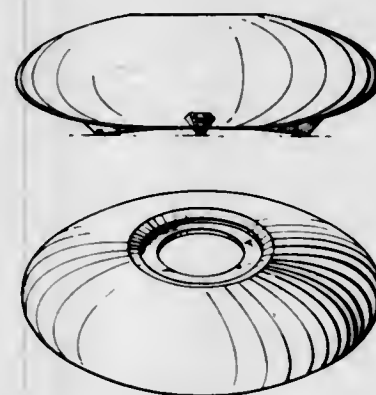
221,656
**COMBINED LOUVER BLADE AND
BRACE THEREFOR**
Joshua R. Dowell, Jr., Dallas, and Paul H. Sanderson,
Jr., Lake Dallas, Tex., assignors to Dowco Corporation,
Dallas, Tex.
Filed June 17, 1970, Ser. No. 23,542
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—112



221,657
VAPORIZER BOWL OR THE LIKE
Lawrence Katzman, Edward Briggan, and Monte L. Levin,
New York, N.Y., assignors to Kaz Manufacturing Co.,
Inc., New York, N.Y.
Filed Mar. 30, 1970, Ser. No. 22,102
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—148



221,658
TRAINING DEVICE
Rose P. Gallagher, 1 Valley Brook Road,
Westboro, Mass. 01581
Filed Nov. 10, 1969, Ser. No. 20,028
Term of patent 14 years
Int. Cl. D19—8

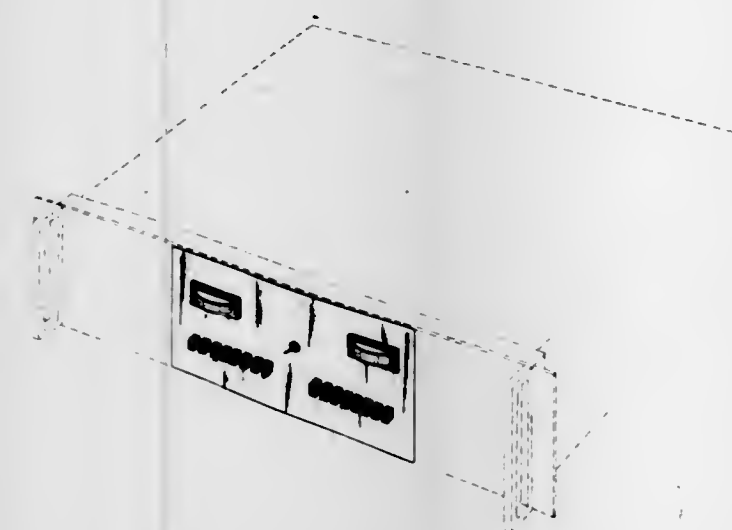
U.S. Cl. D25—1



221,659
POWER SUPPLY METERING PANEL
Edward Brenner, Commack, Marvin Price, Queens, and
Benjamin Shmurak, Lynbrook, N.Y., assignors to
Lambda Electronics Corporation, Huntington, N.Y.
Continuation-in-part of design application Ser. No.
18,714, Aug. 15, 1969. This application Nov. 5,
1970, Ser. No. 25,846

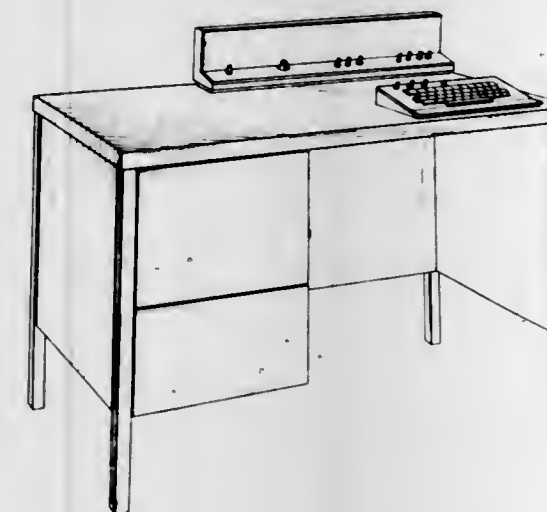
Term of patent 14 years
Int. Cl. D14—99

U.S. Cl. D26—1



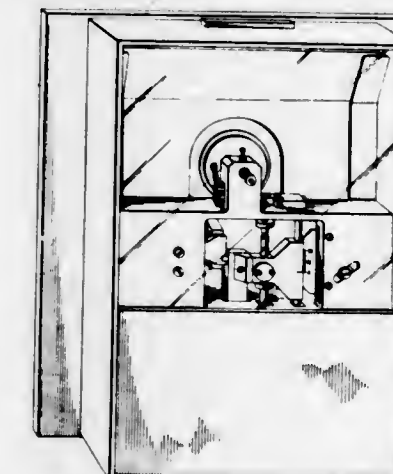
221,660
DATA STATION
Raymond A. Grosso, Troy, Mich., assignor to Sangamo
Electric Company, Springfield, Ill.
Filed Oct. 13, 1969, Ser. No. 19,542
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5



221,661
MAGNETIC DISK FILE
Clifford I. Dawson and Dallas G. Molerin, San Jose,
Calif., assignors to International Business Machines Cor-
poration, Armonk, N.Y.
Filed Dec. 17, 1969, Ser. No. 20,529
Term of patent 14 years
Int. Cl. D14—02

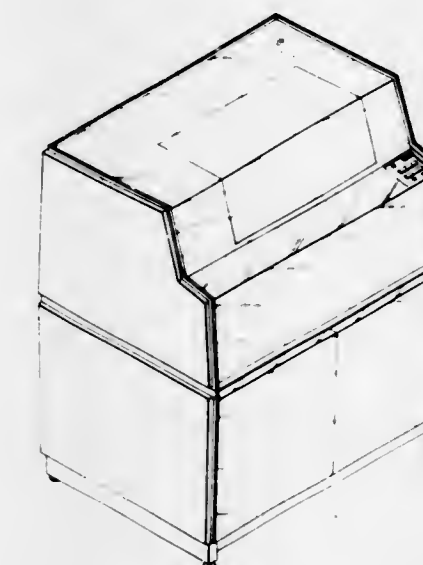
U.S. Cl. D26—5



221,662
PRINTER
Walter J. Dunham, Jr., 949 Salem St., South Lynnfield,
Mass. 01940; Thomas Merrill Kearns, 4 Orleans Road,
Norwood, Mass. 02062; Robert B. Rockwood, 23
Beechwood Road, New Hartford, N.Y. 13413; and
Stuart G. Mundt, 2 Proctor Ave., Clinton, N.Y.
13312

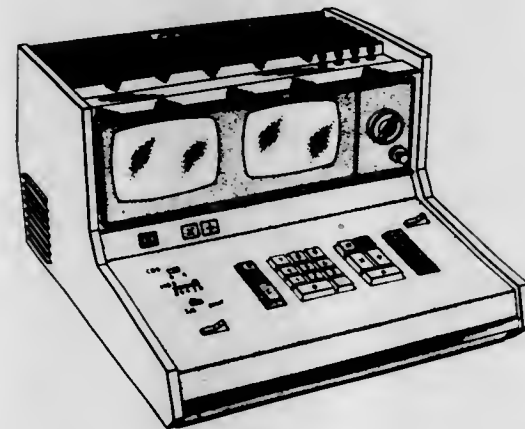
Filed Dec. 23, 1969, Ser. No. 20,772
Term of patent 14 years
Int. Cl. D14—03

U.S. Cl. D26—5



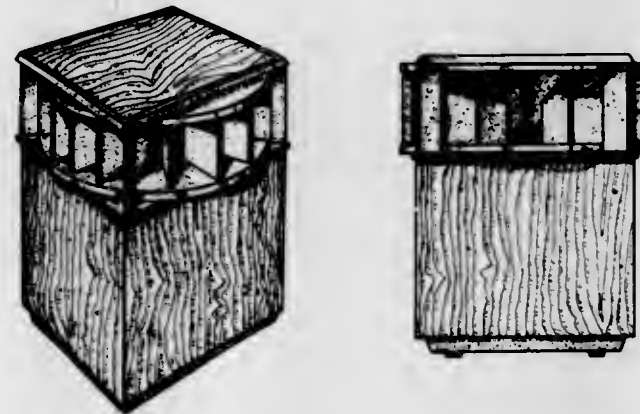
221,663
ELECTRONIC CALCULATOR
 Yoshio Ishiwata, Tokyo, Japan, assignor to Takachiho
 Koeki Kabushiki Kaisha, Komatsubara-machi, Kita-ku,
 Osaka-shi, Japan
 Filed July 13, 1970, Ser. No. 23,935
 Claims priority, application Japan Jan. 14, 1970
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5



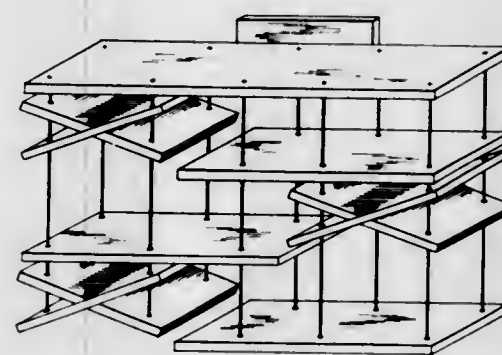
221,665
SPEAKER ENCLOSURE
 Yoshiaki Iida, Neyagawa, Osaka, and Noboru Shirosaki,
 Amagasaki, Japan, assignors to Matsushita Electric In-
 dustrial Co., Ltd., Osaka, Japan
 Filed May 6, 1970, Ser. No. 22,864
 Term of patent 14 years
 Int. Cl. D14—01

U.S. Cl. D26—14



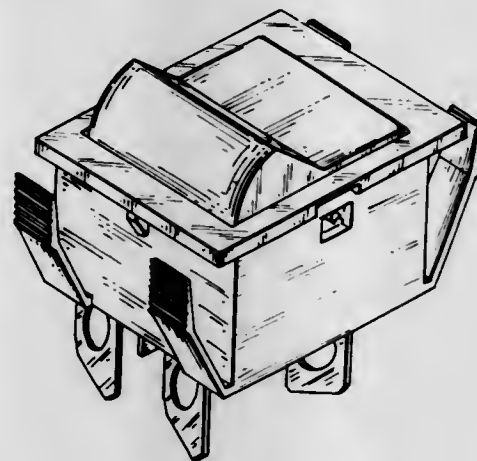
221,666
WHAT-NOT SHELF UNIT OR SIMILAR ARTICLE
 Francis P. Weider, 3233 E. Pershing Ave.,
 Phoenix, Ariz. 85032
 Filed May 4, 1970, Ser. No. 23,095
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—3



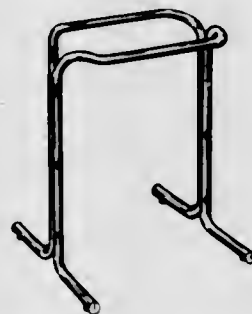
221,664
SWITCH FOR CONTROL PANELS OR THE LIKE
 Victor Russenberger, Nogent-sur-Marne, France, assignor
 to Societe: Etablissements Russenberger S.A., Paris,
 France
 Filed May 26, 1970, Ser. No. 23,151
 Claims priority, application France Nov. 26, 1969
 Term of patent 14 years
 Int. Cl. D13—03

U.S. Cl. D26—13



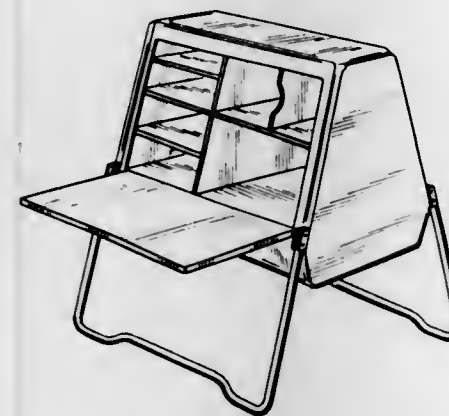
221,667
SUPPORT STAND FOR A HOUSEHOLD APPLIANCE
 Thomas R. Smith and Tad B. Anthony, Newton, Iowa,
 assignors to The Maytag Company, Newton, Iowa
 Filed June 5, 1970, Ser. No. 23,327
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—3



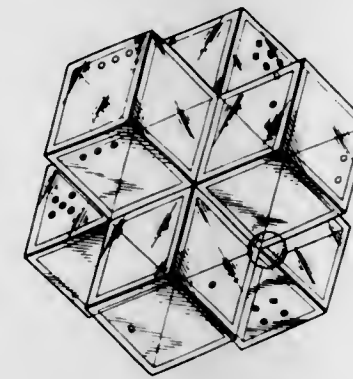
221,668
PORTABLE CABINET FOR OUTDOOR USE
 Stephen A. Schendel, 3000 W. River Road,
 Minneapolis, Minn. 55406
 Filed Nov. 6, 1969, Ser. No. 19,976
 Term of patent 7 years
 Int. Cl. D6—01

U.S. Cl. D33—19



221,669
GAME PIECE
 Michael J. Sector, 305 Canal St.,
 New York, N.Y. 10013
 Filed Mar. 17, 1970, Ser. No. 21,937
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5



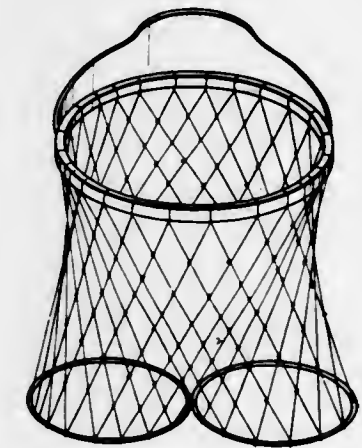
221,670
GAME BOARD
 Jack Seidman, Philadelphia, Pa., assignor to Spot-O-Gold
 Corporation, Philadelphia, Pa.
 Filed Apr. 16, 1970, Ser. No. 22,614
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5



221,671
BASKETBALL GOAL
 Jo Ann Hubert, 9146 Westview Drive,
 Houston, Tex. 77055
 Filed May 12, 1970, Ser. No. 22,935
 Term of patent 14 years
 Int. Cl. D21—03

U.S. Cl. D34—5



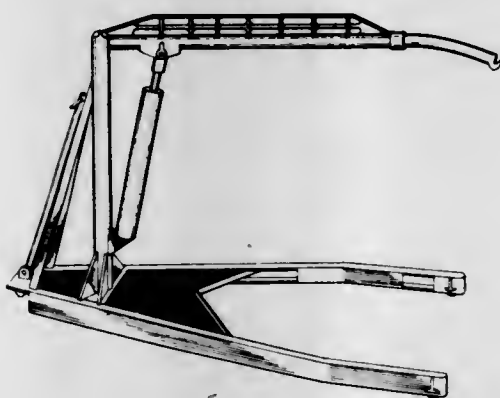
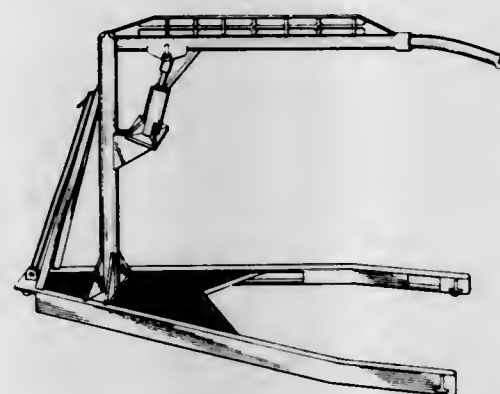
221,672
GAME TABLE
 Emil G. Kalilich, 451 SE. 15 St.,
 Pompano Beach, Fla. 33060
 Filed June 8, 1970, Ser. No. 23,344
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5



221,673
PORTABLE CRANE
 Clarence Allen, 3080 Dexter St.,
 Denver, Colo. 80207
 Filed June 4, 1970, Ser. No. 23,313
 Term of patent 14 years
 Int. Cl. D15—05

U.S. Cl. D41—1



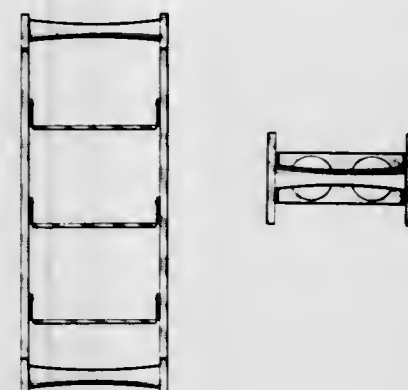
221,674
COMBINED FACE AND HANDS FOR A CLOCK
 Jerome W. Emdur, Philadelphia, Pa., assignor to Emdur
 Metal Products, Inc., Camden, N.J.
 Filed Jan. 7, 1970, Ser. No. 20,797
 Term of patent 14 years
 Int. Cl. D10—06

U.S. Cl. D42—7



221,675
SERVING TRAY FOR TUMBLERS OR THE LIKE
 Frank De George, 103 Pleasant Ave.,
 Upper Saddle River, N.J. 07458
 Filed Mar. 3, 1970, Ser. No. 21,710
 Term of patent 14 years
 Int. Cl. D7—06

U.S. Cl. D44—10



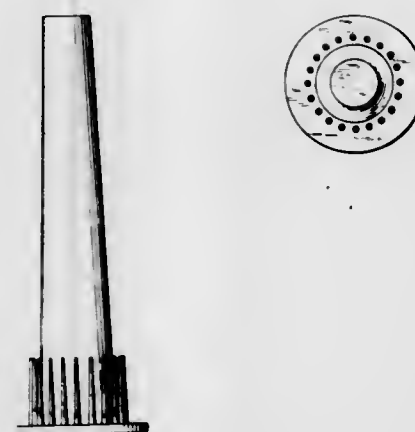
221,676
HOLDER FOR A DISPOSABLE DRINKING CUP
 Rodney E. Ludder, Glen Head, N.Y., assignor to
 Owens-Illinois, Inc., Toledo, Ohio
 Filed Apr. 16, 1970, Ser. No. 22,469
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D44—10



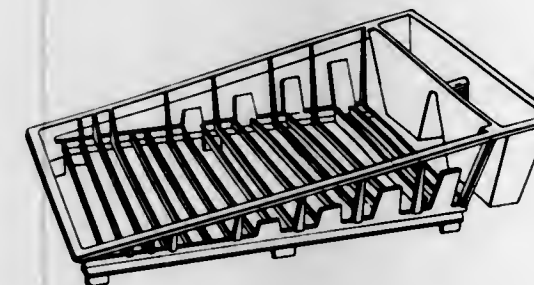
221,677
STAND FOR NAPKINS OR THE LIKE
 Charles H. Losh, White St. Extension,
 Leominster, Mass. 01453
 Filed Sept. 22, 1969, Ser. No. 19,229
 Term of patent 14 years
 Int. Cl. D7—06

U.S. Cl. D44—24



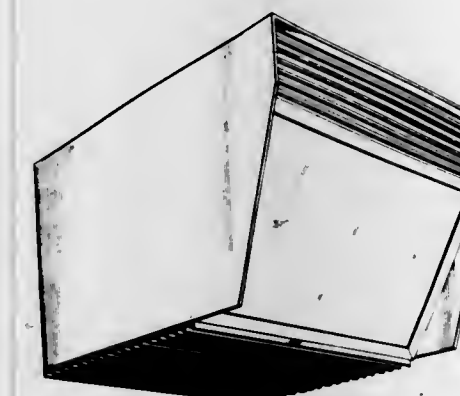
221,678
DISH DRAINER
 Robert Gottsegen, 146 West St.,
 Leominster, Mass. 01453
 Filed July 16, 1970, Ser. No. 23,984
 Term of patent 14 years
 Int. Cl. D7—99

U.S. Cl. D44—29



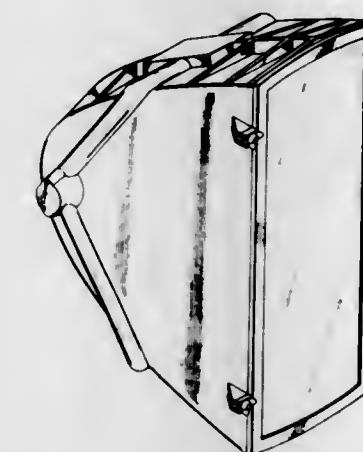
221,679
FLOODLIGHT
 Jose A. Hernandez, Houston, Tex., assignor to
 Esquire, Inc., New York, N.Y.
 Filed Mar. 30, 1970, Ser. No. 22,091
 Term of patent 14 years
 Int. Cl. D26—02

U.S. Cl. D48—20



221,680
LIGHT FIXTURE
 Glen H. McReynolds, Jr., Houston, Tex., assignor to
 Esquire, Inc., New York, N.Y.
 Filed Mar. 30, 1970, Ser. No. 22,092
 Term of patent 14 years
 Int. Cl. D26—02

U.S. Cl. D48—20



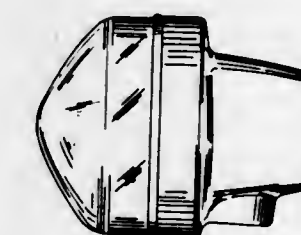
221,681
LAMP
 John Roger Chastain and Robert E. Morris, Fort Lauderdale,
 Fla., assignors to Design Technology Inc., Fort
 Lauderdale, Fla.
 Filed Apr. 27, 1970, Ser. No. 22,658
 Term of patent 14 years
 Int. Cl. D26—02

U.S. Cl. D48—20



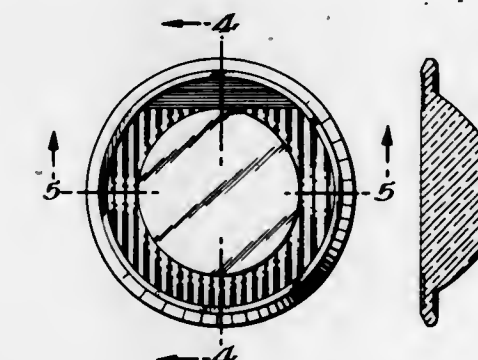
221,682
LAMP FOR A MOTORCYCLE OR THE LIKE
 Charles Round Wyatt, Smethwick, Warley, England, as-
 signor to Joseph Lucas (Industries) Limited, Birming-
 ham, England
 Filed Aug. 4, 1969, Ser. No. 18,530
 Claims priority, application Great Britain Mar. 25, 1969
 Term of patent 14 years
 Int. Cl. D12—99

U.S. Cl. D48—32

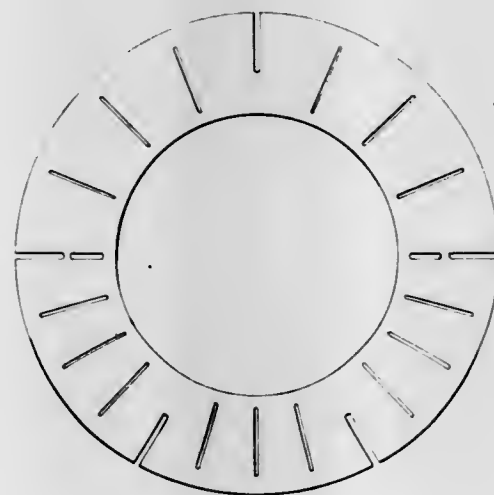


221,683
FLUTED-PLANO ASPHERIC LENS
 Howard Albert Schaffer, % Anchor Hocking Corp.,
 Lancaster, Ohio 43130
 Filed Mar. 17, 1970, Ser. No. 21,938
 Term of patent 14 years
 Int. Cl. D12—99; D26—06

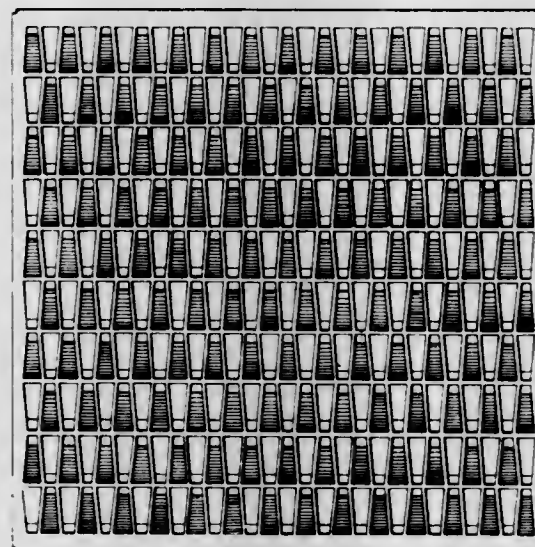
U.S. Cl. D48—32



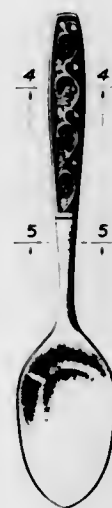
221,684
TEMPLATE
 Edward P. Martel, Waterford, and Derek R. Evans, Delmar, N.Y., assignors to The Bendix Corporation
 Filed June 30, 1970, Ser. No. 23,773
 Term of patent 14 years
 Int. Cl. D10—99
 U.S. Cl. D52—6



221,685
LOUVER PANEL
 Benjamin C. Baugh, Don Bruce Cleveland, and Charles W. Gibbs, Wichita, Kans., assignors to The Coleman Company, Inc., Wichita, Kans.
 Filed Sept. 10, 1969, Ser. No. 19,084
 Term of patent 14 years
 Int. Cl. D25—01
 U.S. Cl. D54—2



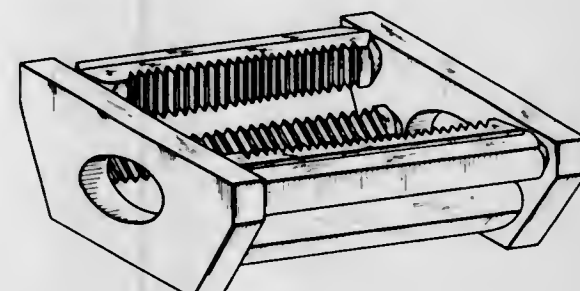
221,686
SPOON OR SIMILAR ARTICLE
 Melvin A. Lea, Oneida, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
 Filed Apr. 13, 1970, Ser. No. 22,390
 Term of patent 14 years
 Int. Cl. D7—03
 U.S. Cl. D54—12



221,687
SPOON OR SIMILAR ARTICLE
 Ellen B. Manderfield, Syracuse, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
 Filed Aug. 14, 1970, Ser. No. 24,489
 Term of patent 14 years
 Int. Cl. D7—03
 U.S. Cl. D54—12



221,688
CARRIER FOR SILICON WAFERS WHICH ARE USED IN THE MANUFACTURE OF SEMI-CONDUCTOR DEVICES
 Walter L. Elsfielder, New York, N.Y., assignor to Emerson Plastics Corporation, Bronx, N.Y.
 Filed Apr. 22, 1970, Ser. No. 22,572
 Term of patent 3½ years
 Int. Cl. D15—99
 U.S. Cl. D55—1



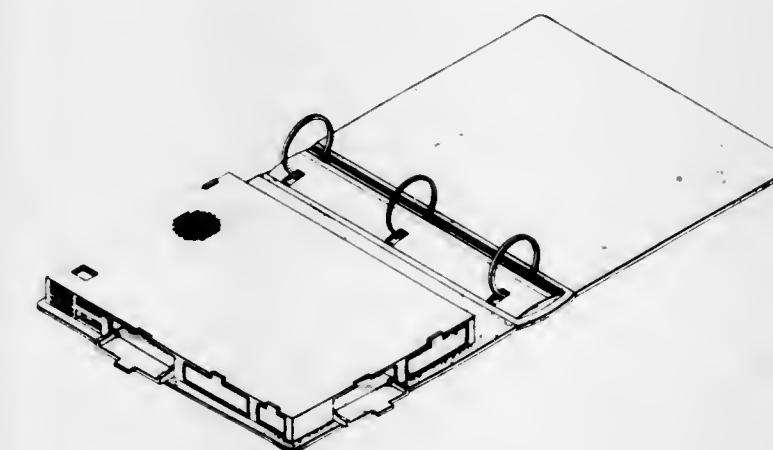
221,689
STRINGED MUSICAL INSTRUMENT
 Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
 Filed Mar. 28, 1968, Ser. No. 11,174
 Term of patent 14 years
 Int. Cl. D17—03
 U.S. Cl. D56—1



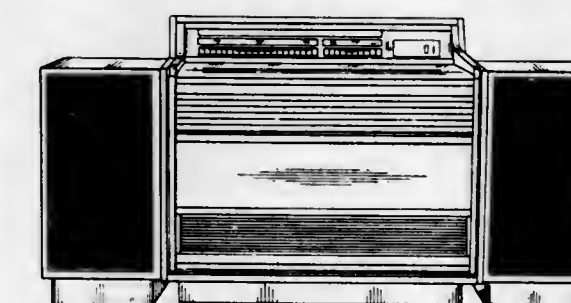
221,690
STRINGED MUSICAL INSTRUMENT
 Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
 Original design application Mar. 28, 1968, Ser. No. 11,174. Divided and this application June 3, 1969, Ser. No. 17,501
 Term of patent 14 years
 Int. Cl. D17—03
 U.S. Cl. D56—1



221,691
COMBINED LOOSELEAF RING BINDER, RADIO AND COMPARTMENTED PENCIL BOX OR SIMILAR ARTICLE
 Philip Leland Gammon, 7701 Granger Road, Richmond, Va. 23229
 Filed May 12, 1970, Ser. No. 22,940
 Term of patent 14 years
 Int. Cl. D14—03; D19—04, 99
 U.S. Cl. D56—4



221,692
AUTOMATIC RECORD PLAYER
 Taisuke Tsugami, 1-415 Shimoochiai, Shinjuku-ku, Tokyo, Japan
 Filed Sept. 9, 1970, Ser. No. 24,899
 Term of patent 14 years
 Int. Cl. D14—01
 U.S. Cl. D56—4

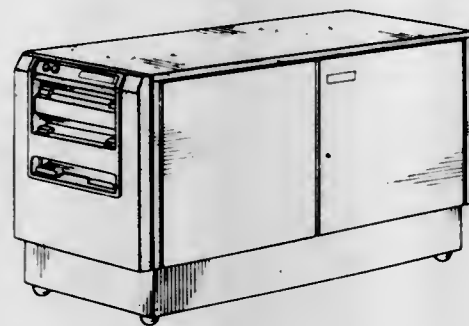


221,693
CAMERA TRIPOD
 Robert W. Bradspies, Pasadena, and Edwin V. Stephens, Los Alamitos, Calif., assignors to ClnTel Corporation, Los Angeles, Calif.
 Filed June 18, 1970, Ser. No. 23,559
 Term of patent 14 years
 Int. Cl. D16—07
 U.S. Cl. D61—1



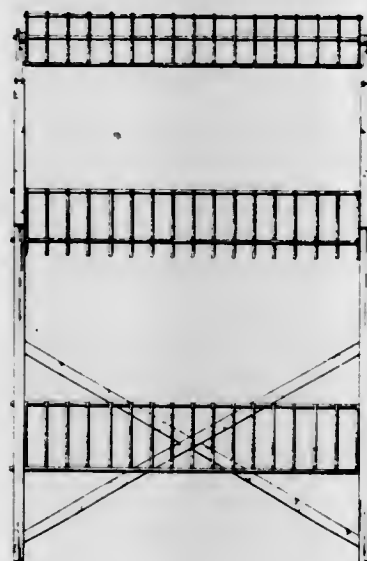
221,694
XEROGRAPHIC PROCESSOR HOUSING
 Channing Wallace Gilson, Los Angeles, and Henry Van Draanen, Pasadena, Calif., assignors to Xerox Corporation, Stamford, Conn.
 Filed July 30, 1970, Ser. No. 24,236
 Term of patent 14 years
 Int. Cl. D16—05

U.S. Cl. D61—1



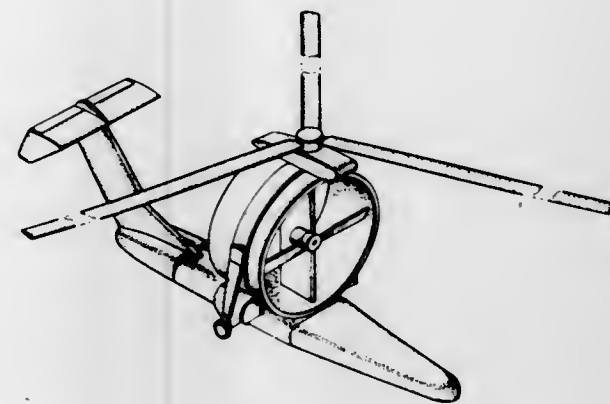
221,695
RACK FOR HANDLING CONTINUOUS FAN-FOLD FORMS
 Boyd L. Miller and Robert E. Schaefer, Clinton, Iowa, assignors to Chamberlain Manufacturing Corporation, Elmhurst, Ill.
 Filed June 15, 1970, Ser. No. 23,473
 Term of patent 14 years
 Int. Cl. D18—02

U.S. Cl. D64—11



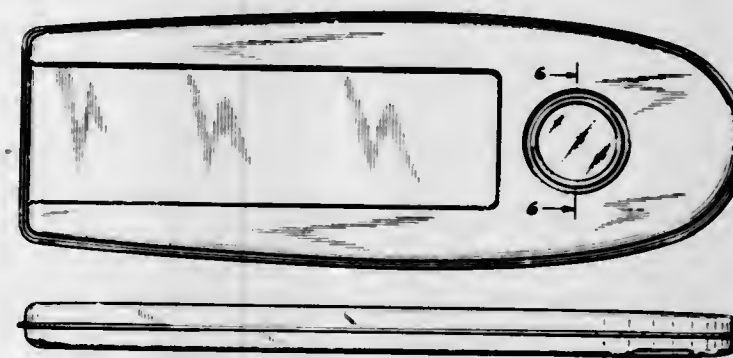
221,696
ROTARY WING AIRCRAFT OR THE LIKE
 Alexander Krivka, Ventura County, Calif.
 (4201 Crownfield Court, Westlake Village, Calif. 91360)
 Continuation-in-part of application Ser. No. 8,165, Aug. 8, 1967. This application Apr. 1, 1969, Ser. No. 17,089
 Term of patent 14 years
 Int. Cl. D12—07

U.S. Cl. D71—1



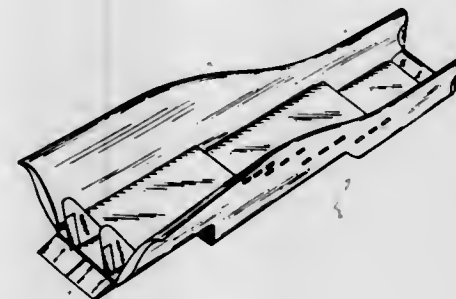
221,697
SEE-THRU LOUNGE BOARD
 Edward A. Nicholson, Islip, N.Y., assignor to Surf-Jet Manufacturing, Inc., Deer Park, N.Y.
 Filed Feb. 5, 1970, Ser. No. 21,289
 Term of patent 14 years
 Int. Cl. D21—03

U.S. Cl. D71—1



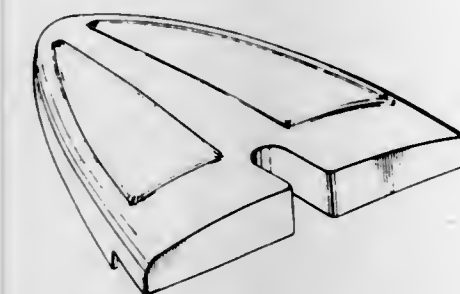
221,698
AEROSLEIGH
 Milford Geary, P.O. Box 26, Polo, Ill. 61064
 Filed Feb. 11, 1970, Ser. No. 21,399
 Term of patent 14 years
 Int. Cl. D12—07

U.S. Cl. D71—1



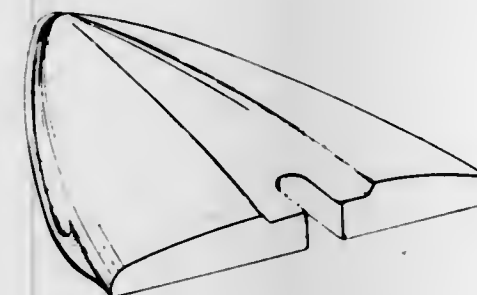
221,699
HATCH COVER FOR WATERCRAFT
 Peter A. Milne, Chichester, England, assignor to Richmond Marine Limited, London, England
 Filed June 22, 1970, Ser. No. 23,596
 Claims priority, application Great Britain May 6, 1970
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D71—1



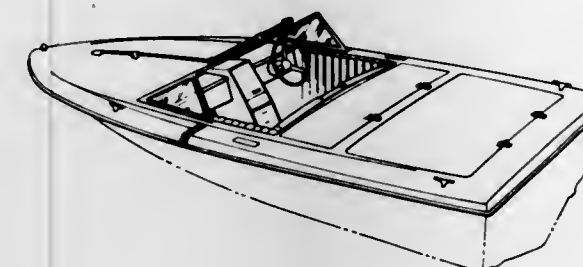
221,700
HATCH COVER FOR WATERCRAFT
 Peter A. Milne, Chichester, England, assignor to Richmond Marine Limited, London, England
 Filed June 22, 1970, Ser. No. 23,597
 Claims priority, application Great Britain May 8, 1970
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D71—1



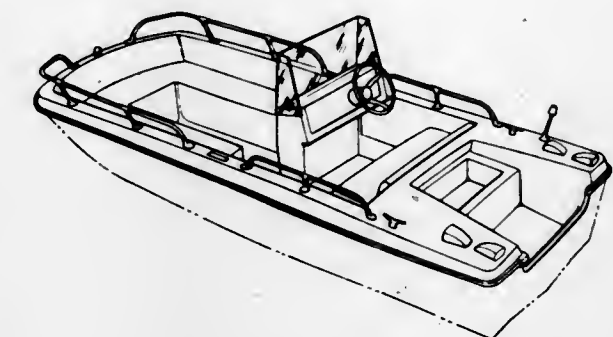
221,701
BOAT UPPER SHELL
 Edward W. Peterson, Bannockburn, Ill., assignor to Silverline, Inc., Moorhead, Minn.
 Filed June 29, 1970, Ser. No. 23,701
 Term of patent 10 years
 Int. Cl. D12—16

U.S. Cl. D71—1



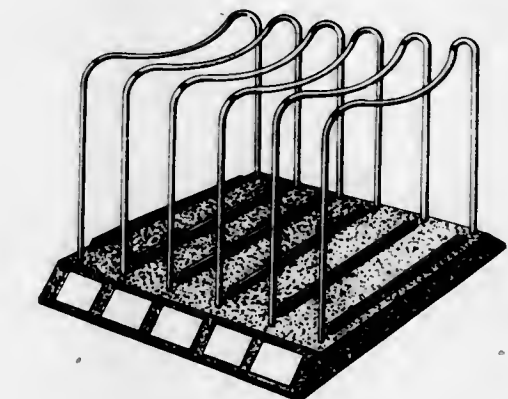
221,702
BOAT UPPER SHELL
 Edward W. Peterson, Bannockburn, Ill., assignor to Silverline, Inc., Moorhead, Minn.
 Filed June 29, 1970, Ser. No. 23,714
 Term of patent 10 years
 Int. Cl. D12—16

U.S. Cl. D71—1



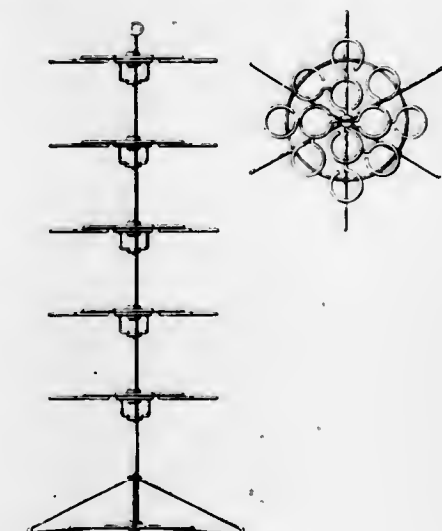
221,703
DESK FILE SORTER
 Jack Fairchild Fleming, Boonton, N.J., assignor to Sterling Plastics Co., Mountainside, N.J.
 Filed Sept. 11, 1969, Ser. No. 19,100
 Term of patent 7 years
 Int. Cl. D19—99

U.S. Cl. D74—2

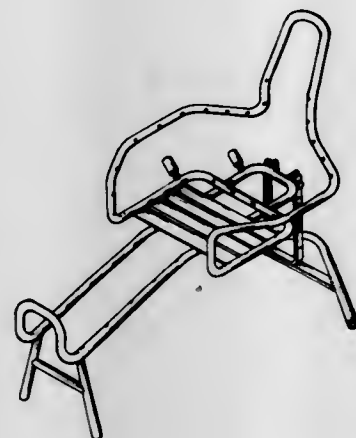


221,704
DISPLAY RACK
 John C. Pappas, Jr., Belmont, Mass., assignor to C. Pappas Company, Inc., Boston, Mass.
 Filed Apr. 10, 1970, Ser. No. 22,368
 Term of patent 14 years
 Int. Cl. D6—06

U.S. Cl. 80—10



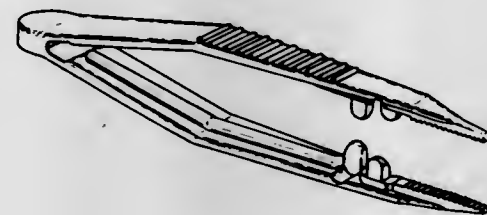
221,705
HYDRO-MASSAGE UNIT
 Charles S. Benson, 11944 Montana Ave.,
 West Los Angeles, Calif. 90049
 Filed July 13, 1970, Ser. No. 23,908
 Term of patent 14 years
 Int. Cl. D23-02; D24-99
 U.S. Cl. D83-1



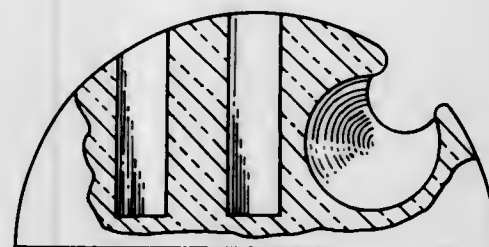
221,706
VOLUMETRIC INFANT FEEDING UNIT
 Robert Emmet Harrigan, Westerville, Ohio, assignor to
 Abbott Laboratories, North Chicago, Ill.
 Filed Nov. 5, 1969, Ser. No. 19,945
 Term of patent 14 years
 Int. Cl. D9-01; D24-05
 U.S. Cl. D83-8



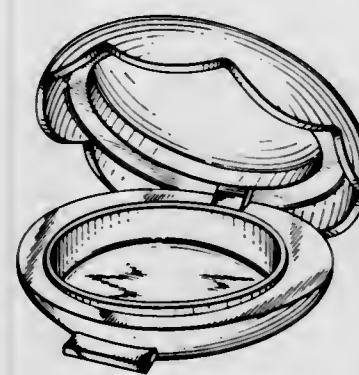
221,707
DISPOSABLE FORCEPS
 Suel Grant Shannon, 3701 Sharon St.,
 Harrisburg, Pa. 17111
 Filed Jan. 19, 1970, Ser. No. 21,174
 Term of patent 3½ years
 Int. Cl. D24-03; D28-03
 U.S. Cl. D83-12



221,708
ASH TRAY
 Luz Wong Martinez, 700 Dolores NW.,
 Albuquerque, N. Mex. 87105
 Filed May 18, 1970, Ser. No. 23,028
 Term of patent 14 years
 Int. Cl. D27-03
 U.S. Cl. D85-2



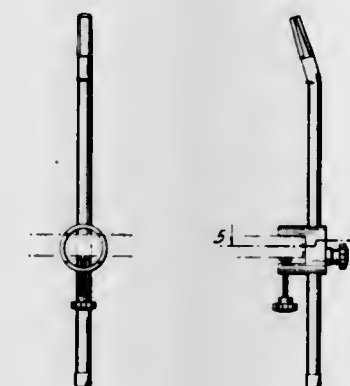
221,709
VANITY CASE OR SIMILAR ARTICLE
 André Courreges, Neuilly, France, assignor to
 Courreges Parfums, Paris, France
 Filed Jan. 23, 1970, Ser. No. 21,052
 Term of patent 14 years
 Int. Cl. D28-02
 U.S. Cl. D86-10



221,710
**COMBINED COMB AND APPLICATOR FOR
 INSERTING NATURAL HAIR UNDER A
 WIG**
 Bruce B. Althoff, 7322 SW. 80th St. Plaza,
 Miami, Fla.
 Filed Aug. 6, 1970, Ser. No. 24,359
 Term of patent 14 years
 Int. Cl. D28-03
 U.S. Cl. D86-8



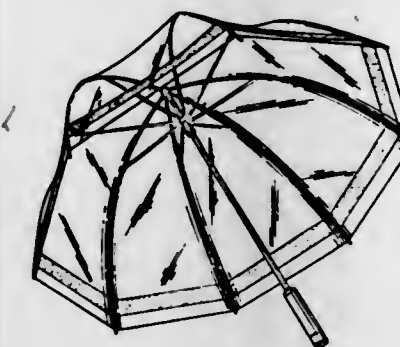
221,711
WIG BLOCK SUPPORT OR THE LIKE
 George J. D'Zamko, 529 11th Ave. N.,
 Jacksonville Beach, Fla. 32250
 Filed Apr. 27, 1970, Ser. No. 22,645
 Term of patent 14 years
 Int. Cl. D28-03
 U.S. Cl. D86-10



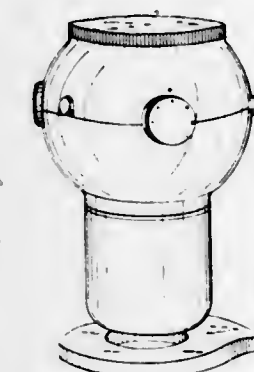
221,712
**APPLICATOR FOR INSERTING NATURAL
 HAIR UNDER A WIG**
 Bruce B. Althoff, 7322 SW. 80th St. Plaza,
 Miami, Fla.
 Filed Aug. 6, 1970, Ser. No. 24,358
 Term of patent 14 years
 Int. Cl. D28-03
 U.S. Cl. D86-10



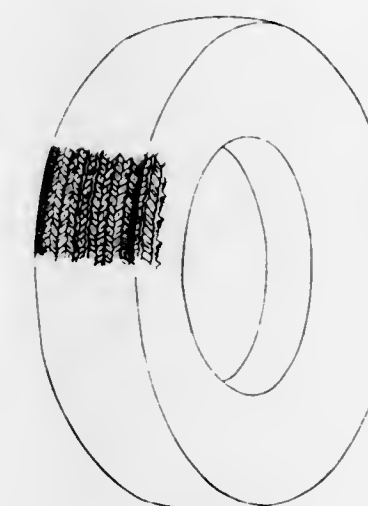
221,713
UMBRELLA
 Phillip Kates, Forest Hills, N.Y., assignor to Giant
 Umbrella Company, Inc., New York, N.Y.
 Filed Sept. 21, 1970, Ser. No. 25,091
 Term of patent 14 years
 Int. Cl. D3-03
 U.S. Cl. D88-3



221,714
COFFEE GRINDER OR SIMILAR ARTICLE
 Florian Seiffert, Schonberg, Aunus, Germany, assignor
 to Braun AG, Frankfurt am Main, Germany
 Filed Feb. 4, 1970, Ser. No. 21,264
 Claims priority, application Germany Aug. 4, 1969
 Term of patent 14 years
 Int. Cl. D7-04
 U.S. Cl. D89-1



221,715
PNEUMATIC TIRE
 Arthur C. Blankenship, Detroit, Mich., assignor to
 Uniroyal, Inc., New York, N.Y.
 Filed Jan. 13, 1970, Ser. No. 20,906
 Term of patent 14 years
 Int. Cl. D12-14
 U.S. Cl. D90-20



221,716
TIRE
 Samuel Wilkens, 966 Wateredge Place,
 Hewlett Harbor, N.Y. 11557
 Filed May 4, 1970, Ser. No. 22,791
 Term of patent 14 years
 Int. Cl. D12-14
 U.S. Cl. D90-20



**221,717
RAZOR**

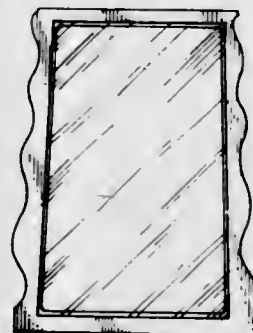
Norman D. Poisson, Marblehead, Mass., assignor to
The Gillette Company, Boston, Mass.
Filed Apr. 27, 1970, Ser. No. 22,671
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D95—3

**221,720
DISPLAY PANEL**

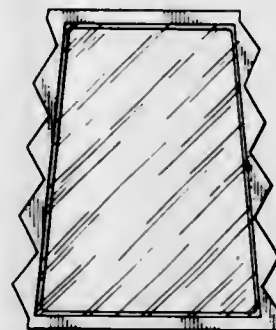
James L. Hoskins, 230 Hunter, Haysville, Kans. 67060
Filed Apr. 20, 1970, Ser. No. 22,518
Term of patent 14 years
Int. Cl. D20—03

U.S. Cl. D96—12

**221,721
DISPLAY PANEL**

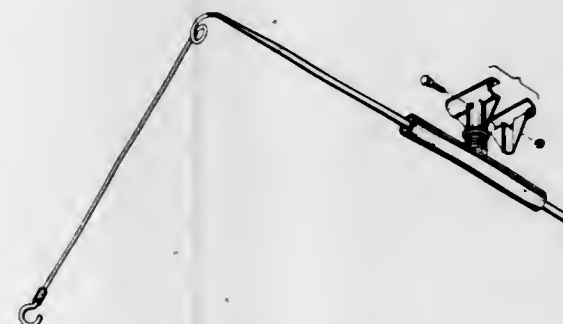
James L. Hoskins, 230 Hunter, Haysville, Kans. 67060
Filed Apr. 20, 1970, Ser. No. 22,521
Term of patent 14 years
Int. Cl. D20—03

U.S. Cl. D96—12

**221,722
MILKING MACHINE LINE HOLDER**

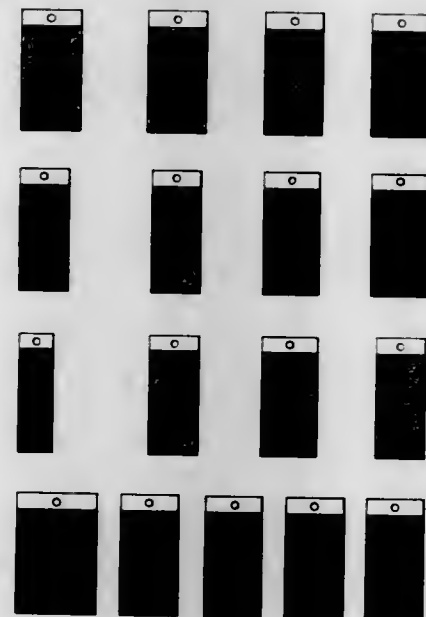
George W. Wilhite, Rte. 1, Kuna, Idaho 83634
Filed Mar. 2, 1970, Ser. No. 21,688
Term of patent 14 years
Int. Cl. D15—99; D6—99

U.S. Cl. D98—1

**221,718
SET OF SIGN PANEL LETTERS, NUMERALS
AND SYMBOLS**

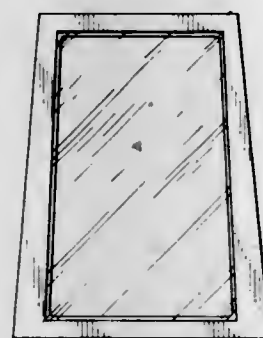
David D. Fishback, 223 S. St. Francis,
Wichita, Kans. 67202
Filed Jan. 5, 1970, Ser. No. 20,763
Term of patent 14 years
Int. Cl. D20—03

U.S. Cl. D96—12

**221,719
DISPLAY PANEL**

James L. Hoskins, 230 Hunter, Haysville, Kans. 67060
Filed Apr. 20, 1970, Ser. No. 22,517
Term of patent 14 years
Int. Cl. D20—03

U.S. Cl. D96—12

**LIST OF PATENTEEES**

TO WHOM

PATENTS WERE ISSUED ON THE 31ST DAY OF AUGUST, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Aarvold, Reinhardt Olaf; and Isaksson, Erik Holger, to Associated Cargo Gear AB. Hatch cover of the side-rolling type. 3,602,183, Cl. 114-202.
- AB Dixie Cup: See—
Brime, Gunnar A., 3,602,386.
- Abbott, Richard W.; and Montgomery, Samuel S., to Western Electric Company, Incorporated. Sensitivity or noise level measurement circuit and method. 3,602,819, Cl. 325-363.
- Abee, Donald M.; and Pressley, Arthur M., to Riegel Textile Corporation. Prefolded and sewn diaper and fabric therefor having improved wear resistance and moisture holding characteristics. 3,602,224, Cl. 128-284.
- Abercrombie, Richard A. Racing game with randomly accelerated drive elements. 3,602,508, Cl. 273-86.
- Abex Corporation: See—
Meisel, William M., 3,602,245.
- Abrams, Milton; and Singer, Melvin. Garment alteration means and methods. 3,601,817, Cl. 2-227.
- ACF Industries Incorporated: See—
Hammonds, James C., 3,602,469.
- Achs, Horst J., to Eaton Yale & Towne, Inc. Fire protection system. 3,602,313, Cl. 169-2.
- Acme Electric Corporation: See—
Randall, Ronald H., 3,602,804.
- Acme-Divac Industries Inc.: See—
Jarvis, Samuel M.; and Striegler, Julius P., 3,602,665.
- Adams, John R.; and Hill, Willis W., said Hill assor. to said Adams. Apparatus for preparing coatings with extrusions. 3,602,193, Cl. 118-315.
- Addressograph-Multigraph Corporation: See—
Fort Camp, James A., 3,602,137.
- Adelson, Alexander M.; and Swartz, Jerome, to Wild Rover Corporation. Switch with particular transverse deflection characteristics and movable contact plate with contact making wires attached. 3,602,677, Cl. 200-166.
- Adiska, Gary R.: See—
Sargent, Charles L.; Miller, Marshall W.; and Adiska, Gary R., 3,601,820.
- Adjusta-Post Manufacturing Company: See—
Patry, Leon R., 3,602,531.
- Admiral Corporation: See—
Poel, Lawrence R., 3,602,764.
- Aeroquip Corporation: See—
Elsner, Edwin C., 3,601,868.
- Metz, Francis L.; and Evans, Bryce B., 3,602,869.
- Roberts, Arnold E.; and Crissy, Charles F., 3,601,864.
- Aerotron Associates, Inc.: See—
Grant, John; and Longley, Miner R., 3,602,774.
- Afanador, Carlos P.: See—
Fannin, Chester N.; and Afanador, Carlos P., 3,602,328.
- Affel, John J., to International Telephone and Telegraph Corporation. Number wheel for counter or the like. 3,602,426, Cl. 235-1.
- AG-Chem Equipment Co., Inc.: See—
Monteith, Donald A.; and Robison, William G., 3,602,054.
- Agfa-Gevaert Aktiengesellschaft: See—
Fauth, Gunter, 3,602,122.
- Polke, Martin; and Stossel, Wolfgang, 3,602,599.
- Rumplein, Fritz; Kopf, Paul; and Landbrecht, Franz, 3,602,815.
- Winkler, Alfred; Thate, Kurt; and Theer, Anton, 3,602,583.
- Agrios, John P.; and Lipetz, Nathan, to United States of America. Army. Slot line nonreciprocal phase shifter. 3,602,845, Cl. 333-24.1
- Aileo, Jackson Anthony, to Genter Corporation. Safety helmet with two eye shields. 3,601,813, Cl. 2-6.
- Air Reduction Company, Incorporated: See—
Dao, James, 3,602,859.
- Sibley, Craig R., 3,602,688.
- Aisen Seiki Kabushiki Kaisha: See—
Sakashita, Hitoshi, 3,602,170.
- Aishin Seiki Kabushiki Kaisha: See—
Yamaguchi, Hirozi; and Hirozawa, Koichiro, 3,602,347.
- Aisin Seiki Kabushiki Kaisha: See—
Kazaoka, Kenichi, 3,602,019.
- Ajax Magnethermic Corporation: See—
Duca, William J.; and Tama, Mario, 3,602,625.
- Akermanis, Audreys O. Underwater cutting device. 3,601,956, Cl. 56-8.
- Aktiebolaget Motala Verkstad: See—
Carlsson, Bengt J.; and Sundberg, Mauritz R. G., 3,602,134.
- Akushsky, Izrail Yakovlevich; and Juditsky, Davlet Islam Gireevich. Apparatus for correcting errors in a residue code system. 3,602,704, Cl. 235-153.
- Alabaster, Leonard F. P., to Westell-Rosco Limited. Cantilever rack. 3,602,374, Cl. 211-176.
- Albert, William C., to Singer-General Precision, Inc. Fluid accelerometer. 3,602,049, Cl. 73-503.
- Alcan Research and Development Limited: See—
Muensterer, Horst, 3,602,448.
- Alden, Milton, to Alden Research Foundation. Scanner with copy-holding arms. 3,602,639, Cl. 178-7.1
- Alden Research Foundation: See—
Alden, Milton, 3,602,639.
- Alexander, Granison T., Jr., to Gem Tool Company. Blow-up preventer. 3,602,306, Cl. 166-217.
- Alexandrovich, George, to Fairchild Sound Equipment Corporation. Equalizer using light dependent resistors with fail-safe circuits. 3,602,831, Cl. 330-59.
- Allen, Robert J., to Ex-Cell-O Corporation. Machine for forming paperboard container bottom closure. 3,602,106, Cl. 93-44.1
- Allen, Wilbur G. Film processor with floating cover. 3,602,124, Cl. 95-89.
- Allen-Bradley Company: See—
Jerva, Ronald E.; and Kosem, Marion, 3,602,700.
- Allergan Pharmaceutical: See—
Brown, Frank E., 3,602,238.
- Allied Chemical Corporation: See—
Mac Donald, James, Jr.; Ballentine, Thomas F.; and Snider, Orville E., 3,602,014.
- Allis-Chalmers Manufacturing Company: See—
Pflanz, Herbert M.; and Ramrath, Joseph M., 3,602,671.
- Allport, Davies. Credit card imprinter with comparison and checking means. 3,602,139, Cl. 101-269.
- Altonji, John A.; and Lawrence, Murray D., to Potter Instrument Company, Inc. Air bearing for magnetic tape. 3,602,412, Cl. 226-97.
- Alvarez, Robert J., to General Electric Company. Combination ice cube and crushed ice dispenser. 3,602,441, Cl. 241-101.
- Alvarez, Robert J.: See—
Jacobus, Dwight W.; and Alvarez, Robert J., 3,602,406.
- Amendola, Dudley E., 37 1/2% each to Harlan, Robert W., and Colandona, George. Removable decorative shoe covering. 3,601,909, Cl. 36-54.
- American Air Filter Company, Inc.: See—
Gamble, Edward R., 3,602,536.
- Huntington, Robert G., 3,602,165.
- Peavler, James E., 3,602,004.
- American Can Company: See—
Rouse, John Wilson, 3,602,390.
- American Electric Manufacturing Corporation: See—
Starr, George N., 3,602,533.
- American Enka Corporation: See—
Potman, Hendrik; Eshuis, Jannes; and Sempel, Hendrinus, 3,601,872.
- American Optical Corporation: See—
Kawashima, Kin'ichi, 3,602,446.
- Nagao, Kazuyoshi; and Katsura, Akihiko, 3,602,445.
- Young, Charles Gilbert, 3,602,575.
- Young, Charles Gilbert, 3,602,836.
- American Stamping Co.: See—
Turner George L., 3,601,867.
- Ames, Robert G., to Bliss & Laughlin Industries, Incorporated. Flexible sealing strip extendible around an enclosed movable member of predetermined contour. 3,602,405, Cl. 222-386.
- Ammco Tools, Inc.: See—
Mitchell, Wallace F., 3,602,042.
- Amoco Production Company: See—
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- Anderl, Peter; Giesler, Rainer; Steibl, Theodor; and Roth, Johann, to Niezold & Kramer GmbH. Electromagnetic release arrangement for motion picture cameras. 3,602,584, Cl. 352-174.
- Anders, Roland A.: See—
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- Anderson, Elwin W., to Kiewit, Peter, Sons' Co. Scaffold erector. 3,602,382, Cl. 214-147.
- Anderson, Gerald R.; and Wann, William C., Jr., to FMC Corporation. Fruit orienting system. 3,602,281, Cl. 146-52.

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Bas, Willem; Tegel, Meindert Johan; and Kerkmeester, Hendrik Bertus, to U.S. Philips Corporation. Semiconductor device including a circuit arrangement of diodes, 3,602,775, Cl. 317-101.

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Bahout, Rene Henri Louis; and Gicquel, Pierre Raymond, to Societe pour l'Equiment des Industries Chimiques Speicher. Valve cap for an exchange column, 3,602,253, Cl. 137-513.5.

Bailey, Dunn M.; and Karbosky, Joseph T., to Phillips Petroleum Company. Fluid handling and storing of make-up refrigerant, 3,602,002, Cl. 62-53.

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Barrett, Charles W. Controllable self-cleaning vent for core boxes and the like, 3,602,293, Cl. 164-410.

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Bartholomaeus, Rainer; and Wolfges, Hans, to G. L. Eexeth Luhrer Eisenwerk G.m.b.H. Pressure switch arrangement, 3,602,664, Cl. 200-81.8.

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Barton, Bohumil; and Sedlecky, Jaromir, to Elitex. Apparatus for forming a knitted pile on a base fabric, 3,602,011, Cl. 66-85.

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Bleher, Johannes Hartmut, to Bosch, Robert, G.m.b.H. Voltage regulator, particularly for construction as an integrated circuit, 3,602,797, Cl. 322-28.

Bleicken, Eric V. Portable recompression chamber, 3,602,221, Cl. 128-204.

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- Borden, Douglas G.: *See—*
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- Hamb, Frederick L. Alpha-iodo ketones and photographic elements containing them. T889,019, 8-31-71, Cl. 96-88.
- Harblson, Judith M. Use of quinizarin as an image-forming dye developer. T889,017, 8-31-71, Cl. 96-29.
- Hyche, Kenneth W., and W. P. Thomsen. Method of attaching plastic shoes to animal hoofs. T889,004, 8-31-71, Cl. 168-4.
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- Peiffer, Harold E., and G. M. Reitter. Roller transport mechanism for a web of material. T889,028, 8-31-71, Cl. 226-189.
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33	3.602.358	151	3.602.414	152	3.602.481	254	3.602.740	348	3.602.817		3.602.910
38	3.602.359	188	3.602.415	254-150	3.602.482	257	3.602.741	363	3.602.818		3.602.911
40	3.602.360	196	3.602.416	157	3.602.483	264	3.602.742	364	3.602.819	350-3.5	3.602.912
103	3.602.361	199	3.602.417	259-6	3.602.484	278	3.602.743	464	3.602.820	7	3.602.913
128	3.602.362	227-3	3.602.418	102	3.602.485	293	3.602.744	465	3.602.821		3.602.914
140	3.602.363	147	3.602.419	110	3.602.486	308-9	3.602.745	466	3.602.822		3.602.915
193	3.602.364	228-1	3.602.420	263-19	3.602.487	77	3.602.746	467	3.602.823	148	3.602.916
223	3.602.365	3.602.421		32	3.602.488	122	3.602.747	468	3.602.824	151	3.602.917
200-11	3.602.656	229-3.5	3.602.422	266-33	3.602.491	135	3.602.748	469	3.602.825		3.602.918
43	3.602.657	232-17	3.602.423	39	3.602.492	187.1	3.602.749	470	3.602.826	160	3.602.919
48	3.602.658	35	3.602.424	267-161	3.602.493	238	3.602.750	471	3.602.827	161	3.602.920
50	3.602.659	233-1	3.602.425	269-296	3.602.494	310-8.7	3.602.751	472	3.602.828	215	3.602.921
61.05	3.602.661	235-1	3.602.426	270-18	3.602.495	13	3.602.752	473	3.602.829	269	3.602.922
5	3.602.660	60	3.602.427	31	3.602.496	55	3.602.753	474	3.602.830	351-6	3.602.923
62	3.602.662	61.11	3.602.428	12	3.602.497	68	3.602.754	475	3.602.831	15	3.602.924
67	3.602.663	110	3.602.429	14	3.602.498	71	3.602.755	476	3.602.832	352-13	3.602.925
81.8	3.602.664	7	3.602.430	53	3.602.499	102	3.602.756	477	3.602.833	40	3.602.926
84	3.602.665	92	3.602.431	272-10	3.602.500	154	3.602.757	478	3.602.834	136	3.602.927
86.5	3.602.666		3.602.432	18	3.602.501	168	3.602.758	479	3.602.835	174	3.602.928
144	3.602.667		3.602.433	54	3.602.502	312-107	3.602.759	480	3.602.836	216	3.602.929
146	3.602.668	150.1	3.602.701	58	3.602.503	119	3.602.760	481	3.602.837	243	3.602.930
148	3.602.669	151	3.602.702	69	3.602.504	189	3.602.761	482	3.602.838	353-21	3.602.931
	3.602.670	21	3.602.703	273-1	3.602.505	220	3.602.762	483	3.602.839	118	3.602.932
	3.602.672	153	3.602.704	5	3.602.506	237	3.602.763	484	3.602.840	14	3.602.933
150	3.602.671	175	3.602.705		3.602.507	242	3.602.764	485	3.602.841	40	3.602.934
153	3.602.673	193	3.602.706	35	3.602.508	257	3.602.765	486	3.602.842	53	3.602.935
	3.602.674	195	3.602.707	37	3.602.509	274	3.602.766	487	3.602.843	77	3.602.936
161	3.602.675	236-82	3.602.427	86	3.602.510	314	3.602.767	488	3.602.844	356-2	3.602.937
162	3.602.676	93	3.602.428	100	3.602.511	313-63	3.602.768	489	3.602.845	5	3.602.938
166	3.602.677	237-9	3.602.429	102.2	3.602.512	92	3.602.769	490	3.602.846	36	3.602.939
167	3.602.678	238-10	3.602.430	105.6	3.602.513	108	3.602.770	491	3.602.847	51	3.602.940
168	3.602.679	239-101	3.602.431	135	3.602.514	109	3.602.771	492	3.602.848	117	3.602.941
170	3.602.680	265.11	3.602.432		3.602.515		3.602.772	493	3.602.849	167	3.602.942
172	3.602.681	276	3.602.433	137	3.602.516		3.602.773	494	3.602.850	206	3.602.943
206-16	3.602.366	424	3.602.434	139	3.602.517	5	3.602.774	495	3.602.851	401-115	3.602.944
62	3.602.367	551	3.602.435	177	3.602.518	112	3.602.775	496	3.602.852	190	3.602.945
65	3.602.368	553.3	3.602.436	274-4	3.602.519	179	3.602.776	497	3.602.853	415-9	3.602.946
209-73	3.602.369	240-8.16	3.602.708	10	3.602.520	222	3.602.777	498	3.602.854	38	3.602.947
211-49	3.602.370	241-21	3.602.437	24	3.602.521	238	3.602.778	499	3.602.855	72	3.602.948
74	3.602.371		3.602.438	277-27	3.602.522	309	3.602.779	500	3.602.856	116	3.602.949
100	3.602.372	39	3.602.439	279-1	3.602.523	315-3.5	3.602.780	501	3.602.857	416-184	3.602.950
175	3.602.373	46.11	3.602.440	280-5.22	3.602.524	13	3.602.781	502	3.602.858	224	3.602.951
176	3.602.374	101	3.602.441	20.6	3.602.525	18	3.602.782	503	3.602.859	417-12	3.602.952
212-14	3.602.375	110	3.602.442	104.5	3.602.526	27	3.602.783	504	3.602.860	78	3.602.953
214-1	3.602.376	175	3.602.443	112	3.602.527	31	3.602.784	505	3.602.861	102	3.602.954
8.5	3.602.377	190	3.602.444	124	3.602.528	211	3.602.785	506	3.602.862	148	3.602.955
	3.602.378	242-18	3.602.445	150	3.602.529	317-11	3.602.786	507	3.602.863	437	3.602.956
16.4	3.602.379		3.602.446		3.602.530	13	3.602.787	508	3.602.864	461	3.602.957
17	3.602.380	43	3.602.447		3.602.531	18	3.602.788	509	3.602.865	481-61	3.602.958
77	3.602.381	55	3.602.448	293	3.602.532	33	3.602.789	510	3.602.866	170	3.602.959
147	3.602.382		3.602.449	406	3.602.533		3.602.790	511	3.602.867	199	3.602.960
307	3.602.383	53	3.602.450	285-4	3.602.534		3.602.791	512	3.602.868	431-93	3.602.961
506	3.602.384	74.2	3.602.451	177	3.602.535	100	3.602.792	513	3.602.869		

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3.602.267	3.602.174	3.602.634	3.602.068	3.602.433	3.602.643
3.602.342	3.602.175	3.602.653	3.602.087	3.602.474	3.602.701
3.602.501	3.602.180	3.602.655	3.602.210	3.602.477	3.602.713
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3.602.624	3.602.203	3.602.669	3.602.329	3.602.484	3.602.764
3.602.720	3.602.228	3.602.672	3.602.366	3.602.535	3.602.771
3 : 3.601.845	3.602.238	3.602.684	3.602.404	3.602.540	3.602.784
3.602.056	3.602.244	3.602.693	3.602.416	3.602.542	3.602.842
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3.602.545	3.602.281	3.602.733	3.602.544	3.601.838	3.601.862
5 : 3.601.919	3.602.282	3.602.736	3.602.556	3.601.842	3.601.875
3.602.086	3.602.284	3.602.750	3.602.596	3.601.896	3.601.960
3.602.200	3.602.299	3.602.766	3.602.646	3.602.257	3.602.257
6 : 3.601.814	3.602.316	3.602.769	3.602.723	3.601.921	3.602.344
3.601.815	3.602.319	3.602.773	3.602.725	3.601.942	3.602.361
3.601.819	3.602.326	3.602.782	3.602.836	3.601.958	3.602.362
3.601.822	3.602.337	3.602.792	3.602.886	3.601.973	3.602.367
3.601.825	3.602.351	3.602.801	3.602.901	3.602.007	3.602.391
3.601.827	3.602.365	3.602.820	3.602.909	3.602.009	3.602.438
3.601.828	3.602.365	3.602.825	3.602.926	3.602.026	3.602.481
3.601.863	3.602.376	3.602.828	3.602.934	3.602.034	3.602.523
3.601.868	3.602.381	3.602.832	3.602.938	3.602.038	3.602.534
3.601.893	3.602.396	3.602.837	3.602.942	3.602.042	3.602.648
3.601.898	3.602.405	3.602.855	3.601.890	3.602.051	3.602.656
3.601.901	3.602.415	3.602.859	3.601.956	3.602.063	3.602.678
3.601.903	3.602.419	3.602.861	3.601.961	3.602.096	3.602.692
3.601.909	3.602.425	3.602.864	3.601.963	3.602.107	3.602.821
3.601.910	3.602.425	3.602.873	3.602.179	3.602.113	3.602.822
3.601.912	3.602.426	3.602.875	3.602.237	3.602.159	3.602.823
3.601.913	3.602.434	3.602.879	3.602.389	3.602.190	3.602.857
3.601.933	3.602.436	3.602.881	3.602.431	3.602.214	3.602.858
3.601.944	3.602.443	3.602.885	3.602.432	3.602.226	3.602.860
3.601.964	3.602.451	3.602.890	3.602.447	3.602.242	3.602.868
3.601.965	3.602.468	3.602.892	3.602.466	3.602.252	3.602.895
3.601.992	3.602.470	3.602.903	3.602.513	3.602.254	3.602.920
3.602.003	3.602.488	3.602.900	3.602.522	3.602.255	3.602.930
3.602.037	3.602.498	3.602.907	3.602.613	3.602.255	3.601.938
3.602.046	3.602.510	3.602.919	3.602.654	3.602.313	3.602.130
3.602.065	3.602.528	3.602.176	3.602.712	3.602.387	3.602.247
3.602.071	3.602.529	3.602.177	3.602.808	3.602.401	3.602.380
3.602.077	3.602.540	3.602.215	3.601.849	3.602.427	3.601.880
3.602.084	3.602.548	3.602.222	3.601.873	3.602.442	3.602.079
3.602.098	3.602.558	3.602.483	3.601.904	3.602.475	3.602.123
3.602.103	3.602.565	3.602.552	3.601.925	3.602.492	3.602.165
3.602.124	3.602.573	3.602.587	3.601.994	3.602.505	3.602.236
3.602.139	3.602.579	3.602.588	3.602.140	3.602.520	3.602.236
	3.602.589	3.602.040	3.602.191	3.602.601	3.602.441

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3.602.072	3.602.106	3.602.272	3.602.724	3.602.662	3.602.685
3.602.218	3.602.114	3.602.287	3.602.730	3.602.668	3.602.686
3.602.306	3.602.131	3.602.288	3.602.744	3.602.681	3.602.689
3.602.317	3.602.150	3.602.298	3.602.753	3.602.687	3.602.710
3.602.437	3.602.156	3.602.356	3.602.765	3.602.700	3.602.711
24 : 3.601.887	3.602.187	3.602.390	3.602.795	3.602.746	3.602.715
3.601.940	3.602.207	3.602.463	3.602.796	3.602.752	3.602.739
3.602.102	3.602.251	3.602.500	3.602.797	3.602.754	3.602.741
3.602.143	3.602.289	3.602.516	3.602.804	3.602.806	3.602.751
3.602.186	3.602.293	3.602.542	3.602.810	3.602.807	3.602.777
3.602.291	3.602.373	3.602.550	3.602.831	3.602.863	3.602.783
3.602.300	3.602.377	3.602.555	3.602.834	3.602.871	3.602.814
3.602.302	3.602.424	3.602.623	3.602.838	3.602.904	3.602.833
3.602.393	3.602.504	3.602.688	3.602.841	3.602.911	3.602.844
3.602.429	3.602.526	3.602.706	3.602.851	3.601.947	3.602.850
3.602.508	3.602.527	3.602.755	3.602.853	3.602.002	3.602.856
3.602.514	3.602.530	3.602.756	3.602.876	3.602.031	3.602.870
3.602.571	3.602.546	3.602.757	3.602.887	3.602.301	3.602.872
3.602.572	3.602.547	3.602.758	3.602.895	3.602.303	3.602.909
3.602.577	3.602.553	3.602.759	3.602.899	3.602.304	3.602.311
3.602.690	3.602.593	3.602.770	3.602.906	3.602.308	3.602.014
3.602.705	3.602.615	3.602.776	3.602.912	3.602.309	3.602.146
3.602.794	3.602.638	3.602.780	3.602.912	3.602.320	3.602.224
3.602.799	3.602.745	3.602.791	3.601.841	3.602.330	3.602.541
3.602.826	3.602.749	3.602.800	3.601.959	3.602.448	3.602.727
3.602.849	3.602.790	3.602.802	3.602.012	3.602.453	3.602.278
25 : 3.601.929	3.602.803	3.602.812	3.602.022	3.602.743	3.601.846
3.601.930	3.602.811	3.602.830	3.602.057	3.601.911	3.602.162
3.601.931	3.602.869	3.602.839	3.602.161	3.601.915	3.602.185
3.601.970	3.602.906	3.602.845	3.602.270	3.602.039	3.602.241
3.602.028	3.602.928	3.602.846	3.602.456	3.602.193	3.602.494
3.602.091	3.602.166	3.602.896	3.602.458	3.602.440	3.602.533
3.602.092	3.602.363	3.601.920	3.602.729	3.601.817	3.602.763
3.602.116	3.602.452	3.602.742	3.602.819	3.601.884	3.601.914
3.602.221	3.602.462	3.601.879	3.602.829	3.601.855	3.601.979
3.602.264	3.602.707	3.601.888	3.601.854	3.601.884	3.601.999
3.602.273	3.602.728	3.601.894	3.601.856	3.601.885	3.602.033
3.602.364	3.602.894	3.601.895	3.601.856	3.601.885	3.602.133
3.602.418	3.602.897	3.601.905	3.601.869	3.601.926	3.602.017
3.602.449	3.602.905	3.601.916	3.601.892	3.601.932	3.602.035
3.602.476	3.601.882	3.601.917	3.601.926	3.602.017	3.602.157
3.602.521	3.602.181	3.601.928	3.601.932	3.602.035	3.602.172
3.602.566	3.601.908	3.601.946	3.602.001	3.602.036	3.602.182
3.602.569	3.601.949	3.601.948	3.602.006	3.602.061	3.602.280
3.602.602	3.602.004	3.601.954	3.602.008	3.602.108	3.602.305
3.602.609	3.602.105	3.602.005	3.602.015	3.602.141	3.602.322
3.602.610	3.602.149	3.602.047	3.602.024	3.602.144	3.602.323
3.602.632	3.602.198	3.602.082	3.602.043	3.602.148	3.602.490
3.602.633	3.602.199	3.602.117	3.602.044	3.602.163	3.602.525
3.602.639	3.602.378	3.602.119	3.602.062	3.602.169	3.602.695
3.602.651	3.602.423	3.602.120	3.602.081	3.602.225	3.602.827
3.602.671	3.602.469	3.602.121	3.602.104	3.602.233	3.602.865
3.602.696	3.602.536	3.602.129	3.602.110	3.602.261	3.602.878
3.602.735	3.602.679	3.602.138	3.602.132	3.602.283	49 : 3.601.834
3.602.761	3.602.726	3.602.154	3.602.135	3.602.296	3.602.702
3.602.848	3.602.891	3.602.192	3.602.137	3.602.368	51 : 3.601.952
3.602.852	3.602.852	3.602.223	3.602.145	3.602.372	3.601.953
3.602.862	3.602.852	3.602.231	3.602.158	3.602.399	3.601.982
3.602.866	3.602.866	3.602.235	3.602.205	3.602.403	3.601.984
3.602.874	3.602.874	3.602.240	3.602.243	3.602.410	3.601.986
3.602.884	3.602.884	3.602.262	3.602.259	3.602.461	3.602.090
3.602.889	3.602.889	3.602.271	3.602.271	3.602.467	3.602.394
3.601.820	3.602.933	3.602.315	3.602.277	3.602.471	3.602.698
3.601.864	3.602.767	3.602.324	3.602.315	3.602.478	3.602.740
3.601.867	3.602.768	3.602.328	3.602.324	3.602.479	53 : 3.601.922
3.601.876	3.602.774	3.602.335	3.602.328	3.602.480	3.602.115
3.601.878	3.602.774	3.602.336	3.602.335	3.602.485	3.602.382
3.601.883	3.602.817	3.602.336	3.602.336	3.602.487	3.602.877
3.601.935	3.602.824	3.602.338	3.602.338	3.602.489	54 : 3.602.196
3.601.937	3.601.821	3.602.340	3.602.340	3.602.515	3.602.551
3.601.950	3.601.829	3.602.346	3.602.346	3.602.564	3.601.818
3.601.956	3.601.832	3.602.379	3.602.379	3.602.580	3.602.027
3.602.010	3.601.891	3.602.384	3.602.384	3.602.605	3.602.080
3.602.018	3.602.023	3.602.408	3.602.408	3.602.629	3.602.194
3.602.032	3.602.049	3.602.594	3.602.493	3.602.631	3.602.260
3.602.041	3.602.125	3.602.607	3.602.509	3.602.636	3.602.375
3.602.041	3.602.136	3.602.618	3.602.531	3.602.659	3.602.703
3.602.055	3.602.152	3.602.635	3.602.590	3.602.660	3.602.762
3.602.064	3.602.164	3.602.677			

4 : 221.666	12 : 221.711	21 : 221.623	29 : 221.718	36 : 221.688	42 : 221.674
6 : 221.614	22 : 221.712	22 : 221.651	34 : 221.619	221.697	221.689
221.627	16 : 221.643	24 : 221.633	221.675	221.713	221.690
221.634	221.722	25 : 221.658	221.703	221.716	221.707
221.635	17 : 221.626	221.677	35 : 221.708	39 : 221.612	45 : 221.624
221.640	221.698	221.678	36 : 221.617	221.616	47 : 221.647
221.661	221.701	221.704	221.621	221.652	48 : 221.610
221.693	221.702	221.717	221.622	221.683	221.656
221.694	18 : 221.641	26 : 221.639	221.657	221.706	221.671
221.696	19 : 221.630	221.648	221.659	42 : 221.615	221.679
221.705	221.667	221.649	221.662	221.618	221.680
8 : 221.673	221.695	221.660	221.669	221.632	50 : 221.628
9 : 221.620	20 : 221.685	221.715	221.676	221.650	51 : 221.691
12 : 221.631	221.719	27 : 221.611	221.684	221.653	53 : 221.642
221.672	221.720	221.668	221.686	221.655	221.644
221.681	221.721	29 : 221.625	221.687	221.670	221.645
221.710					

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11 : T889.011	10 : T889.026	36 : T889.015	36 : T889.020	36 : T889.027	46 : T889.004
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